Sources of Online Data

There are numerous sources of observational data available through the web. Listed below are some common web-based data resources that we will use as part of class investigations and that you may want to use as part of your data synthesis.

COASTAL AND MARINE ECOSYSTEMS (WATER QUALITY/OCEANOGRAPHY/FOOD WEB DYNAMICS)

1) National Estuarine Research Reserve (NERR) System-Wide Monitoring Program (SWMP):
A national program entailing nutrient and water quality monitoring among a network of 28 coastal and estuarine research reserves. Includes continuous monitoring of water quality parameters, weather, and bi-monthly analyses of nutrients, chlorophyll, etc.
Monitoring data: http://cdmo.baruch.sc.edu/
Information on the program and Reserves http://nerrs.noaa.gov/Default.aspx

2) Northwest Association of Networked Ocean Observing Systems (NANOOS)
NANOOS is a collection of many ocean observing platforms, including buoys, cruise data, fixed platforms, and ocean gliders. Many of the "assets" include real-time data streams.
NANOOS Visualization System: http://www.nanoos.org/nvs/nvs.php
Ocean Data Explorer: http://nvs.nanoos.org/Explorer
Smartphone app is also available at www.nanoos.org/mobile_apps/index.php

3) NOAA Ocean Tide Predictions: List of states and locations to browse, or you can use a interactive map
Tide predictions: http://tidesandcurrents.noaa.gov/tide_predictions.shtml

4) Washington Department of Ecology:
Ecology has numerous fixed stations that are visited by a plane that deploys a CTD, as well as real-time data at specific sites, including SPMC, ferry terminals, and real-time readings on the Victoria Clipper.
Real time data: http://www.ecy.wa.gov/programs/eap/mar_wat/moorings.html
Marine Flight Data: http://www.ecy.wa.gov/apps/eap/marinewq/mwdataset.asp

5) CMOP
http://www.stccmop.org/datamart

6) U.S. Global Oceans Ecosystem Dynamics (GLOBEC):
A multi-disciplinary research program designed by oceanographers, fishery scientists, and marine ecologists to examine the potential impact of global climate change on ocean ecosystems. Regions studies (and sources of data) include Georges Bank, Southern Ocean, Northeast Pacific.
National GLOBEC web page: http://www.usglobec.org/
WHOI GLOBEC sites (good starting point) http://globec.whoi.edu/globec.html
Interactive map for data http://mapservice.bco-dmo.org/mapserver/maps-ol/index.php

7) U.S. Joint Global Ocean Flux Study (JGOFS):
Large-scale survey of biogeochemical processes in the open ocean. Includes *process-based studies* (i.e. North Atlantic Bloom Experiment (NABE), Equatorial Pacific (EqPAC), Arabian Sea, and Antarctic Environment and Southern Ocean Process Study (AESOPS)) and long-term *times series* (Bermuda Atlantic Time series (BATS) and Hawaii Ocean Time Series (HOTS)). Dataset include surface transects and vertical water profiles and includes a wide range of biological, chemical and physical parameters.
Program website (and data access): http://usjgofs.whoi.edu/
Outline of research program: http://usjgofs.whoi.edu/research/

8) Pacific Fisheries Environmental Laboratory (PFEL) Upwelling indices:
This site provides real-time and archived data on upwelling indices for coastal regions in the Northern and Southern hemispheres. Date for the northern hemisphere consist of six-hourly, daily and monthly upwelling indices at 15 positions along the west coast of North America and are derived from synoptic (6-hourly) sea level pressure gridded fields by PFEL. These indices are updated monthly.

Information available includes PFEL Upwelling Index homepage, a map of monthly averages (1967-1991), and graphs of the daily upwelling indices for the last 18 months at various locations along the coast. Data can be downloaded as raw text files or through a live access server.

9) United States Geological Survey River and Stream Flow Data:
This web resource provides links to flow and river height data from across the country. Great source of data if you are interested in the interactions between coastal systems and the rivers that feed into them.
Flow Data for Washington State: http://waterdata.usgs.gov/wa/nwis/rt
USGS National Streamflow portal: http://waterdata.usgs.gov/nwis/rt

OCEAN AND ATMOSPHERIC CARBON, CO2 AND CARBON FLUX DATA

10) NOAA Pacific Marine Environmental Laboratory (PMEL) Carbon Program::
The mission of PMEL is to advance our scientific understanding of the ocean carbon cycle and how it is changing over time, in support of NOAA's commitment to improve the Nation's ability to anticipate and respond to climate impacts and to conserve and manage healthy oceans, coastal ecosystems, and marine resources. PMEL research includes documenting the evolving state of the ocean carbon chemistry with high quality measurements on ships and autonomous platforms, studying the processes controlling the role of the ocean in the global carbon cycle, and investigating how rising atmospheric CO_2 and climate change affect the chemistry of the oceans and its marine ecosystems.
PMEL Home Page: http://www.pmel.noaa.gov/co2/
Seattle Space Needle CO2 data: http://www.pmel.noaa.gov/co2/story/Space+Needle
PMEL CO2 data portal: http://www.pmel.noaa.gov/co2/map/index
Keeling Curve: Interactive CO2 data http://keelingcurve.ucsd.edu/

11) Lamont-Doherty Earth Observatory (LDEO) & CO_2 Information Analysis Center (CDIAC):
Measurements of surface water pCO2 obtained over the global oceans during 1968-2006. Data include pCO2, sea surface temperature (SST), sea surface salinity (SSS), and ambient barometric pressure. The database is available as simple ASCII data and metadata files,.
Site: http://cdiac.ornl.gov/oceans/LDEO_Underway_Database/LDEO_home.html
Global pCO2 numerical dataset (NDP-088): http://cdiac.ornl.gov/oceans/ndp_088/ndp088.html

MARINE HABITATS AND ORGANISMS

12) NOAA Coral Reef Ecosystem Integrated Observing System (CREIOS):
The NOAA Coral Reef Conservation Program (CRCP) has combined its mapping and monitoring projects into the Coral Reef Ecosystem Integrated Observing System (CREIOS). CREIOS provides a diverse suite of long-term ecological and environmental observations and information products over a broad range of spatial and temporal scales to understand coral reef ecosystem condition and processes and to inform stakeholders and assist managers in making improved and timely ecosystem-based management decisions to conserve coral reefs.
NOOAs coral reef conservation program: http://coralreefwatch.noaa.gov/creios.php
Coral Reef Watch: http://coralreefwatch.noaa.gov/satellite/index.php

13) COPEPOD: Coastal & Oceanic Plankton Ecology, Production & Observation Database
Online database of plankton abundance, biomass, and composition data compiled from a global assortment of cruises, projects, and institutional holdings. COPEPOD's online zooplankton and phytoplankton data content ranges from long term ecosystem monitoring surveys to detailed process studies, each accessible via a variety of search options, and each detailed via standard visual and text-based content summaries. COPEPOD also offers a variety of pre-generated data compilations and gridded mean field products at regional, basin, and global scales.
Website: http://www.st.nmfs.noaa.gov/copepod/

14) Reef Environmental Education Foundation (REEF):
REEF is a grass-roots, non-profit organization of recreational divers who regularly conduct fish biodiversity and abundance surveys during their dives. These surveys are conducted as part of REEF's Fish Survey Project, and become part of a database that is publicly-accessible via the REEF website at http://reef.org/db/reports

15) WhaleNet:
An interactive educational web site which focuses on whales and marine research. WhaleNet has the goal of enabling students to participate, with scientists, in unique research using advanced technologies. WhaleNet coordinates the Satellite Tagging Observation Program (STOP) and is sponsored by Wheelock College in Boston, Massachusetts with initial support from NSF.

WhaleNet http://whale.wheelock.edu/Welcome.html
WhaleNet STOP page: http://whale.wheelock.edu/whalenet-stuff/stop.html

16) Tagging of Pacific Predators (TOPP):
Program started in 2000 as part of the Census of Life surveys. This websites enables users to track marine organisms as part of a satellite tracking program.

TOPP Home Page: http://www.topp.org/
TOPP near real time animal tracks: http://las.pfeg.noaa.gov/TOPP/
We also have a development version here: http://las.pfeg.noaa.gov/GTOPPnew/.
This interface is undergoing some slight modifications and will be available through gtopp.org as well
Finally, the Ocean Tracks website can be viewed at http://oceantracks.org.

17) Fisheries Data Resource:
In an attempt to bring the world of fisheries science into the classroom, they have created a website that serves as a portal to some data resources available on the NOAA Fisheries Alaska Fisheries Science Center website. Data include;

- Abundance and Distribution data of Alaska fish
- Length at age data
- Larval fish (ichthyoplankton) data
- Crab distribution data

Link to the page at: http://www.afsc.noaa.gov/Education/Activities/data.htm