Part C – Salinity-driven Ocean Currents

Salinity differences within the oceans help drive global ocean circulation. To understand how salinity differences can set up currents that overturn much of the oceans' volume, your instructor will perform a demonstration. In the demonstration, two horizontal tubes connect two vertical columns of water, one containing fresh water and the other saline water. Dye is added to the water in both columns increase the visibility of the currents. Initially, the valves close the horizontal tubes.

Questions

1. Before your instructor opens the valves, try to predict what will happen once the valves are open.

2. How did the results compare with your predictions?

3. Write a short paragraph describing how the results in the demonstration relate to the global ocean conveyor belt (see Fig. 15.7, p 457-458, in *Earth Science 14th ed.,* by Tarbuck, et al.).

4. How did the rate of water circulation in this salinity demonstration today compare to the rate of circulation due to convection in last week's lab? Which demonstration seemed to produce more rapid circulation, temperature differences or salinity differences?

5. Is the relative influence of salinity and temperature differences on circulation in the oceans the same as it was in the demonstrations you looked at in lab? Why?