

RV *Falkor* holding position on the outside of Ribbon Reefs. Under water, ROV *SuBastian* works its way up the shelf to reveal the origins of the Great Barrier Reef for the first time ever.

# OCEAN WONDERS



## WANT TO KNOW MORE?

Scan this QR code to link to the museum's ocean science webpage to read stories about ocean science, see our collection, view upcoming programs and exhibitions.

The waters surrounding Australia plunge to 7,000 metres deep – almost impossible for humans to reach. It takes an intrepid team of scientists, a great big research ship and high-powered cameras on a deep-diving robot to find out what's down there.

While most of us were locked down at home over 2020–21, Schmidt Ocean Institute made a series of voyages on their Research Vessel (RV) *Falkor*. Hundreds of dives explored the depths of the Indian and Pacific

oceans and Arafura and Coral seas. Scientists jumped on board, or tuned in remotely, to record, collect and classify the wonders they discovered.

Most of the images in this exhibition are from within marine reserves where underwater life can flourish. However, it can be a different story in unprotected waters. Scientists worldwide are now in a race to locate and catalogue these wondrous species – and to map underwater features before it's too late.

A stunning glass octopus sighted in the Phoenix Islands. Find it in the exhibition to learn more!



Remotely operated vehicle (ROV) *SuBastian* waits for deployment from RV *Falkor* at Flinders Reef in the Coral Sea. It has a suite of sensors and scientific sampling equipment, and can dive to 4,500 metres.

**WANT TO KNOW MORE?**  
This free outdoor experience is a companion piece to the major new exhibition **ONE OCEAN – OUR FUTURE** in the main museum building.

All images are courtesy Schmidt Ocean Institute with the exception of the Flinders Reefs bathymetric map which is courtesy Dr Robin Beaman.

# WALKING SCORPIONFISH (RHINOPIAS AGROLIBA)

This fish is exceedingly rare. It 'walks' along the seafloor using its pectoral fins and, despite being bright orange, is an excellent ambush predator. Lucky it's really dark down there!

Scientists were surprised to find it on the Great Barrier Reef as that is a 'range extension' for this species. An animal's 'range' is where it lives. When species are located outside their known range, scientists have to figure out why and how they got there.

Is there a new critter in town or were they here all along?



24 AUGUST 2020  
TREGROSSE REEFS,  
CORAL SEA  
MARINE PARK





# SIPHONOPHORE (APOLEMIA SP.)

This might be the longest marine creature in the world – and possibly the longest that has ever existed!

A siphonophore is a colony of individual zooids – specialised cells that come together in a long chain, to form a single giant creature. *SuBastian's* cameras found this massive, swirling siphonophore 625 metres below the surface.

The ROV pilots estimated that its outer ring measured 15 metres across. Scientists are still reviewing the data, but the entire siphonophore may be more than 120 metres overall – that's as long as the Wharf 7 building nearby!



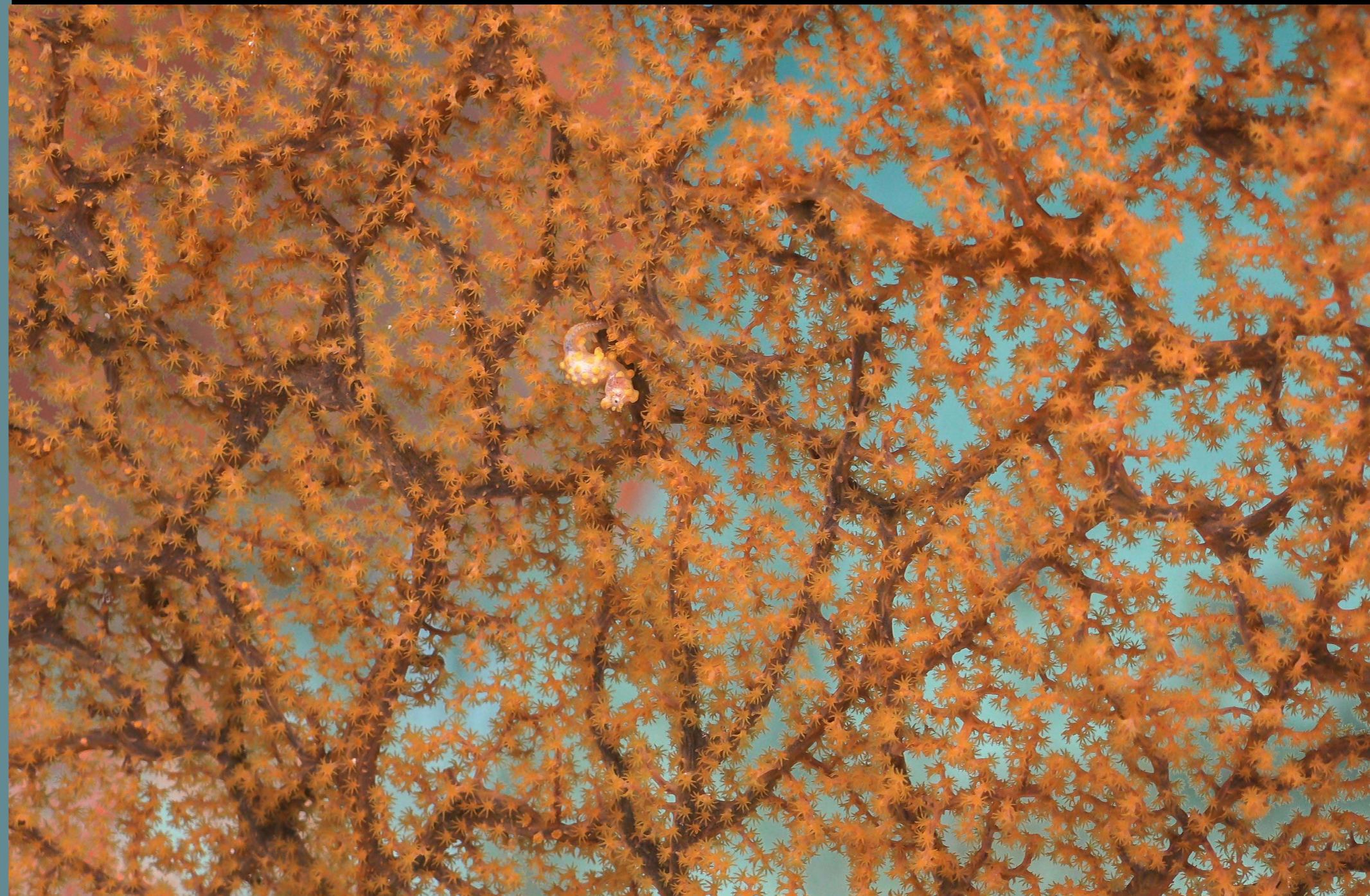
16 MARCH 2020  
CAPE RANGE  
CANYON

## PYGMY SEAHORSE (HIPPOCAMPUS)

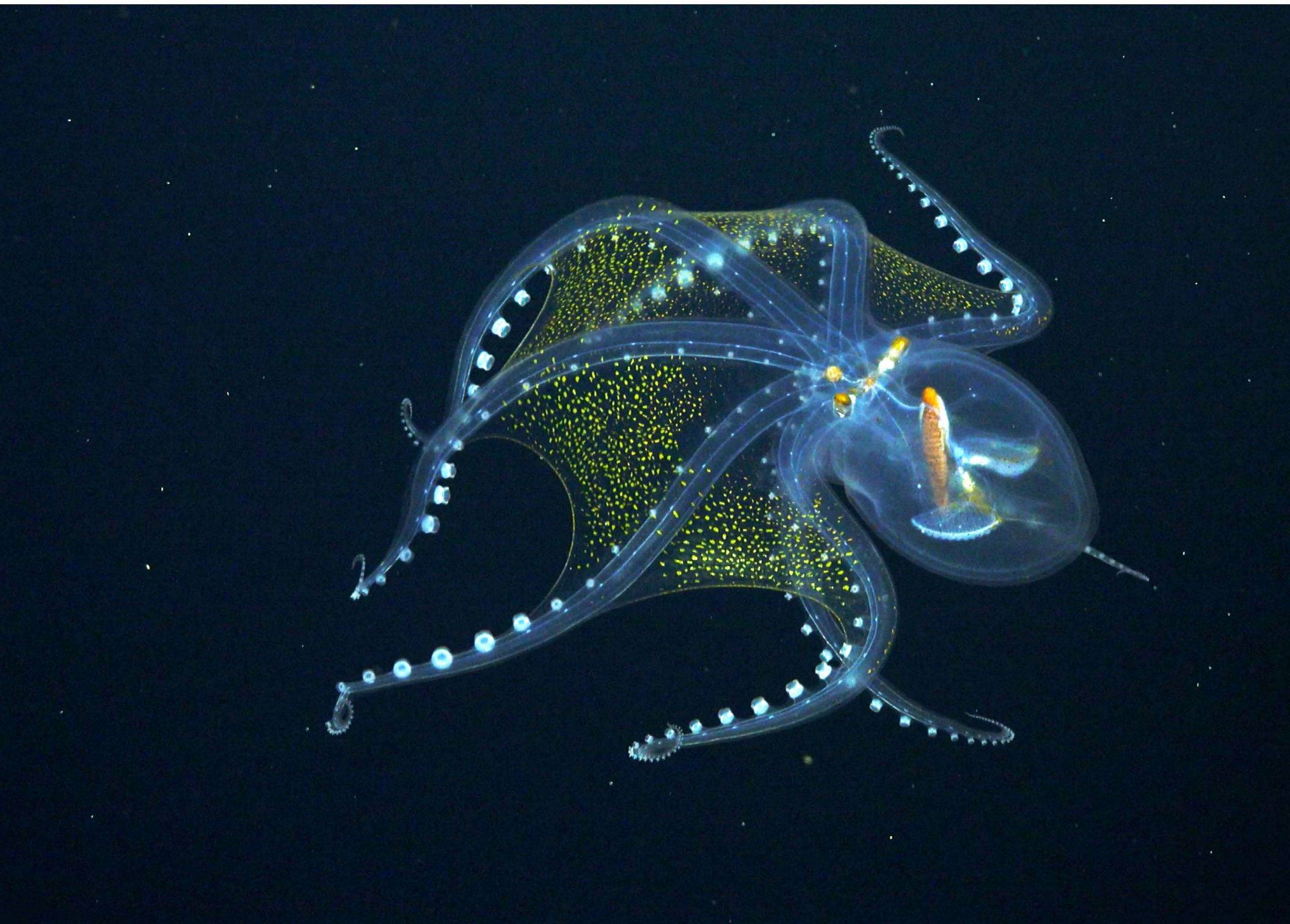
Can you see it? This gorgonian coral is home to a pygmy seahorse. These creatures are tiny – only 1.4–2.7 centimetres long. In fact, one species was discovered by accident, clinging to a sample of coral that had been collected for study.

The rounded lumps on the seahorse's body, called tubercles, perfectly match the colour and shape of its coral home.

Like all seahorses, they give birth to live young, but male pygmy seahorses use a pouch in their trunk – not their tail – to brood their babies.



11 APRIL 2021  
ASHMORE REEF  
MARINE PARK



6 JULY 2021  
PHOENIX ISLANDS



## GLASS OCTOPUS (*VITRELEDONELLA RICHARDI*)

As their name suggests, glass octopuses are really hard to see, because they're almost transparent. ROV *SuBastian*'s lights illuminate this specimen, but usually only their optic nerves, eyeballs and digestive tracts are visible. It's great way to hide from predators and prey – and from researchers.

So RV *Falkor*'s scientists were thrilled to spot not one, but two of these see-through cephalopods on the recent expedition. 'Cephalopod' means 'head-foot' – creatures like octopuses and squids whose tentacles emerge directly from their heads.

## SHORT-TAIL CATSHARK (*PARMATURUS BIGUS*)

The short-tail catshark is one of the rarest species of sharks in the world. It was initially known only from a single female specimen collected from near Lord Howe Island in 2007, but a few have been captured off New Zealand in recent years.

This specimen, filmed by the RV *Falkor* team, is an adult male 50–60 centimetres long. Its discovery provided the first footage of a live catshark, extended the known depth of this species down to 881 metres and extended its range 1,200 kilometres to the north.

Its other name is the beige catshark. I'm sure it would prefer something better! What do you think it would like to be called?



17 OCTOBER 2020  
SOUTHERN SMALL  
DETACHED REEF,  
CORAL SEA MARINE  
PARK



## SQUAT LOBSTER AND GOLDEN CORAL

Can you spot the small squat lobster on this golden coral? Squat lobsters are actually more closely related to hermit crabs than to true lobsters. They get their name from the way they keep their tails permanently tucked beneath their bodies, so they look like they're squatting. Their super-long front legs can be six times longer than their bodies – they use them to catch food and for defence.

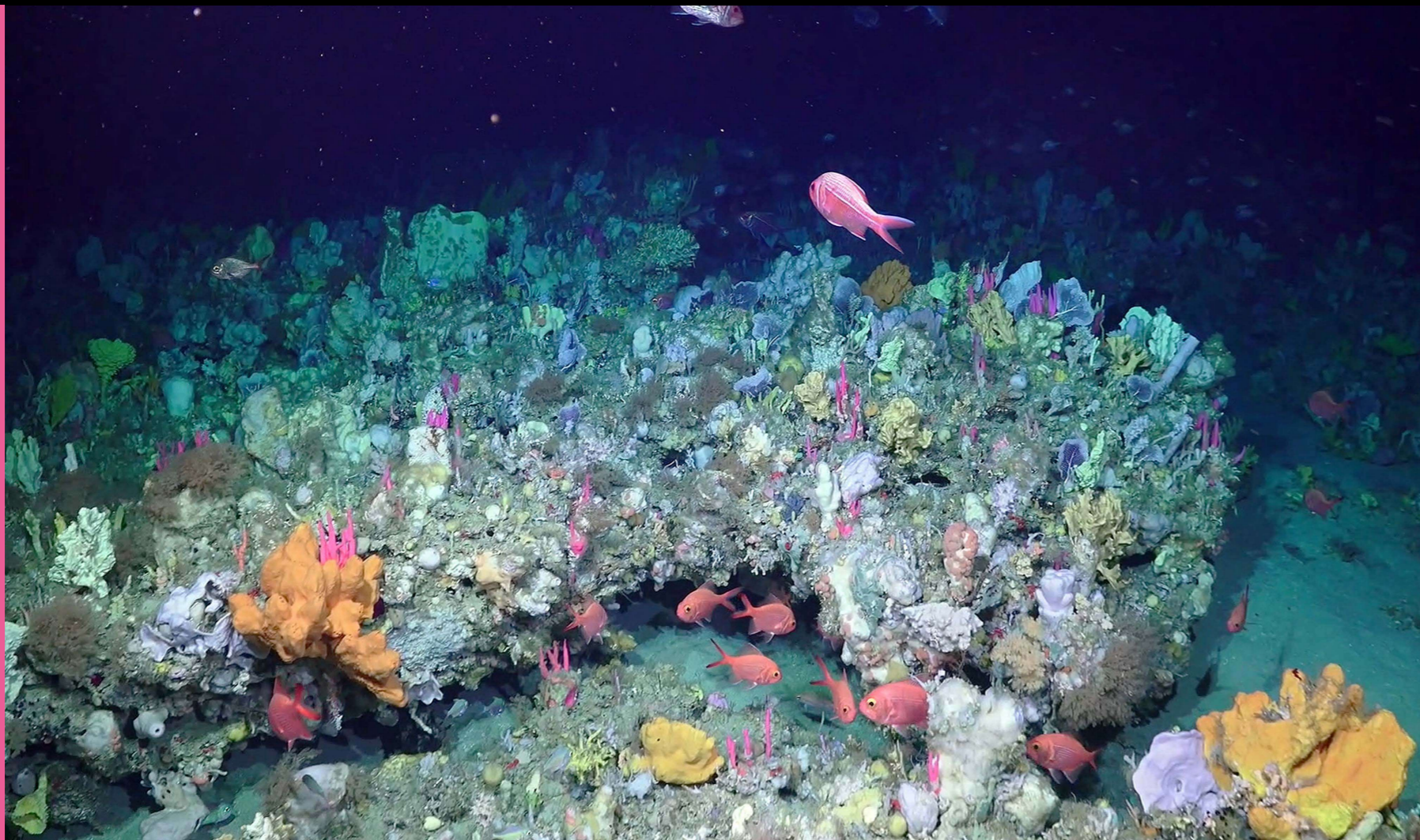
This one was discovered on a previously unexplored guyot in the Pacific Ocean. A guyot is a flat-topped volcanic mountain that reaches from the sea floor to above the surface.

5 AUGUST 2021  
PACIFIC OCEAN,  
INTERNATIONAL WATERS





FEBRUARY 2020  
BREMER  
CANYON  
MARINE PARK



## BREMER CORAL GARDEN

University of Western Australia researchers on board RV *Falkor* discovered massive coral gardens hidden deep in the canyons of the Bremer Marine Park.

Bremer Marine Park is offshore from Fitzgerald River National Park, about half-way between Albany and Esperance, WA. It covers 4,472 square kilometres, or about the same size as Kangaroo Island, with depths from 15 metres to 5,000 metres.

Rich and diverse coral gardens like these are a biodiversity hotspot for marine species such as southern right and killer whales. What other species do you think might like this environment? Have a look at the other panels for clues about what other animals might live here!





## NAUTILUS (NAUTILUS POMPILIUS)

The nautilus is a living fossil. The oldest cephalopod still around, it's been here for about 500 million years. In fact, they were swimming around for more than 250 million years before the first dinosaurs!

The nautilus is the only cephalopod with a visible shell. If threatened, it withdraws inside and seals it shut with a fleshy trapdoor called a hood. Cephalopod means 'head-foot' – creatures like octopuses and squids whose tentacles emerge directly from their heads.

They are scavengers, using sensory cells on their tentacles to detect dead bodies.

RV *Falkor's* researchers spotted up to 18 nautiluses on this voyage, at around 500 metres depth. They believe that numbers are high because the Coral Sea Marine Park is a protected area.



MAY-JUNE 2020  
CORAL SEA  
MARINE PARK

# DUMBO OCTOPUS (GRIMPOTEUTHIS)

Often voted the world's cutest octopus, the dumbo octopus is named for the fins on its mantle that look like the huge ears of Dumbo the Elephant. Like its namesake, it uses them to 'fly', flapping them to waft its way through the water.

The adorable octopus seen here, was found at a detached reef off the Northern Great Barrier Reef at 755 metres.

Unlike most octopuses, the dumbo octopus doesn't have an ink sac. There's not much point when you live as deep as they do. If you're permanently in the dark, you don't need to make ink to escape predators.

It's probably wishing that *SuBastian* would turn off the lights!



4 NOVEMBER 2020  
NORTHERN GREAT  
BARRIER REEF