

AtkinsRéalis



**Lady's Island Lake
Water Quality Action
Plan Scoping Study**

Wexford County Council

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Lady's Island Lake Water Quality Action Plan Scoping Study

Notice

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1. Introduction

Lady's Island Lake, in County Wexford, is one of the largest marine lagoons in Ireland, designated as a Special Protection Area and a Special Area of Conservation. As a saline, coastal lagoon, it is also listed as a priority Annex I habitat under the EU Habitats Directive.

The ecology of the lagoon has been seriously damaged through nutrient over-enrichment, caused by pollution inputs from multiple sources including: outflows from wastewater treatment systems, nutrient drainage from surrounding agricultural lands, and other sources, such as release from the lagoon sediment. As a result, the lagoon has faced multiple harmful algal blooms and generating national headlines as it is now considered one of the most polluted and eutrophic bodies of water in the country. The lake is currently categorised as having 'poor status' under the national monitoring programme in alignment with the Water Framework Directive (WFD) in reflection of these issues, especially as a result of its shift towards planktonic dominance from benthic macrophytes.

As an Annex I habitat and its designation as a protected site as both SPA and SAC, EU legislation holds the Irish Government accountable for returning the site to favourable conservation status under the Habitats Directive and to reach at least good ecological status under the Water Framework Directive by 2027. The current impacts of excessive nutrient inflow have been recognised in studies as early as 1983¹, with nutrient modelling estimating nitrogen loads of 60 tonnes per year entering the lagoon². Despite these studies and the visible impacts at the site, input of excessive nutrients has continued. More recent research from 2018 indicated that a 5 to 7-fold reduction in nitrogen and phosphorus inputs to the lagoon will be necessary in order to restore the environment to its previous condition (O'Connor et al., 2018).

Wexford County Council (Wexford CoCo) are now leading the response along with full support from Department of Housing, Local Government and Heritage (DHLGH) and in particular their Water Advisory Unit (WAU) who have lead responsibility for water in Ireland, as well as the Environmental Protection Agency (EPA), the National Parks and Wildlife Service (NPWS), the Local Authority Waters Programme (LAWPRO), the Government of Ireland's agriculture research body, Teagasc, and Uisce Éireann (UÉ). Wexford CoCo put forward an action plan to address the issue of water quality, focusing on a reduction in polluting inputs and restoration of water quality through collaboration with local farmers, engagement with stakeholders (farming and non-farming alike) and the development of an effective model for future sustainable management. The partner agencies listed above are set to form an operational group for the duration of the plan and its implementation.

Wexford CoCo has now also contracted AtkinsRéalis to undertake a scoping study to review and make recommendations on the water quality action plan – Lady's Island Lake Sustainable Farming Communities Scheme (8th Iteration), hereafter referred to as Wexford Co Co's Draft Water Quality Action Plan.

¹ Coastal Lagoons: Ecology and Restoration (CLEAR)

² Coastal Lagoons: Ecology and Restoration (CLEAR)

2. Water Quality Action Plan review

The following review examines the Wexford CoCo's Draft Water Quality Action Plan in the context of its review by the Water Action Unit (WAU) at the DHLGH, as well as the EPA CLEAR report on the ecology of Lady's Island Lake, hydrogeology reviews by expert hydrogeologists and drawing on the experience of Duncannon Blue Flag EIP. The plan has been assessed under the themes: Scope and alignment with current legislation; Stakeholder engagement; Catchment characterisation; Scientific evidence, source apportionment and data gaps; Measures, funding and monitoring, and Communication and accessibility. It has also taken into account and presents the views of key stakeholders.

The aim of the review is to leverage the experience of AtkinsRéalis experts in the fields of catchment science, hydrogeology, hydroecology, and water quality to constructively and critically review the existing plan, identify gaps, and offer recommendations to strengthen it. Ultimately, the recommendations offered are with the aim of moving a revised plan forward, based on a sound scientific approach and that considers short and longer-term strategies, and strong commitment to actively engage and work with stakeholders, both locally and nationally.

2.1 Scope and alignment with current legislation

2.1.1 Method

We examined how well the water quality plan aligns, not only with statutory requirements, such as Lady's Island Lake's designation as a Special Protection Area (SPA) and a Special Area of Conservation (SAC) under the EU Habitats Directive, but also incorporate the views and requirements of all interested parties and stakeholders, as well as with local priorities and those partner agencies associated with the operational group, including: DHLGH WAU, Wexford CoCo, LAWPRO, NPWS, Teagasc Research, Uisce Éireann, and importantly local farmers and non-farming community members.

2.1.2 Findings

EU Habitats Directive and Birds Directive

The Water Quality Action Plan for Lady's Island Lake ('the Lake') demonstrates strong alignment with EU environmental legislation and national governance frameworks. Under the EU Habitats and Birds Directives, the lake is recognised as a priority habitat (Annex I) and designated as both SAC (000704) and SPA (004009). The plan explicitly targets restoration to Favourable Conservation Status, tackling ecological problems by reducing nutrient inputs, maintaining and restoring typical lagoonal vegetation communities, ensuring presence of submerged macrophytes (charophytes, pondweeds), which indicate good ecological quality, protecting marginal emergent vegetation (common reed, rushes and sedges) and enhancing biodiversity through buffer zones, woodland planting, and constructed wetlands. At Lady's Island Lake, NPWS ensures conservation goals are embedded within national and EU frameworks. BirdWatch Ireland provides oversight mainly in monitoring bird populations, tracking conservation trends, and managing breeding colonies (especially terns) at Lady's Island Lake SAC/SPA.



Farmers are central to delivery of the Water Quality Action Plan, with approximately 55–60 landowners and 25 farmyards across the 19.16 km² Lady's Island Lake catchment to be engaged in the scheme. Around 60 participants are envisioned to be supported through a €2.25 million, five-year programme, with annual results-based payments (€120k–€204k) rewarding measurable improvements in nutrient use efficiency, water quality, and biodiversity. Actions include riparian buffer zones, sediment traps, constructed wetlands, woodland planting, cover crops, and livestock exclusion from watercourses. This aims to ensure that environmental restoration is achieved while sustaining farm livelihoods.

Water Framework Directive (WFD)

In line with the Water Framework Directive (WFD), the Water Quality Action Plan aims to achieve “Good Status” for the lagoon, which is currently assessed as poor/hypereutrophic. Proposed monitoring includes intensified water-quality sampling, groundwater surveys, aquifer modelling, and farm-level metrics such as nutrient use efficiency and farmyard cleanliness. This evidence-based approach reflects the WFD's emphasis on adaptive management and long-term ecological recovery.

Nitrates Directive and Good Agricultural Practice (GAP) Regulations

The plan aligns with the Nitrates Directive and Good Agricultural Practice (GAP) Regulations, encouraging farmers to go beyond baseline compliance. Proposed measures include enhanced nutrient management, soil sampling, cover crops, buffer zones, slurry testing, and exclusion of livestock from streams. The Water Quality Action Plan proposes precision fertiliser technologies (GPS calibration, liquid nitrogen) and pathway interception measures (sediment traps, settlement ponds, constructed wetlands) to directly address nitrate leaching and phosphorus losses, protecting water quality from agricultural sources.

National and Local Governance Structures

Governance is led by Wexford County Council, supported by DHLGH, EPA, NPWS, LAWPRO, Teagasc, and Uisce Éireann. The project is embedded within the River Basin Management Plan 2021-2027³ (RBMP) framework, specifically the Southeast Regional Operational Committee, which brings together statutory agencies and farming organisations (Irish Farmers Association, Irish Creamery Milk Suppliers), consultants, and drainage committees. This complex, multi-layered structure combines top-down statutory oversight with bottom-up farmer and community participation, ensuring accountability and shared ownership. Wider community engagement has been proposed through workshops with forestry groups, fishery associations, Tidy Towns committees, and NGOs.

Stakeholder Integration

The proposal for stakeholder integration is a strength of the plan. It is proposed that farmers would lead many measures, supported by results-based payments and ‘just transition’ principles. The proposed stakeholder integration will allow NGOs and community groups, such as Birdwatch Ireland, An Taisce, and local drainage committees, to contribute expertise and oversight. Proposed workshops organised with LAWPRO will provide transparency and dialogue, reinforcing collaboration between statutory agencies, farmers, and the wider community.

Innovation and Policy Alignment

³ [River Basin Management Plan 2022 - 2027](#)



The plan also proposes innovation and policy alignment, building on models like Duncannon EIP and BurrenLIFE, and complementing the Farming for Water EIP. The proposed, dedicated farm sustainability advisor would bridge the requirements of existing regulations and how these are actually implemented on the farm in practice, reducing duplication and paperwork while fostering collaboration across agencies. Future innovations include proposed Internet of Things (IoT) sensor networks for real-time monitoring and the future implementation of engineered solutions, such as constructed wetlands and sediment traps, combining traditional land management with modern technology, to reduce pollution and run-off.

Water Advisory Unit (DHLGH)

The Water Advisory Unit (DHLGH) provided recommendations on the Water Quality Action Plan, highlighting the following key requirements: a clear communication plan in simple English (aligned with WFD and Aarhus Convention), structured stakeholder engagement (WFD Article 14, Habitats Directive), compliance assessment (agricultural and wastewater inspections, EPA oversight), a robust scientific evidence base (baseline monitoring, catchment modelling), and a detailed phased implementation plan. Phase 1 focuses on existing measures, recruitment of advisors, inspections, and engagement with Uisce Éireann, aligning with the Nitrates and the new, revised Urban Waste Water Directives.

2.2 Stakeholder engagement

2.2.1 Method

We determined, from stakeholder consultation and interviews with key stakeholder groups how well, and the extent to which, the current draft plan seeks to engage with them, other interested parties, and those with statutory responsibilities for the Lake. We will determine whether there are gaps in the plan or overlaps with other schemes, and share the recommendations which these key stakeholder groups suggest that Wexford CoCo should consider in further developing their proposal.

2.2.2 Findings

Our review of the Lady's Island Lake Water Quality Action Plan highlights several key limitations in its approach to stakeholder engagement. Notably, the plan lacks a structured stakeholder engagement strategy with defined timelines or clear communication channels with accessible messaging for a broad range of audiences. Stakeholder engagement is focused primarily on farming landowners, leaving other groups, such as non-farming landowners, tourism operators, local residents, and schools both underrepresented and without tailored engagement. Although engagement meetings have taken place locally, these are not documented in the plan and there is no clear point of contact for queries or feedback, nor is there clarity around how the two recently funded positions announced as part of €700k funding granted by DHLGH to Wexford County Council will have capacity to engage with different stakeholder groups throughout the duration of the plan.

Preliminary stakeholder interviews reveal a range of engaged and active groups, many of whom are eager and willing to support in the collaborative implementation of the proposed plan. Most stakeholders, however, expressed desire for clarity around their roles and expectations in working on the proposed plan. Interviews were conducted with a series of stakeholders, both from the local community, as well as from the various agencies and statutory groups engaged with Wexford CoCo and the Lake. There is clearly a keen appetite and enthusiasm for collaborative engagement, with



local community members describing an optimism for future restoration plans that have not previously been felt.

Several key recommendations and potential gaps or risks were identified through a series of interviews. These centred around four key themes; communication strategies, expectations, oversight, and agriculture.

Communication strategies

An effective communications strategy will be essential for the long-term success of any restoration efforts. Local residents, community groups, and landowners want and need to be kept informed in an accessible, transparent way. Additionally, the situation at Lady's Island Lake has attracted national attention, with groups outside the catchment and at the national level (such as SWAN and An Taisce) taking an interest in restoration efforts. An effective communications strategy should also serve to inform the greater public in addition to local stakeholders. Results and reports must be based on sound science but also easily decipherable and available in plain English. For the purpose of developing this specific Water Quality Action Plan, that would mean publishing a one- or two-page summary to easily communicate the commitments, expectations, and mechanisms to all invested parties, as well as a plan for consistent follow-up communication (i.e. stakeholder engagement strategy plan) as progress is made. There is an emphasis for clear, concise, accessible communication that does not condescend towards the reader.

The plan should include educational and knowledge transfer mechanisms to help community stakeholders visualise priorities and work together with the restoration team to implement the necessary measures. Use should be made of pre-existing resources and plain English systems for ranking water quality, such as the expanded traffic-light system the EPA currently uses, to avoid causing confusion or creating the need for getting stakeholders "up-to-speed" on new terminology.

Expectations

Research groups and implementing bodies such as those referenced as part of the operational group highlighted the need to clearly communicate and manage expectations for long-term restoration goals with stakeholders. Restoration will take time; making sure there is sound, scientific evidence to support implementing the right measures in the right places, and then in seeing their impact in long-term progress.

A recent funding announcement of € 700,000 from DHLGH to Wexford CoCo for the development of the plan will primarily go towards funding the salaries of two positions within the council for the next 5 years (2026-2030). One of these two positions is for an administrative and clerical role, while the other will be a project manager directly responsible for implementation of the plan. Stakeholders envision this role being someone who is capable of engaging all stakeholder groups (farming and non-farming alike).

A key recommendation from all stakeholders was that hiring the right person to fill the project manager role will be critical for the success of the overarching project. The function, capabilities, and expectations for this role should be made extremely clear in the plan, especially for effective collaboration with partner agencies.

A consistent theme across all partner agencies and statutory bodies was the need for clear expectations in the plan, as there is a strong desire to help, but a lack of clarity around exactly how they can offer support. One of the biggest risks to effective collaboration is likely to be in the misalignment of objectives and timescales across partner organisations. Bureaucracy, staff vacancies, competing priorities, conflicting timelines, and other similar issues may pose a significant risk to the successful implementation of the plan.



A written agreement among operational group members and/or partner organisations, such as a memorandum of understanding, along with a strategy towards dedicated collaboration, would be beneficial to have clearly defined expectations and commitments agreed upon up-front for all parties involved. This was also referenced by local community stakeholders as a priority for the purpose of oversight and transparency, explored further below.

Oversight

Local community groups, as well as statutory and research bodies, identified the need for some oversight strategy in the plan. Local community members need some mechanism to ensure that the plan maintains its status as a priority and that they (and the Lake) are not 'left behind', 'forgotten', or 'abandoned' long term. Residents expressed a fear that with continued impacts due to climate change, some crisis could occur that would supersede restoration efforts and leave the Lake (and its residents) behind. Some structure such as an oversight committee working in tandem with the operational group could be set up, for example.

Members of statutory and research bodies, as well as those with research interests at the Lake, stressed the importance of oversight to ensure that objectives are actively being met or worked towards, that measures are implemented in accordance with the soundest scientific evidence available, and that there is consistent, transparent communication throughout implementation.

Agriculture

As previously stated, the stakeholder engagement strategy seems focused primarily on farming landowners, leaving other groups both underrepresented and without tailored engagement. Partner organisations involved in the operational group envision the project manager role as engaging with **all** stakeholder groups, not just agricultural ones, and being able to utilise funding streams from, for example, LAWPRO community development funds and the Farming for Water EIP, to do so. Yet, this is not clear in the plan as it stands and should be made more explicit.

Farmers seem very amenable to any activity to restore the Lake that will also support their livelihoods and supplement their income. Many recognise their role in contributing to pollution and desire to see the Lake and its surrounding ecosystems thriving. At the same time, many farmers feel unfairly singled out to the exclusion of other pollution inputs, such as septic tank infrastructure, Úisce Éireann wastewater treatment plants (WwTPs), release of nutrient from the lakebed sediments and other inputs, such as birds. Even if these pollution inputs are not as significant as those from agricultural inputs, there must still be an acknowledgement of their contribution and further study into what specific role and level the WwTP and septic systems contribute to pollution at the Lake is required.

There may be a perception of a few 'bad actors' in the farming community causing all the problems in the catchment, but research groups state that the problem is more likely to be the difficult situation of incompatible land use application on soils that can't handle the requirements of intensive agriculture. Even if all farmers are compliant and take on all the available measures, there will still be further nutrient reductions required.

They stress the need to start having conversations about what land use will look like within the region in the next century and how certain areas may need to transition their land-use. They also acknowledge that decisions about land-use change are extremely sensitive as they have a great impact on people's lives, livelihoods, and often even their identities. Including landowners in decision-making processes will be key to both early buy-in as well as long-term project success. They need to be included in all aspects of the project, not just in relation to agriculture, so that there is consistent involvement and investment in restoration efforts as a whole.



2.3 Catchment Characterisation

2.3.1 Method

Catchment characterisation serves as a scientific foundation for developing a conceptual understanding of a catchment, in this case Lady's Island Lake. Catchment characterisation typically includes determining the amounts, nature/types, location, area, size etc. of aspects, such as, physical and hydrological factors covering (amongst other things) geology, hydrogeology, topography, land cover/use, drainage network, and pollution point sources. It should also consider conceptualisation of source-pathway-receptor linkages, which would be the first step towards identifying and proposing suitable measures to address potential and actual catchment pressures.

We have checked whether all relevant hydrological and hydrogeological features, such as the 12 feeder streams, sub-drainage channels, and the annual winter dune breach, are accurately described, quantified (where data exists), and mapped. We have also assessed whether land use, soil types, and ecological sensitivities are adequately captured and incorporated into the Water Quality Action Plan.

2.3.2 Findings

We have reviewed the available information on the physical characteristics of the Lady's Island Lake catchment that is available and mentioned in the Water Quality Action Plan. Access to these data on the physical character of the catchment will be essential for developing an understanding of the sources and pathways of pollutants to the lake as follows:

1. **Pollutant sources.** Understanding pollutant loadings (amount, timings) from both diffuse and point sources, will be essential for comparing the relative magnitude and importance of these different sources. Agriculture has been identified as the primary (>80%) source of pollutants, in the form of excessive nitrogen and phosphorous, with smaller inputs from municipal wastewater, septic tanks, and atmospheric deposition. However, establishing data on other sources, such as legacy pollutants within soils and groundwater, and bird fouling, will be necessary to provide a more holistic understanding of catchment pollutant sources.
2. **Pathways.** Identifying potential pathways for pollutant delivery into the lake and determining what their relative (or actual) contributions are, will be necessary if we are to determine and locate suitable measures to address these. For example, above and below ground pathways will need to be managed in different ways given the different hydrological processes encountered.

Table 2-1 outlines the key physical characteristics of the catchment and identifies the detail of information available, the source of the data, and provides comments and recommendations as to its applicability for the Water Quality Action Plan.



Table 2-1 - Summary and review of the physical characterisation features

Catchment Element	Description	Source	Review comments	Referenced in the Water Quality Action Plan?
Delineation of catchment	Definition of topography of the surface drainage catchment of the Lady's Island Lake. The Water Quality Action Plan states this to be 19.16 km².	EPA CLEAR Report - Figure 2.1	The current mapped catchment delineation appears to have been estimated using only the watercourse network. A more precise delineation, based on topographic data, would ensure that the entire surface water catchment area upstream of the lake is identified and thus considered by the action plan. Currently, for example, it is unclear whether the catchment extends further north towards the N25 road, this would be resolved by referring to the topographical data of the catchment.	Yes (partially)
Land cover and use	The Water Quality Action Plan outlines a mix of livestock and arable farming practises including beef, dairying and tillage sectors. Corine land cover mapping (2018) is available.	EPA Maps Wexford Co Co's Draft Water Quality Action Plan	For an accurate source apportionment of diffuse sources and modelling of farm scale nutrient losses, higher resolution and up to date land cover data may be useful.	Yes (partially)
	Pollution Impact Potential (PIP) Mapping for phosphorus and nitrate shows how susceptible land parcels could be as phosphorous or nitrate sources.	EPA Maps Pollution Impact Potential maps	Use of the available field scale pollution impact potential mapping available on the EPA Mapping portal help could be used to identify fields at high risk of exporting diffuse pollution.	No
Soils	Soil types are described in the Water Quality Action Plan. National Soils Map and National Soils Hydrology Map	EPA Maps Wexford Co Co's Draft Water	A need for further data collection and soil analysis is highlighted in the Water Quality Action Plan to understand the legacy	Yes



Catchment Element	Description	Source	Review comments	Referenced in the Water Quality Action Plan?
	indicates the soil types and drainages classes of soils across the catchment.	Quality Action Plan	nutrient content in the soils and therefore the risk of shallow soil flow leaching nutrients into the lake.	
Surface water flow regimes	The 12 main watercourses that discharge into the lake are identified in the Water Quality Action Plan and are mapped in the River Waterbodies layer in the EPA Mapping Portal.	EPA Maps Wexford Co Co's Draft Water Quality Action Plan Tailte Eireann watercourse data	In addition to the main waterbodies, mapping of the surface water flow routes and artificial drainage (e.g. ditches and underdrains) would enable more accurate characterisation of pollution pathways across the catchment. Such surface flow pathways increase the risk of pollutant mobilisation and soil erosion risk.	Yes (partially)
Geology and groundwater influence	The bedrock geologies are identified in the Water Quality Action Plan and the groundwater character of the catchment is highlighted as being generally unproductive, except for local zones.	EPA Maps Geological Survey Ireland Wexford Co Co's Draft Water Quality Action Plan	Further data investigation into the magnitude of the potential groundwater nutrient source is highlighted in the Water Quality Action Plan, which outlines the requirement for ground water sampling. Characterisation of the groundwater regime (groundwater levels, flow and quality) will be essential to justify the presence/absence of potential linkages in the absence of any site-specific information to-date.	Yes
Topography	There is no mention of the topographical character of the catchment. Incomplete coverage of the Lady's Island Lake catchment on the Open	Open Topographic Data Viewer	Having access to topographic data would enable accurate mapping of surface water flow pathways, slopes at risk of soil erosion, and catchment delineations.	No

Catchment Element	Description	Source	Review comments	Referenced in the Water Quality Action Plan?
	Topographic data viewer platform			
Land ownership and farming practises	The Water Quality Action Plan outlines that there are approximately 55-60 landowners and 25 farmyards in this catchment area, mainly covering the beef, dairying and tillage sectors.	Wexford Co Co's Draft Water Quality Action Plan	Developing a detailed understanding of the current number of landowners, type of landownership, nature of farming businesses across the catchment will be important in determining the scale of nature of required engagement as well as in developing the most suitable measures and if, when, how and where they need to be taken-up and implemented. Understanding past farming practises, particularly nutrient applications to the land and how they have changed over time, will further develop the evidence base on the magnitude of the residual legacy nutrient store in the soils.	Yes
Environmental designations	The environmental designations that cover the catchment are outlined in the Water Quality Action Plan and include: ▪ Natural Heritage asset, ▪ SAC, ▪ SPA ▪ Sites and Monuments Record (SMR)	EPA Maps Wexford Co Co's Draft Water Quality Action Plan	Good mapping available of the environmental and historical designations in the catchment. Understanding these designations is important as they may pose constraints to changing land use and implementing some types of measures.	Yes



Catchment Element	Description	Source	Review comments	Referenced in the Water Quality Action Plan?
Point source discharges	Point discharges for: - Urban wastewater effluent point at Lady's Island castle where there is a sewage treatment plant that treats sewage waste produced by less than 500 people. - Other discharges – Single discharge location at Rathdowney Caravan Park - Households on septic tanks – Data potentially held by the EPA.	EPA Maps	The Water Quality Action Plan outlines that there are point source discharges present in the catchment, but doesn't mention their locations. Good data are available on formal sewage treatment works (WwTP) and discharge outfalls. However, no information is mentioned on the extent, location, condition, likely area of plume etc for septic tanks in use across the catchment.	Yes (partial)
Monitoring locations	Any existing current hydrological monitoring locations that might be present in the catchment are not mentioned or outlined in the Water Quality Action Plan. The Water Quality Action Plan mentions that water quality monitoring is already being undertaken in the catchment, although details on where this is undertaken, what is being measured how frequently and to what level of accuracy is absent.	EPA Maps Office of Public Works Wexford Co Co's Draft Water Quality Action Plan	Understanding what monitoring data is already available would help to determine needs and develop future more detailed monitoring programmes, as well as what determinands may need to be collected by these, where, how often etc. From the EPA mapping portal it appears that there are locations for: - Lake level monitoring - Flow monitoring of main inflowing watercourse (at St Iberius Bridge)	No
Other diffuse nutrient sources	The Water Quality Action Plan outlines the main sources of nutrient enrichment, however, does not mention any	N/A	Evidence from other similar studies, such as work done at the Snettisham Lagoon site adjacent to The Wash on the north Norfolk coast in	No



Catchment Element	Description	Source	Review comments	Referenced in the Water Quality Action Plan?
	other potential sources, for example the population of roosting and feeding birds, such as gulls, terns etc nor the potential for release of nutrient from the sediments in the bottom of the lake.		the UK, suggested that large bird populations at such sites contribute nutrient inputs. The magnitude of this source is currently unknown and should be determined.	

2.4 Scientific evidence, source apportionment and data gaps

2.4.1 Method

This section reviews how clearly the draft plan explains the methods for finding and measuring nutrient pressures. It checks that all relevant sources (i.e., agriculture, wastewater, and nutrients from other sources, such as the lake's sediment and bird population) are properly considered. Gaps in data, models, or assumptions, focusing especially on sediment, phosphorus, and nitrogen pathways, were also considered in order to check whether further monitoring of sources might be needed.

Areas within the current plan that depend on assumptions or lack sufficient supporting evidence, have been identified. These include soil test data, water quality data and trends, as well as sediment nutrient concentrations. Where such data gaps exist, recommendations are made for the development and implementation of monitoring programmes that will address the identified deficiencies and thereby enhance the evidence collected. The specific data required for further elaboration, collection, collation, review, and analysis have been stated.

2.4.2 Findings

Lady's Island Lake is a shallow brackish coastal lagoon of high conservation importance, hosting priority habitats under the EU Habitats Directive. Despite its ecological significance, the lake has experienced severe eutrophication, with chlorophyll-a levels reaching 202–243 mg/m³ in 2004, resulting in algal blooms, fish kills from oxygen depletion, and loss of lagoonal macrophytes. The lake's ecological status was classified as hypereutrophic in 2004 by the EPA and remained at Poor status under the Water Framework Directive (WFD) through 2021. This highlights the need for a robust, evidence-based approach.

The Water Quality Action Plan sets out a framework to address nutrient pressures from multiple sources, including agriculture, municipal and on-site wastewater treatment systems, atmospheric deposition and legacy nutrient stores within sediments.



The main sources of nutrient loading identified to date are⁴:

- Agriculture: slurry and fertiliser losses via feeder streams⁵.
- Municipal wastewater treatment plants and septic tanks with operational deficiencies.
- Legacy sources: nutrient release from sediments, which may continue to influence lagoon ecology long after external inputs are reduced.
- Birds

There is consensus across all the documents reviewed that excessive nutrient loading of the lagoon is the root cause of its current poor status. Nutrient modelling undertaken to date estimates that 60 tonnes of nitrogen enter the lake annually, primarily from agricultural sources⁶. Research suggests that an 80% reduction in nitrogen and phosphorus inputs is required to restore lagoon conditions, with some scenarios indicating reductions of even more than 80%.

The Water Quality Action Plan proposes a two-step restoration strategy:

- Implementation of current best practice measures.
- Development of further measures through research and scenario planning (Lady's Island Lake Sustainable Farming & Communities Scheme).

The recommendation to start implementing best practice measures makes sense given the urgency of the situation. However, several gaps in data will need addressing for longer term actions.

- **Source Apportionment:** Current proposals lack clear methodologies for quantifying nutrient loads from individual sources and it would be very useful to assess the level and location of agricultural contributions using tools such as the Irish Pollution Impact Potential maps⁷ or FARMSCOPER⁸. Effluent sampling from wastewater treatment plants is easily undertaken and should be incorporated.
- **Groundwater regime:** The hydrogeological conceptual site model presented within the Action Plan is considered to be a reasonable, high-level starting point. However, a firm understanding of the baseline groundwater regime immediately beneath and around Lady's Island Lagoon (groundwater levels, flow and quality) is required to determine the potential likelihood of identified pathways. Potential pathways for nutrients include:
 - sub-soil groundwater (i.e. field drainage),
 - shallow groundwater and
 - groundwater within the underlying bedrock (including the extent of any fracture flow within the weathered transition zone).
- **Lake hydrology:** A good understanding of the lake hydrology, inflows streams and outflows, including the 'annual cutting' is needed to understand and model the system.
- **Sediment Legacy:** The plan acknowledges nutrient release from sediments may be a factor, but does not outline a strategy for its quantification or management. Given evidence from other lagoons, sediment nutrient reserves may prolong recovery even after external inputs are reduced.

⁴ Coastal Lagoons: Ecology and Restoration (CLEAR)

⁵ Lady's Island Lake Sustainable Farming & Communities Scheme

⁶ Coastal Lagoons: Ecology and Restoration (CLEAR)

⁷ [Pollution Impact Potential Maps - Surface Water Phosphate - Dataset - data.gov.uk](https://data.gov.uk/dataset/pollution-impact-potential-maps-surface-water-phosphate)

⁸ ADAS (2025). Farmscoper Decision Support Tool. Available at: <https://adas.co.uk/services/farmscoper/>



This evidence could be collected via lake models such as Lake2K, to better understand the ecology of the lake.

- **Data Deficiencies:** Information from soil testing, of water quality trends, and sediment tracing are limited. Groundwater nutrient loads and flow characteristics remain poorly understood, requiring targeted surveys.
- **Modelling and Scenario Analysis:** Although hydrodynamic modelling (e.g., Telemac 2D) has been applied, ecological modelling of nutrient pathways and reduction scenarios is not fully integrated. Models such as SAGIS and lake-specific nutrient models, like Lake2K, should be set-up to support scenario testing and measure effectiveness of proposed interventions.

Baseline groundwater conditions should be established ideally through multiple on-shore and off-shore ground investigation techniques, however, acknowledging practical constraints, a purely on-shore ground investigation may be equally appropriate.

Groundwater conditions should be established from:

- drilling of targeted exploratory boreholes;
- collection of soil samples for geotechnical analysis (including, but not limited to particle size distribution and permeability);
- completion of in-situ testing to determine hydraulic conductivity in selected strata/ potential groundwater-bearing units; and
- installation of dedicated groundwater monitoring wells around the lake and within target strata, followed by a period of post-installation groundwater level and quality monitoring.

Groundwater levels should be obtained by a combination of spot (manual) monitoring and continuous groundwater level monitoring using calibrated pressure transducers (dataloggers), compensated for barometric pressure. Monitoring should be completed for a minimum of 12-months (i.e. one year) to understand the seasonal range; while the lagoon is filling, after the barrier is breached and as lagoon level falls. Level monitoring of the lake will be necessary to understand the interplay between tidal and potential groundwater flow mechanisms.

In parallel to level monitoring, a programme of groundwater quality sampling and analysis should be completed. Samples should be collected and submitted to a UKAS/ MCERTS (or equivalent) laboratory for detailed analysis of an appropriate suite to inform potential nutrient contamination and associated geochemical conditions.

The final suite of analysis is to be determined, but is anticipated to include the determinants listed in Table 2-2, as a minimum. Methods of analysis and limits of detection should be provided by the analysing laboratory for review prior to any samples being submitted for analysis.

Table 2-2 - Anticipated minimum groundwater analysis suite

Determinants	Justification
pH, Alkalinity, Hardness, Electrical Conductivity, Dissolved Oxygen (DO) and Major Ions [Calcium (Ca), Magnesium (Mg), Sodium (Na), Potassium (K), Chloride (Cl), Sulphate (SO ₄)]	Characterise baseline chemistry, buffering capacity, and ionic strength, which influence nutrient solubility and transport.



Dissolved Oxygen (DO) and Redox Potential (Eh),	Understand oxidation-reduction conditions that govern nitrogen and phosphorus speciation and mobility.
Chemical Oxygen Demand (COD) and Biological Oxygen Demand (BOD)	Aid identification of potential organic matter, which can drive microbial processes affecting nutrient cycling.
Ammonia (NH ₃), Nitrate (NO ₃), Nitrite (NO ₂), Total Nitrogen (TN), Phosphate (PO ₄) and Total Phosphorous (TP)	Aid evaluation of potential nutrient sources including agricultural runoff and/or wastewater treatment.

All samples should be filtered in the field and stored in appropriate containers with preservatives, as directed by the analysing laboratory.

Field measurements of temperature, pH, turbidity, dissolved oxygen (DO), conductivity and chlorophyll (and any other available parameters) should be obtained at the time of sampling to inform understanding of nutrient cycling in the wider catchment.

Lake monitoring should include spot sampling and sonde data. The sonde should measure temperature, pH, turbidity, dissolved oxygen (DO), conductivity and chlorophyll (and any other available parameters). The outputs would help determine the degree to which the lake stratifies for dissolved oxygen and temperature, which would help underpin our understanding of nutrient cycling in the lake. Chlorophyll monitoring would be useful to help calibrate lake algal models, alongside the spot data. pH, turbidity and conductivity are less important but also useful. The most important thing is to understand what the temperature profiles are and whether dissolved oxygen drops in the lower part of the water column.

Although two years of data would be ideal, even if monitoring could only be done for a shorter period, it should always cover the summer period (i.e., from May until September) when stratification is most likely to occur, and algal growth is most active. The crucial period starts in May so any data collection should ideally start before that. One full summer of data may suffice as long as the summer is fairly typical in terms of temperature / wind speeds, rainfall etc. In terms of the frequency of the sampling, weekly is recommended in the summer, otherwise monthly is sufficient.

When manual samples are collected, it is important to measure dissolved oxygen and temperature at the top, middle and bottom with a manual probe, to help answer the main question about stratification. Sonde data would be more useful in the lower part of the water column (e.g. a metre above the bed) to help understand oxygen dynamics. Given how shallow the lake is, wind-induced mixing is likely to be more important than stratification, but short periods of thermal layering can still occur during calm conditions. These transient stratification events may influence oxygen depletion near the sediment, so capturing them is still useful for assessing potential ecological impacts.

With the data collected, monthly nutrient balance calculations can determine if significant internal nutrient loading occurs in the reservoir. A nutrient budget can be developed on a seasonal basis as a spreadsheet model to estimate external nutrient inputs (from flow and water quality monitoring) and outputs, allowing differences to be attributed to internal processes like losses and releases of chemical from the sediment (e.g. phosphorus) or denitrification. This data could be further used to parameterise the SAGIS lakes model and Lake2K (or similar models), that are often used for



modelling the impact of nutrient changes on lake phytoplankton⁹. Long-term data analysis and simple modelling will relate nitrogen and phosphorus inputs to lake algae concentrations under various hydrological conditions. In shallow lakes, wave action and biological activity are usually more responsible for phosphorus release than redox zones.

The following recommendations are made to strengthen the plan. These build on previous recommendations¹⁰.

- Monitoring programmes
 - a. Establish baseline conditions for surface water, groundwater (through intrusive ground investigation), and sediment nutrient loads with help of monitoring and modelling.
 - b. Intensify water quality monitoring and capture improvement and progress¹¹.
 - c. Incorporate sensor networks for real-time data on hydrology (flows).
 - d. Sample and monitor effluent quality from municipal and on-site wastewater systems.
 - e. Establish soil nutrient status and farm management practices in the lake catchment area.
- Modelling and Load Reduction Analysis
 - a. Set up a seasonal nutrient budget using a spreadsheet model.
 - b. Apportion reduction targets across sectors and, for agricultural inputs, consider farm clusters based on soil types, and farming systems if known.
 - c. Establish the presence and relative importance of legacy nutrient loads (nutrient within the lake sediments) in the lake through modelling, and investigate feasibility of sediment removal or in-situ treatment if necessary (e.g., Lake2K).
 - d. Calculate nitrogen and phosphorus load reductions required to meet WFD and conservation objectives through modelling (e.g., SAGIS).
 - e. Conduct iterative scenario modelling to evaluate the impact of the proposed measures and inform adaptive management.
- Performance Metrics
 - f. Develop farm-level Pollution Potential Zone (PPZ) maps and nutrient efficiency metrics¹². Update these maps as the plan progresses to keep track of improvements and incentivise other farmers.
 - g. Make use of current data produced by the EPA such as Pollution Impact Potential maps for Nitrogen and Phosphorus.

⁹ Lake2K categorises algae into cyanobacteria, diatoms, and green algae across three depth zones.

¹⁰ Lady's Island Action Plan. Recommendations on developing a water quality action plan. Water Advisory Unit, DHLGH

¹¹ Lady's Island Lake Sustainable Farming & Communities Scheme

¹² Duncannon Blue Flag Farming and Communities Scheme



2.5 Measures, funding and monitoring

2.5.1 Method

The range and relevance of the currently proposed mitigation measures, including initiatives such as the Farming for Water EIP and other bespoke schemes, have been examined. An assessment has also been made of whether appropriate funding sources have been identified and are sufficient, and whether results-based approaches have been considered as part of the implementation strategy.

A check has been undertaken of whether the current plan includes clear indicators, baselines, and mechanisms for tracking progress towards clearly defined and stated aims and objectives. Any gaps in adaptive management provisions or feedback loops that may limit ability to respond to changing conditions or new information have been identified.

2.5.2 Findings

Measures

Identifying measures for improving the water quality of Lady's Island Lake will rely on a sound understanding of how the catchment functions, in particular identifying specific pollutant sources and pathways. Such an understanding would support the selection of appropriate measures, and aligns with the EPA's 'Right measure, right place' concept, which is a key tenet of Ireland's River Basin Management Plan (2022–2027)¹³.

Approach proposed

The general approach to identify appropriate measures, as proposed by Wexford CoCo, looks to learn from other successful environmental restoration projects (Duncannon EIP project and BurrenLIFE project) and appears to be sensible, however, further reference to overlapping/complementary schemes and/or guidance (such as Farming for Water EIP¹⁴, or Waters of Life¹⁵) could be beneficial for guiding the development of Water Quality Action Plan. Consideration of what is done in other countries may also strengthen the Water Quality Action Plan, providing opportunity to learn and deliver best practice from local, national, and international experiences.

The proposed two-stage approach (as described below) under the direction of a dedicated farm sustainability officer also appears to be a sensible strategic approach to the project:

- Implementing current best practice measures
- Develop a further suite of measures through research, economic analysis and just transition scenario planning.

Measures proposed

Whilst the Water Quality Action Plan discusses a range of potential measures, there appears to be insufficient scientific evidence presented (or acknowledged as being needed) to give confidence that

¹³ [River Basin Management Plan 2022 - 2027](#)

¹⁴ [Farming for Water](#)

¹⁵ [Waters of LIFE - Waters of Life](#)

the measures proposed are the most appropriate for the catchment and that they will, therefore, be successful.

The measures discussed by the Water Quality Action Plan are focussed predominantly on agricultural/land management practices, with little acknowledgement of other measures that may also be at the disposal of Wexford CoCo. In particular, there is no mention of measures that could be undertaken at/to the receptor, i.e., Lady's Island Lake, or the wider catchment. For example, based on the CLEAR report¹⁶, this could include investigating the appropriateness of establishing wetlands, undertaking bioremediation, and/or land conversion. There is a clear focus on agricultural inputs which, while important, does not address or identify measures required for other non-agricultural inputs (including WWTP and septic tank infrastructure).

Similarly, little assessment or consideration is made regarding how legislation could also potentially support the aims of the Water Quality Action Plan. Such an addition to the current proposal could cover the requirements and associated impacts of potential legislative change, as well as of monitoring compliance, and carrying out enforcement in co-ordination with relevant third parties, e.g. the EPA. Lack of acknowledgement of the implications of Nitrate Regulations derogation(s) and the other legislative changes, such as the revised Urban Wastewater Treatment Directive (rUWWTD) in the region, is also an omission.

The Water Quality Action Plan recognises the importance of involving the farming community in the project, and this will be undoubtedly be fundamental to the ultimate success of achieving the restoration and recovery of Lady's Island Lake. As it stands, the Water Quality Action Plan does not explicitly comment on the importance of supporting farmer education, with a view to helping challenge perceptions around sustainable water management in the context of farming. Whilst this might not be perceived as a 'measure' in the same way as physical interventions in the catchment, it is still vital that education is considered in this way, as it will likely underpin the overall success of the project. It is possible that education is considered implicitly as being an element of the Water Quality Action Plan, as farmer education is a component of the Farming for Water EIP programme (significant funding source for the Water Quality Action Plan, see next section for further detail). If this is the intention, then it would strengthen the Water Quality Action Plan to make this linkage between funding mechanism and farmer education explicit.

Measure selection

Setting out a clear indication as to how measures would be selected and taken forward for delivery will be a key component for success. Whilst the Water Quality Action Plan currently suggests that it would "develop a further suite of measures through research, economic analysis and just transition scenario planning", it also states that "farmers will have an opportunity to submit their ideas/proposals and the most cost-effective actions will be selected for implementation". Whilst allowing stakeholders (farmers) to play an active role, and to propose what they feel are appropriate actions, should be encouraged to support engagement and ownership, this must be just a part of the process and balanced against other factors, suggestions, stakeholder inputs etc. Otherwise, focussing selection of criteria on only the most 'cost-effective' may result in the 'best' (or most technically effective) measures being discounted. Likewise, to give a "*substantial proportion of the funding...[to] range of actions proposed by the catchment farmers and approved by the operational group*" may also result in more novel or appropriate solutions being overlooked.

¹⁶ EPA (2024), *Coastal Lagoons: Ecology and Restoration (CLEAR)*, Report No. 473

Existing opportunities

Understanding existing opportunities or proposals already planned within the catchment could provide 'quick wins', although given the size of the catchment this might be limited to a small number of potential schemes. Despite this, understanding what opportunities may be present within the catchment, and the synergies between these opportunities and Wexford CoCo's aspirations for Lady's Island Lake, could help to deliver combined benefits. However, the current Water Quality Action Plan does not explicitly set out that this would be done. Determining effective quick-win and 'no regret' actions that can be implemented quickly and easily will show that action is being taken, help to reduce political and media pressure, and contribute to starting to resolve the situation.

Funding

The primary funding mechanism identified within the Water Quality Action Plan is the Farming for Water EIP, with the potential for a future results-based scheme specific to Lady's Island Lake being developed in the future if appropriate. A recent funding announcement of € 700,000 from DHLGH to Wexford CoCo for the development of the plan will primarily go towards funding the salaries of two positions within the council for the next 5 years (2026-2030). One of these two positions is for an administrative and clerical role to oversee implementation of the plan. The other position will be a project manager directly responsible for implementation, as well as someone who will be capable of directing local community members and farmers towards the appropriate funding mechanisms already in place (including, and primarily relying upon, the Farming for Water EIP).

It is acknowledged that explicit funding requirements, requests, and availability will be subject to further decision-making processes and departmental approval as the plan develops, with the potential for a specific results-based scheme after discerning whether directing landowners to the Farming for Water EIP and other related schemes is an effective method of funding measure implementation.

While the original plan presented by Wexford CoCo was for a 5-year, results-based scheme, specific to the Lake and its catchment area, the DHLGH highlighted the need to utilise the myriad of other, pre-existing agri-environment schemes for the delivery and funding of measures and results-based payments. For example, the Farming for Water EIP provides robust opportunities for both results-based payments and capital works investment for the delivery of measures at Lady's Island Lake, which is a designated Priority Area for Action and thus priority for recruitment into the EIP.

While individual Agricultural Sustainability Support and Advisory Programme (ASSAP) advisors are already capable of directing individual farmers to the Farming for Water EIP, there are a suite of other potentially applicable schemes that the project manager / community advisor will be able to direct landowners to. This includes but is not limited to the following:

- NPWS Farm plan scheme
- ACRES (or equivalent)
- The Native Woodland Scheme
- Wardening project by BirdWatch Ireland
- SNaP Coastal Lagoons Project

The Water Quality Action Plan recognises the importance of funding the 'right measures' in the 'right places', which is a fundamental tenant of the Water Framework Directive and the River Basin Management Plans, as well as a central theme of many of the above schemes. Ensuring and achieving this will be a critical component of the overall success of restoration efforts.



The plan could benefit from greater clarity around the degree of reliance on these schemes for elements like farmer education and knowledge transfer events, as it would strengthen the plan to more clearly identify the connection with educational elements and specific funding mechanisms.

The Water Quality Action Plan could also benefit from greater clarity regarding the functions and capabilities of the proposed project manager role, particularly in how the incumbent will intersect, or work in collaboration, with local ASSAP advisors, as well as the staff of other agencies operating in the region. Dual funding may pose another challenge, as many agri-environment schemes preclude mutual funding and even prohibit participation if already participating in another results-based scheme.

While the Water Quality Action Plan clearly addresses funding avenues for agri-environment schemes applicable to farming landowners, there is currently no mention of how non-farming landowners or community members are to be engaged, or of whether or how LAWPRO's various funds (including the Community Water Development Fund,) and other related funds (for example, those from IFI, Rivers Trusts, and more) could be utilised. Improving tourism potential and funding tourism initiatives are identified as possible measures, however no clear funding mechanisms for these elements are explored. Preliminary interviews reveal an engaged and active community stakeholder base, as explored in the stakeholder engagement section of this report. Community participants share a desire for collaborative and innovative restoration efforts that could also be used for community enrichment. This included suggestions of exploring applicability for dredged sediment from the lagoon bed for nutrient enrichment elsewhere and the use of reed & rush species (whose populations have increased at the lake's edge due to excess nutrient enrichment) for heritage crafting projects. Wexford CoCo should explore and identify other funding sources which support these activities as appropriate.

Another critical element missing from the Water Quality Action Plan is clarity regarding any funding that may be available for the improvement of septic tank infrastructure, as well as the WwTP facilities. The plan is also silent on how engagement with Uisce Éireann will be undertaken; an element stated as required in the Stakeholder engagement section of this report. The Water Quality Action Plan would also benefit from an acknowledgement of the likely need for the long-term nature of financial commitments required for such a restoration project at Lady's Island Lake, given the time-delay in results even once effective measures are implemented and nature of heavily eutrophic sediments in the lake.

Monitoring

Ongoing and dedicated monitoring within the catchment and lake will be critical to help understand how measures are (or are not) contributing towards water quality improvements in Lady's Island Lake, and, therefore, whether the 'Right measure, right place' concept is being successfully applied.

The Water Quality Action Plan identifies that effective monitoring is essential for the success of the project and goes on to state that the monitoring results would provide feedback and metrics to allow farmers to monitor their performance, with some high-level examples provided as to what these may look like. It also identifies that some monitoring is already carried out in the catchment, and this would be intensified through the project lifecycle and beyond. These are useful starting points, and show the Water Quality Action Plan is aware of how important monitoring is, especially post-project which can often be overlooked in ecological restoration/improvement schemes. It is also implied by the Water Quality Action Plan that the project would share this information with stakeholders as the project progresses, e.g. through community-based workshops, and this is acknowledged as a good idea to ensure a regular flow of communication from the project to the wider community. In a similar vein,



given the national interest in Lady's Island Lake, the Lady's Island Lake Water Quality Action Plan may wish to consider how this information is also shared at a national level.

The Water Quality Action Plan also identifies that groundwater monitoring and survey would need to be carried out, to ascertain groundwater flow characteristics and any associated nutrient load. This would likely be a significant element of the project, given the extensive nitrate pollution potential associated with land to the north/west of the catchment (based on EPA PIP-N mapping).

The Water Quality Action Plan acknowledges that a Results Based Payment scheme (linked to achieving set Nutrient Use Efficiency targets) could be used where nitrogen surpluses are experienced. The Water Quality Action Plan would be strengthened by expanding on this, to clearly state that monitoring/measure performance can be a key mechanism for ensuring long-term and appropriate financial support for farmers/landowners, through a payment for results mechanism (or similar) as advocated by the Burren Programme¹⁷. Linked to this would be clearer acknowledgement of the temporal scale over which post-project monitoring would be carried out. This would likely need to be considered over a number of years in order to monitor the reduction in nitrogen and phosphorous already in the system.

Where the Water Quality Action Plan is lacking, however, is in identifying how a robust baseline would be established based on both existing monitoring data and other data sources, to allow for an effective post-project monitoring plan to be developed. In this context, the Water Quality Action Plan should consider how it would:

- Review the existing baseline data/monitoring programme and adapt this (as necessary). For example, are the right determinands are being monitored e.g. nitrogen where pollution potential from this determinand is high, and is an appropriate spatial coverage being considered e.g. up- and downstream of WWTP and storm overflow discharges.
- Define the temporal scale over which to establish a baseline, acknowledging that water quality can vary on a seasonal and annual basis. Based on a review carried out by O'Grady *et al.* (2021)¹⁸, studies typically collect baseline data over 1 – 2 years. Sampling resolution varies, although 15 to 30 minute intervals is common practice and allows for catchment responses to short-term hydrological events to be captured.
- Define the spatial scale across which monitoring would be undertaken, in particular how the balance between collecting sufficient data to be able to make informed decisions against the cost of running an extensive monitoring programme would be struck. Key to this would be a strong understanding of catchment characteristics and processes, in particular critical source areas and pathways, which would help identify and prioritise key monitoring locations within the catchment. It is also recommended that *in situ* data collection is supplemented by remote sensed data where appropriate to do so to help manage monitoring costs e.g. to help understand presence of bare earth surfaces which may influence fine sediment (and pollutant bound sediment) loads, or to monitor algal blooms in Lady's Island Lake.

Once established, a baseline monitoring programme would allow for the relationship between hydrology (including groundwater) and pollutant loads to move from conceptual to empirical understanding, improving the confidence in understanding catchment processes, helping prioritise

¹⁷ [Our Approach – Burren Programme](#)

¹⁸ O'Grady, J. Zhang, D. O'Connor, N. and Regan F. (2021) A comprehensive review of catchment water quality monitoring using a tiered framework of integrated sensing technologies, *Science of the Total Environment*, Vol 765

measure delivery, as well as providing evidence that key pollutant sources are being better managed post-project.

It should be noted that this list is non-exhaustive and would need to be developed further by any future proposal, to demonstrate an understanding of the challenges which face water quality monitoring at a catchment scale. These elements should also support establishment of a post-project monitoring framework, ensuring consistency between pre- and post-project monitoring approaches.

There is also no explicit mention of adaptive management, or how the project may consider dealing with measures which are not delivering the necessary improvements. This is a key feedback element to ensuring that the 'Right measure, right place' concept is being realised.

2.6 Communication and accessibility

2.6.1 Method

The current plan will be evaluated to determine how effectively its proposed mechanisms and actions will be in communicating its findings, as well its proposed actions for inclusion of stakeholders, including farmers, and the wider public. Improvements in clarity, format, and dissemination to enhance understanding and engagement are recommended.

2.6.2 Findings

Communication

The current Lady's Island Lake Water Quality Action Plan sets out an approach to communicate progress and outcomes of the project with stakeholders and the wider public. The plan mentions that community workshops will be organised, in conjunction with LAWPRO, to disseminate progress and outcomes to the local community. Reference is also made to potential engagement with agricultural organisations, such as IFA and ICMSA, alongside drainage committees and wider stakeholder groups, for example those such as forestry, fishery groups, Tidy Towns and NGOs such as An Taisce and Birdwatch Ireland. The plan also sets out a commitment to transparency through farmer-led initiatives and results-based payments, which suggests ongoing channels of communication with farmers. The plan does not, however, address any clear communication strategy for non-farming stakeholders, as has been previously discussed in Section 2.2 Stakeholder engagement. The proposed appointment of a dedicated Farm Sustainability Advisor/Project Manager to be employed locally, would introduce a point of contact for agricultural stakeholders, reinforcing communication with farmers. As previously discussed (Section 2.2 Stakeholder engagement), a significant gap lies in the lack of a tailored communications strategy for non-farming stakeholder groups.

Accessibility

In terms of accessibility, the plan places farmers at the centre, providing clear incentives such as results-based payments and just transition. In addition, community workshops are proposed to provide a participatory format that is more accessible to a wider range of stakeholders than simply releasing technical reports. The plan references delivery of community benefits, such as potential benefits on tourism, biodiversity and recreation, which also show an awareness of, and catering for, a wider stakeholder base. The plan contains strong scientific detail relating to nutrient balances, aquifer surveys and proposed IoT based monitoring. The plan also recognises the lag-time between actions



to resolve the issues and ecological recovery, demonstrating transparency about realistic outcomes and credibility.

Limitations

The Lady's Island Lake Water Quality Action Plan has several key limitations in its approach to communication and accessibility. Notably, the plan lacks a structured communication strategy with defined timelines and doesn't present or propose clear communication channels, such as newsletters, social media or public meetings. There is insufficient detail on how specialist, technical information will be made understandable for non-specialist audiences, with little provision for plain English summaries or ongoing community updates outside of workshops. The Government of Ireland's Plain Language Bill 2019 is designed to ensure that all information for the public from government and State bodies is written and presented in plain language and the outputs from the plan need to comply with this. Accessibility of information appears focused mainly on farmers, leaving non-farming stakeholder groups underrepresented and without tailored engagement. Furthermore, although meetings have taken place locally, these are not documented in the plan and there is no designated contact point for queries or feedback. The document's technical format and absence of visual aids, like diagrams or maps, further restrict its accessibility. Scientific findings are not explained in practical terms for farmers or the wider public, nor is there a clear connection between monitoring results and adaptive management. Technical terminology remains unexplained, which may hinder broader understanding and involvement.

Supplementary literature

DHLGH's Water Advisory Unit provided recommendations for developing the Lady's Island Lake Water Quality Action Plan. They highlight an explicit requirement to develop a communication plan, plan overview in simple English and a structured stakeholder engagement plan. With this guidance in mind, the Duncannon Blue Flag Farming and Communities Scheme Project Plan was also reviewed to compare and assess its strategy for communication and accessibility. The Duncannon plan encompasses a wide range of stakeholders, involving farmers, local authorities, community groups and schools, ensuring that communication is multi-layered and that perspectives are diverse. The employment of a Sustainability Manager and Administration Officer will be established to facilitate ongoing dialogue, knowledge exchange and project coordination. Regular meetings, demonstration initiatives and annual reporting maintain transparency and encourage peer-to-peer learning, while community events and citizen science initiatives promote local ownership and active participation. The plan utilises multiple communication channels, including leaflets, videos, presentations, local radio, social media and a website to maximise the project's reach and cater to different learning preferences and literacy levels. Visual tools like farm-specific Pollution Potential Zone (PPZ) maps and traffic light scoring systems make technical information accessible.

Recommendations

To improve accessibility and engagement, we recommend that Wexford County Council create a formal communication plan outlining specific channels such as public meetings, newsletters and online updates, along with clear timelines and designated responsibilities. A plain English summary of key findings and planned actions should be produced, accompanied by infographics and maps, to ensure the plan is easily understood by the wider community. Additionally, a concise public overview document should be developed in simple language, highlighting the main issues, proposed interventions and their benefits, supported by visual aids and action timelines. Establishing a dedicated contact channel will enable stakeholders to submit queries or feedback. Furthermore, scientific findings should be translated into straightforward explanations with practical examples to bridge the gap between scientific information and everyday understanding. Updates on monitoring results should also be shared in easily accessible formats to keep all stakeholders informed.



3. Summary

Scope and alignment with current legislation

- Lady's Island Lake is a priority habitat (Annex I), designated as a SAC and SPA, with restoration targeting Favourable Conservation Status through nutrient reduction, vegetation restoration and biodiversity enhancement. There is strong alignment with the EU Habitats and Birds Directives.
- The Water Quality Action Plan is compliant with the Water Framework Directive, supported by intensified water-quality monitoring, groundwater surveys, aquifer modelling and farm-level efficiency metrics, aiming for "Good Status" for the lake which is currently poor/hypereutrophic.
- Farmers are encouraged to exceed baseline compliance through enhanced nutrient management, soil sampling, buffer zones, slurry testing, exclusion of livestock from streams and adoption of precision fertiliser technologies and pathway interception measures. This supports the Nitrates Directive and Good Agricultural Practice (GAP) Regulations.
- The Water Quality Action Plan builds on existing models (Duncannon EIP, BurrenLIFE, Farming for Water EIP), introduces a farm sustainability advisor and proposes future innovations such as IoT monitoring and engineered wetlands.
- The Water Quality Action Plan is led by Wexford County Council and other statutory agencies, with integration into the River Basin Management Plan (RBMP) and Southeast Regional Operational Committee, combining top-down oversight with bottom-up community participation.

Stakeholder engagement, communication and accessibility

- The Water Quality Action Plan includes community workshops and engagement with various stakeholder groups including farmers, farm organisations, drainage committees, forestry, fisheries, Tidy Towns and Birdwatch Ireland.
- A dedicated Farm Sustainability Advisor/Project Manager will serve as a primary contact for agricultural stakeholders.
- Farmers are central to the Water Quality Action Plan, with incentives like results-based payments and just transition schemes.
- Community workshops enhance accessibility and participatory engagement beyond formal technical reports.
- The Water Quality Action Plan references community benefits (tourism, biodiversity, recreation), but engagement is mainly focused on farmers.
- There is a lack of a structured communication strategy with clear timelines, channels (e.g., newsletters, social media) and designated contact points for broader stakeholder queries.
- Technical information is not sufficiently translated for non-specialist audiences; there is little use of plain English summaries or visual aids.
- Wider stakeholder groups such as tourism operators, local residents and schools are underrepresented in the engagement approach.
- Comparative literature highlights the effectiveness of diverse channels (leaflets, videos, radio, social media, websites) and visual tools (maps, scoring systems) in improving accessibility and participation.

Catchment characterisation

- The Water Quality Action Plan identifies a number of physical characteristics of the Lady's Island Lake catchment relating to pollutant sources and pathways.
- There are a wide range of open-source data sources which could be used to characterise the catchment e.g. EPA online maps.



- The Water Quality Action Plan largely discusses catchment characteristics at a high-level, with potential for further development to enhance our understanding of catchment functionality, particularly through the development of source-pathway-receptor models.
- Characterisation of surface water flow pathways, non-agricultural sources of pollution, and critical source areas would help to establish a holistic understanding of catchment processes and pressures.
- Table 2-1 provides a summary and review of the physical characterisation features.

Scientific evidence, source apportionment and data gaps

- Major nutrient sources identified include agriculture (slurry and fertiliser losses via feeder streams), municipal and on-site wastewater treatment systems and legacy nutrient release from sediments. There are additional contributions from bird populations.
- Nutrient modelling suggests around 60 tonnes of nitrogen enter the lake annually, primarily from agricultural sources, with restoration requiring an 80% reduction in nitrogen and phosphorus inputs is required to restore lagoon conditions, with some scenarios indicating reductions of even more than 80%.
- There has been no assessment of how much nutrient may be entering the lake from other sources, such as the WwTP and on-site wastewater treatment systems, release from sediments and input from bird populations.
- The Water Quality Action Plan presents a hydrogeological conceptual site model as a reasonable high-level starting point, but a comprehensive baseline understanding of groundwater regime beneath and around Lady's Island Lagoon is needed.
- Potential nutrient pathways include sub-soil groundwater, shallow groundwater, and groundwater within underlying bedrock, including possible fracture flow zones.
- The Water Quality Action Plan advocates for a two-step restoration strategy: initial implementation of best practice measures, followed by the development of further measures through research and scenario planning.
- The Water Quality Action Plan lacks clear methodologies for quantifying nutrient loads from individual sources.
- There is insufficient understanding of lake hydrology and flow dynamics and no outlined strategy for quantifying or managing legacy nutrient release from sediments.
- There is limited soil test data, and water quality trends, sediment tracing, groundwater nutrient loads and flow characteristics are poorly understood.
- Ecological modelling of nutrient pathways and reduction scenarios is not fully integrated; tools such as SAGIS and Lake2K are recommended for scenario testing.

Measures funding and monitoring

- The two-staged approach to delivering measures in the catchment is a sensible strategic approach to adopt Water Quality Action Plan, however, there appears to be insufficient scientific evidence presented (or acknowledged as being needed) to give confidence that the measures are the most appropriate for the catchment.
- The measures discussed by the Water Quality Action Plan are focussed predominantly on agricultural/land management practices, with little acknowledgement of other measures which may be appropriate, including legislative enforcement.
- A recent funding announcement of €700,000 from DHLGH to Wexford CoCo for the development of the plan will primarily go towards funding the salaries of two positions within the council.
- As it stands, implementation of the plan would be primarily funded by the Farming for Water EIP, however, the DHLGH highlighted the need to utilise other, pre-existing agri-environment



schemes. Wexford CoCo should also consider access to additional funds that are not specific to the agri-environment sector.

- The Water Quality Action Plan would benefit from greater clarity in the function and capabilities of the project manager role, particularly in how the role will intersect or work in collaboration with local ASSAP.
- The Water Quality Action Plan would also benefit from an acknowledgement of the long-term financial commitments required for any restoration projects at Lady's Island Lake.
- Key to monitoring the efficacy of any measures delivered will be ongoing monitoring to help understand how measures are contributing towards water quality improvements and whether the 'Right measure, right place' concept is being successfully applied.
- The Water Quality Action Plan identifies useful starting points for monitoring, including its importance and that monitoring is already being undertaken within the catchment.
- Water Quality Action PlanThe Water Quality Action Plan does not identify how a robust baseline would be established based on both existing monitoring data and other data sources, which would be integral for establishing an effective post-project monitoring plan.
- There is no explicit mention of adaptive management, or how the project may consider dealing with measures which are not delivering the necessary improvements.

Communications and accessibility

- The plan includes community workshops (with LAWPRO) and engagement with agricultural groups (IFA, ICMSA), drainage committees, forestry, fisheries, Tidy Towns, and NGOs.
- A Farm Sustainability Advisor/Project Manager is proposed as a local contact point for farmers.
- Farmers are central to the plan, with incentives like results-based payments and just transition initiatives.
- Transparency is emphasized through farmer-led initiatives.
- Gap in communication strategy lacking structured communication plan with timelines or defined channels (e.g., newsletters, social media).
- Non-farming stakeholders lack tailored engagement and clear communication pathways.
- Technical language and absence of plain English summaries limit understanding for non-specialists.
- The Duncannon Blue Flag plan uses multi-layered communication: meetings, events, citizen science, and multiple channels (leaflets, videos, social media, website).
- Visual tools like PPZ maps and traffic-light scoring make technical data accessible.
- Develop a formal communication plan with clear channels, timelines, and responsibilities.
- Provide plain English summaries, infographics, and maps; establish a dedicated contact point; and share monitoring updates in accessible formats.



4. Recommendations

4.1 Scope and alignment with current legislation

A review of the Water Quality Action Plan has identified the following areas that could be strengthened to support alignment with current legislation:

- Acknowledging the need for setting clear, measurable biodiversity targets, such as the extent of vegetation cover and size/species of the bird population indices, with regular progress updates published to demonstrate compliance with the Habitats Directive.
- Acknowledging the need for a phased timeline for Lady's Island Lake to achieve "Good Status" under the Water Framework Directive, with milestones communicated in plain English.
- Consideration of the revised Urban Waste Water Treatment Directive, in particular clarifying responsibilities for septic tanks and small treatment plants.
- Economic modelling of costs and benefits for farmers adopting enhanced nutrient management and precision technologies should be provided, ensuring transparency on how results-based payments offset income forgone. Legislative alignment must be broadened to capture the CAP, EU Green Deal, and climate frameworks including the EU Climate Law, National Climate Action Plan, and Farm to Fork Strategy.

In addition, the consideration of the following points would support engagement with interested parties and stakeholders, and help show how the plan supports wider local priorities:

- Governance arrangements require clarification of long-term responsibilities beyond the project cycle to guarantee accountability and continuity once initial funding ends. Innovation should be made visible through communication tools such as dashboards, infographics, and online portals to share proposed IoT monitoring results, while also integrating with local development, tourism, and community well-being objectives.
- Acknowledgment that the plan should include a plain English summary and be shared through multiple channels such as workshops, newsletters, and online updates. This will enhance accessibility, build public trust, and ensure structured stakeholder engagement, compliance assessments, and phased implementation are delivered effectively.

4.2 Stakeholder Engagement

Our review of the Water Quality Action Plan highlights several key limitations in its approach to stakeholder engagement. The plan would be strengthened by incorporating a structured stakeholder engagement strategy with defined timelines, as well as documenting what stakeholder engagement (i.e. community meetings) have taken place to date.

Stakeholder interviews revealed a series of key recommendations centred around the following four key themes:

- Communication strategies
 - The plan needs a dedicated communication strategy to inform stakeholders and the public in an accessible, transparent way.



- The communications plan should include educational and knowledge transfer mechanisms for all community members, farming & non-farming alike.
 - Results and reports must be decipherable and available in plain English. For the purpose of this plan, that would mean publishing a one- or two-page summary to easily communicate its commitments, expectations, and oversight, in addition to a plan for consistent follow-up as progress is made.
- Expectations
 - Hiring the right person to fill the project manager role will be critical for the success of the overarching project. The function, capabilities, and expectations for this role should be made extremely clear in the plan.
 - The plan should clearly articulate the expectations for partner agencies and those of the operational group, as there is a strong desire to provide support but a lack of clarity around exactly how to do so.
 - A written agreement (such as a Memorandum of Understanding) among operational group members and/or partner organisations along with a strategy for dedicated collaboration should be included in the plan.
 - The plan must clearly communicate and manage expectations for long-term restorations goals with stakeholders and the wider public.
- Oversight
 - Include an oversight strategy in the plan, perhaps in the form of an oversight committee working in tandem with the operational group.
- Agriculture
 - Make explicit how the project manager role will engage with non-farming stakeholders, and clarify what funding streams non-farming community members may utilise (i.e. LAWPRO community water development fund).
 - There must be greater acknowledgement of the contribution of WWTP and septic infrastructure pollution, as well as a plan for further study into what specific role and level these systems contribute to pollution at the lake.
 - Start having conversations about what long-term land use will look like within the catchment in the next century and what land-use transition might look like.
 - Include landowners in all aspects of the project, not just in relation to agriculture, especially in decision-making processes.

4.3 Catchment characterisation

Determining the scope and approach for the Water Quality Action Plan should depend on the existence of an agreed understanding of the catchment's physical characteristics, in particular sources and pathways of key pollutants (including magnitude and timing of nutrient delivery). Therefore, the Water Quality Action Plan would be strengthened by considering:

- Accurate delineation of the catchment boundaries (surface and groundwater) based on topographical and geological/hydrogeological data to ensure all potential pollutant sources are identified.
- Use of higher resolution land cover data, and average livestock numbers, grazing densities and fertiliser application amounts if nutrient export modelling is to be undertaken.
- Generation of flow accumulation mapping and collation of information on artificial field drainage should be undertaken to fully understand surface flow routes and preferential flow pathways



across the catchment. We recommend exploring options to obtain LiDAR derived topographic data for the catchment to enable creation of accurate topographic models, from which flow accumulation pathways and slope can be derived.

- How land ownership and current farming practises can be detailed through engagement with the local farming community. This would help to build up a baseline understanding of the number of landowners in the catchment, how they manage their land, and their potential willingness to implement measures.
- Whether / the extent to which point source discharges in the catchment contribute to pollutant levels in Lady's Island Lake. This would likely require comparison with nutrient loads from diffuse sources in the catchment, and would support engagement with those responsible for managing pollutant levels associated with point source discharges.
- The impact of non-agricultural diffuse pollutant sources when developing a nutrient management plans. For example, collating information on bird populations and likely nutrient export coefficients per bird could enable quantification and comparison with other nutrient sources in the catchment.
- Identifying Critical Source Areas – these are high risk source areas that have high hydrological connectivity with Lady's Island Lake. Identifying such areas would help prioritisation of actions/measures, as well as potentially key monitoring locations.

4.4 Scientific evidence, source apportionment and data gaps

A review of the Water Quality Action Plan has identified the following data gaps that could be addressed:

- Source Apportionment: Using e.g. Irish Pollution Impact Potential maps or FARMSCOPER and effluent sampling from wastewater treatment plant.
- Groundwater regime: A firm understanding of the baseline groundwater regime immediately beneath and around Lady's Island Lagoon (groundwater levels, flow and quality) is required.
- Lake hydrology: A good understanding of the lake hydrology, inflows streams and outflows, including the 'annual cutting' is needed to understand and model the system.
- Sediment Legacy: Given evidence from other lagoons, sediment nutrient reserves may prolong recovery even after external inputs are reduced. Evidence could be collected via lake models such as Lake2K.
- Data Deficiencies: Information from soil testing, of water quality trends, and sediment tracing are limited. Groundwater nutrient loads and flow characteristics remain poorly understood, requiring targeted surveys.
- Modelling and Scenario Analysis: Although hydrodynamic modelling (e.g., Telemac 2D) has been applied, ecological modelling of nutrient pathways and reduction scenarios is not fully integrated. Models such as SAGIS and lake-specific nutrient models, like Lake2K, should be set-up to support scenario testing and measure effectiveness of proposed interventions.

Baseline groundwater conditions should be established ideally through multiple on-shore and off-shore ground investigation techniques, however, acknowledging practical constraints, a purely on-shore ground investigation may be equally appropriate. Details of the approach are given in the plan.

The following recommendations are made to strengthen the plan:



- Monitoring programmes
 - Establish baseline conditions for surface water, groundwater (through intrusive ground investigation), and sediment nutrient loads with help of monitoring and modelling.
 - Intensify water quality monitoring and capture improvement and progress.
 - Incorporate sensor networks for real-time data on hydrology (flows).
 - Sample and monitor effluent quality from municipal and on-site wastewater systems.
 - Establish soil nutrient status and farm management practices in the lake catchment area.

- Modelling and Load Reduction Analysis
 - Set up a seasonal nutrient budget using a spreadsheet model.
 - Apportion reduction targets across sectors and, for agricultural inputs, consider farm clusters based on soil types, and farming systems if known.
 - Establish the presence and relative importance of legacy nutrient loads (nutrient within the lake sediments) in the lake through modelling, and investigate feasibility of sediment removal or in-situ treatment if necessary (e.g., Lake2K).
 - Calculate nitrogen and phosphorus load reductions required to meet WFD and conservation objectives through modelling (e.g., SAGIS).
 - Conduct iterative scenario modelling to evaluate the impact of the proposed measures and inform adaptive management.

- Performance Metrics
 - Develop farm-level Pollution Potential Zone (PPZ) maps and nutrient efficiency metrics. Update these maps as the plan progresses to keep track of improvements and incentivise other farmers.
 - Make use of current data produced by the EPA such as Pollution Impact Potential maps for Nitrogen and Phosphorus.

4.5 Measures, funding and monitoring

Relating to the measures element discussed earlier in the report, the following recommendations would likely strengthen the Water Quality Action Plan:

- Reference to overlapping/complementary schemes and/or guidance (such as Farming for Water EIP, or Waters of Life) could guide and strengthen the development of the Water Quality Action Plan.
- Acknowledgement of the importance of scientific evidence/robust catchment understanding for the selection of measures, with less of a focus on calling out specific measures within the Water Quality Action Plan. If measures are to be featured in the Water Quality Action Plan, focusing on 'groups' which cover a range potential measures e.g. source management, pathway management, agricultural practices etc. would show acknowledgement of the general types of measures likely to be proposed, without focusing on the specific details as these would vary by location depending on sources and pathways which are being managed.



- Acknowledgement that consideration of a holistic and wide range of measures (not just those focussed on farming/agriculture) should be considered as part of the project to ensure that the 'Right measure, right place' concept is supported. This should include (but not be limited to) measures that target habitat creation/enhancement, stakeholder education, as well as how best to ensure legislative compliance is being achieved.
- A more robust approach to measure selection would improve confidence that the 'Right measure, right place' concept is being supported. Whilst cost-benefit is an important criterion to consider, it should not be the sole judge of whether a measure should/not be delivered. Consideration of other factors, for example, stakeholder acceptance, constructability, or wider/multiple benefits, would allow for the selection of a holistic range of measures that would support the aim of the project. This would improve the likelihood of project success and provide a clear audit trail for how/why decisions have been made, improving transparency and accountability to stakeholders.
- Consideration of how benefits would likely be quantified would be beneficial e.g. qualitative, quantitative, or both, as well whether a natural capital approach could be considered to support benefit quantification.
- Work with catchment partners to identify existing opportunities or proposals within the catchment, and the synergies between these opportunities and Wexford CoCo's aspirations for Lady's Island Lake, to help deliver multi-benefit projects and potentially unlock additional funding streams.

Relating to the funding element discussed earlier in the report, the following recommendations would likely strengthen the Water Quality Action Plan:

- Provide greater clarity in the function and capabilities of the funded Project Manager role, particularly in how the role will intersect or work in collaboration with other agencies. Specify to what degree the role will engage with all stakeholder groups, including non-farming landowners.
- Identify and report whether the preclusion of mutual funding through multiple funding sources is a significant risk in implementing the plan.
- Explore and clearly identify other funding sources that may support non-farming community stakeholder groups (such as various LAWPRO community funding streams and the Heritage Council).
- Clearly identify funding streams available for the improvement of septic tank infrastructure and WwTP facilities, including any reference to separate funding commitments for relevant projects including Uisce Éireann facility improvements.
- Acknowledge the long-term time and funding commitments required for the restoration of Lady's Island Lake given the time-delay in results once measures are implemented.
- Stakeholder interviews revealed the need for specialist catchment characterisation to build upon prior work. Clearly identify how funding will be sourced and applied for this specialist work.

Relating to the monitoring element discussed earlier in the report, the following recommendations would likely strengthen the Water Quality Action Plan:

- Setting out how a baseline monitoring programme would be established, as well as the importance for doing so in the context of improving understanding of measure efficacy post-installation and supporting of payment for results mechanisms.
- Clearly mention adaptive management and how important this is (alongside post-project monitoring) to ensure that measures are delivering the necessary benefits. Consideration of how the project would seek to deal with measures which are not performing as anticipated could also be beneficial.



- Expanding on how results-based payments could be used to support the uptake of measures amongst the catchment community, by ensuring long-term and appropriate financial support for farmers/landowners, through a payment for results mechanism (or similar) as advocated by the Burren Programme. Key to the viability of this would be a robust, long-term monitoring programme, underpinned by baseline data.

4.6 Communication and accessibility

Communication of the plan to stakeholders and the wider community will be key to support its long-term success. The Water Quality Action Plan could be strengthened by identifying:

- The need to create a formal communication plan outlining specific channels such as public meetings, newsletters and online updates, along with clear timelines and designated responsibilities.
- That a plain English summary of key findings and planned actions should be produced, accompanied by infographics and maps, to ensure the plan is easily understood by the wider community. Additionally, a concise public overview document should be developed in simple language, highlighting the main issues, proposed interventions and their benefits, supported by visual aids and action timelines.
- That a dedicated contact channel will enable stakeholders to submit queries or feedback, supporting two-way communication between the project and wider community.
- Scientific findings should be translated into straightforward, non-technical explanations with practical examples to bridge the gap between scientific information and everyday understanding.
- Updates on monitoring results should also be shared in easily accessible formats to keep all stakeholders informed of changes in the catchment over time.





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