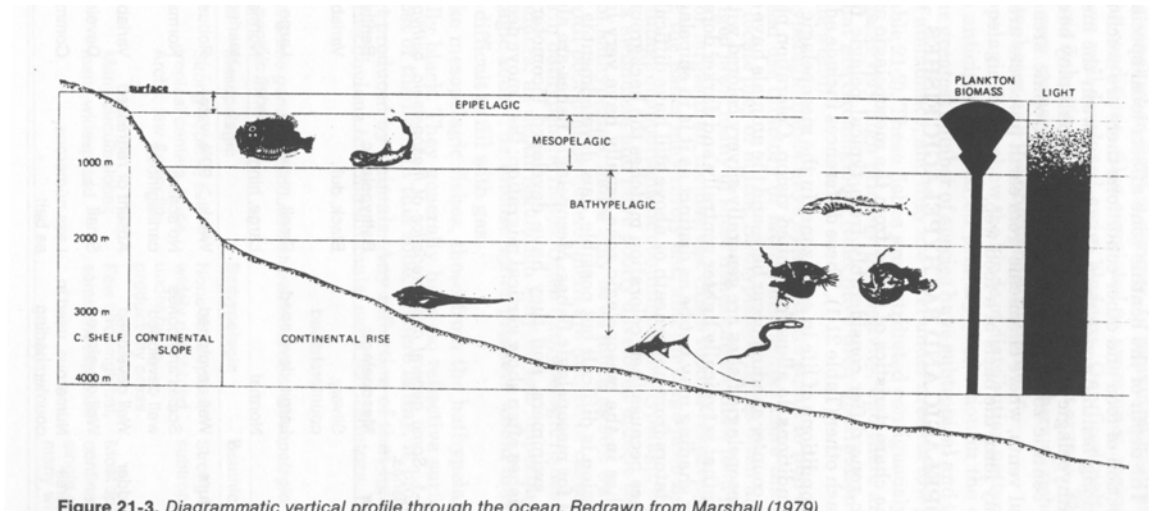


Biol 541 – Ecology of Fishes and Fisheries Biology

Lecture on deep-sea fishes

What defines the deep sea?

Consists of the mesopelagic, bathypelagic and deepwater benthic zone.



Volume of earth's oceans: 98% of water is below 100 m; 75% below 1000 m

-- mesopelagic: from about 100-200 m to 1000 m, depending on light penetration

-- bathypelagic: below 1000 m to above sea bottom -- virtual darkness

-- deepwater benthic zone: ocean floor -- under the mesopelagic and bathypelagic zones

Diversity

More deep-sea fishes in lower latitudes

Most of the fishes belong to two families: the bristlemouths and the lanternfishes.

Adaptations

Table 21-1. *Some general characteristics of mesopelagic, bathypelagic, and benthic fishes.*

Character	Mesopelagic	Bathypelagic	Benthic
Color	Silvery, countershaded	Black, dull,	Variable
Eyes	Large, developed	Small, regressed	Large, developed
Jaws	Normal	Large, hinged	Normal, tearing teeth
Musculature	Well developed	Weak, > 90% water	Robust
Skeleton	Scales and bones well developed	No scales, cartilaginous	Normal
Swim bladder	Well developed	Absent or regressed	Variable
Gills	Well developed	Small	Developed
Photophores	Numerous, used in countershading	Less numerous, as bait	Common

Mesopelagic fishes:

Bathypelagic fishes:

Deepwater Benthic Fishes:

Reproduction

General Ecology

Bioluminescence:

Physical factors:

-- temperature

-- light

-- pressure

-- bottom topography

Chemical factors:

Oxygen minimum layer:

Biological factors:

-- predation

-- competition