Part I: Food Webs

Use your Organism Diversity Data Sheets to create a food web for each of our three marine habitats. If you are not sure where to place an organism on a food web, use your textbook or the internet to learn more about the organism.

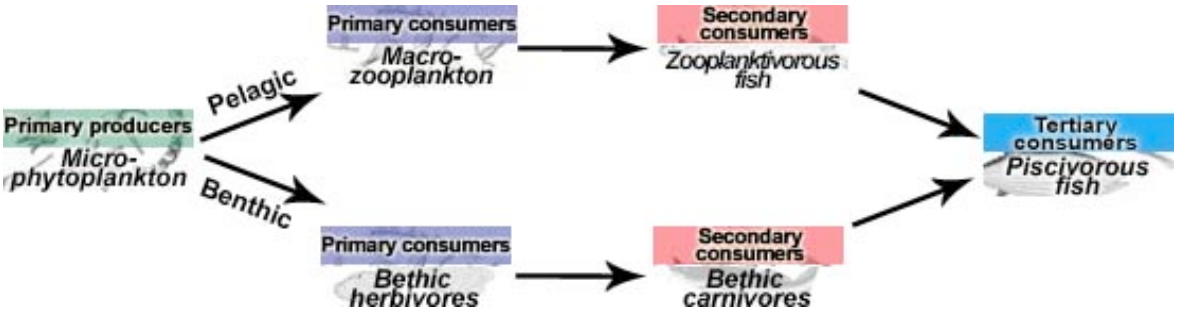
Continental Shelf Food Web

Upwelling Zone Food Web

Open Ocean Food Web

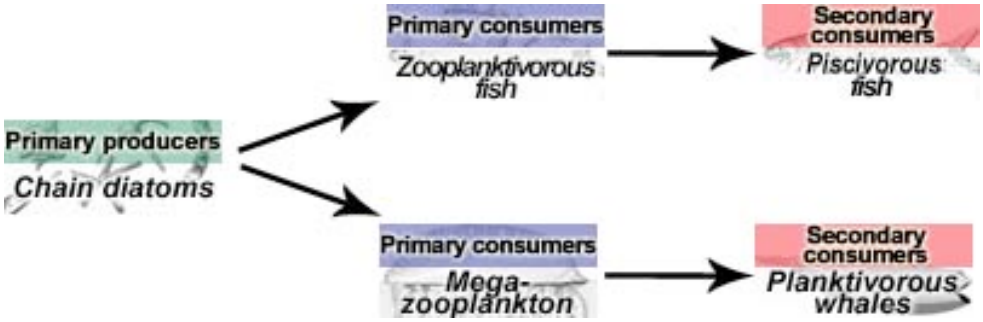
Our sampling techniques were not able to provide us data on every single organism in our three habitats. There are many organisms that we know live in these habitats, but we just didn't get the chance to observe them on this cruise. Now look back at each of your food webs. Are there any organisms that you know <u>should</u> be on the food web, but are not? Take a moment and using a different color pen or pencil, add these other organisms to your food webs.

Look back at the food chain model for the Continental Shelf.



How does this model compare to the food web that you created? Was any organism included in one but not the other? How does the number of trophic levels compare between the two?

Now look back at the food chain model for the Upwelling Zone.



How does this model compare to the food web that you created? Was any organism included in one but not the other? How does the number of trophic levels compare between the two?

And finally, look back at the food chain model for the Open Ocean.

How does this model compare to the food web that you created? Was any organism included in one but not the other? How does the number of trophic levels compare between the two?

Part II: Marine Bacteria

Use your Microbial Community Data Sheets to answer the following questions.

At the Continental Shelf Station, was there any depth where there were no marine bacteria (picoplankton)?

At the Upwelling Station, was there any depth where there were no marine bacteria (picoplankton)?

At the Open Ocean Station, was there any depth where there were no marine bacteria (picoplankton)?

What roles do you think the bacteria might fill in our three marine habitats?

Did you write “primary producer” in your answer above? Look back at your Microbial Community Data Sheet. Notice that we found *Synechococcus* ("S") and/or *Prochlorococcus* ("P”) cells at every station. These tiny cells are responsible for much of the photosynthesis in the world’s oceans. If you didn’t include “primary producer” in your answer above, go back and write it in now.

Part III: Putting It All Together

Based on your answers in Part I and Part II, how would you suggest revising the model food chains to accommodate the differences you found in your food webs, and to accommodate our new understanding of the role of bacteria in the marine ecosystem? *Write your answer on the back.*