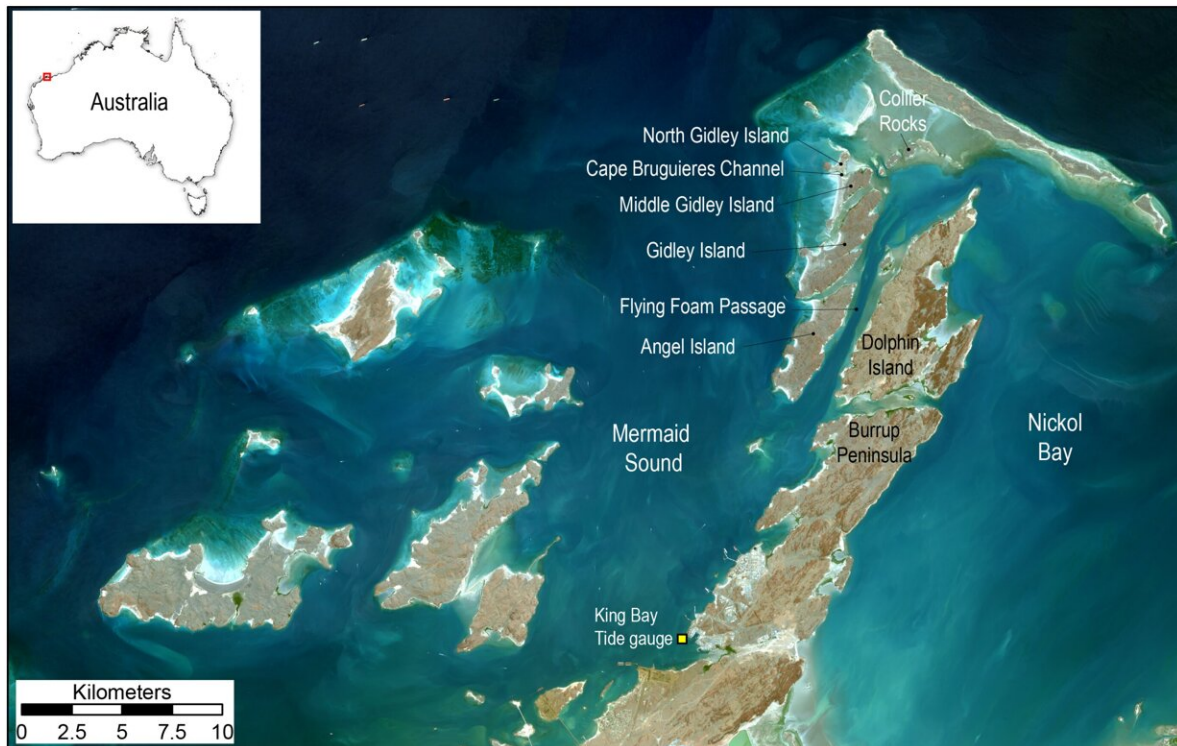


Artifacts on Australian continental shelf show Flying Foam Passage must be treated as protected archaeological site

June 26 2023



Satellite map of Murujuga (Dampier Archipelago). Credit: Professor Jonathan Benjamin at Flinders University

The new discovery of ancient stone artifacts at an underwater spring off

the Western Australia Pilbara coast has confirmed the location is a submerged archaeological site where more ancient Aboriginal artifacts are likely hidden beneath the sea.

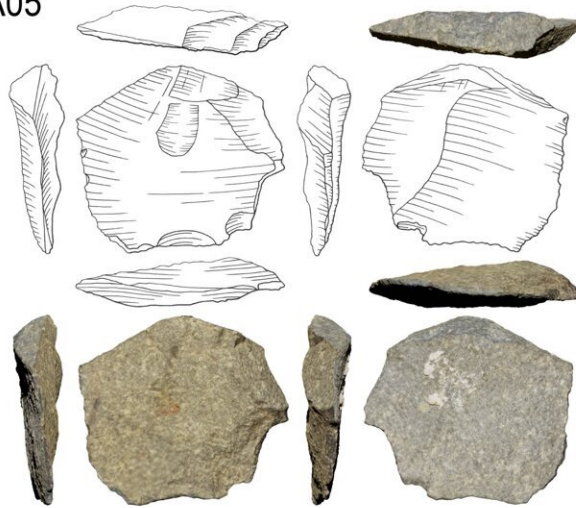
The submerged cultural landscape, which is now the seabed, should be considered for protection in line with the UNESCO Convention on the protection of underwater cultural heritage.

In a new study published today in *Quaternary Science Reviews*, the fresh discovery from recent fieldwork confirms the presence of more preserved cultural stone material as deep as 14 meters under water—providing exciting scientific insights into the deep-time history of Aboriginal activity on what was once dry land.

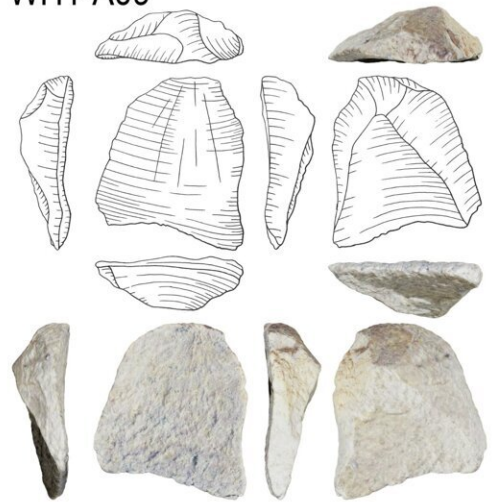


Lithic artifact WH1-A05 on the seabed (left) and immediately after the acid wash (right). Credit: Professor Jonathan Benjamin at Flinders University

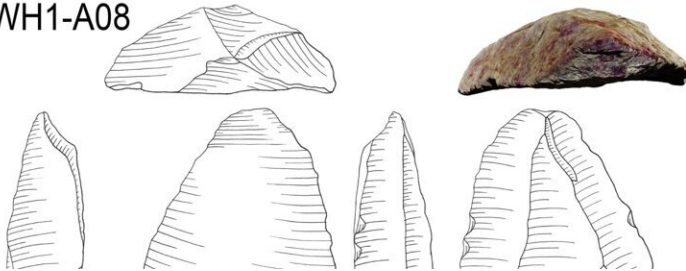
WH1-A05



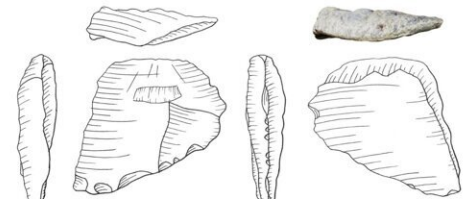
WH1-A09



WH1-A08



WH1-A07



Orthographic drawings and photogrammetric renders of lithic artifacts WH1-A05, A07, A08, A09. Credit: M. Langley and A. Black

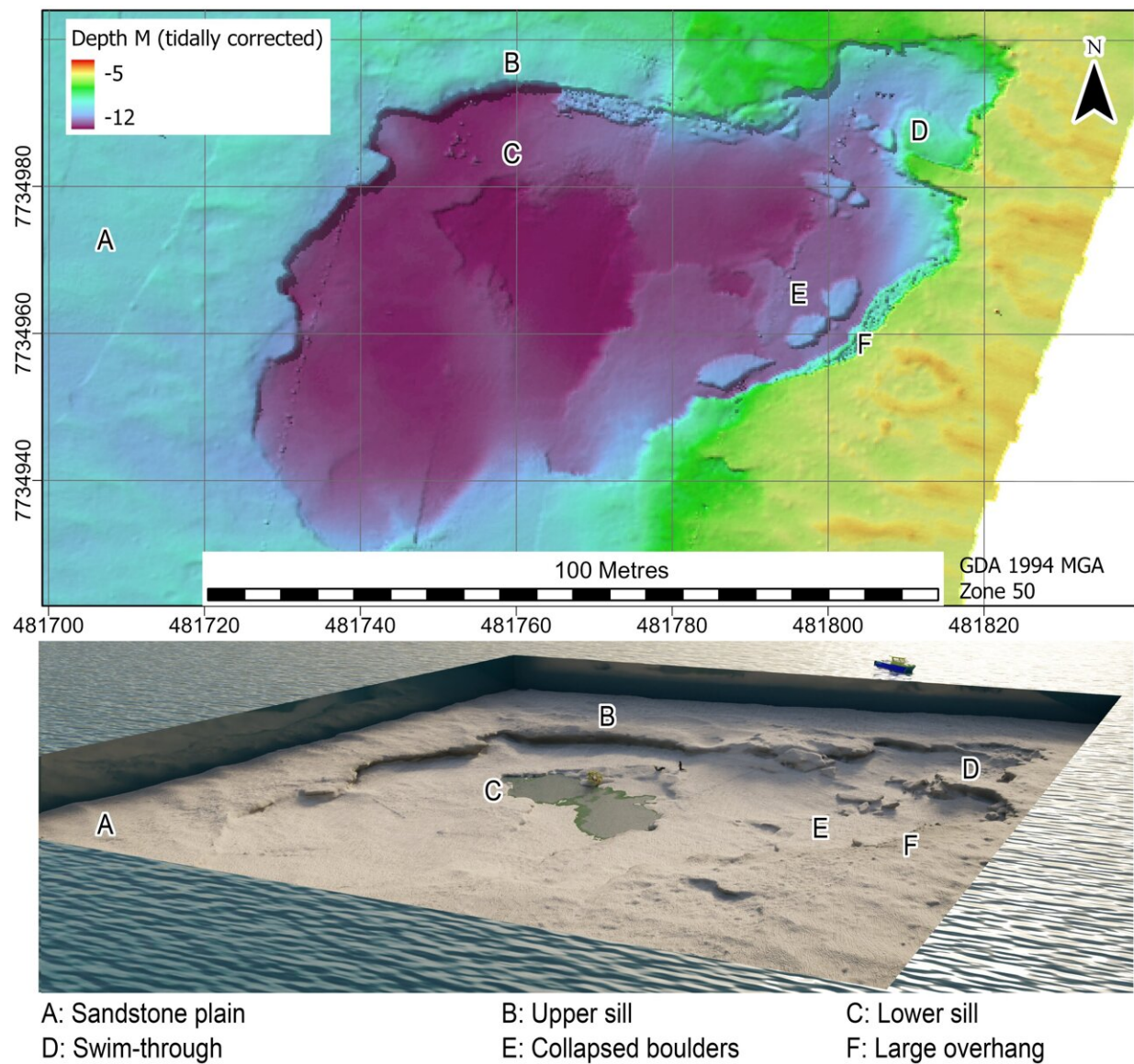
The artifacts, which are thought to be at least 9,000 years old, have been discovered at the Flying Foam Passage underwater spring in Murujuga (the Dampier Archipelago.) The passage was occupied in the Late Pleistocene and Early Holocene before it was drowned by sea level rise.

A total of five stone artifacts were discovered at the site by Flinders University and UWA archaeologists working in partnership with the Murujuga Aboriginal Corporation.

Flying Foam Passage is one of two ancient cultural sites where researchers previously uncovered artifacts through the Deep History of

Sea Country project, through a series of surveys that provided evidence of Aboriginal activity preserved on what is now the seabed.

The landscape was eventually flooded during the postglacial sea-level rise, which drowned more than two million square kilometers of Australia's continental shelf. But some of these cultural sites still survive today.



Multibeam bathymetry of the submerged spring with digital reconstruction.
Credit: Professor Jonathan Benjamin at Flinders University

An international team of archaeologists from Flinders University, the University of Western Australia, James Cook University, in collaboration with the Murujuga Aboriginal Corporation, has identified the fresh stone artifacts through scientific dives, marine fieldwork with 3D models and lidar systems, and underwater archaeology.

These proven techniques can now be deployed to identify springs with similar geographic features in surveys across Australia.

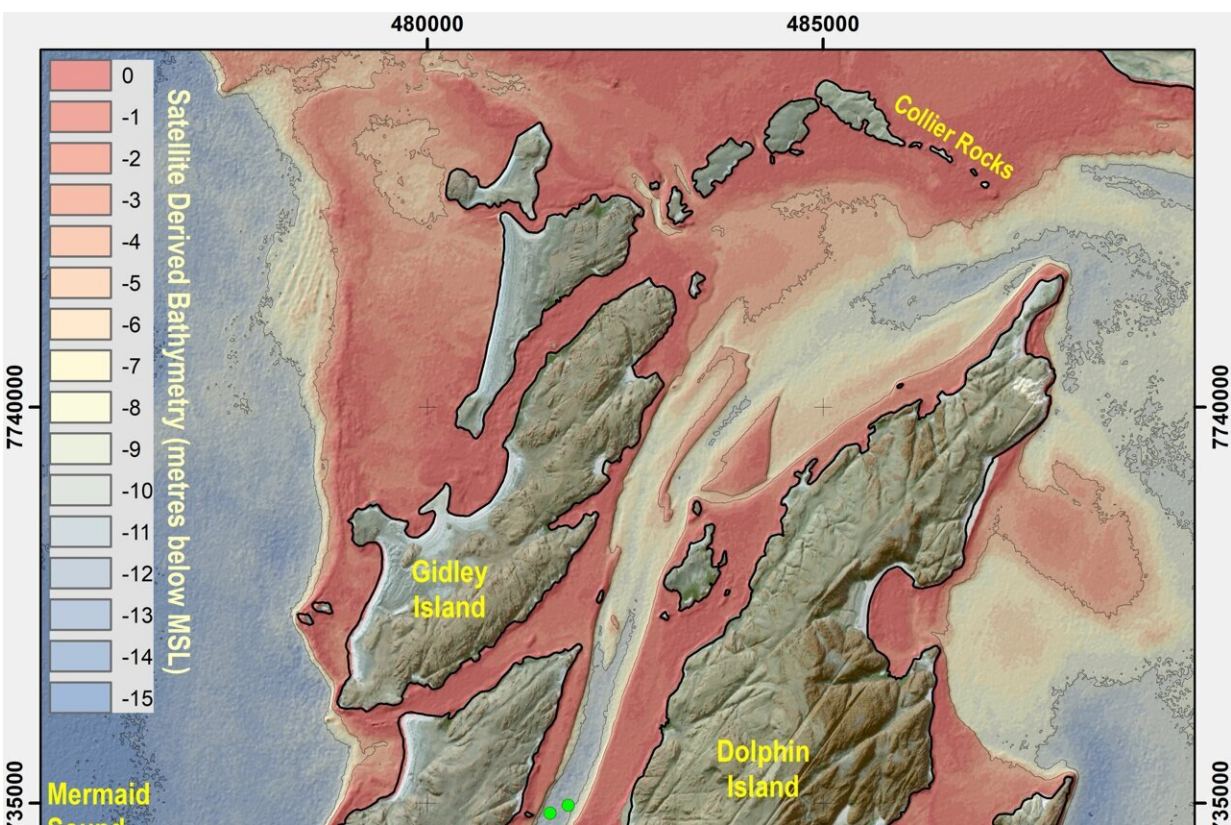
Lead researcher on The Deep History of Sea Country project, Professor Jonathan Benjamin, says the fresh discovery confirms that physical evidence of heritage is still present on the seabed in the archipelago, and the cultural significance of Sea Country is important. There is a need to introduce more ways to consider and protect submerged [cultural sites](#) since further discoveries are almost certainly on the horizon in Murujga and around Australia.

"The Deep History of Sea Country project was the first Australian research program to uncover ancient submerged cultural heritage on the seabed in a marine environment. Those findings elicited debate and discussion, particularly around the material found in shallow waters. This new evidence confirms that the archaeological site extends under water onto now drowned land surfaces in Murujuga," explains Prof. Benjamin.

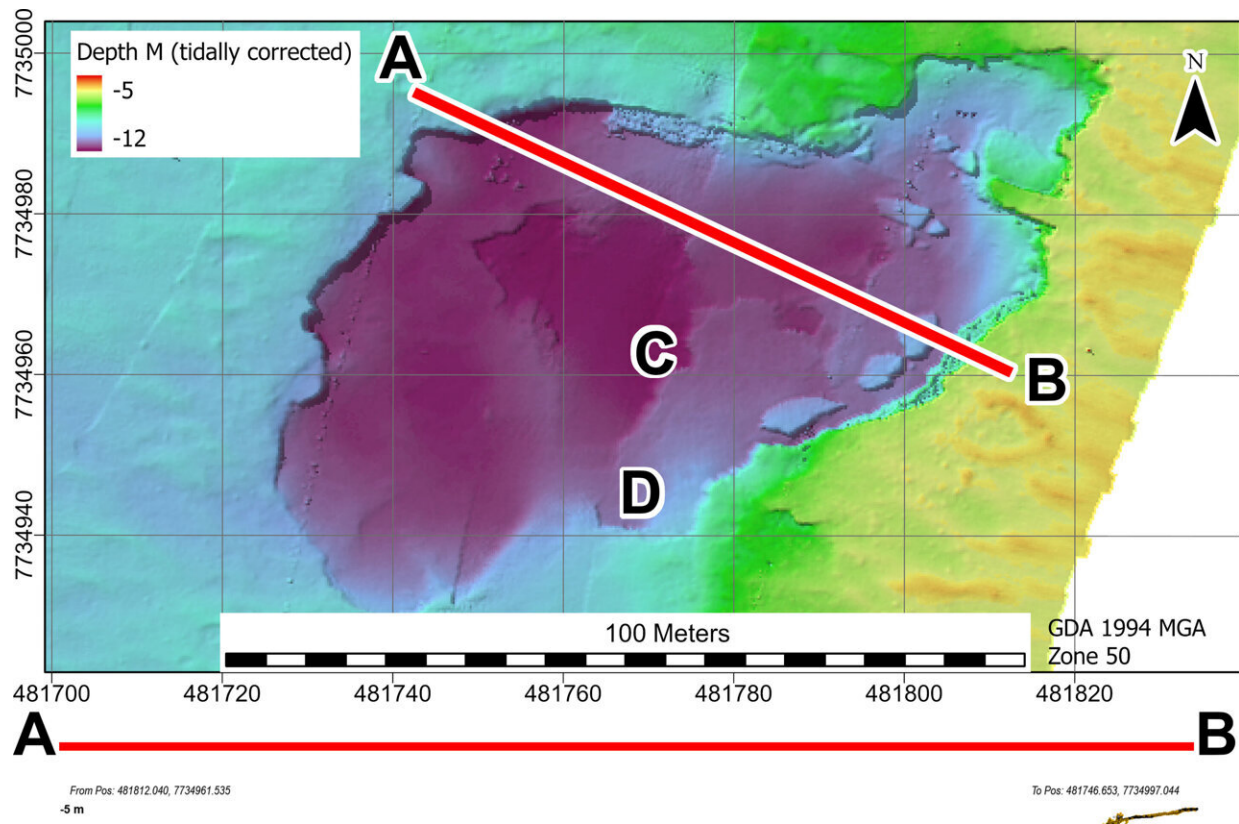
"We've now identified five stone artifacts at Flying Foam Passage and confirmed the freshwater spring is definitely an archaeological site. We had a narrow window of 40 minutes for each dive when current speeds were low enough to search the passage and our scientific divers focused

on locations where fortunately the cultural artifacts were waiting to be discovered.

"There is a high likelihood that more artifacts exist at nearby locations with similar geographic features throughout the archipelago, so protecting the underwater cultural heritage needs to be a priority for the federal and state governments," he continues.



Satellite derived bathymetry provides an indication of palaeogeographic context and shows how Flying Foam Passage would have been inundated from both the south and northeast with rising sea levels. Credit: Professor Jonathan Benjamin at Flinders University



The cross-section of multibeam data of the ENE wonky hole (A–B) shows how the acoustic signal was able to achieve some measurements underneath the lip of the feature by angling the sensor. (C) A geological sample was collected from the floor of the depression by divers. (D) Shows a diver swimming alongside the perimeter of the exterior "visor." Credit: Professor Jonathan Benjamin at Flinders University

Professor Benjamin says the new discovery presents concrete evidence that research into submerged landscapes in Murujuga should be expanded in WA and around Australia, where there are likely thousands of ancient sites in tropical environments.

"We know that the Australian [continental shelf](#) represents a vast submerged cultural landscape made up of two million square kilometers

of previously inhabitable land that's just waiting to be uncovered up to 130 meters below sea level, and our discoveries in WA provide irrefutable evidence that they should be culturally protected for future scientific endeavors."

The findings are also featured in a new documentary series titled "The First Inventors," looking at thousands of years of Aboriginal and Torres Strait Islander innovation.

Professor Benjamin says having research findings at Murujuga aired in the documentary will strengthen public awareness and understanding of the importance of preserving newly discovered sites as a matter of urgency.

More information: Jonathan Benjamin et al, Stone artefacts on the seabed at a submerged freshwater spring confirm a drowned cultural landscape in Murujuga, Western Australia, *Quaternary Science Reviews* (2023). [DOI: 10.1016/j.quascirev.2023.108190](https://doi.org/10.1016/j.quascirev.2023.108190)

Provided by Flinders University

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