

Creatures of the deep



DEEP SEA CARRIER CRAB (*Homologenus exilis*)
This crab was discovered on an expedition to Tungsha Islands in the South China Sea in 2015 by Professor Peter Ng and French marine biologist Bertrand Richer de Gorges.



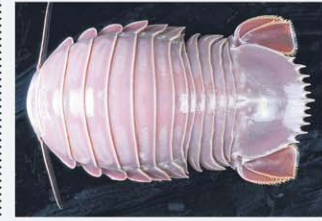
SAUDADE SIX-LEGGED CRAB (*Hexaplax saudade*)
This crab is found in various parts of the South China Sea, as well as the Philippines, Taiwan and Japan. It was discovered by Professor Peter Ng and Dr Dwi Listyo Rahayu, who named it in 2014. It has large glowing red eyes and, unlike other crabs, has six instead of eight legs.



BLIND LOBSTER (*Polycheles typhlops*)
This lobster was collected by scientists during an expedition to the Philippine Sea, east of Luzon Island. This species is known to inhabit areas near coral banks on soft, muddy substrates.



GIANT SEA COCKROACH (*Bathynomus kensleyi*)
A Darth Vader lookalike, this isopod was caught during an expedition to the Bohol Sea in the central Philippines. These creatures live close to the seabed, between depths of 300m and 2.5km.



Indonesia, S'pore lead deep-sea expedition to West Java

Team will give daily dredging updates in effort to discover new species

Samantha Boh

A team of explorers set off on a pioneering deep-sea expedition yesterday afternoon, hoping for a glimpse of an area where no man has ventured.

Over the next 14 days, they will sail from Jakarta to the Sunda Strait and waters off the Indonesian port of Cilacap. Off the southern coast of West Java, they will mine the rich seascape for living treasures living 500m to 2km under the sea, at 29 separate sites.

Led by Professor Peter Ng from Singapore and Dr Dwi Listyo Rahayu from Indonesia, the multinational team of 30 researchers, scientists and support staff will give daily updates of the dredging – a first for any expedition – as they scour through depths that hold the greatest diversity of animals.

Their focus will be on crabs, prawns, shells, sponges, jellyfish, worms, starfish, urchins and fishes.

They hope to discover new species in a bid to expand on existing knowledge of the Earth's biodiversity.

But with countries looking to

deep-sea activities such as deep-sea mining to meet their mineral demands, such research is also crucial in providing information that will ensure such activities are carried out without severely damaging the environment, according to Prof Ng, head of the National University of Singapore's Lee Kong Chian Natural History Museum.

Singapore is among nations poised to venture into deep-sea mining, with a unit of rig builder Keppel Corporation, Ocean Mineral Singapore, securing a 15-year contract in 2015 to explore how metal-rich rocks can be harvested from the bottom of the Pacific.

"As we progress into the deep sea to use its resources, there is increased pressure to understand the deep sea," Prof Ng said. "You need to know what is there."

He said that the team will also hone skills to allow them to conduct deep-sea environmental impact studies.

This is the first time Singapore and Indonesia have organised a deep-sea biodiversity expedition together, reaffirming the strong diplomatic ties between the two nations, he added.

The team was met with much

fanfare yesterday morning at the Indonesian Institute of Sciences, as the voyage was officially launched. Among those present were Indonesia's Minister of Research, Technology and Higher Education H. Mohamad Nasir and Foreign Minister Retno Marsudi.

The expedition, the largest to be organised by South-east Asian scientists, will cost both countries about \$400,000 in total.

The team is sailing on the Indonesian research vessel Baruna Jaya VIII, and will collect samples at three or four sites each day. Each sampling exercise will last at least three or four hours.

Once the animals are brought on board, they will be photographed, preserved and labelled. Some will be kept in special chilled aquariums for short periods, so they can be observed and filmed.

Past expeditions have been rewarded richly. One in central Philippines organised by the Philippines, France, Taiwan and Singapore in 2005, for instance, yielded more than 1,500 species of crabs, shrimps and lobsters, 150 of which were new to science.

"You want the eureka moment, the discovery that you have seen something that has been on Earth for millions of years but no one has realised it," said Prof Ng.

Dr Rahayu, senior research scientist at the Research Centre for Oceanography of the Indonesian Institute of Sciences, said: "This deep-sea expedition will reveal the diversity of demersal organisms on the south-western part of Java island, an area where almost no exploration has ever been conducted." Demersal organisms are those which live close to the seabed.

Prof Ng admitted that there will be some damage to the environment as the animals are being taken from their homes.

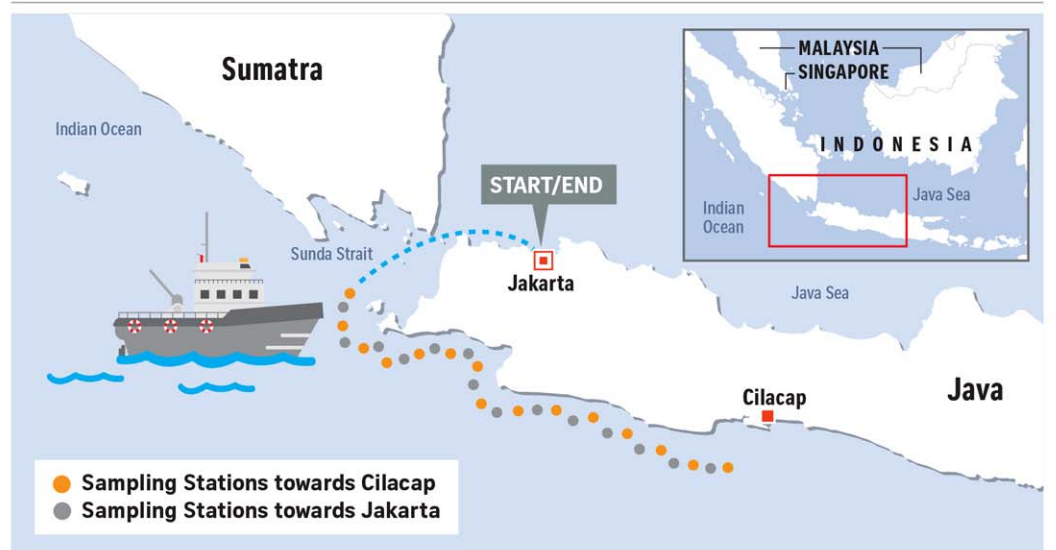
"But since this area has not been sampled before, we decided the damage is acceptable, and it is minimal. You have to take those risks," he said. "We are not defending it, we are explaining it."

After the expedition, the samples will be studied, and the findings will be shared and discussed at a workshop slated to be held in Indonesia in 2020, and later published in *The Raffles Bulletin of Zoology*.

samboh@sph.com.sg

Into the deep

A Singapore-Indonesia expedition team has set off for the southern coast of West Java, to find out what lies 500m to 2,000m beneath the water surface. They will sail from the Sunda Strait to the waters off sea port Cilacap, and back, and will use dredges and other apparatus to trawl for marine creatures at 29 sites.



The multi-national team of researchers, scientists and support staff will be led by Professor Peter Ng from Singapore and Dr Dwi Listyo Rahayu from Indonesia

Their focus will be on crabs, prawns, shells, sponges, jellyfish, worms, starfish, urchins and fishes, with the hope of discovering new species.



Depths between **500m and 2,000m** hold the richest diversity of species

Cost of expedition **>\$400,000**

Duration **14 days** Team strength **30**



Source: NUS PHOTO: NUS STRAITS TIMES GRAPHICS