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PRODUCTIVITY TOOLS: Automated Tools to Measure Primary Productivity in European Seas. A New Autonomous Monitoring Tool to Measure the Primary Production of Major European Seas





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## **Results in Brief**

## Automated measurement of marine primary production

A recent EU-funded project developed automated tools to measure primary productivity in European seas.





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Primary production forms the basis of all ecosystem processes. Key to the management of marine ecosystems is understanding how primary production responds to pressures such as environmental change.

The measurement of primary productivity is, however, not included in most routine programmes as current measuring methodologies are not suitable. The 'Productivity tools: Automated tools to

measure primary productivity in European seas' (PROTOOL) project aimed at addressing this issue by developing better methodologies and tools for future

programmes.

Project partners developed three automated instruments: a fluorometer, the Point Source Integrating Cavity absorption meter (PSICAM) and a reflectance module. The instruments measure the photosynthetic activity and phytoplankton biomass, light absorption by various water constituents and water colour to determine water quality.

An important step in the project was to test the developed instruments under realistic field conditions. Researchers carried out field tests in a variety of water types, including Dutch estuaries, the Baltic and North Seas, and the Atlantic Ocean. The equipment proved to be highly functional and reliable.

Data generated during the field tests are stored in various databases. Researchers have used the data to evaluate conversion factors, which can be applied to instrument measurements in order to convert them to informative measurements for stakeholders.

PROTOOL results are expected to have major socioeconomic impacts and the data generated are available to the international community for future studies. In addition, researchers are planning a related project, PROTOOL-2, to develop similar, smaller equipment for other platforms.

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**Project Information** 

PROTOOL

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Project closed

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**EU contribution** € 2 985 343,00

Coordinated by STICHTING KONINKLIJK NEDERLANDS INSTITUUT VOOR ZEEONDERZOEK (NIOZ) Netherlands

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