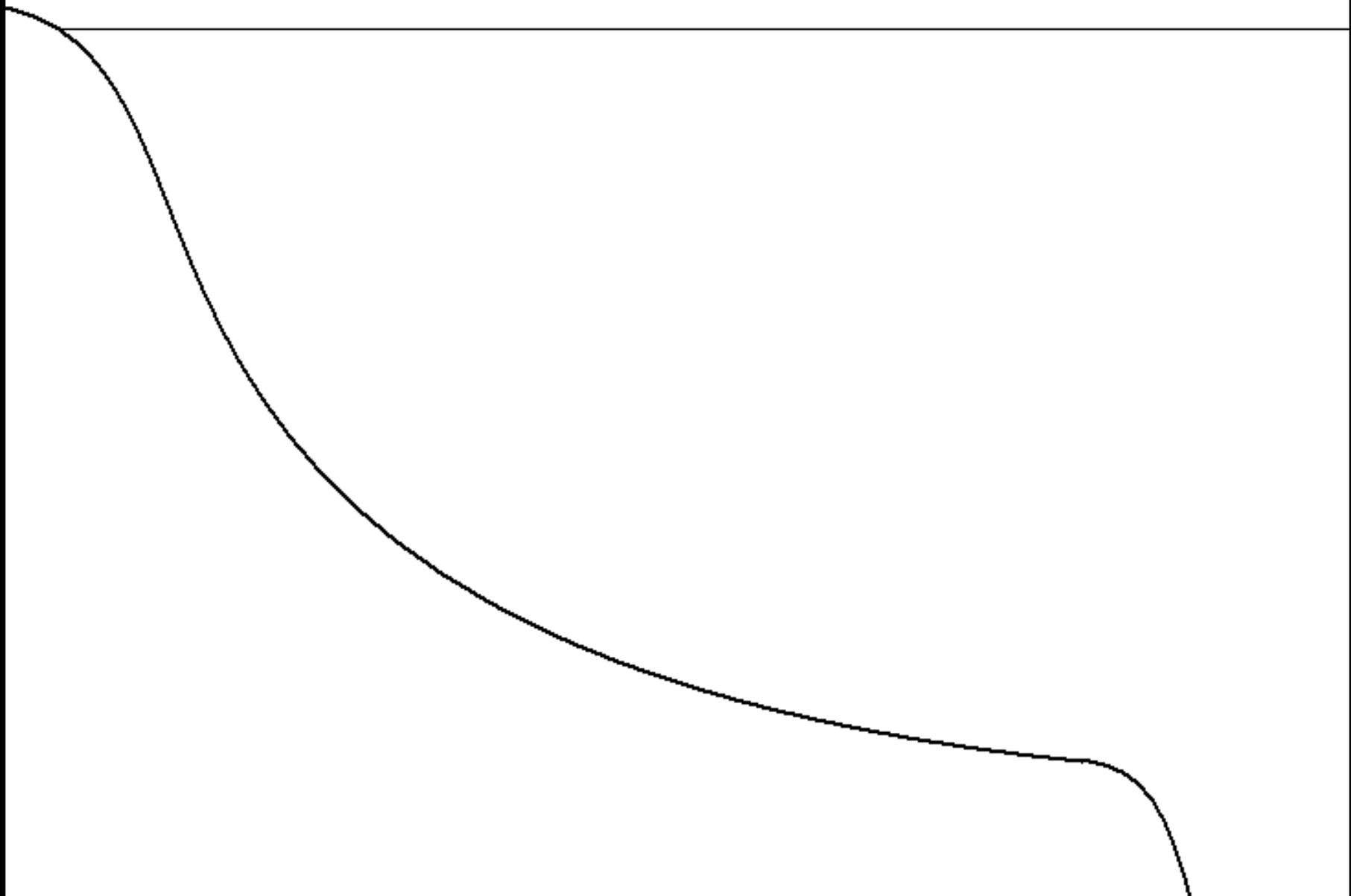
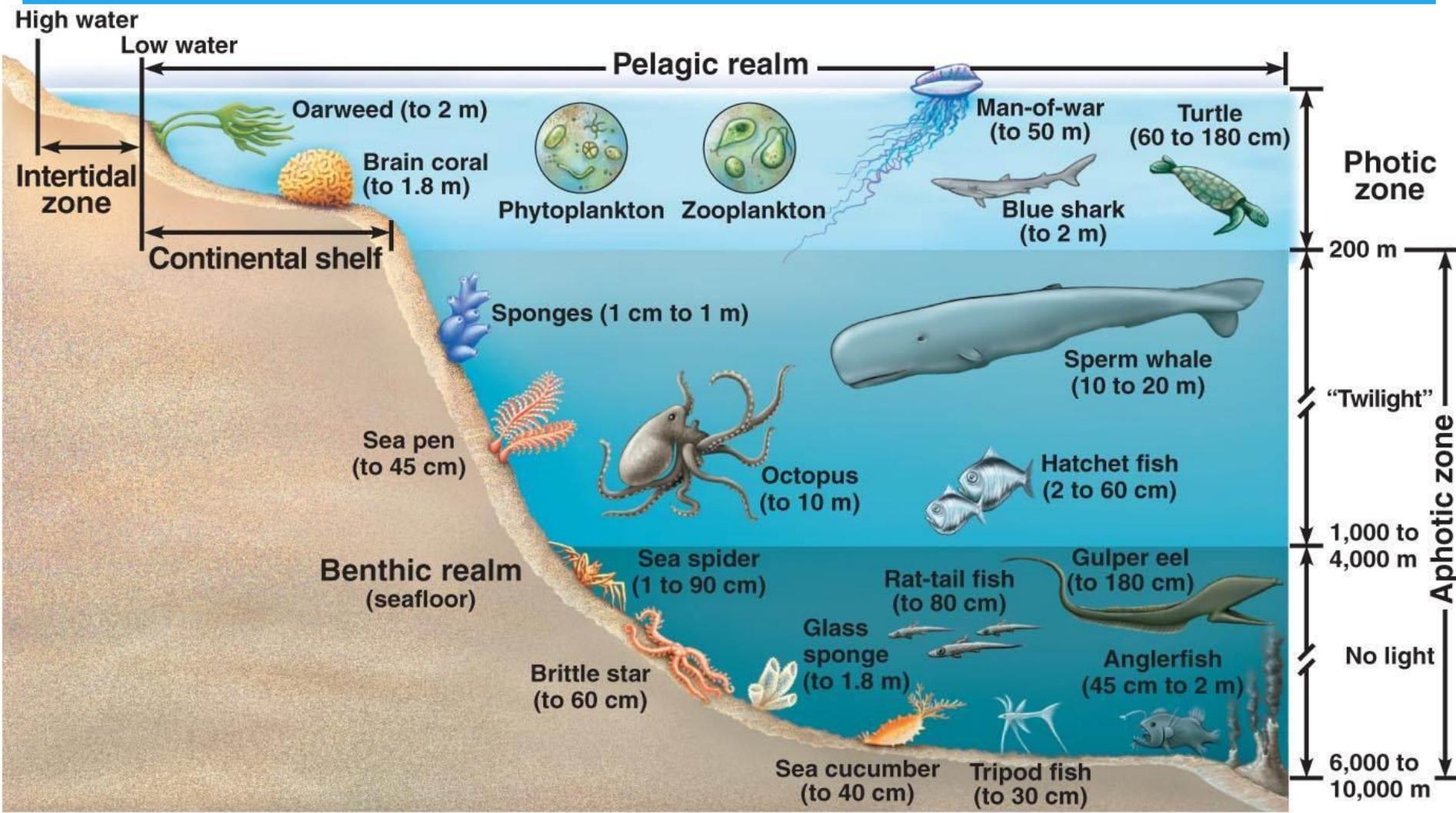


An aerial photograph of a vast, turbulent ocean. The water is a deep, vibrant blue, with numerous white-capped waves and eddies visible across the surface. The perspective is from a high angle, looking down at the water's surface. The sky is a pale, clear blue, occupying the top portion of the frame. The overall scene conveys a sense of immense scale and natural power.

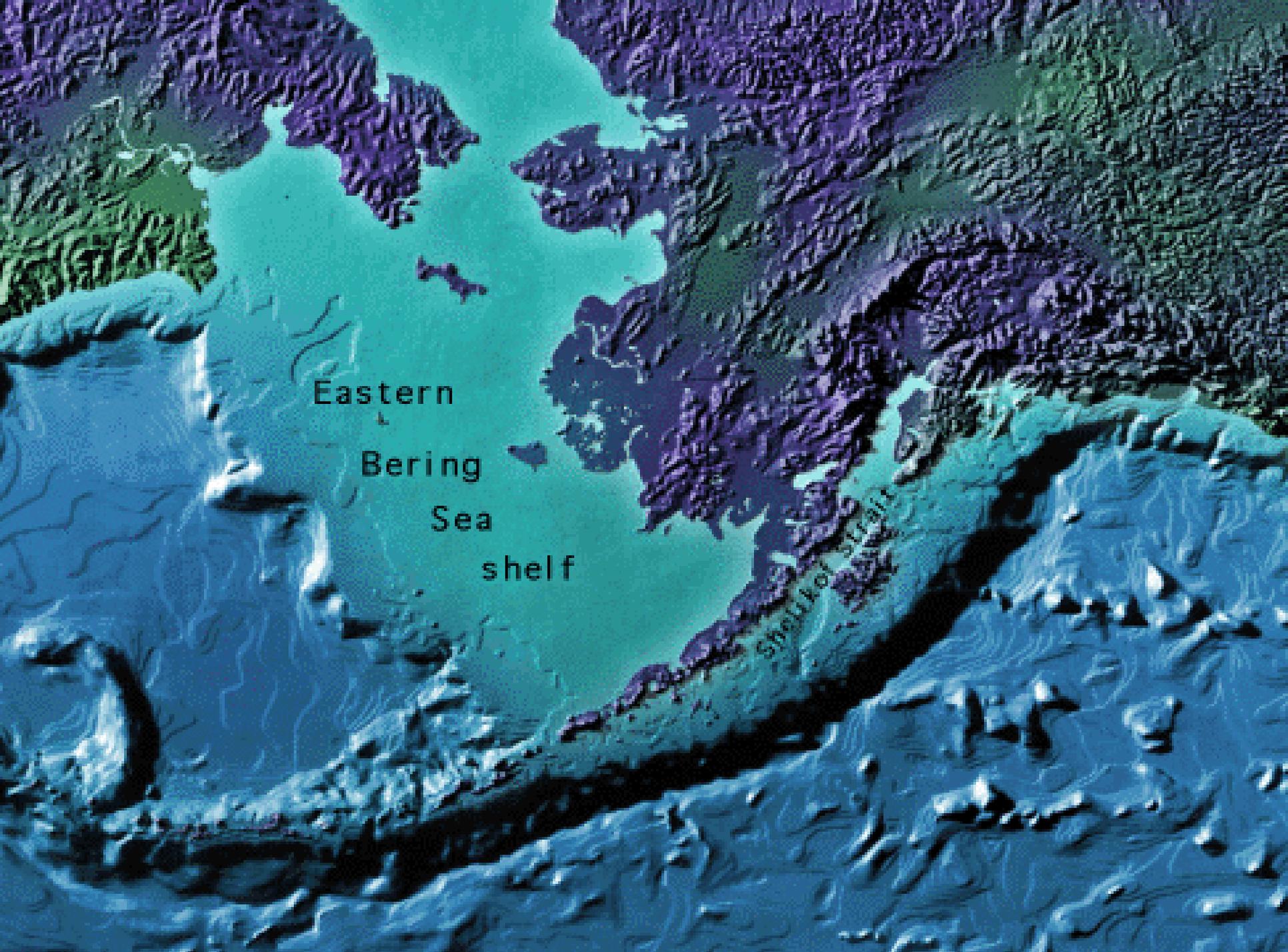
The Ocean as a Habitat

Zones and Stratifications





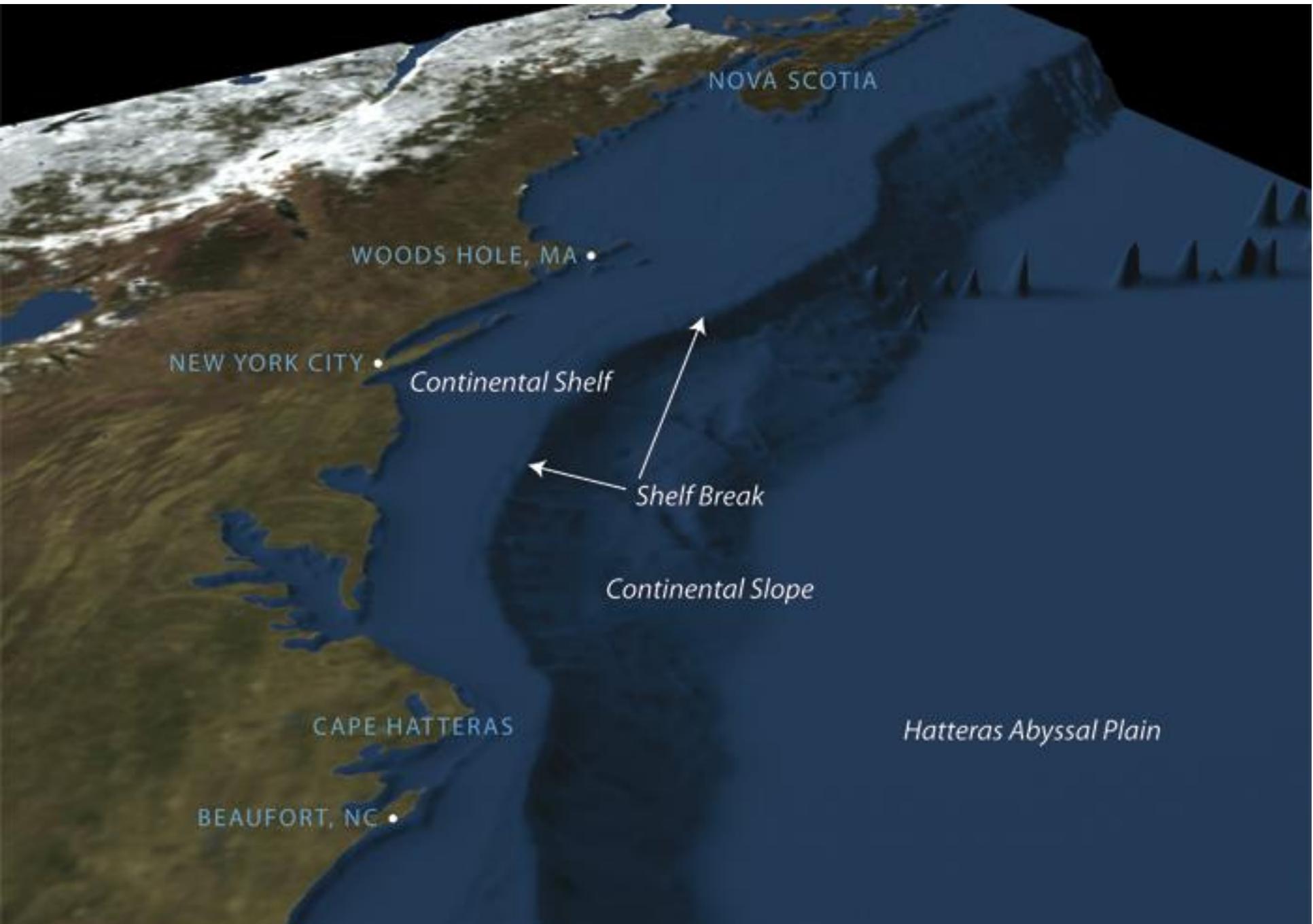
* Continental Shelf- The relatively smooth underwater extension of the edge of a continent that slopes gently seaward to a depth of about 200m



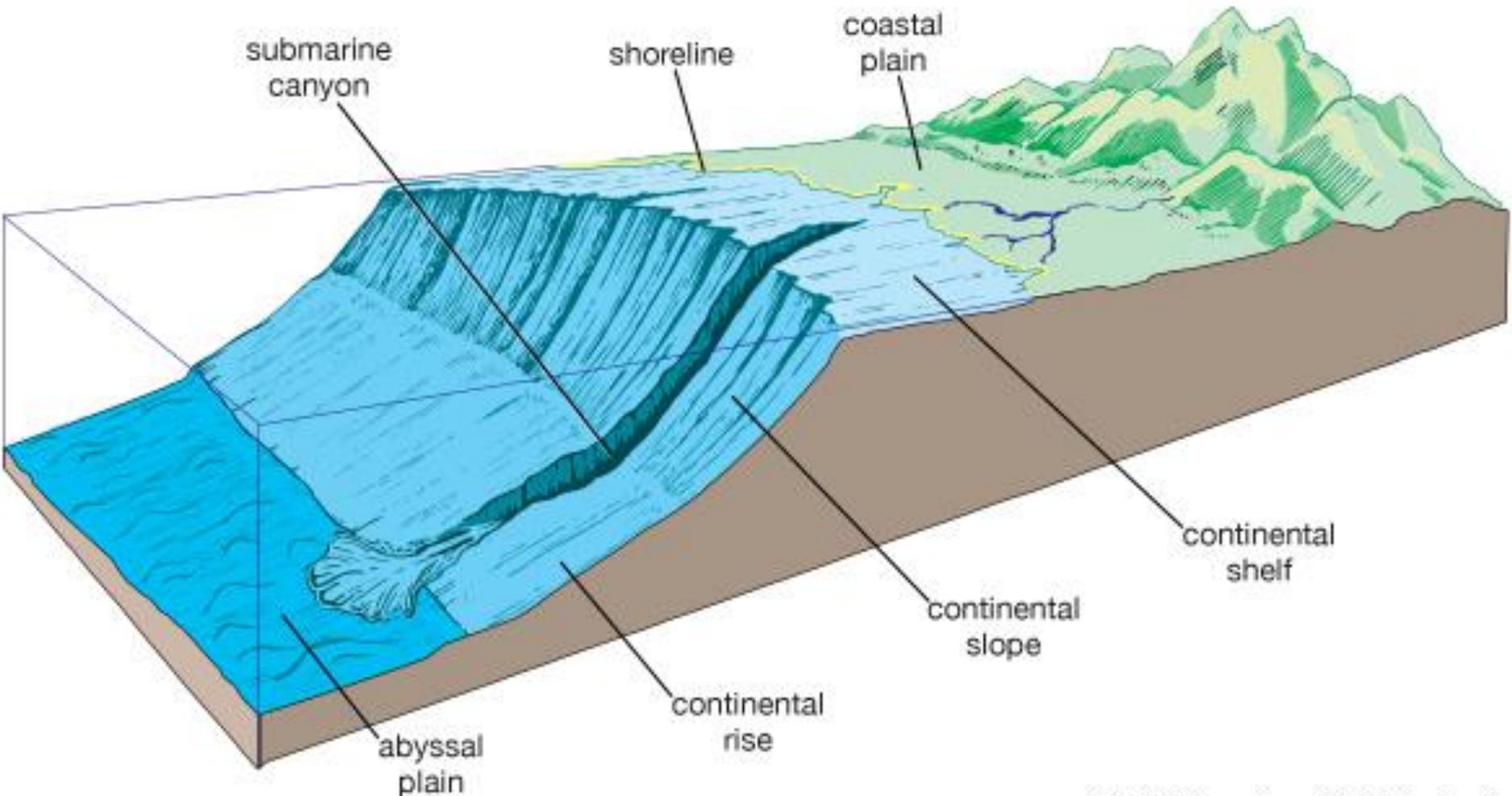
Eastern
Bering
Sea
shelf

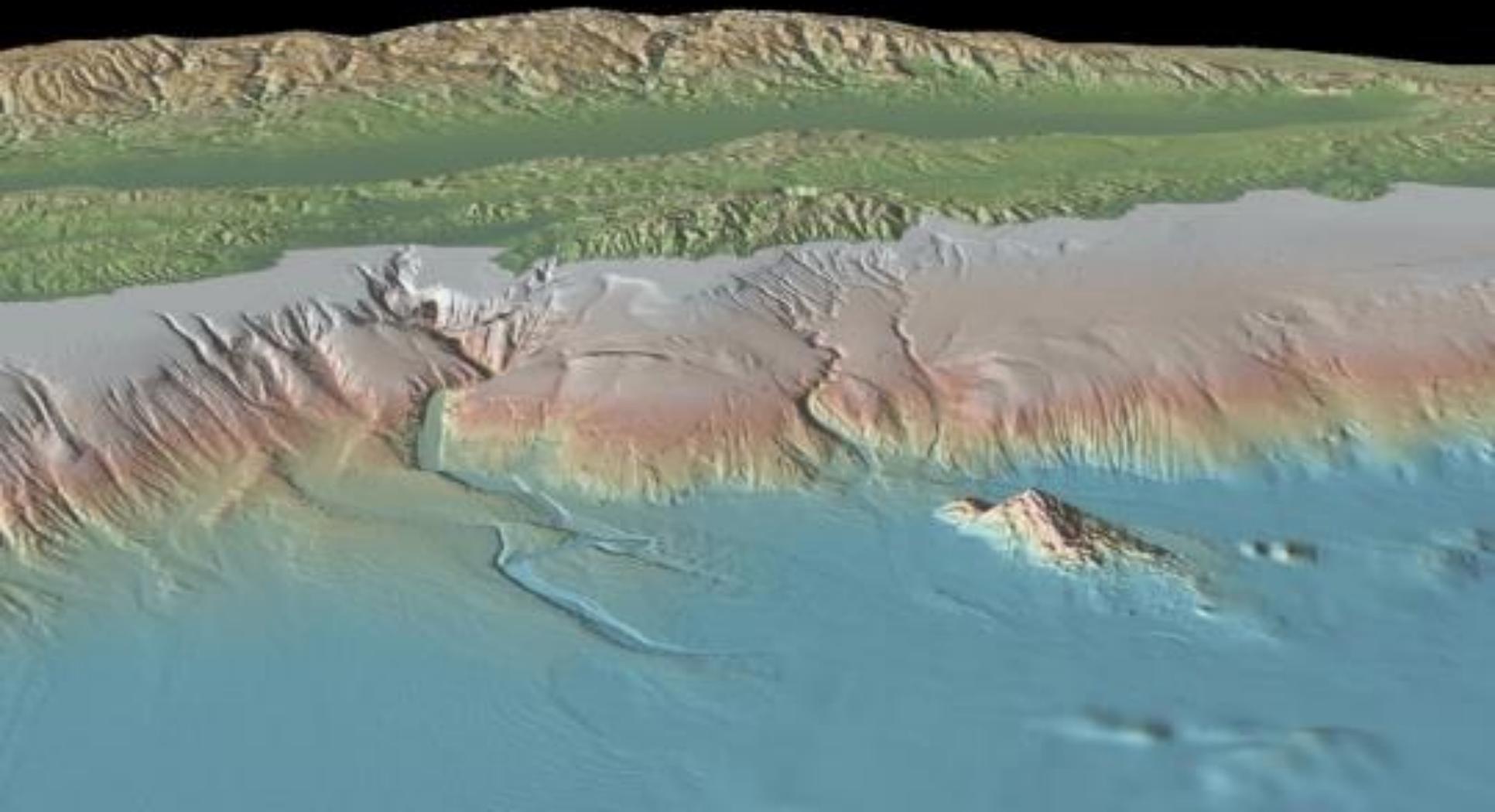
Shalwof
Strait

* Shelf break- The outer edge of the continental shelf, typically 120m – 200m deep



* Continental slope- The relatively steep portion of the sea bottom between the outer edge of a continental shelf and the deep ocean basin

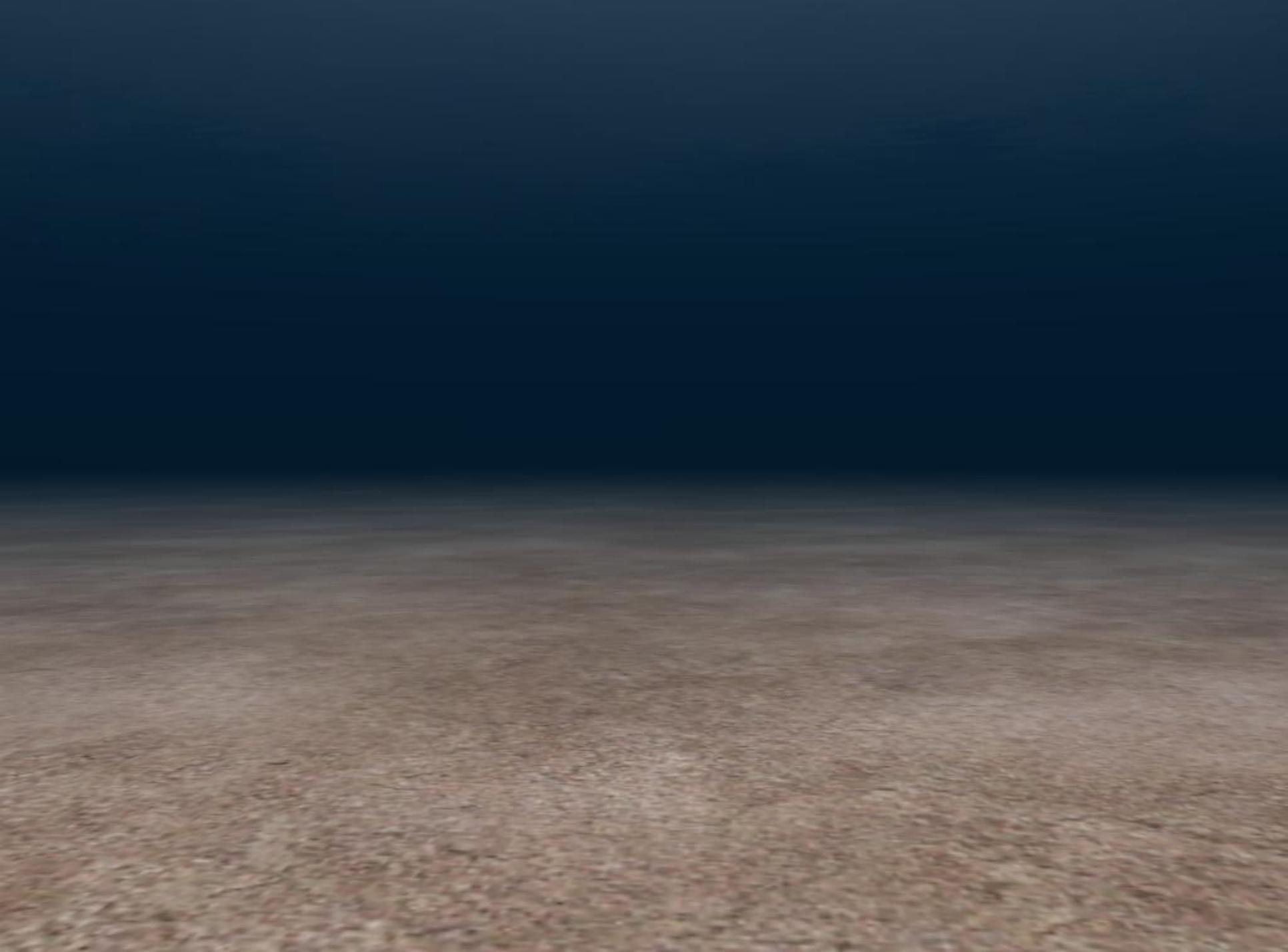


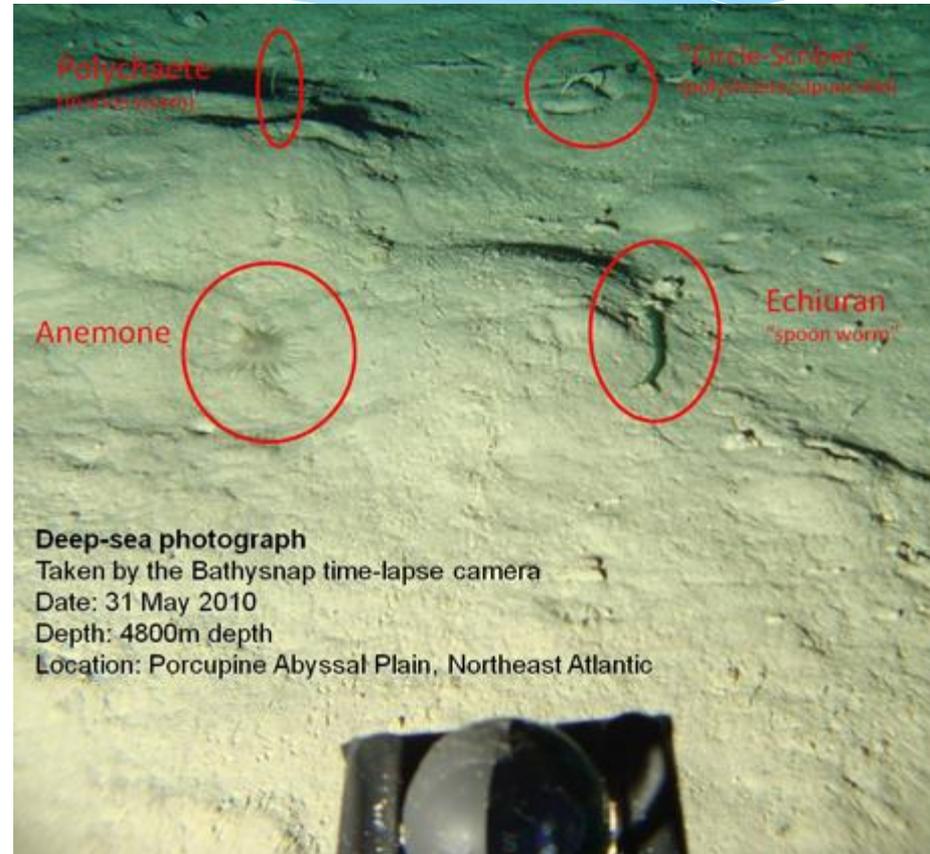
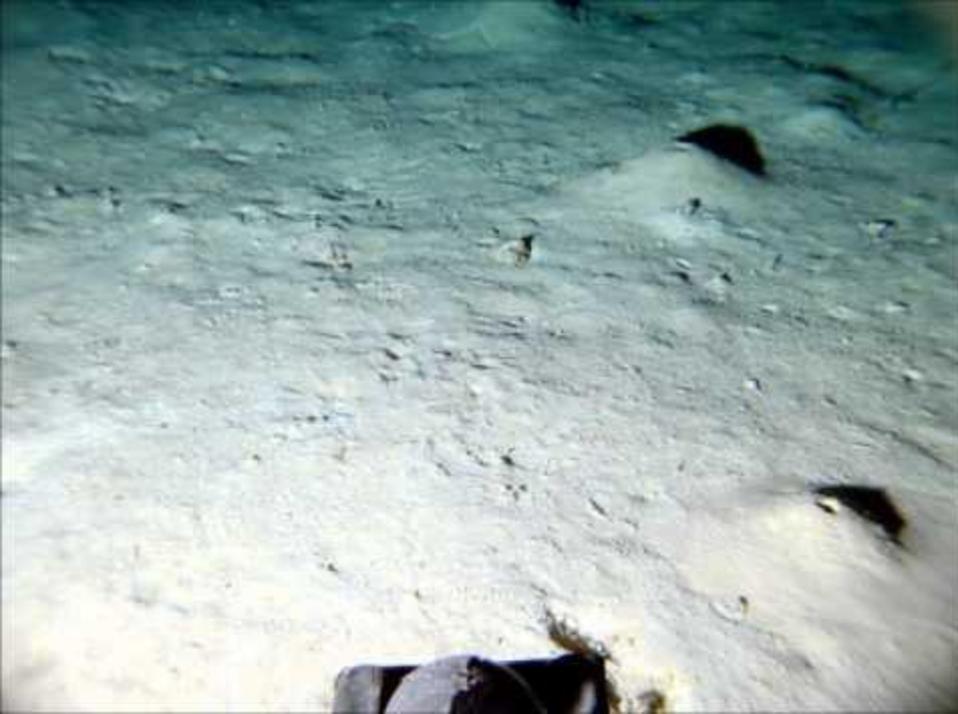


* Abyssal Plains- Flat, sediment-covered areas in the ocean basin usually 3,000m – 5,000m deep



Demerara Abyssal Plain

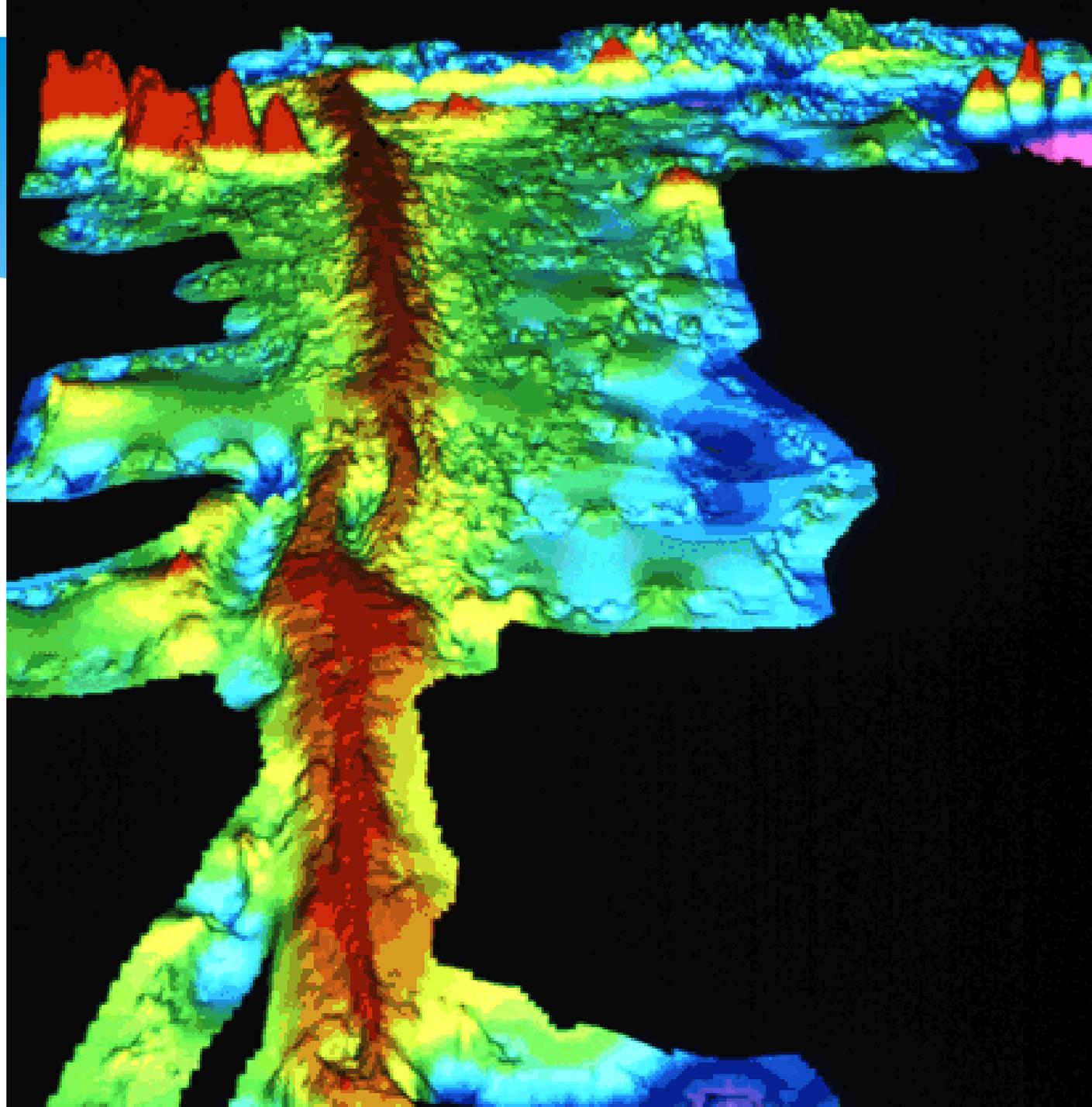


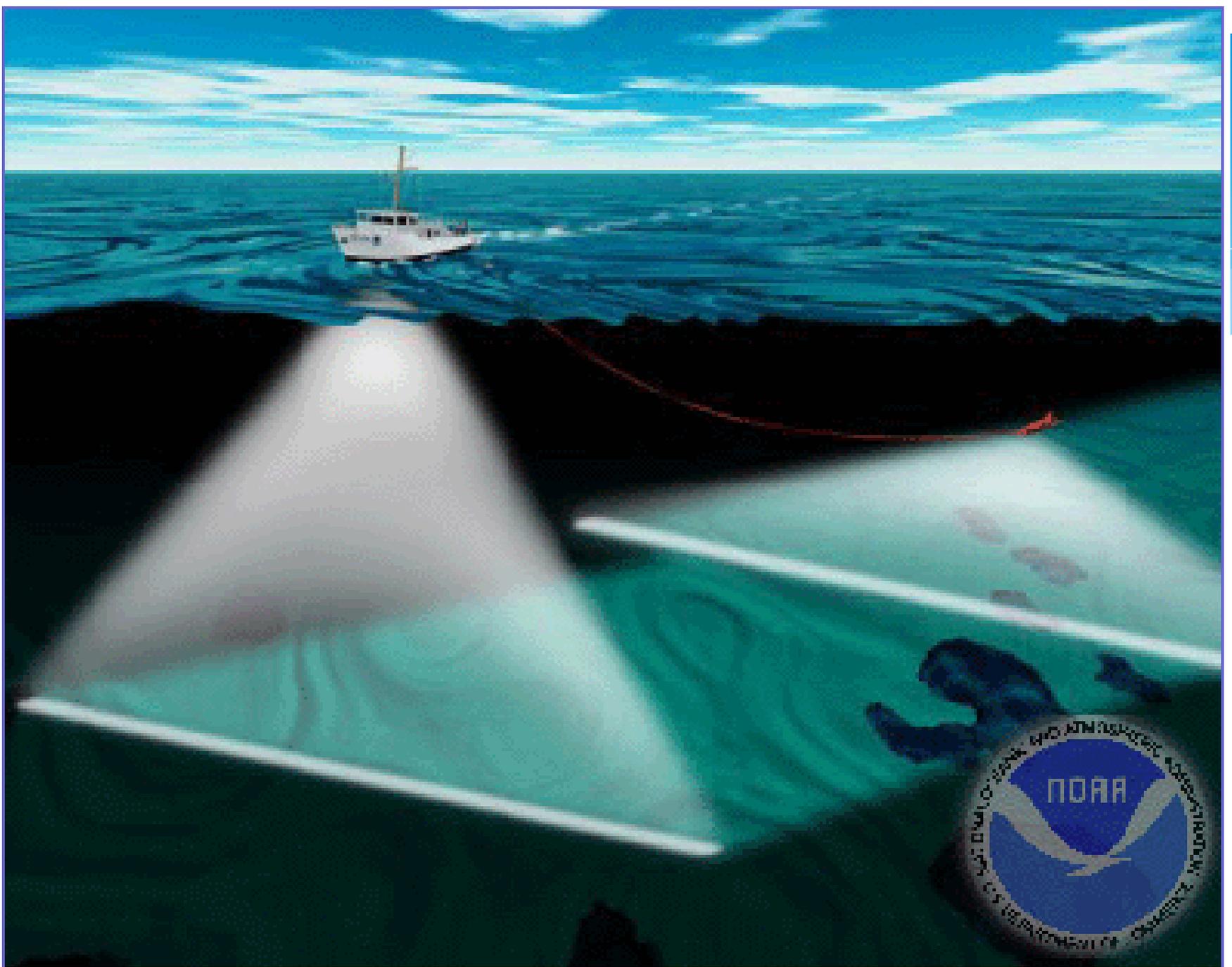


Deep-sea photograph
Taken by the Bathysnap time-lapse camera
Date: 31 May 2010
Depth: 4800m depth
Location: Porcupine Abyssal Plain, Northeast Atlantic

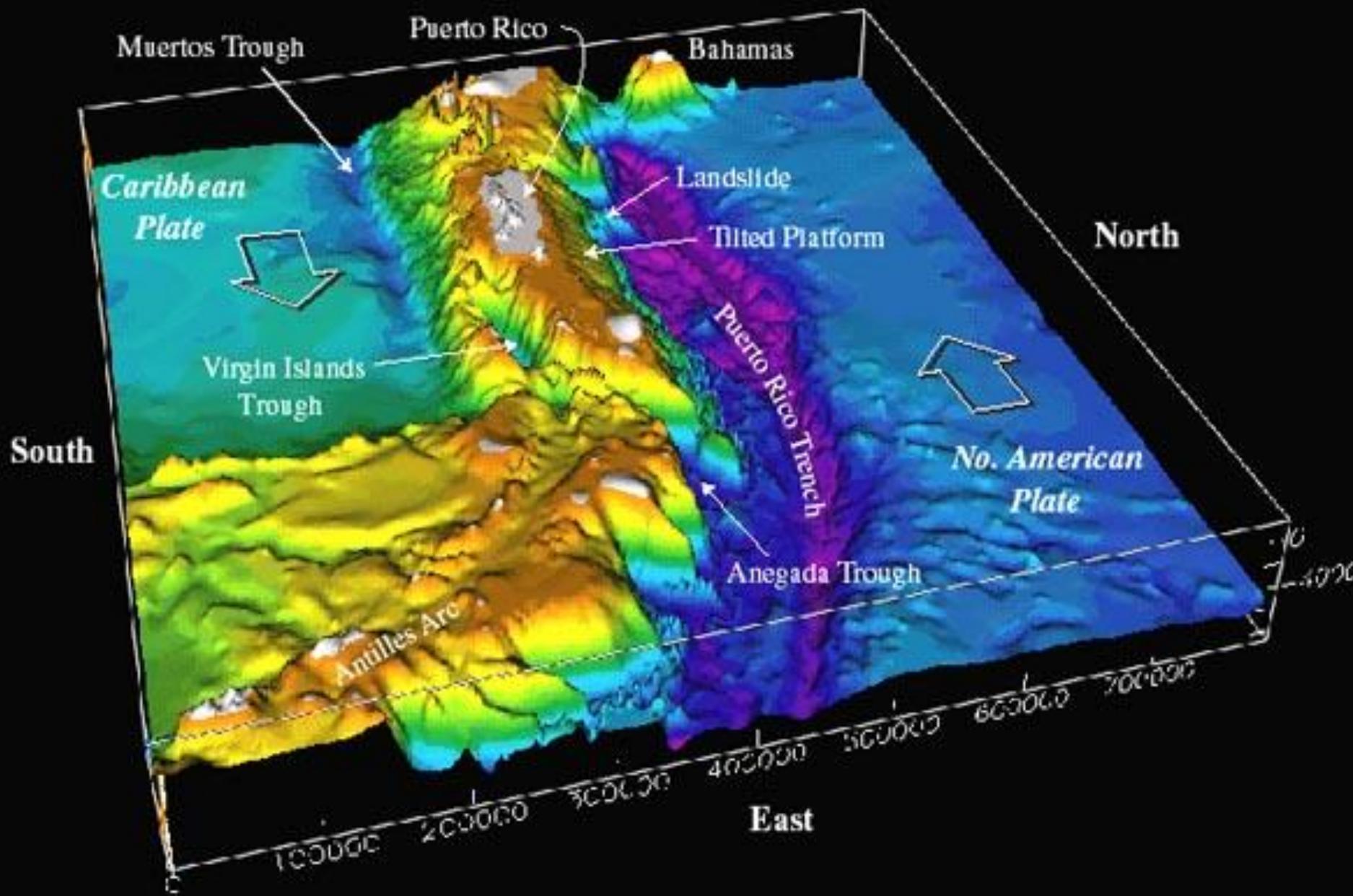


*Ridge and Rise System-
The interconnecting chain
of seafloor mountains that
trace the edges of crustal
plates and the sites of new
oceanic crust production





*Trenches- Deep
area in the ocean
floor, generally
deeper than
6,000m.

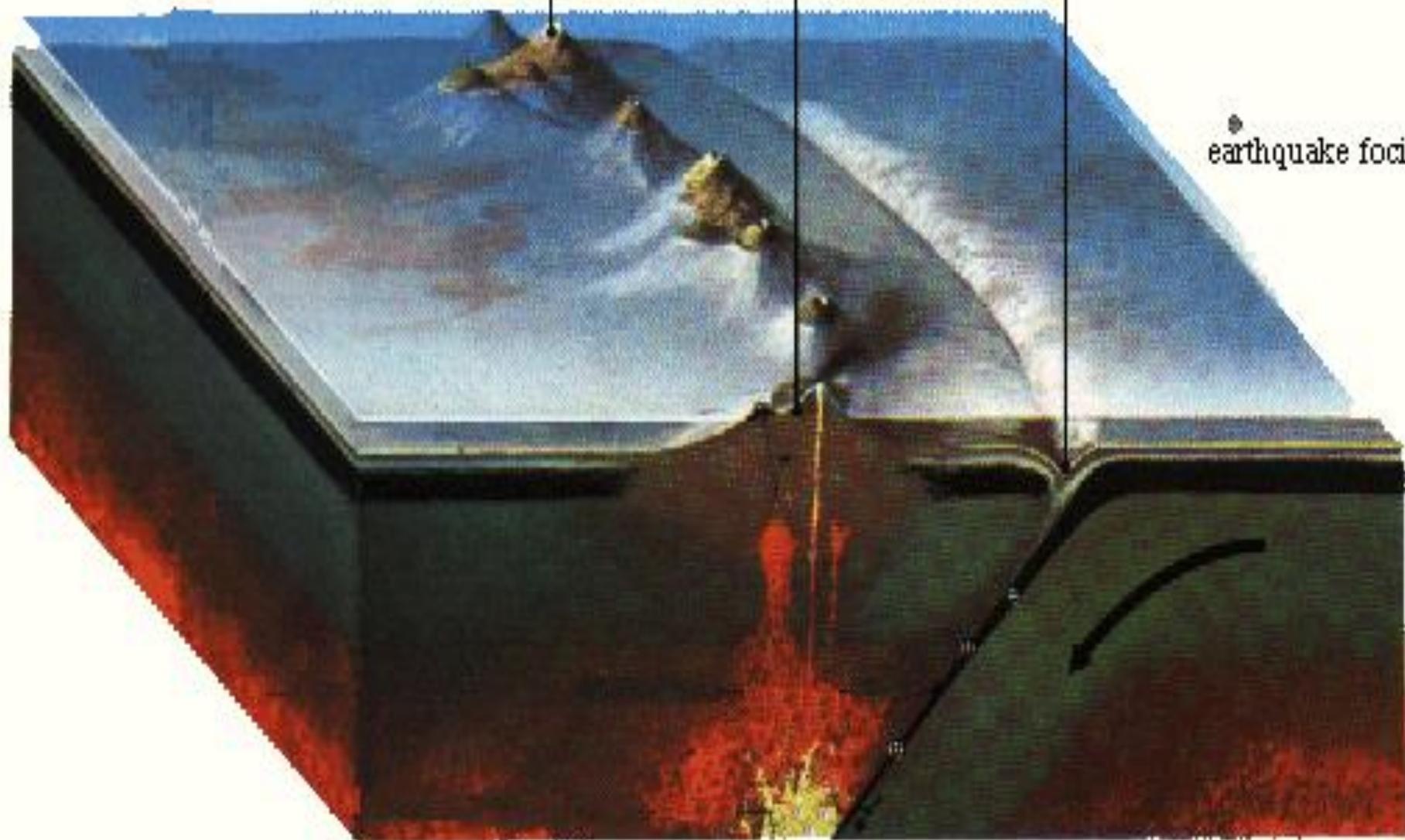


Island Arc

Active Volcano

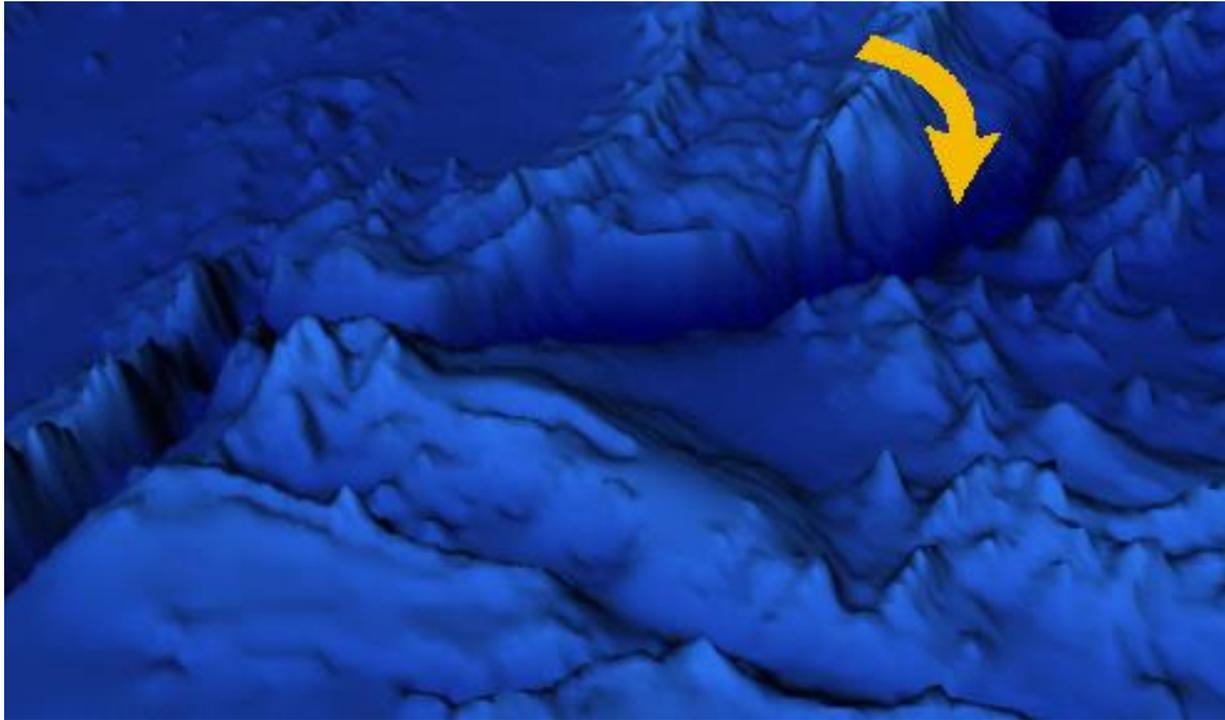
Oceanic Trench
(subduction zone)

earthquake foci



Mariana Trench

35,802 ft (10,912 m) At the deepest point of the trench (and the deepest point on earth) the pressure is over 8 tons per square inch, or the equivalent of an average-sized woman holding up 48 jumbo jets.



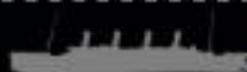
MARIANA TRENCH

1,000 METERS -
COMPLETE DARKNESS
3,300 FEET (THE MIDNIGHT ZONE)



SPERM WHALE
MAXIMUM DEPTH

4,000 METERS -
13,100 FEET (THE ABYSS)



DEPTH AT WHICH
TITANIC RESTS

CONTINENTAL RISE

OCEAN BASIN

DEPTH OF AN INVERTED
MT. EVEREST



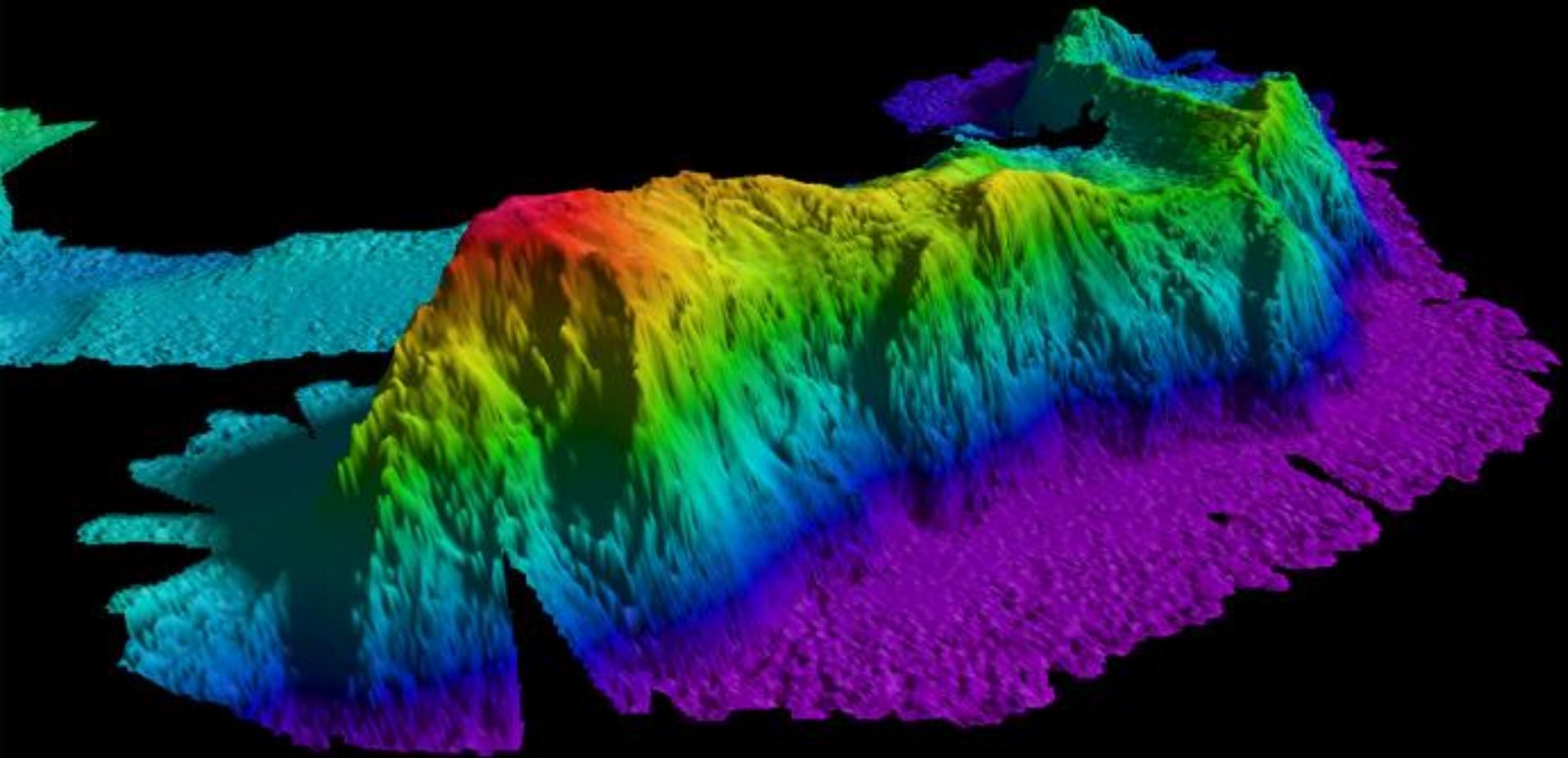
10,000 METERS -
32,800 FEET (THE TRENCHES)

11,000 METERS -
36,100 FEET

*Seamount- An

undersea

volcano

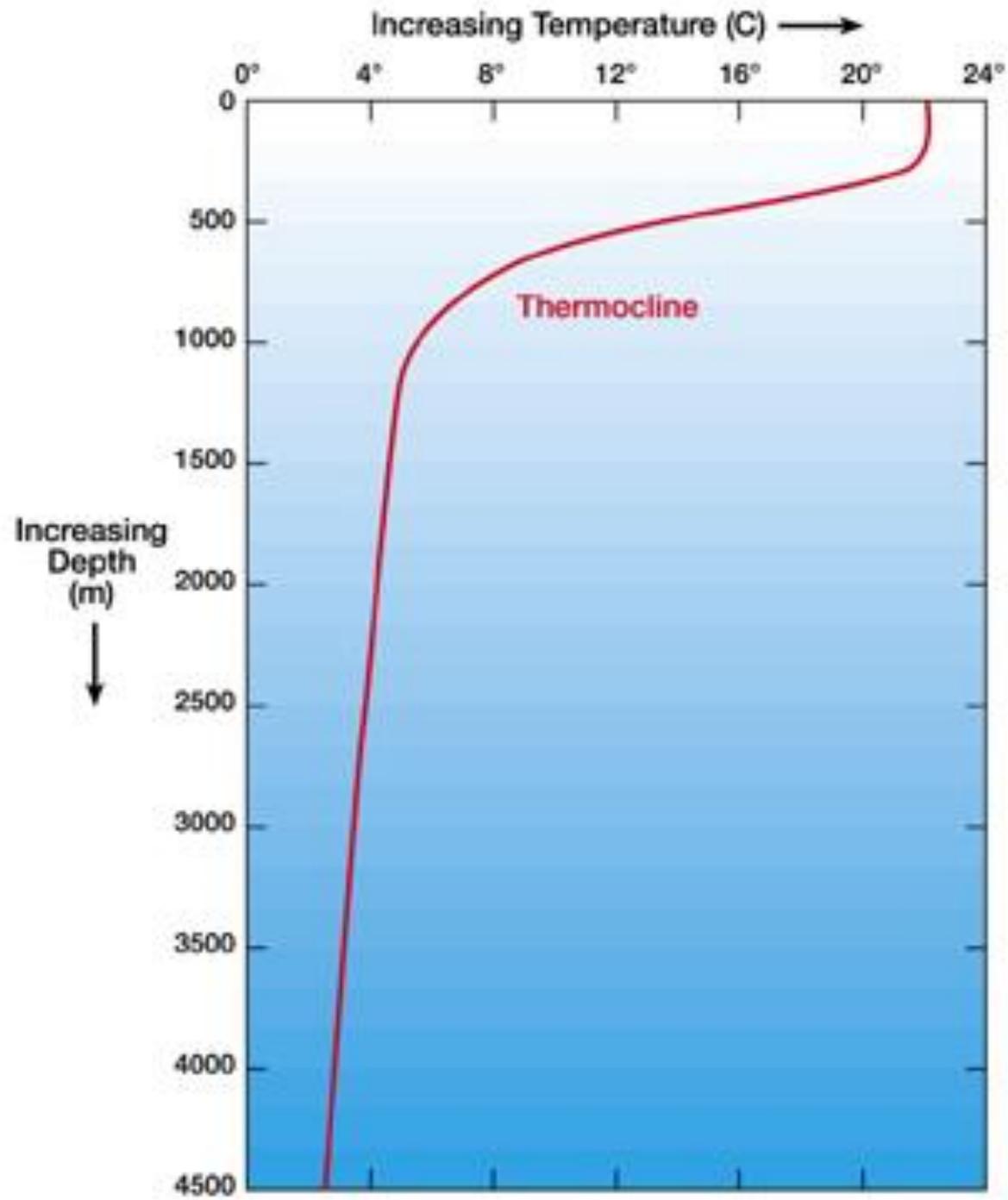


Copyright 2002 Monterey Bay Aquarium Research Institute
Tiburon/2002/221/05_09_44_27.rgb (MAIN)
Fri Aug 9 20:34:41 2002 GMT (local +7)
[descend]

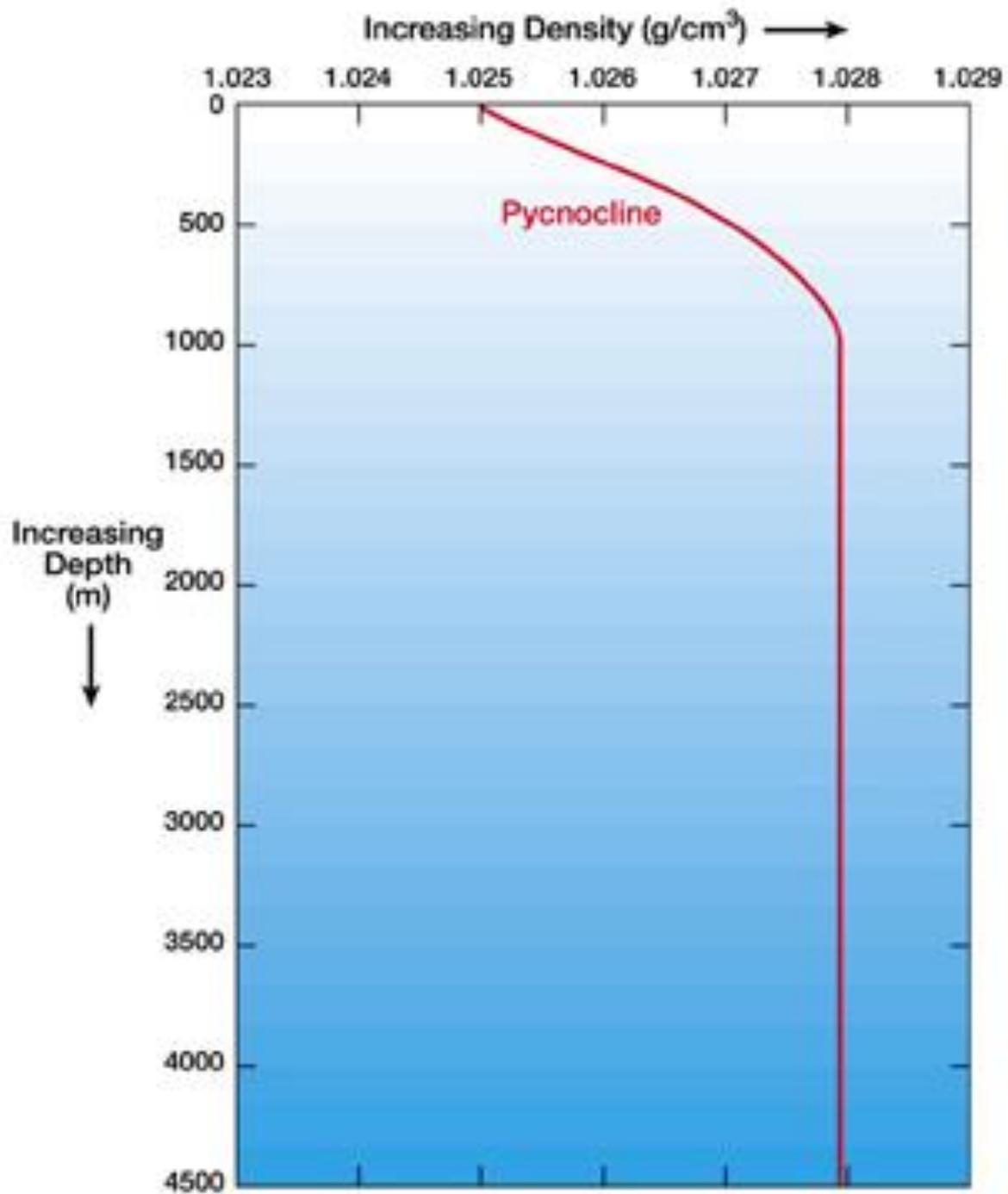


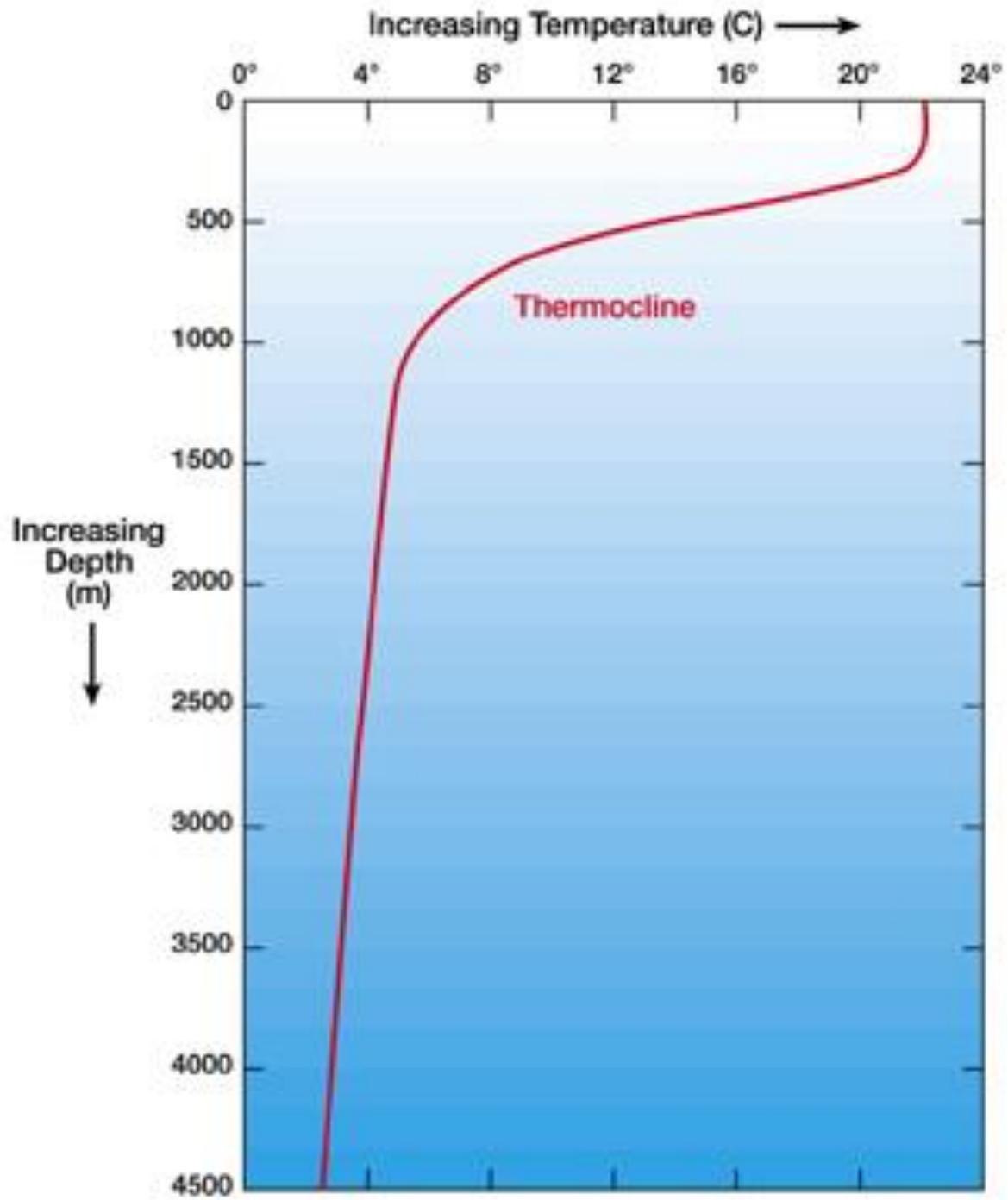


*Thermocline- The ocean layer, usually near the bottom of the photic zone, marked by a sharp change in temperature

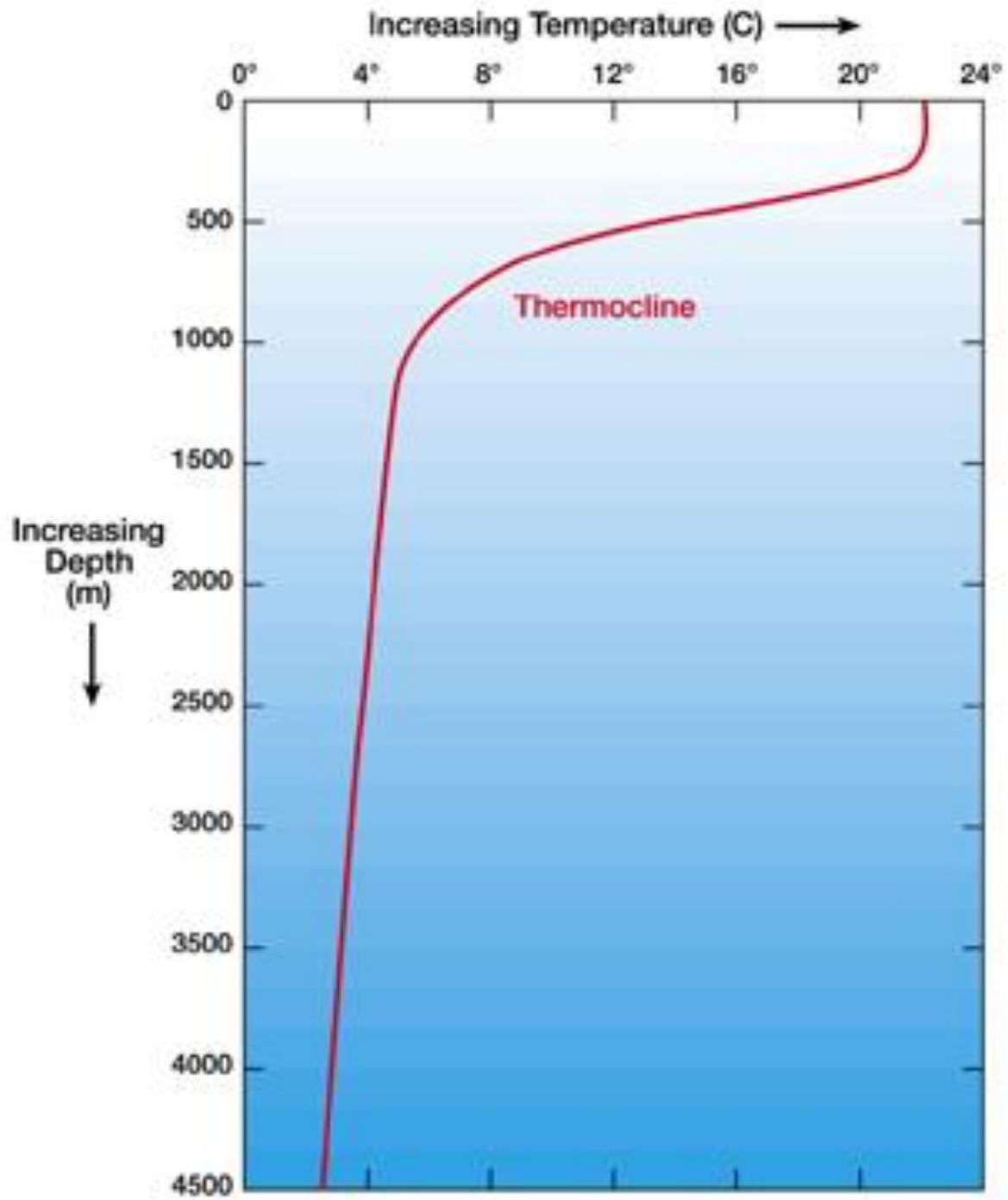


*Pycnocline- The ocean layer, usually near the bottom of the photic zone, marked by a sharp change in density.





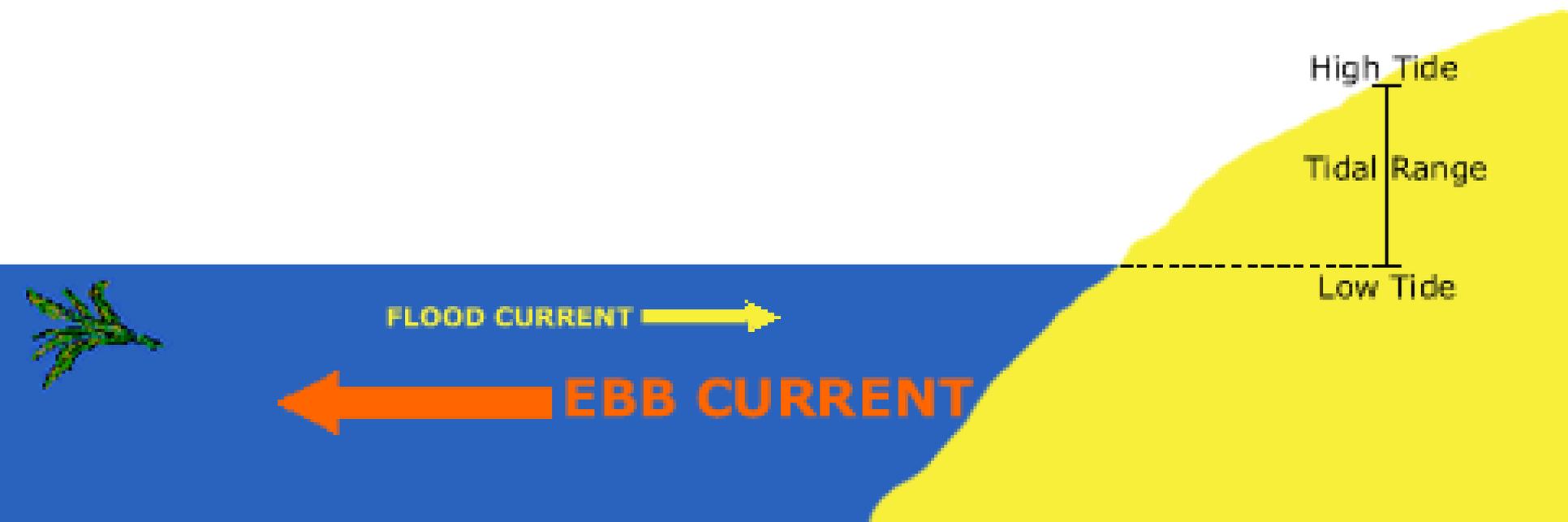
*Oxygen minimum zone-
The ocean layer below the
photic zone where
dissolved oxygen
concentration is lowest.
(due to bacterial
decomposition)



*Tides- A long-period wave noticeable as a periodic rise and fall of the sea surface along coastlines

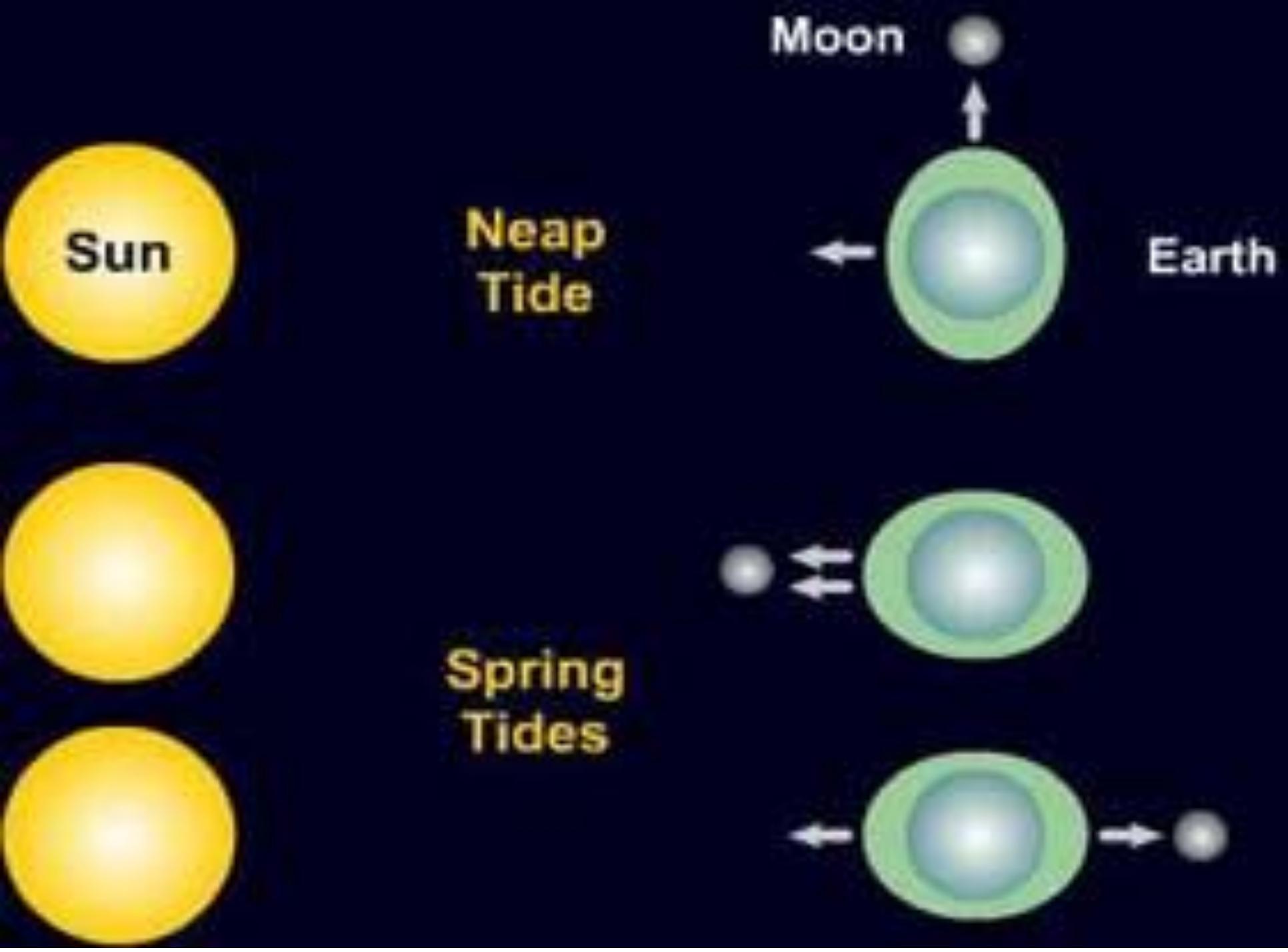


* Tidal Range-
vertical distance
between high and
low tides



*Spring Tides-
Extremely high tides
and low tides that
alternate with neap
tides and recur ever
two weeks

* Neap Tides- Sets of moderate tides that alternate with spring tides and recur every two weeks





Sun

**Gravitational
Pull of
Sun and Moon**



Moon



Earth



Sun

**Gravitational
Pull of
Sun**



Moon



**Gravitational
Pull of
Moon**



Earth



Sun

**Gravitational
Pull of
Sun and Moon**



Earth



Moon



Sun

**Gravitational
Pull of
Sun**



Earth



Moon



**Gravitational
Pull of
Moon**

Spring Tide



New Moon

Neap Tide



First Quarter

Spring Tide



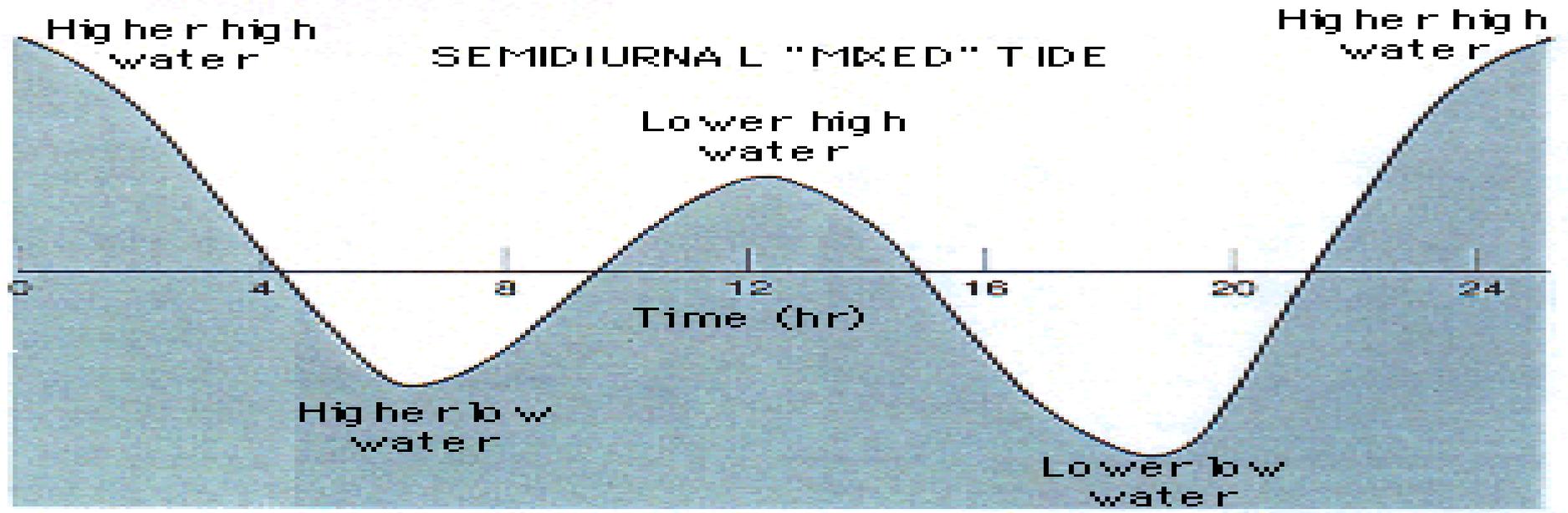
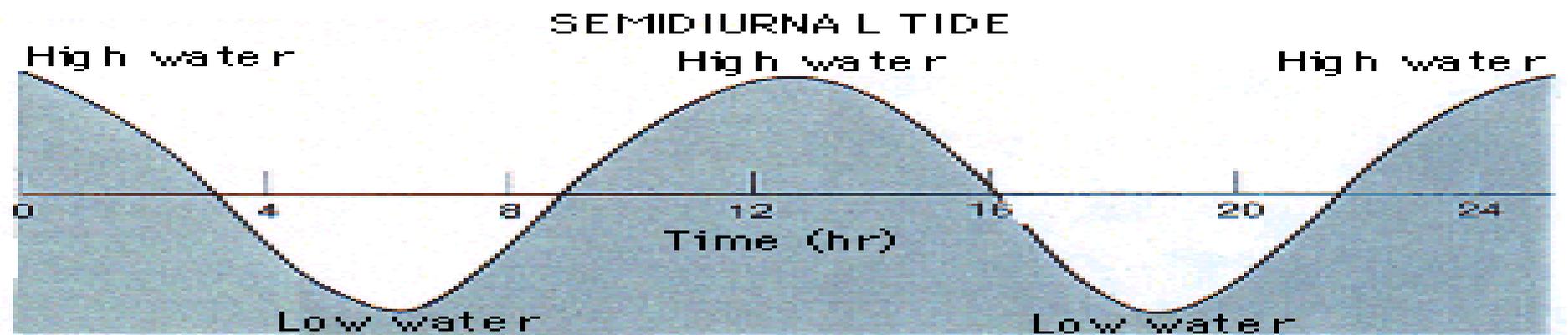
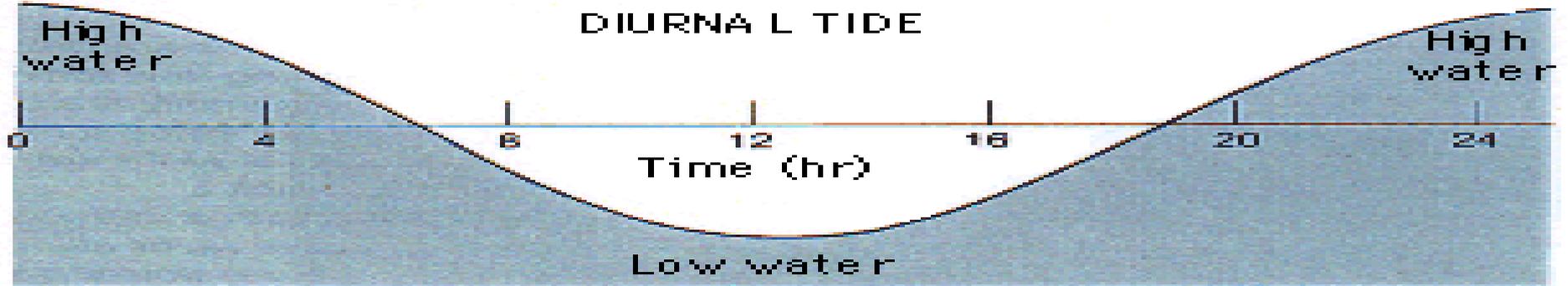
Full Moon

Neap Tide



Third Quarter

* Semidiurnal Tides-
Tidal patterns with
two high tides and
two low tides each
lunar day

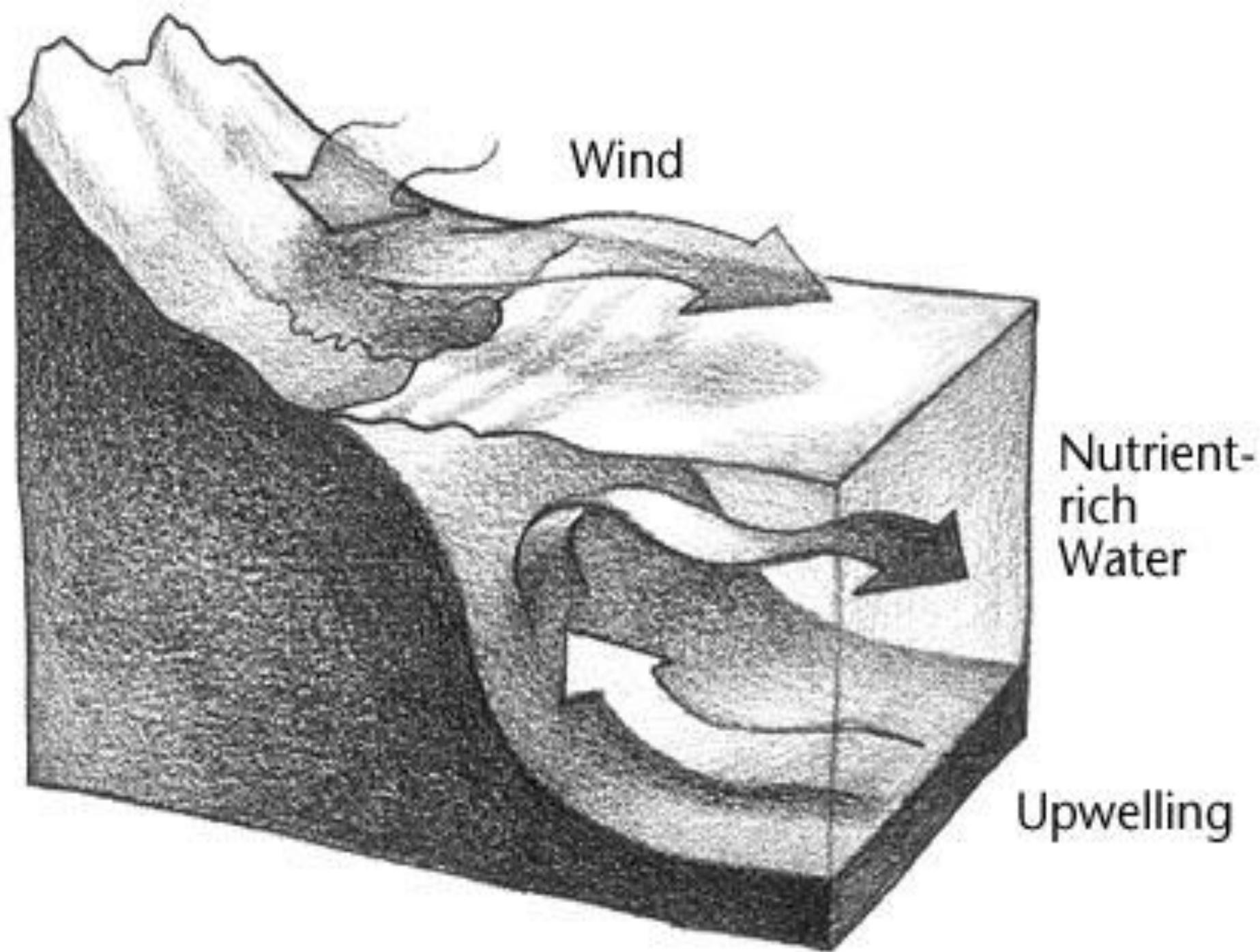


*Diurnal Tides- A tidal pattern with one high tide and one low tide each lunar day.

* Mixed Semidiurnal
Tides- Tidal pattern
during a lunar day
with unequal high and
unequal low tides.

*Anoxic- Without oxygen

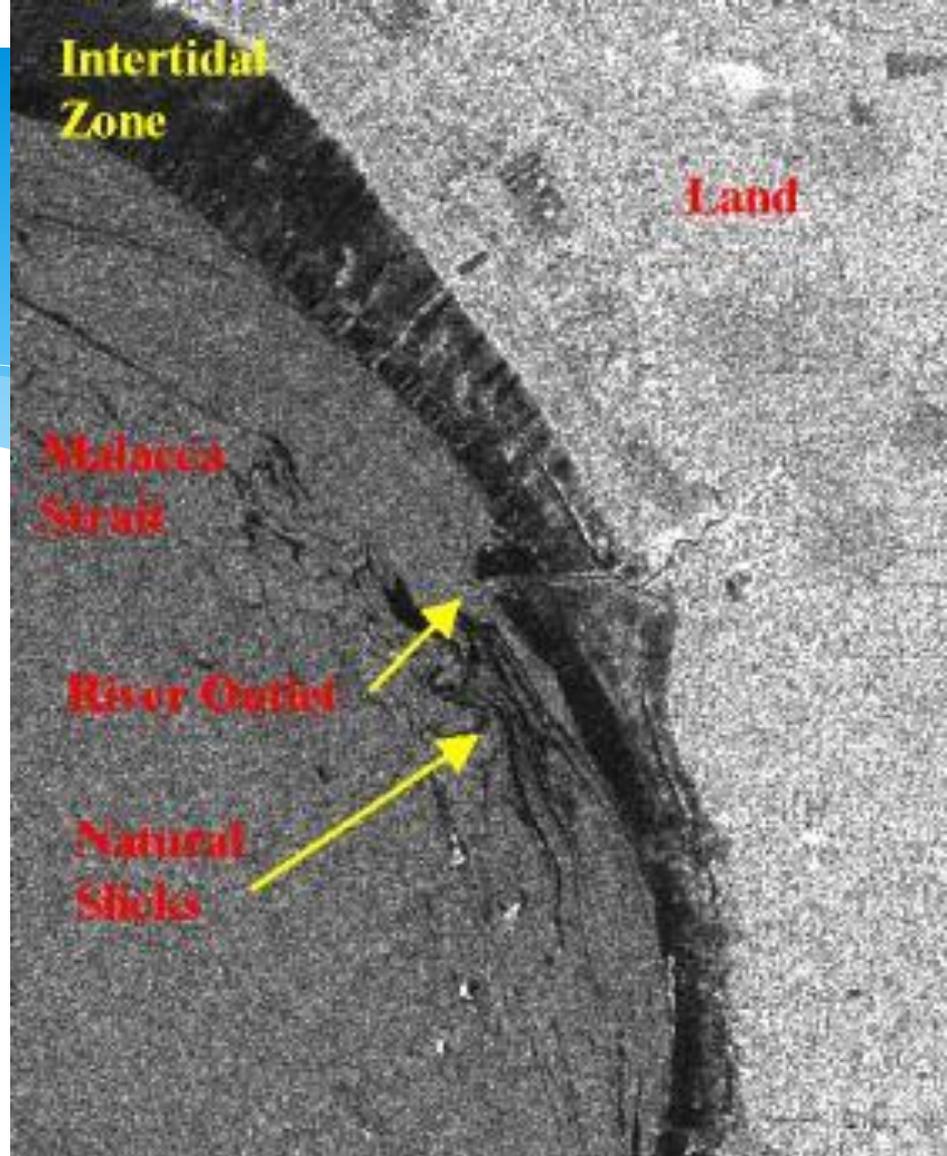
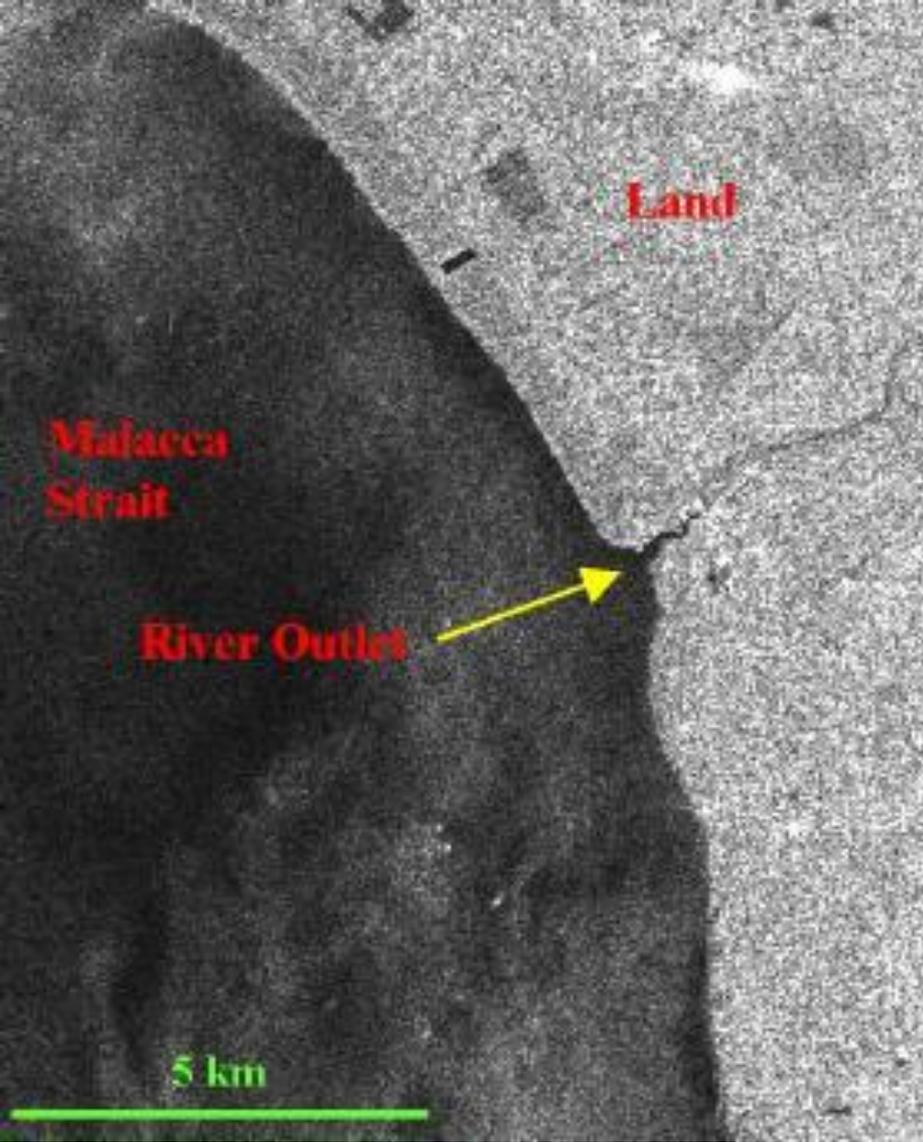
*Upwelling- The process that carries nutrient-rich subsurface water upward to the photic zone



- * Intertidal Zone- The horizontal extent of the shoreline between the high and low tide lines



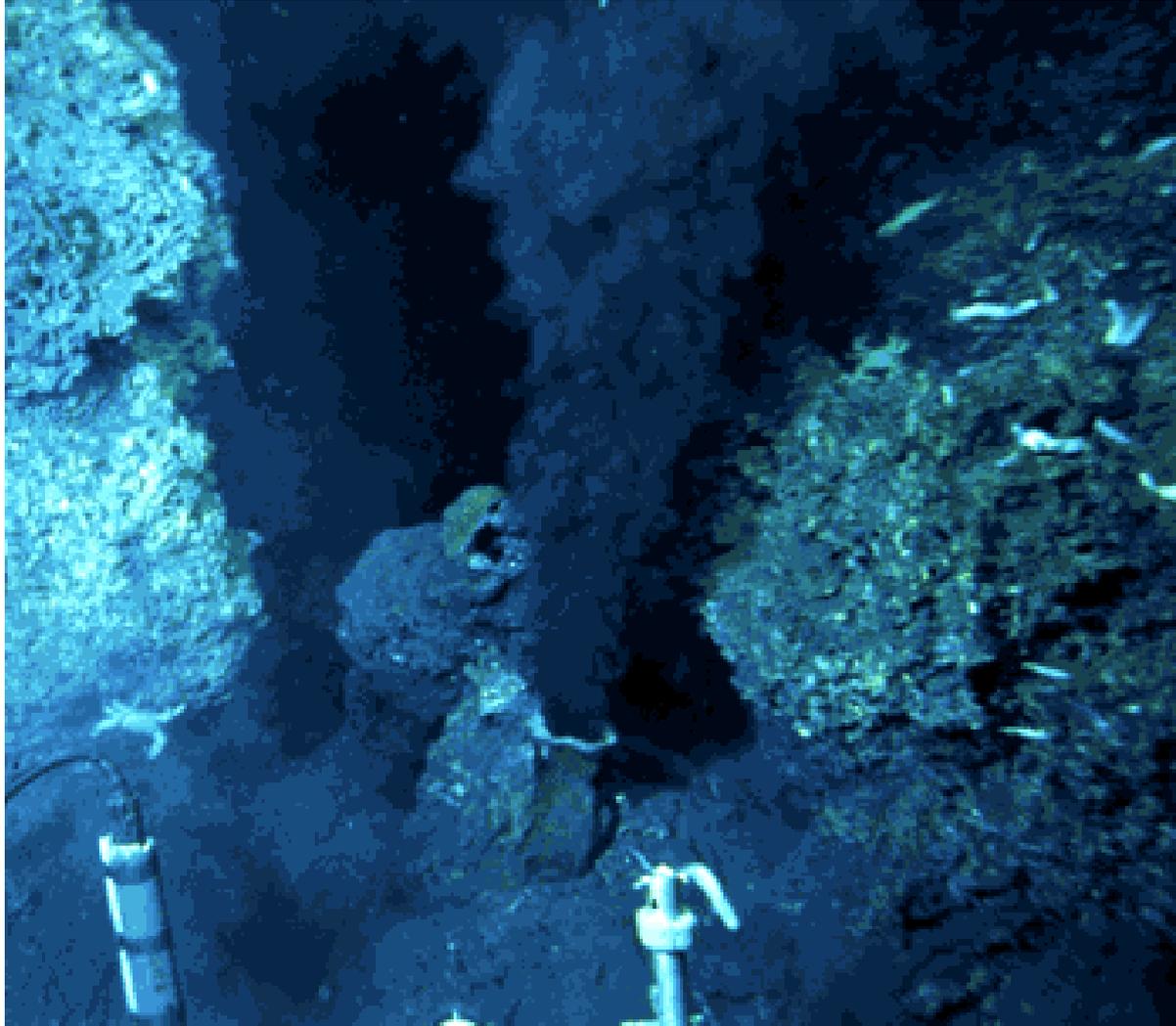
© Brandon Cole / www.brandoncole.com



- * Photic Zone-The portion of the ocean where light intensity is sufficient to accommodate plant growth



- * Aphotic Zone- The portion of the ocean where the absence of sunlight prohibits plant growth.



- * Benthic Division- The sea bottom and the organisms that inhabit the bottom
 - * Benthos are the organisms that live there



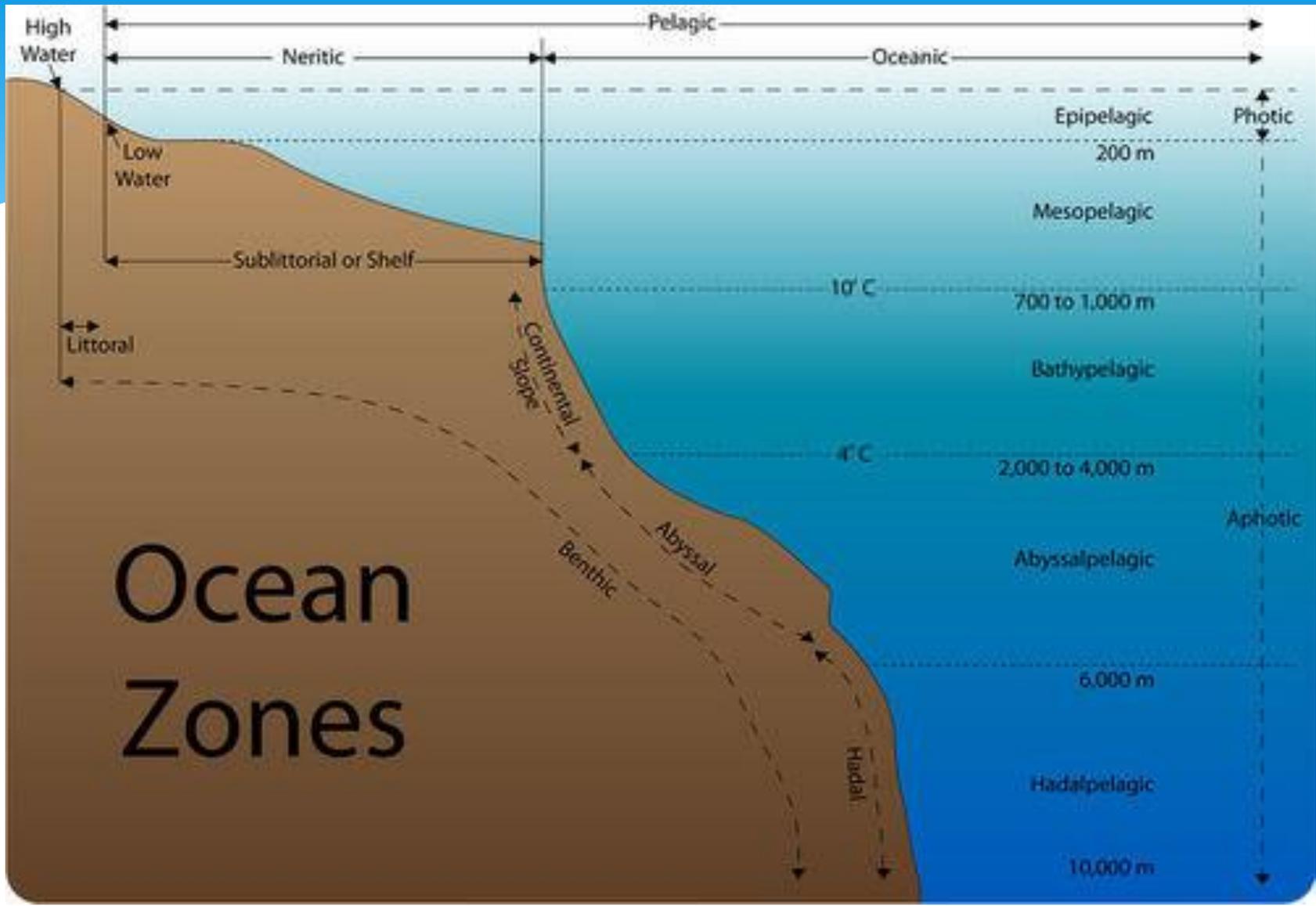
*Pelagic Division-

The waters of the

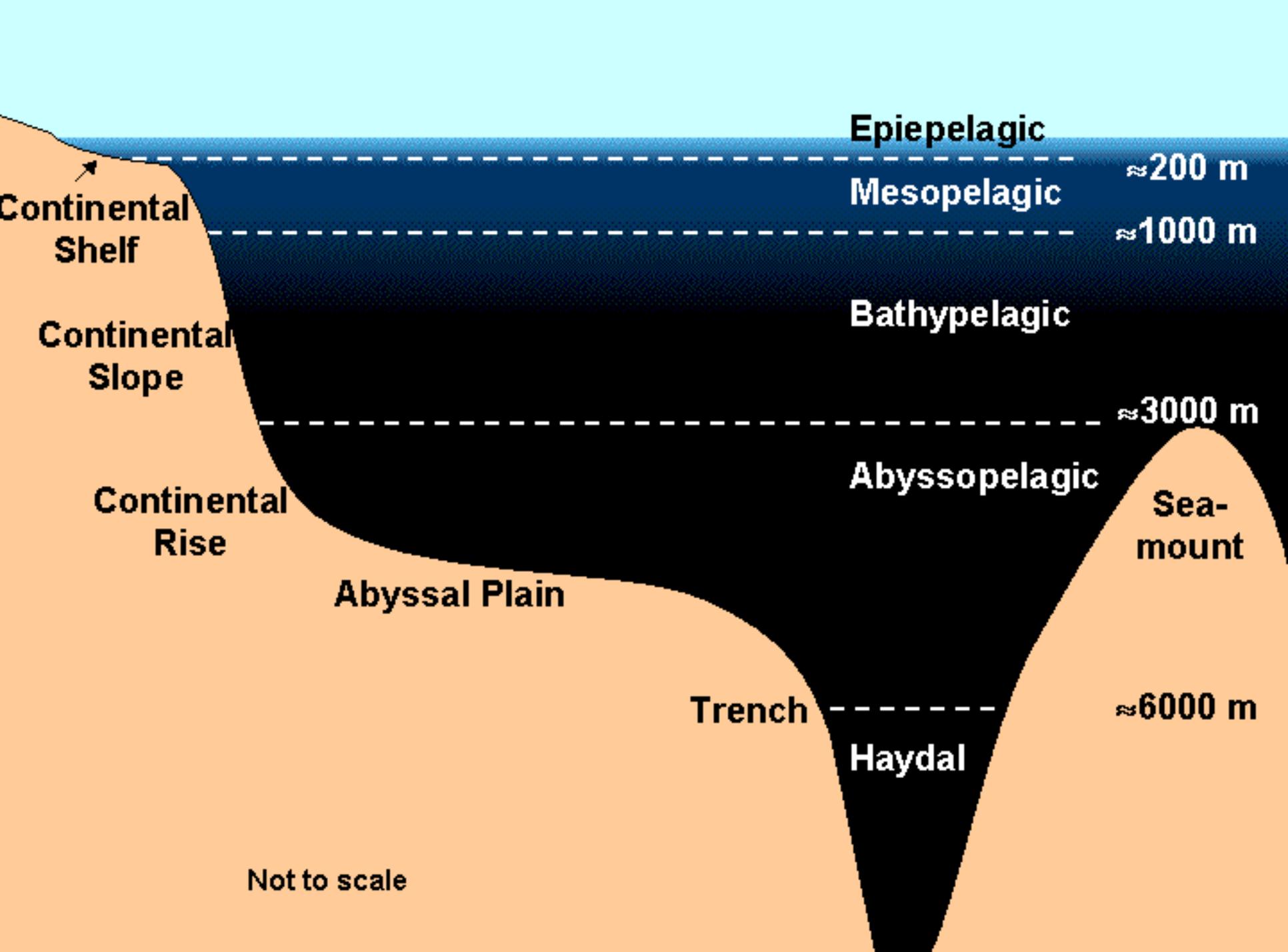
ocean and the

organisms that

inhabit it.



Ocean Zones



* Neritic Province- The portion of the marine environment that overlies the continental shelves.

*Oceanic Province- The portion of the marine environment that overlies the deep ocean basins