

## WATER QUALITY IN FINLAND

### What it is about

Sentinel-2 and Sentinel-3 data are being used to monitor water bodies in Finland. These measurements allow the environmental institute of Finland and regional environmental agencies, known as ELY Centres, to monitor the quality of water in lakes throughout their region to a degree that is not possible using traditional in-situ water sampling and testing.

Using satellite data is especially helpful in a country like Finland where the large amount of water bodies would imply enormous associated costs for authorities should they have to use traditional monitoring methods across the whole country. Sentinel data therefore helps authorities to improve water quality at a lower cost, which in turn improves the quality of life for citizens, aids in the protection of biodiversity and helps to ensure environmental sustainability.



### What we found

- Sentinel data helps regional authorities and the Finnish environmental institute to monitor the lakes more effectively, more frequently and more comprehensively.
- Thanks to the use of Sentinel data offered through a publicly available platform, economic and leisure activities are better informed and lake ecosystems are better protected. The associated benefits are important and will grow significantly in the next five to ten years.
- This exemplary use of Sentinel satellite data in Finland not only generates positive impact in the country but also illuminates the associated value for regulatory aspects of water monitoring across Europe.

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### The Satellite Data

Copernicus Sentinel-2 provides free-of-charge frequent wide-swath, high-resolution multispectral imagery over Finland with 13 spectral bands. Sentinel-3 carries the Ocean and Land Colour Instrument which provides complete, global, surface temperature measurements every 2 days.



### The Service Provider

SYKE, the Finnish Institute for the Environment, leverages Copernicus Sentinel-2 and Sentinel-3 data to offer satellite-based services – TARKKA – on water monitoring. These measurements are publicly available and help users to monitor lakes.



### The Primary User

ELY Centres are environmental offices located in each of the regions of Finland. These centres use SYKE's service as part of their lake quality management responsibilities and for reporting to national/international level entities. They also share the information on lake water quality through their websites.

✔ €5.82m - €17.46m pa



### Secondary Beneficiaries

Ministries of the Environment and of Agriculture and Forestry have access to better water quality information from ELY Centres, upon which they can base policy decisions.



### Society & Citizens' Benefits

The local communities benefit from improved environmental conditions while enjoying leisure facilities in clean water.

✔ €0.8m - €7.36m pa

## Total benefits

### Economic



### Environmental



### Innovation



### Regulatory



### Science & Tech



### Societal



✔ €6.62m -24.82m pa across Finland

## About the project

Through a series of case studies, EARSC aims to gather quantitative evidence that the usage of Copernicus Sentinel data provides an effective and convenient support to various market applications. These studies are undertaken in the frame of the project "Showcasing the benefits brought by

the usage of Sentinels data to society, environment and economy: a bottom-up assessment based on traceable impacts along selected value chains", under an assignment from the European Space Agency (ESA) funded by the European Union as part of the Copernicus Programme.

Download the full report from the project website



<http://earsc.org/sebs>

