Castletown Priority Area for Action Desk Study Summary

This is a summary of the desk-top assessment on the Castletown Priority Area for Action (PAA). Desk study reports are, as the name suggests, written at our desks. To write these reports, we use information about each of the rivers that we monitor. We get our information from:

- the Environmental Protection Agency
- Local Authorities
- Inland Fisheries Ireland
- Irish Water
- other public agencies.

It also includes information learned from the public at a local community meeting which was held in December 2020.

In our desk study reports, we tell you about a particular river or lake.

- **quality** – how the water quality has changed over the past years.
- **importance** –for example, if its water is used for drinking water, and if there are any rare plants or and animals in it that we need to protect.
- **impacts** from human activity – here we focus on impacts that damage water quality such as wastewater treatment, agriculture, forestry, physical changes to the water.

We do desk studies first and then local catchment assessment studies (LCAs), so an LCA report contains the most up to date information where available.

Background and location

The Castletown PAA is an area of approximately 33km^2 located y in Co. Armagh and partly in Co Louth. The river is known in Co. Armagh as the Creggan River. The river flows south from Newtownhamilton in Co. Armagh and crosses the border with Northern Ireland at Ballybinaby in Co. Louth. It flows from Ballybinaby in a south-easterly direction to Dundalk Estuary and Dundalk Bay.

There are 3 sections or waterbodies in the river which are distinguished by a unique number (shown in **Figure 1**): The Castletown's two main tributaries are the Kilcurry and Falmore rivers (also known as the Cully Water) and have been added to the PAA for assessment. Dundalk & District Brown Trout & Salmon Anglers Association have most of the fishing rights on the Castletown River.

The PAA was selected for several reasons. There is one deteriorated river water body, Castletown_030. To build on recent improvements in the two water bodies upstream feeding into Castletown_030. Improvements would benefit Castletown estuary. Cross Border Partnership may be required.

- Castletown_010: This waterbody rises close to Newtownhamilton in Co. Armagh, Northern Ireland. It flows south to Ballybinaby Bridge north-west of Dundalk, crossing the border from Northern Ireland to the Republic of Ireland. The Castletown _010 flows into the Castletown _020 at Ballybinaby Bridge northwest of Dundalk.
- Castletown_020: This waterbody flows from the Ballybinaby area in an easterly direction close to Hackballscross beside the N53 to Fords Bridge at Deerpark.
- Castletown_030: This waterbody flows from the Castle Roche and Shortstone areas, in an easterly direction, where it meets the Castletown_020 river at Balregan. Upstream of St John's bridge the Cully Water and Kilcurry rivers flow into the Castletown_030 which continues east to the Castletown Estuary. The estuary is not part of the PAA.
- Kilcurry_010 (also known as Forkhill River): This river starts close to Mullaghbawn in Co. Armagh and travels south to cross the Irish border between close to Dungooley. It meets the Cully Water River at Kilcurry and continues south to the Castletown_030.
- Cully Water_010 (also known as Falmore): This waterbody starts close to Silverbridge in Co. Armagh and flows Southeast across the border into Co. Louth at Dungooley. It meets the Kilcurry River at Kilcurry and flows south to the Castletown_030.

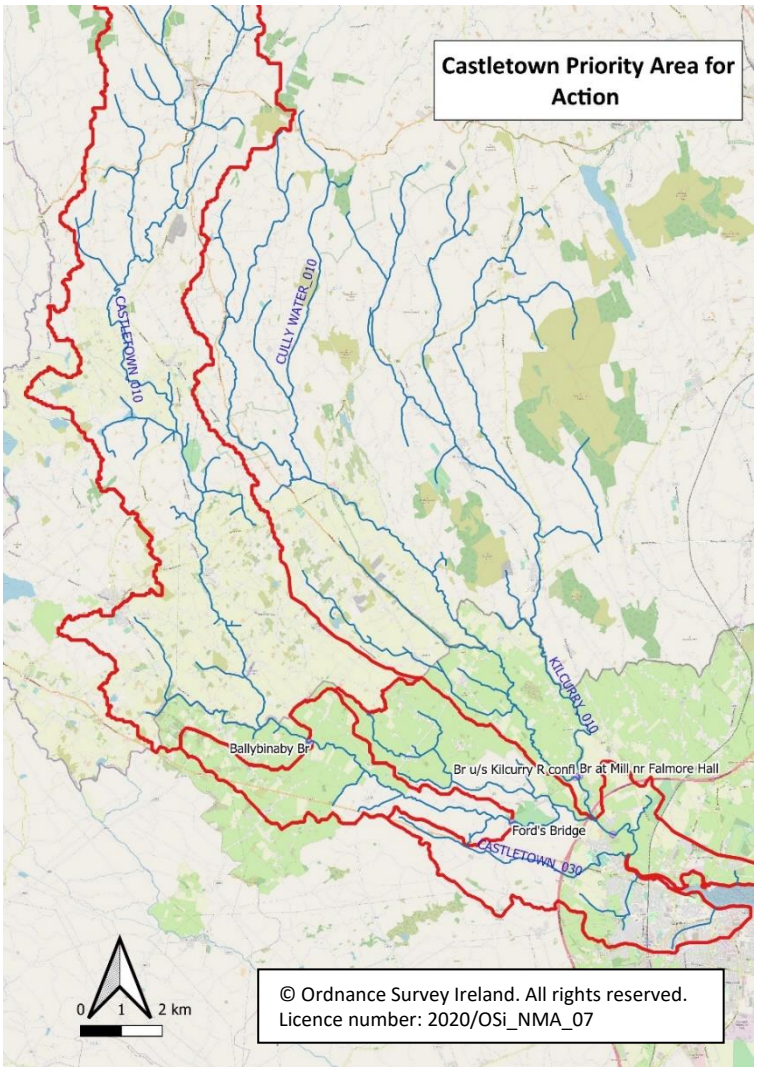

Figure 1 The Castletown PAA

Catchment Description

- The main settlements in the Castletown PAA are Crossmaglen and Cullyhanna (Co. Armagh) and Dundalk (Co. Louth). Agriculture (mainly pasture) is the main land-use in the catchment, with some areas of tillage in the centre of the catchment. Soils are generally dry throughout the PAA although there are very small areas of wet soils in each waterbody. The urban areas can create runoff to the river.
- The Castletown River is known for its salmon and trout fishing.
- Castletown_30 contains Dundalk SPA, Castletown (River and Estuary) form part of a Nutrient Sensitive area. To prevent the environment from being negatively affected by the disposal of insufficiently treated urban wastewater, there is a general need for secondary treatment of urban wastewater
- The Castletown _030 flows into Dundalk Bay SPA and Dundalk SAC and interacts with Dundalk Gravels, a groundwater body.

Water Quality in the Castletown PAA

Rivers are classified into five quality classes (status), with high being unpolluted and bad being the most polluted.

The Environmental Protection Agency (EPA) assign status at (approximately) 3-yearly intervals based on the standards set out in European legislation, the Water Framework Directive. Status is based on many different elements that altogether indicate the overall health of the river, for example the ecology recorded in river habitats, the physico-chemical condition of the river (oxygen levels, nutrient concentrations, indicators of organic and chemical pollution etc) and the physical condition of the riverbed and bank. We need to make sure that the rivers and the tributaries in the Castletown PAA are at Good status.

We have assessed water quality in each of the waterbodies and we have found that:

- The Castletown_010 is currently at Good status. This is the status that is required for this waterbody (the objective status). No improvements are needed although the status needs to be protected.
- The Castletown_020 is currently at Good status. This is the status that is required for this waterbody (the objective status). No improvements are needed although the status needs to be protected.
- The Castletown_030 is currently at Moderate status. Sources of pollution may be from agriculture and from urban sources.

Table 1: Ecological status, pressures and significance in the Castletown PAA

Water body Name	WB Type	Risk	Ecological Status				EPA Characterisation Significant Pressure Category (Sub-category) (2013-2015)	EPA Characterisation Significant Issue (2013-2015)	Desk Study Review Potential additional pressures (2019)	Desk study Review Potential Significant Issue (2019)
			2007 - 2009	2010 - 2012	2010 - 2015	2013-2018				
Castletown_010	River	*At risk*	Poor	Poor	Moderate	Good	Urban (Diffuse Sources Run-Off)	Yes	None	Nutrients, sediment
Castletown_020	River	*At risk*	Unassigned	Poor	Moderate	Good	Agriculture (Agriculture, Pasture)	Yes	None	Phosphorus sediment
Castletown_030	River	*At risk*	Good	Moderate	Moderate	Moderate	Urban (Diffuse source runoff)	Yes	None	Phosphorus and sediment
							Agriculture (Pasture)	Yes		
Kilcurry_010	River	*Review*	Good	Good	Good	Good			None	
Cully Water _010	River	*Review*	Good	Good	Good	Good			None	Phosphorus

Sources of Pollution

Pollutants find their way to rivers by several paths:

- They can be piped directly to the river from large sources such as wastewater treatment plants, or small sources such as faulty septic tanks, farmyards, roadside drains etc.
- They can flow across the ground to the river when nutrients which are applied to the land as fertiliser are washed off by rainfall before the crop and soil has absorbed them. This is usually a problem where soils are wetter and poorly draining, particularly during wet weather.
- Groundwater losses occur when pollutants move down through the soil and rock into groundwater and eventually into rivers, lakes, and coastal waters. This usually occurs when too much fertiliser is applied to land, or when the soil isn't ready to absorb the nutrient (e.g., temperatures too cold, incorrect soil pH etc) and is common in free draining or light soils.

We have identified potential sources of pollution in the Castletown PAA which we will examine further.

Agriculture is another common source of pollution to the rivers and lakes in the PAA. Agricultural activities are the source of contaminants such as nutrients and other chemicals (e.g., sheep dip, grassland herbicides) that enter rivers and lakes during wet weather by subsurface and groundwater flow, direct discharges or via drains connected to the waterbodies. There are areas in the Castletown_030 where the soils are thin and there is rock near the surface allowing nutrients to travel through the rock to the groundwater and to the river.

Diffuse urban run-off was also identified as a significant source of nutrient pollution in the Castletown_030. Dundalk is the main urban area within the Castletown_030. Irish Water have planned a Drainage Area Plan for Dundalk for 2021. These include the ability of the sewage pipe network and the Wastewater treatment plant to take the flow of the wastewater and to treat it enough so that it doesn't pollute the environment. Irish Water must decide how to construct and combine processes to ensure that the wastewater plant operates and still does not affect the environment. They must look how the system will cope with population growth expected in the future.

Other sources may also be identified during our fieldwork.

The soils are mainly free draining but with pockets of poorly draining soils and some rock breaking the soil surface in the Castletown_030.

Next Steps

Information Meetings

We held a community information meeting online on the 5th of November 2020 to tell the public about our work and to hear about water quality concerns from people living in the area. The public were concerned about the dumping of diesel wash in the catchment and the effect it could have on the river. The effects of dumping of litter in the river and who could cleans this up was also raised.

Agricultural Sustainability Support and Advice Programme (ASSAP) advisors from Teagasc, Lakeland dairies and Glanbia held an information meeting for farmers within the PAA online on the 14th of December 2020.

Fieldwork

LAWPRO's catchment scientists started fieldwork in early 2021 to identify areas where highest impact is found. We are collecting water samples to learn about the nutrient levels in the rivers. We will walk selected stretches of the river to identify where ortho-phosphate and other pollutants are being lost from the land.

The outcome of this work will be published here when available.

Figure 2 Weir downstream of St Johns Bridge at Toberona, Dundalk on the Castletown_030