



B. BIOMES



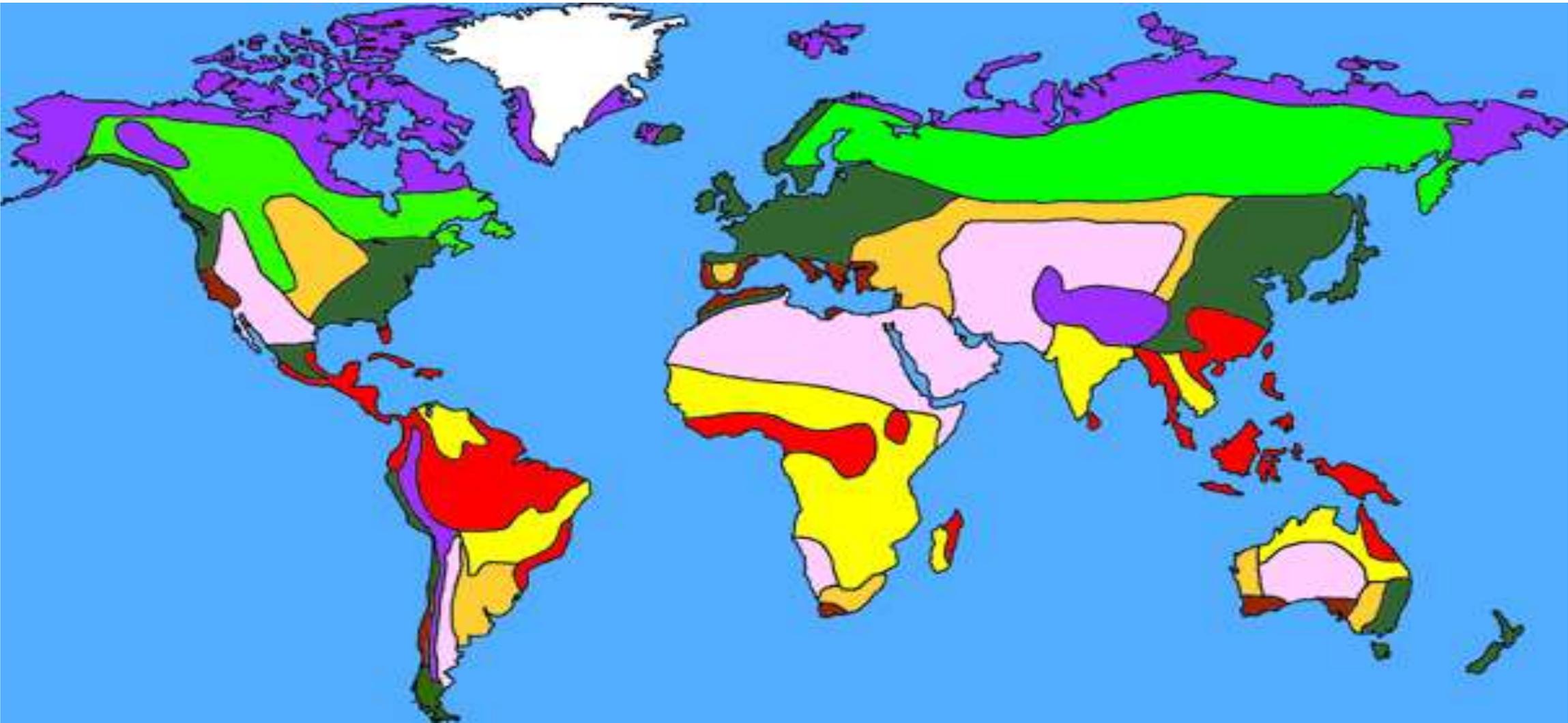
A **Biome** is a definite geographical region that has a distinct climate. The plants that grow in it depend on this climate, and so the Biome is named after its dominant plant.

Because of small differences of conditions within the Biome, a number of **different ecosystems** are found in it, each of them with their own communities.

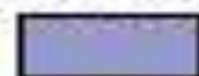
Any change will affect **everything** within that Biome.

- An **EcoSystem** is a part of that Biome in which all its living things are very closely linked with each other.
- A **Community** includes all the living things inside each of these EcoSystems.

There are only two countries in the world that have greater BioDiversity than South Africa, thanks to our varied climate.



BIOMES



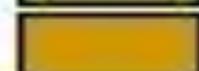
SUCCULENT KAROO



FYNBOS



GRASSLAND



NAMA KAROO



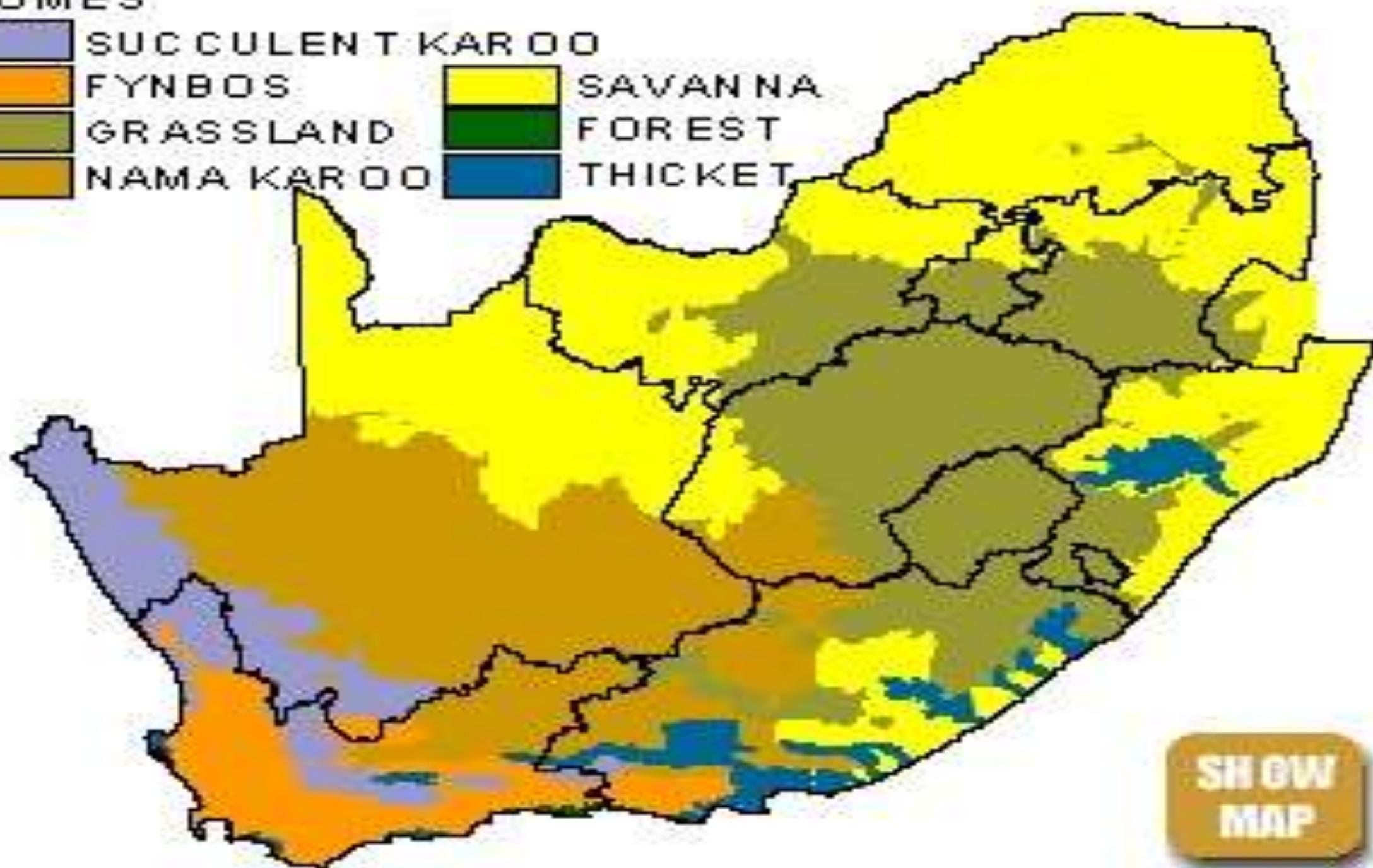
SAVANNA



FOREST



THICKET



SHOW
MAP

TERRESTRIAL BIOMES in South Africa

1. **Savannah** – *Northern Central (including PMB)*. Grasses, bushes. Big-game. Poorly developed soils. Summer rains, frost. Fires.



2. **Desert** – *NorthWest Coast (Namibia)*. Sparse vegetation. Insects, reptiles. Sandy. Hot, dry.

3. **Grassland** – *Southern Central (Gauteng)*. Drier areas have sweetgrass, wetter areas have sourgrass. Buck. Clay soils.



4. **Forest** – *Eastern Coast (including Durban)*. Evergreen layers of vegetation. Birds. Good rains, most of the year.

5. Nama-Karoo – *Western Inland (as far as Bloemfontein)*. Grassy shrubs. Sheep, insects, rodents, reptiles. Poorly developed clay soils. Summer rain, cold winters.



6. Succulent Karoo – *SouthWestern Coast and a little Inland*. Succulent drought-shrubs. Poorly developed sandy soils. Sheep, insects. Low winter rains, fog, very hot.



7. Fynbos – *S.W. Cape*. This is unique to the world. **Nowhere** else do we find conditions like this.

So we will look at this **Fynbos Biome** in detail:-

The FYNBOS Biome



Around **Cape Town**. Mostly winter rainfall. Strong summer winds. Sandy, rocky soil. **Threatened** area.

Each year, **fire** is needed **by nature** to clear the plants, return nutrients to soil, and to germinate new seeds.

The plants are **fine-leaved** (*fyn-bos*), and include *Ericas*, *Proteas* (on Page 55). Also Cape reeds (Page 57). *GeoPhytes* have underground bulbs – they respond to spring rains for a stunning display of wall-to-wall flowers, and have become very popular to tourists. Crops include grapes, wheat, olives.

Birds pollinate most of these plants, and ants disperse their seeds. Golden Moles and Geometric Tortoises live **only** in this area. Ostriches and leopards live here.



SCENES from our FYNBOS BIOME

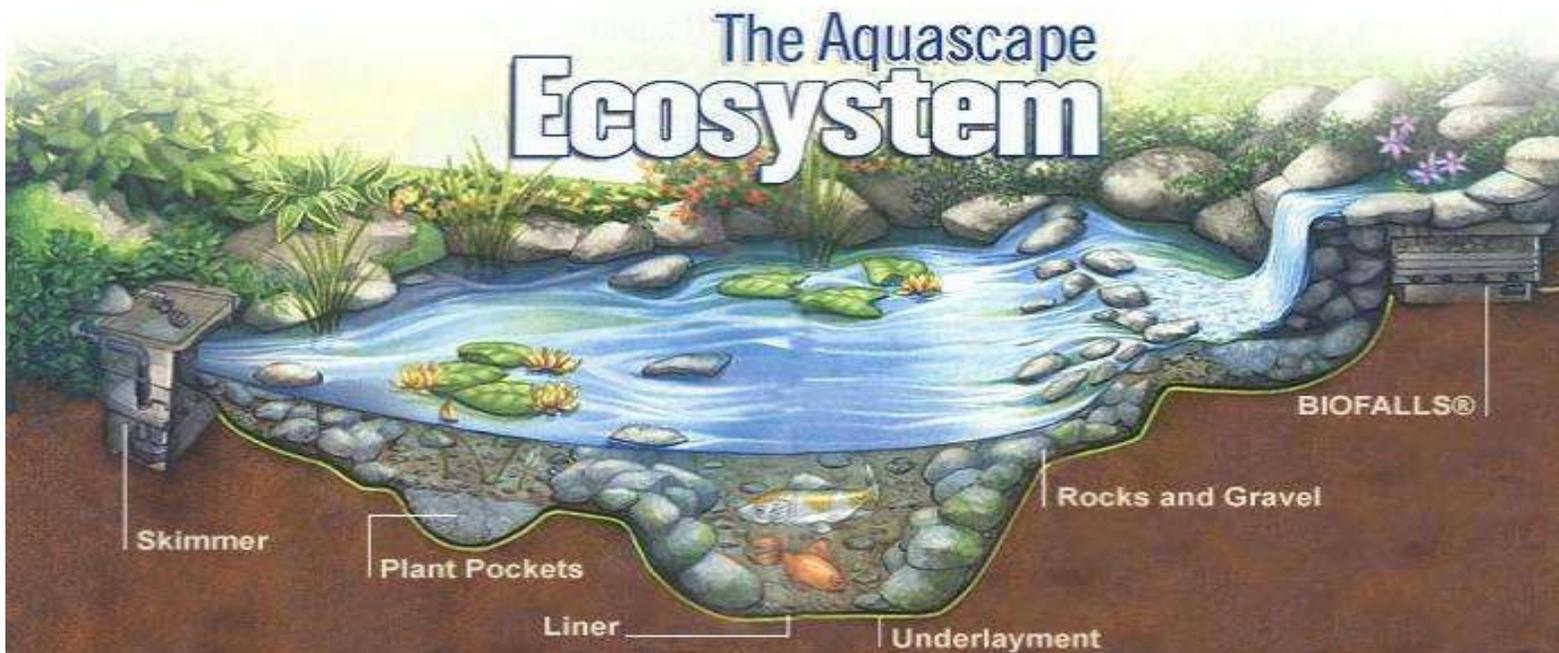
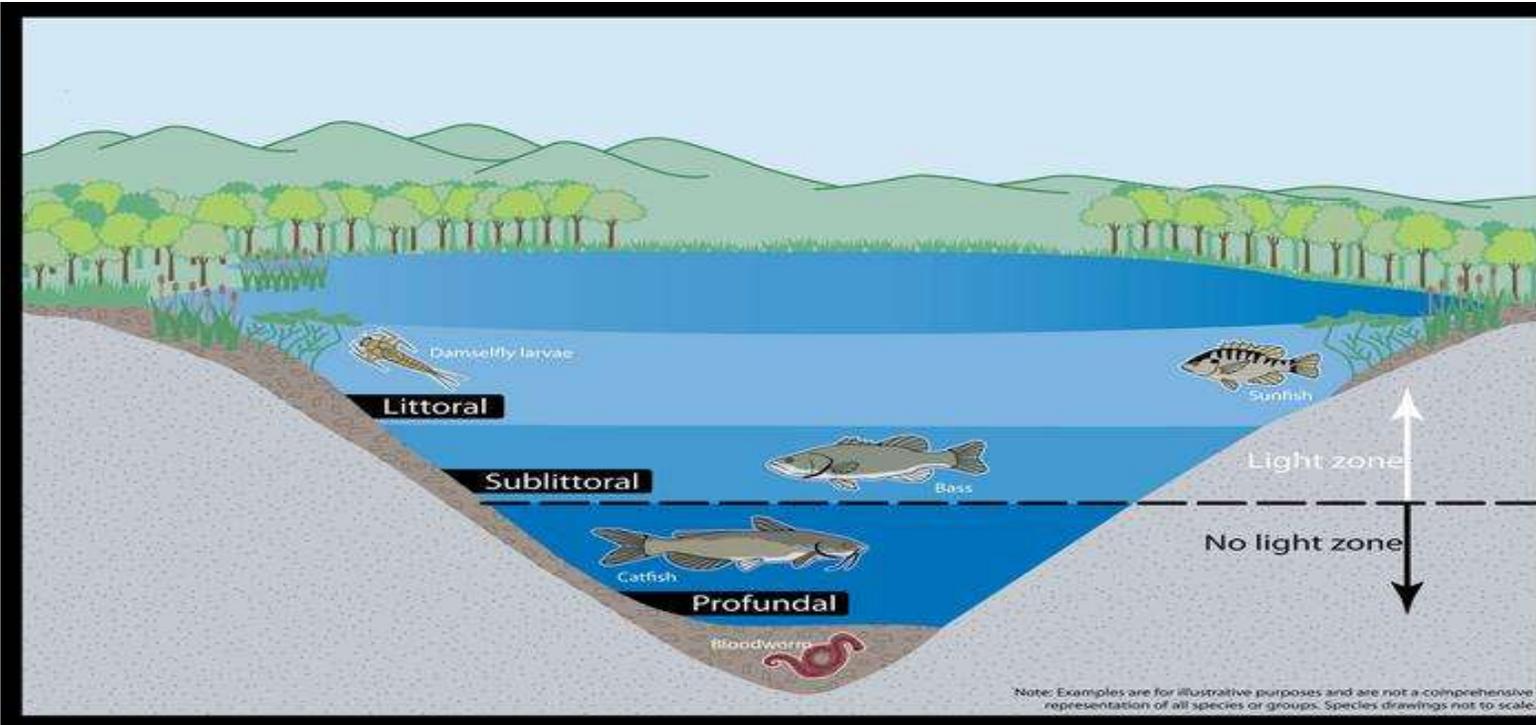
AQUATIC BIOMES in South Africa



FRESHWATER BIOMES



1. **Dams and Lakes** – Water is not flowing. Water-temperatures are affected by air-temperatures. Sunlight only goes to the top layers, so plants can only grow on shallower regions. Lots of fish, reptiles, birds, small mammals live here.
2. **Streams and Rivers** – Flowing water, brings nutrients. Reeds, grasses, bushes, and trees grow on riverbanks, not in the current. Home (habitat) and breeding-place for many insects, reptiles, birds, amphibians, and fish.
3. **Wetlands** – Water-table is at soil level. Water is available in droughts, and it absorbs water in floods. Water comes in, is filtered, then goes out. Lots of nutrients remain, so many different types of plants occur: *HydroPhytes*, Grasses, Woody Plants. Give habitats and breeding-places for many birds, reptiles, crustaceans, and small mammals.

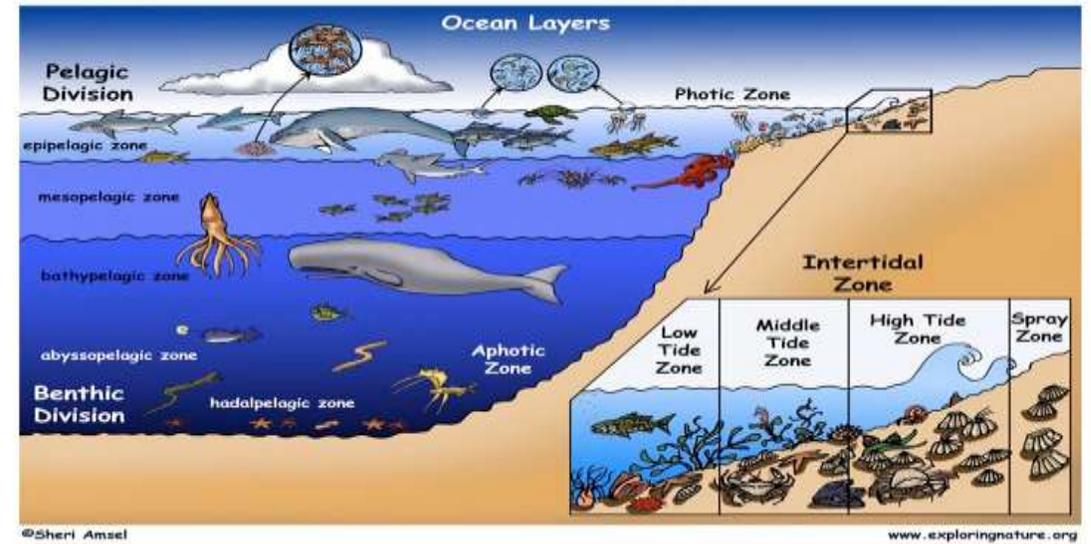
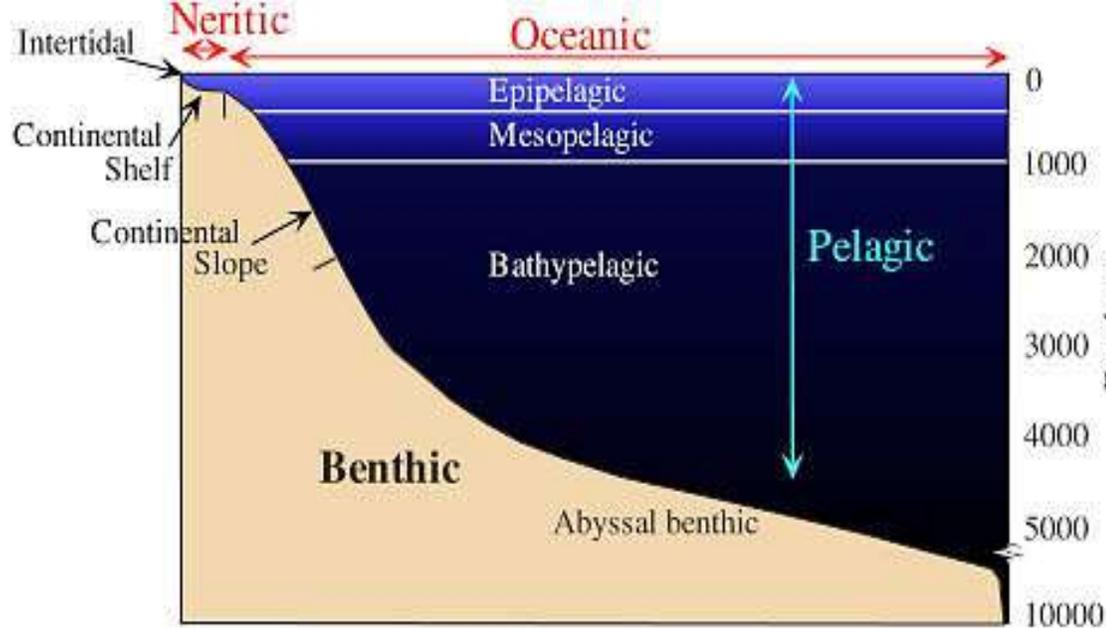


DAMS, RIVERS, WETLANDS

MARINE (seawater) BIOMES



- 1. Oceans** – Shallow layer of water (in which plants can get light to photosynthesise) is the *Pelagic* region. Plankton lives here, and is the starting point of most ocean food-chains.
Deeper, very cold layers on the ocean floor (at high water-pressures) are the *Benthic* region.
- 2. Estuaries and Mangrove Swamps** – Where rivers flow gently into the sea through a sheltered estuary – often with gentle wave-motion. Soil and salt sediments settle, causing low amounts of Oxygen in the water. *HaloPhytes* can grow here – they tolerate salts, have one prop root with many lateral shallow roots, and pencil-roots that grow into the air for gases. Many animals live here too – birds, crabs, snails, otters, mudskippers.



BIOMES of OCEANS and MANGROVE SWAMPS

3. **Rocky Shores** – This is in the *InterTidal* zone. At high tide it is covered in water. At low tide it is not covered in water. So things like oysters and mussels live attached to rocks, and little fish live in the sheltered rock-pools.
4. **Sandy Shores** – These are what we call the *beaches*. The sand does not hold water, which makes it very hot and dry. There is no plant cover here.
5. **Coral Reefs** – Corals are members of the *Cnidaria* family of animals (which also include *Hydra*, *sea-anenomes* and *jelly-fish*). They settle in colonies on shelves in the sea, and build calcium carbonate structures around themselves for protection. They eat some forms of *algae*, and support many marine animals. Many fish use them for food, shelter and breeding. They are richly diverse (and very beautiful) areas for scuba-divers to swim in.



ROCKY SHORES, SANDY SHORES, CORAL REEFS

B. Biomes

Question 1

A biome is a distinct geographical region with a characteristic climate, flora and fauna.

Question 2

1. Clearly defined geographical area.
Composed of several ecosystems.
Has a distinct climate, flora and fauna.
Named after a dominant vegetation in that area.
2. Desert –varies depending of rainfall
Succulent Karoo – succulents and small shrubs
Nama – Karoo – sparse grasses and dwarf shrubs
Fynbos – fynbos (ericas, proteas, geophytes)
Grassland – grasses
Savannah – grasses, trees and herbaceous plants.
Forests –trees of various heights



3. a. Only found in South Africa

Has a high level of biodiversity

Is a great tourist attraction- generating large income.

Creates many job opportunities in the tourist industry

b. ericas, proteas, geophytes, restios

c. geometric tortoise, Cape sugarbird, mountain zebra, bontebok

d. – burnt plants add nutrients to the soil.

- stimulates seeds to germinate

- fire is also needed for some species to release their seeds from fruits.



4. a) wetland b) ocean c) coral reef d) mangrove