



Filming firsts

● A coral trout and reef octopus on the Great Barrier Reef regularly hunt together. The fish uses gestures (like sign language) to reach across the vertebrate-invertebrate divide.

● In the Seychelles, giant trevally gather off a beach where young sooty terns are learning to fly. If the birds land on the sea they are grabbed by the trevally, that will even launch themselves at low-flying fledglings.

● As a polar bear appears on the beach on the islands of Svalbard, mother walrus and their babies take to the water, but because of the loss of ice here, they have to compete to find a safe ice floe.



Pods of dolphins have been seen catching a wave all over the globe, sometimes right next to human surfers.

EPISODE GUIDE | ONE OCEAN

LIFE ON THE OCEAN WAVE



Amazing behaviour never captured before on film reveals vital relationships between species, whether friend or foe.

JONATHAN SMITH Producer

As you ride with a pod of orcas into a bait ball of panicked herring, and are confronted with majestic humpback whales 10 abreast, it's clear that *Blue Planet II* serves up the scale and power of a blockbuster. It will still jerk the heart strings with small moments, however, as a mother walrus searches for a safe ice floe for her baby, and delivers a 'whisker kiss'.

Producer Jonathan Smith says: "I'm excited about how many things

there are to shout about in this series, so many unique stories, and never-seen sequences."

He's most proud of a sequence showing a pod of bottlenose dolphins off the coast of South Africa surfing, it seems, for the same reason humans do – fun. He says: "Two weeks into the shoot, I had my head in hands thinking 'How can we do this?' but two days later the

"It all came together, and as you watch, you feel the sheer joy as you ride with them."

conditions were right, it all came together and, as you watch, you feel the sheer joy as you ride with them."

From the start, the team wanted to put the viewer right in the centre of the action. To capture the orcas feasting on herring, they worked with Eve Jourdain, principal investigator with the Norwegian Orca Survey,

which uses techniques that include drones and cameras attached to orcas by suction cups, developed by a private company in collaboration with the BBC.

Challenges included the cold, brutal wind and snow, and long nights at the time of year when this behaviour could be observed. The crew were on station for two Novembers and three Januarys. Smith says, "We had only a 40-minute filming window each day from which to cover the action."

The effort was worth it, however, and not just for a dramatic TV event. The orcas are barely aware of the camera tags, but as well as capturing the action, these contain a large number of sensors recording details such as speed, acceleration, GPS positioning and depth.

Smith says: "The scientists now have a massive data set to be studied. I'll be really intrigued to know what else they discover." 📺

STAR SPECIES *Orca*

The pod of orcas filmed in the Norwegian fjords at Andfjorden work together to corral the herring. They isolate a shoal and drive it to the surface, blowing bubbles and showing their white undersides to provoke the shoal's schooling reaction to danger. Their behaviour is known as 'carousel feeding' because they swim constantly around the shoal. They debilitate their prey by slapping the fish with their tails.



Orcas live in every ocean, but pods stick to one area.

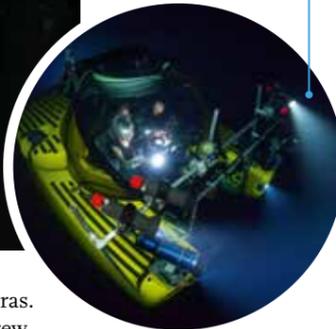


The fangtooth uses pressure-sensitive canals in its head and body to detect prey in its pitch-black world.

Filming firsts

● The team spent several thousand hours underwater in a number of different submarines to film *The Deep*.

● The crew were the first to capture a shark feeding frenzy



EPISODE GUIDE | THE DEEP

PLUMBING THE DEPTHS



Extraordinary creatures thrive at extreme depths and temperatures, but often rely on what falls from above.

WILL RIDGEON Assistant Producer

This episode reveals creatures so strange they could be the fruit of a cartoonist's imagination, and it proves once again that animals can adapt to unimaginably harsh conditions. *The Deep* also reveals how some of these ecosystems are reliant on matter falling from above, from a dead whale to tiny fragments known as 'marine snow'.

Assistant producer for the episode Will Ridgeon says: "There are more vehicles able to go into space than the deep oceans, so to get hold of one of these, plus the skill and experience of a pilot, isn't easy, and then we have to prepare the cameras. The team spent lots of time working on how you light a large area like a brine pool in pitch darkness and get the immersive footage we need without disturbing the animals."

Using both manned and remote-controlled deep-sea submersibles able to withstand great pressures, the BBC's team explored the depths all over the planet, including

Antarctica. Ridgeon continues: "Very little was known about what the team would see in the Antarctic. The first surprise was the enormous amount of krill." The team switched off the lights, and found themselves surrounded by a sea of pulsing blue lights – bioluminescent krill, the first time it had been observed in the wild – and were able to capture it on film

The crew switched off the lights and found themselves surrounded by a sea of pulsing blue lights.

with specialist low-light cameras.

At the other extreme, the crew worked with scientists to film giant tubeworms and other creatures thriving around super-hot vents in geologically active regions on the margins of the Earth's tectonic plates, where cracks in seabed rocks spew out water at temperatures in excess

of 400°C. Ridgeon says: "We went to look at a mud volcano in the Gulf of Mexico. Methane bubbles out from the seabed, and they expose ancient deposits of salt buried since Jurassic times to create brine pools. We witnessed a 30-metre

high volcano in full eruption, with enormous gusts of methane. We didn't know it was going to erupt – that was pretty awe-inspiring." 📺

760 metres down in the Atlantic Ocean, as **six-gill sharks** attacked the carcass of a sperm whale that had sunk to the floor.

● Ferocious shoals of **Humboldt squid** were filmed hunting at night. Their changing colours may be a form of communication.

STAR SPECIES *Yeti crab*

A small squat lobster off the coast of Costa Rica 'farms' bacteria on its long hairy arms. Nicknamed the yeti crab, it lives by a cold seep 1,000 metres below the surface, where methane and hydrogen sulphide leak from fissures in rocks. It waves its arms over the seep to maximise the bacteria's exposure to the chemicals, then uses its comb-like mouthparts to harvest the bacteria.



'Yeti crab' grows its dinner on its hairy arms.

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