

Lab: Pycnoclines and Thermoclines

In this lab you will pour different solutions of water into graduated cylinders to investigate how salinity and temperature gradients can create a 3-layered ocean where the top and bottom layers do not mix.

Vocabulary

1. Pycnocline:
2. Thermocline:
3. Salinity:
4. Density:

Materials

- Test Tube Rack
- 6 Test Tubes
- 1 beaker with 150 mL of salt water (green)
- 1 beaker with 150 mL of fresh water (yellow)
- 1 beaker with 150 mL of hot water (red)
- 1 beaker with 150 mL of cold water (blue)

Instructions

1. Fill one of the test tubes halfway with salt water.
2. Tilt the test tube at an angle and gently pour fresh water into the test tube.
3. Repeat steps to complete table and create 3 of your own examples to test.

Layers Attempted	Prediction (layers or mixed)	Results (layers or mixed)
Fresh ↓ Salt		
Salt ↓ Fresh		
Cold ↓ Hot		
Hot ↓ Cold		

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Conclusion

1. Why is the main factor that causes 2 different kinds of water to remain in layers and not mix?

2. How does the 2-layered ocean influence where life exists in the ocean?