



Locating the start of the Anthropocene

Some scientists believe humans have altered the Earth surface so much that the Holocene interglacial conditions of the last 11,700 years have all but disappeared. They have recently identified sites that best mark this worldwide historic shift into the so-called Anthropocene.

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Researching the Anthropocene

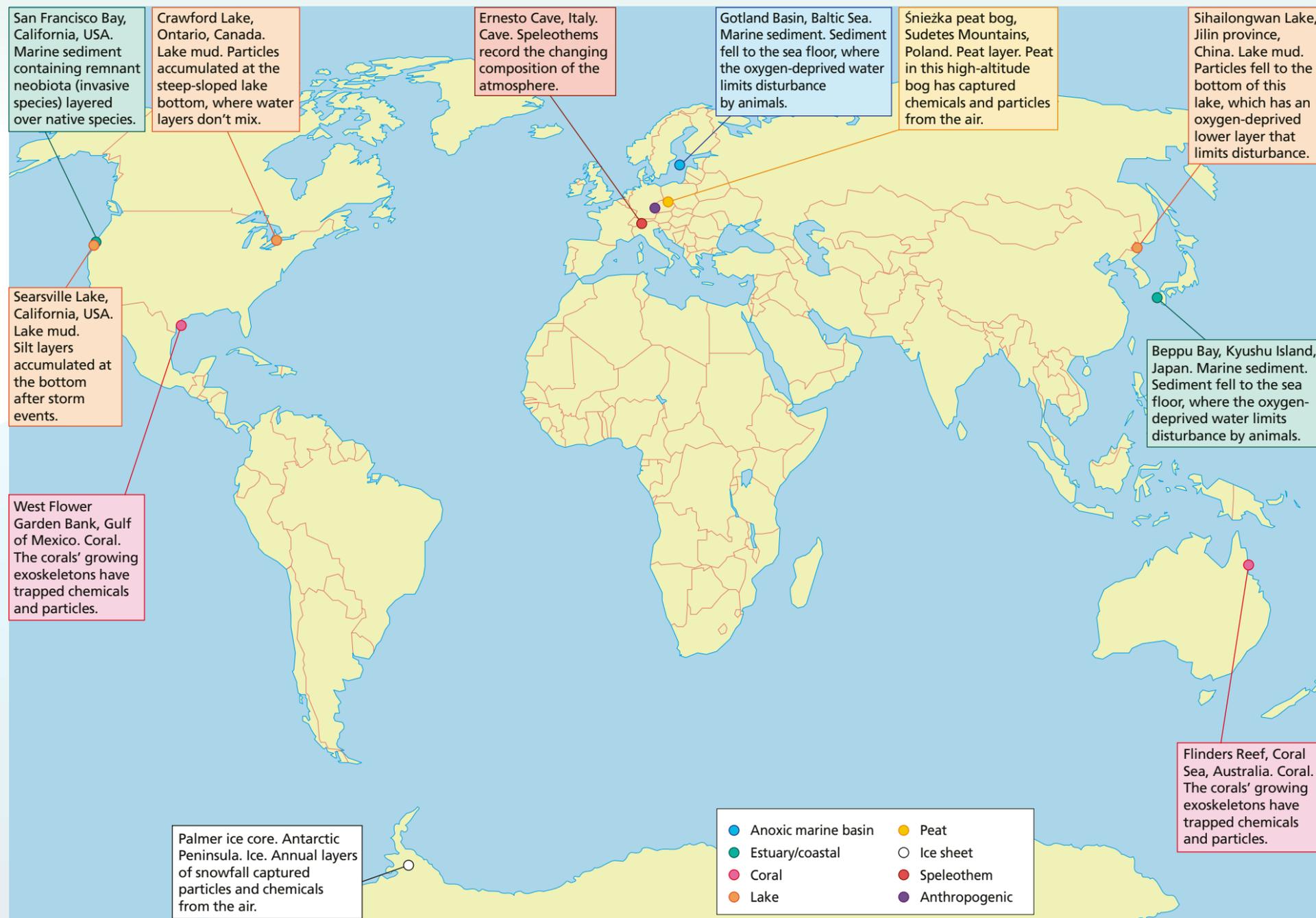
An international group of geoscientists has spent nearly 15 years assessing evidence about the scale, scope and magnitude of the human impact on the Earth's natural environment. This Anthropocene Working Group (AWG) believes that the so-called Holocene Epoch, prevailing since the end of the last glacial period, has come to an end. Most AWG members believe the 1950s mark the period when Holocene conditions began to be eclipsed. This means we have already been in the Anthropocene for over 70 years, even though the term — meaning 'the age of humans' — has not yet been ratified by the International Commission on Stratigraphy (ICS), the keeper of the geological timescale.

Locating a 'golden spike'

In the last 7 years, geoscientists who have paid attention to the work of the AWG have been looking for locations where evidence of a post-1945 'boundary' between more natural Holocene conditions and the 'unnatural' conditions of the Anthropocene can be most clearly seen. Most formal geological boundaries are represented in hard rocks by major changes in rock type or fossil assemblages following extinctions. For the Anthropocene, things like ice cores or sediment layers at undisturbed sites around the globe are being investigated. Figure 1 shows the various locations under consideration to be given the 'golden spike designation' to mark the beginning of the Anthropocene. The environmental settings and how they capture the imprint of human activity are also summarised.

The AWG is about to recommend that sediments beneath a very deep lake in Ontario, Canada, form the best place to mark the Holocene–Anthropocene boundary. The sediments clearly show a global 'signal' after 1950, when things like radionuclides from nuclear weapons testing were deposited around the globe, having been moved in the atmosphere.

Figure 1 Candidate sites for marking the start of the Anthropocene



What happens next?

Geologists on the ICS will need to vote on the AWG recommendation that the Holocene has ended and that the Crawford Lake sediments best mark the start of the Anthropocene, around 1950. The case could be rejected. It is also possible a new division of the Holocene is recognised, which might be called the Crawfordian Stage. If the case is accepted, a representative core of the Crawford sediments will be preserved in an off-site facility and the geological timescale will have a new epoch added to it. This is more than a committee formality, it will make official the fact that humans are radically transforming the entire world upon which they depend.

FURTHER READING

For teachers wanting to get students thinking about the Anthropocene in an evidence-based way, this information pack by The Geological Society is a great resource but will require some staff input and preparation to use it: www.tinyurl.com/bd2nkw8m

This *Orion* article nicely summarises the site characteristics across the 11 locations: www.tinyurl.com/2ypjf9wc

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