



Rialtas na hÉireann
Government of Ireland



Environmental Protection Agency
An Ghníomhaireacht um Chaomhnú Comhshaoil



EPA Research Programme 2021-2030 Waters of Life Research Call 2023 – Technical Description Document

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The EPA Research Programme is a Government of Ireland initiative funded by the Department of the Environment, Climate and Communications.

Document Version History

Version No.	Changes Made
1	Not Applicable

Waters of Life Research Call 2023

This document provides the Technical Description for the Environmental Protection Agency (EPA) Waters of Life Research Call 2023. Applicants should read the following carefully and consult the other documentation provided (e.g. 2021 - 2030 Guidelines and Terms & Conditions).

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Introduction

EPA Research 2030¹ is the ten-year high-level framework for the EPA's research programme (2021-2030), designed to be agile, responsive and flexible. EPA-funded research is essential to:

- Supporting the monitoring, assessment, reporting and regulatory activities of the EPA.
- Generating evidence crucial in assisting Ireland in meeting its commitments and requirements under the various international, EU and national policies and strategies.
- Generating the evidence base that supports decision making, behaviour change and policy development.
- Addressing knowledge gaps, providing the evidence-base and responding to priority challenges.
- Supporting multi-disciplinary, cross-sectoral and multi-stakeholder partnership projects.
- Developing environmental research capacity in Ireland, recognising the importance of not only sustaining the research-base but also of building and training the researchers in specific areas.

Environmental policies must be underpinned by an in-depth level of knowledge that needs to be delivered through a systematic programme of environmental research and assessment. Research can play an important role by generating evidence that will support the design and implementation of effective and robust policy, evaluate its outcomes, and demonstrate its value. EPA Research 2030 will further our understanding of our environmental and natural systems. It will enable the outcomes from research to be put in action to protect and improve our natural and built environment.

Thematic Research Approach

EPA Research 2030 thematic structure comprises four interconnected hubs that bring an integrated and cross-sectoral approach, enabling holistic management and protection of our environment.

Addressing Climate Change Evidence Needs

Climate change is already having an impact in Ireland, and strong mitigation and adaptation measures are needed. Research is essential in providing the evidence necessary to improve our knowledge systems and inform policy decisions that will advance our ambitions to be carbon neutral and resilient to climate disruption.

Facilitating a Green and Circular Economy

Environmental and sustainability challenges are inextricably linked to economic activities and lifestyles. Research under this hub will contribute to the mainstreaming of sustainable management of natural resources and waste, unlocking the potential of the circular and bio-economies, and boosting competitiveness, through resource efficiency and deployment of innovative technologies and solutions.

¹ <https://www.epa.ie/our-services/research/epa-research-2030/>

Delivering a Healthy Environment

A clean, vibrant and safe environment is a prerequisite for good health and wellbeing. Environmental degradation, pollution, as well as known and emerging substances of concern threaten our health and that of our supporting ecosystems. Research under this hub will contribute to understanding the risks and benefits, and to identifying appropriate policy and behavioural responses.

Protecting and Restoring our Natural Environment

Our natural environment provides us with clean air and water, food and the raw materials to sustain us and our economy. Research is required to inform and support a cross-sectoral approach to managing our natural environment and for the development of policies relating to the regulation of emissions and activities, and the protection of our water, land, and ecosystems.

Application Process

Making an Application

Applications **must** be made online at <https://epa.smartsimple.ie>

For more information, please refer to the following documentation, which is available to download from the EPA's Online Grant Management and Application Portal or from the EPA website²:

1. EPA Research Programme 2021 - 2030 Guidelines and Terms & Conditions; and
2. EPA Online Grant Management and Application Portal System User Guides.

Call Topic Title and Budget

The EPA invites research proposals under the topic listed in Table 1 for the Waters of Life Research Call 2023.

Table 1. Topic for the Waters of Life Research Call 2023

Call Topic Reference	Research Hub and Call Topic Titles	Max Budget (€) Per Project	Co-funded by
Protecting and Restoring our Natural Environment			
Protecting and Restoring our Natural Environment 2023 Call Waters of Life	Detecting change and assessing the effectiveness of measures to protect and restore high status objective river water bodies	€ 840,000	N/A

² <http://www.epa.ie/our-services/research/>

Call Content

Protecting and Restoring our Natural Environment

Detecting change and assessing the effectiveness of measures to protect and restore high status objective river water bodies

Call Topic Reference:	Protecting and Restoring Our Natural Environment 2023 Call Waters of Life		
Project Type:	Large Scale Project		
Maximum Budget:	€ 840,000	Maximum Duration:	55 months

Background

Clean healthy waters are essential for our environment and well-being. Our waters are assessed regularly to determine their current status and their ecological health. One of the most notable trends observed over recent decades has been the decline of our most pristine river water bodies which have nearly halved in numbers since the late 1980s³. These high ecological status waters are hugely important as they act as reservoirs for aquatic biodiversity and support some of our most sensitive aquatic species. The protection and restoration of such waters is one of the key environmental objectives of the EU Water Framework Directive.

The Waters of Life is an EU funded LIFE Integrated Project which aims to help reverse and halt the loss of these most pristine river water bodies (<https://www.watersoflife.ie/about/>). The project is due to be completed by the 31st March 2028 and has a budget of €20 million. The overall objective of the project is to support the implementation of measures to protect and enhance high status objective river water bodies. This is to be achieved by catchment-based demonstrations to test and validate the effectiveness of different measures across a range of landscapes and human activities typically associated with the catchments of high-status objective waters. There are six demonstration catchments in total (<https://www.watersoflife.ie/catchments/>).

The Waters of Life project is comprised of a number of related activities, including: the preparation of a framework of measures that will identify all possible measures across all relevant sectors; the establishment of a Results Based Agricultural Payment Scheme; field investigations to identify catchment specific pressures and finally the development of strategic catchment management plans.

³ [Monitoring & Assessment: Freshwater & Marine Publications | Environmental Protection Agency \(epa.ie\)](#)

Scope

In the context of these activities, research is needed to design and implement a suitable monitoring programme that has the capacity to assess the status of high-status objective river water bodies, the environmental stressors that are preventing high status from being achieved, and the effectiveness of measures put in place to protect and maintain the status of these waters.

The elements to be considered in this research should include relevant biological elements (e.g. phytoplankton, macroinvertebrates, macrophytes and fish, amongst others) physico-chemical (temperature, turbidity, nutrients, dissolved oxygen, pH, etc.) and hydromorphological (hydrology, morphology and continuity) supporting elements. This research may also consider information on other factors such as general habitat condition and the presence of any other factors or features which may influence the condition of these river water bodies.

The programme should be capable of providing information which can be used to determine if change in the environmental condition of these waters has changed as a result of implemented measures or due to other factors such as natural events or coincidental change in land use activities in a catchment. The programme should also be sufficiently representative of the different types and magnitude of pressures that are known or likely to occur across each demonstration catchment. This aspect of the research project will be informed by the other work packages in the Waters for Life project which cover areas such as characterisation, catchment investigations and selection of appropriate measures. The proposed research must be completed before the Waters of Life project ends to support decision making and recommendations from that project.

Innovative research proposals are therefore invited to:

- Undertake a detailed literature review of the most appropriate quality elements, metrics, methods and frequencies to be included in a monitoring programme of high-status objective river water bodies.
- Design a suitable multi-year monitoring programme that is sufficiently representative of the different types and magnitude of environmental stressors, pressures and water body types in each demonstration catchment. The design of the programme should consider:
 - Selection of the most suitable quality elements to be monitored (e.g. fish, phytoplankton, macroinvertebrates, nutrients, turbidity, pH etc.). The selected elements should be sensitive enough to detect the level of environmental change associated with the loss of high-status objective water bodies;
 - Selection of the assessment methods to be used. The assessment methods should be relevant and specific to the types of pressures impacting in each demonstration catchment. The biological assessment methods chosen should be sufficiently sensitive to detect a within class shift in ecological status;
 - Use of appropriate high frequency in situ monitoring devices to better characterise episodic events that may be important in influencing the condition of high-status objective river water bodies;
 - Assessment of land use change and the impact of these changes on the condition of high-status objective river water bodies;
 - In certain nitrate sensitive areas, the need for groundwater monitoring should be considered as a means of demonstrating the effectiveness of nitrate reduction measures in the catchment.
- Implement the monitoring programme in the six demonstration catchments during the lifetime of the project.

- Establish a baseline and a suitable number of control sites against which improvements in environmental conditions can be assessed and quantified in each of the demonstration catchments during the lifetime of the monitoring programme.
- Develop a set of Key Performance Indicators based on the information collected by the programme to be used to track the effectiveness of measures in protecting or improving the condition of high-status objective water bodies during the lifetime of the project.

As measures are implemented over the lifetime of the project, the research element of the programme will continue to evaluate the impact of the different measures on the condition of these waters. It may be necessary to use different elements, or more likely different assessment methods, during the lifetime of the project, to tease out and identify the measures which have been most effective in protecting and restoring these high status objective water bodies.

The research project will also help to assess, and will contribute through the sharing of results, to other elements of the Waters of Life project which include establishing a programme of measures, a results-based agricultural payment scheme and the development of a longer-term strategic plan for the environmental management of high-status objective waters.

In addition to the Expected Outputs listed in the **2021-2030 Guidelines and Terms & Conditions**, it is also expected that the research will deliver the following specific deliverables:

- Literature review;
- Plan setting out the content and structure of the proposed monitoring programme, which must be approved by the EPA prior to the monitoring starting;
- Set of detailed standard operationing procedures (SOPs)for each of the methods applied in the monitoring programme;
- Regular quarterly reporting of monitoring results;
- Datasets of the information collected during the monitoring programme; and
- A technical report, in addition to the compulsory 30 page report.

Expected Outputs

Please consult the **2021-2030 Guidelines and Terms & Conditions** for the full list of expected outputs and interim/final reporting requirements.

Outputs from ALL projects must build on recently completed and existing research and other relevant information.

Where project outputs include data and/or technical solutions (websites, developed software, database solutions etc.) then the format of same must be agreed with the EPA to ensure that they can be installed on EPA infrastructure and maintained by EPA staff after the completion of the project. The EPA can supply a current list of approved data formats and technology on request and the exact format of all outputs must be agreed with the EPA before development of same commences. All data outputs must have a comprehensive set of metadata and all technical solutions must be fully documented according to EPA requirements.

It is essential that, in their proposal, applicants clearly demonstrate the policy-relevance of the outputs of their proposed research; the applicability of their findings; and how these outputs address a knowledge -gap and can be efficiently transferred/applied to the implementation of policies and the protection of the environment. Applicants **must** clearly demonstrate how their proposed research will provide the evidence to support environmental policy in Ireland, in terms of identifying pressures, informing policy and developing solutions.

Timeframe

Wednesday 25 th January 2023 at 11:00 GMT	Call opening
Wednesday 1 st March 2023 at 17:00 GMT	Deadline for queries relating to the technical contents of this call
Wednesday 8 th March 2023 at 17:00 GMT	Submission deadline
Wednesday 15 th March 2023 at 17:00 GMT	Approval deadline
March/April 2023	Evaluation process
May/June 2023	Negotiation ⁴
June 2023	Grant award of successful projects
By 30 th September 2023	Start of successful project

⁴ The EPA may consider calling the shortlisted applicants for interview at this stage.

Further Information

Information on current research projects being supported by the programme is available in the Research section of the EPA website: <http://www.epa.ie/our-services/research/>.

The following additional documents are available from the EPA website:
<http://www.epa.ie/publications/research/current-call-documents/>

- EPA Research Programme 2021 - 2030 Guidelines and Terms & Conditions.
- EPA Research Programme 2021 – 2030 –Communicating Research.

Other relevant EPA Research Programme Strategies and Policies are also available from the EPA website: <http://www.epa.ie/our-services/research/epa-research-2030/strategies-and-policies/>.

For updates on the Waters of Life Research Call 2023:

1. Subscribe to [EPA Research Newsletters](#)
2. Follow us on Twitter [@EPAResearchNews](#)
3. Visit the [EPA Funding web pages](#)
4. Check the [Research Call Frequently Asked Questions web page](#)

Any queries that are not covered in the call documentation or on the FAQs web page must be submitted to research@epa.ie.