



Summary: Aherlow Priority Area for Action Desk Study

This is a summary of the desk study carried out for the **Aherlow Priority Area for Action (PAA)**.

Desk studies are reports prepared by LAWPRO catchment scientists using available information and data. To write these reports, we gather information for all waterbodies (e.g., tributaries, main channel, lakes) in the PAA. The information sources we use for this can include:

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

We also collect information shared to us by the public at a local community meeting which we arrange in each PAA. The Aherlow community meeting was held in the Aherlow House Hotel on 11th February 2020. In our desk studies we examine the following:

- How the water quality has changed over time,
- The level of protection that is needed e.g., if the water is used for drinking water or not, and if there are any rare plants or animals which rely on high water quality to survive,
- Impacts from human activity where we identify the sources of pressure which may be impacting a waterbody negatively. These sources of pressure can range from wastewater treatment, agriculture, forestry, physical changes to the riverbank etc.

Desk studies are completed before starting our field-based assessments also known as local catchment assessments (LCAs). The Aherlow PAA desk study was written in 2020.

Background and location

LAWPRO catchment scientists work in specific catchment areas called Priority Areas for Action (PAAs). A catchment is an area of land around a river, lake. Rainwater that falls in the catchment flows to the river or lake and eventually out to the coastline into the sea. The topography of the area determines the catchment size.

The Aherlow PAA comprises of 6 specific subsections called water bodies. These are: **Aherlow_020, 030, 040, 050, 080 and Rossadrehid stream_010**. The lower-mid section of the Aherlow was not included in the PAA as these water bodies were achieving good status when the Prioritised Areas for Action were selected for the River Basin Management Plan 2018-2021.

- **Aherlow_020** – This is the section of river from Knockaunnacurraha/ Ardahan upstream of Galbally to Moorabbey.
- **Aherlow_030** – This is the Aherlow from Moorabbey to Stagdale bridge near Lisvarrinane and includes tributaries from the hills to the north and south of the river.
- **Aherlow_040** – This longest water body in the Aherlow PAA includes many tributaries that flow from the Galtee mountains and also from Slievenamuck.
- **Aherlow_050** – This subsection is monitored at College Br (or Br 2km SW of Foxfort) north of Rossadrehid village.
- **Aherlow_080** – This is the final part of the Aherlow before it meets the Ara and it is monitored at Killardry Br.
- **Rossadrehid stream_010** – This waterbody is a tributary that flows into Aherlow_060. It is monitored at just south of Rossadrehid village.

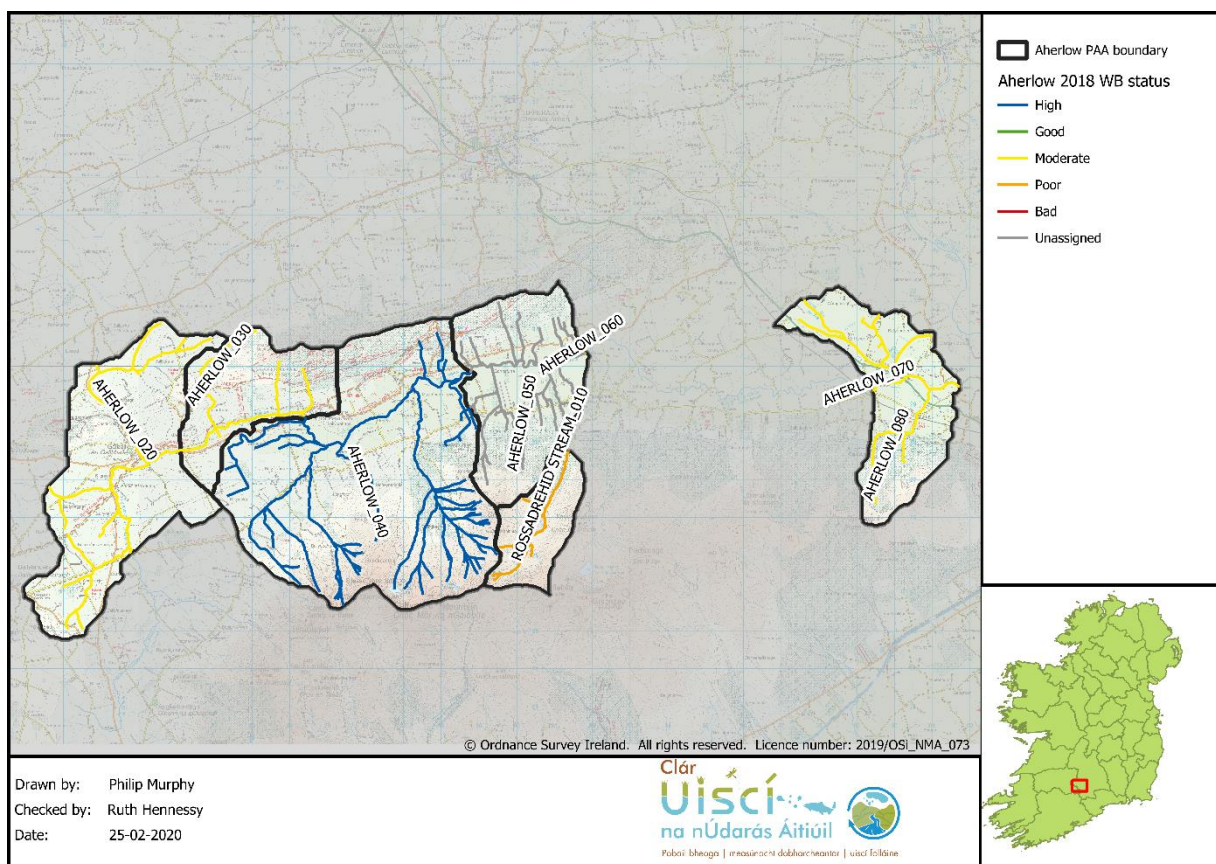


Figure 1 The Aherlow PAA showing Aherlow_020 to 050, 080, and Rossadrehid stream_010.

Catchment Description

The river Aherlow flows through the Glen of Aherlow, with the Galtee mountains south of the river and Slievenamuck to the north of the river. Many of the tributaries start in the Galtee mountains and these are often on steep ground and are expected to be relatively “flashy” during heavy rainfall events. Some of the tributaries in the lower elevation areas are slower moving and wind through the landscape. There is a mix of well and poorly drained soils throughout the whole catchment. The main land use adjacent to the waterbody is agricultural, specifically pasture. There are also areas of private and Coillte owned forestry. There is a few small urban areas too; Galbally and Lisvernane, and a number of tourist accommodation facilities (i.e. hotels, campsites) in the PAA. The Galtee Regional Water Treatment Plant is located in the Rossadrehid stream water body.

Parts of the waterbody overlap the Special Areas of Conservation (SAC) for the Lower River Suir and the Galtee Mountains. The River Aherlow is also a designated salmonid river for the protection of salmonid (salmon and trout) fish.

Water Quality in the Aherlow PAA

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



The Environmental Protection Agency 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. We want all sections of the Aherlow to achieve at least Good Status.

We have reviewed water quality information available for each of the waterbodies and we have found that:

- **Phosphate levels** in the water are too high for healthy environmental standards on 3 of the 6 waterbodies (**Aherlow_020, 030, and 080**). The nutrient issue appears to have reduced to appropriate levels in the middle of the catchment at **Aherlow_040**. There may be a number of reasons for this such as reduced phosphate loss from the surrounding catchment or an increase in the quantity of flowing water which would lead to a dilution effect.
- **Sediment levels** were highlighted by the EPA as the issue in the **Rossadrehid stream_010** waterbody. Sediment loss to the waterbody can occur naturally by erosion of the riverbanks but can be exacerbated by mechanical modification to riverbanks or from activities such as forestry felling etc.
- **Water quality status** for 2018 was the latest EPA assessment that was available at the time the desk study was carried out. In 2018, one waterbody was at **High status (Aherlow_040)**, three waterbodies were at **Moderate status (Aherlow_020, 030, and 080)**, one waterbody was at Poor status (**Rossadrehid stream_010**), and one waterbody was Unassigned i.e. no status established (**Aherlow_050**).

See **Appendix 1**: Summary Pressures and Issues in Aherlow PAA for further details.

Sources of Pollution

Pollutants (nutrients/chemicals/pathogens/sediment) can enter a waterbody at different scales and through a variety of pathways:

Direct

Pollutants 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.

Indirect & overland

Pollutants can flow across the ground to the river as “run off”. This can occur in agriculture when nutrients are applied to the land as fertiliser are washed off by rainfall before the crop and soil has absorbed them. This is usually a pathway where soils are wet or poorly drained. It can also occur on dry and well drained soils if heavy rainfall occurs immediately after nutrients are applied. Additionally, sediment/soil particles can be lost from the land to the waterbody after heavy rainfall particularly if there are no crops covering the ground.

Indirect & underground

Pollutants can reach deep into groundwater over time through a process called “percolation”. Rainwater naturally moves down through the soil and rock into groundwater and eventually into rivers, lakes and coastal waters and it will carry pollutants along the way if they are present. Pollutants are present when for example too much fertiliser is regularly applied to land. If fertiliser is not absorbed by crops it will build up to excessive levels beyond the crop needs and be susceptible to environmental losses through percolation. Some soil types are particularly susceptible to percolation and so environmental losses vary substantially between catchment areas. This is the case with excessive nitrogen fertiliser use on free draining sandy soils which is expected to have a higher proportion of nitrogen losses than on a poorly draining heavy soil for example.

Agricultural nutrient losses from pasture or farmyard practices are a likely source of nutrient pollution in the Aherlow PAA. There are areas within the catchment where the soils are both poorly or well drained and lying on a steep slope. This means there is a high risk of inorganic and organic fertilisers being washed off the land and into the river, streams, and drains following heavy rainfall. There is a risk of sediment/soil loss to the river from forestry stands located near the riverbanks or through drainage channels connected to the river. Sediment/soil loss is expected to occur during and after felling events or if bank modification has occurred.

The wastewater treatment plants in the catchment area will also be assessed for their impact on the river. Where evidence of discharges is found to be impacting the waterbody measures will need to be implemented at the treatment plant location.

Next Steps

Information Meetings

A community information meeting was held in Aherlow House Hotel on 11th February 2020. The meeting was attended by members of the public and local stakeholders. The meeting consisted of two presentations by LAWPRO followed by a questions and answers session with attendees.

Additionally, the Agricultural Sustainability Support and Advice Programme (ASSAP) advisors from both Teagasc and Glanbia will hold an information meeting for landowners in the catchment. This meeting will provide details of the supports available for farmers in this catchment as a Priority Area for Action.

Local Catchment Assessment

LAWPRO's catchment scientists will carry out local catchment assessments throughout 2021 and 2022 to identify sources of pollution that are affecting water quality. This will involve sampling the biology of the river (macroinvertebrates and vegetation) and chemistry (orthophosphate, ammonia, nitrogen etc) at sites along the river and we will walk selected stretches of the river to identify where pollutants are being lost from the land. Where we identify agricultural activities are confirmed as impacting water quality we will communicate our findings with to the ASSAP advisor who will work closely with farmers, providing with free and confidential advice to address these issues. LAWPRO will also review forestry activities carried out in the PAA and any water quality impacts associated with wastewater treatment will be discussed with Irish Water and the Environmental Protection Agency.

The outcome of this work will be published here (www.lawaters.ie) when available.

Appendix 1: Summary Pressures and Issues in Aherlow PAA

Table 1 Summary table of water bodies within Aherlow PAA.

WB Name (WB Code)	Obj.	Ecological Status				Pressures			
		2007- 2009	2010- 2012	2010- 2015	2013- 2018	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)
AHERLOW_020 IE_SE_ 16A010200	Good	G	G	M	M	Agriculture (Pasture) (Farmyards)	Nutrient pollution Organic + chemical pollution	- -	Phosphate
						Forestry (Forestry)	-	-	
						Urban Wastewater (Agglom. PE < 500 (Galbally))	Nutrient + organic pollution	-	
AHERLOW_030 IE_SE_ 16A010300	Good	G	G	M	M	Agriculture (Pasture) (Farmyards)	Nutrient pollution Organic + chemical pollution		Phosphate
						Domestic Wastewater (Discharge)	Organic + chemical pollution	-	
						Urban Wastewater (Agglom. PE < 500 (Cluindara (Anglesborough)))	Organic + chemical pollution + altered habitat	-	
AHERLOW_040 IE_SE_ 16A010500	Good	G	G	M	H	Forestry (Drainage)	-	-	LCA required to confirm
AHERLOW_050 IE_SE_ 16A010600	Good	NA	NA	NA	NA	Agriculture (Pasture) (Farmyards)	Organic + chemical pollution	-	Phosphate
						Forestry (Drainage)	Nutrient pollution + altered habitat	-	
						Domestic Wastewater (discharge)	Organic + chemical pollution	-	
ROSSADREHID STREAM_010 IE_SE_ 16R060100	Good	M	M	P	P	Forestry (Forestry)	Other significant impacts	-	Sediment
						Water treatment (Discharges)	-	-	
AHERLOW_060	Good	G	G	G	M	None (not in PAA)			
AHERLOW_070	Good	G	H	G	H	None (not in PAA)			
AHERLOW_080 IE_SE_ 16A010900	Good	G	G	M	M	Agriculture (Farmyards) (Pasture)	Organic + chemical pollution	-	Phosphate
						Domestic Wastewater (discharge)	Organic + chemical pollution	-	
						Forestry (Drainage)	Organic pollution	-	
						Anthropogenic Pressures (Unknown)	Other significant impacts	-	