

NIAGARA 

Newsletter

2nd edition



**Funded by
the European Union**

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them.

WELCOME TO THE NIAGARA NEWSLETTER!

In this second edition, we compile a brief update of relevant actions carried out in the **NIAGARA** project, including news articles, launched videos and the general overview provided by our coordinator, Alejandro Hernández (ITENE). Also, we introduce the Zero Pollution for Water Cluster, of which NIAGARA has been an active member since November 2025. In addition, in this second

edition of the NIAGRA Newsletter, we bring a short list of interesting events and conferences related to water treatment technologies and monitoring that will be carried out during the summer of 2026. For this second edition, the invited project for the "Related project" section is LIFE PRISTINE.

Enjoy!



COORDINATORS' OVERVIEW

In this section, we bring a short interview with Alejandro Hernández, coordinator of NIAGARA and member of the ITENE technical team. Alejandro graduated in Chemistry and currently exercises as Head of the Monitoring and Bioanalysis Unit at ITENE.

From your point of view, what are the biggest advances to be highlighted from the first 30 months of the project?

There are many to be mentioned! Over the first 30 months of the project, the most significant technical advances have been mainly related to contaminant detection, pollutant removal, and the design of the pilot plant for technology validation.

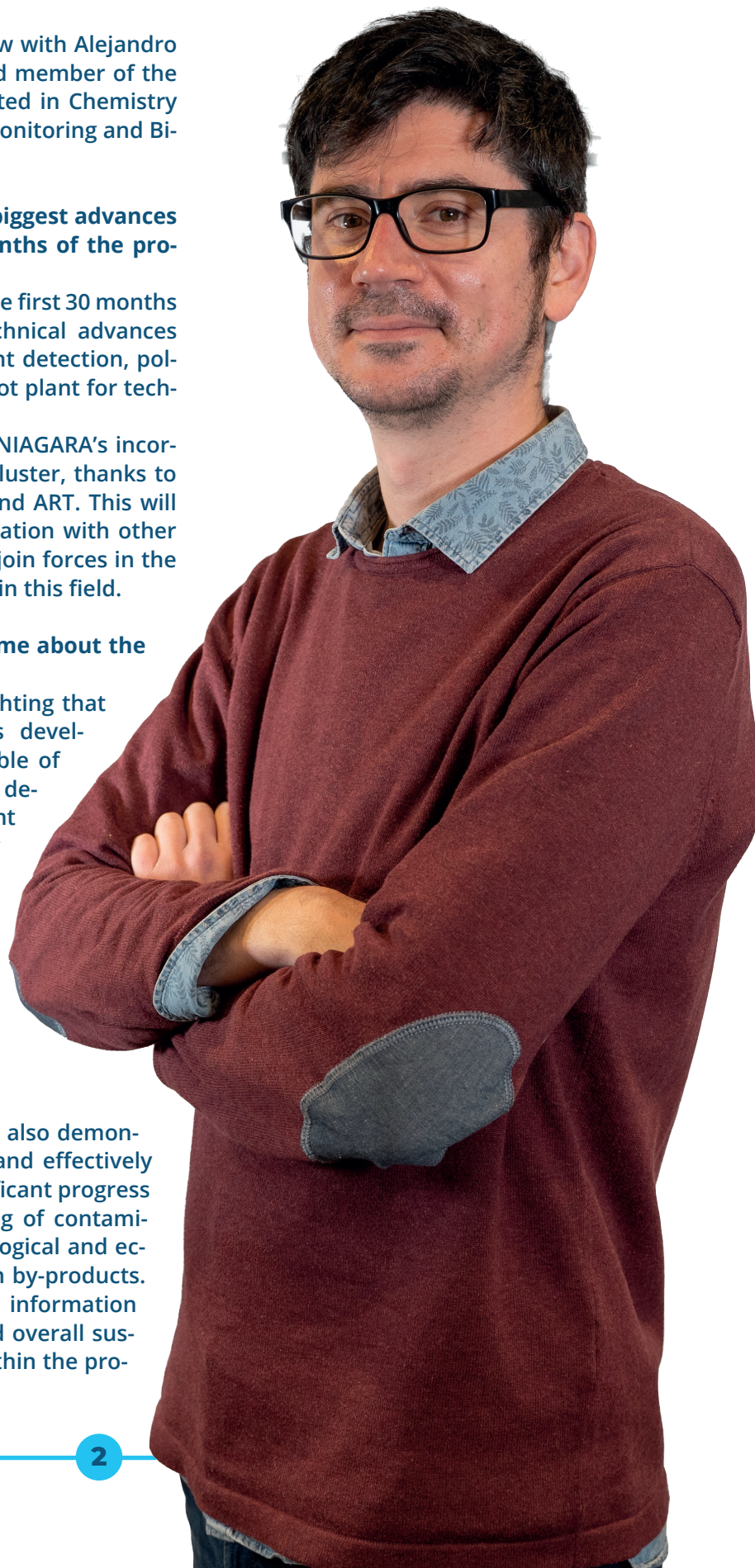
Another important milestone has been NIAGARA's incorporation into the ZeroPollution4Water cluster, thanks to the efforts of partners KNEIA, SEMIDE and ART. This will allow the project to strengthen collaboration with other initiatives focused on water quality and join forces in the development of innovative technologies in this field.

Being more specific, what can you tell me about the detection systems under development?

In terms of detection, it is worth highlighting that the photonic biosensor-based systems developed within NIAGARA are already capable of detecting the target contaminants with detection limits closely aligned with current regulatory requirements and within very short response times. This represents a major achievement for the project, as reaching meaningful detection limits is not always straightforward, particularly when dealing with complex water matrices containing multiple interfering substances.

What about the removal of pollutants?

The removal and mitigation systems are also demonstrating a high capacity to treat water and effectively eliminate the target contaminants. Significant progress has also been achieved in the modelling of contaminant dispersion, as well as in the toxicological and ecotoxicological assessment of disinfection by-products. These activities are providing valuable information regarding the environmental impact and overall sustainability of the solutions developed within the project.



What are the main challenges NIAGARA is currently facing? Also, any foreseeable big challenges for the remaining 18 months of the project?

facing several important challenges. One of the main ones is the simultaneous multi-detection of contaminants, particularly the integration of all individually developed assays into a single biosensor chip capable of analysing all the targeted emerging contaminants in the same sample at the same time. Also, we are working on the optimisation of both the detection and removal systems for *Helicobacter pylori*, which has proven particularly challenging due to technical and microbiological constraints.

Another key challenge for the project is the design and optimisation of the hydraulic model, which will help us better understand how contaminants are transported and dispersed across the defined geographical area.

Any foreseeable big technical challenges for the remaining 18 months of the project?

Over the next 18 months, NIAGARA will likely face its biggest challenge: integrating the different technologies developed within the project so they can operate together in-line and be validated under real conditions. This is particularly demanding given the specific characteristics and technical requirements associated with each individual technology: biosensing, remediation and modelling; making the integration process even more complex.

For example, supplying water to the biosensors for its monitorization requires very strict flow control, as well as carefully controlled operating conditions to avoid vibrations and external interferences that could affect the reliability of the signal. In this sense, the main challenge for NIAGARA during the next phase of the project will be the successful integration of the technologies and their validation at the pilot plant in Valencia.

How do you envision NIAGARA technologies being adopted by water treatment plants after the project ends?

It will depend on several factors, for example, the capability to carry out analyses quickly and with

detection limits in line with legislation. Also, the ability to remove contaminants efficiently, all in an integrated manner and following a thorough validation process that allows us to establish this technology as a precedent in the control of emerging pollutants and the improvement of water quality management. In this regard, the validation phase will be critical. In addition, we cannot forget two important points: to achieve competitive costs that ensure technology adoption by companies and legislation supporting the use of alternative technologies focused on optimising water cycle management.

“Integrating all technologies into one pilot plant is the project’s biggest challenge.”


Not only as a coordinator but as a technical expert, how do you think the sustainability of a project like NIAGARA across environmental, economic, and social dimensions could be optimally assessed?

Sustainability, together with toxicity and ecotoxicity studies are currently being carried out. Although right now it is difficult to provide a definitive answer on this matter, we can say that one of the fundamental pillars of the project is to develop technology and expertise within the European framework of safety and sustainability by design, thereby ensuring that the majority of the solutions proposed and developed within the NIAGARA project will be able to meet these requirements.

Finally, can you provide a little hint about what is about to come in the project for what remains of 2026?

The next phase of the project is particularly challenging, as it involves focusing all our efforts on optimising the technologies developed individually and finding a way to integrate all these solutions that have been developed separately into one pilot plant. This will enable us to determine whether the integrated solution is capable of achieving the objectives defined in the project and whether its application in water treatment plants is feasible. In this regard, it is worth highlighting the commitment and effort made by each of the partners to achieve these objectives, not only in technical terms but also in the areas of dissemination and communication. I hope to be able to update you on this in the next newsletter and bring you some good news.

LATEST NEWS & INSIGHTS

Here you can find a shortlist of the latest News and communications shared by NIAGARA on different topics. For diving deeper into more publications, visit the NIAGARA [website](#) 



Niagara first policy brief and recommendations

NIAGARA first policy brief and recommendations on contaminants of emerging concern in drinking water: regulatory analysis, gaps, and future trends.

Read the full article by clicking [here](#) 



Protecting Europe's groundwater: why policy innovation matters more than ever

A recent policy brief from the ZeroPollution4Water initiative highlights both the scale of the challenge and the actions needed to address it (ZP4WC policy Brief). Its message is clear: protecting groundwater in the 21st century will require not just better technology, but smarter, faster, and more coordinated policymaking.

Read the full article by clicking [here](#) 



The battle against forever chemicals reaches Europe's water supply

Invisible, persistent, and increasingly widespread, per- and poly-fluoroalkyl substances (PFAS) have emerged as one of Europe's most pressing water quality concerns. Found in everything from industrial waste to household products, these synthetic compounds are now being detected in drinking water supplies across the continent, prompting alarm among health experts and regulators alike.

Read the full article by clicking [here](#) 

LATEST VIDEOS

In this section, we present the latest videos produced by the project, including technical explanations regarding the project scope and technologies.

Detecting, promoting and removing emerging pollutants in drinking water: insights from ITENE



The project coordinator, ITENE, has a crucial role in the NIAGARA Project. They contribute to the monitoring and removal of emerging contaminants in drinking water. They leads the laboratory-scale development and validation of the remediation approaches carried out in the project. Discover how their innovative technologies are helping ensure safer and cleaner water for all.

Watch the video by clicking [here](#)

Nanophotonic biosensors for water pollutant detection



The Catalan Institute of Nanoscience and Nanotechnology (ICN2) is in charge of the development of a nanophotonic biosensor platform for multiplex detection of pollutants in water treatment plants. In this video, Mari Carmen Estevez, Senior Scientist at ICN2, explains the challenges in detecting water contaminants, how these silicon-based optical biosensors work, and the promising future applications of this technology.

Watch the video by clicking [here](#)

JOINT POLICY BRIEF

Approximately 75% of the European Union's drinking water supply comes from groundwater. It plays a critical role in industry, ecosystem resilience and agriculture. However, pollution, climate change and overexploitation are increasingly pressing on this natural resource. Thus, making more coordinated and stronger policy action is essential.

The NIAGARA project is a key player in the *ZeroPollution4Water* cluster. Recently, NIAGARA has been an active part of the creation and publication of the new joint policy brief on "Groundwater". This policy brief tackles the above-mentioned concern and makes recommendations to strength-

en the protection of groundwater resources and reinforce the *Ground Water Directive's* (GWD) implementation. The Policy brief presents 7 main recommendations considering technological advances, nature-based solutions (NbS), the need for better monitoring of emerging pollutants, and results obtained from the cluster's various projects.

Apart from NIAGARA, other five projects shared efforts in the cratio of the joint policy brief: *MAR2PROTECT*, *NINFA*, *UPWATER*, *SAFECREW* and *LIFE-CASCADE*.

To access the policy brief, click [here](#)

ZERO POLLUTION FOR WATER CLUSTER – ZP4WC

What is the ZP4WC?

The ZP4WC is an initiative that originated from the coalition of seven different projects funded under the 2022 Horizon Europe calls. Now a days 19 projects are part of ZP4WC.



How did it originate?

The cluster was born from the need to prevent groundwater contamination and protect its quality against the harmful impacts of climate change by providing innovative monitoring and treatment solutions for ensuring safe water distribution.

What does it aim for?

The coalition aims to leverage collaboration and synergies among Horizon Europe-funded enterprises eager to develop prevention and mitigation strategies to improve water quality, safeguard drinking water sources and protect groundwater.

What specific actions is the Cluster carrying out?

Production of common policy-related documents and recommendations, jointly assessing the R&I achievements of the member projects and their future needs; and collaboratively demonstrating the effectiveness of optimal water management practices via case studies.

Is there more information available?


Absolutely! To learn more about the Cluster and the associated projects, visit the ZP4WC [website](#) 



Photo source: ZP4WC official website

FUTURE EVENTS

Here is a list of interesting international events related to water treatment and contamination remediation that will be carried out during the summer 2026. To check the full list, visit the [NIAGARA website](#)



18th May 2026 - Madrid (Spain)

Global Water Summit 2026
Organised by Global Water Intelligence
Visit the [website](#)



8th June 2026 - Barcelona (Spain)

International Conference on Water 2026
Organised by World Academy of Science, Engineering and Technology
Visit the [website](#)



10th June 2026 - Mikkei (Finland)

International Conference on Emerging Trends in Water Treatment 2026
Organised by Mikkeli Water Week
Visit the [website](#)



1st July 2026 - Online

Waterwise Annual Conference 2026
Organised by Waterwise
Visit the [website](#)



25th July - Berlin (Germany)

International Conference on Subsurface Hydrology and Contamination Transport 2026
Organised by Scholars Forum
Visit the [website](#)



28th August - Dublin (Ireland)

International Conference on Water Quality Assessment and Monitoring
Organised by World Academy of Science, Engineering and Technology
Visit the [website](#)

OTHER PROJECTS - OVERVIEW

LIFE PRISTINE: An innovative Solution for Advanced Water Treatment

LIFE PRISTINE is a 4-year funded project focused on integrated solutions to remove contaminants from water streams.

The project aims to develop an innovative and versatile integrated solution - PRISTINE - designed for the permanent removal of contaminants of emerging concerns (CECs) from water systems. The targeted contaminants include Polyfluoroalkyl substances (PFAS), several pesticides and pharmaceuticals, personal care products, toxins, antibiotic resistance genes and microplastics.

The system combines multiple advanced treatment technologies such as encapsulated adsor-

bents, hollow-fibre nanofiltration and advanced oxidation processes. Its performance is continuously monitored and optimised through a decision support system powered by Artificial Intelligence-based soft sensors, enabling real estimations of CEC concentration levels.

Supported by the EU through the LIFE Funding Programme for the environment and climate solution action, the project aims to achieve over 80% removal efficiency of targeted contaminants at the demonstration sites located in Spain. LIFE PRISTINE is coordinated by ACCIONA and counts on the participation of EURECAT, NX FILTRATION, XYLEM SERVICES and the REGIONAL ENTITY FOR WASTEWATER SANITATION ON TREATMENT IN MURCIA (ESAMUR). In addition. It counts on the support of the BILBAO BIZKAIA WATER CONSORTIUM (CABB).

To learn more about LIFE PRISTINE, visit the [website](#)

PRISTINE



Photo source: <https://eurecat.org/portfolio-items/life-pristine/>

Visit our website and share our advances with your network!

niagara-project.eu

in Niagara Project EU **X** @niagara_eu

✉ info@niagara-project.eu

NIAGARA 



**Funded by
the European Union**

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them.