

What are benthos ?

Benthos is the community of organisms which live on, in, or near the seabed, also known as the benthic zone. This community lives in or near marine sedimentary environments, from tidal pools along the foreshore, out to the continental shelf, and then down to the abyssal depths.

Tidal pools:-



Continental shelf:-



Classification of benthos:-

According to:-



Endobenthos:-

Endobenthos lives buried, or burrowing in the sediment, often in the oxygenated top layer, i.e., a sea pen or a sand dollar.





Sea pen

Sand dollar



Epibenthos:

Epibenthos lives on top of the sediments, i.e., like a sea cucumber or a sea snail crawling about.



sea cucumber

sea snail



Macrobenthos:-

Macrobenthos comprises the larger, more visible, benthic organisms that are greater than 1 mm in size. Some examples are polychaete worms, bivalves, echinoderms, sea anemones, corals, sponges, sea squirts, turbellariansand larger crustaceans such as crabs, lobsters and cumaceans





Microphotograph of typical macrobenthic animals, (from top to bottom) including amphipods, a polychaeteworm, a snail, and achironomous midge larvae

Echinoderms

Meiobenthos:-

Meiobenthos comprises tiny benthic organisms that are less than 1 mm but greater than 0.1 mm in size. Some examples are nematodes, foraminiferans, water bears, gastrotriches and smaller crustaceans such as copepods and ostracodes.



Live foraminifera



Water bear



Copepod

Microbenthos:-

Microbenthos comprises microscopic benthic organisms that are less than 0.1 mm in size. Some examples are bacteria, diatoms, ciliates, amoeba, flagellates



ciliates



flagellates



Zoobenthos:-

Zoobenthos comprises the animals belonging to the benthos.

Phytobenthos:-

Phytobenthos comprises the plants belonging to the benthos, mainly benthic diatoms and macroalgae (seaweed).



Benthic plants restricted to Shallow depths. WHY?

Seagrass growing off the coast

Because they need light to complete photosynthesis

How have deep-sea fish adapted to high water pressure?

The animals have a developed ways to cope with the deep ocean's intense water pressure. This force, which is the result of the weight of a column of water pushing down, is so strong in the bathypelagic zone that it would crush anything with air in it. That would be a problem for most fish, since many of them have a gas-filled organ called a swim bladder a large, thin-walled sac in some fishes that may function in several ways, e.g., as a buoyant float, a sound producer and receptor, and a respiratory organ. that helps them stabilize their bodies at different water depths.

But many deep-sea fish have adapted to life without a swim bladder. Without the bladders, "[deepsea fish] don't have gas spaces in them that would cause them to get crushed,"

Why aren't benthos sea fish crushed by water pressure?

Fish have water in their bodies so the amount of water pressure pushing down on them equals out to the amount of water in side the fishes.

Food sources:-

The main food sources for the benthos are algae and organic runoff from land.

The depth of water, temperature and salinity, and type of local substrate all affect what benthos is present.

In coastal waters and other places where light reaches the bottom, benthic photosynthesizing diatoms can proliferate. Filter feeders, such as sponges and bivalves, dominate hard, sandy bottoms. Deposit feeders, such as polychaetes, populate softer bottoms. Fish, such as dragonets, as well as sea stars, snails, cephalopods, and crustaceans are important predators and scavengers

The end