

3rd Cycle Draft Ovoca-Vartry Catchment Report (HA 10)



Catchment Science & Management Unit

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Preface

This document provides a summary of the water quality assessment outcomes for the Ovoca-Vartry 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.
2 nd 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 nd 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 rd 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 rd 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.

Table of Contents

1	Introduction.....	6
2	Waterbody Overview	7
2.1	Waterbody Status	7
2.2	Protected Areas	9
2.3	Heavily Modified Waterbodies.....	12
2.4	Artificial Waterbodies.....	12
3	Waterbody Risk	13
3.1	Overview of Risk.....	13
3.2	Surface Waters	13
3.3	Groundwater	15
3.4	Heavily Modified Waterbodies.....	17
3.5	Artificial Waterbodies.....	17
4	Significant Issues in <i>At Risk</i> Waterbodies.....	17
4.1	All Waterbodies	17
4.2	High Status Objective Waterbodies	18
5	Significant pressures in <i>At Risk</i> Waterbodies.....	19
5.1	All Waterbodies	19
5.2	High Status Objective Waterbodies	25
6	Source Load Apportionment Modelling (SLAM).....	25
7	Load Reduction Assessment.....	26
7.1	Nitrogen Load Reduction.....	26
7.2	Phosphorus / Sediment Load Reduction	26
8	2 nd Cycle Areas for Action	27
8.1	Area for Action Overview	27
8.2	Status Change in 2 nd Cycle Areas for Action.....	29
8.3	Waterbody Risk in 2 nd Cycle Areas for Action	30
8.4	Significant Issues in 2 nd Cycle Areas for Action	31
8.5	Significant Pressure in 2 nd Cycle Areas for Action	31
9	3 rd Cycle Recommended Areas for Action	32
9.1	Recommended Areas for Action Overview.....	32
10	Catchment Summary.....	34

List of Figures

Figure 1: Overview of subcatchments in the Ovoca-Vartry catchment.....	6
Figure 2: Waterbody types and numbers in the Ovoca-Vartry Catchment.....	7
Figure 3: Waterbody Status Breakdown (All waterbodies).....	8
Figure 4: Status Class Changes between Cycle 2 and Cycle 3.....	9
Figure 5: Protected Areas – Public Health.....	10
Figure 6: Water Dependent SPAs / SACs and Salmonid Waters.....	12
Figure 7: Number of waterbodies in each risk category.....	14
Figure 8: Surface Water Risk Cycle 3.....	14
Figure 9: Surface Water Risk Change between Cycle 2 and Cycle 3.....	15
Figure 10: Cycle 3 Groundwater Body Risk.....	16
Figure 11: Groundwater Body Risk Change between Cycle 2 & Cycle 3.....	16
Figure 12: Significant Issues across all <i>At Risk</i> WBs between Cycle 2 and Cycle 3.....	18
Figure 13: Significant Issues in <i>At Risk</i> High Status Objective Waterbodies.....	19
Figure 14: Significant Pressure (All <i>At Risk</i> Waterbodies).....	20
Figure 15: Locations of Waterbodies where Significant Pressures fall under the “Other” category....	24
Figure 16: Locations of Waterbodies where Agriculture is a Significant Pressure.....	24
Figure 17: Locations of Waterbodies where Urban Run-off is a Significant Pressure.....	24
Figure 18: Locations of Waterbodies where Forestry is a Significant Pressure.....	24
Figure 19: Significant Pressure in <i>At Risk</i> High Status Objective Waterbodies.....	25
Figure 20: Estimated Proportions of N & P from Each Sector in the Ovoca-Vartry Catchment.....	26
Figure 21: Waterbodies where Agricultural Measures should be Targeted.....	27
Figure 22: 2 nd Cycle Areas for Action Locations.....	28
Figure 23: 2 nd Cycle Area for Action Waterbody Status Class Changes between Cycle 2 and Cycle 3.....	30
Figure 24: Number of waterbodies in each risk category in 2 nd Cycle Areas for Action.....	30
Figure 25: Significant Issues across all 2 nd Cycle Areas for Action Waterbodies.....	31
Figure 26: Significant Pressures in 2 nd Cycle Area for Action Waterbodies.....	32
Figure 27: 3 rd Cycle Recommended Areas for Action Locations.....	33

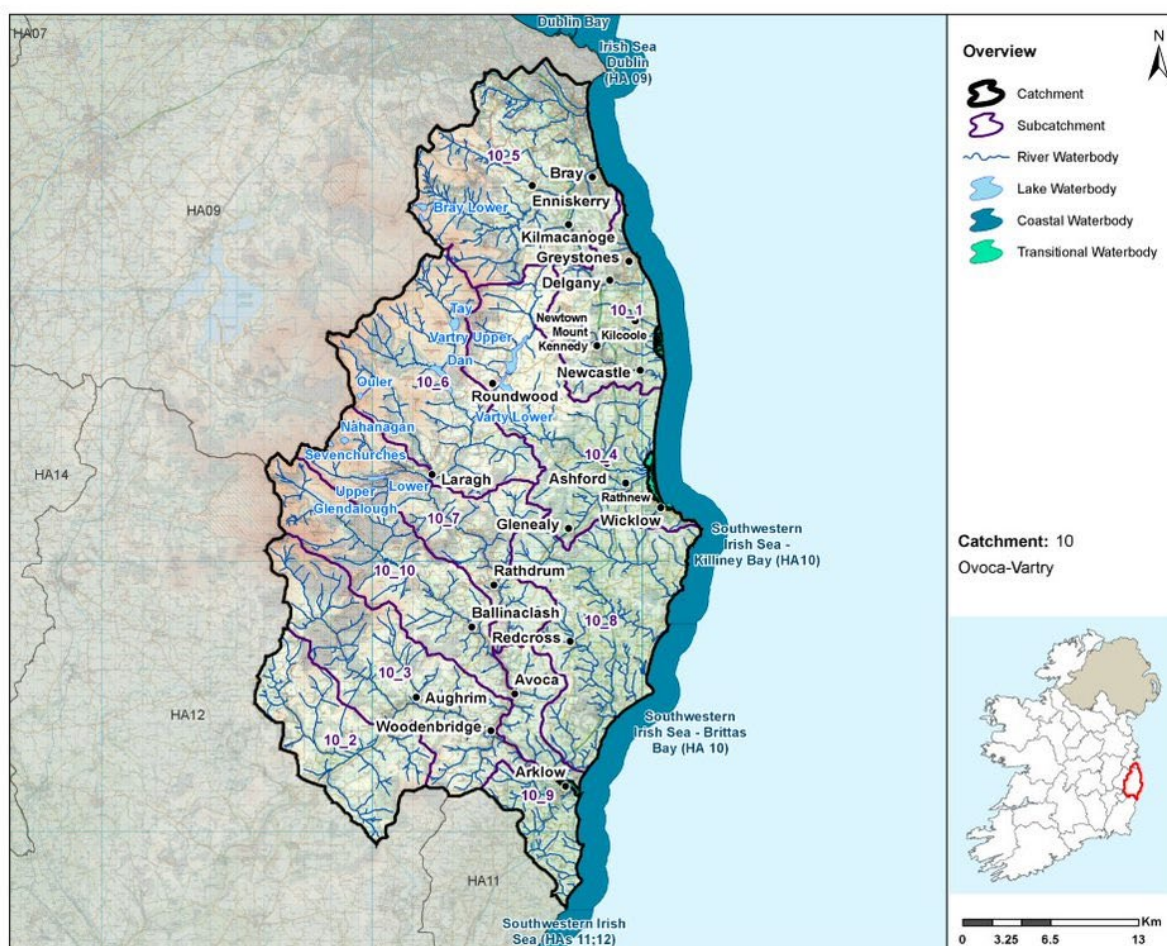
List of Tables

Table 1: Waterbody Status Breakdown Table (All Waterbodies).....	8
Table 2: Natura 2000 Network Assessment Summary.....	11
Table 3: Urban Waste Water Treatment Agglomerations identified as significant pressures in <i>At Risk</i> waterbodies in Cycle 3.....	21
Table 4: Breakdown of Cycle 3 Industry Significant Pressures in the Ovoca-Vartry Catchment.....	23
Table 5: 2 nd Cycle Areas for Action.....	28
Table 6: 3 rd Cycle Recommended Areas for Action Breakdown.....	33

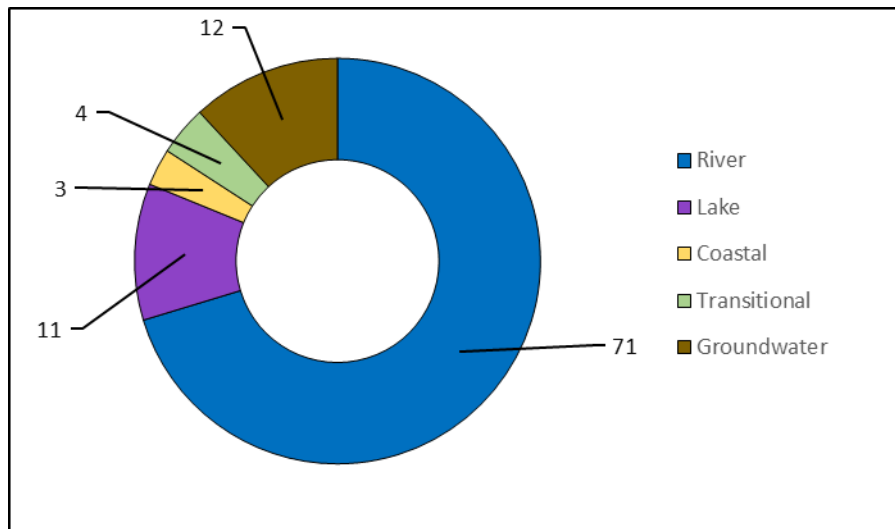
1 Introduction

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 Ovoca-Vartry 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 Ovoca-Vartry catchment includes the area drained by the Rivers Avoca and Vartry and by all streams entering tidal water between Sorrento Point, Co. Dublin and Kilmichael Point, Co. Wexford, draining a total area of 1,247km² (Figure 1). The largest urban centre in the catchment is Bray. The other main urban centres in this catchment are Dun Laoghaire-Rathdown, Arklow, Wicklow Town, Rathnew, Newtown Mount Kennedy, Greystones, Delgany and Kilcoole. The total population of the catchment is approximately 179,100 with a population density of 144 people per km². The higher areas of the Wicklow Mountains are underlain by granite bedrock while metamorphic slates and quartzites underlie the eastern coastal part of the catchment.



The Ovoca-Vartry catchment is divided into 10 subcatchments (Figure 1) with 71 river waterbodies, 11 lake waterbodies, 4 transitional waterbodies, 3 coastal waterbodies and 12 groundwater bodies (Figure 2).



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 8 waterbodies achieving High Status, 46 achieving Good Status, 18 achieving Moderate Status, 9 achieving Poor Status and there are 2 Bad Status waterbodies. All waterbodies must achieve at least Good Ecological Status.
- ◆ There are 7 river waterbodies and 1 coastal waterbody that must achieve High Ecological Status (HES) in this catchment. These waterbodies are listed in Appendix 1. Of the 8 HES Environmental Objective waterbodies, 4 waterbodies are achieving High Status (3 river waterbodies and 1 coastal waterbody) and 4 waterbodies are at Good Status.
- ◆ There has been an increase of 3 waterbodies (2 river waterbodies and 1 lake waterbody) achieving High Status and 1 river waterbody achieving Bad Status between Cycle 2 and Cycle 3. Four waterbodies are achieving Moderate Status (Figure 3 & Table 1).

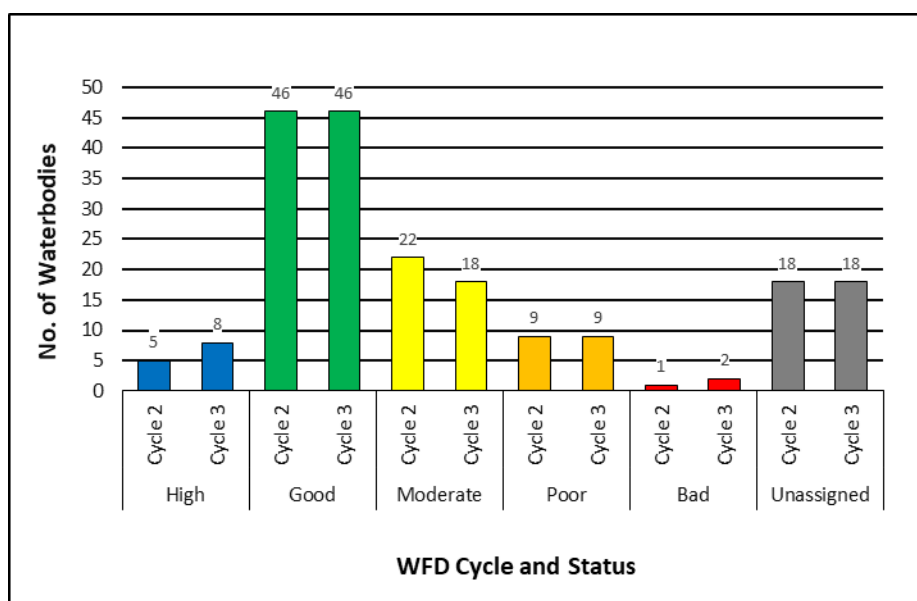


Table 1: Waterbody Status Breakdown Table (All Waterbodies)

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	4	6	0	1	0	0	1	1	0	0	5	8
Good	35	36	2	2	0	0	1	0	8	8	46	46
Moderate	17	13	3	2	2	2	0	1	0	0	22	18
Poor	5	5	0	0	0	0	0	0	4	4	9	9
Bad	1	2	0	0	0	0	0	0	0	0	1	2
Un-assigned	9	9	6	6	2	2	1	1	0	0	18	18
Total	71	71	11	11	4	4	3	3	12	12	101	101

- ◆ 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 13 (16%) waterbodies have improved in status, 61 (73%) waterbodies have remained unchanged and 9 (11%) waterbodies have declined in status.¹
- ◆ There is an overall improvement in the status of 4 waterbodies across the catchment since the Cycle 2 assessment.

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

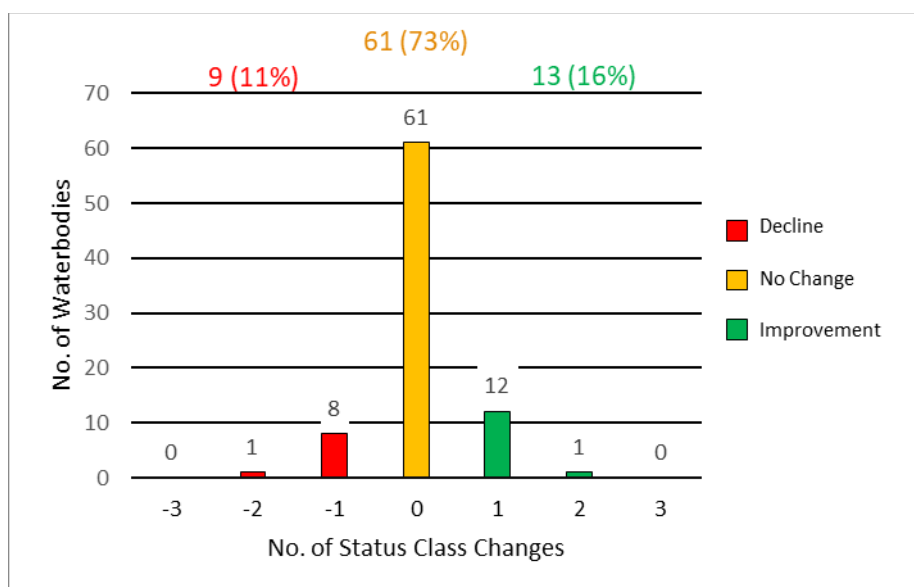


Figure 4: Status Class Changes between Cycle 2 and Cycle 3

2.2 Protected Areas

2.2.1 Drinking Water

- ◆ There are 10 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 DWPA 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](#)² and [Private Supplies](#)³.

2.2.2 Bathing Waters

- ◆ There are 8 bathing waters in or directly adjacent to the catchment identified under the Bathing Water Regulations 2008.
- ◆ 7 of the 8 Bathing waters had an Excellent classification for 2020 and the remaining bathing water (Silver Strand) had a Good classification.
- ◆ For more detailed information please see the EPA report on [bathing water quality in 2020](#)⁴.

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

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

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

2.2.3 Shellfish Areas

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

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

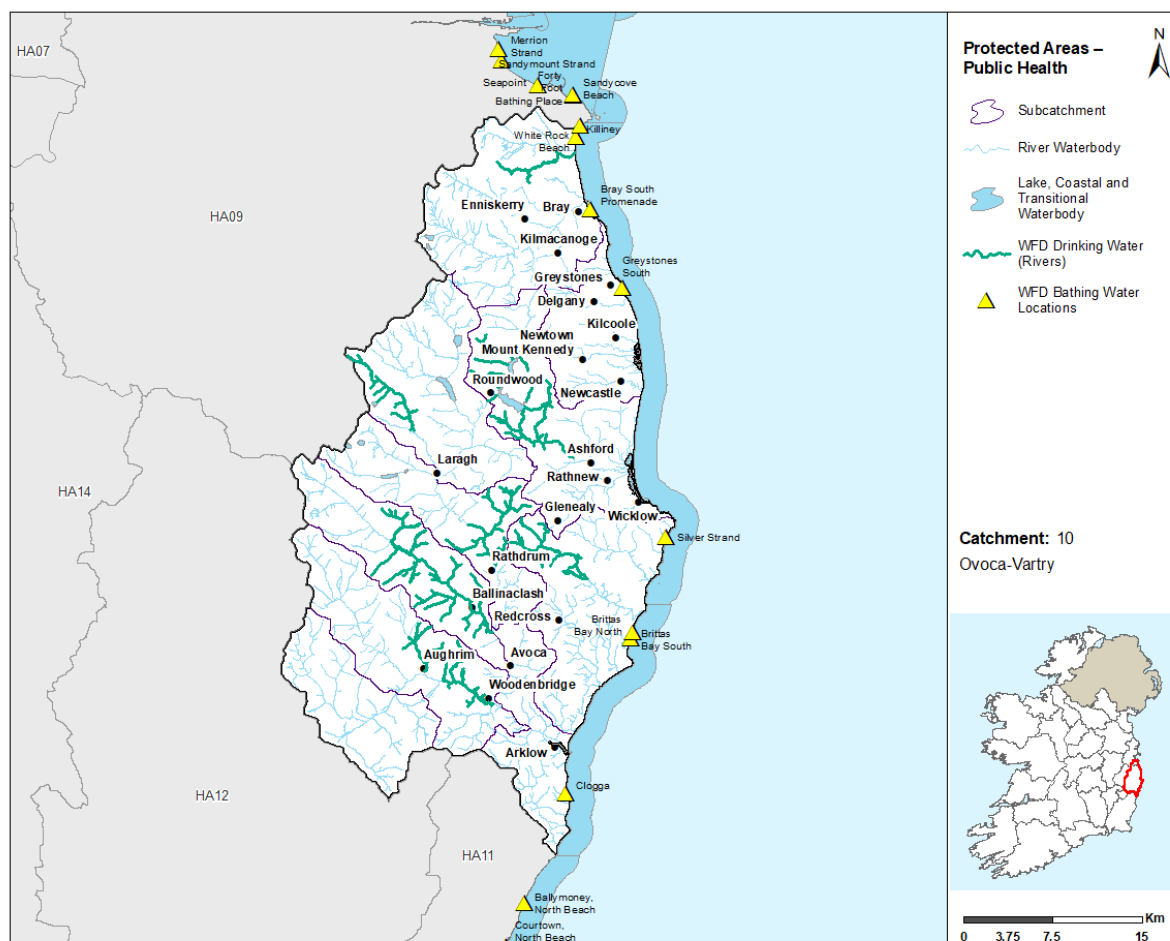


Figure 5: Protected Areas – Public Health

2.2.4 Natura 2000 Sites and Salmonid Waters

- ◆ 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 12 SACs in this catchment, 9 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).⁵

Table 2: Natura 2000 Network Assessment Summary

Water Body Type	Total No.	Meeting the Requirements	Did not meet the Requirements	Unknown*
Rivers	19	17	2	0
Lakes	7	5	2	0
Transitional & Coastal	2	1	1	0

**As the waterbody status was unassigned.*

- ◆ There are no river waterbodies with FWPM habitats in the catchment.
- ◆ There are 2 groundwater bodies delineated and assessed as Groundwater Dependent Terrestrial Ecosystems for this catchment, both associated groundwater bodies (IE_EA_G_081 & IE_EA_G_084) are at Good Status.
- ◆ Water dependent SACs/ SPAs (including FWPM SAC sub-catchments) and salmonid waters in the catchment are illustrated in Figure 6.

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

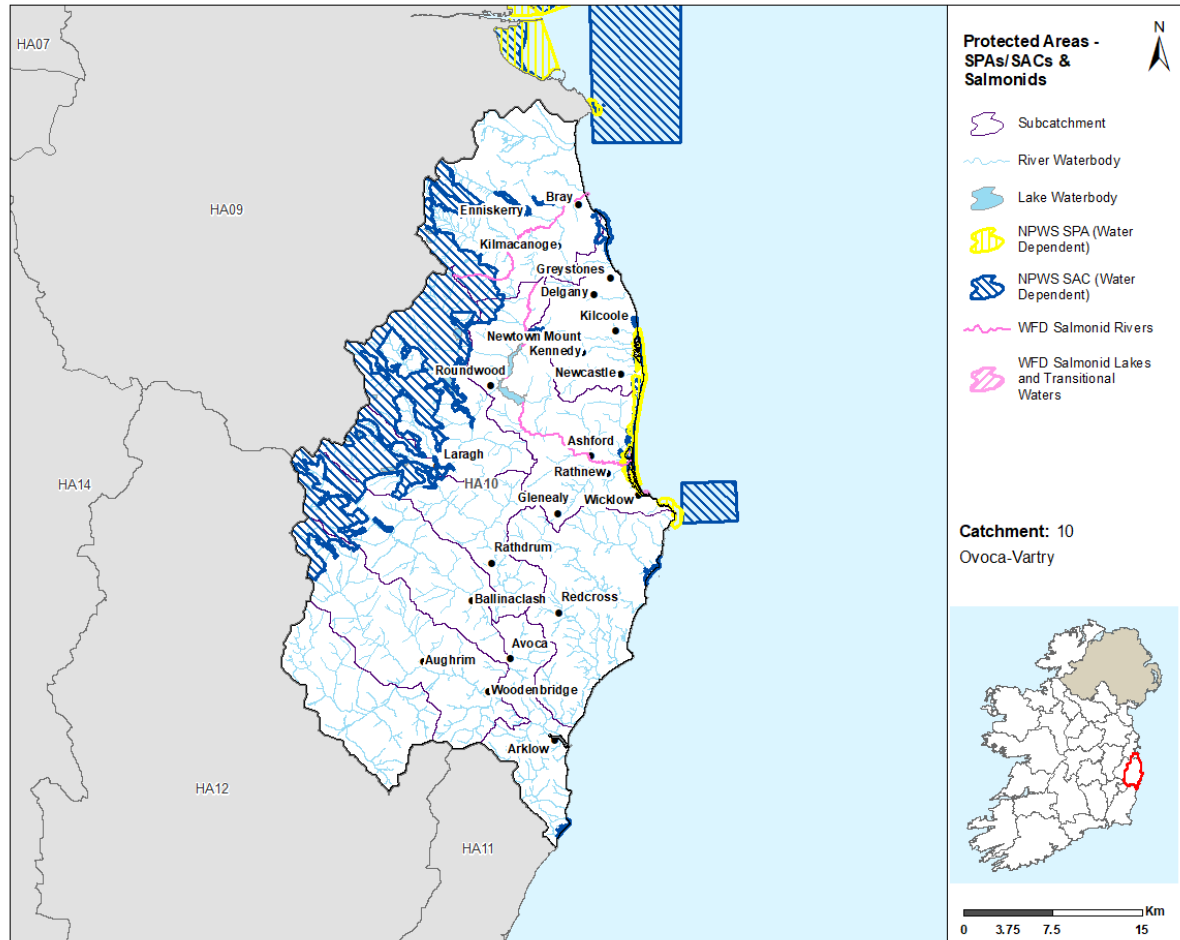


Figure 6: Water Dependent SPAs/ SACs and Salmonid Waters

2.2.5 Nutrient Sensitive Areas

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

2.3 Heavily Modified Waterbodies

- ◆ Based on the 1st and 2nd RBMPs there are currently 4 designated heavily modified water body (HMWB) in the Ovoca - Vartry catchment: Vartry_020, Vartry Lower and Vartry Upper due to the presence of a drinking water abstraction; and Nahanagan due to power generation. Vartry_020 and Vartry Lower were classified as having Good Ecological Potential in 2013-18, while Vartry Upper and Nahanagan were unassigned. There will be a consultation period on HMWBs for the 3rd Cycle RBMP and this will be completed for inclusion in the 3rd Cycle Final RBMP.

2.4 Artificial Waterbodies

- ◆ There are no Artificial Waterbodies (AWBs) present in the Ovoca - Vartry Catchment.

3 Waterbody Risk

3.1 Overview of Risk

- ◆ A waterbody that is *At Risk* means that either the waterbody is currently not achieving its Water Framework Directive (WFD) environmental objective of Good or High Ecological Status or that there is an upward trend in nutrients or ammonia and if this trend continues the waterbody Status will decline by the end of Cycle 3 and will fail to meet its environmental objective.
- ◆ A waterbody can be considered as *Review* for the following three reasons:
 - The waterbody does not have status assigned to it yet, it is referred to as an unassigned waterbody, and therefore there is not enough evidence to determine if it is *At Risk* or *Not At Risk*.
 - The waterbody has shown some slight evidence or improvement, but more evidence is needed before it can be considered as *Not At Risk*.
 - Measures are planned or have already been implemented for the waterbody and no further measures should be applied until there is enough time to assess if these measures are working.
- ◆ A waterbody is *Not At Risk* when it is achieving its environmental objective of either High or Good Status and that there is no evidence indicating that there is a trend towards status decline.
- ◆ In total there are 101 waterbodies in the Ovoca-Vartry Catchment and 35 (35%) of these are currently *At Risk*, 20 (20%) in *Review* and 46 (46%) are *Not At Risk*.

3.2 Surface Waters

- ◆ For the 71 rivers waterbodies, 35 (49%) are *Not At Risk*, 12 (17%) are in *Review* and 24 (34%) are *At Risk*.
- ◆ For the 11 lake waterbodies, 2 (18%) are *At Risk*, 4 (36%) are in *Review* and 5 (45%) are *Not At Risk*. Lough Tay and Lough Dan are the lake waterbodies *At Risk*.
- ◆ For the 4 transitional waterbodies, 2 (50%) is *At Risk* and 2 (50%) are in *Review*. The *At Risk* transitional waterbodies are Broad Lough and Avoca Estuary.
- ◆ For the 3 coastal waterbodies, 1 (33%) is *At Risk* and 2 (67%) are *Not At Risk*. The Southwestern Irish Sea (HAs 11;12) is the *At Risk* waterbody in the catchment.
- ◆ The largest proportion of *At Risk* waterbodies are found in rivers, accounting for 24 (69%) of 35 *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 5 *At Risk* waterbodies and 3 *Not At Risk* waterbodies and a decrease of 8 *Review* waterbodies, between Cycle 2 and Cycle 3.

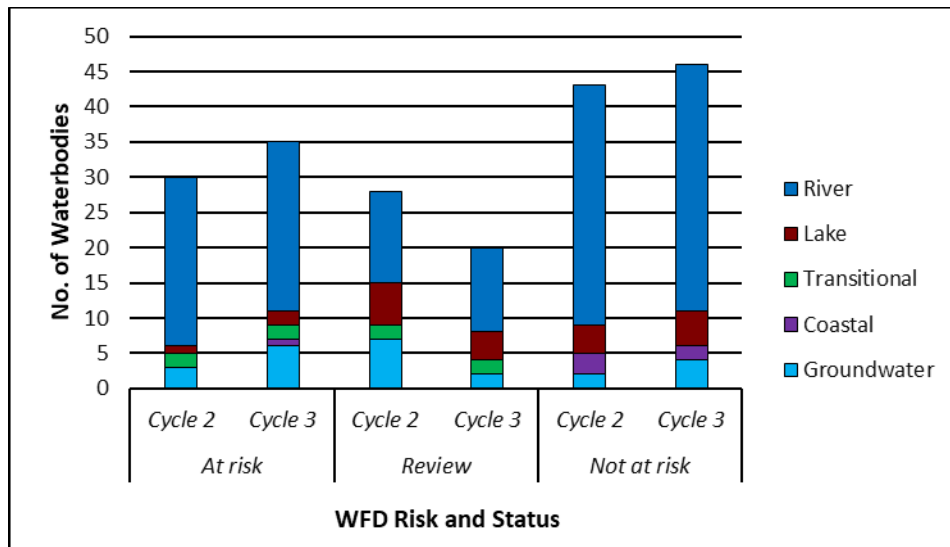


Figure 7: Number of waterbodies in each risk category

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

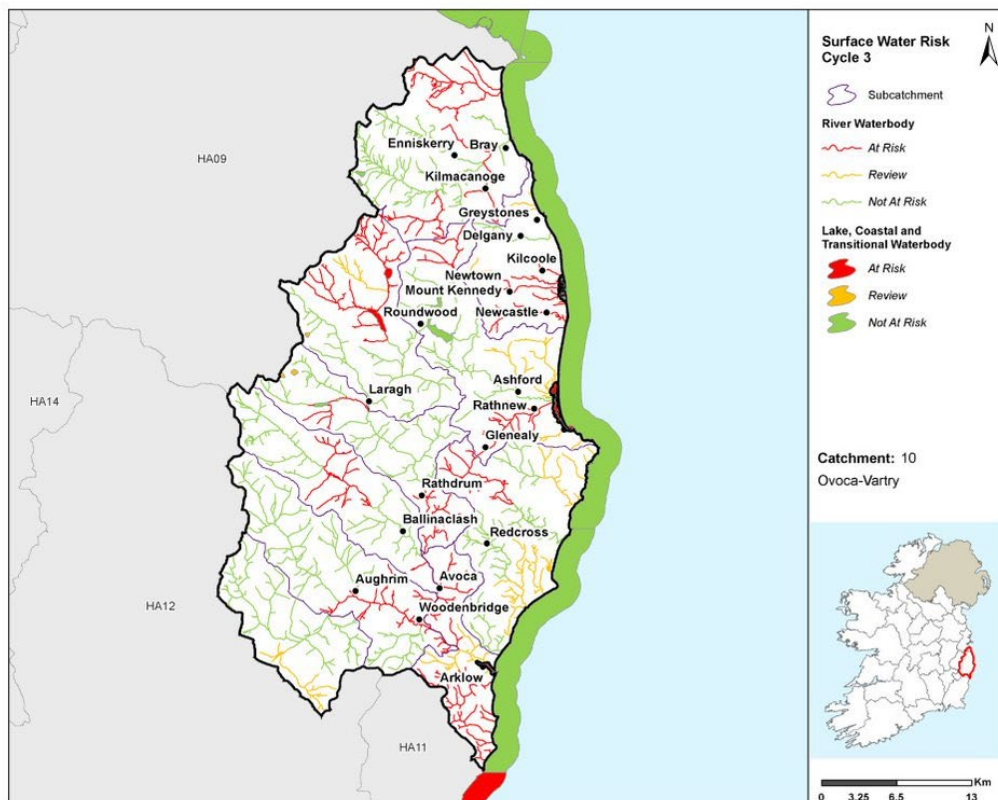


Figure 8: Surface Water Risk Cycle 3

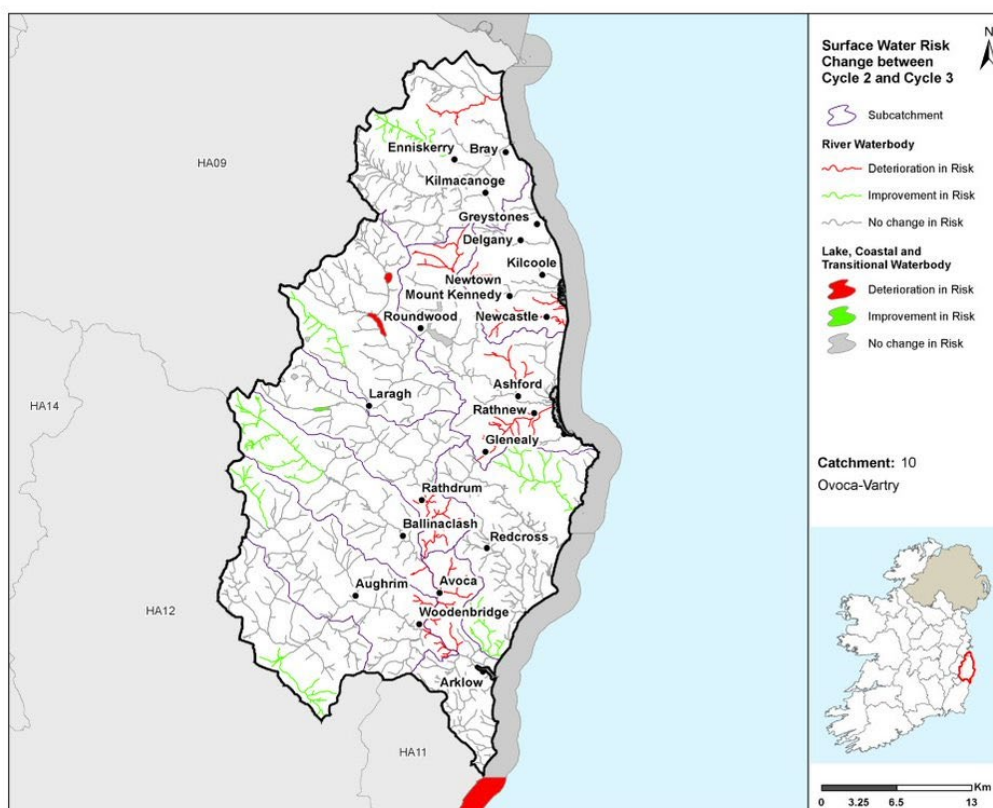


Figure 9: Surface Water Risk Change between Cycle 2 and Cycle 3

3.3 Groundwater

- ◆ For the 12 groundwater bodies, 6 (50%) are *At Risk*, 2 (17%) are in *Review* and 4 (33%) are *Not At Risk*.
- ◆ In Cycle 2, there were 3 groundwater bodies (Historic Mine (Glendalough), Historic Mine (Glenmalure) and Industrial Facility (P0019-02)) *At Risk* in this catchment, 7 in *Review* and 2 *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.

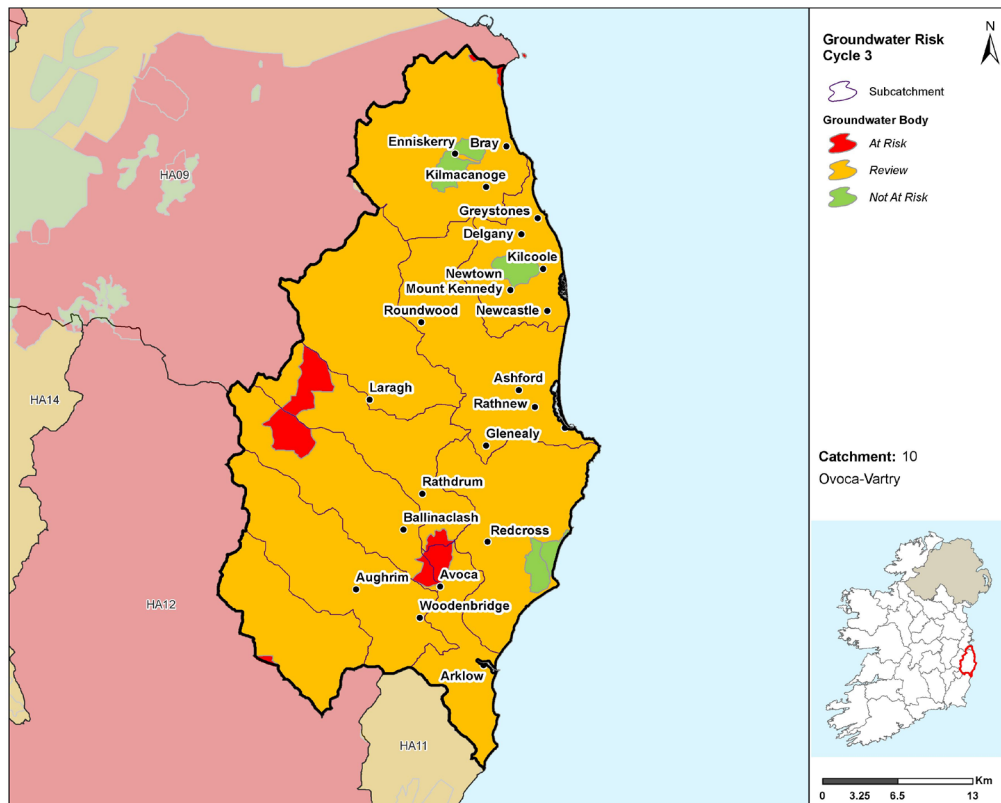


Figure 10: Cycle 3 Groundwater Body Risk

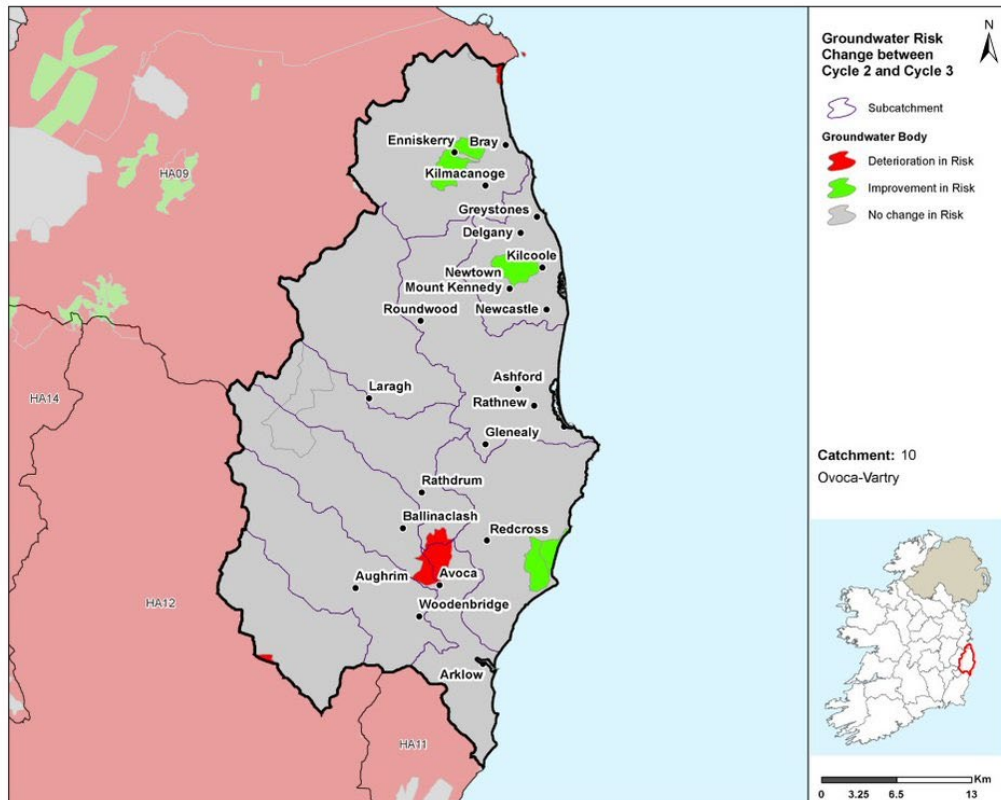


Figure 11: Groundwater Body Risk Change between Cycle 2 & Cycle 3

3.4 Heavily Modified Waterbodies

- ◆ 3 of the 4 heavily modified water bodies (HMWB) in the Ovoca - Vartry catchment are currently *Not At Risk* of not meeting their environmental objectives in Cycle 3. The remaining HMWB (Nahanagan) is currently in *Review*. There may be changes to HMWB designation once the Cycle 3 HMWB assessment has been completed and consulted on for the 3rd Cycle Final RBMP.

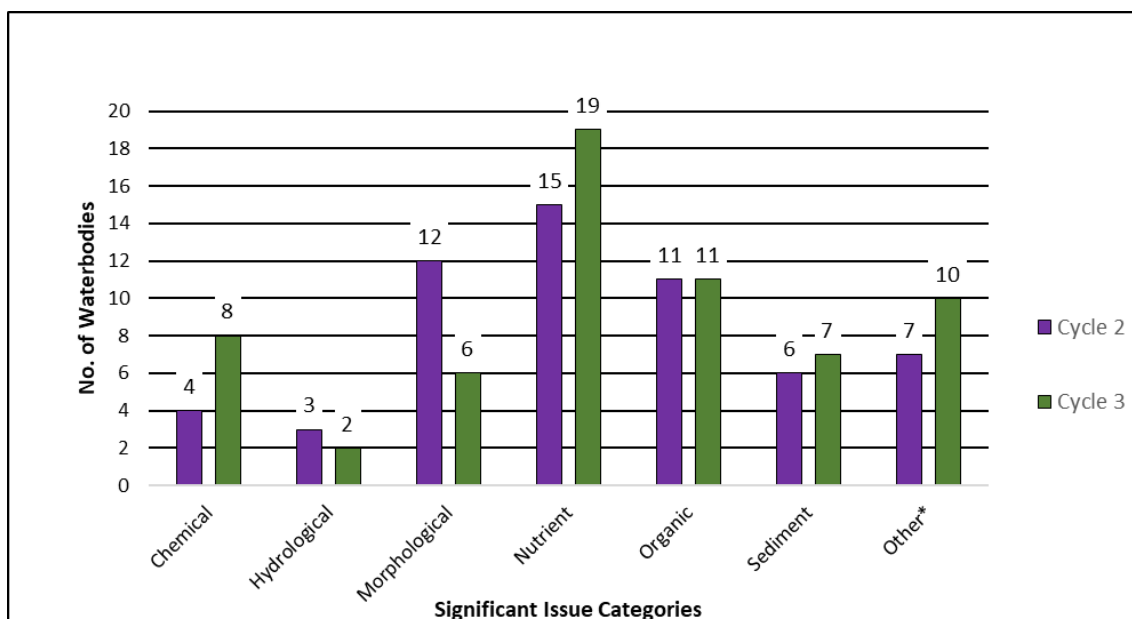
3.5 Artificial Waterbodies

- ◆ There are no Artificial Waterbodies (AWBs) present in the Ovoca - Vartry Catchment.

4 Significant Issues in *At Risk* Waterbodies

4.1 All Waterbodies

- ◆ Excess nutrient impacts remain the most prevalent issues in the Ovoca-Vartry catchment (Figure 12) impacting 19 waterbodies in Cycle 3. Organic issues are impacting 11 waterbodies, and chemicals and sediments are impacting 8 and 7 waterbodies, respectively.
 - For river waterbodies, the main significant issues are nutrient pollution (15), organic pollution (10), morphological (6) and sediment (5).
 - For lake waterbodies, the main significant issues are sediment issues (2) and chemical pollution (1).
 - For transitional waterbodies, the significant issues are nutrient, chemical and organic pollution, affecting one waterbody each.
 - For the one *At Risk* coastal waterbody (Southwestern Irish Sea (HAs 11;12)), the significant issue is unknown.
 - For groundwater bodies, the main significant issues fall under the other impact category (7), followed by chemical pollution (4) and nutrient pollution (1).
- ◆ Between Cycle 2 and Cycle 3 the number of waterbodies with nutrients issues have increased by 4 from 15 to 19 and the number of waterbodies impacted by chemical issues has increased by 4 from 4 to 8.
- ◆ The numbers of waterbodies with morphological and hydrological issues have reduced from 12 and 3 respectively in Cycle 2 to 6 and 2 in Cycle 3.
- ◆ The number of waterbodies impacted by sediment has increased from 6 in Cycle 2 to 7 in Cycle 3.

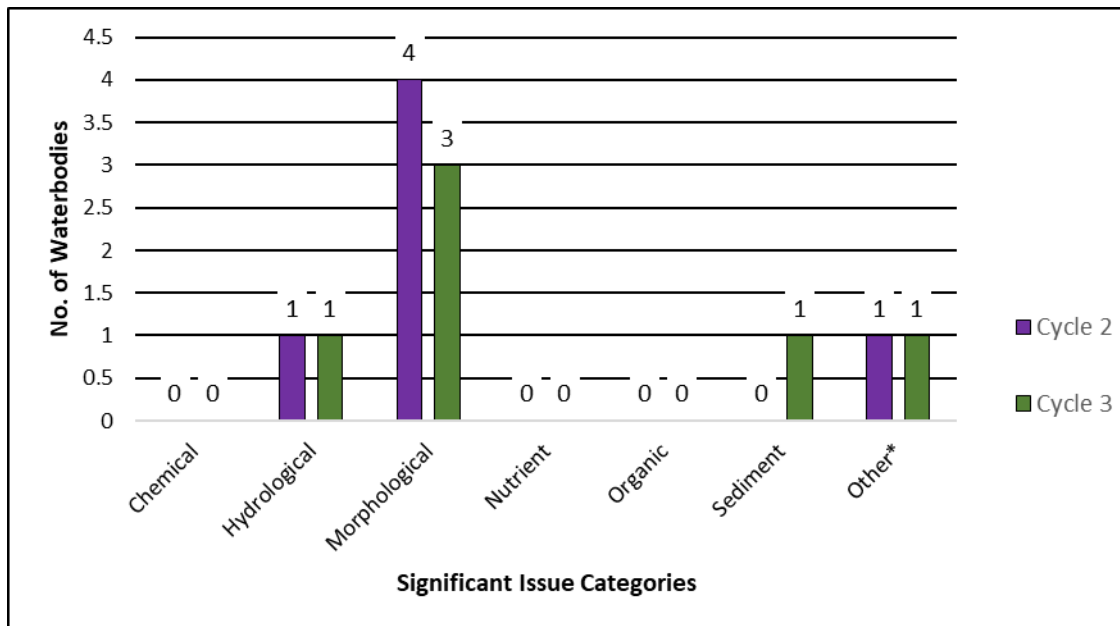


*Other - Acidification, saline intrusion, elevated temperature, litter, microbiological pollution and unknown impacts have all been grouped into the "Other" issues category for the purpose of this report

Figure 12: Significant Issues across all *At Risk* WBs between Cycle 2 and Cycle 3

4.2 High Status Objective Waterbodies

- ◆ In Cycle 3 for High Status Objective waterbodies morphological issues are impacting 3 of the 4 High Status Objective waterbodies currently *At Risk* (Figure 13). Hydrological, sediment and other are all impacting 1 waterbody each. All High Status Objective waterbodies are river waterbodies in the Ovoca-Vartry.
- ◆ Between Cycle 2 and Cycle 3 the number of waterbodies with morphological issues has reduced by 1, while sediment has increased (by 1 from no waterbodies) and both hydrological and other remain unchanged since 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

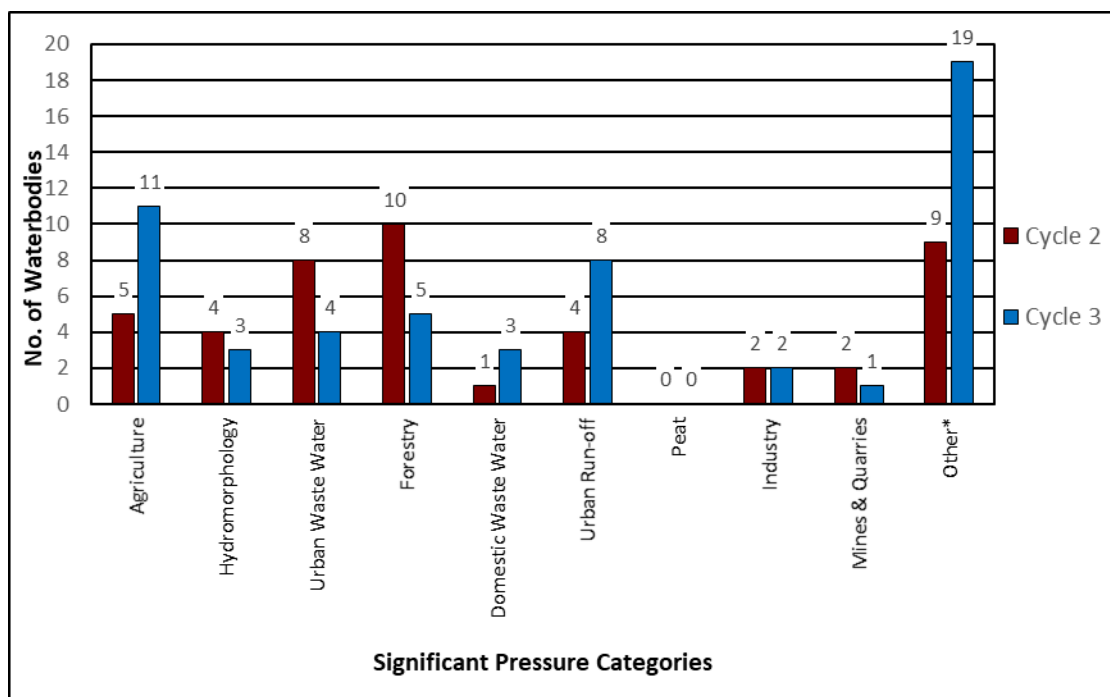
Figure 13: Significant Issues in *At Risk* High Status Objective Waterbodies

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 14 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 other⁶, agriculture, urban run-off, forestry, urban waste water, domestic waste water, hydromorphology, Industry and mines and quarries.
- ◆ When comparing Cycle 2 and Cycle 3 the biggest change is an increase of 10 waterbodies where other² is a significant pressure from 9 waterbodies in Cycle 2 to 19 waterbodies in Cycle 3.

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



*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 14: Significant Pressure (All At Risk Waterbodies)

5.1.1 Pressure Type

5.1.1.1 Other

◆ *Historically polluted sites*

Historic mines have been identified as a significant pressure in 3 river waterbodies – Glenealo_020, Avoca_010 and Avoca_020). 1 transitional waterbody, Avoca Estuary is also impacted by historic mines, and 3 groundwater bodies (Historic Mine (Glendalough), Historic Mine (Glenmalure) and Historic Mine (Avoca)). The significant pressure is related to the historic mines at Avoca which are discharging acid mine drainage. This gives rise to increased concentrations of heavy metals (above the Environmental Quality Standard).

◆ *Aquaculture*

Aquaculture has been identified as a significant pressure in 1 river waterbody, Aughrim (Wicklow)_020. There are 3 Section 4 discharges from fish farms on this river, causing elevated ammonia concentrations.

◆ *Waste*

Illegal dumping has been identified as a significant pressure in 1 river waterbody (Rathnew Stream_010). Furthermore, Potter's_010 is impacted by heavy siltation originating from a licenced site (site name not identified during characterisation). Visual assessments of the inert soil fill (licensed under a waste permit) confirmed that the site poses a direct risk of sediment loss to the Potter's river in Cycle 2.

◆ *Atmospheric*

Avonmore_010 appears to be impacted by acidification. The low pH is impacting on the waterbody.

◆ *Anthropogenic*

Unknown anthropogenic pressures are impacting upon 8 waterbodies. 2 of these waterbodies are rivers (Avonmore_070 and Newtownmountkennedy_020), 2 are lake waterbodies (Tay and Dan), 1 coastal waterbody (Southwestern Irish Sea (HAs 11;12)) and 3 are groundwater bodies (Inch, Killcullen and Ballyglass).

5.1.1.2 Urban waste water

- ◆ Urban Waste Water Treatment Plants (WWTPs) and agglomeration networks have been highlighted as a significant pressure in 4 *At Risk* water bodies; details are given in
- ◆ Table 3.
- ◆ 1 *At Risk* waterbody is impacted by the Kilcoole and Kilpedder agglomerations which underwent upgrades in 2017 but are not included in Irish Water's current capital investment programme (CIP) (2020-2024). Irish Water assessments have identified that the current ELVs associated with the agglomerations are not stringent enough to allow the waterbody to achieve its environmental objectives.

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 ⁷
Kilcoole D0087	Agglomeration PE 2,001 to 10,000	Kilcoole Stream_010	Moderate	N/A
Kilpedder D0416	Agglomeration PE 500 to 1,000	Kilcoole Stream_010	Moderate	N/A
Shanganagh-Bray D0038	Combined System Overflows	Kill of the Grange Stream_010	Poor	N/A
Conary A0008	Agglomeration PE < 500	Avonmore_070	Moderate	N/A
Newcastle D0410	Agglomeration PE 500 to 1,000	Newcastle (Wicklow)_010	Moderate	2019

- ◆ Urban waste water significant pressures impacted 4 less waterbodies than in Cycle 2 (a decrease from 8 to 4 waterbodies impacted). The following agglomerations were listed as pressures in Cycle 2 but have been removed from the list of significant pressures in Cycle 3.
 - Arklow (D0006)
 - Avoca (D0411)
 - Aughrim (D0222)
 - Kirikee Upper (A0045)
 - Kirikee Lower (A0039)
 - Bray (D0005)
 - Thomastown (A0030)
 - Enniskerry (D0088)
 - Wicklow (D0012)

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

- ◆ Conary (A0008) and Newcastle (D0410) have been added to the list of significant pressures in Cycle 3.

5.1.1.3 Agriculture

- ◆ Agriculture is a significant pressure in 7 river waterbodies, 3 groundwater bodies (Inch, Ballyglass & Kilcullen) and 1 transitional waterbody, Broad Lough. The issues related to farming in this catchment are varied, including diffuse loss of phosphorus and ammonia to surface waters from, for example, direct discharges; or runoff from farmyards, roadways or other compacted surfaces, or runoff from poorly draining soils with slurry spreading issues identified. Sediment can also be a problem from land drainage works, bank erosion from animal access or stream crossings. Morphological issues were noted at two waterbodies (Avonmore_010 and Vartry_010) linked to heavy sheep and deer grazing. Areas of high surface water phosphate PIP identified throughout the Avoca_SC_20 and Avonbeg_SC_010 sub-basin.

5.1.1.4 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 seven river waterbodies (Aughrim (Wicklow)_010, Avonbeg_030, Rathnew Stream_010, Shanganagh_010, Kill of the Grange Stream_010, Kilmacanoge_010 and Carrickmines Stream_010). In the case of Aughrim (Wicklow)_010, it is likely there is a diffuse urban pressure from Aughrim town. Kill of the Grange stream is primarily impacted by misconnections and SWOs from both Sandyford and Deansgrange. The diffuse pressure on Kilmacanogue_010 has been identified as the dual carriageway which passes through. Carrickmines is the source of the diffuse urban pressure on the Carrickmines Stream_010. Avonbeg_030 is under diffuse urban pressure from a holiday village which has fluctuating elevated pollution potential due to changing populations. Rathnew is impacting Rathnew Stream_010 while Shanganagh_010 is impacted by Kilternan.

5.1.1.5 Forestry

- ◆ Forestry has been identified as a significant pressure in 4 river waterbodies (Avonbeg_030, Avonmore_020, Glenealo_020 and Potter's_010) as well as Kilcullen groundwater body. The significant issue affecting 1 waterbody (Glenealo_020) is acidification. Kilcullen groundwater is impacted by nutrients and chemical issues. The remaining waterbodies (Avonbeg_030, Avonmore_020 and Potter's_010) are impacted by issues related to increased siltation. The increase is often linked to clear felling, thinning, replanting and associated activities such as road and bridge construction, is also significant.

5.1.1.6 Domestic waste water

- ◆ Domestic waste water has been identified as a significant pressure in 3 river waterbodies, Ballyronan Stream_010, Aughrim (Wicklow)_010 and Rathnew Stream_010. In the case of Ballyronan Stream_010, there is a discharge from a private development (600p.e.) which has caused an impact due to a lack of assimilative capacity within the stream. Aughrim (Wicklow)_010 is impacted by a communal system discharge, causing nutrient issues. However, Rathnew Stream_010 waterbody is significantly impacted by a series of single house discharges along the elongated village of Rathnew.

5.1.1.7 Hydromorphology

- ◆ 1 river waterbody (Dargle_010) within the Dargle (10_5) and 1 river waterbody (Potter's_010) within the Redcross (10_8) subcatchments are subject to extensive modification due to the presence of flood alleviation works and road works, respectively. In addition, 1 river waterbody (Kill of the Grange Stream_010) within the Dargle (10_5) is mostly culverted leading to modified physical aquatic habitat. Excessive levels of siltation were noted in Cycle 2 within Dargle_010

waterbody due to bank erosion. This is still an issue in Cycle 3, although significant bank protection works in place.

5.1.1.8 Industry

- ◆ An industrial site (Section 4) has been identified as a significant pressure impacting Ballyronan Stream_010, with elevated orthophosphate concentrations being the main issue of concern. An IPC facility, Amgen Technology (Ireland) Unlimited Company, is impacting on groundwater, Industrial Facility (P0019-02).

Table 4: Breakdown of Cycle 3 Industry Significant Pressures in the Ovoca-Vartry Catchment

Waterbody Code	Waterbody Name	Waterbody Type	Emission Type	Name	Impact
IE_EA_10B080500	Ballyronan Stream_010	River	Section 4	N/A	Nutrient
IE_EA_G_091	Industrial Facility (P0019-02)	Groundwater	IPC	Amgen Technology (Ireland) Unlimited Company	Chemical

5.1.1.9 Mines and quarries

- ◆ Quarries have been identified as a significant pressure in one waterbody – Potter's_010 (Figure 22). For Potter's_010, heavy siltation associated with a large quarry upstream in Ballinclare is a significant pressure, with heavy siltation noted in the 2015 survey.

Figure 15 - Figure 18 illustrates the locations of waterbodies for the 4 most common pressures in order of prevalence (other, agriculture, urban run-off and forestry) within the catchment in Cycle 3.

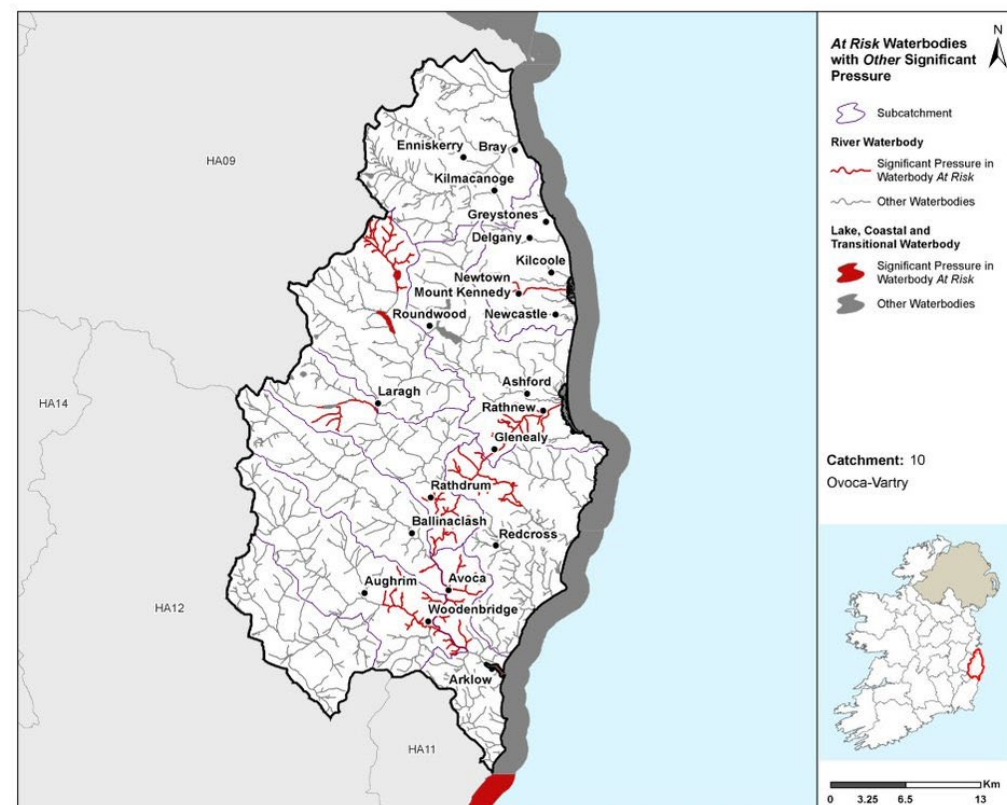


Figure 15: Locations of Waterbodies where Significant Pressures fall under the “Other” category

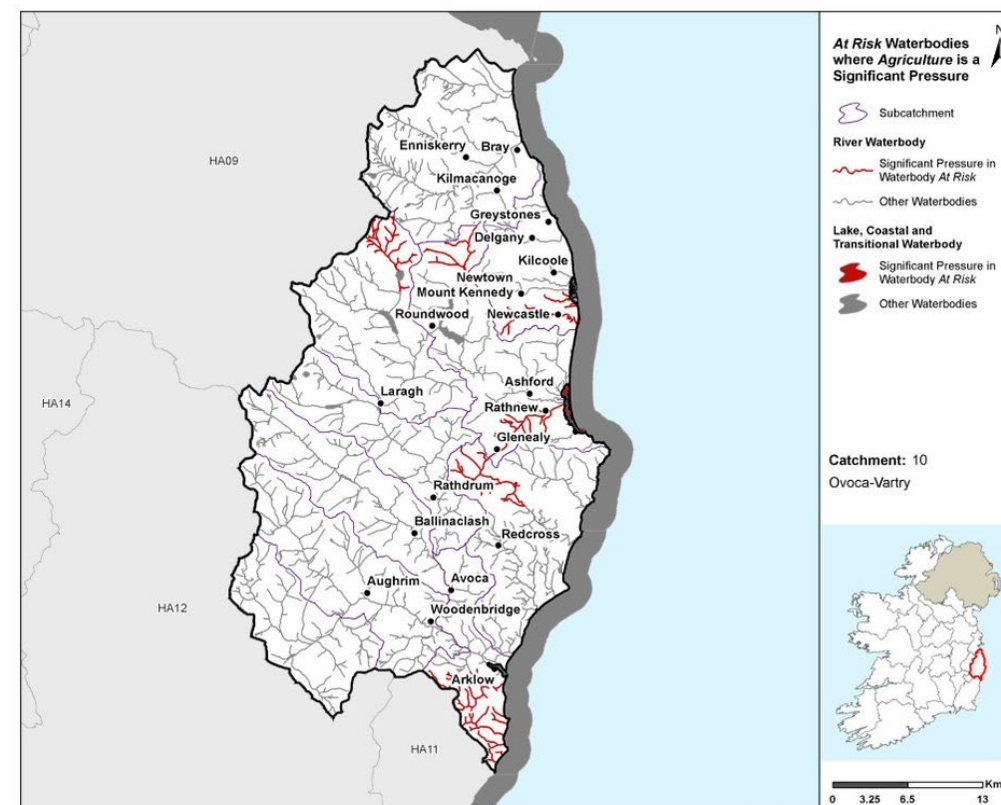


Figure 16: Locations of Waterbodies where Agriculture is a Significant Pressure

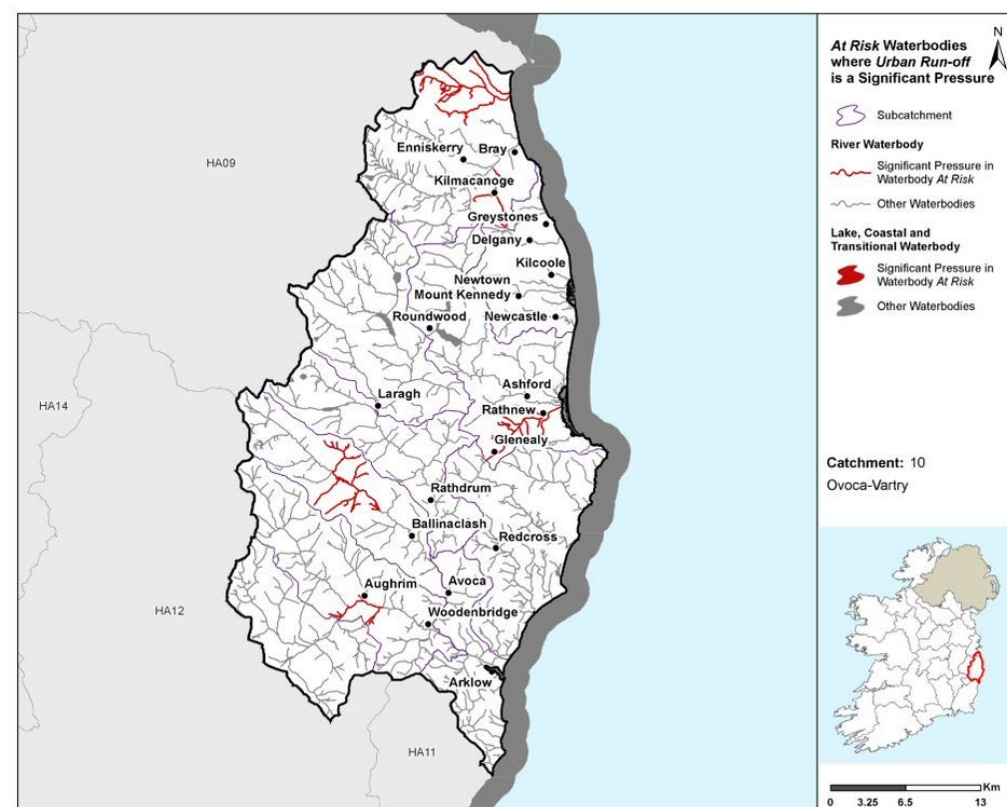


Figure 17: Locations of Waterbodies where Urban Run-off is a Significant Pressure

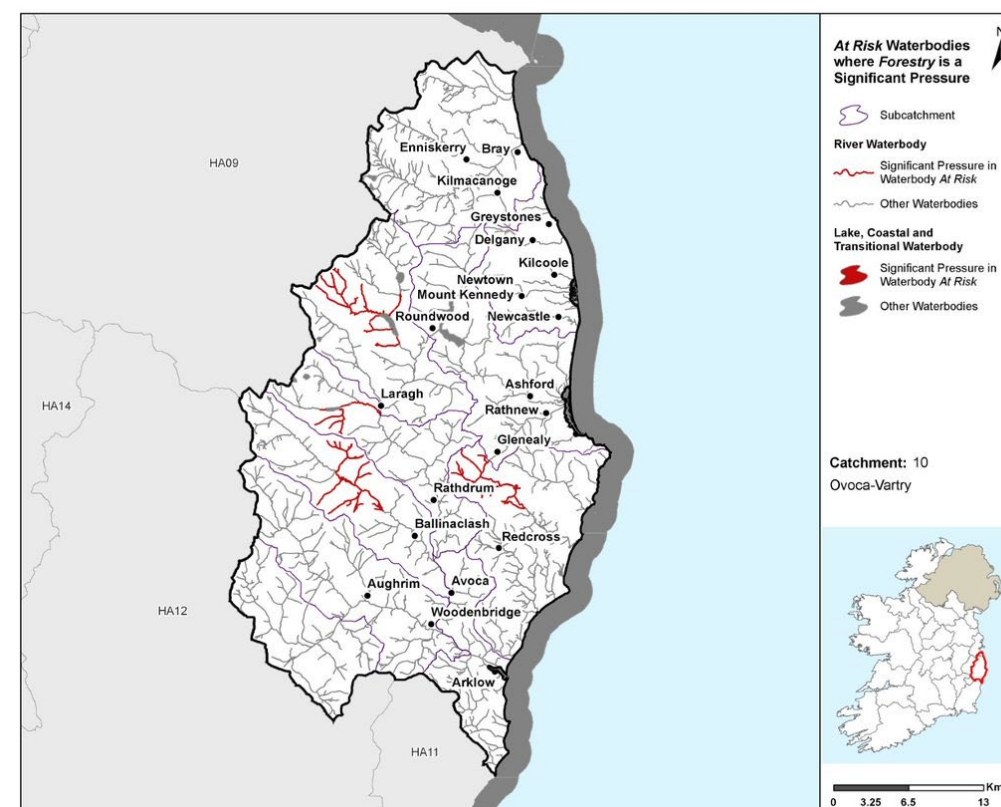
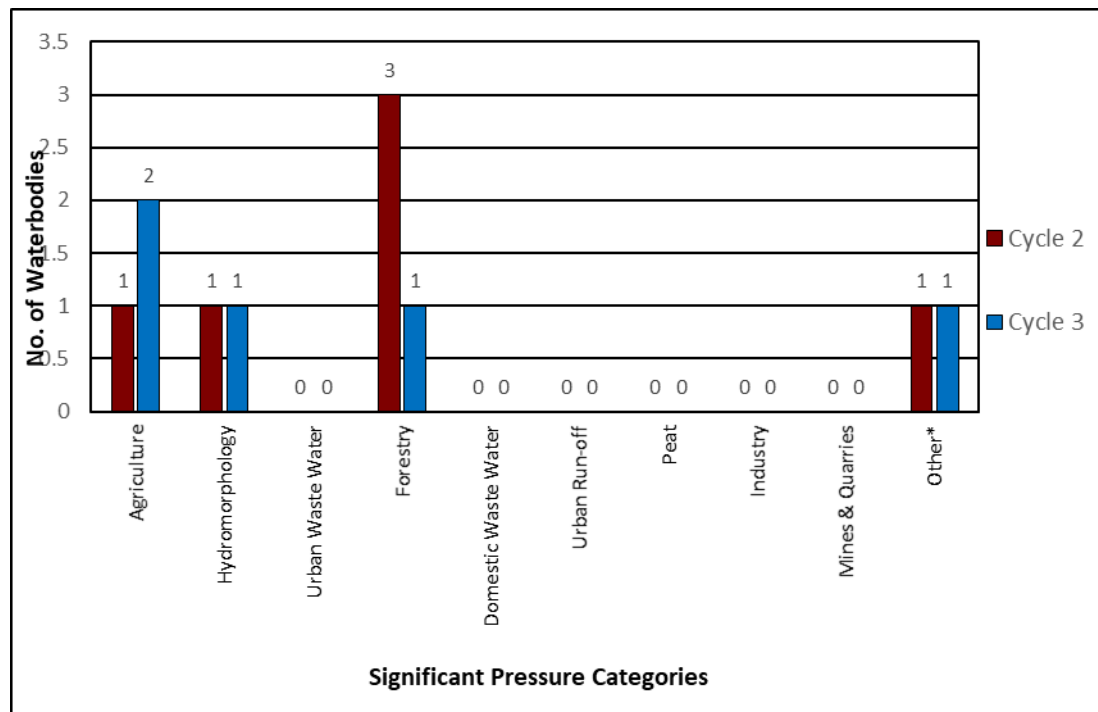


Figure 18: Locations of Waterbodies where Forestry is a Significant Pressure

5.2 High Status Objective Waterbodies

- ◆ Agriculture is the main significant pressure in High Status Objective waterbodies, impacting 2 waterbodies in Cycle 3. This is followed by hydromorphology, forestry and other pressures identified in 1 out of the 4 *At Risk* High Status Objective waterbodies each.



*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 19: 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, discharges from urban wastewater and arable land is responsible for 55%, 21% and 14% of the nitrogen load respectively while discharges from urban waste water contributes 59% of the phosphorus loadings for the catchment (Figure 17).

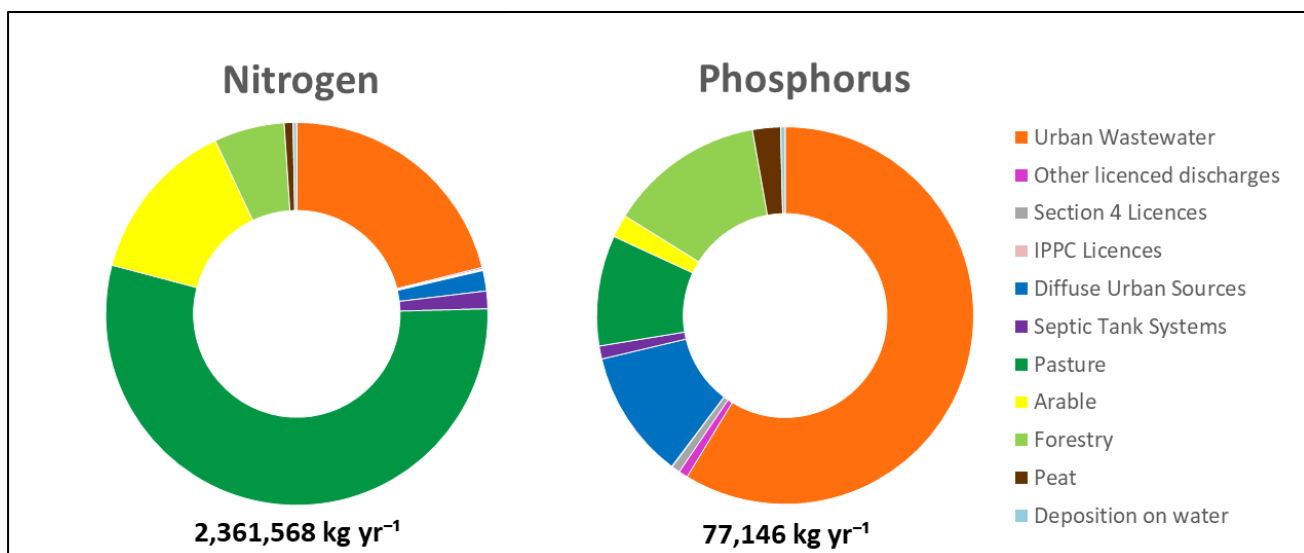


Figure 20: Estimated Proportions of N & P from Each Sector in the Ovoca-Vartry Catchment

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 Ovoca - Vartry Catchment.

7.2 Phosphorus / Sediment Load Reduction

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

Figure 21 highlights areas where agricultural measures for nitrogen, sediment and phosphorus should be targeted. Waterbodies with orange fill are areas where nitrogen measures should be targeted, waterbodies with blue fill are areas where sediment or phosphorus should be targeted and waterbodies with orange and blue hatching highlight areas where multiple measures (phosphorus /sediment and nitrogen) are required. Pollution Impact Potential mapping for both phosphorus and nitrogen in the catchment are provided in Appendix 2.

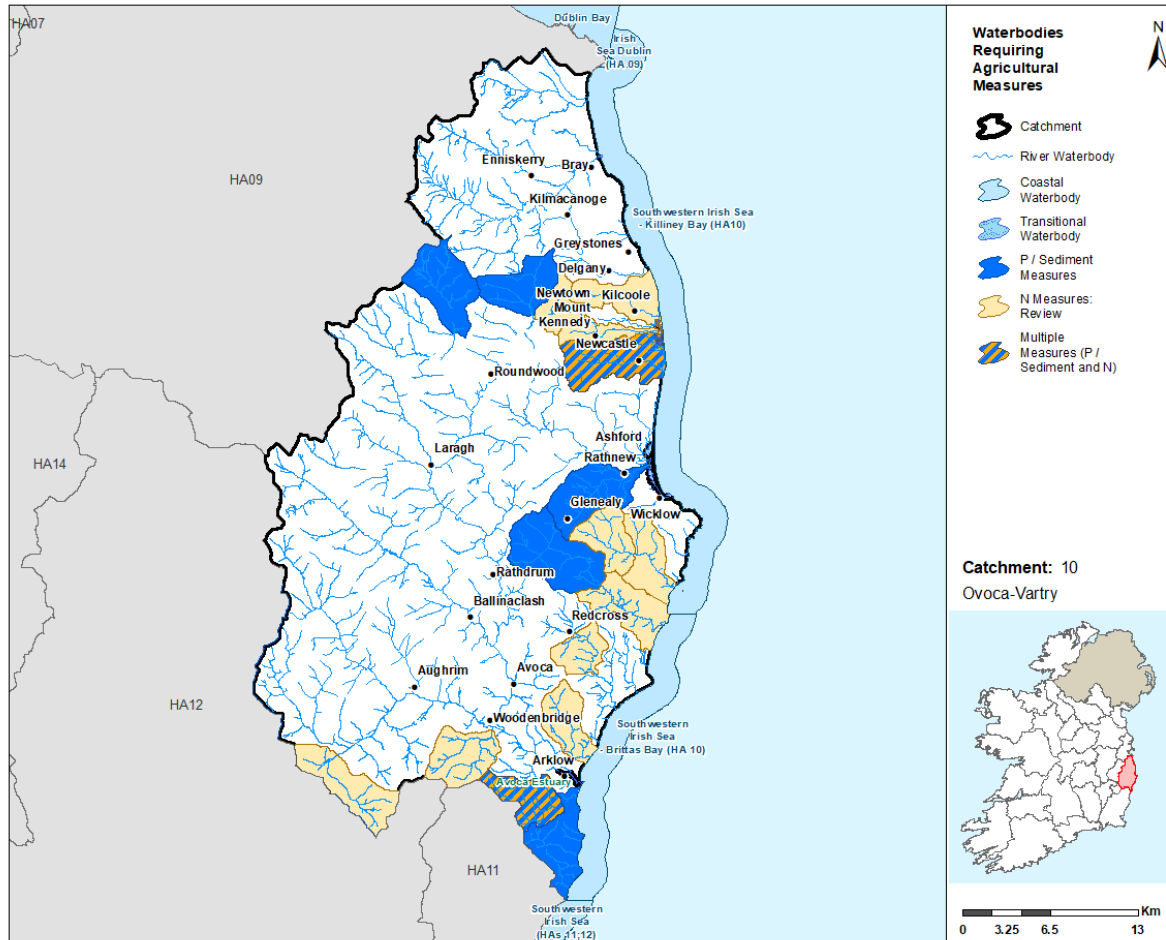


Figure 21: Waterbodies where Agricultural Measures should be Targeted

8 2nd Cycle Areas for Action

8.1 Area for Action Overview

- ◆ There were 4 Areas for Action, comprising of 11 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 22. LAWPRO, in conjunction with local authorities and stakeholders from the Midlands and East Regional Operational Committee and South East Regional Operational Committee, have been working in these areas since 2018.

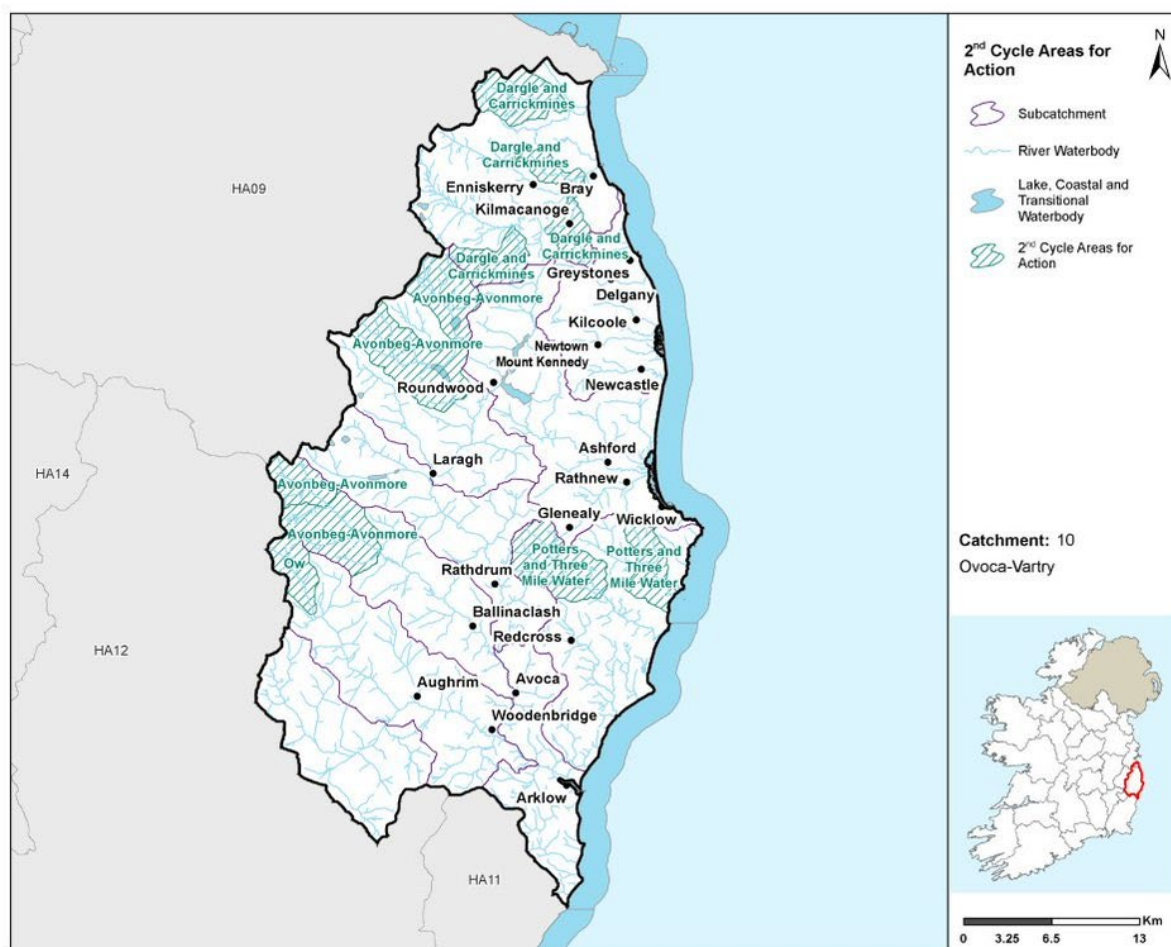


Figure 22: 2nd Cycle Areas for Action Locations

Table 5: 2nd Cycle Areas for Action

2 nd Cycle Area for Action	Number of waterbodies	Sub-catchment	Local Authority	Reason for Selection
Ow Forestry	1	10_3	Wicklow	<ul style="list-style-type: none"> • High Ecological Status ecological objective water body requiring improvement. • Building on work that is underway by Coillte. • Multi agency collaboration between Coillte, Wicklow County Council and the IFI.
Potters and Three Mile Water	2	10_8	Wicklow	<ul style="list-style-type: none"> • Building on improvements in Potters_010 – improved from Poor Status to Moderate Status between 2007-2009 and 2010-2015. • Building on existing knowledge in Wicklow County Council regarding farms and quarries in the area. • Building on improvements following completion of roadworks that were a pressure. • Good community engagement - there are 3 Group Water Schemes. • Discharges into Brittas Bay designated bathing waters. • A drinking water abstraction in

2 nd Cycle Area for Action	Number of waterbodies	Sub-catchment	Local Authority	Reason for Selection
				Potters_010. • Potential for 'quick wins' in both waterbodies.
Dargle and Carrickmines	4	10_5	Wicklow Dun Laoghaire Rathdown	<ul style="list-style-type: none"> • Multi agency cooperation between DLR, Irish Water, Inland Fisheries Ireland. • Building on completed and planned assessments on the Carrickmines Stream_010. • Building on Drainage Area Plan completed by Irish Water on Carrickmines Stream_010. • Carrickmines Stream_010 is a headwater stream to Shanganagh_010, which is at Good Status. Dargle_010 is the headwaters to the River Dargle. • Dargle_010 has a High Ecological Status objective and has deteriorated. • Dargle_030 is a deteriorated water body with protected area objectives for salmonids.
pH (Wicklow) 2	4	10_10 10_6	Wicklow	<ul style="list-style-type: none"> • 2nd pH project to link to the other Wicklow pH project. Four deteriorated waterbodies. • Two High Ecological Status objective waterbodies. Headwaters to the Avonbeg and Avonmore river waterbodies.

8.2 Status Change in 2nd Cycle Areas for Action

- ◆ For Cycle 3, of the 11 waterbodies in the 2nd Cycle Areas for Action, there are 7 waterbodies at Good Status and 4 waterbodies at Moderate Status.
- ◆ There is an overall improvement in the status of 6 of the 2nd cycle Areas for Action waterbodies across the catchment.⁸
- ◆ Of the 11 waterbodies within the 2nd Cycle Areas for Action which had status assigned, 5 experienced no change in status between Cycle 2 and Cycle 3 and 6 waterbodies experienced an improvement (Figure 23). Of the 6 waterbody improvements 3 were across Avonbeg-Avonmore Area for Action and one in Dargle and Carrickmines Area for Action, one in Ow Area for Action and one in Potters and Three Mile Water Area for Action.

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

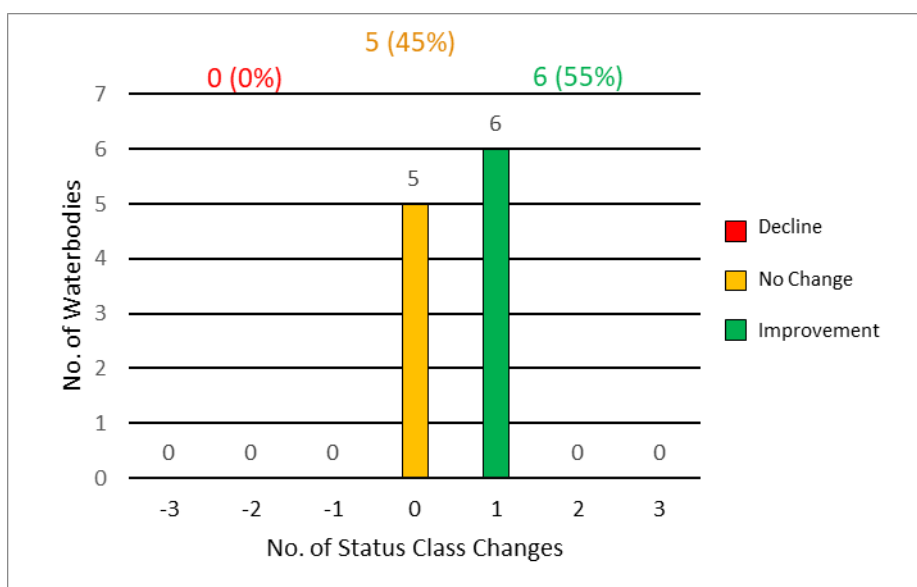


Figure 23: 2nd Cycle Area for Action Waterbody Status Class Changes between Cycle 2 and Cycle 3

8.3 Waterbody Risk in 2nd Cycle Areas for Action

- ◆ For the 11 waterbodies in the 2nd Cycle Areas for Action, 7 (64%) of these are currently *At Risk*, 1 (9%) are in *Review* and 3 (27%) are *Not At Risk*.
- ◆ All 11 waterbodies are river waterbodies, of these 7 (64%) are *At Risk*, 1 (9%) is in *Review* and 3 (27%) are *Not At Risk*.
- ◆ Figure 24 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 11 to 7 *At Risk* waterbodies in 2nd Cycle Areas for Action between Cycle 2 and Cycle 3.

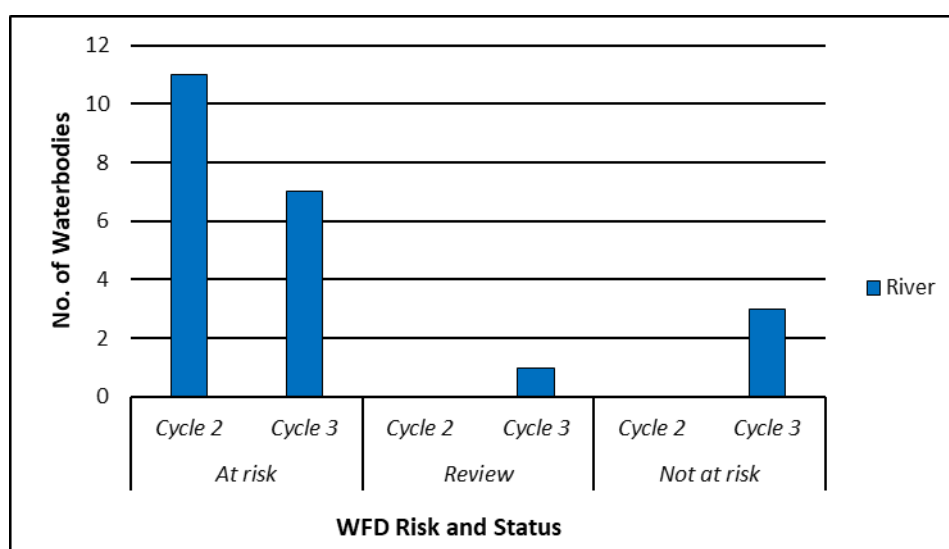
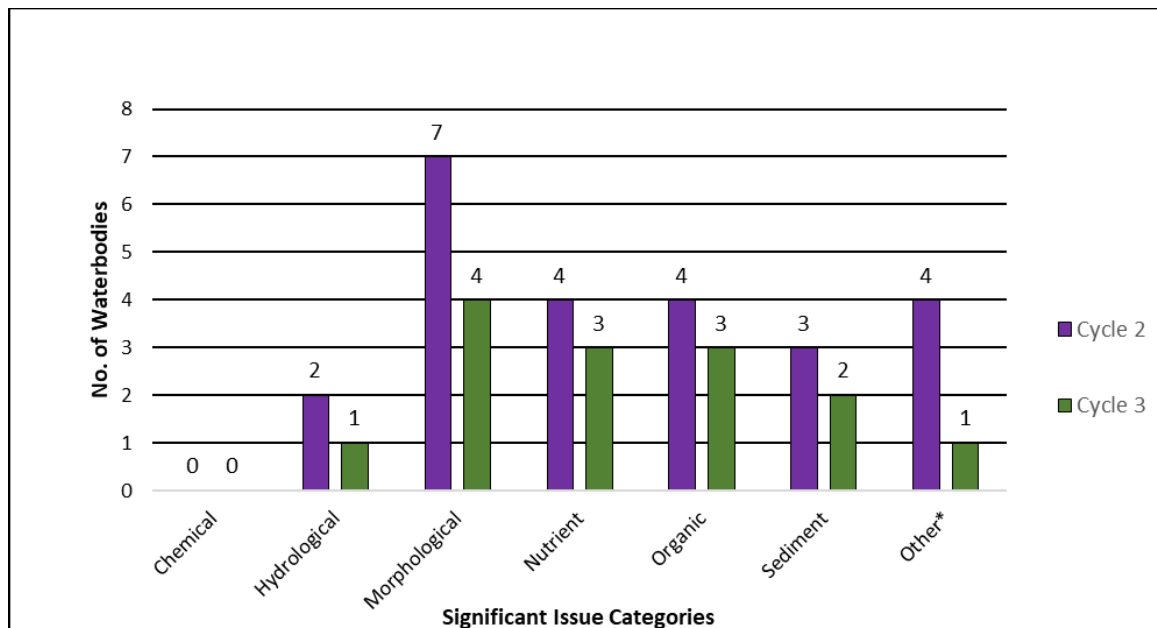


Figure 24: Number of waterbodies in each risk category in 2nd Cycle Areas for Action

8.4 Significant Issues in 2nd Cycle Areas for Action

- ◆ Based on the EPA assessment for Cycle 3, the significant issue in the 2nd Cycle Areas for Action is morphological impacts impacting 4 waterbodies (Figure 25). This is followed by nutrient and organic pollution which are each impacting 3 waterbodies and sediment is impacting 2 waterbodies. Hydrological issues and other issues are impacting 1 waterbody each. Chemical issues are impacting 0 waterbodies.
- ◆ The number of 2nd Cycle Areas for Action waterbodies associated with each of the significant issues categories has reduced between Cycle 2 and 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 25: 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:
 - Forestry - 2 waterbodies are impacted compared to 5 impacted in Cycle 2.
 - Hydromorphology – 2 waterbodies are impacted compared to 3 impacted in Cycle 2.
 - Agriculture, urban run-off and other pressures have remained unchanged impacting 2 waterbodies in both cycles.
 - Mines and quarries - 1 waterbodies are impacted compared to 2 waterbodies impacted in Cycle 2.
 - Urban waste water – 2 waterbodies were impacted in Cycle 2, but urban waste water is no longer considered a significant pressure in 2nd Cycle Areas for Action waterbodies for Cycle 3.
- ◆ When comparing the significant pressures in the 2nd Cycle Areas for Action between Cycle 2 and 3 there have been no increases in the number of waterbodies impacted by any of the significant pressure categories in the catchment.

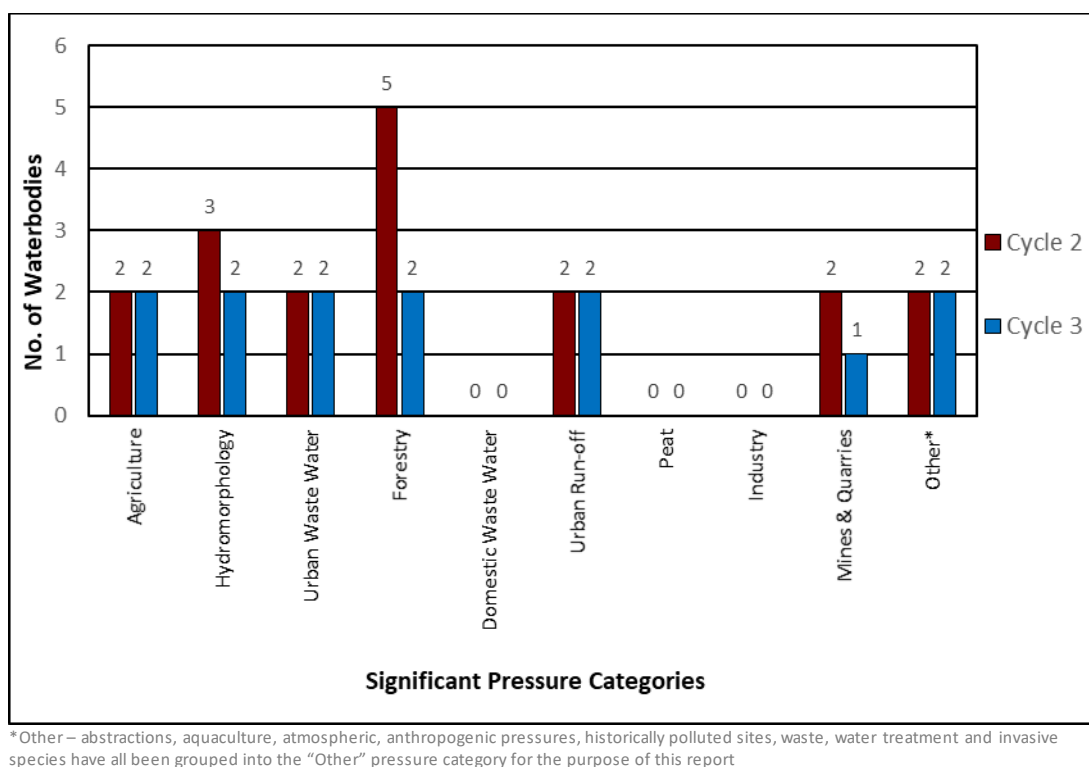


Figure 26: Significant Pressures in 2nd Cycle Area for Action Waterbodies

9 3rd Cycle Recommended Areas for Action

9.1 Recommended Areas for Action Overview

- ◆ For the 3rd Cycle Draft River Basin Management Plan Areas for Action have been extended out to not only include Prioritised Areas for Action undertaken by LAWPRO which focussed on restoring waterbodies, but to also include restoration work undertaken by all agencies under Areas for Restoration. In addition, protection work is included under Areas for Protection and research, pilot schemes and community initiatives are included under Catchment Projects. The aim of the 3rd Cycle Plan is to capture all activity that is working to restore, improve and/or protect waterbodies.
- ◆ The Recommended 3rd Cycle Areas for Action list will be included in the Draft River Basin Management Plan and will be finalised after the consultation period.
- ◆ There are 23 Areas for Action, comprising of 58 waterbodies, recommended for further characterisation and action in the catchment for the 3rd Cycle River Basin Management Plan. 26 of the 58 waterbodies in the 3rd Cycle Recommended Areas for Action are *At Risk*, 9 are in *Review* and 23 are *Not At Risk*. The 23 Recommended Areas for Action consist of 6 Areas for Protection, 14 Areas for Restoration and 3 Areas for Catchment Projects. LAWPRO are the proposed lead organisation in 13 Recommended Areas for Action, NFGWS and IFI are the proposed lead on one Recommended Area for Action each, Wicklow CoCo are the proposed lead on 6 Recommended Areas for Action and GSI, NFGWS and TCD are the proposed lead on the remaining Recommended Area for Action. The Recommended Areas for Action in the

catchment are listed in Table 6 and shown in Figure 27. The reason for selecting each waterbody in a Recommended Area for Action is provided in Appendix 3.

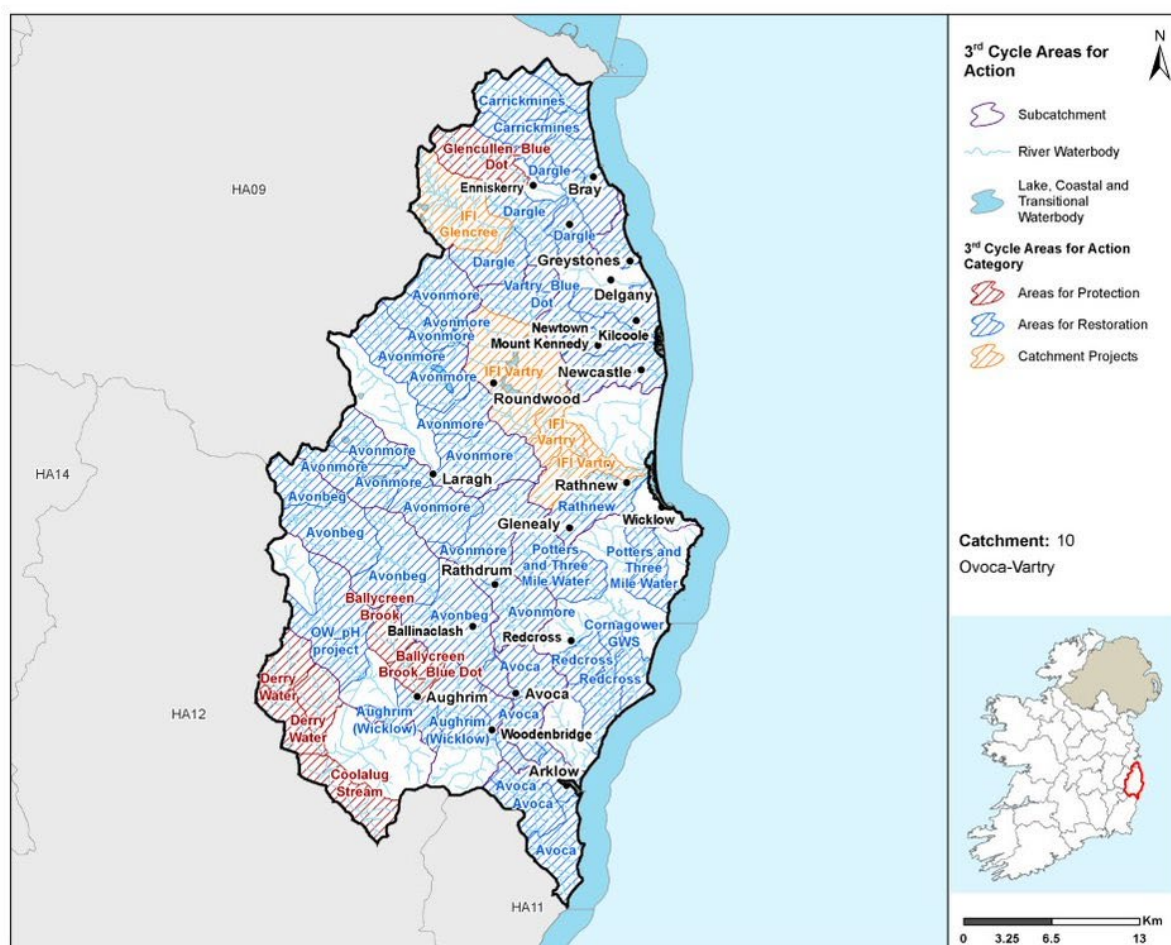


Figure 27: 3rd Cycle Recommended Areas for Action Locations

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
Aughrim (Wicklow)	2	Restoration	LA Areas for Restoration Local Authorities	Wicklow County Council
Avoca	5	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Avonbeg	4	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Avonmore	13	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Askanagap Stream_ Blue Dot	1	Protection	Blue Dot Areas for Protection LAWPRO and Others	LAWPRO
Ballyreen Brook	1	Protection	LA Areas for Protection Local Authorities	Wicklow County Council

3rd Cycle Recommended Areas for Action	Number of Waterbodies	Recommended Areas for Action Category	Recommended Areas for Action Sub-category	Lead Organisation
Ballycreen Brook Blue Dot	1	Protection	Blue Dot Areas for Protection LAWPRO and Others	LAWPRO
Kilcoole Newcastle and Newtownmountkennedy	6	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Coolalug Stream	1	Protection	LA Areas for Protection Local Authorities	Wicklow County Council
Carrickmines	2	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Dargle	5	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Derry Water	2	Protection	LA Areas for Protection Local Authorities	Wicklow County Council
IFI Glencree	1	Catchment Projects	Public Body Research	IFI
Glencullen Blue Dot	1	Protection	Blue Dot Areas for Protection LAWPRO and Others	LAWPRO
Cornagower GWS	1	Restoration	Public Health Areas for Restoration NFGWS, IW, HSE, LAs, SFPA	NFGWS
Kill of the Grange	1	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
OW pH project	1	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Potters and Three Mile Water	2	Restoration	Prioritised Areas for Action LAWPRO	LAWPRO
Redcross	2	Restoration	LA Areas for Restoration Local Authorities	Wicklow County Council
Rathnew	1	Restoration	LA Areas for Restoration Local Authorities	Wicklow County Council
Vartry Blue Dot	1	Restoration	Blue Dot Areas for Action LAWPRO and Others	LAWPRO
IFI Vartry	3	Catchment Projects	Public Body Research	IFI
Inch - Groundwater	1	Catchment Projects	Public Body Research	GSI and NFGWS and TCD

10 Catchment Summary

- Of the 71 river waterbodies, 23 are *At Risk* of not meeting their WFD objectives.
- 2 out of 5 lake waterbodies are *At Risk* of not meeting their WFD objectives.
- 2 out of 4 transitional waterbodies are *At Risk* of not meeting their WFD objectives.
- Of the 3 coastal waterbodies, 1 (Southwestern Irish Sea (HAs 11;12)) is *At Risk* of not meeting its WFD objective.
- 7 out of 12 groundwater bodies are *At Risk*.
- There has been an overall deterioration across the catchment with 35 waterbodies *At Risk* in Cycle 3 compared to 30 waterbodies *At Risk* in Cycle 2.

- The main significant issues are impacts from nutrient pollution, followed by organic, chemical, sediment and morphological impacts.
- The main significant pressures are other (aquaculture, anthropogenic, atmospheric, historically polluted sites and waste) pressures followed by agriculture, urban run-off and forestry.
- The main impacts and pressures driving the change between Cycle 2 and Cycle 3 are increases in waterbodies impacted by nutrient, organic and chemical issues
- In the 2nd Cycle Areas for Action 6 waterbodies are *At Risk* in Cycle 3 whereas 11 waterbodies were *At Risk* in Cycle 2. Improvements have occurred in waterbodies where forestry, agriculture, other (illegal dumping), and mines and quarries were a significant pressure in Cycle 2 but are no longer a significant pressure in Cycle 3.
- There are 23 3rd Cycle Recommended Areas for Action for Cycle 3. They comprise of 58 waterbodies with 26 waterbodies *At Risk*, 9 *in Review* and 23 *Not At Risk*.

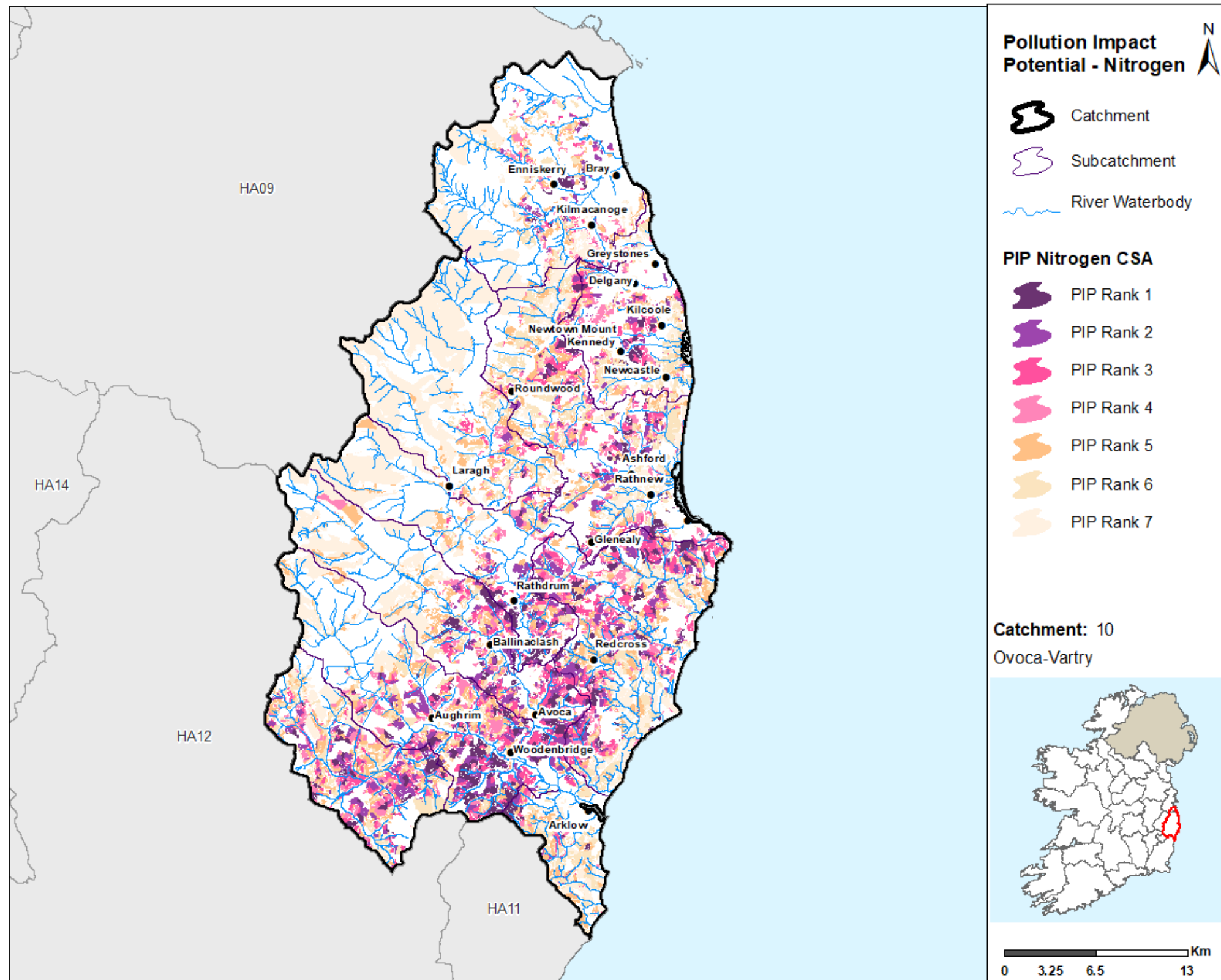
Appendix 1

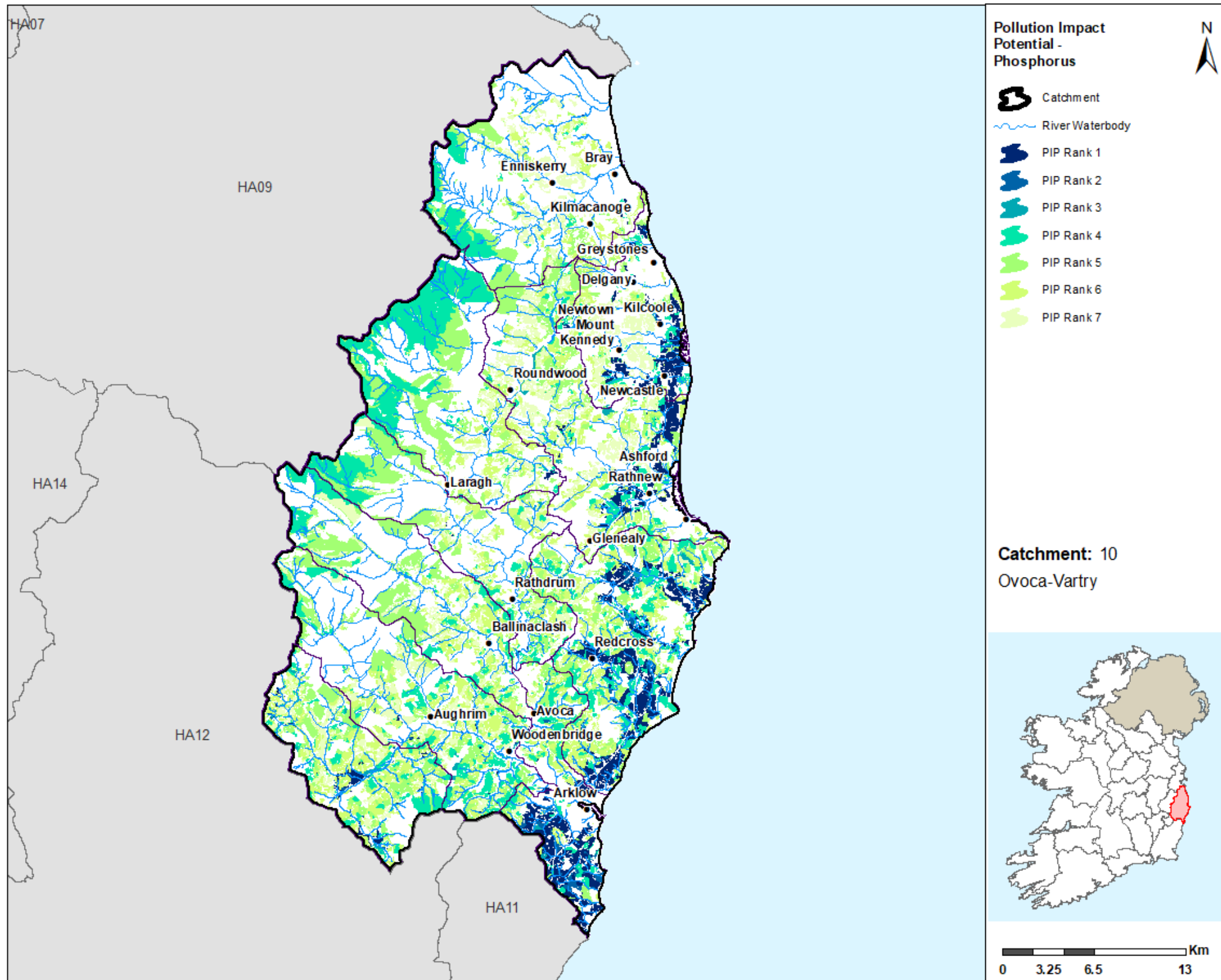
High ecological status objective waterbodies

Waterbody Name	Waterbody Type	Waterbody Code	Status 2013-2018
ASKANAGAP STREAM_010	River	IE_EA_10A060400	High
AVONMORE_010	River	IE_EA_10A050010	Good
AVONMORE_020	River	IE_EA_10A050020	Good
BALLYCREEN BROOK_020	River	IE_EA_10B020700	High
DARGLE_010	River	IE_EA_10D010010	Good
GLENCULLEN_010	River	IE_EA_10G020300	High
Southwestern Irish Sea - Killiney Bay (HA10)	Coastal	IE_EA_100_0000	High
VARTRY_010	River	IE_EA_10V010050	Good

Appendix 2

Pollution Impact Potential Mapping





Appendix 3

Summary information on all waterbodies in the Ovoca-Vartry 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)
10_3	IE_EA_10A020200	AUGHRIM (WICKLOW)_010	River	At risk	At risk	Moderate	Moderate	No	DWW, UR	Aughrim (Wicklow)	<p>Aughrim WWTP decanting very quickly and some issues with Ammonia. WCC to prioritise Licence review.</p> <p>IFI In 2018 the EPA reported excessive algal growth and siltation at Coats Bridge (0200). There is a man-made rock weir operated by a local fish farmer to control water flow into the farm. In 2018 under drought conditions the level of the weir was adjusted and this has led to backwatering of the river upstream causing ponding and siltation. This, in turn has silted up and destroyed a very important spawning area for lamprey spp. The adjustment of the weir also caused an issue for fish passage particular during low flow conditions. This would be a good opportunity to work with local stakeholders to improve fish passage over the weir and resolve the ponding issue upstream.</p>
10_3	IE_EA_10A020400	AUGHRIM (WICKLOW)_020	River	At risk	At risk	Moderate	Moderate	No	Other	Aughrim (Wicklow)	WCC to prioritise Licence review. IW should invest in Aughrim WWTP - only one batch reactor at present under pressure.
10_10, 10_9	IE_EA_10A030700	AVOCA_010	River	Review	At risk	Poor	Bad	No	Other	Avoca	Historic mines Beyond 2027 Review restoration plans and implementation
10_3, 10_9	IE_EA_10A031050	AVOCA_020	River	Review	At risk	Bad	Bad	No	Other	Avoca	Historic mines Beyond 2027 Review restoration plans and implementation Link to Avoca_010 mine

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)
10_9	IE_EA_10A031140	AVOCA_030	River	Review	Review	Unassigned	Unassigned	No		Avoca	Unassigned WB Link to Avoca_010 mine
10_10	IE_EA_10A040100	AVONBEG_010	River	At risk	Not at risk	Moderate	Good	No		Avonbeg	Existing PAA - met objectives
10_10	IE_EA_10A040400	AVONBEG_020	River	At risk	Not at risk	Moderate	Good	No		Avonbeg	Existing PAA - met objectives
10_10	IE_EA_10A040600	AVONBEG_030	River	At risk	At risk	Moderate	Poor	No	For, UR	Avonbeg	Proposed by WW for LAWPRO Poor indicates discharge upstream. Consistently below Good at this location. WCC has completed a desk study here.
10_10	IE_EA_10A040800	AVONBEG_040	River	Not at risk	Not at risk	Good	Good	No		Avonbeg	To complete Avonbeg sub catchment
10_6	IE_EA_10A050010	AVONMORE_010	River	At risk	At risk	Moderate	Good	Yes	Ag, Other	Avonmore	Existing PAA - pH project. Continue project. Ag and atmospheric deposition significant pressures 2027 EO
10_6	IE_EA_10A050020	AVONMORE_020	River	At risk	At risk	Good	Good	Yes	For	Avonmore	Existing PAA - pH project. Continue project. Forestry significant pressures 2027 EO
10_6	IE_EA_10A050050	AVONMORE_030	River	Not at risk	Not at risk	Good	Good	No		Avonmore	Expand existing PAA - pH project. Continue project. May consider change to Catchment Scale Research category Not at Risk
10_6	IE_EA_10A050100	AVONMORE_040	River	Not at risk	Not at risk	Good	High	No		Avonmore	Existing PAA - pH project. Continue project. May consider change to Catchment Scale Research category Not at Risk
10_7	IE_EA_10A050200	AVONMORE_050	River	Not at risk	Not at risk	Good	Good	No		Avonmore	EPA Between waterbodies that require restoration
10_7	IE_EA_10A050300	AVONMORE_060	River	Not at risk	Not at risk	Good	Good	No		Avonmore	EPA Between waterbodies that require restoration
10_7	IE_EA_10A050500	AVONMORE_070	River	Not at risk	At risk	Good	Moderate	No	Other, UWW	Avonmore	UWW Significant pressure 2027 EO WW proposed for LAWPRO Q dropped below Good for first time in 2018.
10_2	IE_EA_10A060400	ASKANAGAP STREAM_010	River	Not at risk	Not at risk	High	High	Yes		Askanagap Stream_Blue Dot	Blue Dot

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10_9	IE_EA_10B010200	BALLYDUFF STREAM (WICKLOW)_010	River	At risk	At risk	Poor	Poor	No	Ag	Avoca	Ag - poor drainage Beyond 2027 Within Sub catchment of Avoca historic mines WW study, MMU report. Fish barrier removal project. Arklow WWTP upgrade. Ag community and ASSAP needed.
10_3	IE_EA_10B020400	BALLYCREEN BROOK_010	River	Not at risk	Not at risk	Good	Good	No		Ballycreen Brook	Q Dropped from Q4-5 to 4 in 2018. status driven by Hydromorph so no loss of High Status. However High Status Objectives WB below. Desk study underway by WCC.
10_3	IE_EA_10B020700	BALLYCREEN BROOK_020	River	Not at risk	Not at risk	High	High	Yes		Ballycreen Brook_Blue Dot	EPA Between waterbodies that require protection
10_1	IE_EA_10B080500	Ballyronan Stream_010	River	At risk	At risk	Moderate	Moderate	No	DWW, Ind	Kilcoole Newcastle and Newtownmountkenedy	A number of WB discharging to coastal waters. LAWPRO propose single PAA to address all within one sub catchment. DWW, Industry significant pressure 2027 EO proposed by WW for IW Q3-4 in 2012. No update since. Garden Village WWTP still an issue - No assimilative capacity. Connection to sewer an option. NPWS IE0002249 - The Murrough Wetlands SAC Calcareous fens with Cladium mariscus and species of the Caricion davallianae
10_4	IE_EA_10B980500	BALLYMACAHARA_010	River	Not at risk	Review	Good	Good	No			
10_6	IE_EA_10C010100	CLOGHOGEBROOK_010	River	Review	Review	Moderate	Moderate	No		Avonmore	expand existing PAA - pH project. SACONM Continue project. May consider change to Catchment Scale Research category
10_2	IE_EA_10C020500	COOLALUG STREAM_010	River	At risk	Review	Moderate	Good	No		Coolalug Stream	WW propose for FS Q-value improved. Q Toggles consistently. Unlikely to hold onto

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											improvement. Forestry with felling planned beyond 2021 - Any special Forestry measures that could help?
10_5	IE_EA_10C040350	CARRICKMINES STREAM_010	River	At risk	At risk	Moderate	Moderate	No	UR	Carrickmines	Existing PAA: part of the Dublin Urban Rivers LIFE project. Rename and expand to include Shanganagh_010. Urban catchment Urban runoff significant pressure 2027 EO
10_5	IE_EA_10D010010	DARGLE_010	River	At risk	At risk	Good	Good	Yes	Hymo	Dargle	Existing PAA: awaiting further characterisation Change name and expand. Contains HSO site Hymo significant pressure 2027 EO IFI catchment project
10_5	IE_EA_10D010100	DARGLE_020	River	Not at risk	Not at risk	Good	Good	No		Dargle	Expand existing PAA Fish ONM IFI catchment project
10_5	IE_EA_10D010250	DARGLE_030	River	At risk	Review	Poor	Moderate	No		Dargle	Existing PAA: awaiting further characterisation Change name and expand. Fish ONM UWWTP - On CIP 2027 EO IFI catchment project
10_5	IE_EA_10D010300	DARGLE_040	River	Not at risk	Not at risk	Good	Good	No		Dargle	Expand existing PAA to complete sub-catchment. DWWTS study- Crinkin stream Fish ONM 2027 EO IFI catchment project
10_2	IE_EA_10D020300	DERRY WATER_010	River	Not at risk	Not at risk	Good	Good	No		Derry Water	WW propose for WW Q Dropped from Q4-5 to 4 in 2018. status driven by Hydromorph so no loss of High Status. However High Status Objectives WB below. Desk study underway by WCC.
10_2	IE_EA_10D020600	DERRY WATER_020	River	Not at risk	Not at risk	Good	Good	No		Derry Water	IFI There is an impassable bridge apron at Balliglen on the Derrywater which is

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											preventing Salmonids from utilising kilometres of ideal spawning habitat above Ballinglen. A survey IFI conducted in the early 2000's found high numbers of juvenile Salmon downstream and no Salmon upstream of the bridge. The newly established East Wicklow River Trust along with LAWPRO, Wicklow Co Co. and IFI are looking into a project to create fish passage upstream. The EPA has also classified the upper Derrywater good status (4) in 2018. The reason for not achieving high status was the hydrometric issues downstream. This could be a good area for action as it will build on work already done by other groups and might also feed into the Blue dot programme to address the decline in high status waterbodies.
10_2	IE_EA_10D020800	DERRY WATER_030	River	Not at risk	Not at risk	Good	Good	No			
10_5	IE_EA_10G010200	GLENCREE_010	River	Not at risk	Not at risk	Good	Good	No		IFI Glencree	IFI research IFI have an ongoing interest in the Dargle catchment as its one of the most important sea trout catchments on the east coast. The catchment has been selected as part of IFI's national climate change mitigation research project and as part of this project it has been included in IFI's national river water temperature monitoring network. This information was included to flag this work feeds into Dargle_020
10_5	IE_EA_10G020300	GLENCULLEN_010	River	At risk	Not at risk	Good	High	Yes		Glencullen_Blue Dot	High status objective; DWWTS grant; forestry
10_5	IE_EA_10G020500	GLENCULLEN_020	River	Not at risk	Not at risk	Good	Good	No			
10_6	IE_EA_10G030200	GLENMACNASS_010	River	At risk	Not at risk	Moderate	Good	No			
10_6	IE_EA_10G030600	GLENMACNASS_020	River	Not at risk	Not at risk	Good	Good	No			
10_3	IE_EA_10G040500	GOLDMINE_010	River	Not at risk	Not at risk	Good	High	No			

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10_7	IE_EA_10G050100	GLENEALO_010	River	Not at risk	Not at risk	Good	Good	No		Avonmore	Expand existing PAA to include 10_6 and 10_7 subcatchments
10_7	IE_EA_10G050400	GLENEALO_020	River	At risk	At risk	Moderate	Moderate	No	For, Other	Avonmore	SACONM Historic mines significant pressure Beyond 2027 EO WW proposed for LAWPRO Br d/s Upper lake has never been higher than Q3-4. Worth investigating Q slightly farther away from outfall of the lake and apply to move station if this is at Q4 or higher.
10_7	IE_EA_10G060200	GLENDASAN_010	River	Not at risk	Not at risk	Good	Good	No		Avonmore	Avonmore - HS Site in non HSO WB not achieving High EPA Between waterbodies that require restoration
10_8	IE_EA_10H060930	Haughtons_010	River	Review	Review	Unassigned	Unassigned	No		Cornagower GWS	NFGWS Cornagower GWS NPWS IE0000729 - Buckroney-Brittis Dunes and Fen SAC Humid dune slacks
10_4	IE_EA_10I020430	Inchanappa_010	River	Review	Review	Unassigned	Unassigned	No			
10_1	IE_EA_10K010580	Kilcoole Stream_010	River	At risk	At risk	Moderate	Moderate	No	UWW	Kilcoole Newcastle and Newtownmountkennedy	A number of WB discharging to waters. LAWPRO propose single PAA to address all within one sub catchment. UWW significant pressure 2027 EO proposed by WW for IW Q3-4 in 2015. No Q since. OrthoP & Amm elevated u/s Kilpedder WWTP due to infiltration and pump station overflows at Kilpedder. Ambient data u/s of Kilcoole WWTP indicates PO4 and Ammonia within ELVs in 2018 & 2019. Any plans from Irish Water? IFI These are two short run catchments in Wicklow with good stocks of Brown Trout and a run of Sea Trout. Both rivers are regarded as moderate status

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											by the EPA. They also both have WWTP in their lower reaches. Because the two rivers are similar in catchment size, ecology and experience similar pressures, there may be two for one benefit in finding a solution for moderate ecological conditions prevalent on both systems. NPWS IE0002249 - The Murrough Wetlands SAC Calcareous fens with Cladium mariscus and species of the Caricion davallianae
10_5	IE_EA_10K020200	KILL OF THE GRANGE STREAM_010	River	At risk	At risk	Poor	Poor	No	Hymo, UR, UWW	Kill of the Grange	Urban catchment. Further characterisation required. Link in with previous work by DLRD and IW. Learning s from DUR LIFE project. Hymo, UWW, URO significant pressures. 2027 EO DLRD Overflows// IW drainage study Misconnection surveys and wetland. Flooding work and attenuation pond
10_5	IE_EA_10K030600	KILMACANOGE_010	River	At risk	At risk	Moderate	Moderate	No	UR	Dargle	Existing PAA: awaiting further characterisation Change name and expand. Feeds into Dargle_030. URO and UWW significant pressures 2027 EO
10_9	IE_EA_10K310720	Kilmurry stream_010	River	At risk	At risk	Unassigned	Unassigned	No	Ag	Avoca	To complete sub-catchment. Unassigned WB
10_1	IE_EA_10K520710	KILRUDDERY_DEERPARK_010	River	Review	Review	Unassigned	Unassigned	No		Kilcoole Newcastle and Newtownmountkennedy	A number of WB discharging to waters. LAWPRO propose single PAA to address all within one sub catchment. Unassigned WB
10_8	IE_EA_10K550680	KILPOOLE_LOWER_010	River	Review	Review	Unassigned	Unassigned	No			
10_1	IE_EA_10N010600	NEWCASTLE (WICKLOW)_010	River	Review	At risk	Good	Moderate	No	Ag, UWW	Kilcoole Newcastle and Newtownmountkennedy	A number of WB discharging to waters. LAWPRO propose single PAA to address all within one sub catchment. Ag, UWW significant pressures

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											Ag - poor drainage - beyond 2027 EO WW proposes for LAWPRO Q toggles between G & M. Phos removal and Amm reduction at Newcastle WWTP should help. Agri Catchment upstream. Wicklow Co Co has completed a Desk Study here. NPWS IE0002249 - The Murrough Wetlands SAC Calcareous fens with Cladium mariscus and species of the Caricion davallianae
10_1	IE_EA_10N020150	NEWTOWNMOUNTKENNEDY_010	River	Not at risk	Review	High	Good	No		Kilcoole Newcastle and Newtownmountkennedy	A number of WB discharging to waters. LAWPRO propose single PAA to address all within one sub catchment. HS Site in non HSO WB not achieving High Proposed by WW Q High 200m u/s at Br nr Hermitage. Silt noted as an issue at Cooladoyle site. Quarry in between Hermitage and Cooladoyle. Small geographical area to survey. WCC has completed a desk study here. HS Site - DS LCA by WW - back to high? CB confirm
10_1	IE_EA_10N020600	NEWTOWNMOUNTKENNEDY_020	River	At risk	At risk	Poor	Poor	No	Other	Kilcoole Newcastle and Newtownmountkennedy	A number of WB discharging to waters. LAWPRO propose single PAA to address all within one sub catchment. Athropogenic pressures 2027 EO Proposed by WW for IW Newtown Pumping station impacting here. Listed for 2027 objectives during second cycle planning. Time to start planning a solution now. NPWS IE0002249 - The Murrough Wetlands SAC

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											Calcareous fens with Cladium mariscus and species of the Caricion davallianae
10_3	IE_EA_10O010100	OW_010	River	At risk	Not at risk	Moderate	Good	No			
10_3	IE_EA_10O010300	OW_020	River	Not at risk	Not at risk	Good	Good	No		OW_pH project	NFGWS - Asknagap GWS Include for forestry aspects for pH project. EPA Between waterbodies that require restoration
10_3	IE_EA_10O010400	OW_030	River	Not at risk	Not at risk	Good	Good	No			
10_8	IE_EA_10P010300	POTTER'S_010	River	At risk	At risk	Moderate	Moderate	No	Ag, For, Hymo, M+Q, Other	Potters and Three Mile Water	Existing PAA - transition strategy 2022 Ag,For,Hymo,MQ,Oth significant pressures 2027 EO
10_8	IE_EA_10P010500	POTTER'S_020	River	Not at risk	Not at risk	Good	Good	No			
10_8	IE_EA_10R010100	REDCROSS_010	River	Not at risk	Not at risk	Good	Good	No			
10_8	IE_EA_10R010300	REDCROSS_020	River	Not at risk	Not at risk	Good	High	No		Redcross	Q-value improved to high. 2 x Septic tank upgrades nr Kilpatrick Br. Redcross WWTP now has P removal and caustic dosing to reduce ammonia. Cattle access an issue d/s of Redcross WWTP. WCC could approach farmer about this.
10_8	IE_EA_10R010600	REDCROSS_030	River	Review	Review	Unassigned	Unassigned	No		Redcross	Nutrient Analysis and SSIS confirms this WB is at Risk. Licenced discharge upstream (Pub) and Farm yard with poor history (Silage and soiled water). LCA recommended to highlight nutrient sources. NPWS IE0000729 - Buckrone-y-Brittas Dunes and Fen SAC Humid dune slacks
10_4	IE_EA_10R020600	RATHNEW STREAM_010	River	Not at risk	At risk	Good	Poor	No	Ag, DWW, Other, UR	Rathnew	Poor Q-value probably reflects two Irish Water Septic tanks in Glenealy at the top of the WB during a dry summer. Glenealy WWTP looks to be

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											adding P but there is a small trib with Farm u/s of d/s ambient station that needs examining DWWTs - Glenealy CoA; 2 class deterioration - Red Dot; new housing estates; new UWWTP; SAC - NPWS NPWS IE0002249 - The Murrough Wetlands SAC Calcareous fens with Cladium mariscus and species of the Caricion davallianae
10_5	IE_EA_10S010600	SHANGANAGH_010	River	Not at risk	At risk	Good	Moderate	No	UR	Carrickmines	Carrickmines_010 feeds this WB. DUR LIFE project to impact on this receiving water. Expanded existing PAA. Urban runoff significant pressure 2027 EO
10_8	IE_EA_10T010300	THREE MILE WATER_010	River	Review	Not at risk	Good	Good	No			
10_8	IE_EA_10T010500	THREE MILE WATER_020	River	At risk	Review	Moderate	Good	No		Potters and Three Mile Water	Existing PAA - transition strategy 2022 Met EO
10_1	IE_EA_10T030580	THREE TROUTS STREAM_010	River	Not at risk	Not at risk	Unassigned	Unassigned	No			
10_8	IE_EA_10T040500	TEMPLERAINY STREAM_010	River	Review	Not at risk	Good	Good	No			
10_4	IE_EA_10V010050	VARTRY_010	River	Not at risk	At risk	High	Good	Yes	Ag	Vartry_ Blue Dot	Blue Dot project (DS and LCA by WW) Q toggles between G & H. WCC completed SSIS in Q1 2020. Erosion from sheep access upstream an issue. IFI catchment project The catchment has been selected as part of IFI's national climate change mitigation research project and as part of this project it has been included in IFI's national river water temperature monitoring network.
10_4	IE_EA_10V010100	VARTRY_020	River	Not at risk	Not at risk	Good	Good	No		IFI Vartry	IFI research The catchment has been selected as part of IFI's national climate change mitigation research project and as part of this project it has been included in

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											IFI's national river water temperature monitoring network.
10_4	IE_EA_10V010150	VARTRY_030	River	Not at risk	Not at risk	Good	Good	No		IFI Vartry	IFI research The catchment has been selected as part of IFI's national climate change mitigation research project and as part of this project it has been included in IFI's national river water temperature monitoring network.
10_4	IE_EA_10V010300	VARTRY_040	River	Not at risk	Not at risk	Good	Good	No		IFI Vartry	IFI research The catchment has been selected as part of IFI's national climate change mitigation research project and as part of this project it has been included in IFI's national river water temperature monitoring network. NPWS IE0002249 - The Murrough Wetlands SAC Calcareous fens with Cladium mariscus and species of the Caricion davallianae
10_4	IE_EA_10W080880	Wicklow_010	River	Review	Review	Unassigned	Unassigned	No			
10_4	IE_EA_10_10	Varty Lower	Lake	Not at risk	Not at risk	Good	Good	No			
10_4	IE_EA_10_11	Vartry Upper	Lake	Not at risk	Not at risk	Unassigned	Unassigned	No			
10_5	IE_EA_10_23	Bray Upper	Lake	Not at risk	Not at risk	Unassigned	Unassigned	No			
10_6	IE_EA_10_25	Tay	Lake	Review	At risk	Moderate	Moderate	No	Other	Avonmore	SAC ONM Anthropogenic pressures 2027 EO include within Avonmore PAA
10_7	IE_EA_10_27	Nahanagan	Lake	Review	Review	Unassigned	Unassigned	No			
10_5	IE_EA_10_28	Bray Lower	Lake	Not at risk	Not at risk	Good	Good	No			
10_6	IE_EA_10_29	Dan	Lake	Review	At risk	Moderate	Moderate	No	Other	Avonmore	SAC ONM Anthropogenic pressures 2027 EO include within Avonmore PAA
10_7	IE_EA_10_30	Lower	Lake	Review	Review	Unassigned	Unassigned	No			
10_6	IE_EA_10_31	Ouler	Lake	Review	Review	Unassigned	Unassigned	No			

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10_7	IE_EA_10_32	Upper Glendalough	Lake	At risk	Not at risk	Moderate	High	No			
10_7	IE_EA_10_5	Sevenschurches	Lake	Review	Review	Unassigned	Unassigned	No			
09_16, 10_1, 10_4, 10_5, 10_8	IE_EA_100_0000	Southwestern Irish Sea - Killiney Bay (HA10)	Coastal	Not at risk	Not at risk	High	High	Yes			
10_8, 10_9, 11_3	IE_EA_140_0000	Southwestern Irish Sea - Brittas Bay (HA 10)	Coastal	Not at risk	Not at risk	Unassigned	Unassigned	No			
10_9, 11_1, 11_2, 11_3, 12_15, 12_5, 13_4	IE_SE_010_0000	Southwestern Irish Sea (HAs 11;12)	Coastal	Not at risk	At risk	Good	Moderate	No	Other		
10_5	IE_EA_110_0100	Dargle Estuary	Transitional	Review	Review	Unassigned	Unassigned	No			
10_1	IE_EA_120_0100	Kilcoole Marsh	Transitional	Review	Review	Unassigned	Unassigned	No			
10_4	IE_EA_130_0100	Broad Lough	Transitional	At risk	At risk	Moderate	Moderate	No	Ag, UR		
10_9	IE_EA_150_0100	Avoca Estuary	Transitional	At risk	At risk	Moderate	Moderate	No	Other		
09_11, 09_12, 09_13, 09_14, 09_15, 09_16, 09_2, 09_6, 09_8, 10_10, 10_5, 10_6, 10_7, 12_12, 14_18, 14_9	IE_EA_G_003	Kilcullen	Groundwater	Not at risk	At risk	Good	Good	No	Ag, For, Other		
10_1	IE_EA_G_036	Kilcoole Gravels	Groundwater	Review	Not at risk	Good	Good	No			
10_5	IE_EA_G_038	Enniskerry Gravels	Groundwater	Review	Not at risk	Good	Good	No			
09_13, 09_16, 09_8, 10_1, 10_10, 10_2, 10_3, 10_4, 10_5, 10_6, 10_7, 10_8, 10_9, 11_3, 12_11, 12_12, 12_13, 12_9	IE_EA_G_076	Wicklow	Groundwater	Review	Review	Good	Good	No			
10_10, 10_6, 10_7	IE_EA_G_077	Historic Mine (Glendalough)	Groundwater	At risk	At risk	Poor	Poor	No	Other		
10_10, 10_7	IE_EA_G_079	Historic Mine (Glenmalure)	Groundwater	At risk	At risk	Poor	Poor	No	Other		
10_10, 10_3, 10_7, 10_8, 10_9	IE_EA_G_080	Historic Mine (Avoca)	Groundwater	Review	At risk	Poor	Poor	No	Other		

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10_8	IE_EA_G_081	GWDTE-Buckroney-Brittass Fen (SAC000729)	Groundwater	Review	Not at risk	Good	Good	No			
10_8	IE_EA_G_084	GWDTE-Buckroney-Brittass Dunes (SAC000729)	Groundwater	Review	Not at risk	Good	Good	No			
09_16, 10_5	IE_EA_G_091	Industrial Facility (P0019-02)	Groundwater	At risk	At risk	Poor	Poor	No	Ind		
09_11, 09_8, 10_10, 10_2, 10_3, 11_2, 11_3, 12_1, 12_10, 12_11, 12_12, 12_13, 12_14, 12_16, 12_3, 12_6, 12_7, 12_8, 12_9, 13_5, 14_10, 14_13, 14_19, 14_6, 14_9	IE_SE_G_011	Ballyglass	Groundwater	Review	At risk	Good	Good	No	Ag, Other		
10_3, 10_9, 11_2, 11_3, 12_13	IE_SE_G_075	Inch	Groundwater	Not at risk	At risk	Good	Good	No	Ag, Other	Inch - Groundwater	<p>GSI Drinking water abstraction points within this small GWB show elevated nitrate. At Killinerin, nitrate concentrations were excessive, necessitating the drilling of a new borehole. Whilst low initially, nitrate concentrations have risen steadily and are above the threshold. Nitrate concentrations in Coolgreany PWS have decreased over the same time period, but are still impacted at 25mg/l. Knockina GWS may also have elevated NO3.</p> <p>GSI have been involved in research (together with NFGWS and TCD) into the pressures in GWS in this gwb. A PAA status would allow this already existing work to be highlighted via the WFD process.</p> <p>This GWB - high to extreme vulnerability, poorly productive aquifer, Ordovician metasediment bedrock, moderately intensive farming is likely to be representative of</p>

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											<p>neighbouring GWBs.</p> <p>GWB is at good status, but has current drinking water impacts; surface water bodies crossing the GWB are all at less than Good status.</p> <p>Build on existing programmes and community group initiatives.</p>

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