

# The OPAL Water Survey

How healthy is your lake or pond?

## Indicator species

A species whose presence, absence or relative well-being in an environment is a sign of the ecosystem's overall health. Indicator species have been used to assess water quality for over 100 years. They are easy to sample and identify at a broad classification level, making them well suited to public studies, especially with children.

Surprisingly little is known about the quality of the UK's fresh water bodies. Ponds, rivers and lakes support a huge variety of plants and animals, and us too. Good water quality is essential for a functioning, healthy ecosystem. However, water is easily affected by pollutants from the air and on land. The aim of the OPAL Water Survey was to provide a national 'snap-shot' assessment of water quality for as many lakes and ponds across the UK as possible, and, in doing so, to improve education and awareness of aquatic environments.

The survey includes four activities to help participants build a picture of water quality in their local environment:

- 1 Measuring water clarity – using the OPALometer
- 2 Measuring water pH using a dip-strip
- 3 Recording the presence or absence of aquatic invertebrate 'indicator species'
- 4 Recording the presence or absence of amphibians, dragonflies, damselflies and duckweed

Water Health	Indicator species:	Pond Quality Score:
3	Caddisflies, dragonflies, damselflies, alderflies	10
2	Mayflies and stoneflies, water beetles, water bugs, freshwater shrimp, pond skaters	5
1	Water slater, water snails, worm-like animals	1

## Survey results

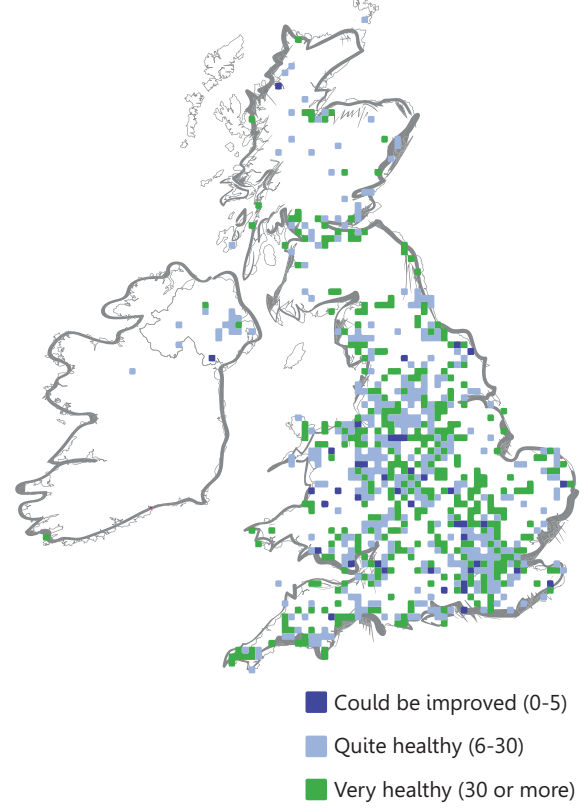
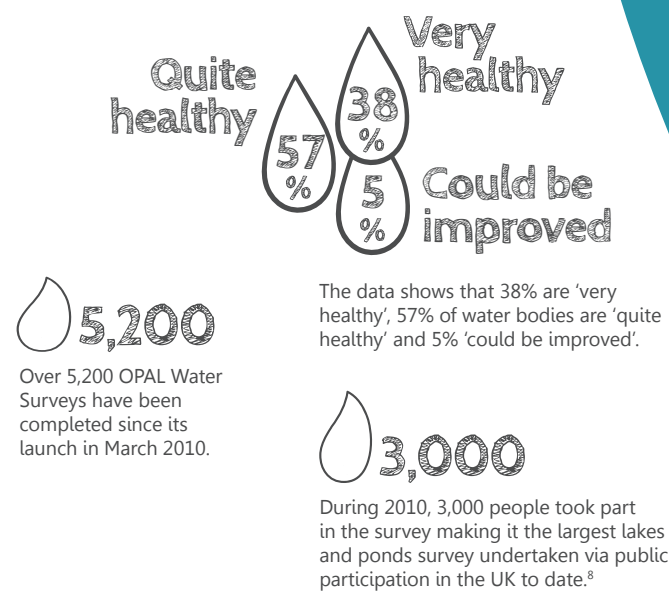


Figure 6: The average (mode) OPAL Pond Health Score for each 10km grid square across the UK and Ireland

### Water Survey Facts:



## In Focus Data Quality and Control



When data are collected by non-experts there is a concern that this might not be of high enough quality to be useful for research purposes, especially when volunteers are mostly untrained and can submit data anonymously - as is the case with OPAL. To better understand the data from the OPAL Water Survey, the Water Survey team carried out a series of activities investigating the data and its reliability, whereby they:

- Examined the effect of surveying effort and duration by comparing different sampling methods at 10 lakes (870 surveys performed)
- Compared the accuracy of species identification between untrained volunteers and experienced scientists
- Created a self-assessment identification quiz to assess the level of expertise of individuals submitting data
- Compared the data collected using simplified OPAL methods with data collected using other more rigorously scientific technical approaches.

These investigations demonstrated that simple sampling and identification methods, as used in the OPAL Water Survey, can allow the collection of repeatable results, particularly where multiple habitats are sampled and summarised in a single pond health score.

Although there will always be inherent uncertainty in data collected by untrained volunteers, the application of quality control at all survey stages (design, identification tests, data submission and interpretation) can help increase confidence in the quality of generated data.<sup>9</sup>