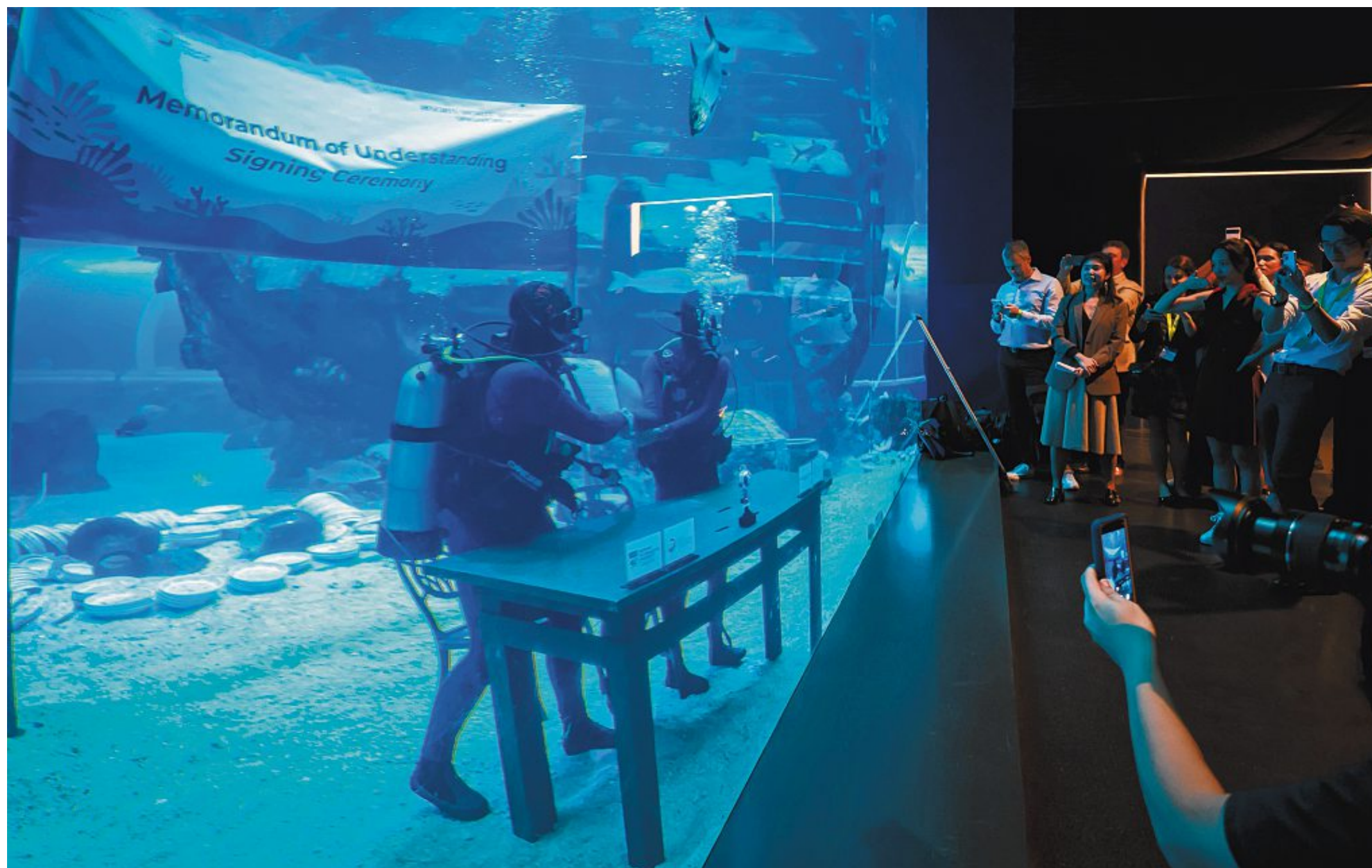




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Assistant Professor Kyle Morgan (left) from NTU's Asian School of the Environment and research and conservation executive Abel Yeo from S.E.A. Aquarium signing the memorandum of understanding underwater at the S.E.A. Aquarium's Shipwreck Habitat on April 30. ST PHOTO: GAVIN FOO

## NTU, S.E.A. Aquarium to collaborate on climate research, marine conservation

Leow Wen Xuan

Delegates from the Nanyang Technological University (NTU) and S.E.A. Aquarium dived underwater to sign a document that marked a collaboration between the two institutions, paving the way for future projects for the conservation of marine biodiversity.

Using laminated paper and a pencil, Assistant Professor Kyle Morgan from NTU's Asian School of the Environment (ASE) and research and conservation executive Abel Yeo from S.E.A. Aquarium signed a memorandum of understanding (MOU) on April 30 in the Aquarium's Shipwreck Habitat exhibit.

The waterproof laminated paper was roughened with sandpaper so that the pencil mark would transfer and stay on the surface. It was the first time an MOU was signed underwater in S.E.A. Aquarium at Resorts World Sentosa.

The two-year collaboration aims to bring together the expertise and resources of both S.E.A. Aquarium and NTU's Earth Observatory of Singapore (EOS), a research institute that centres on natural hazards and climate research.

Joint research projects undertaken by the S.E.A. Aquarium and EOS will focus on climate science

and super corals – corals that can tolerate or recover from stress and successfully reproduce after stressors such as ocean warming.

By further understanding the genetics of super corals, scientists can breed more heat-tolerant corals and replace the ones that are dying and ensure a healthy ocean, said Professor Benjamin Horton, director of EOS and a professor of earth science at NTU's ASE.

This is crucial as coral reefs are increasingly dying with warmer temperatures and are hence unable to support marine life.

The collaboration will also create internship opportunities at the aquarium for ASE undergraduate students to learn about marine science and conservation as well as scuba-diving skills and how to interact with marine animals.

Through the collaboration, students and staff at NTU's ASE will also have access to S.E.A. Aquarium's Rainbow Reef – a coral habitat that features more than 20,000 reef inhabitants – as a teaching facility and to test field equipment during planned visits.

In a safe and controlled environment in the aquarium, students can practise using their field equipment before heading out to the open seas without worrying about making mistakes with their equipment, said Mr Nicholas Derbyshire, director of visitor experi-

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ence at S.E.A. Aquarium.

Prof Morgan, who is also a principal investigator at EOS, added that in Singapore, it is difficult for students to access coral reefs offshore as there are strong currents and high amounts of sediment in the water, which lower visibility.

Having the aquarium allows the students to see marine biodiversity first-hand, such as corals, mangroves and other marine ecosystems, easily.

EOS will also deploy sensors in Singapore's seas and the South China Sea to observe the sea's surface temperature, salinity and pH or acidity levels, said Prof Horton.

"In and around Singapore and the South China Sea, there are a lot

of data gaps. So it's really critical that we fill them," he said.

"We hear about these marine heatwaves, what you want to be able to do is project when they're going to occur, how hot they're going to be and how long they're going to last. But if you have no data, you don't know how accurate your models are."

S.E.A. Aquarium will provide a space to showcase the data collected by EOS through the sensors.

Mr Derbyshire said the aquarium plays a key role in allowing a "story to be told" by using the data collected by EOS to raise awareness on how climate change is affecting waters.

Prof Morgan added: "We have a number of collaborations with other universities and with non-governmental organisations. How this is unique is the huge amount of engagement we can get from the community. It's a really good avenue to promote and showcase the work we're doing for research, be it on coral reefs or other marine systems; we can communicate that to lots of people that are coming and visiting (the aquarium) every day."

Visitors can look forward to ocean webinars and short educational videos developed by EOS for use in S.E.A. Aquarium's programmes.

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