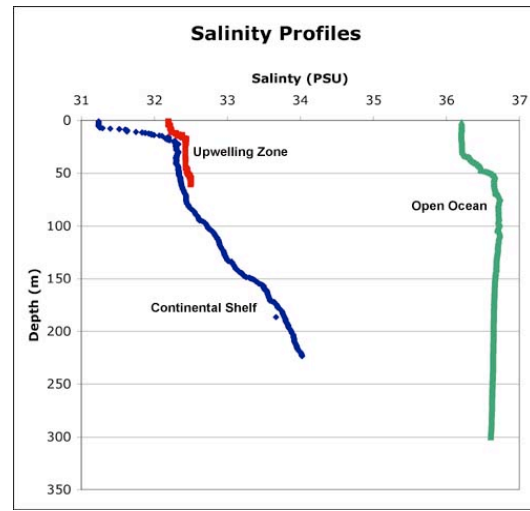
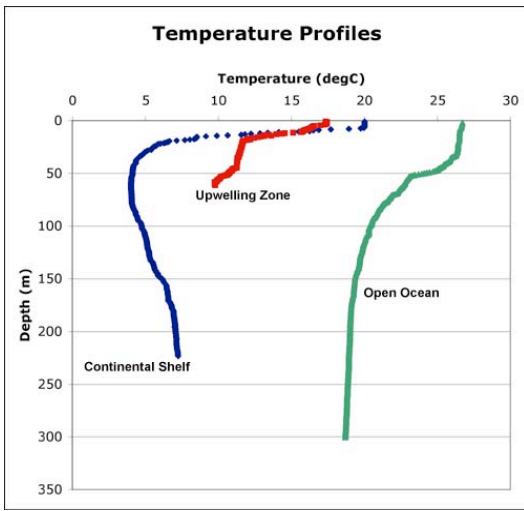


Data – Water Column Profiles

Use the temperature and salinity profiles to help you answer the following questions. Before you begin, circle or highlight the **thermocline** for each temperature profile, and the **halocline** for each salinity profile.



How **deep** did the **mixed layer** extend at each of our three stations?

| | |
|-------------------|--|
| Continental Shelf | |
| Upwelling Zone | |
| Open Ocean | |

What was the **range of temperatures** at each of our three stations?

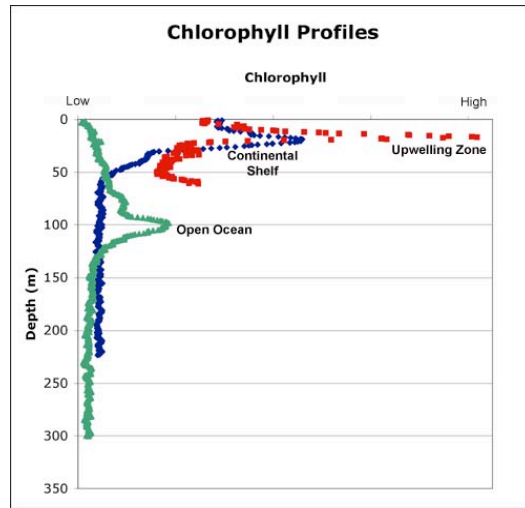
| <i>Temperature</i> | Low | High |
|--------------------|-----|------|
| Continental Shelf | | |
| Upwelling Zone | | |
| Open Ocean | | |

What was the **range of salinities** at each of our three stations?

| <i>Salinity</i> | Low | High |
|-------------------|-----|------|
| Continental Shelf | | |
| Upwelling Zone | | |
| Open Ocean | | |

Both the temperature and salinity of the Open Ocean station are substantially higher than the temperature and salinity of the other two stations. On the back of this paper, propose an explanation for this data pattern. *(For a hint, look back at your explanation as to why the ship drifted so much at this station).*

Use the chlorophyll profile to help you answer the following questions.

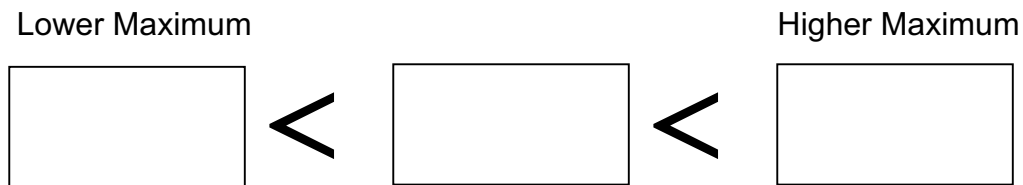


At what **depth** was the **chlorophyll maximum** for each station?

| | |
|-------------------|--|
| Continental Shelf | |
| Upwelling Zone | |
| Open Ocean | |

Remembering that phytoplankton need *sunlight and nutrients*, can you explain why the Open Ocean chlorophyll maximum was found so much deeper than the maxima of the other stations? Write your answer on the back of this sheet.

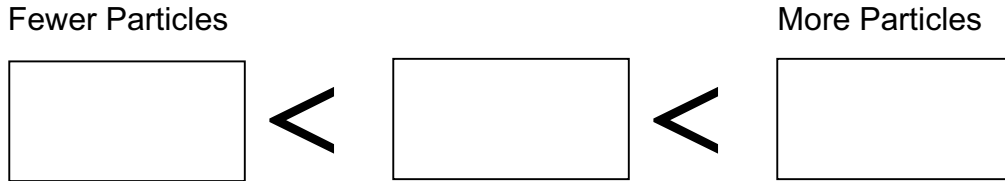
Rank the **intensity** of the **chlorophyll maxima** for the 3 regions.



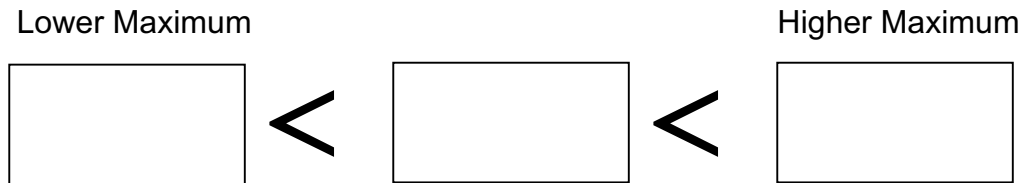
Again, remembering that phytoplankton need *sunlight and nutrients*, can you explain why the intensities of chlorophyll maxima at the three regions vary? Write your answer on the back of this sheet.

Putting it together...

Now, look back at your Ocean Color Data Sheet. On that data sheet, we used ocean color to rank particle density. Copy your ocean color ranking to the boxes below:



Now copy your chlorophyll maximum intensity ranking (from page 2 of this data sheet) to the boxes below:



Do the two rankings match? They shouldn't...but why not? Write your answer at the bottom of this page.

Here are some questions that might provide a couple of clues:

- *Are there particles other than phytoplankton that might contribute to ocean color? What are they?*
- *Would some regions have a higher concentration of non-phytoplankton particles than other regions? Why?*