

Midterm Review for Marine Science Honors

- 1. Review the names and locations of the oceans.*
- 2. Review scientific process skills; the steps of the scientific method; the differences among hypotheses, theories and beliefs; the relationship between science and technology.*
- 3. Review the key expeditions and inventions of ocean exploration in the 18th, 19th, 20th and 21st centuries.*
- 4. Review the layers of the Earth; the theory of continental drift; the theory of seafloor spreading; the theory plate tectonics; hot spot theory; hydrothermal vents.*
- 5. Review the chemical properties of water including covalent and hydrogen bonds; surface tension; the relationship of density, temperature and salinity; properties of light and sound in water.*
- 6. Review layers of the ocean with respect to the light and layers of the ocean with respect to temperature, salinity and density.*
- 7. Review the layers of the atmosphere; the Coriolis effect; convection; atmospheric circulation; cyclones; monsoons; and the causes and effects of Earth's seasons.*
- 8. Review all of the causes and effects of ocean currents (geostrophic surface gyres and thermohaline currents) and how currents are measured (Lagrangian and Eulerian methods).*
- 9. Review the anatomy of a wave, the various kinds of waves (wind waves and tsunamis); what causes them and controls their size; the classification of waves based on wave-length and water depth (deep-water, shallow-water, transition); characteristics of spilling, surging and plunging breakers; wave refraction.*
- 10. Review the cause of tides and differences between spring and neap tides.*

The following will assist you specifically with the essay portion of your exam.

- 1. Study the ocean currents, what are the causes of various currents and why are they important for climate and ocean life.*
- 2. Causes and effects of tides, including the differences between spring and neap tides.*
- 3. The theory of plate tectonics and the various types of boundaries (divergent, convergent, transform). Review the layers of the Earth.*
- 4. The formation of, and dangers related to tsunamis.*