

## Tags

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## Mod 13 Aquatic Biomes

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Recall terrestrial biomes are defined by temperature and precipitation (rain)

Aquatic biomes are by definition underwater, so they are defined by

- Depth: how deep is the deepest part, how much photosynthesis is possible
- Distance from shore: shallow water has more life, more things to attach to, more biodiversity

We separate aquatic biomes into freshwater (lakes, rivers, streams) and saltwater (oceans, estuaries)

### Freshwater biomes:

Riparian=river

Limnetic=lakes

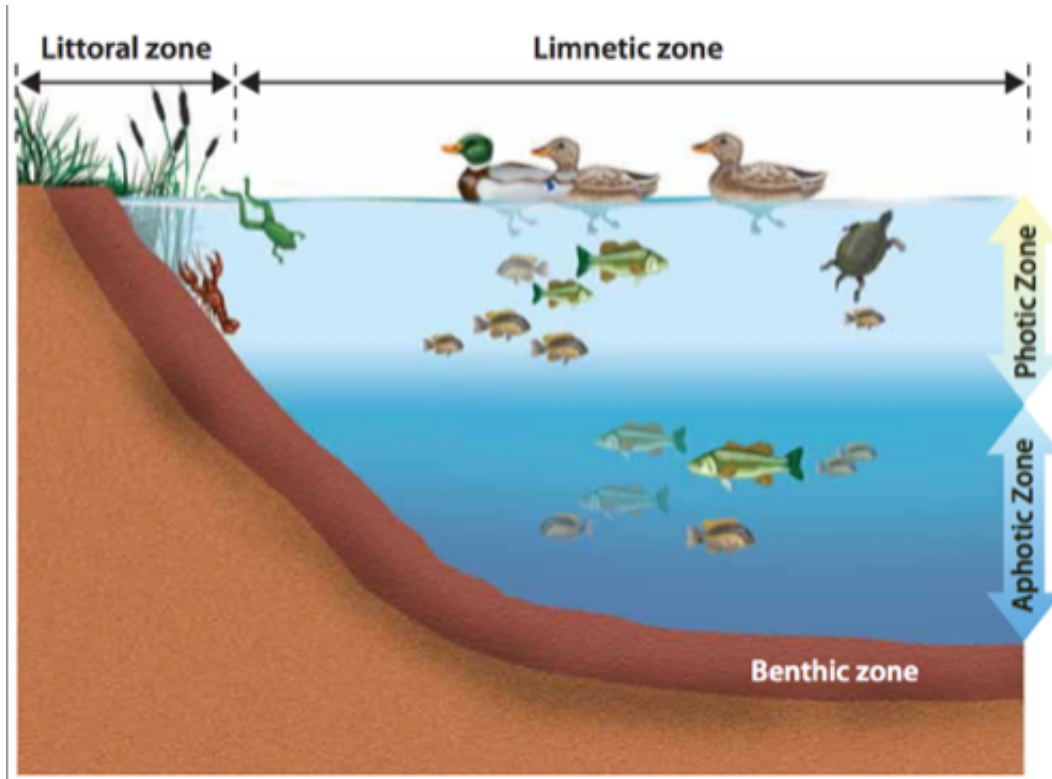
### Lakes:

Shallow shore area=littoral (means shallow), see the "littoral Navy", photosynthesis here (shallow, light shines through)

Open water area=limnetic zone, no rooted plants (too deep), phytoplankton here, only as deep as sunlight can penetrate

Deep water=profundal ("profound") or deep zone: no light penetrates, bacterial decomposition.

Bottom=benthic zone: mud, dark, cloudy



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**Productivity:** note usually related to photosynthesis (plants)

Oligo (few) trophic=low productivity

Meso (middle) trophic=medium

Eutrophic (eu=good trephien=food)=lots of productivity (sometimes too much, like in "Poisoned Waters")

Freshwater wetlands–submerged most of the time (swamps, marshes, bogs) this is the history of all coal and oil we now use

**Salt marsh:** usually connected to the sea, act as a coastal buffer for Hurricanes, very productive, many nutrients, lots of organic material

**Mangrove swamp:** special version of this in Tropical areas (e.g. Florida)

**Intertidal zone:** area between high and low tide or seasonal variations

### **Ocean zones:**

Coral reefs–see coral bleaching, pH, temperature and salinity sensitive (see Hamakua coast vs. Puako)

Intertidal zone: between high and low tide

Photic (light) zone–shallow, photosynthesis, kelp, others

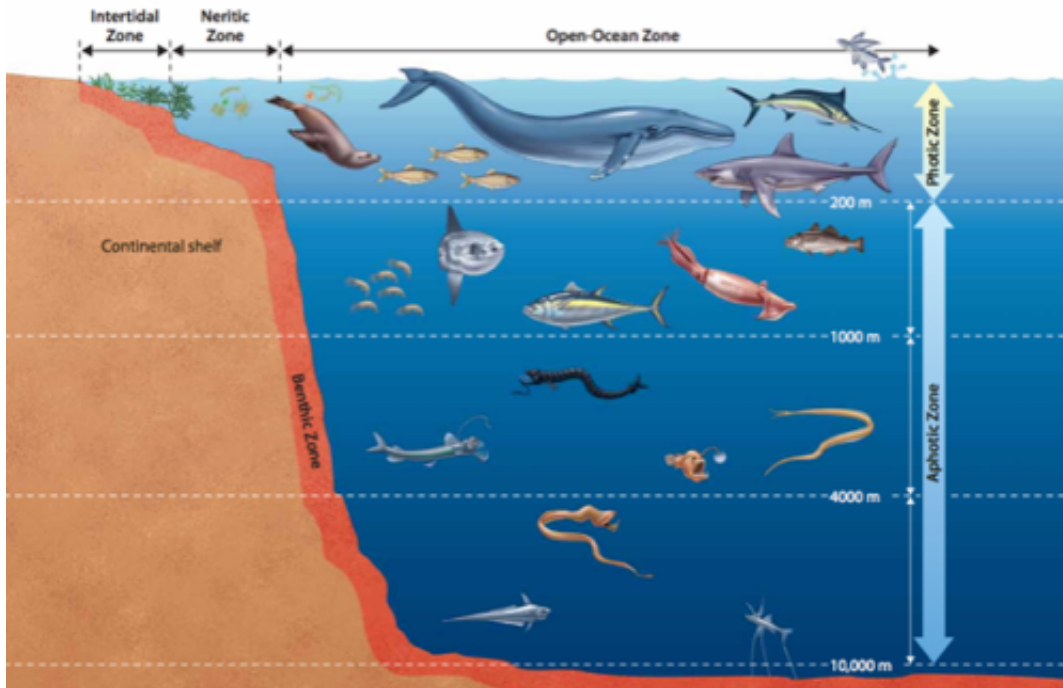
Aphotic (dark) zone–too dark for photosynthesis

Chemosynthesis/thermosynthesis: deepwater steam vents, based on Sulfur instead of Oxygen, bacteria generate energy with methane ( $\text{CH}_4$ ) and  $\text{H}_2\text{S}$  (instead of  $\text{H}_2\text{O}$ )

Benthic=deep ocean

Pelagic=open ocean (think of big sailing ships, whales, stuff like that)

Hadal zones: like Hades: deepest, darkest zones. Weird fish, no light...



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Biodiversity next:

[http://physics.hpa.edu/groups/apenvironmentalscience/weblog/542a8/Biodiversity\\_and\\_Extinction\\_Ch\\_5\\_Mods\\_1417.html](http://physics.hpa.edu/groups/apenvironmentalscience/weblog/542a8/Biodiversity_and_Extinction_Ch_5_Mods_1417.html)