

CORALS AND CORAL REEFS

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INTRODUCTION:

A rocklike deposit consisting of the calcareous skeletons secreted by various Anthozoans. Coral deposits often accumulate to form reefs or islands in warm seas.





DEFINITION:

A Coral reef is a ridge or mound in the sea having its upper surface near the surface of water and formed of calcium carbonate produced by organisms.

- Coral reefs are underwater structures made from calcium carbonate secreted by corals.
- Corals are colonies of tiny living animals found in marine waters containing few nutrients.
- Most coral reefs are built from stony corals, and are formed by polyps that live together in groups.
- The polyps secrete a hard carbonate exoskeleton which provides support and protection for the body of each polyp.
- Reefs grow best in warm, shallow, clear, sunny and agitated waters.
- Often called “rainforests of the sea”,



HYDROZOAN CORALS



MILLEPORA



STYLASTER



DISTICHOPORA

Skeleton is secreted by epidermis called calicoblastic layer

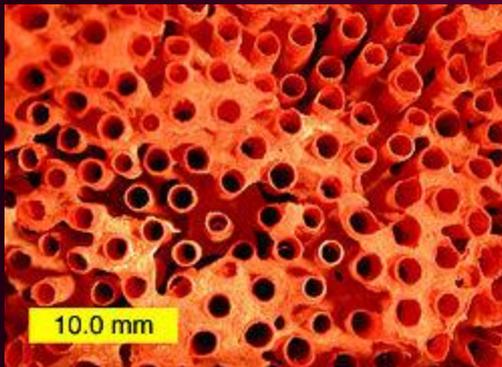
OCTACORALLIAN CORALS



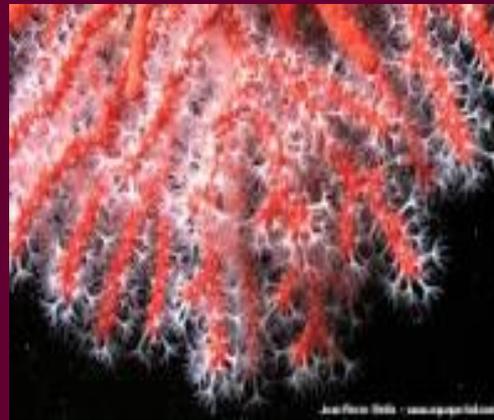
ALCYONIUM
Dead man's finger



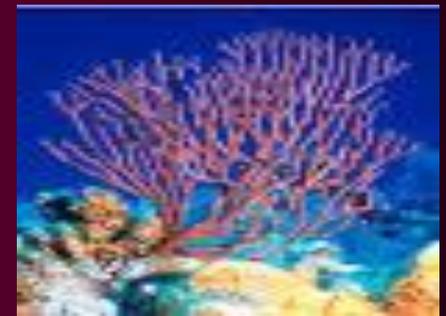
HELIOPORA
Blue coral



TUBIPORA
Organ pipe coral



CORALLIUM
Red coral



GORGONIA
Sea fan

HEXACORALLIAN CORALS

SOLITARY CORALS



Fungia



Flabellum



Acropora



Madrepora



Caryophylla

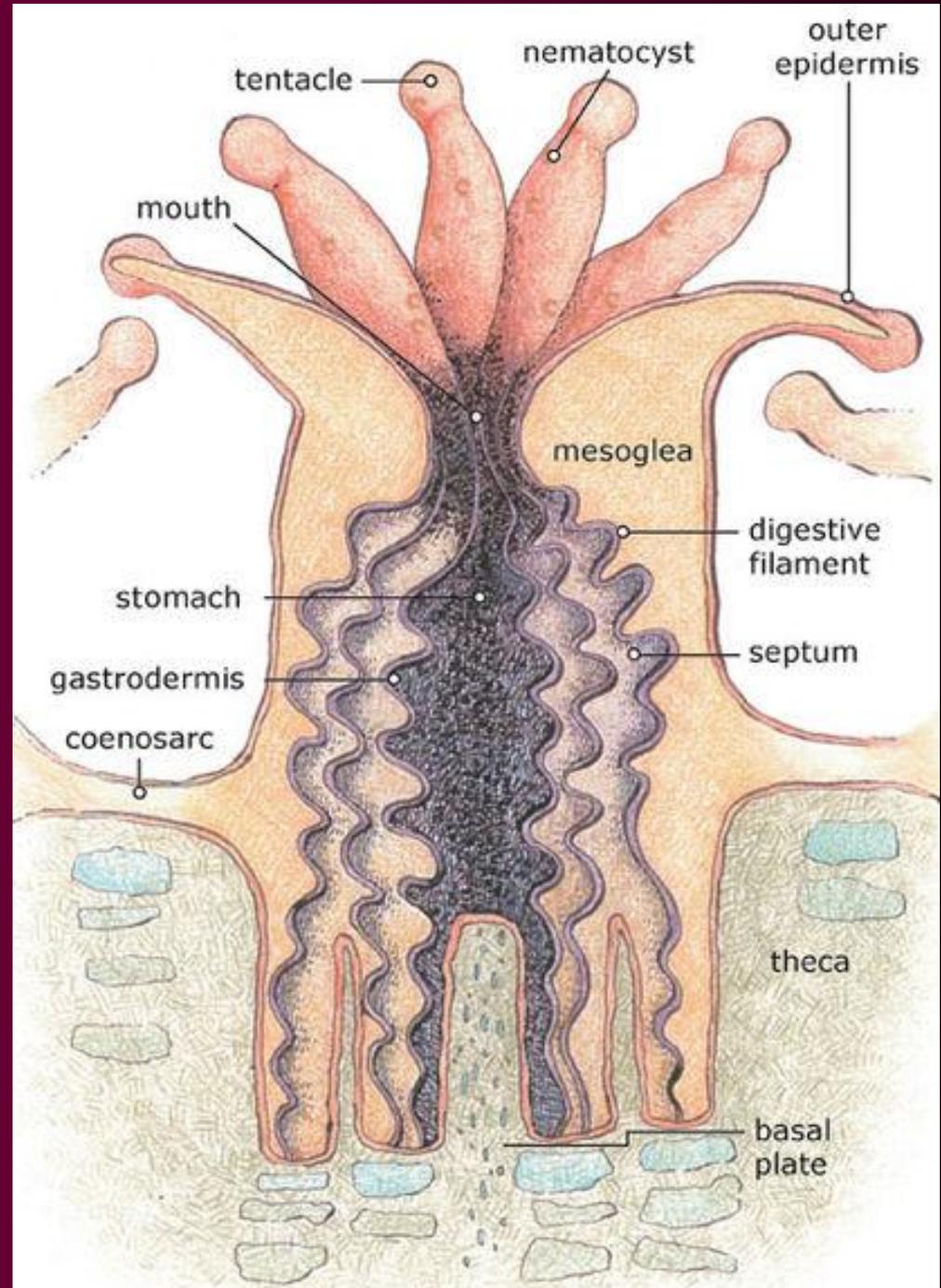


Favia

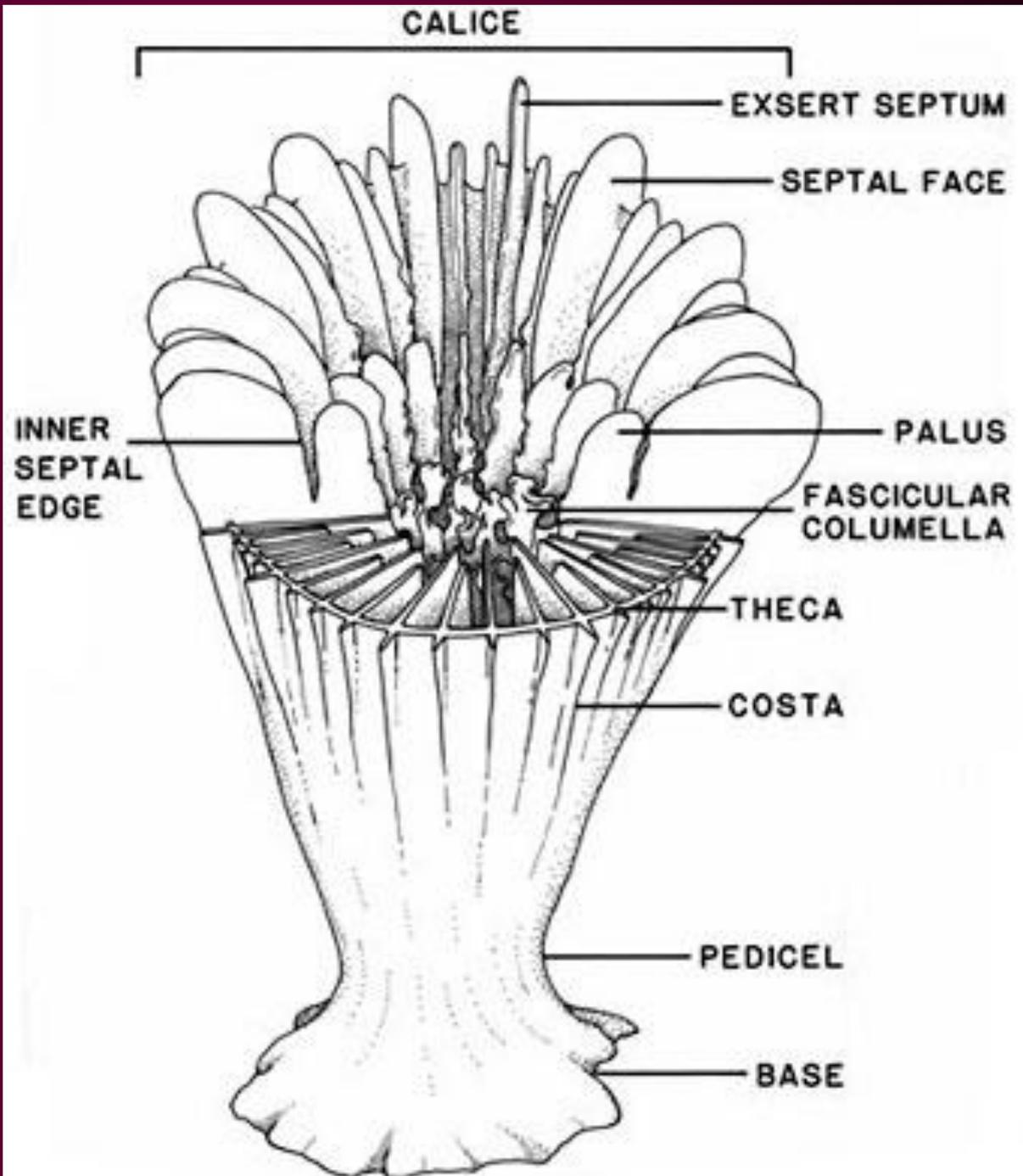


Meandrina

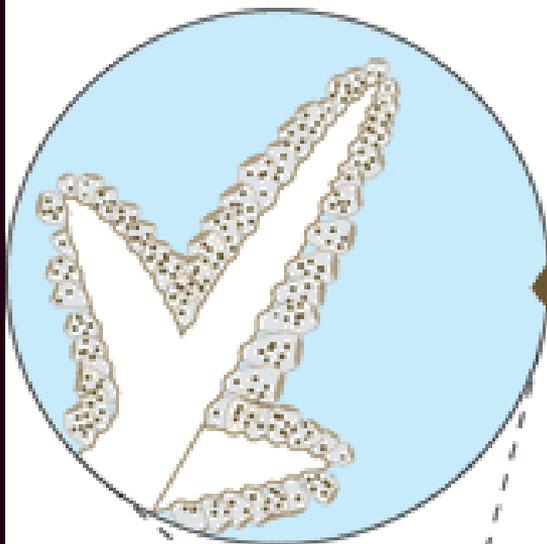
Anatomy of a coral polyp.



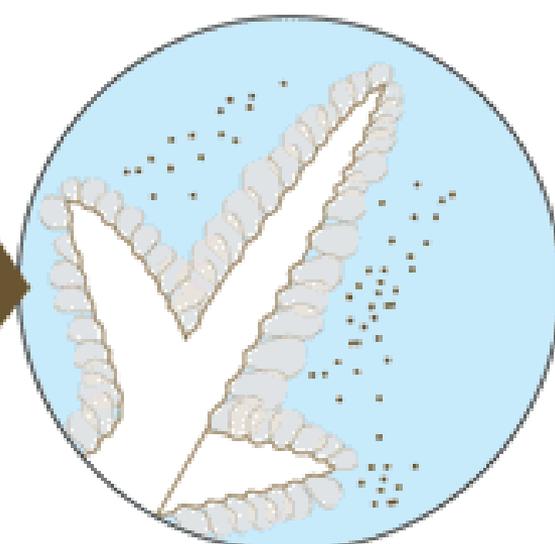
Skeleton of a compound coral.



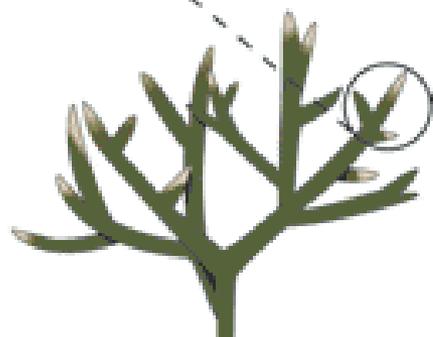
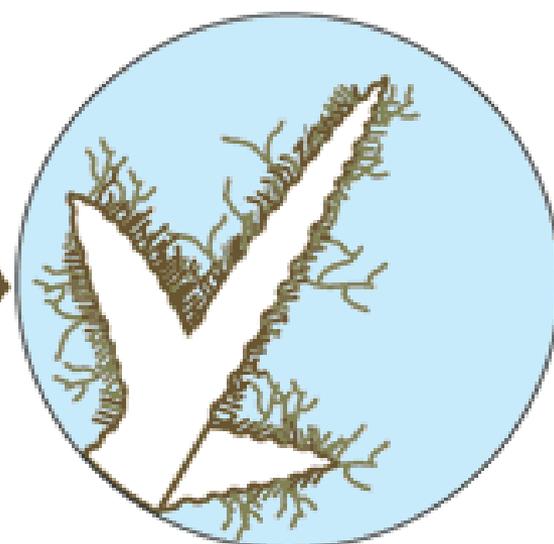
Healthy coral -
zooxanthellae
in coral tissue

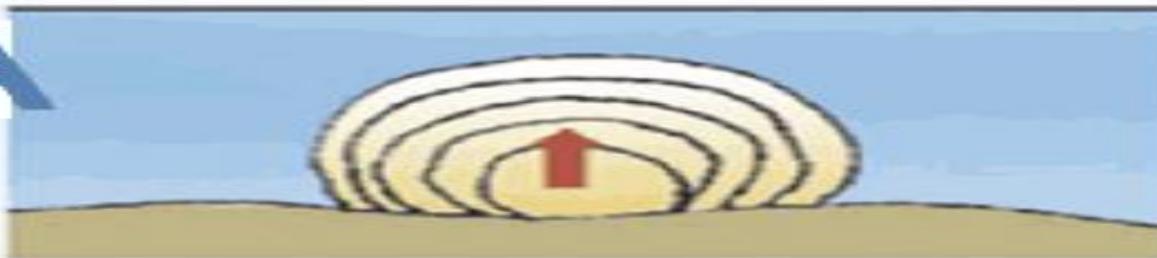


Bleached coral -
zooxanthellae expelled
from tissue

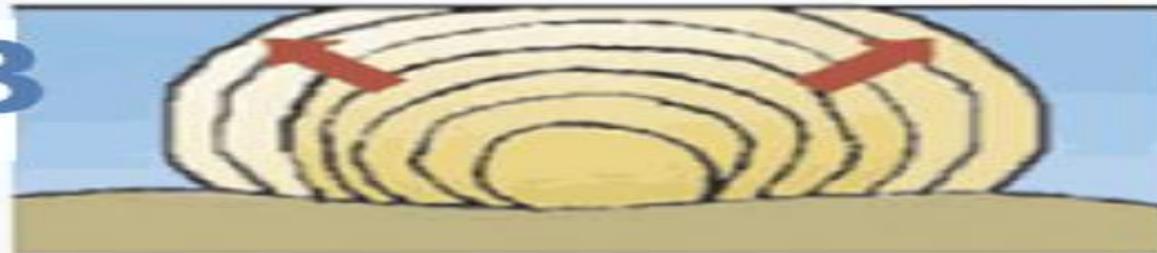


Dead coral -
skeleton covered in
filamentous algae

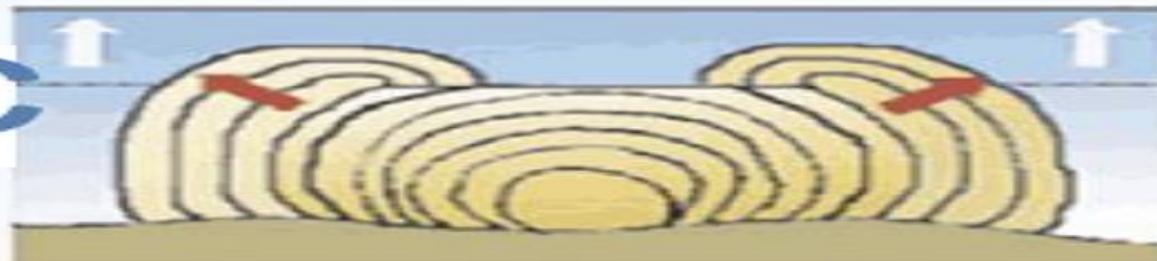


A

Coral grows up to low tide level.

B

Once at low tide level, coral can only grow sideways.

C

When the islands sink, coral continues to grow upward.

D

When the islands pop-up during an earthquake, the upper part of coral dies, but the lower part that is still under low tide level continues to grow.



Associate Fauna of Coral Reefs

Fringing reefs can grow around the coast, but coral raised above sea level dies and becomes white limestone. If the land subsides slowly, the fringing reefs keep pace by growing upwards on a base of dead coral.



An atoll is a special kind of reef that is ring-shaped and has a central lagoon. It is likely that Gilligan's Island was set in an partially formed atoll.

Barrier reefs are located at farther distance from the shore. A barrier reefs often encircles an island situated in the centre of a lagoon.



FRINGING REEF

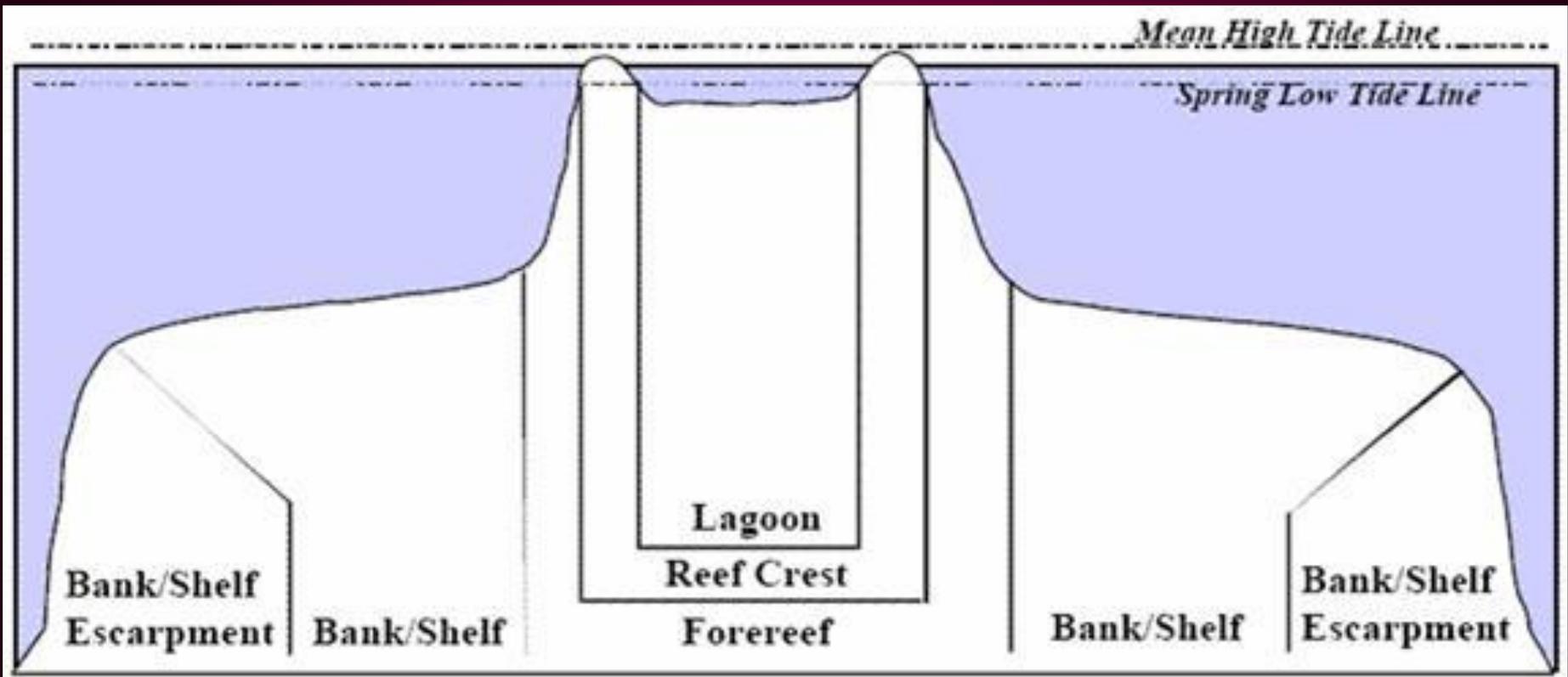


AN ATOLL REEF

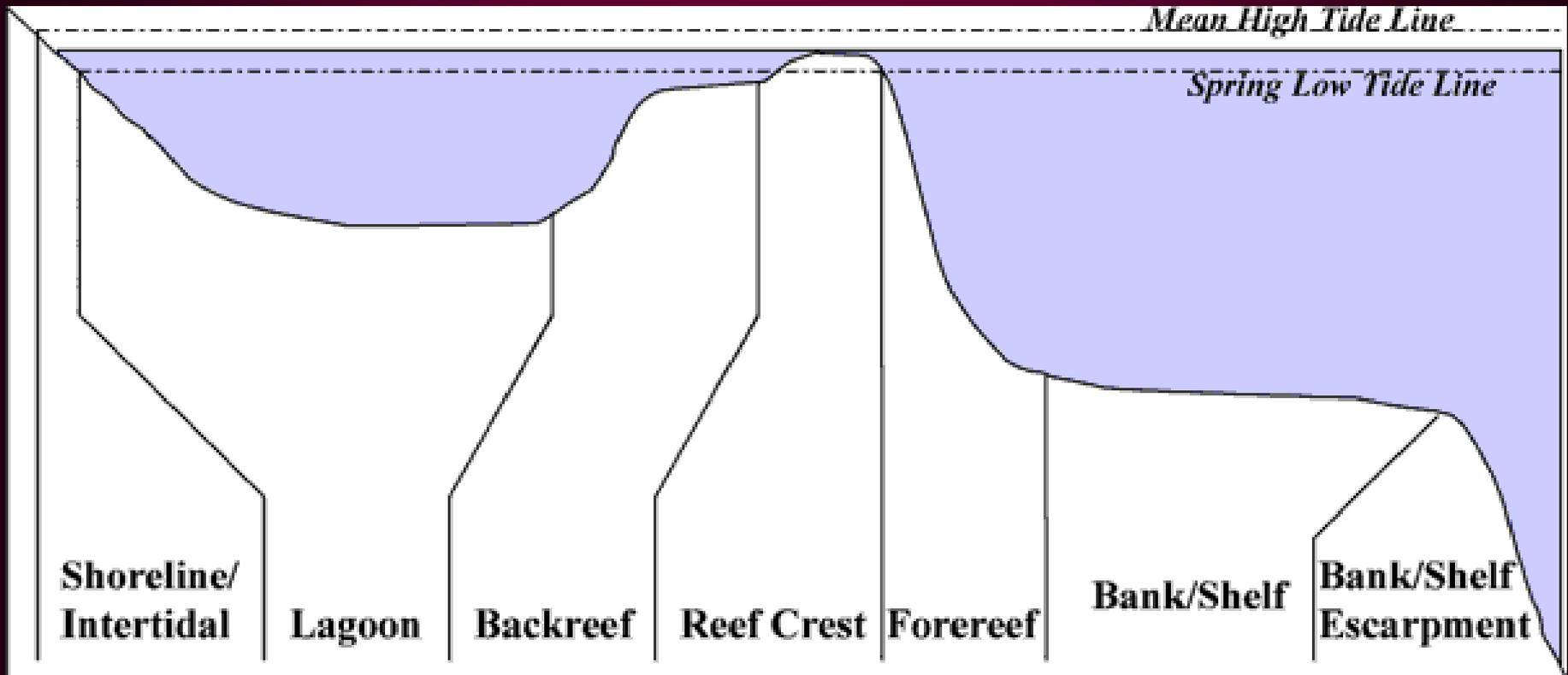


GREAT BARRIER REEF

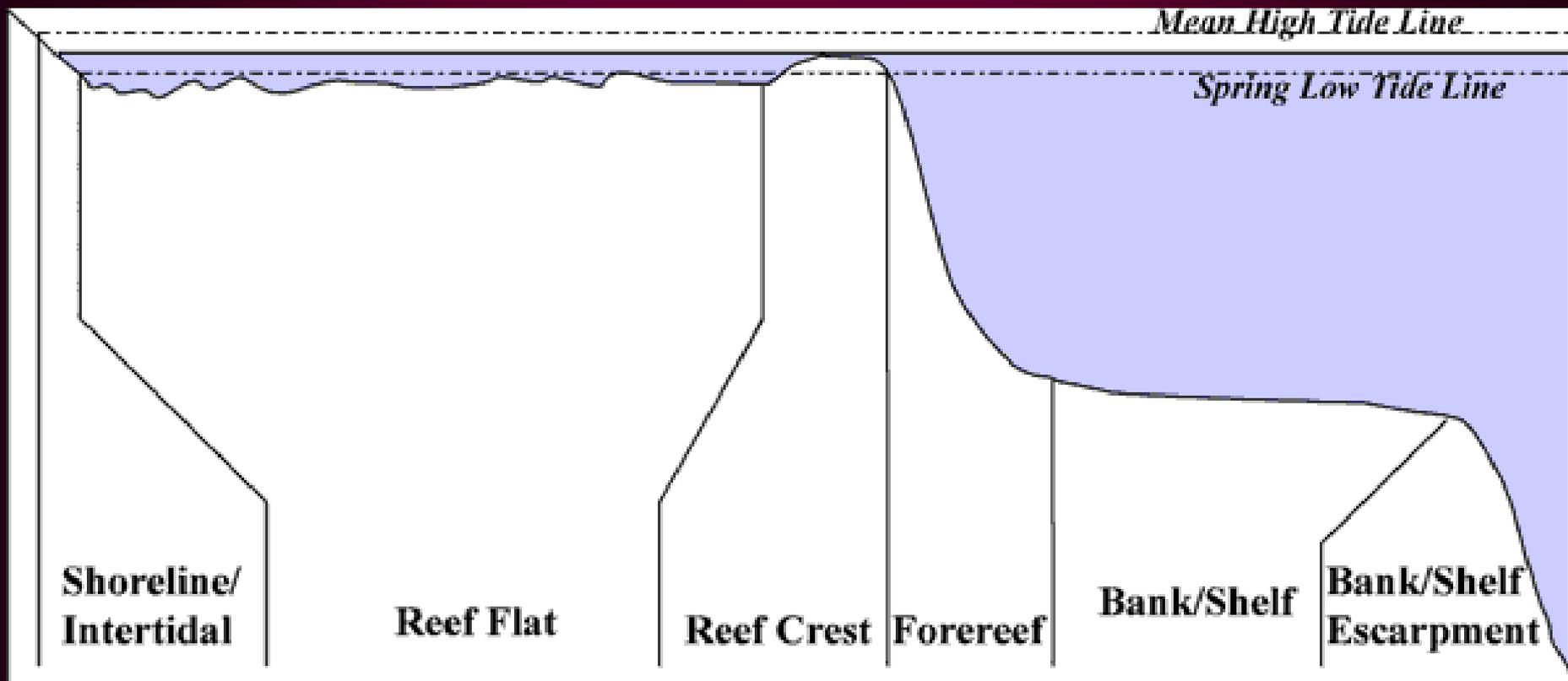




Barrier reef cross-section. Reef separated from the shore by a relatively wide, deep lagoon.



Fringing reef cross-section. Reef platform is continuous with the shore.



Atoll cross-section. Reef surrounding a lagoon

IMPORTANCE OF CORALS & CORAL REEFS

Reefs protect coastlines from harsh ocean storms and floods.

Coral reefs support a variety of commercial and artisanal fisheries including those for near shore fishes, crustaceans, and molluscs.

Coral reefs attract millions of scuba divers, snorkelers, and other tourists every year.

Some evidence suggests that corals and other reef inhabitants could potentially provide important medicines, including anti-cancer drugs, painkillers, and anti-inflammatory compounds.

NATIONAL & INTERNATIONAL REGULATIONS

Corals should not be collected, either alive or dead.

The Florida Fish and Wildlife Conservation Commission prohibits the collection of living or dead stony corals (Order Scleractinia) or fire corals (*Millepora* spp.) within Florida waters.

Collection of hard corals is also banned in Hawaii, Guam, and Puerto Rico.

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) regulates international trade of certain animals and plants. More specifically, the Convention regulates the import, export, re-export from the sea of certain plants and animals and corals:

- Indo-Pacific blue coral (*Heliopora coerulea*;
Family Helioporidae, Order Helioporacea)

- Organ-pipe coral (*Tubipora musica*;
Family Tubiporidae, Order Stolonifera)

- All corals in the Order Scleractinia
(1634 species of reef- building, stony corals)

- All corals in the order Antipatharia
(245 species of black corals)

ECONOMIC IMPORTANCE OF CORAL REEFS

- OIL INDUSTRY
- CURIO-TRADE
- HABITAT FOR PLANTS AND ANIMALS
- DECORATIVE VALUE
- AUSPICIOUS / PRECIOUS STONES
- MEDICINE
- BUILDING MATERIAL
- NATURAL BARRIERS
- NURSERY GROUNDS

NEW TECHNIQUES:

“GARDENING OF CORAL REEFS”

Minute coral fragments are cultured and
generated insitu nursery and then
transplanted when adult on the degraded
reef

Prof. Baruch Rinkevich

Oceanographic & Limnological Research, Haifa.

Prof . Yarl Haroszowski

University of Quebec.

Dr. Makoto omori
Akijama Marine Science
Laboratory (AMSL)
Okinawa, Japan.

World's first technique of
culturing and growing Acropora
Coral from egg to juvenile.

CONCLUSION

Nowhere on earth does life exhibit a greater diversity of form and colour than in coral reefs. In fact, the global warming and acidification has affected sea levels and the general health of oceans the world over. Since then coral reefs and marine species have been a major casualty of these phenomena. Hence there is a need to protect the most beautiful sight in the world, the splendid flower beds “THE CORAL REEFS”.

THANK YOU