



European
Funds
Eastern Poland



Republic
of Poland

European Union
European Regional
Development Fund



waterly

innovative
water quality
monitoring
system



waterly.eu

WHAT IS IT?

Waterly is an innovative system for water quality monitoring and early warning system using state-of-the-art technology to continuously analyze the condition of surface water in real time. With the Waterly system, you will be sure that taking a dip in a lake or river is safe for you and your loved ones, and that the water parameters provide the right conditions for the development of the local flora and fauna.

The system consists of three components. The first of these is **fully autonomous measuring buoys** that float on the water surface and continuously and independently of weather conditions or season monitor the water environment. The second is a master system, the so-called cloud, which aggregates, stores and analyzes data obtained from measuring devices. The cloud uses artificial intelligence algorithms to predict changes and threats that may occur in a given water body, such as predicting the occurrence of blue-green algae in bathing areas or fish suffocation. The final component is a data visualization application that allows viewing current values of measured parameters, previewing events, analyzing historical data, remotely changing buoy settings or updating the software of measuring buoys.

When changes in the aquatic environment are detected, the system sends notifications to the reservoir administration about the situation that has occurred.

Complementing the entire system are information boards that can be placed in public areas near reservoirs monitored by Waterly. Each board has its own unique QR code, which, when scanned with a smartphone, automatically launches the Waterly app. And all this so that every person can check the water quality of a lake, pond or river in their immediate vicinity.

Due to its unique characteristics and unconventional design, the entire Waterly system finds use in a wide spectrum of monitoring applications:

- water quality and level of lakes and rivers,
- water quality of farm ponds,
- water quality of fishing ponds,
- water level (digital water level gauge),
- water quality of public bathing areas,
- quality of water used by industrial plants in technological processes,



APP

The **Waterly** application is based on a clear map interface that clearly presents water resources, namely seas, lakes, rivers and ponds, in contrast to forested, rural and urban areas. The map depicts Waterly's survey buoys, whose position on the map reflects their actual location in the field. In addition to measuring points, the map also shows public bathing areas, which are monitored by the Waterly system. This allows you to easily and quickly locate the place you are most interested in.

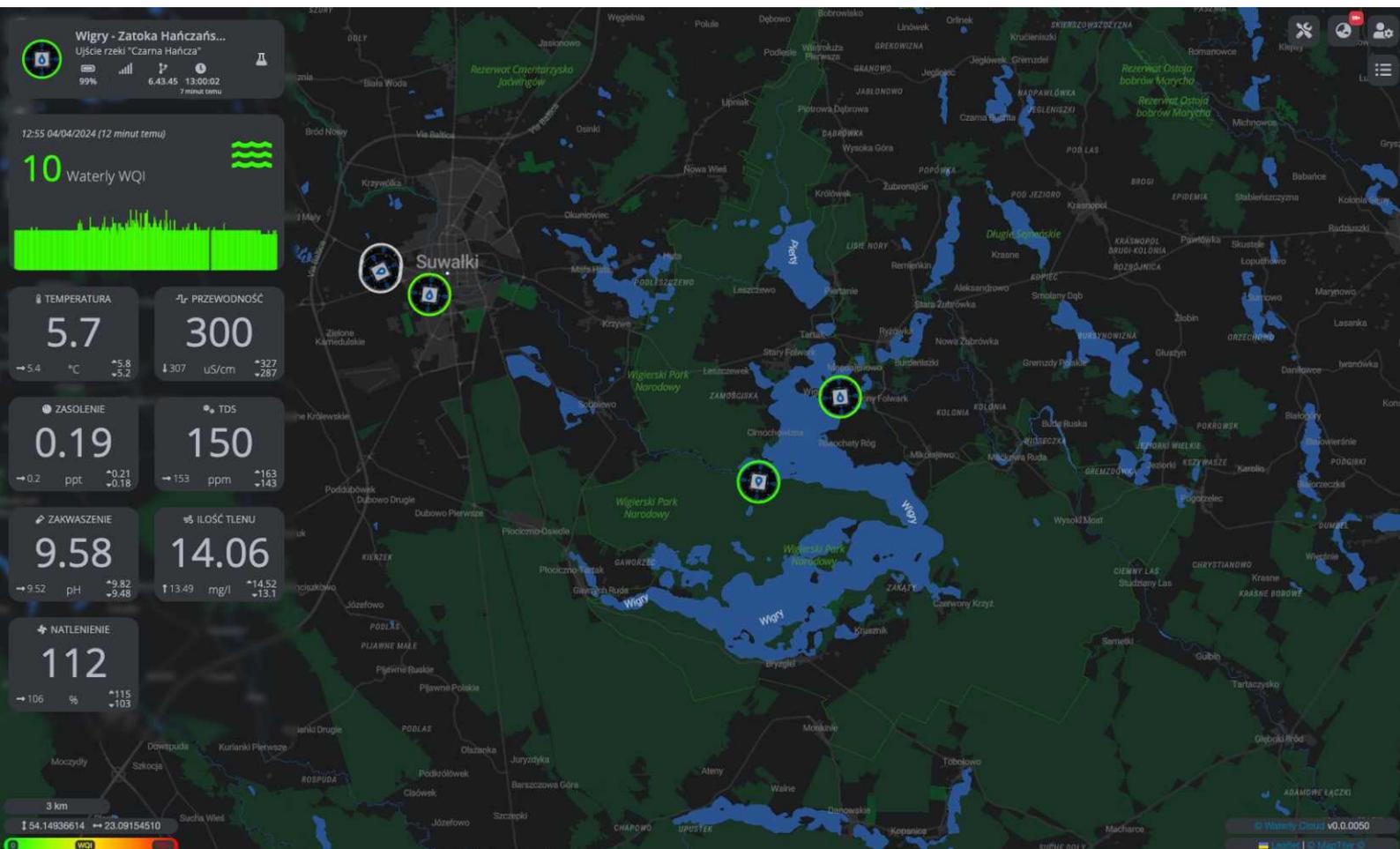
The Waterly app is currently available in a browser-based version at <https://waterly.cloud>. A native version of the Waterly app for iOS and Android platforms will also be available in the near future.

After selecting a given measurement point, the current values of the measured parameters are presented along with a bar graph that visualizes the last 24h of the **Water Quality Index (WQI)**. Each of the measured parameters can be visualized using a line graph with an adjustable range of presented data - 6h, 12h, 24h, 48h, 72h, week or month. The

presentation of historical data also includes the current trend, current value, minimum, average and maximum value. The presented range of historical data can be exported to an external file using the .csv format, so it can be very easily and quickly imported into other programs for data visualization and analysis.



Presentation of data in the form of a dashboard.



Waterly application interface. The map shows the currently working survey buoys.

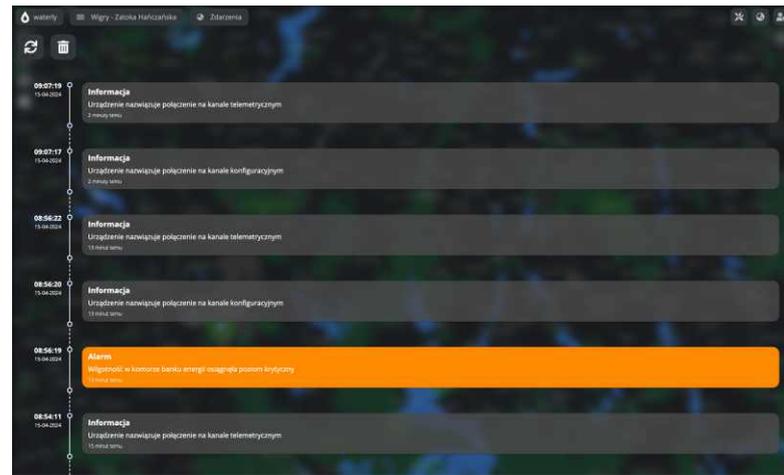
APP

The application also presents a preview of the history of events that the measuring buoy has recorded. These are mainly all kinds of exceeded parameter values, alarm situations related to acts of vandalism or diagnostic messages related to the device's operation status.

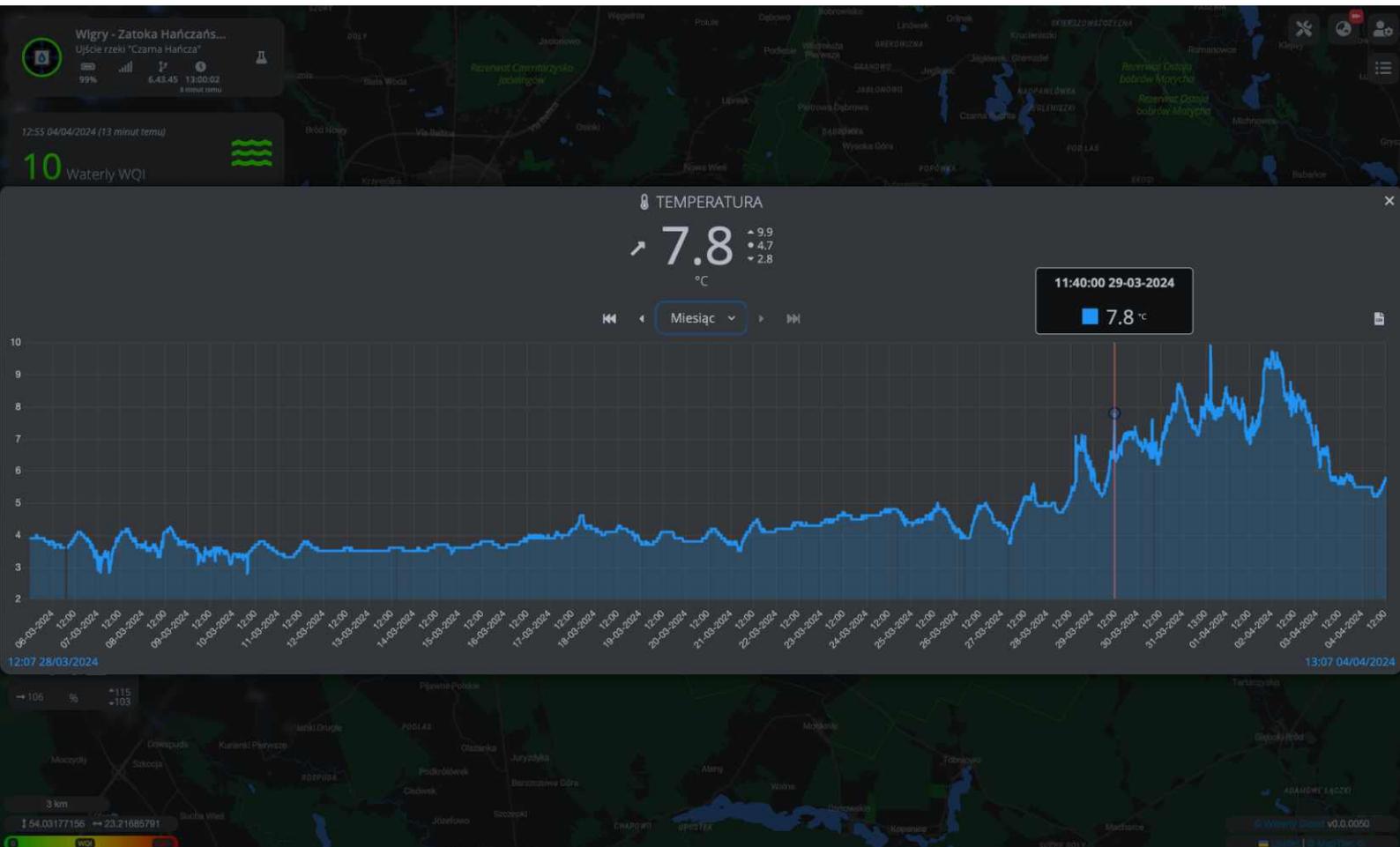
Using the configuration panel, it is possible to change settings related to the operation of the measuring buoy, including, among others, the frequency of measurements, alarm thresholds for individual parameters, the mode of operation of the beacon, its brightness and frequency of illumination.

The application also has a data presentation module by means of the so-called dashboard. This is a dashboard that allows analysis of current and historical data, all measured parameters at once. This makes it possible to correlate changes in individual indicators with changes that occur in the entire environment.

The application also enables OTA (Over The Air) firmware updates of the measurement buoy, and this involves continuous product improvement and expansion of its functionality. In addition, the application includes a number of tools for diagnostics and analysis of the device's internal parameters.



Presentation of the events that the survey buoy recorded.



Presentation of historical data in the Waterly application.



MEASURING BUOY



Our measuring buoys are fully autonomous devices that, regardless of the season, weather conditions, day or night, fully perform their tasks and are a kind of guardian of water.

The design ensures stable operation during strong waves, and thanks to the use of high-strength materials, the buoys can perfectly cope with winter conditions and are completely resistant to icing of the water surface.

The Waterly buoys are equipped with technologies that allow it to communicate with the Internet in places where a regular cell phone can't access the network!

The devices have a number of advanced technologies that enable self-diagnosis of the device, and the status of the device is continuously reported in our app.

The equipment is installed in a body of water by means of a so-called loose mooring, which minimizes interference with the water environment, while ensuring stable working conditions even during strong ripples of the water surface.

TECHNICAL PARAMETERS

FULL YEAR WORK	yes
FULL AUTONOMY	yes
BUILT-IN BATTERY	yes
CHARGING FROM THE SUN	yes
WORKING TIME WITHOUT SUN	up to three months
LIGHT INDICATOR	yes, multicolor
SABOTAGE DETECTION	yes
IMPACT DETECTION	yes
GPS LOCATION	yes
REMOTE CONTROL	yes
MEASUREMENT INTERVAL	5 minutes or less frequently
COMMUNICATION INTERVAL	5 minutes or less frequently
ALARM INTERVAL	immediately
HEIGHT	157 cm
DIAMETER	56 cm
WEIGHT	15 kg
ANCHORING	slack mooring
INSTALLATION	drop and go (plug and play)
MAX. INSTALLATION DEPTH	unbound
PURPOSE	still and flowing waters