



# Shallow Seas

## Shallow Seas 1

Where are Shallow Seas are found?

Answer: along the continental shelves

What is the relationship of Shallow Sea to the rest of the ocean?

Answer: Only 8% of oceans are found in the shallow seas.

What percentage of ocean life is found in the Shallow Seas?

Answer: 75%

How do Humpback Whales attract mates?

Answer: Sending high and low sounds through the water, if effect singing for a mate.

## Shallow Seas 2

Where is it that the Humpback Whale has migrated from?

Answer: The Arctic

Why do the whales migrate?

Answer: They “stock up” on food in the Arctic and have their young in the warm waters of the Caribbean.

Why don't the whales stay in the Caribbean?

Answer: There is no food there for them.

Why don't the waters of the Caribbean sustain life?

Answer: There are not enough nutrients in the water.

Why is the mother Humpback Whale's life at risk during this time?

Answer: The mother is trapped there for 5 months, to make the calf strong enough to reach the poles. During this time she starves.

## Shallow Seas 3

Why are coral reefs like an oasis in a watery desert?

Answer:

What is true of life in the Coral Reefs?

Answer:  $\frac{1}{4}$  of all ocean life is found here.

What makes up all of the earths coral reefs?

Answer: Polyps

About how many reefs make the Great Barrier reef?

Answer: About 2000 reefs.

## Shallow Seas 4

Where in the world will you find the greatest variety of fish?

Answer: Indonesia

In what two ways do the polyps that make up the coral reefs get their food?

Answer: They primarily get food from algae that live inside them and get supplemental food by sifting particles from the water using their tentacles.

How big is a pigmy sea horse?

Answer: 2 CM

**Measure out 2 CM on a ruler.**

What is special about the file clam?

Answer: The file clam moves membranes to make it appear that there is a surge of light.

## Shallow Seas 5

What is symbiosis?

Answer: Symbiosis is the living together of two dissimilar organisms and doing things that help each other.

what is an example of symbiosis cited in the video?

Answer: Goatfish and Trevally cause fish to hide, the snakes eat or flush the fish out. The Goatfish and Trevally catch, and eat what gets flushed out.

What survival mechanisms are needed to survive in the standing sea area and why is this important?

Answer: Camouflage, because there is no where to hide.

What does the Gurnard use as camouflage?

Answer: It has huge pectoral fins that help disguise its shape.

## Shallow Seas 6

What does the Jaw Fish do to hunt its prey?

Answer: It hides underground.

Why does the wonderpus octopus not use camouflage?

Answer: It has such a poisonous bite it has extravagant markings that warn others to stay away.

What forms underwater meadows?

Answer: Sea Grass

Where is the largest sea meadow found?

Answer: Shark bay in Australia

## Shallow Seas 7

How big is the Shark Bay sea meadow?

Answer: Approximately 1,500 square miles.

What are some strategies used by the Bottlenose Dolphins to hunt their prey?

Answer: They ride waves into the shallow end to catch fish more easily. They use their tails to stun prey. They use the technique of hydroplaning to get fish close to the shore.

What danger do the dolphins face when they try to hydroplane up to the shore to get food?

Answer: They are in danger of getting beached.

Most life in the shallows are found in what two areas?

Answer: coral reefs and sea meadows

## Shallow Seas 8

Most sea birds mostly breed in the Arctic areas, lush coastal areas, or secluded islands, what is the exception cited in the video?

Answer: The desert of Bahrain where Socotra cormorants gather to breed.

Why do they come to this secluded area?

Answer: There are no land based predators in this desert.

What allows food to be produced in this desert region?

Answer: Shamals

What are Shamals?

Answer: a summer northwesterly wind blowing over Iraq and the Persian Gulf states, often strong during the day, but decreasing at night.

## Shallow Seas 9

What do the Shamals do that allow food to grow in this desert area?

Answer: They blow sand into the Arabian Gulf. It brings nutrients which act as fertilizer.

How do the mother whale and calf communicate

Answer: by slapping their fins on top of the water.

What is the formula for life in the biomes presented in this video?

Answer: Nutrients + sunlight=life

In spring algae blooms form that are the size of the Amazon, what percentage of the Earth's oxygen do these blooms provide?

Answer: 75%

## Shallow Seas 10

What is 75% as a fraction?

Answer:  $\frac{3}{4}$

What creatures, by weight, are the most abundant creatures on earth?

Answer: Krill

In most Shallow Sea environments, what happens by mid summer?

Answer: Everything is gone and the food chain collapses.

What Shallow Sea biome is the exception to this and why?

Answer: California, where the ocean currents continually carry nutrients from the depths to the surface.

## Shallow Seas 11

How does this continuous supply of nutrients manifest?

Answer: These currents form giant kelp forests characterized by three story towers of algae.

What are urchin barrens?

Answer: places where sea urchins have cleared the ocean floor by eating the holdfast of the kelp.

What is a holdfast?

Answer: The structures that the kelp uses to anchor itself.

What is the most aggressive predator on the floor of these kelp forests?

Answer: The sunflower starfish, which measures 1m across.

## Shallow Seas 12

What does it hunt and how does it hunt?

Answer: It hunts other starfish and tastes with its “feet.”

What are flat sea urchins?

Answer: Sand dollars

How do Sand Dollars defend themselves?

Answer: They gather together and form a tight group in defense.

What natural phenomena off the coast of Africa supports millions of seals.

Answer: Africa upwellings

## Shallow Seas 13

What animal is a major part of the food chain found in this upwelling area off the coast of Africa?

Answer: The Chokka squid.

What Second level consumer commonly preys on these squid?

Answer: Stingrays

What are the third level consumers found in this Shallow Sea area?

Answer: The ragged tooth shark measures 3m long, and shares its territory with the Great White which is twice as long as the ragged toothed shark.

How many meters ( m ) is the Great White shark?

Answer: 6m

## Shallow Seas 14

What is the largest predatory fish in the world?

Answer: The Great White Shark

What strategy does the Great White Shark use to hunt Caped Fur Seals?

Answer: It eats them when they cross a gap between the shore and open ocean where they go fishing.

Where is the biggest migration of sea birds on earth found?

Answer: Aleutian Island, the gateway to the Bering straight.

About how many birds come to this island each year?

Answer: 80,000,000

## Shallow Seas 14

Why do the birds come to this island?

Answer: Little to no predators and the abundance of fish.

What is the center of this food chain?

Answer: The krill

What other animal comes to eat the krill?

Answer: Humpback Whales

About how much krill does an adult Humpback Whale eat in a day?

Answer: 3 tons per day