

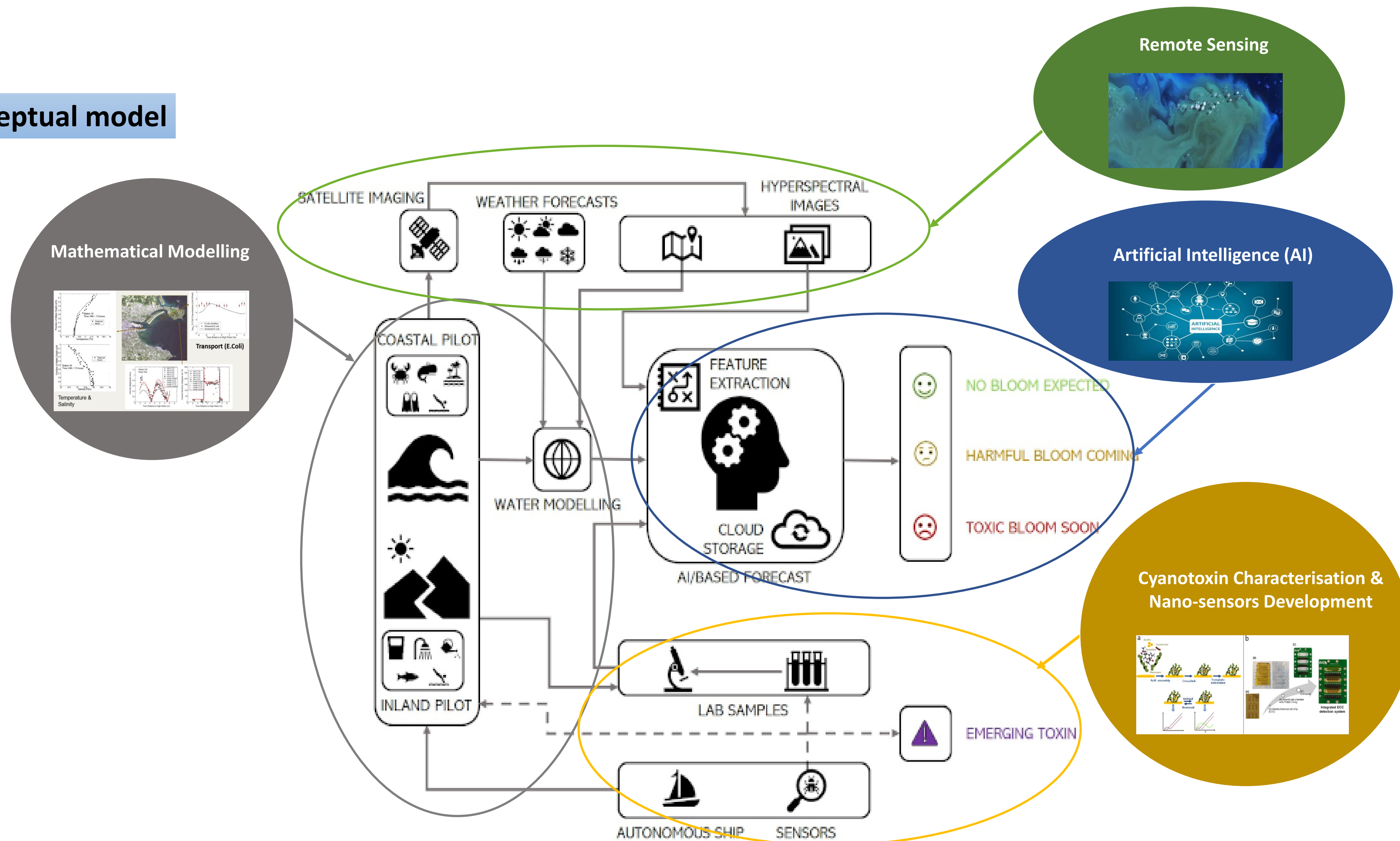
Artificial Intelligence-powered Forecast for Harmful Algal Blooms (AIHABs)

Abstract

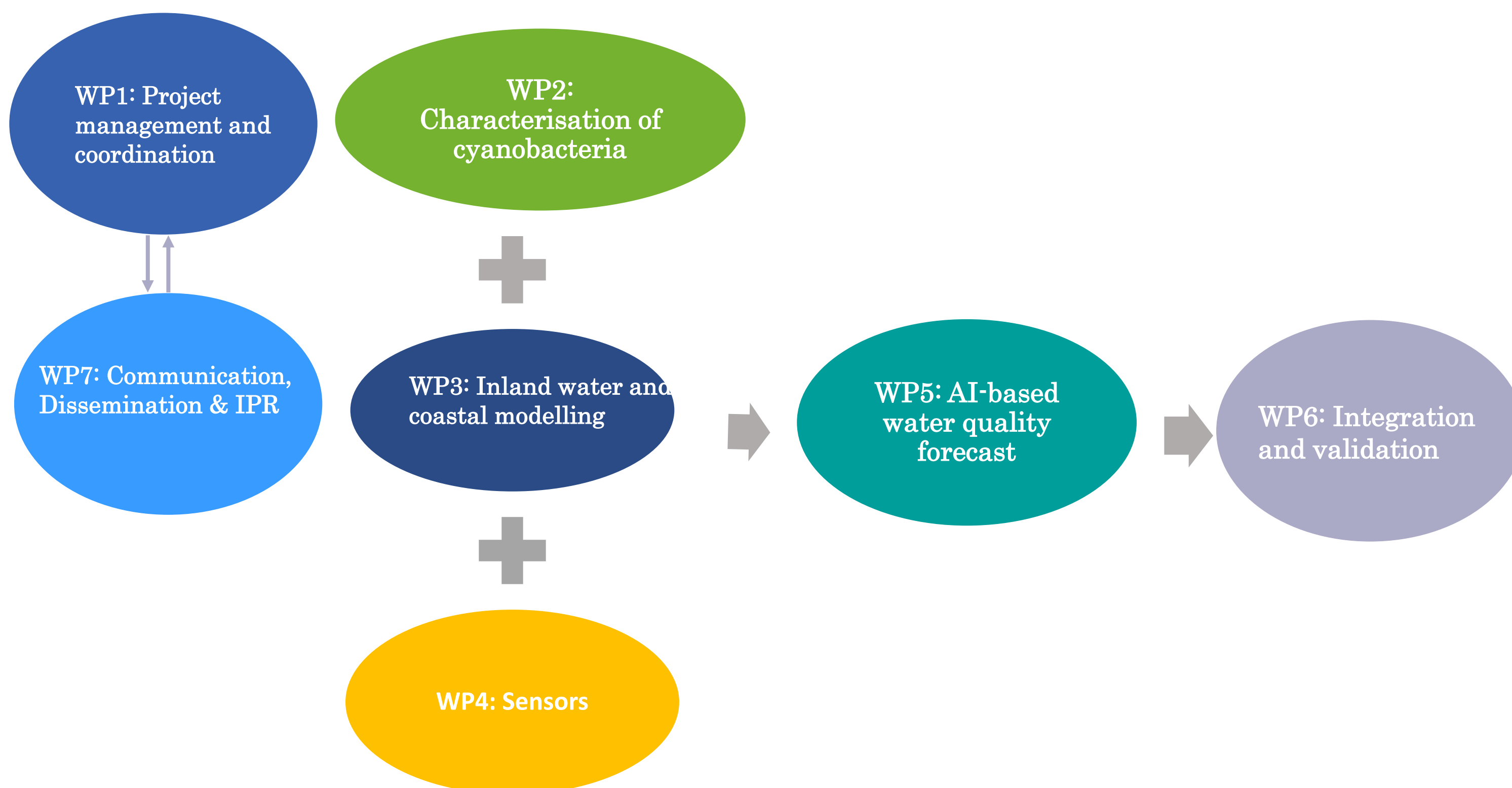
Eutrophication of water bodies in Europe is contributing to the increase of Harmful Algal Blooms (HABs) which poses serious risk to human health. To address this problem, the AIHABs project will develop an early warning forecasting system to predict the occurrence, spread and fate of cyanotoxins caused by HABs in inland and coastal waters, using Artificial Intelligence (AI) and the latest innovations in mathematical modelling, nanosensors, and remote sensing. The system predictions will allow timely action to minimise the risks of consuming surface waters or using them as recreational resources when the waterbodies are prone to produce toxic cyanobacterial blooms.

A number of candidate sites with a history of HABs in different countries in Europe will be evaluated using multi-criteria analysis in order to identify the most suitable inland and coastal water sites for use in the study. The main criteria for selecting the sites will be the availability of the required data for modelling and the strong evidence of historical HABs.

AIHABs Conceptual model



AIHABs Workpackages (WPs)



Outcomes and Expected Impact

Mitigating the HABs risk falls under the emerging area of environmental impact of chemicals. Addressing this area will both protect human health and deliver on the zero-pollution ambition for a toxin-free environment proposed in the 2019 European Green Deal. Therefore the need for further research to better understand the lifecycle of chemicals in the environment and to establish the links between chemicals in the environment and human health and wellbeing has been prioritised.

The main outcome of the AIHABs project is to produce a new Artificial Intelligence (AI)-based software to predict occurrence and spread of Harmful Algal Blooms (HABs) in inland and coastal water bodies. Developing a tool to predict HABs will contribute to the HABs risk assessment. The development of methods for early detection and

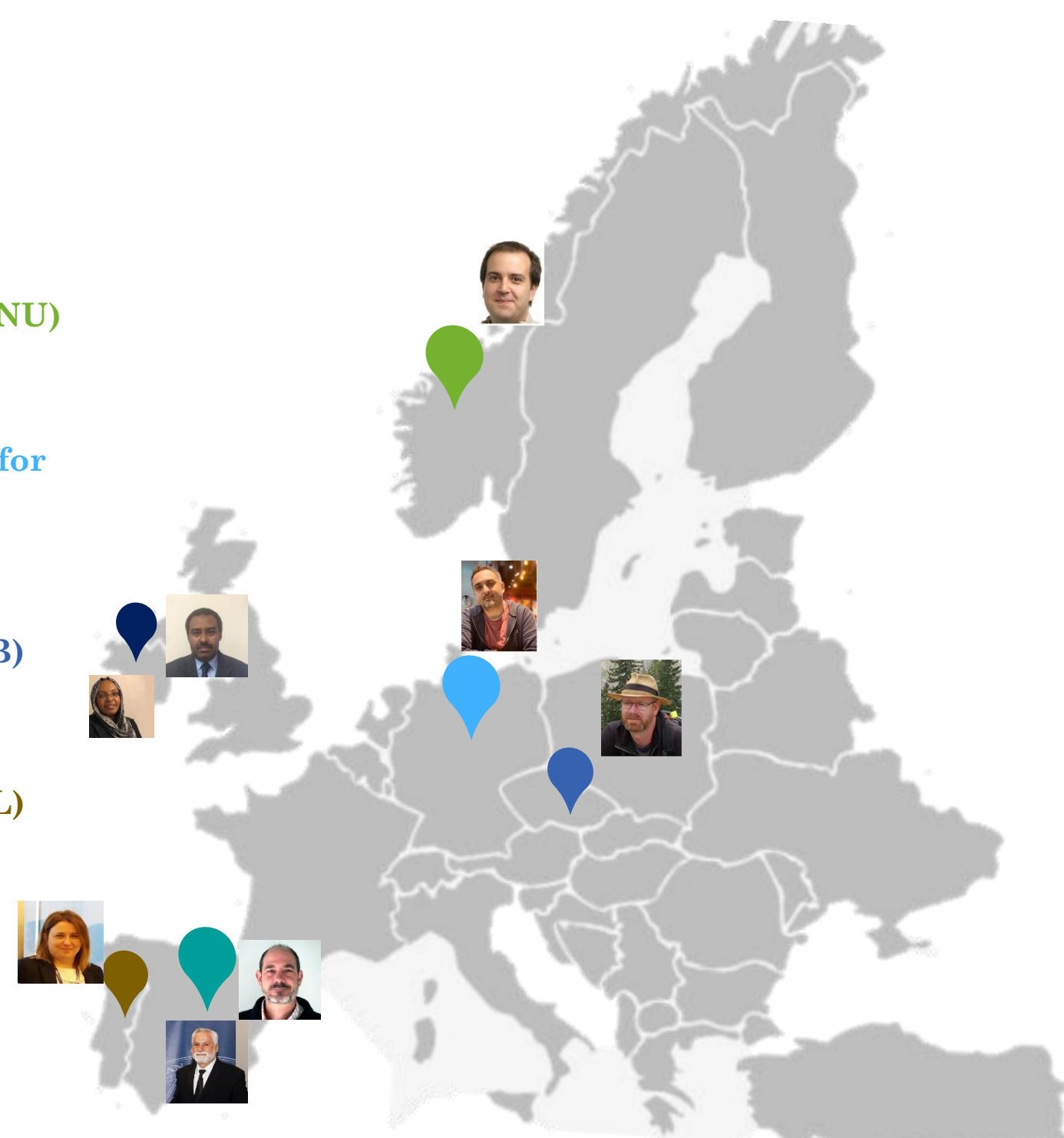
predictive models would allow resource managers time to respond more effectively to potentially harmful conditions.

Furthermore, the modelling results and all data required to calibrate and validate the tool will provide good understanding of the governing processes and the pathways of pollution by measuring and evaluating the resultant HABs.

In addition any mitigation scenarios to manage the existing point source and the diffuse source pollution loads from the discharging catchment could be assessed using the HABs developed models for inland and coastal waters.

Project Partners

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Current Project Stakeholders

- Environmental Protection Agency**
Ireland
- Miljødirektoratet**
Gjøvik Kommune
Norway
- Povodi Labe**
Povodi Ohře
Czech Republic
- bbe Moldaenke (GmbH)**
Germany
- Augas de Galicia**
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