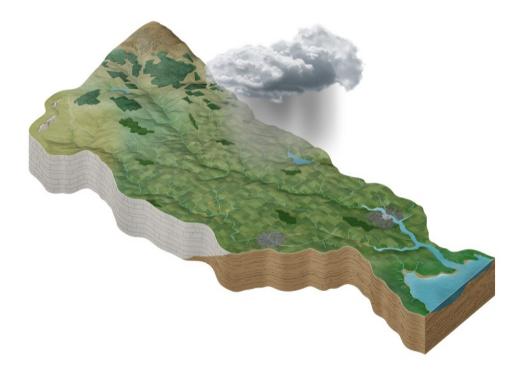
3rd Cycle Draft Donagh-Moville Catchment Report (HA 40)



Catchment Science & Management Unit

Environmental Protection Agency

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Version no. 1



Preface

This document provides a summary of the water quality assessment outcomes for the Donagh-Moville 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.

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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^{rd} Cycle River Basin Management Plan. In addition, a comparative overview of the water quality in the Donagh-Moville catchment between Cycle 2 and Cycle 3 characterisation is provided along with a summary of the progress made in the 2^{nd} Cycle Areas for Action. The recommended list for the 3^{rd} Cycle Areas for Action is also provided.

To provide context, the Donagh-Moville catchment includes the area drained by the River Donagh and all streams entering tidal water between Dunaff Head and Culmore Point, Co. Derry, draining a total area of 507km² (Figure 1). The largest urban centre in the catchment is Carndonagh. The other main urban centre in this catchment is Moville. The total population of the catchment is approximately 18,338 with a population density of 36 people per km². The catchment is largely mountainous and is entirely underlain by metamorphic rocks that provide limited groundwater resources.

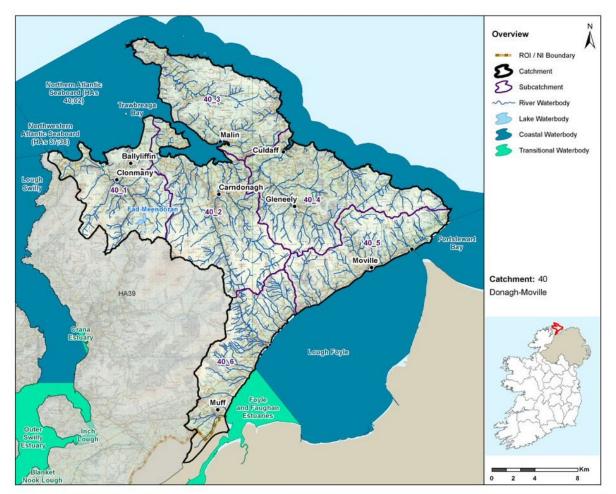


Figure 1: Overview of subcatchments in the Donagh-Moville catchment

The Donagh-Moville catchment is divided into six subcatchments (Figure 1) with 36 river waterbodies, one lake, one transitional, five coastal waterbodies and four groundwater bodies (Figure 2).

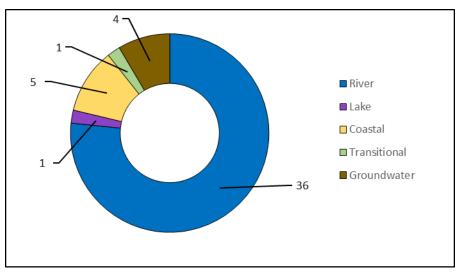


Figure 2: Waterbody types and numbers in the Donagh-Moville Catchment.

2 Waterbody Overview

2.1 Waterbody Status

- This assessment to inform the 3rd Cycle RBMP is largely based on WFD monitoring data for the period 2013-2018, which is the latest WFD monitoring assessment period for which all data are available.
- For this assessment to inform Cycle 3, there are two waterbodies (Keenagh_010 river waterbody & Northwestern Atlantic Seaboard (HAs 37;38) coastal waterbody) achieving High status, 10 achieving Good Status, two (Cabry_010 & Straid_010 river waterbodies) achieving Moderate Status, 15 achieving Poor Status and there are no Bad Status waterbodies. There are 18 waterbodies that do not have status assigned for Cycle 3. All waterbodies must achieve at least Good Ecological status.
- There is one lake waterbody (Fad Meendoran), 3 river waterbodies (Straid_010, Lough Nastackan Stream_010 & Glennagannon_010) and one coastal waterbody (Keenagh_010 river waterbody & Northwestern Atlantic Seaboard (HAs 37;38)) that must achieve High Ecological Status (HES) in this catchment. These waterbodies are listed in Appendix 1. Of the five HES Environmental Objective waterbodies, one is achieving High Status (Northwestern Atlantic Seaboard (HAs 37;38)), while 3 waterbodies (Fad Meendoran, Lough Nastackan Stream_010 & Glennagannon_010) are at Good Status, one (Straid_010) is at Moderate Status and there are no waterbodies at Poor Status or at Bad Status.
- The number of waterbodies achieving High Status has remained at two between Cycle 2 and Cycle 3. There is one less waterbody achieving Good Status (a reduction in two rivers and an increase one lake waterbody) and one less Bad Status river waterbody between Cycle 2 and Cycle 3. There have been increases in one river waterbody achieving Moderate Status and one river waterbody achieving Poor Status (Figure 3 & Table 1).

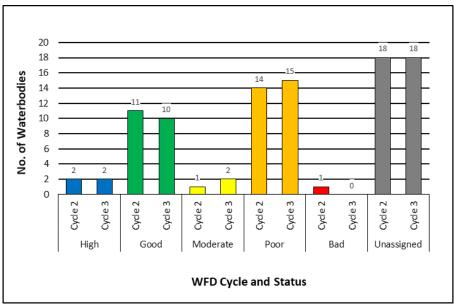


Figure 3: Waterbody Status Breakdown (All waterbodies)

Table 1: Waterbody	v Status Breakdown	Table (All Waterbodies)
	y Status Di Cakaowii	

2013-2018	Riv	/er	La	ke	Transi	tional	Coa	stal	Groun	dwater	То	tal
Status	Cycle 2	Cycle 3										
High	0	1	1	0	0	0	1	1	0	0	2	2
Good	7	5	0	1	0	0	0	0	4	4	11	10
Moderate	1	2	0	0	0	0	0	0	0	0	1	2
Poor	14	15	0	0	0	0	0	0	0	0	14	15
Bad	1	0	0	0	0	0	0	0	0	0	1	0
Unassigned	13	13	0	0	1	1	4	4	0	0	18	18
Total	36	36	1	1	1	1	5	5	4	4	47	47

- 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 four (14%) waterbodies have improved in status, 21 (72%) waterbodies have remained unchanged and four (14%) waterbodies have declined in status.¹
- Overall there has been no change in status 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 5. Percentage displayed in the Figure 5 are in relation to the total number of waterbodies with status assigned in both cycles, as opposed to total number of all waterbodies.

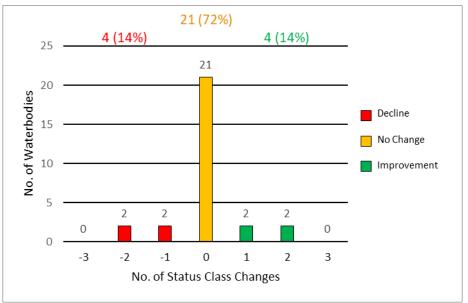


Figure 4: Status Class Changes between Cycle 2 and Cycle 3

2.2 Protected Areas

2.2.1 Drinking Water

- There are three surface waterbodies in the catchment identified as Drinking Water Protected Areas (DWPA) based on water abstraction data on the abstraction register and from other sources in 2018. All groundwater bodies nationally are identified as DWPA. DWPA layers can be viewed at <u>https://gis.epa.ie/EPAMaps/Water - see Protected Areas - Drinking Water</u>.
- 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 <u>Public Supplies</u>² and <u>Private Supplies³</u>.

2.2.2 Bathing Waters

- There are two marine bathing waters in or directly adjacent to the catchment identified under the Bathing Water Regulations 2008.
- Both Strove and Culdaff bathing waters had an Excellent classification for 2020.
- For more detailed information please see the EPA report on <u>bathing water quality in 2020</u>⁴.

2.2.3 Shellfish Areas

• There is one designated shellfish area in the catchment.

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

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

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

- The Marine Institute assessed the average dissolved concentrations for metals in shellfish waters for the period 2016-2019 and the microbial quality in shellfish flesh for 2018. This assessment was used to determine if the WFD protected area objective for shellfish areas was met.
- Details on the shellfish area and its associated waterbody is summarised in Table 2.

Table 2: Designated shellfish areas in the catchment

Shellfish Area		Water Body Inter	Objective met?		
Name	Code	Name	Code	Yes	No
Trawbreaga Bay	IEPA2_0043	North Atlantic Seaboard (HA40;02)	IE_NW_230_0000	✓	

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

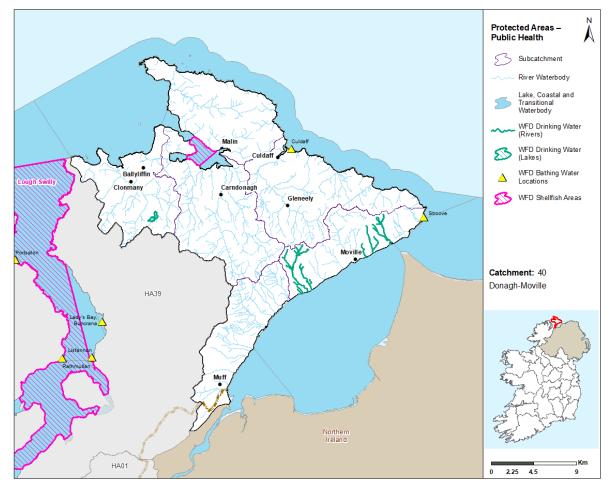


Figure 5: Protected Areas – Public Health

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 nine SACs in this catchment, six 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 3 below, information at a waterbody level can be viewed at <u>Catchments.ie</u>.⁵

Water Body Type	Total No.	Meeting the Requirements	Did not meet the Requirements	Unknown*
Rivers	17	3	7	7
Transitional & Coastal	1	1	0	0

Table 3: Natura 2000 Network Assessment Summary

*As the waterbody status was unassigned.

- There are two river waterbodies with FWPM habitats, none of which had achieved the required macroinvertebrate standard as set out in the FWPM Regulations.
- There are no groundwater bodies delineated and assessed as Groundwater Dependent Terrestrial Ecosystems for this catchment.
- Water dependent SACs/ SPAs in the catchment are illustrated in Figure 6.

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

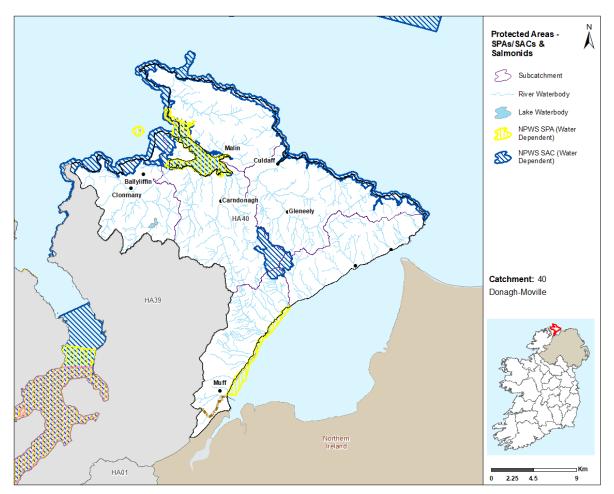


Figure 6: Water Dependent SPAs / SACs

2.2.5 Nutrient Sensitive Areas

• There are no Nutrient Sensitive Areas in the catchment.

2.3 Heavily Modified Waterbodies

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

2.4 Artificial Waterbodies

• There are no Artificial Waterbodies (AWBs) present in the Donagh 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 47 waterbodies in the Donagh-Moville Catchment and 20 (43%) are currently At Risk, 17 (36%) in Review and 10 (21%) are Not At Risk.

3.2 Surface Waters

- For the 36 rivers waterbodies, 19 (53%) are At Risk, 12 (33%) are in Review and five (14%) are Not At Risk.
- The only lake waterbody (Fad Meendoran) in the catchment is *At Risk*.
- The only transitional waterbody (Foyle and Faughan Estuaries) in the catchment is in *Review*.
- For the five coastal waterbodies, three (60%) are in *Review* and two (40%) are *Not At Risk*. There are no coastal waterbodies *At Risk* in the catchment.
- The largest proportion of *At Risk* waterbodies are found in rivers, accounting for 19 (95%) of 20 *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 no increase in *At Risk* waterbodies. There is an increase in five *Review* waterbodies, and a decline of five *Not At Risk* waterbodies between Cycle 2 and Cycle 3.

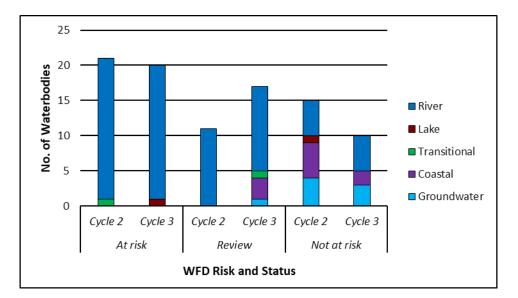


Figure 7: Number of waterbodies in each risk category

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

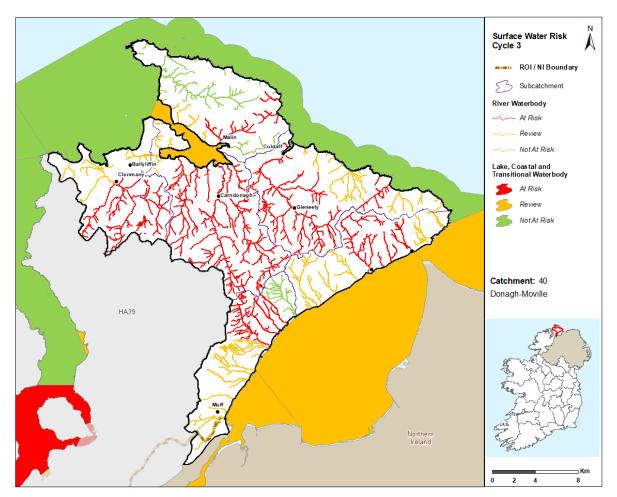


Figure 8: Surface Water Risk Cycle 3

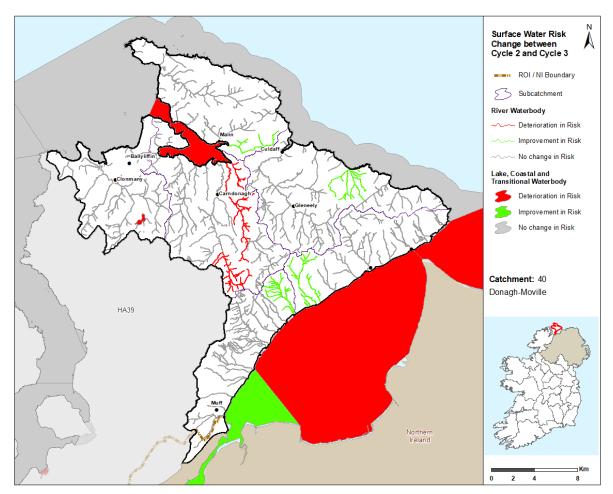


Figure 9: Surface Water Risk Change between Cycle 2 and Cycle 3

3.3 Groundwater

• For the four groundwater bodies, one (25%) is in *Review* and three (75%) are *Not At Risk*. There are no *At Risk* groundwater bodies in the catchment.

3.4 Heavily Modified Waterbodies

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

3.5 Artificial Waterbodies

• There are no Artificial Waterbodies (AWBs) present in the Donagh Catchment.

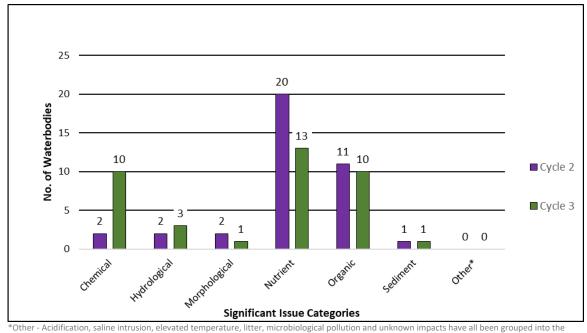
4 Significant Issues in *At Risk* Waterbodies

4.1 All Waterbodies

♦ 20 out of the 21 At Risk waterbodies are river waterbodies and the other At Risk is Fad Meendoran lake. In the lake waterbody hydrological and sediment issues are impacting. In the river waterbodies excess nutrients and organic impacts remain the most prevalent issues in the Donagh-

Moville catchment (Figure 10) impacting 13 waterbodies and 10 waterbodies respectively in Cycle 3. Chemical pollution is currently also impacting 10 waterbodies, hydrological issues are impacting three river waterbodies and morphological issues are impacting one waterbody.

- Between Cycle 2 and Cycle 3 the number of waterbodies with chemical issues has increased by eight, from two to 10 and the number of waterbodies impacted by hydrological issues has increased by one, from two to three.
- The numbers of waterbodies with nutrient have reduced from 20 in Cycle 2 to 13 in Cycle 3. The number of waterbodies impacted by organic pollution has reduced from 11 in Cycle 2 to 10 in Cycle 3. The numbers of waterbodies with morphological issues have reduced from two in Cycle 2 to one in Cycle 3.



• The number of waterbodies impacted by sediment issues remains at one since Cycle 2.

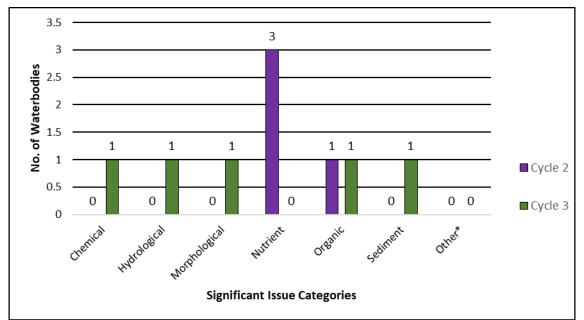
"Other - Acidification, saline intrusion, elevated temperature, litter, microbiological pollution and unknown impacts have all been grouped into th "Other" issues category for the purpose of this report

Figure 10: 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 there is no dominant significant impact type across the three High Status Objective waterbodies currently *At Risk* (Figure 11). Instead chemical, hydrological morphological organic and sediment are each impacting one waterbody.
 - There are two *At Risk* High Status Objective rivers, morphological issues are impacting the Glennagannon_010 and chemical and organic issues are impacting the Straid_010.
 - For the one High Status Objective lake (Fad Meendoran), the significant issues are sediment and hydrological impacts.
- In Cycle 2, three of the High Status Objective waterbodies were impacted by nutrients, however, none are deemed to be impacted by nutrients in Cycle 3. The number of High Status Objective waterbodies impacted by organic pollution has remained at one since Cycle 2. Chemical, hydrological, morphological and sediment impacts were not deemed to be the

significant issues in Cycle 2, but each are impacting one High Status Objective waterbody 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

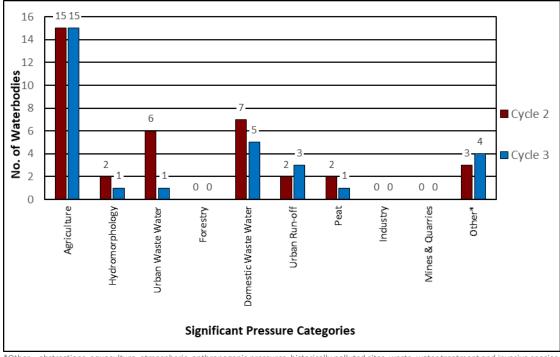
Figure 11: Significant Issues in At Risk High Status Objective Waterbodies

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 12 shows a breakdown of the number of *At Risk* waterbodies in each significant pressure category.
- The significant pressure affecting the greatest number of waterbodies is agriculture, followed by domestic waste water, other⁶, diffuse urban, urban waste water, peat and hydromorphology.
- When comparing Cycle 2 and Cycle 3 significant pressures have remained relatively consistent. Agriculture remained a pressure in 15 waterbodies. Urban run-off in considered a significant pressure in Donagh_030 adding to the urban run-off pressures identified in Bredagh_010 and Greencastle_010 in the previous Cycle. An abstraction pressure and an additional unknown pressure have been identified in Fad Meendoran Lake for Cycle 3, which explains the increase in the other significant pressure category. The number of waterbodies impacted by hydromorphological, urban waste water, domestic waste water and peat related pressures have all reduced since Cycle 2.

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 12: Significant Pressure (All At Risk Waterbodies)

5.1.1 Pressure Type

5.1.1.1 Agriculture

 All 15 waterbodies impacted by agriculture in the catchment in Cycle 3 are rivers. The issues related to farming in this catchment include phosphorus and ammonia loss from pastures to surface waters from, for example, direct discharges; or runoff from yards, roadways or other compacted surfaces, or runoff from poorly draining soils. Chemical pollution from agricultural sources, likely due to sheep dipping, has been identified in 10 waterbodies in the catchment with toxicity noted during several biological surveys.

5.1.1.2 Domestic waste water

Domestic waste water has been identified as a significant pressure in five river waterbodies. The significant issues arise from inadequate domestic waste water systems, many of which are sited on areas of high pollution impact potential/poorly draining soils, that result in enrichment and potential for microbial/organic contamination. All five waterbodies impacted by domestic waste water are also impacted by agricultural pressures.

5.1.1.3 Other significant pressures

♦ Abstractions

There are three At Risk waterbodies in the catchment where public water supply abstractions have been identified as a significant pressure. The abstraction (Inishowen West PWS) in the Clonmany_010 river is suspected to be impacting habitat due to hydrological changes in the river. The abstraction (Greencastle PWS) in the Greencastle_010 river, where there is a dam present, is also impacting habitat due to hydrological changes in the river. The abstraction (Inishowen West PWS) in Fad Meendoran lake waterbody, is a contributor to the lack of depth of colonisation.

♦ Waste

Illegal dumping of household waste was identified in the Cabry_010 river as the source of nutrient impacts which is preventing the waterbody from achieving its environmental objectives.

• Unknown anthropogenic

In addition to an abstraction in Fad Meendoran, there are other unknown pressures (likely in relation to droughts) impacting habitat and other significant impacts which require further investigation.

5.1.1.4 Urban Waste Water

 Urban Waste Water Treatment Agglomerations have been identified as a significant pressure in one At Risk river waterbody (Bredagh_010). Moville (D0212) is not scheduled for upgrades under Irish Water's Capital Investment Programme (2020-2024).

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

Facility name	Facility Type	Waterbody	2013-18 Ecological Status	Irish Water's Expected CIP Completion Date ⁷
Moville D0212	Agglomeration PE of 2,001 to 10,000	BREDAGH_010	Poor	N/A

- Urban waste water significant pressures impacted five less waterbodies than in Cycle 2 (a reduction from six to one waterbody impacted). The following Agglomerations were listed as pressures in Cycle 2 but not in Cycle 3.
 - Clonmany (D0533)
 - Culdaff (A0308)
 - Gleneely (A0368)
 - Carndonagh-Malin (D0113)
 - Redcastle Housing Scheme (A0494)

5.1.1.5 Diffuse urban

 Diffuse urban pressures, caused by misconnections, leaking sewers and runoff from paved and unpaved areas, have been identified as a significant pressure in three river waterbodies from Moville (Bredagh_010), Carndonagh (Donagh_030) and Greencastle (Grenncastle_010). Nutrient and organic pollution are the significant issues.

5.1.1.6 Hydromorphology

 Hydromorphology is a significant pressure in one river waterbody (Glennagannon_010). Land drainage has been identified as the pressure subcategory with modification to peat rivers subsequently altering river habitat.

5.1.1.7 Extractive industry

♦ Peat

In addition to chemical impacts from agricultural practices, the local authority has identified peat harvesting as a significant pressure in the Straid_010 river waterbody, with organic pollution (ammonia) identified as the associated impact.

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

Figure 13 – Figure 15 illustrates the locations of waterbodies for the three most common pressures in order of prevalence (agriculture, domestic waste water and urban run-off) within the catchment in Cycle 3.

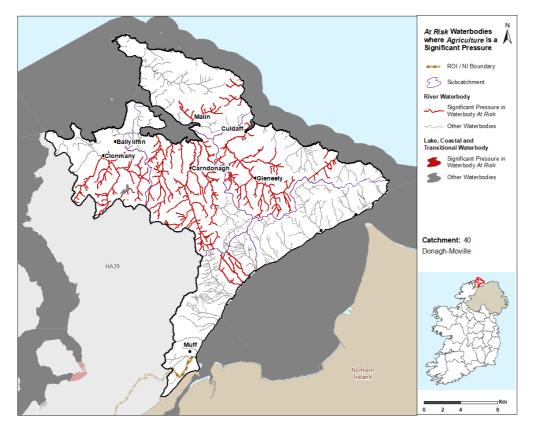


Figure 13: Locations of Waterbodies where Agriculture is a Significant Pressure

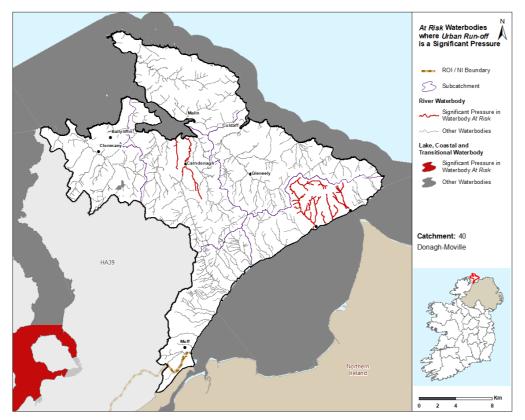


Figure 15: Locations of Waterbodies where Urban Run-off is a Significant Pressure

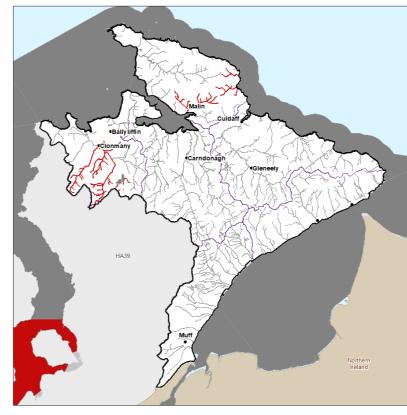
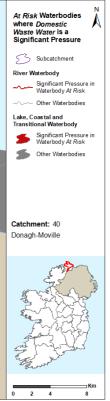


Figure 14: Locations of Waterbodies where Domestic Waste Water is a Significant Pressure



5.2 High Status Objective Waterbodies

 Of the three At Risk High Status Objective waterbodies, agriculture and peat are impacting one river waterbody (Straid_010), hydromorphology is impacting one river waterbody (Glenngannon_010) and abstractions and anthropogenic unknown (both in the 'other' category) are impacting one lake waterbody (Fad Meendoran).

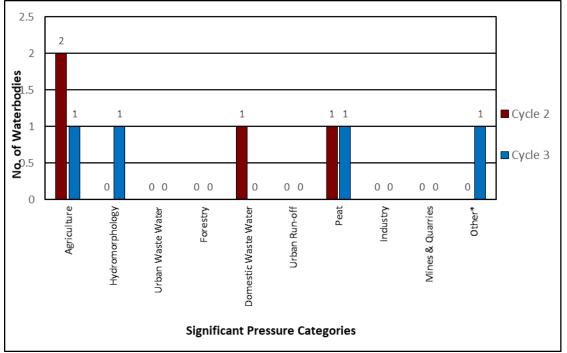


Figure 16: Significant Pressure in At Risk High Status Objective Waterbodies

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 peat land are responsible for 57% and 15% of the nitrogen load respectively while land in pasture, peat and discharges from urban waste water contribute 46%, 24% and 13% of the phosphorus loadings for the catchment respectively (Figure 17).

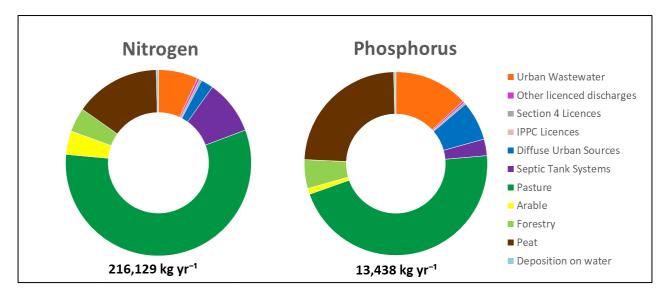


Figure 17: Estimated Proportions of N & P from Each Sector in the Donagh-Moville Catchment

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 Donagh - Moville Catchment.

7.2 Phosphorus / Sediment Load Reduction

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

Figure 18 highlights areas where agricultural measures for 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.

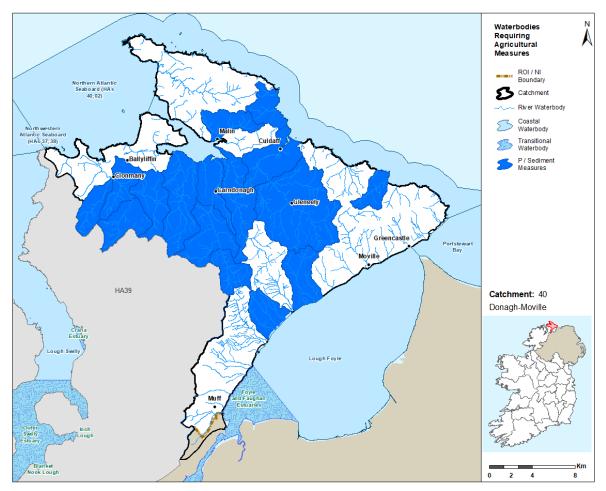


Figure 18: Waterbodies where Agricultural Measures should be Targeted

8 2nd Cycle Areas for Action

8.1 Area for Action Overview

There were five Areas for Action, comprising of 14 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 19. LAWPRO, in conjunction with local authorities and stakeholders from the Borders Regional Operational Committee, have been working in these areas since 2018.

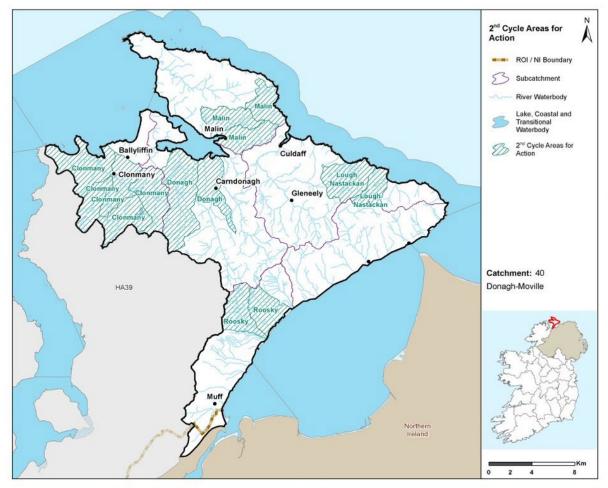


Figure 19: 2nd Cycle Areas for Action Locations

2 nd Cycle Area for	Number of	Sub-	Local	Reason for Selection
Action	waterbodies	catchment	Authority	
				One deteriorated water body.
				 Possibility to build on the
				improvement in Status of one water
Roosky	2	40_6	Donegal	body.
				 Small geographical area.
				 Multiple pressures that can be
				investigated at the same time.
				One Deteriorated High Ecological
				status objective water body.
Donagh	2	40_2	Donegal	 Starting in the Headwaters.
				Multiple pressures incorporating both
				rural and urban areas.
				 Similar pressures and issues in all
				water bodies in the subcatchment.
Clonmany	5	40.1	Donegal	 Whole subcatchment action area
Cionnany		40_1	Donegai	starting from the headwaters.
				Build on improvements in the
				Clonmany WWTP.

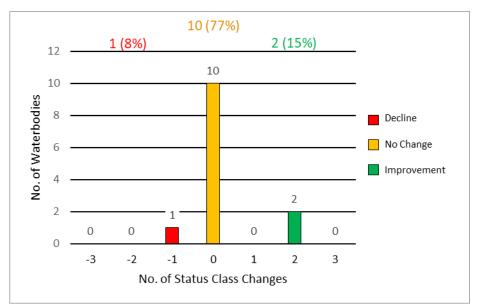
Table 5: 2 nd C	cle Areas for Action
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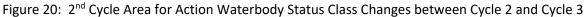
2 nd Cycle Area for	Number of	Sub-	Local	Reason for Selection
Action	waterbodies	catchment	Authority	
Malin	3	40_3	Donegal	 Two deteriorated water bodies both of which have previously been Good status. Same multiple significant pressures in the deteriorated water bodies selected in this action area.
Lough Nastackan	2	40_4	Donegal	 Two deteriorated water bodies. One of the deteriorated water bodies has a High Ecological Status objective. Both deteriorated water bodies were previously at High status. Individual water bodies with no inflowing water bodies. Same single significant pressure in both water bodies.

8.2 Status Change in 2nd Cycle Areas for Action

- For Cycle 3, of the 14 waterbodies in the 2nd Cycle Areas for Action, there are no waterbodies at High Status, there are two waterbodies at Good Status, two waterbodies at Moderate Status, nine waterbodies at Poor Status, and one waterbody where status has not been assigned.
- All waterbodies in 2nd Cycle Areas for Action are river bodies.
- There is an overall improvement in the status of one of the 2nd cycle Areas for Action waterbodies across the catchment.⁸
- Of the 13 waterbodies within the 2nd Cycle Areas for Action which had status assigned, 10 experienced no change in status between Cycle 2 and Cycle 3, two waterbodies experienced an improvement and one was subject to deterioration in status (Figure 20). Of the two waterbody improvements one (Ballyboe_010) was within the Malin Area for Action and one (Lough Nastackan Stream_010) was in the Lough Nastackan Area for Action. Both waterbodies improved two classes from Poor Status to Good Status. The waterbody which experienced decline was Straid_010 in the Donagh Area for Action and is also a High Status Objective river waterbody.

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.





8.3 Waterbody Risk in 2nd Cycle Areas for Action

- For the 14 waterbodies in the 2nd Cycle Areas for Action, 11 (79%) of these are currently At Risk, two (14%) in Review and one (7%) is Not At Risk. All At Risk waterbodies are river waterbodies.
- Figure 21 gives an overview of the breakdown of risk across waterbody types for both Cycle 2 and Cycle 3 in 2nd Cycle Areas for Action.
- Overall there is a decrease from 13 to 11 At Risk waterbodies in 2nd Cycle Areas for Action between Cycle 2 and Cycle 3 with Ballyboe_010 Not At Risk and Lough Nastackan Stream_010 in Review in Cycle 3.

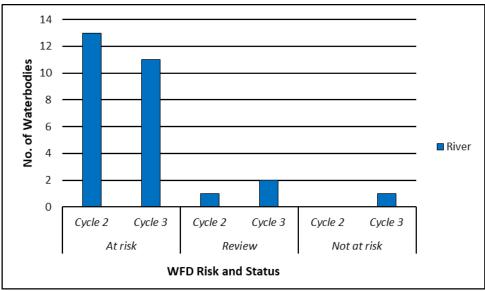
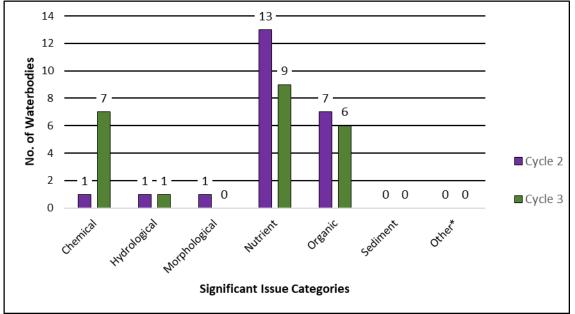


Figure 21: Number of waterbodies in each risk category in 2nd Cycle Areas for Action

8.4 Significant Issues in 2nd Cycle Areas for Action

- Based on the EPA assessment for Cycle 3, the significant issues in the 2nd Cycle Areas for Action are nutrient, chemical and organic pollution impacting nine, seven and six waterbodies respectively (Figure 22). Hydrological impacts are the only other pressure category associated with waterbodies in Cycle 2 Areas for Action and only impacts one waterbody (Cabry_010).
- 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 except for chemical pollution which has increased significantly from one to seven waterbodies.



*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 22: Significant Issues across all 2nd Cycle Areas for Action Waterbodies

8.5 Significant Pressure in 2nd Cycle Areas for Action

- For Cycle 3, in 2nd Cycle Areas for Action waterbodies in the catchment the dominant significant pressures are:
 - Agriculture 10 waterbodies are impacted compared to 11 impacted in Cycle 2.
 - Domestic waste water five waterbodies are impacted compared to seven impacted in Cycle 2.
 - Other two waterbodies remain impacted by other pressures since Cycle 2.
 - Peat Straid_010 river waterbody deemed to be impacted by peat in Cycle 3, whereas no waterbodies were impacted by peat in Cycle 2.
 - Urban run-off Donagh_030 river waterbody is deemed to be impacted by urban run-off from Carndonagh in Cycle 3.
 - Urban Waste Water is not considered a significant pressure in any of the 2nd Cycle Area for Action waterbodies. Clonmany (D0533) and Carndonagh-Malin (D0113) Agglomerations were listed as pressures in Cycle 2 (impacting Clonmany_020 & Donagh_030 river waterbodies) but has been removed from the list of significant pressures in Cycle 3.
- When comparing the significant pressures in the 2nd Cycle Areas for Action between Cycle 2 and 3 there has been a decrease in all significant pressure categories in the catchment except

for peat and urban run-off which both increased by one waterbody. The number of waterbodies impacted by other significant pressures has remained the same.

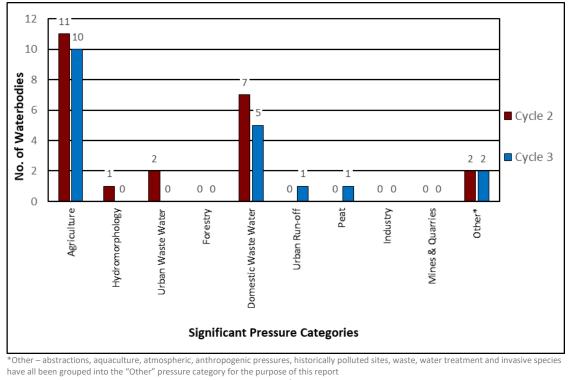
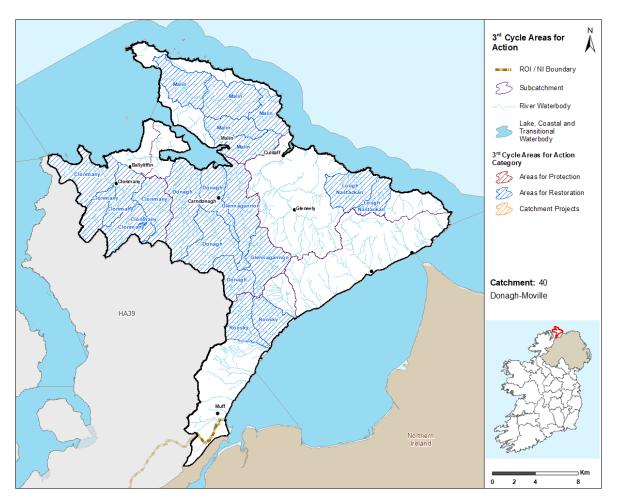


Figure 23: Significant Pressures in 2nd Cycle Area for Action Waterbodies

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 six Areas for Action, comprising of 21 waterbodies, recommended for further characterisation and action in the catchment for the 3rd Cycle River Basin Management Plan. 16 of the 21 waterbodies in the 3rd Cycle Recommended Areas for Action are At Risk, two are in Review and 3 are Not At Risk. All six Recommended Areas for Action have been categorised as Areas for Restoration. LAWPRO are the proposed lead organisation in five Recommended Areas for Action and Donegal County Council are the proposed lead in the remaining Recommended Areas for Action. The Recommended Areas for Action in the catchment are



listed in Table 6 and shown in Figure 24. The reason for selecting each waterbody in the catchment included as part of a Recommended Area for Action is provided in Appendix 3.

Figure 24: 3rd Cycle Recommended Areas for Action Locations

Table 6: 3rd Cycle Recommended Areas for Action Breakdown

		Recommended		
3rd Cycle		Areas for	Recommended	
Recommended	Number of	Action	Areas for Action	
Areas for Action	Waterbodies	Category	Sub-category	Lead Organisation
Clonmany	6	Restoration	Prioritised Areas for	LAWPRO
			Action LAWPRO	
Malin	5	Restoration	Prioritised Areas for	LAWPRO
			Action LAWPRO	
Roosky	2	Restoration	Prioritised Areas for	LAWPRO
			Action LAWPRO	
Donagh	4	Restoration	Prioritised Areas for	LAWPRO
			Action LAWPRO	
Glennagannon	2	Restoration	LA Areas for	Donegal County
-			Restoration Local	Council
			Authorities	
Lough Nastackan	2	Restoration	Prioritised Areas for	LAWPRO
			Action LAWPRO	

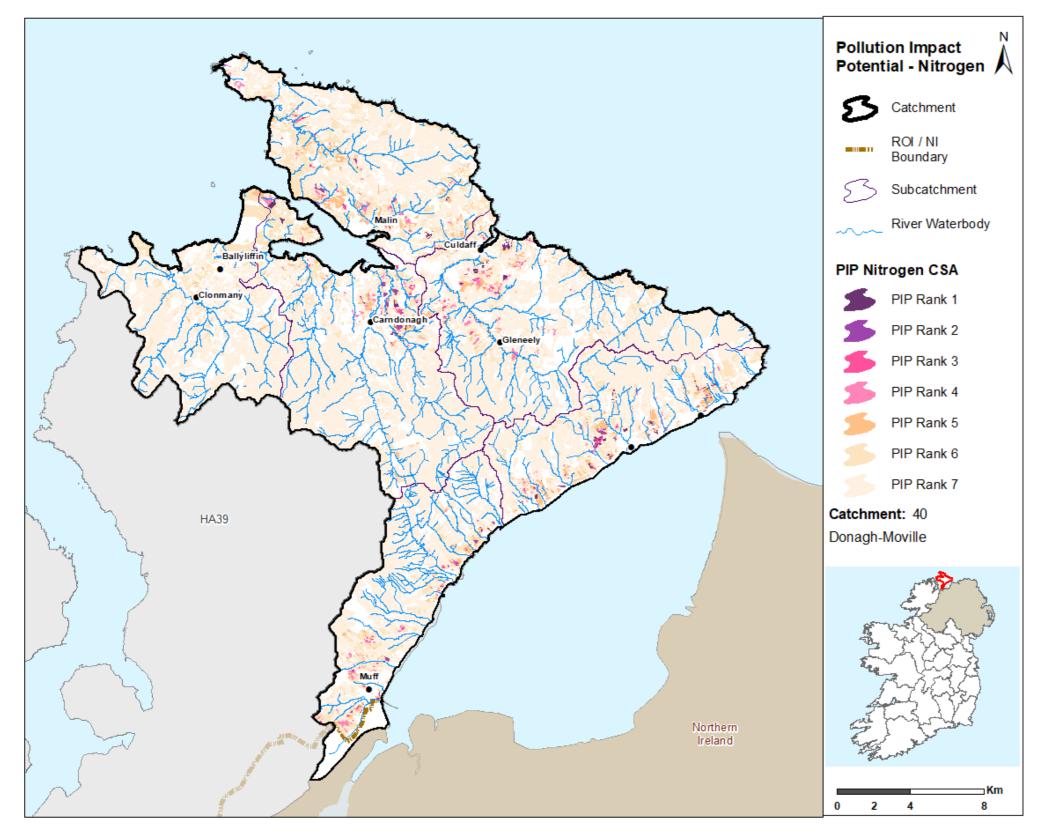
10 Catchment Summary

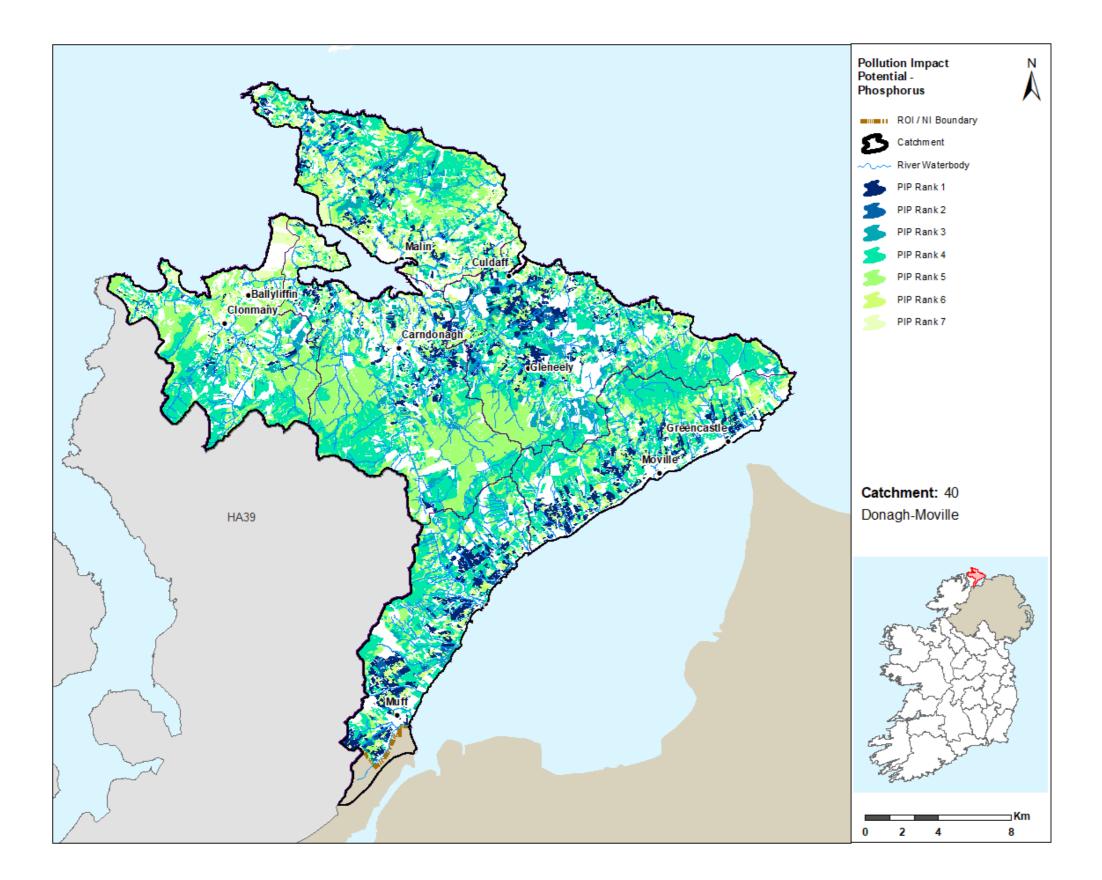
- Of the 36 river waterbodies, 19 are *At Risk* of not meeting their WFD objectives.
- The only lake waterbody in the catchment (Fad Meendoran) is *At Risk* of not meeting its WFD objective.
- There are no *At Risk* transitional, coastal or groundwater bodies.
- 21 waterbodies were *At Risk* in Cycle 2 and 20 waterbodies are *At Risk* in Cycle 3.
- The main significant issues are from nutrient, organic and chemical pollution, followed by hydrological impacts, morphological impacts and sediment.
- The main significant pressures are agriculture followed by domestic waste water, abstractions, urban run-off, urban waste water, hydromorphological pressures and peat.
- The increase in chemical pollution impacts is due to suspected toxicity reported by biologist during Q surveys, likely caused by sheep dipping activity. The increase in chemical impacts hasn't resulted in overall increase in the number of waterbodies *At Risk* in the catchment, as chemical impacts are occurring in rivers which were already indicating nutrient and organic impacts.
- In the 2nd Cycle Areas for Action, 13 waterbodies were At Risk in Cycle 2 and 11 waterbodies are At Risk in Cycle 3.
- There are six 3rd Cycle Recommended Areas for Action for Cycle 3. They comprise of 21 waterbodies with 16 waterbodies *At Risk*, two in *Review* and 3 *Not At Risk*.

Appendix 1 High ecological status objective waterbodies

Waterbody Name	Waterbody Type	Waterbody Code	Status 2013-2018	
Fad Meendoran	Lake	IE_NW_40_2	Good	
GLENNAGANNON_010	River	IE_NW_40G010015	Good	
LOUGH NASTACKAN				
STREAM_010	River	IE_NW_40L030400	Good	
Northwestern Atlantic Seaboard				
(HAs 37;38)	Coastal	IE_NW_100_0000	High	
STRAID_010	River	IE_NW_40S010400	Moderate	

Appendix 2 Pollution Impact Potential Mapping





Appendix 3 Summary information on all waterbodies in the Donagh-Moville Catchment

Subcatchment Code	Waterbody Code	Water Body Name	Water Body type	Risk 10- 15	Risk 13-18	Status 10-15	Status 13-18	High Ecological Status Objective Water Body	Significant Pressures	Recommended Areas for Action Name	Recommended Areas for Action (reasons for selection)
40_6	IE_NW_40A010930	AUGHT_010	River	Review	Review	Unassigned	Unassigned	No			
40_6	IE_NW_40A080820	ARDMORE_010	River	Review	Review	Unassigned	Unassigned	No			
40_1	IE_NW_40A090780	ARDAGH_010	River	Review	Review	Unassigned	Unassigned	No			
40_1	IE_NW_40B010200	BALLYHALLAN_010	River	At risk	At risk	Poor	Poor	No	Ag, DWW	Clonmany	Within existing PAA
40_5	IE_NW_40B020400	BREDAGH_010	River	At risk	At risk	Bad	Poor	No	UR, UWW		
40_3	IE_NW_40B030400	BALLYBOE_010	River	At risk	Not at risk	Poor	Good	No		Malin	Within existing PAA
40_3	IE_NW_40B200980	BALLYCRAMSY_010	River	Review	Review	Unassigned	Unassigned	No			
40_3	IE_NW_40B210940	BALLYGORMAN_010	River	Not at risk	Not at risk	Unassigned	Unassigned	No			
									Ag, DWW,		
40_1	IE_NW_40C010100	CLONMANY_010	River	At risk	At risk	Poor	Poor	No	Other	Clonmany	Within existing PAA
40_1	IE_NW_40C010200	CLONMANY_020	River	At risk	At risk	Poor	Poor	No	Ag, DWW	Clonmany	Within existing PAA
40_1	IE_NW_40C010300	CLONMANY_030	River	Review	Review	Unassigned	Unassigned	No		Clonmany	Within existing PAA
40_4	IE_NW_40C020100	CULDAFF_010	River	At risk	At risk	Poor	Poor	No	Ag, UWW		
40_4	IE_NW_40C020150	CULDAFF_020	River	At risk	At risk	Poor	Poor	No	Ag		
40_6	IE_NW_40C030200	CABRY_010	River	At risk	At risk	Moderate	Moderate	No	Other	Roosky	Within existing PAA
40_1	IE_NW_40C040400	CLOONTAGH_010	River	At risk	At risk	Poor	Poor	No	Ag	Clonmany	Within existing PAA
40_5	IE_NW_40C150980	COOLY_010	River	Review	Review	Unassigned	Unassigned	No			
40_5	IE_NW_40C210960	CARROWHUGH_010	River	Review	Review	Unassigned	Unassigned	No			
40_4	IE_NW_40C720780	Crocklummon_010	River	Review	Review	Unassigned	Unassigned	No			
40_2	IE_NW_40D010040	DONAGH_010	River	Not at risk	At risk	Good	Poor	No	Ag	Donagh	Expansion of existing PAA
40_2	IE_NW_40D010100	DONAGH_020	River	At risk	At risk	Poor	Poor	No	Ag	Donagh	Expansion of existing PAA
40_2	IE_NW_40D010400	DONAGH_030	River	At risk	At risk	Poor	Poor	No	Ag, UWW	Donagh	Within existing PAA
40_6	IE_NW_40D020200	DRUNG_010	River	Review	Not at risk	Good	Good	No			
40_5	IE_NW_40F010300	FAD (REDCASTLE)_010	River	At risk	At risk	Unassigned	Unassigned	No	Ag, Other, UWW		
40_2	IE_NW_40G010015	GLENNAGANNON_0 10	River	At risk	At risk	Good	Good	Yes	Hymo	Glennagannon	Opportunity to build on IRT river restoration
40_2	IE_NW_40G010200	GLENNAGANNON_0 20	River	Not at risk	At risk	Good	Poor	No	Ag	Glennagannon	Opportunity to build on IRT river restoration
40_5	IE_NW_40G020400	GREENCASTLE_010	River	At risk	At risk	Unassigned	Unassigned	No	Other, UR		
40_3	IE_NW_40K010200	KEENAGH_010	River	Not at risk	Not at risk	Good	High	No		Malin	Expansion of existing PAA - Potential Q5. High u/s (Station 200) to Good in lower
40_3	IE_NW_40K010400	KEENAGH_020	River	Not at risk	Not at risk	Good	Good	No		Malin	Expansion of existing PAA - Potential Q5. High u/s (Station 200) to Good in lower
40_4	IE_NW_40L010200	LONG GLEN_010	River	At risk	At risk	Poor	Poor	No	Ag	Lough Nastackan	Within existing PAA but referrals made re ongoing toxic impacts - exit/transition strategy
40_4	IE_NW_40L030400	LOUGH NASTACKAN STREAM_010	River	At risk	Review	Poor	Good	Yes		Lough Nastackan	Achieving WFD Objectives - exit/transition strategy and rename PAA to reflect
40_3	IE_NW_40M010200	MALIN STREAM_010	River	At risk	At risk	Poor	Poor	No	Ag, DWW	Malin	Within existing PAA

		T	1						1	
40_3	IE_NW_40P020200	PORTALEEN_010	River	At risk	At risk	Poor	Poor	No	Ag, DWW	Malin
40_6	IE_NW_40R010300	ROOSKY_010	River	At risk	At risk	Poor	Poor	No	Ag	Roosky
40_2	IE_NW_40R020770	RASHENNY_010	River	Review	Review	Unassigned	Unassigned	No		
		REDFORD_GLEBE_01								
40_4	IE_NW_40R040490	0	River	Review	Review	Unassigned	Unassigned	No		
40_2	IE_NW_40S010400	STRAID_010	River	At risk	At risk	Good	Moderate	Yes	Ag, Peat	Donagh
				Not at						
40_1	IE_NW_40_2	Fad Meendoran	Lake	risk	At risk	High	Good	Yes	Other	Clonmany
				Not at						
40_5	GBNIIE6NB010	Portstewart Bay	Coastal	risk	Review	Unassigned	Unassigned	No		
				Not at						
40_5, 40_6	GBNIIE6NW250	Lough Foyle	Coastal	risk	Review	Unassigned	Unassigned	No		
37_4, 38_1,										
38_3, 38_4,										
38_5, 38_6,		Northwestern								
38_8, 38_9,		Atlantic Seaboard		Not at						
39_1, 40_1	IE_NW_100_0000	(HAs 37;38)	Coastal	risk	Not at risk	High	High	Yes		
39_1, 40_1,		Northern Atlantic								
40_3, 40_4,		Seaboard (HAs		Not at						
40_5	IE_NW_230_0000	40;02)	Coastal	risk	Not at risk	Unassigned	Unassigned	No		
40_1, 40_2,				Not at						
40_3	IE_NW_240_0000	Trawbreaga Bay	Coastal	risk	Review	Unassigned	Unassigned	No		
01_2, 01_6,		Foyle and Faughan	Transition							
01_9, 40_6	UKGBNI5NW250010	Estuaries	al	At risk	Review	Unassigned	Unassigned	No		
			Groundw	Not at						
40_2	IE_NW_G_078	Carndonagh Gravels	ater	risk	Review	Good	Good	No		
39_1, 39_2,										
40_1, 40_2,										
40_3, 40_4,			Groundw	Not at						
40_5, 40_6	IEGBNI_NW_G_050	East Inishowen	ater	risk	Not at risk	Good	Good	No		
01_9, 39_2,			Groundw	Not at						
39_4, 40_6	IEGBNI_NW_G_051	River Foyle	ater	risk	Not at risk	Good	Good	No		
01_6, 01_8,										
01_9, 38_2,										
38_3, 38_5,										
39_1, 39_2,										
39_3, 39_4,										
39_5, 39_6,										
39_7, 40_1,			Groundw	Not at						
40_2, 40_6	IEGBNI_NW_G_059	Lough Swilly	ater	risk	Not at risk	Good	Good	No		

Ag: Agriculture

DWW: Domestic Waste Water

For: Forestry

Hymo: Hydromorphology

Ind: Industry

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

M+Q: Mines and Quarries

UWW: Urban Waste Water

Peat: Peat Drainage and Extraction

UR: Urban Run-off

36

	Within existing PAA
	Within existing PAA
	Within existing PAA
ny	Expansion of existing PAA