

Analysis of Online Data

Examples of Student Projects

Undergraduate research projects (MIMSUP 2013)

The relationship between bacterial productivity in the ocean and photosynthetic plankton. Used JGOFS, HOTS and BATS online databases to compare and contrast twenty years worth of data (Duarte).

Observe and compare patterns in zooplankton populations and chlorophyll-a concentrations at open ocean sites in both the Pacific and Atlantic Ocean (JGOFS, BATS, HOTS).

Analysis of long term trends to identify anomalies in 2010 for better interpretation of impacts of the Gulf of Mexico Deep Horizon spill (NERR SWMP).

Investigating the relationship in changes in pH and dissolved oxygen in Pacific Northwest waters (NANOOS, NERR SWMP).

How has global climate change affected the water temperatures in estuaries on the east coast vs. west coast of the United States differently? What are the effects of these changes on dissolved oxygen concentrations? (NERR SWMP)

Comparison of west coast seawater temperature data and distribution of zoochlorellae and zooxanthellae symbionts on A. elegantissima (NANOOS, CeNCOOS, literature).

Does the freshwater from Cape Fear River affect the amount of chlorophyll at river influenced sites (East Cribbing, Zeke's Basin)? How does it compare to Research Creek and Loosin Creek sites that are influenced by the ocean? (NERR SWMP)

How do hurricanes affect water quality in different types of seagrass ecosystems, as well as what differences occur in areas with a strong seagrass influence compared to areas with little to no seagrass – after being hit by a hurricane? I may also compare sites often hit by hurricanes (Grand Bay & Rookery Bay) to those that are rarely or never hit by them (Padilla Bay), to see if there are any differences that may be attributable to hurricanes (NERR SWMP)

WWU Grad Students

Iron and silicic acid limitation to primary productivity in the high nutrient-low chlorophyll regions of the Southern ocean (JGOFS).

Effects of sea surface temperature, chlorophyll-a levels, and midwater trawling on humpback and fin whale distribution and abundance in Gulf of Maine (Allied Whale sighting data, GoMOOS, fishing data).

Chlorophyll a concentrations and SST for inland and coastal waters of Washington State (NANOOS)

Determine if there is a correlation between sea surface temperatures and coral disease (e.g. bleaching) at three different sites in the Caribbean Sea (SST data, NOAA Coral Reef Ecosystem Integrated Observing System (CREIOS)).

Trophic web shifts from autotrophic-based to heterotrophic-based systems in response to increased precipitation in coastal systems (NERR SWMP).

Total CO₂ concentrations and primary production rates in the Sargasso Sea (JGOFS)

*Describing seasonal and annual abundance and variability of *Synechococcus* in oligotrophic ocean systems* (HOTS)

Topics in Ocean Science (ESCI 204) - undergraduates

Effect of earthquakes on wave height, length and duration.

Comparison of long term patterns in coastal ocean temperature on east vs. west coast (Padilla Bay vs. Zeke's Basin, NC).

Comparing temperature and dissolved oxygen content measurements over the past year in two National Estuarine Research Reserves (NERR), one in Kachemak Bay, Alaska, and the other in Tijuana River, California.

Effect of precipitation on Samish River discharge and subsequent effects on salinity in Padilla Bay (NERR SWMP, USGS river flow data).

Effect of upwelling on ocean water column. Specifically, we will look at a location off of the coast of Washington in 2008 and 2009, and compare the water temperature and salinity content to see if the strengths of the upwelling season had any effect on the water column in this area.