**SMS-303: Integrative marine sciences, physics.**

**Quiz Lab 2.**

**1. Oceanic organisms as a whole:**

**a. Can significantly contribute to mixing in the oceans.**
**b. Prefer mixed water**
**c. Use mixing to move faster.**
**d. Do not contribute significantly to mixing except, possibly, in some places.**

**2. What mixes in the oceans?**

**a. Heat.**
**b. Momentum.**
**c. Nutrients.**
**d. All of the above.**

**3. Stirring and mixing:**

**a. Are the same.**
**b. Work together to erode gradients.**
**c. Are sometimes the same.**
**d. None of the above.**

**4. Which enhances mixing?**

**a. Cooling water from the top.**
**b. Cooling water from the bottom.**
**c. Heating water from the top.**
**d. None of the above.**

**5. Mixing of momentum (friction):**

**a. Causes fluids to slow down near the boundaries.**
**b. Allows the wind momentum to penetrate to depth.**
**c. Causes the formation of bottom boundary layers.**
**d. All the answers above.**

**6. Salt fingers:**

**a. None of the answers below.**
**b. Occur because heat diffuses faster than salt.**
**c. Occur because salt diffuses faster than heat.**
**d. Occur in all thermoclines.**

**7. Mixing stratified fluids:**

**a. Requires work.**
**b. Increases stratification.**
**c. Is easy.**
**d. Requires internal waves.**

**8. Stretching and folding:**

**a. Is reduced by stirring.**
**b. Requires momentum.**
**c. Increases gradients so diffusion occurs more rapidly.**
**d. Erodes gradients so mixing occurs more rapidly.**

**9. The thermocline problem refers to:**

**a. The fact that the density gradient at the ocean thermocline is too diffuse given the measured mixing rates at the thermocline.**
**b. The fact that the density gradient at the ocean thermocline is too sharp given the measured mixing rates at the thermocline.**
**c. The fact that the ocean is not stratified enough.**
**d. The fact that the ocean is stratified.**

**10. In estuaries in Maine which are likely to dominate mixing:**

**a. Salt fingers.**
**b. Tidal mixing.**
**c. Breaking internal waves.**
**d. Wind mixing.**

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This page was last edited on 10/16/2009