



WaterSpy

High sensitivity, portable photonic device for
pervasive water quality analysis

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PHOTONICS PUBLIC PRIVATE PARTNERSHIP

 PHOTONICS²¹



www.waterspy.eu

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WaterSpy (*High sensitivity, portable photonic device for pervasive water quality analysis*) is a project funded by the European Union's H2020 programme (contract no. 731778) and its main objective is to develop a high accuracy, portable, water quality analysis device. In fact, pervasive and on-line water quality monitoring data is critical for detecting environmental pollution and reacting in the best possible way to avoid human health hazards. However, it's not easy to gather such data, at least not for all contaminants. Currently, water utilities rely heavily on frequent sampling and laboratory analysis in order to acquire this information. For this situation to be improved, portable and high-performance devices for pervasive water quality monitoring are required. Towards this end, there has been growing interest in expanding spectroscopic methods beyond the $2\mu\text{m}$ range of the infrared spectrum. That region of the spectrum is home to many vibrational and rotational absorptions of compounds related to water quality. Unfortunately, water itself is a strong absorber of infrared light. Thus, such methods were restricted to laboratory settings until now.

WaterSpy addresses this challenge by developing water quality analysis photonics technology suitable for inline, field measurements. WaterSpy technology will be integrated, for validation purposes, to a commercially successful water quality monitoring platform, in the form of a portable device add-on. WaterSpy will be used in the field for the analysis of critical points of water distribution networks. This will be demonstrated in two different demo sites in Italy.

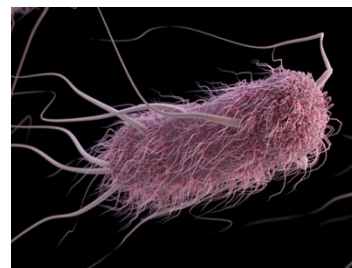
WaterSpy is being developed by a multi-disciplinary team, coordinated by CyRIC - Cyprus Research and Innovation Center Ltd. The project has been launched on the 1st November 2016 and will run for three years, to allow enough time for the development and real-world validation of the technology. WaterSpy addresses a major challenge of today's societies: **water quality**. While water availability used to be a major challenge, it has now become more available (over 90% availability worldwide). People's attention is thus turning towards water quality. WaterSpy is taking advantage of advances in cutting edge **photonic** devices, in order to provide new capabilities in water analysis. The aim of the WaterSpy team is to develop a device that will require about 30-45 minutes for a full sample analysis of 250 mL, in search for three heterotrophic bacterial cells (*E.coli*, *Salmonella*, *P.aeruginosa*). This is in line with the EC and national regulations that require that no bacteria should be present in a sample of 250mL of drinkable water. The 30-45 minutes will allow performing 32-48 tests per day in the same site. With currently used systems, the same analysis could take up to 3 days.



Salmonella



P. aeruginosa



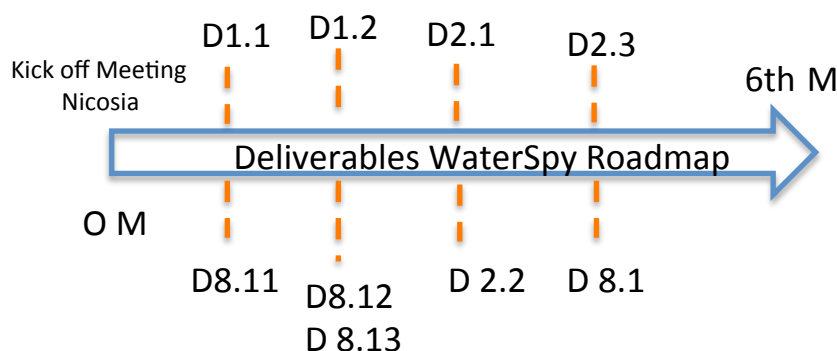
E. coli



WaterSpy Kick-Off Meeting in Cyprus



The **WaterSpy kick-off** meeting took place on the 21st and 22nd of November 2016 in Nicosia, Cyprus, where CyRIC, the project coordinator is based. All partner organizations attended the event. In the two-days meeting, administrative procedures were discussed and an overview of all work packages and scientific approaches to be followed was made. Particular attention was placed on the detailed, technical discussion of the active tasks in the first semester of the project. Each partner organisation presented their strategy, internal milestones for the task and a **roadmap for the first six months** was drafted.



During the meeting, the team also prepared the main strategy to be followed for the WaterSpy dissemination activities. Document sharing and information exchange within the consortium was also discussed. The social event arranged by CyRIC was a dinner in Nicosia city center. Teleconferences for monitoring project progress will be organised by the coordinator on a monthly basis, while the next consortium meeting is going to take place in May 2017.

WaterSpy Consortium

