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The endemic and
endangered Lake Ohrid
trout – Salmo letnica.

Artificial spawning of the Lake
Ohrid trout (Salmo letnica)
for a restocking programme
in Lake Ohrid.

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Lake Ohrid and Prespa : ALBANIA, GREECE, THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA (FYROM)

Formed between 1.3 and 1.9 million years ago, during the Pleistocene epoch, Lake Ohrid and Prespa are among the most ancient lakes in the world. These lakes never froze during the last Ice Age and were mostly isolated from other lakes, which led to their high biodiversity, including many native (endemic) species.
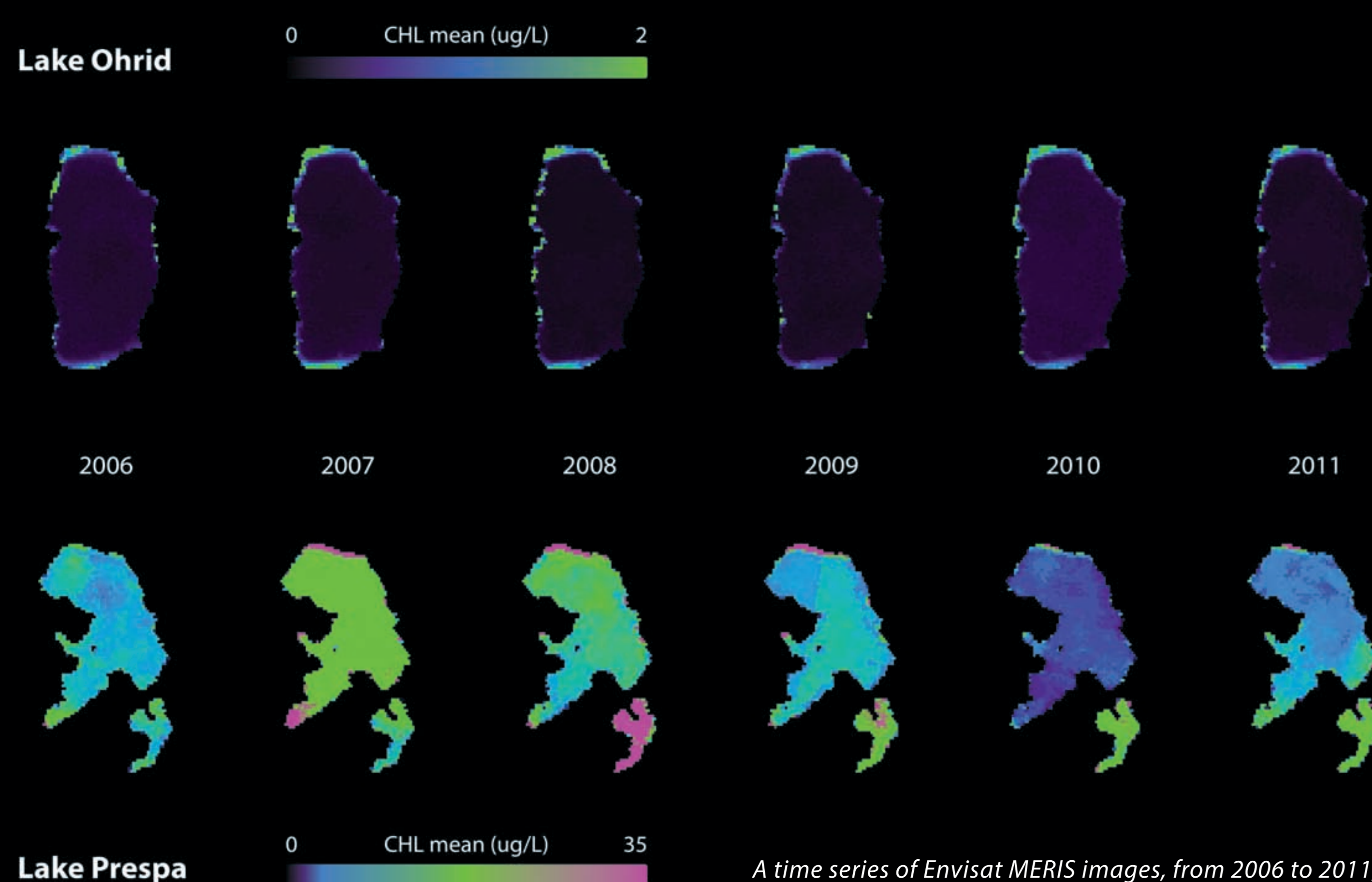
Currently, these lakes and the ecosystems in and around them are being pressured by human activities including tourism, overfishing, the introduction of alien species, rapid urbanization, water uptake, land-use intensification, pollution, eutrophication and climate change. Their transboundary location on the border between Albania, the former Yugoslav Republic of Macedonia and Greece also poses several management challenges.

Lake Ohrid is experiencing an increase of nutrients in many near-shore areas, which is causing an increase in algal growth. This has displaced the nesting ground of the Ohrid trout (*Salmo letnica*) to greater depths. The lake is also at risk of a lower

concentration of dissolved oxygen, which may reduce the diversity of the fauna living at the bottom of the lake.

Data are available on the physical, chemical and biological properties of the water of both lakes. The high spatial resolution of satellite images, in turn, enables water quality and hydrological parameters such as chlorophyll concentration, transparency, seasonal changes, surface currents and surface area to be assessed across the whole lake area. Satellite images can also be used to monitor land-cover, land-use and vegetation change, allowing scientists to understand how changes on land affect the lake, and vice versa.

The ECOPOTENTIAL project uses in-situ and Earth Observation data to assess the properties of the lake waters and of the habitat of endemic species. A simple ecological model will help evaluate the sensitivity of phytoplankton, zooplankton and fish to the changing conditions.

The former Yugoslav Republic of Macedonia (FYROM)

10 km

----- country boundaries

Albania

Greece

Lake Ohrid

0   CHL mean (ug/L)   2

2006   2007   2008   2009   2010   2011

A Sentinel-2 image, acquired on 11 September 2017, of Lake Ohrid (to the west) and Lake Prespa and the Small Prespa lake (to the east).

Produced from ESA remote sensing data (Sentinel-2).

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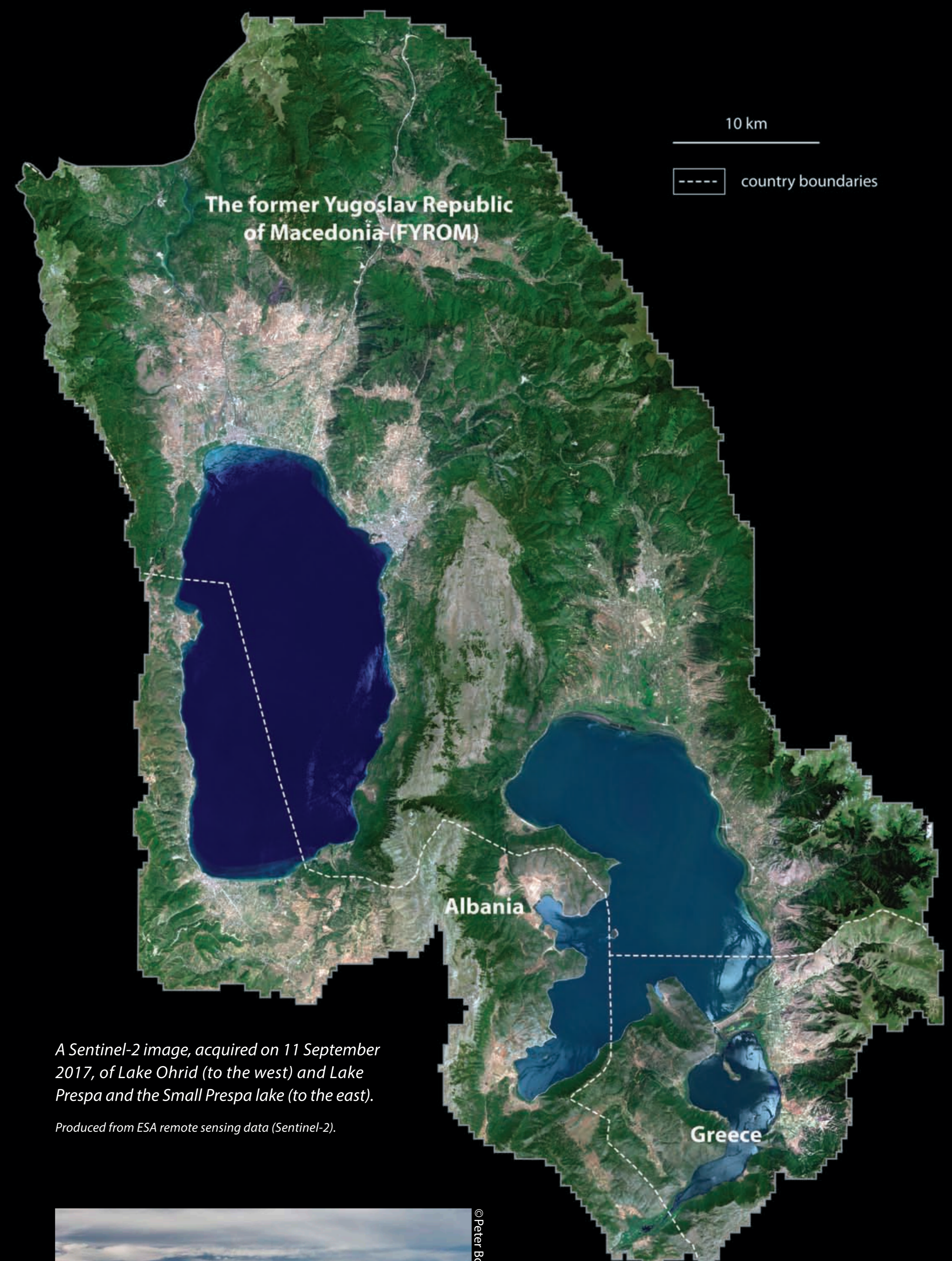**Lake Prespa**

0   CHL mean (ug/L)   35

A time series of Envisat MERIS images, from 2006 to 2011, showing estimated average chlorophyll a concentration in July. Chlorophyll a is used to estimate phytoplankton biomass; a high concentration indicates poor water quality, and consequently possible eutrophication of the lake and low aquatic biodiversity.

Images courtesy of Petra Philipson / H2020 SWOS project.

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Lake water sampling by a scientist from the Hydrobiological Institute, Ohrid, Macedonia (FYROM).

The landscape of Lake Ohrid.

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SWOS
Satellite-based Wetland Observation Service