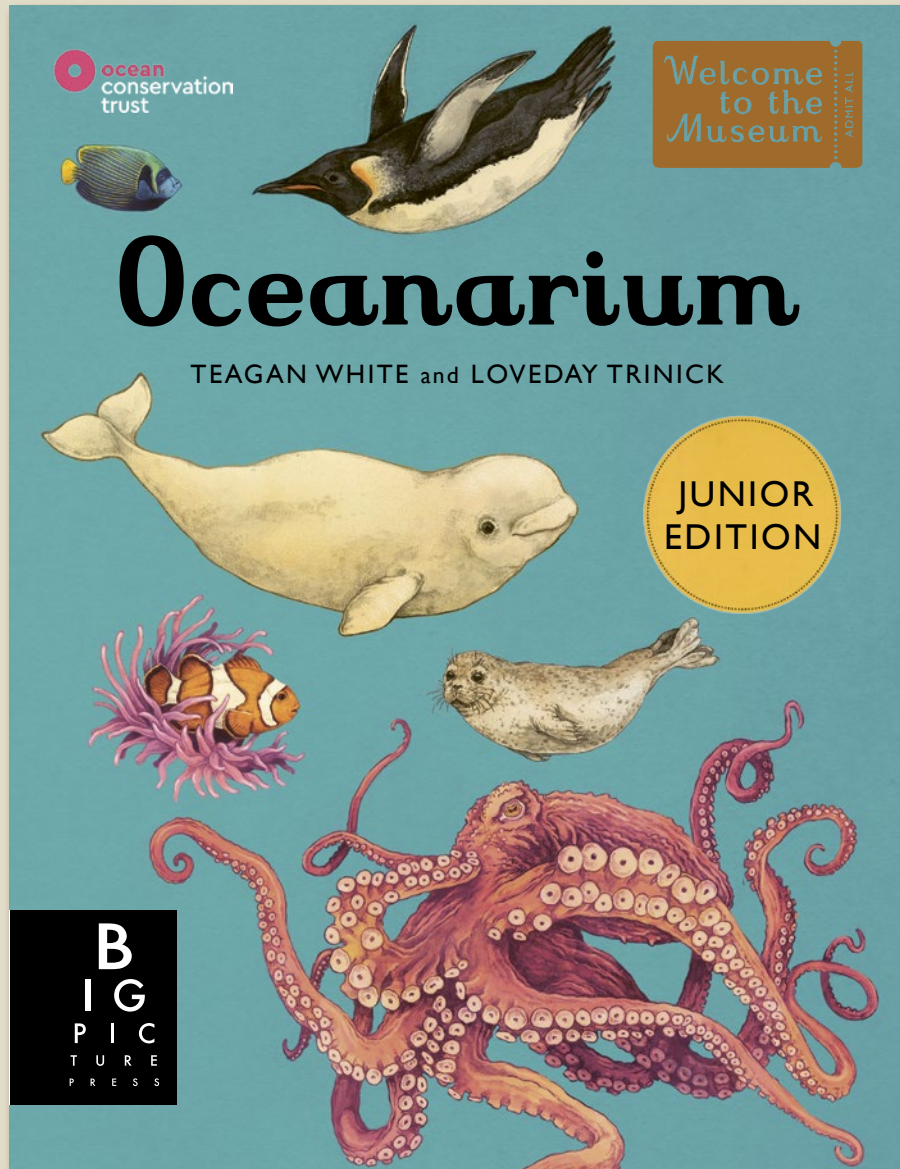


Oceanarium (Junior Edition)



Written for younger children, more readers than ever can discover the wonders of the animal kingdom in the *Oceanarium Junior*.

- Cover finishes: matt lam, spot UV and foil
- Abridged format makes this the perfect alternative to the large-format book, and offers an alternative price point for consumers.
- Beautiful vintage-inspired artwork by award-winning artist Teagan White
- Published in conjunction with the National Marine Aquarium, part of the Ocean Conservation Trust.

Oceanarium (Junior Edition)

INVERTEBRATA

Jellyfish

Jellyfish wander the ocean drifting with the currents whenever the water takes them. Despite their name, they are not fish but invertebrates as they don't have a skeleton. Their soft, bell-shaped bodies are around 75 per cent water and contain neither brain nor heart. They have bioluminescent but can push themselves gently through the water by flapping their body (the bell) with water and contracting it back out again. Along with coral and anemones, jellyfish belong to the group Cnidaria. All cnidarians are carnivorous and use stinging cells to catch prey and to defend themselves. Most jellyfish have long tentacles, which are lined with harpoon-like stings. When jellyfish sting their tentacles into the water, the sting has venom, and the victim the moment they brush against it. Several species of jellyfish are translocators, meaning other animals will not see the danger about until it's too late, whereas others use bright colours to attract prey. For instance, flower hat jellyfish have fluorescently spotted tentacles, which may look like green algae to unsuspecting fish. The fish approach the tentacles in the hope of food but instead swim into a trap and sometimes some young fish and crabs seek shelter in the tentacles. They rely on a thick mucus coating to protect them or simply dodge the tentacles as they sweep in the water.

Key to plate

- 1. **Blue jellyfish**
Bell diameter: 1.5m
Tentacle length: 1.5m
The species is the most common in the North Atlantic.
- 2. **Sea nettle jellyfish**
Bell diameter: 1.5m
Tentacle length: 1.5m
This is the largest jellyfish species in the Atlantic.
- 3. **White-spined jellyfish**
Bell diameter: 1.5m
Tentacle length: 1.5m
This species is the most common in the North Atlantic.
- 4. **Portuguese man-of-war**
Bell diameter: 1.5m
Tentacle length: 1.5m
This species is the most common in the North Atlantic.
- 5. **Flower hat jellyfish**
Bell diameter: 1.5m
Tentacle length: 1.5m
This species is the most common in the North Atlantic.
- 6. **Golden-brown jellyfish**
Bell diameter: 1.5m
Tentacle length: 1.5m
This species is the most common in the North Atlantic.
- 7. **Scyphozoan jellyfish**
Bell diameter: 1.5m
Tentacle length: 1.5m
This species is the most common in the North Atlantic.
- 8. **Hydrozoan jellyfish**
Bell diameter: 1.5m
Tentacle length: 1.5m
This species is the most common in the North Atlantic.

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CHORDATA

Habitat: Rock Pool

Rock pools are the small pockets of water left behind in the rocky hollows of the shore at low tide. A very changeable habitat, rock pools vary in size from a few centimetres to a metre across. They are very shallow and their water temperature and salinity fluctuate rapidly. They are also very exposed to the sun and wind, and their water level can drop to zero at low tide. They are also very exposed to the sun and wind, and their water level can drop to zero at low tide. They are also very exposed to the sun and wind, and their water level can drop to zero at low tide.

Key to plate

- 1. **Longhorn beetle**
Length: 10cm
This is the largest beetle in the rock pool.
- 2. **Water penny**
Length: 5cm
This is the largest insect in the rock pool.
- 3. **Dragonfly nymph**
Length: 5cm
This is the largest aquatic insect in the rock pool.
- 4. **Water bug**
Length: 5cm
This is the largest aquatic insect in the rock pool.
- 5. **Water penny larva**
Length: 5cm
This is the largest aquatic insect in the rock pool.
- 6. **Water penny pupa**
Length: 5cm
This is the largest aquatic insect in the rock pool.
- 7. **Water penny adult**
Length: 5cm
This is the largest aquatic insect in the rock pool.
- 8. **Water penny pupa**
Length: 5cm
This is the largest aquatic insect in the rock pool.

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FISH

Coral Reef Fish

The coral reef is one of the most diverse and beautiful ecosystems in the ocean and the animals that live there all rely on it in some way for their survival. Coral reef fish often have beautiful patterns and bright colours which means they can be used to attract mates and certain colours can also give a warning - red and yellow often mean that an individual has poisonous spines, stingers or a sharp skin. Many coral reef fish have bright colours to feed food. With specially adapted mouths, surgeonfish and parrotfish graze on the algae that grows on the surface of coral. By removing the algae which would otherwise smother the coral, these herbivores help to keep the reef alive. Some fish, such as butterflyfish, consume the coral itself, clearing small patches to new coral to grow. Predators such as sharks also swim the reef hunting for food. Small coral reef fish, like damselfish and anthias, use the reef's many hiding places such as caves and crevices.

Key to plate

- 1. **Longhorn butterflyfish**
Length: 10cm
This is the largest butterflyfish in the rock pool.
- 2. **Water penny**
Length: 5cm
This is the largest insect in the rock pool.
- 3. **Dragonfly nymph**
Length: 5cm
This is the largest aquatic insect in the rock pool.
- 4. **Water bug**
Length: 5cm
This is the largest aquatic insect in the rock pool.
- 5. **Water penny larva**
Length: 5cm
This is the largest aquatic insect in the rock pool.
- 6. **Water penny pupa**
Length: 5cm
This is the largest aquatic insect in the rock pool.
- 7. **Water penny adult**
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Length: 5cm
This is the largest aquatic insect in the rock pool.

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MAMMALS

Habitat: Kelp Forest

Kelp is a kind of seaweed that grows in cool coastal regions. Unlike plants on land, seaweeds have a holdfast instead of roots, which grips to the rocky seabed, ensuring the kelp is locked in place. Each holdfast has one or more stipes, or stalks, reaching up to the surface. Some types of kelp grow as tall as 45 metres, forming vast forests that tower above the seabed. All ecosystems need a delicate balance between photosynthesising organisms (such as seaweed), herbivores and carnivores. In the kelp forest, this balance is best seen in the relationship between kelp, sea urchins and sea otters. Sea urchins graze on the kelp, making space for new plant growth. Sea otters then feed on the urchins, keeping their numbers down and ensuring they don't eat all the kelp. Kelp forests are vulnerable to climate change as warming seas bring less of the nutrients needed for kelp growth and poor water quality reduces the light levels needed for photosynthesis. It is possible therefore that, as our ocean warms, kelp forests may move further north to cooler waters.

Key to plate

- 1. **California sheephead**
Length: Approx. 30cm
This species starts out as a female and turns into a male later in life.
- 2. **Giant kelp**
Length: Approx. 45m
Giant kelp can grow as much as 45cm a day, making it one of the fastest-growing organisms on Earth. When detached from the seabed, it floats in mats, giving shelter to many animals.
- 3. **Leopard shark**
Length: Approx. 1.6m
Young sharks are experts at finding straits and crevices under the sandy seabed and often visit kelp forests.
- 4. **Rockfish**
Length: 12-104cm, depending on species.
Some rockfish can live for around 100 years.
- 5. **Purple sea urchin**
Length: Approx. 10cm
These sea urchins are a threat to kelp forests. Since 2014, 95 per cent of the bull kelp forests in Northern California, USA, have been devoured by them.
- 6. **Sea otter**
Length: Approx. 1.5m
Sea otters are experts at finding straits and crevices under the sandy seabed and often visit kelp forests.
- 7. **Garibaldi fish**
Length: Approx. 30cm
Male fish defend their nest year-round, and in the spring will clean the nest and entice females in with swimming performances.
- 8. **Bull kelp**
Length: Approx. 30m
Bull kelp extract is used in food products, including ice cream.
- 9. **Southern sea otter**
Length: Up to 1.6m
Sea otters were hunted extensively for their fur in the 1700s and 1800s. Their numbers have slowly recovered, but they are still an endangered species.

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