1 Summary: Ara Priority Area for Action Desk Study

This is a summary of the desk study for the Ara Priority Area for Action (PAA).

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 community information meetings specific to the Ara PAA which was held in February 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 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).

2 Background and location

The Ara PAA is in Co. Tipperary. It is divided into five sections or waterbodies which are distinguished by a unique number (shown in **Figure 1**):

- Shroughnagowneen_010: This waterbody goes from Kilpatrick in the west to Ballynahow in the east and includes the village of Kilross.
- Ara_010: This waterbody goes from Lisduff in the west, north of Lattin Village to Ballynahow in the east.
- Ara_020: This waterbody goes from the Bohereenbuee Bridge in Ballynahow in the west through Tipperary Town in the east.

- Ara _030: There are two tributaries in this waterbody and they both join together near Cordangan. One tributary goes from Slievenamuck in the west and the other goes from Tipperary Town in the north. The waterbody ends south of Kilshane.
- Ara_040: This waterbody goes from south of Kilshane, through Bansha and ends south-east of Bansha at Ara Bridge, just before the Ara meets the Aherlow.

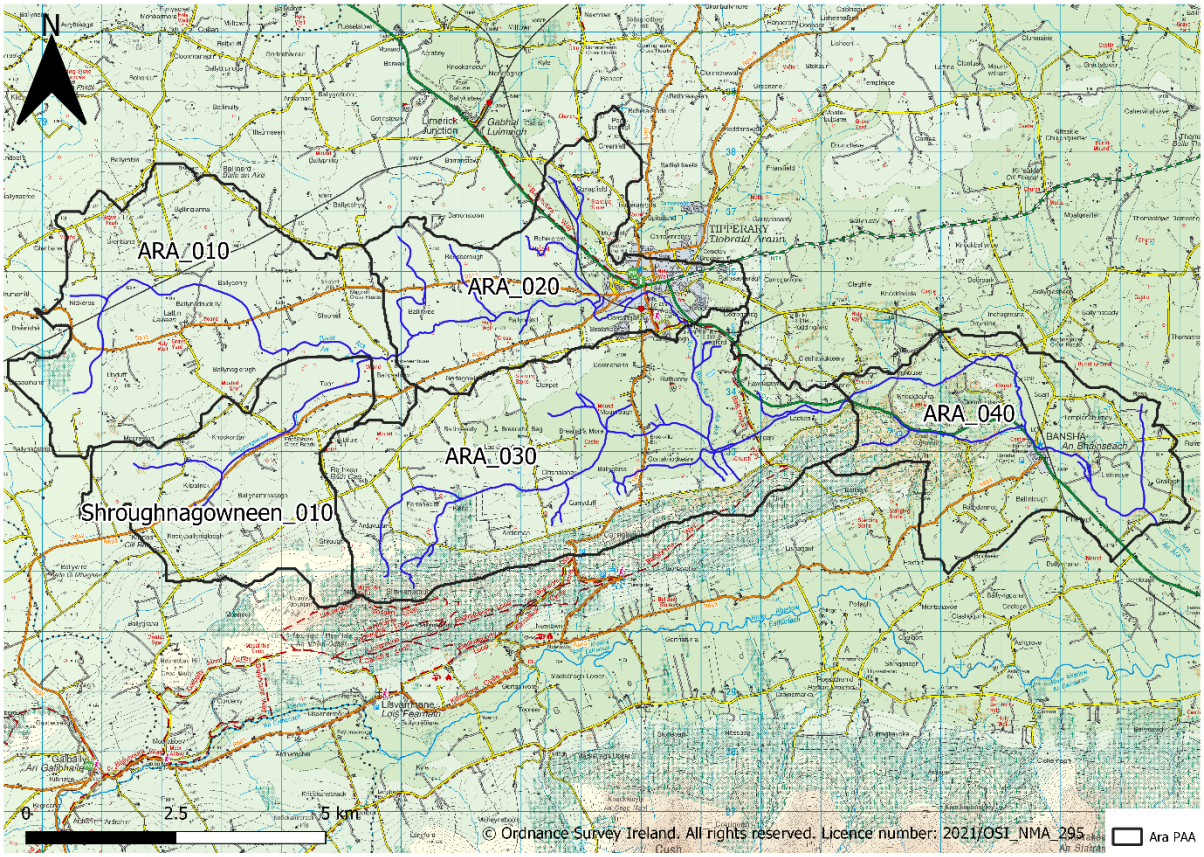

Figure 1 The Ara PAA

3 Catchment Description

The Ara PAA is found north of Slievenamuck in west County Tipperary. Tipperary Town in the largest settlement within the PAA, and the villages of Kilross, Bansha and Lattin villages are also located in the catchment. Agriculture is the main land-use in the catchment, with some areas of forestry on higher ground in the south of the catchment. Soils are generally dry although there are small areas with very wet soils throughout the catchment.

4 Water Quality in the Ara PAA

Rivers are classified into five quality classes (status), with high being unpolluted and bad being the most polluted. We need to make sure that the waterbodies in the Ara PAA are at Good status.

High	Good	Moderate	Poor	Bad

The EPA assign status at (approximately) 3-yearly intervals 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. We need to make sure that the waterbodies in the Ara PAA achieve their good status objective.

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

- The status of the Shroughnagowneen_010 is currently unknown as this river is not regularly monitored. We do not know what nutrient levels are like in the river as there is no information available.
- The Ara_010 is currently at Poor status. We have identified high levels of the nutrient ortho-phosphate as causing the decline in water quality in this waterbody.
- The Ara_020 is currently at Poor status. We have identified that the levels of the ammonium and ortho-phosphate nutrients in the river are too high. These nutrients have caused a decline in water quality.
- The Ara_030 is currently at Moderate status. We have identified that the levels of nitrate, ammonium and ortho-phosphate nutrients in the river are too high.
- The Ara_040 is currently at Moderate status. We have identified that the levels of the nitrate and ortho-phosphate nutrients in the river are too high.

See Appendix 1 for a summary of the pressures and issues observed in the Ara PAA.

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, industry or small sources such as faulty septic tanks, farmyards, roadside drains etc.
- When nutrients are applied to the land as fertiliser they can flow on the surface of the ground to the river and be washed off by rainfall before the crop and soil have absorbed them. This is usually a problem where soils are wetter and poorly draining, particularly during wet weather.
- Pollutants can also 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.

Urban wastewater treatment plants and industrial discharges are both considered a source of pollution in the river Ara. However they are not the only pressures on water quality, as the levels of phosphorus are too high upstream of Tipperary town. Agriculture is a likely source of pollution here. Wet soils are vulnerable to phosphorus runoff during rainfall, and drainage channels provide a pathway for that phosphorus to flow to the river. It is considered that the pollution sources are located upstream of Bansha, and that the efforts to improve water quality in the Ara should be located in those areas.

6 Next Steps

6.1 Information Meetings

We held a community information meeting in Lattin on the 13th of February 2020 to tell the public about our work and to hear about water quality concerns from people living in the area.

Agricultural Sustainability Support and Advice advisors from Teagasc and Tipperary Co-op will hold an information meeting for farmers. They will give details of the supports available for farmers in this catchment.

6.2 Local Catchment Assessment

LAWPRO's catchment scientists will carry out local catchment assessments throughout 2021 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. Any water quality impacts associated with wastewater treatment will be discussed with Irish Water and the Environmental Protection Agency and issues relating to industry will be referred to the Environmental Protection Agency for appropriate actions.

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

Appendix 1: Summary Pressures and Issues in Ara PAA

Table 0-1 Summary table of individual water bodies within the Ara PAA

Waterbody Name	Obj.	Ecological Status				Pressures			Desk study Review Potential Significant Issue (2020)
		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 (2020)	
Shroughnagowneen_010	Good	Unassigned	Unassigned	Unassigned	Unassigned	Urban Waste Water (Agglomeration PE < 500, Kilross)	Organic pollution	None	Unknown
						Agriculture (Pasture)	Nutrient pollution		
Ara_010	Good	Poor	Poor	Poor	Poor	Urban Waste Water (Aggl PE < 500, Lattin)	-	None	Phosphate
						Agriculture (Pasture)	Nutrient pollution		
Ara_020	Good	Poor	Poor	Poor	Poor	Industry (IPC, Tipperary Co-Op)	Nutrient + Organic pollution	None	Phosphate and ammonia
						Urban Run-off (Diffuse sources run-off)	Nutrient + Organic pollution		
						Agriculture (Agriculture)	Nutrient pollution Altered habitat due to morphological changes		
Ara_030	Good	Moderate	Moderate	Moderate	Moderate	Urban Waste Water (Agglom PE of 2001 to 10000, Tipperary)	-	None	Phosphate, ammonia and nitrate
						Industry (IPC, Tipperary Co-Op)	Nutrient + Organic pollution		
						Urban Run-off (Diffuse Sources Run-off)	Nutrient + Organic pollution		
Ara_040	Good	Moderate	Moderate	Moderate	Moderate	Anthropogenic Pressures	Other	None	Phosphate and nitrate