Topic 08: The Changing Ocean

What is the most common material used by invertebrates to precipitate their skeletons?

What are the two major sources of calcium ions in the oceans?

What are three sources of carbonate ions in the oceans, that we discussed?

How does the dissolution of CO_2 in ocean waters lead to the formation of bicarbonate and carbonate ions?

Explain why the dissolution of atmospheric CO_2 leads to greater acidity of ocean waters

In what two major ways does dissolution of CO_2 make shell precipitation and sustainment difficult?

How does salinity, pressure, and temperature affect the rate at which CO_2 dissolves in ocean waters?

What is the average ph of sea water?

What has been the overall trend in seawater ph over the past 40 years?

Which parts of the oceans are mostly affected by changing ph?

Talk about what a 2009 study found about winners and losers among invertebrates in terms of increased sea surface acidities.

Explain the four possible means that might make different organisms more or less susceptible to more acidic oceans?

What are the two primary “salt” ions dissolved in the sea?

Explain why sea surface salinities fluctuate daily, seasonally, in some areas

Discuss the regional or local drivers that explain the heterogeneity of average sea surface salinities across the globe

Which part of the global ocean is seeing increased freshening between 2005-2013 (this trend continues)?

Explain how changes in surface salinity can impact ocean currents, as well as upwelling and downwelling

What are the five ways that sea surface temperatures have been measured (today and historically)?

Which part of the global ocean has seen the greatest amount of warming in the last century?

Discuss how heat absorption is NOT the same as temperature of the water.

Explain the global oceanic conveyor belt. What is its significance?

How might conditions (what are they) in the North Atlantic impact the Meridional Overturning Circulation?