Annalee Priority Area for Action - Desk Study Summary

This is a summary of the desk study for the Annalee Priority Area for Action (PAA), Co. Cavan. Desk studies are reports that are prepared by the catchment scientist 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 the community information meeting specific to the Annalee PAA which was held in March 2019.

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 discharges from wastewater, agriculture, forestry practices, physical changes to the water etc.

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

1. Background and Location

We, as LAWPRO catchment scientists, work in specific catchment areas called Priority Areas for Action (PAAs). The Annalee PAA is an area of approximately 12.41 km^2 located in Co. Cavan. The PAA is located toward the lower end of the Annalee River, extending from west of Ballyhaise village and flows through the village of Butlersbridge before entering the River Erne in the townland of Tullybuck (Figure 1).

The PAA was selected for several reasons. The status of the overall Annalee River is currently at good status, however this lower waterbody within the Annalee PAA is currently not reaching this good status. Fishing in general within the Annalee River is quite popular, with the river holding good stocks of perch, pike, roach, bream and trout. Although, a deterioration in the fish population has been observed within the Annalee PAA which needs to be looked into further.

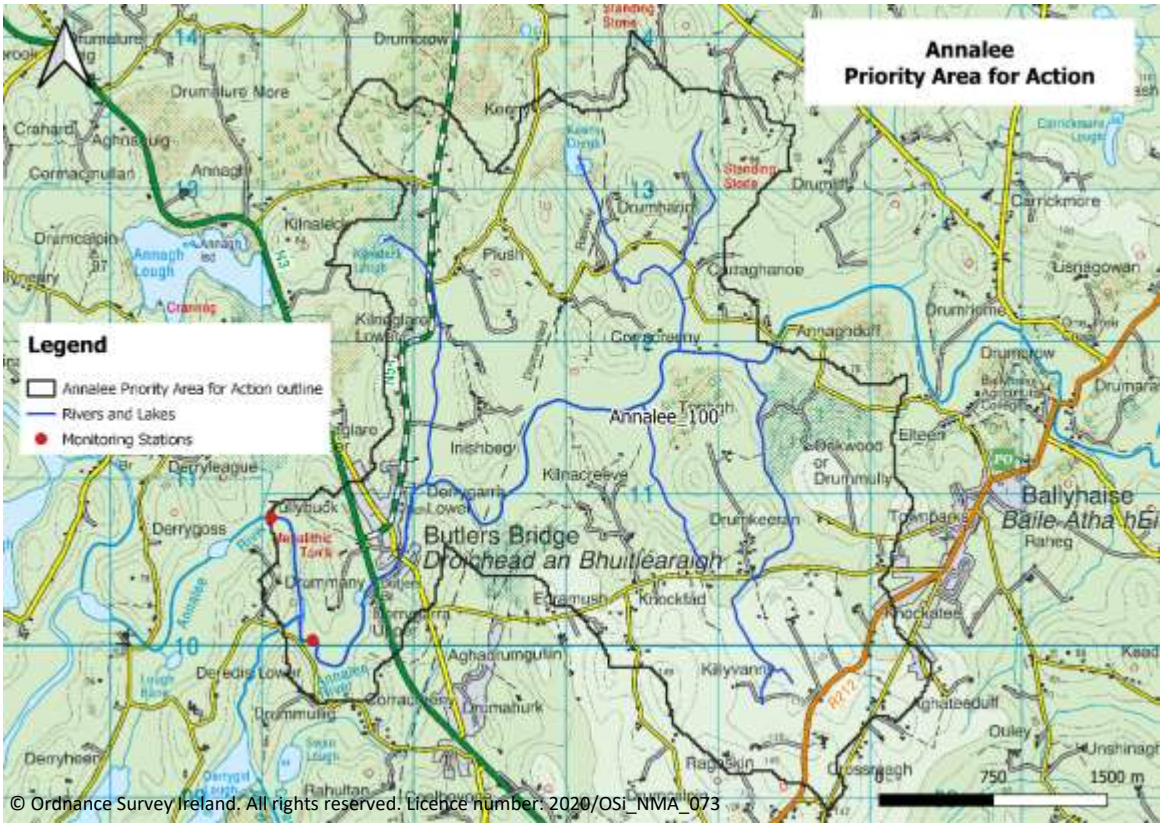

Figure 1: The Annalee PAA.

2. Catchment Description

Land cover throughout the PAA is predominantly pasture, with a small area of mixed forest located near Oakwood or Drummully. The soil type in the PAA is predominantly poorly draining soils (64%) with peat accounting for 7%, while well drained soils which are mainly located around the townlands of Knockfad and Killyvann only account for 22%.

Deredis near Butlersbridge, situated within the Annalee_100, has been identified as a key fishing location. In 2010-2011 an area of pearl mussel (Margaritifera margaritifera) was identified approximately 13 kilometres downstream from the discharge point of the Butlersbridge wastewater treatment plant.

3. Water Quality History in the Annalee PAA

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

High	Good	Moderate	Poor	Bad

The EPA assign status approximately every 3 years based on the standards set out in 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 or lake shore.

We need to make sure that the Annalee PAA achieves its good status objective. We have reviewed water quality data available for the waterbody (**Table 1**) and we have found that:

- The Annalee_100 is a good status waterbody which is currently only achieving moderate status. The decline in water quality is believed to be caused by an increase in nutrients. The desk study has identified that the Cavan River which flows into the Annalee River at Deredis Bridge maybe causing the increase in nutrients in the Annalee River. The Cavan River is currently at poor status and the decline in water quality to the Cavan River is also believed to be from increased nutrients.

Table 1 Ecological status, pressure and significance in the Annalee PAA.

WB Name	WB Type	Risk	Ecological Status				EPA Characterisation Significant Pressure Category (Sub-category)	EPA Characterisation Significant Issue	Desk Study Review Potential Additional Pressures	Desk Study Review Potential Significant Issue
			07-09	10-12	10-15	15-18	(2013-2015)	(2013-2015)	(2019)	(2019)
Annalee_100	River	*At Risk*	M	M	M	M	Agriculture (Pasture)	Nutrient and Organic Pollution	Additional pressures associated with the Cavan River which include: Agriculture (Pasture) Urban Runoff (Diffuse) Urban Wastewater (Agglomeration >10000PE)	Nutrients Organic Pollution (ortho-phosphate & ammonia), and Sediment

4. 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 had time to absorb 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 is not ready to absorb the nutrient (e.g., temperatures too cold, incorrect soil pH etc.) and is common in free-draining/ light soils.

Agriculture is a common cause of pollution to the lower Annalee River. Agricultural activities are the source of contaminants such as nutrients and other chemicals (e.g. grassland herbicides) that enter the rivers during wet weather by overland flow, direct discharges or via drains connected to the waterbodies. Wet soils are most vulnerable to phosphorus, sediment and herbicide/ insecticide runoff during rainfall events. Furthermore, in areas where bedrock is expose or near to the surface, the application of slurry or chemical fertiliser, herbicides etc. will result in the direct transfer of the contaminant into the groundwater, which may then re-emerge in or in other nearby rivers and streams.

Even though the Cavan River is not included within the Annalee PAA the desk study has highlighted that excess nutrients from the Cavan River may also be a source of pollution for the Annalee River. This will need further investigation through the LCA.

5. Next Steps

Community Engagement Meetings

A community information meeting was held in the Annalee PAA at the Butlersbridge Community Centre on the 7th of March 2019. The meeting was attended by members of the public and local stakeholders. The meeting involved two presentations, one from the LAWPRO Community Water Officer outlining community projects which are currently going on within the Annalee PAA and the wider county of Cavan and a second presentation from the LAWPRO

Catchment Scientist, outlining the work which is planned for the Annalee PAA to determine the recent decline of water quality in the lower Annalee River. This was followed by a question and answer session with the attendees.

Farmers Meetings

The Agricultural Sustainability Support and Advice Programme (ASSAP) advisors from Teagasc and Lakeland Dairies held an information meeting for farmers in Ballyhaise Agricultural College on the 27th of May 2019. This meeting was attended by farmers located within the PAA and involved presentations from the ASSAP advisors and the LAWPRO Catchment Scientist. During this meeting, the advisors answered questions and gave details of the supports available for farmers in this catchment, which was followed on by a demonstration of how the catchment scientist carry out the river assessment within the Annalee River.

6. Local Catchment Assessment

Local Catchment Assessment is expected to commence during the summer of 2019 to confirm the source of pollution affecting water quality in the lower Annalee River and to identify any addition pollution sources (i.e., issues from the Cavan River). Where water quality improvements have already occurred in the river or inflowing streams, LAWPRO will work to identify activities that pose a risk to maintaining the current good water quality within the river. Where agricultural activities are confirmed as impacting water quality through the introduction of sediments, nutrients and/ or pesticides, we will communicate our LCA findings to the ASSAP advisors for the area, who will work closely with farmers providing them with free and confidential advice to address these activities. In the case of the Annalee PAA, LAWPRO will also liaise with Inland Fisheries Ireland (IFI) about the issues affecting fish.

Figure 2: Annalee River