

## Topics for Exam 1

Deep sea paradigms

Azoic hypothesis

History of early deep sea exploration

History leading up to and of the Challenger Expedition

Equipment used and results of the Challenger Expedition

Deep Sea exploration between the Challenger Expedition and 1970s

Plate tectonics - seafloor spreading, subduction, hot spots

Seafloor geology – bedrock, sediments, seafloor features

Currents and gyres

Thermocline, deepwater formation and thermohaline circulation

Oxygen and pressure

Benthic boundary layer

Properties of seawater

Salinity

Dissolved gases, nutrients and nitrogen, sulfur and phosphorus cycles

Carbon cycling, CO<sub>2</sub> and fixation

Carbonate compensation depth

Biological pump

Acidification

Microbial loop, dissolved organic matter and marine microbe diversity

Particulate organic matter, microbial transformation of POM

Nekton falls and food supply to the deep

Life in the midwater – body types, diversity, abundance

Life on the seafloor – feeding strategies, morphology