



Cashla Priority Area for Action – Deskstudy Summary

This is a summary of the desk study for the Cashla Priority Area for Action (PAA), Co. Galway. Desk studies are reports that are prepared by the catchment scientists using available information and data. To write these reports, we use information available for all waters that we plan to assess in the PAA. We get our information from:

- The Environmental Protection Agency
- Local Authorities
- Inland Fisheries Ireland
- Irish Water
- The Department of Agriculture, Food, and the Marine
- Other public agencies.

The desk study also includes information learned from the public at a community information meeting specific to the Cashla PAA which was held on the 28th of September 2020.

In our desk studies, we examine a number of things:

- quality – how the water quality has changed since 2007.
- importance – for example, if its water is used for drinking water, and if there are any rare plants or animals in it that we need to protect.
- impacts from human activity – here we focus on impacts that damage water quality such as from wastewater discharges, agriculture, forestry practices, physical changes to the water body etc.

We complete desk studies first before starting our field-based assessments or local catchment assessments (LCAs).

1. Background and Location

LAWPRO catchment scientists work in specific catchment areas called Priority Areas for Action (PAAs). The Cashla PAA is located in Connemara, Co. Galway near Indreabhán (Inverin), Ros an Mhíl (Rossaveel) and Cashla (Costello). The PAA covers an area approximately 125km²

The PAA is made up of nine waterbodies: two river waterbodies and seven lake waterbodies. Cashla_010 river water body rises in the Connemara Bog Complex SAC near the townland of Seababhán (Shannawona). The river flows in a south – westerly direction flowing through a number of lakes such as Formoyle and Glenicmurrin. Cashla_010 flows out of the Glenicmurrin lake and flows into Clynagh Bay near Cashla. There is one operational EPA monitoring station at the lower end of the Cashla_010 called Cashla Bridge.

Keeraunagark_North_010 also rises in the Connemara Bog Complex SAC in Keeraunagark North near Lough Ateriff. The river flows in a westerly direction, flows through Tully Lough, flows under the R336 near the TG4 offices and flows into the Atlantic Ocean at Bun na nAbhann.

Loch an Clochar (Lough Aclogher) is located in the townland of An Clochar Mór (Cloghermore) in the headwaters of the Cashla_010 river. Charraig Choill An Bhalla is located in the townland of Sheanadh Phéistin (Shannapheasteen) and is surrounded by forestry on its northern edge and southern edges.

Loch Fhormaioil (Lough Formoyle), Loch an Roisín (Roisin lake) and Loch na Choille (Cloonadoon lake) are located in the townlands of Formaioil (Formweel) and Na Caoráin Dubha (Keeraunduff). Formoyle lake flows into Roisín, and Roisín flows into Loch na Choille. Loch Fhada na bhFiachlaí (Fiddaunnaveaghlee lake) sits in the Bhracháin (Bovroughaun) bog, where peat cutting is still taking place. Loch na Creibhinne (Lough Nagravin) sits in the townland of Baile na hAbhann Theas (Ballynahown South) and An Bhánrainn Bhán Theas (Banraghbaun South). Keeraunagark_North_010 flows into this lake and flows out, and then flows into the Atlantic Ocean at Trá an Tobair.

A catchment is an area of land around a river, lake or contributing into a body of water e.g., an estuary or coastal area. Rainwater that falls within a catchment eventually flows into rivers, lakes, or directly into estuaries or coastal waters bringing with it any contaminants that may be in the landscape. The map below (Figure 1) shows the catchment area for the Cashla PAA, the current ecological status of the rivers plus the location of the monitoring points the Environmental Protection Agency (EPA) use to undertake their assessments for the rivers.

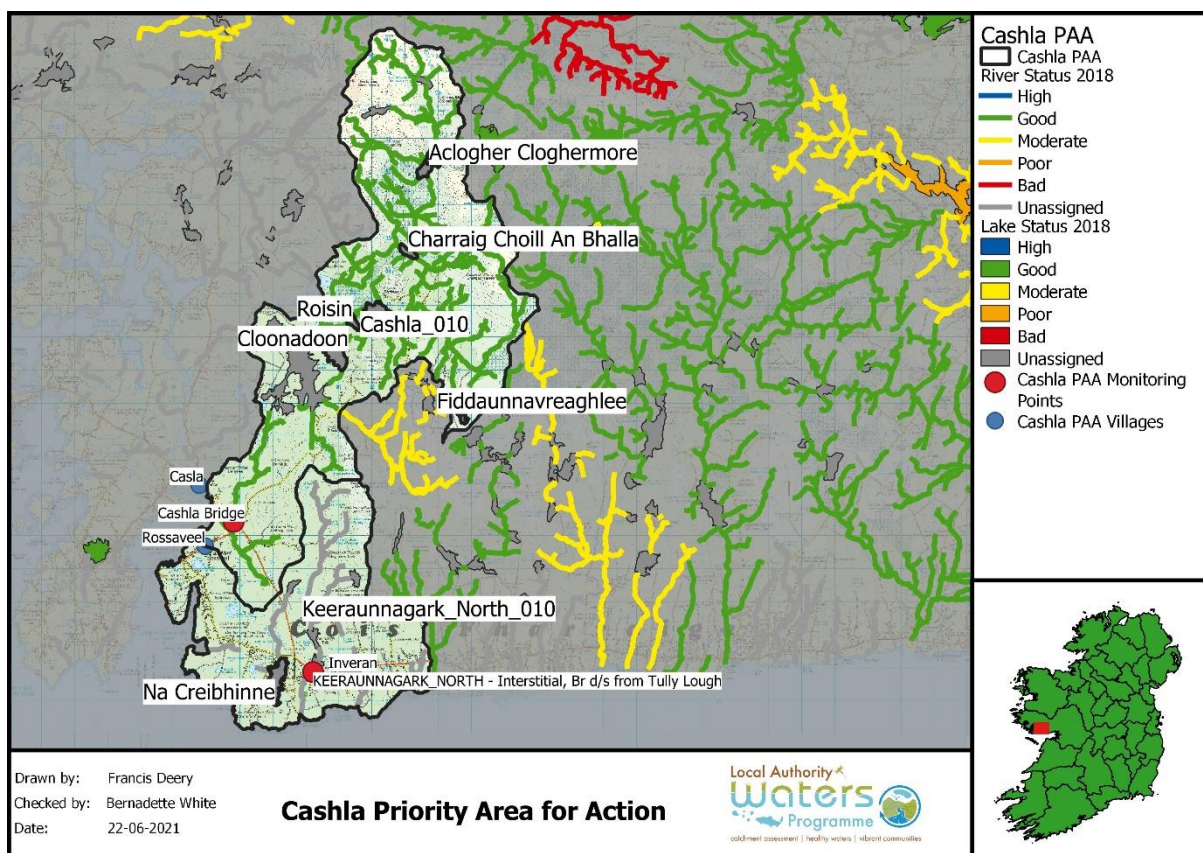


Figure 1: The Cashla PAA

2. Catchment Description

The population settlements in the Cashla PAA are the villages of Indreabhán (Inverin), Ros an Mhíl (Rossaveel) and Cashla (Costello). The landscape is dominated by blanket peat, with areas of forestry located in the headwaters of the Cashla river. Livestock farming in the form of cattle and sheep farming are common in the PAA but on a very extensive scale. Peat cutting is carried out in a number of locations throughout the PAA. As blanket peat is the dominant soil type in the area, soils are generally wet and prone to run off.

The Connemara Bog Complex SAC and SPA covers the majority of the Cashla PAA. There are a number of protected habitats and species present in this SAC and SPA including *Salmo Salar* (Salmon), *Lutra lutra* (Otter), *Najas flexilis* (Slender Naiad) and habitats such as Molinia meadows on calcareous, peaty, or clayey-silt-laden soils and Old sessile oak woods with *Ilex* and *blechnum* in the British Isles. The Connemara Bog Complex SPA supports bird species such as the Golden Plover, Merlin, and the Cormorant.

3. Blue Dot Catchments Programme

The Cashla River (Cashla_010) is also part of the Blue Dot Catchments Programme which is a collaborative programme being delivered by a range of agencies as a means of focusing attention and resources towards the protection and restoration of our high-status objective waters. The EPA have identified the waters in Ireland that should have a high-status objective, and these are more commonly known as Blue Dot waters or Blue Dots. Ireland has seen a long-term declining trend in our high-status waters. Blue Dot waters are our best quality waters. They have the highest ecological quality of all our waters and often a greater diversity of species that are sensitive to pollution. Blue Dot waters have a natural physical form that has not been changed much by human activities. Further information on this Programme can be found here - [Blue Dot Programme - Local Authority Water Programme \(lawaters.ie\)](http://lawaters.ie).

4. Water Quality History in the Cashla PAA

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



The 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 physio-chemical condition of the river (oxygen levels, nutrient concentrations, indicators of organic and chemical pollution etc) and also the physical condition of the riverbed and bank or lake shore.

We need to make sure that the Cashla_010 achieves its high-status environmental objective. For the unassigned water bodies, an environmental objective cannot be set until their water quality condition is better understood. We have reviewed water quality data available for each of the waterbodies in the PAA (Table 1) and we have found that:

- The **Cashla_010** is currently at good status, therefore status needs to improve too high. The Cashla_010 has been at good status since 2015.
- The **Keeraunagark_North_010** is not monitored by the EPA and is therefore classified as unassigned, and its ecological status and environmental objective is unknown.
- The seven lakes are not monitored by the EPA and are therefore classified as unassigned, and their ecological status and environmental objectives are unknown.

Table 1: Ecological status, pressures, and their significance in the Cashla PAA (Waterbodies in Blue indicate high status)

WB_Name	WB_Type	Risk	Ecological Status				EPA Characterisation Significant Pressure Category (Sub - Category) 2013 - 2015)	EPA Characterisation Significant Issues (2013 - 2015)	Desk studies review Potential additional pressures (2019)	Desk studies review potential Significant issues
			2007 - 2009	2010 - 2012	2010 - 2015	2013 - 2018				
Cashla_010	RWB	AR	HES	HES	GES	GES	Extractive Industry (Peat)	Nutrient Pollution Altered habitat due to morphological changes	No additional pressures identified	
						Forestry (Forestry)	Altered habitat due to morphological changes			
						Anthropogenic Pressures (Unknown)	Altered habitat due to morphological changes			
Keeraunnagark_North_010	RWB	RE	UN	UN	UN	UN	Domestic Wastewater (Single house discharges)	Nutrient Pollution	No additional pressures identified	
							Extractive Industry (Peat)	Nutrient Pollution Altered habitat due to morphological changes		
Cloonadoon	LWB	NAR	UN	UN	UN	UN	Extractive Industry (Quarries)	Altered habitat due to morphological changes	Quarries ruled out as a pressure	
Fiddaunnavreaghlee	LWB	RE	UN	UN	UN	UN	Forestry (Forestry)	Nutrient Pollution Altered habitat due to morphological changes	Peat extraction	Sedimentation and Ammonia
Aclogher Cloghermore	LWB	RE	UN	UN	UN	UN	Forestry (Forestry)	Nutrient Pollution Altered habitat due to morphological changes	No additional pressures identified	
Formoyle	LWB	RE	UN	UN	UN	UN	Forestry (Forestry)	Nutrient Pollution Altered habitat due to morphological changes	No additional pressures identified	
								Nutrient Pollution		

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			2007 - 2009	2010 - 2012	2010 - 2015	2013 - 2018				
							Extractive Industry (Peat)	Altered habitat due to morphological changes		
Na Creibhinne	LWB	RE	UN	UN	UN	UN	Domestic Wastewater (Single house discharges)	Nutrient Pollution	No additional pressures identified	
Roisin	LWB	RE	UN	UN	UN	UN	Forestry (Forestry)	Nutrient Pollution Altered habitat due to morphological changes	No additional pressures identified	
Charraig Choill an Bhalla	LWB	RE	UN	UN	UN	UN	Forestry (Forestry)	Nutrient Pollution Altered habitat due to morphological changes	No additional pressures identified	

5. Sources of Pollution

Pollutants find their way to rivers by a number of 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/ light soils.

The main potential sources of pollution in the Cashla PAA catchment are from forestry and peat cutting. There is a number of Coillte forestry plantations located in the Cashla PAA, and the planting of this forestry has taken place between the 1950s and the 1980s. There are areas of private forestry also in this PAA. The main tree species in all the plantations in the PAA are mainly Sitka spruce and lodge pole pine.

Peat cutting is considered another source of pollution in the Cashla PAA. There is a significant amount of peat extraction being carried out around the Glenicmurrin lake, which flows into the Cashla_010. There is also a significant area of peat cutting activity located around Fiddaunnvreachlee lake in the upper reaches of the Cashla_010 catchment. The concern from peat cutting is release of peat sediment to the lakes and rivers, plus ammonium from the drying of the peat.

6. Next Steps

Community Engagement Meeting

We held a community information meeting on Zoom due to Covid 19 restrictions, this meeting was held on the 28th of September 2020 to tell the public about our work and to hear about water quality concerns from people living in the area. The meeting involved two presentations by LAWPRO followed by a Q&A session with the attendees. The main issues raised at the meeting related to the peat cutting in the PAA and the release of ammonia from this peat cutting. A number of questions related to the low numbers of fish in the Cashla river.

Farmers Meeting

The Agricultural Sustainability Support and Advisory Programme (ASSAP) advisors from Teagasc did not hold an information meeting for farmers within the PAA, due to the covid pandemic, together with the large number of unassigned water bodies in the PAA. Should agriculture be identified as a significant pressure on the Cashla_010 river, they will contact farmers directly to provide free and confidential advice on best practice which will benefit water quality in the area.

7. Local Catchment Assessment

For the Cashla_010 river the LCA will concentrate on the river stretches upstream of the EPA monitoring station. It will specifically focus on the areas of forestry and peat cutting around Glenicmurrin lake. It is anticipated that LCA will commence in Spring 2020 and will include biological assessments using the Small Streams Impact Score (macroinvertebrates, macroalgae and macrophytes) plus water quality probes to record dissolved oxygen, conductivity, temperature, and pH, plus water samples will be taken for lab analysis. As Keeraunagark_North_010 is currently unassigned and the seven lakes are unassigned also, the LCA will seek to determine the water quality of these waterbodies. A number of seasonal rounds of sampling will be required to determine whether these water bodies are impacted or not.



Na Creibhinne Lake in the Cashla PAA