Kelps are the GIANTS of the underwater forests and the FASTEST GROWING marine-algae.

They are BROWN ALGAE known as Phaeophyta.

Most South African kelp-species live mainly in the cool, nutrient-rich upwelling areas of the WEST COAST.

In some places they can extend up to 3km offshore.

They form DENSE UNDER-WATER FORESTS that sway with the ocean movement.

SUNLIGHT and WATER MOVEMENT are needed to grow.

4 SPECIES of kelp occur in South Africa, the most familiar is the SEA BAMBOO Ecklonia maxima.
**DID YOU KNOW?**

Kelp has no true roots, stems, leaves or flowers.

Sea bamboo kelp consists of a **HOLLOW STIPE** that bears **STRAP-LIKE FRONDS**.

A swollen **GAS-FILLED BULB** at its top keeps the fronds buoyed up near the surface.

Bladder kelp
*Macrocystis pyrifera*

Bladder kelp has fronds with bladders all along the stipe.

Kelp fronds grow very quickly, about **13 mm** per day.

These are constantly eroded away at the tip.

The kelp plant can reach **15 m** in length!

Each plant is attached to the rocky substratum by a **HOLDFAST** that keeps it anchored to the sea bed.
The forest community

Just like forests on land – these underwater forests are home to hundreds of different plants and animals. Look carefully at this drawing: How many different animals and plants can you count?

Near the base of the forest are many different sea weeds.

4 TYPES of HERBIVORES are common in the kelp forest.

- **KELP LIMPET**  
  *Cymbula compressa*  
  Specially adapted to live and GRAZE on sea bamboo stipes. Each defends its territory by pushing against intruders until they move off.

- **ABALONE / PERLEMOEN**  
  *Haliotis midae*  
  Secures its food by trapping a drifting piece of kelp or the end of a kelp frond as it sweeps by in the current, lifting up part of its shell and foot and then clamping down.

- **FILTER FEEDERS** sieve kelp particles from the water.

- **GRAZERS**

- **DEBRIS FEEDERS**

- **UNDERSTORY** of mainly RED SEAWEEDS.
SEA URCHIN
Parechinus angulosus feeds on fragments of kelp, and scrapes the surface of rocks for micro-algae and young plants, including kelp sporelings.

Black mussels, sponges, sea cucumbers, and red bait also live in these forests. Filter-feeders eat PHYTOPLANKTON & ZOOPLANKTON (microscopic algae & animals), kelp spores and tiny fragments eroded from the tips of kelp fronds.

PREDATORS in the kelp forest.

WEST COAST ROCK LOBSTER
Jasus lalandii is an important top predator, feeding on many species in the kelp forest.

SEA STAR
Marthasterias africana and COMMON OCTOPUS Octopus vulgaris also eat mussels.

Other carnivores include: ANEMONES, WHELKS, HOTTENTOT FISH and DOGFISH. SEALS also visit the kelp forest.

Strawberry anemones
Hottentot
Cape fur seal
WAVES and CRUSTACEANS help to break down the kelp into fragments small enough to be eaten by filter-feeders in the surf zone, such as WHITE MUSSELS.

Where kelp plants occur they are an IMPORTANT PART of sandy beach ecosystems.

The kelp ‘holdfast’ is often RIPPED LOOSE IN HEAVY STORMS and the kelp washes up on the shore.

These plants are food for amphipods and isopods, better known as SAND HOPPERS and SEA LICE.

These crustaceans are in turn eaten by birds such as SAND PLOVERS and SANDERLINGS.
Importance to Humans

Kelp forests support commercially valuable species such as rock lobster and abalone.

Kelp beds help to buffer the shore from strong wave action, and reduce erosion risk to coastal developments.

Washed up kelp is collected from beaches by licensed operators and processed into alginate, which is a gelling agent used in hundreds of everyday products such as toothpaste, cosmetics, flavoured milks, salad dressings and pizza toppings.

Fresh kelp is harvested as food for farmed abalone.

Fresh kelp is also used to produce a liquid plant-growth stimulant (Kelpak). This harvest is carefully managed.

Because it grows so fast, kelp can also help to reduce the effects of climate change. It helps to remove carbon dioxide from the atmosphere.
WHAT YOU CAN DO

EXPLORE A FOREST
Book a dive or snorkel with a reputable tourism operator.

THINK
about all the products that you use that are made with kelp extracts.

REDUCE RUNOFF
Kelp forests are vulnerable to pollution from land. Make sure your vehicle isn’t leaking oil onto the street, where rainwater can easily wash oil into storm drains and out to the ocean.

USE LESS PLASTIC AND DISPOSE OF YOUR PLASTIC RESPONSIBLY
Plastic waste and discarded fishing gear that lands up in kelp forests can entangle animals. Animals mistake floating plastic objects for food. Animals that eat the plastic can get sick or die.

SUPPORT MPAS.
The Namaqua, Robben Island and the Table Mountain Marine Protected Areas all protect kelp forests.

If you want to see a beautiful kelp forest without getting wet visit the TWO OCEANS AQUARIUM.

Prepared by: Judy Mann-Lang
Edited by: George & Margo Branch