Log #1
September 2,2005
Honolulu, HI
Long 21N, Lat 157W


R/V Revelle at the Aloha Towers Pier

We left the Aloha Towers dock in downtown Honolulu at 7am and headed for Pearl Harbor to fuel at the navy dock. On the way we saw several schools of flying fish. Flying fish, which are common to most tropical seas, are found in the warm waters surrounding Hawaii. The species found in this region are about 25cm long and are shaped like a herring.

The remarkable feature of this fish is its ability to "fly"! Actually, the fish don't "fly" ... they glide through the air up to

distances of 30-40 metres. Just before takeoff, the fish swims quickly towards the surface, bursting into the air at speeds of 55 kmph!

Once it is airbourne, the fish spreads its large pectoral fins (seen spread in the picture) and appears to be "flying". This ability helps the fish to escape from predators.

. Please go to http://oceanlink.island.net/oinfo/biodiversity/flyingfish/flyingfish.html to see what they look like a little bit more about them. It is a beautiful day, warm and sunny with a nice breeze. On the way into Pearl we saw a submarine leaving the harbor and the USS Missouri was decorated with all her flags flying. Today they were having a ceremony honoring the end of WW2. The peace accord with Japan and the allies was signed aboard the USS Missouri.

Chief Scientist Dr. Dave Nelson with his plankton!

The science equipment was loaded on over the last 4 days and we are still setting things up. The science labs are starting to fill up and look very business like and the incubators (which look like big aquariums) are all lined up and plumbed on the fantail. Dr. Measures is testing his CTD and the special cable for it was spooled on the winch yesterday.


Chief Engineer, Paul Mauricio checking the winch

We are heading south toward the equator and will be in transit for the next 5 days. The scientists will be giving presentations on the data they collected on the last cruise and interpretations of that data during the transit. I have been asked to give a brief summary of what I will be doing with my classes on the cruise to the scientists.


Me in the bow as we come into Pearl Harbor for re-fueling.

The Carbon Cycle……one of the things we will be focusing on during the cruise will be the effects of plankton on the Global Carbon Cycle. So I am going to give my students a brief over view of the Carbon Cycle .

The carbon cycle is a complex series of processes through which all of the carbon atoms on earth rotate. In one part of the cycle, plants absorb carbon dioxide (CO2) from the atmosphere and through photosynthesis incorporate the associated carbon atoms into sugars and other molecules necessary for growth. Plants use some of these sugars to generate energy in a process called respiration, which returns carbon atoms back to the atmosphere in the form of CO2. However, much of the carbon absorbed remains **"locked up"** in the plants' **biomass** until decomposition or fire releases it back to the atmosphere. Carbon atoms are constantly being cycled through the earth's atmosphere by a number of physical, natural and industrial processes.

Although natural transfers of carbon dioxide are approximately 20 times greater than those due to human activity, they are in near balance, with the magnitude of carbon sources closely matching those of the sinks. The additional carbon resulting from human activity is the cause of the rise in atmospheric carbon dioxide concentration over the last 150 years.

So plants take carbon out of the atmosphere and in return release oxygen into the atmosphere, they are natural storage systems for carbon. The carbon is released back into the atmosphere by these plants dying and rotting or buy burning. So plankton are microscopic marine plants and they too absorb carbon from the atmosphere and release oxygen back into the atmosphere. This is a natural cycle and the levels of carbon on earth are in balance, however we humans are adding more carbon to the atmosphere through our factories, automobiles, burning of trees and fossil fuels for energy and the like. Scientists are afraid that this may over load the system,,,,,,more carbon being released than the natural system (plants) an absorb and re-cycle. So looking at the carbon cycle is just seeing how carbon is released and re-absorbed here on earth. It is important to have a basic understanding of the natural cycle in order to see possible changes that are occurring to it.

Questions for discussion:

So, if plants are the major component in the carbon cycle, what would happen if we **decreased** the number of plants on earth (as in the burning of he rainforests in the Amazon!)???

What if we **increased** the number of plants, as in adding iron to the oceans to increase the growth of plankton? How would that effect the climate, the carbon cycle and the other animals that live in the ocean?

Key Terms:

Carbon Cycle

Biomass

Plankton

Decomposition

Climate change, global warming, the greenhouse effect--what do these terms mean, and how can we begin to understand it all? These are the BIG IDEAS we will be looking at on this cruise.