

**Abiotic factors:** nonliving things in the environment, including soil, water, temperature, air, light wind, and minerals.

**Anoxia:** lack of oxygen

**Autotroph:** an organism capable of self-nourishment by using inorganic materials as a source of nutrients and using photosynthesis or chemosynthesis as a source of energy. For example, most plants, bacteria and protists

**Bacteria:** microscopic one-celled organisms constituting the phylum Schizomycota, of the kingdom Monera, and various species involved in infectious diseases, nitrogen fixation, fermentation or putrefaction

**Benthic:** of or pertaining to the biogeographic region that includes the bottom of a lake, sea, or ocean and the littoral and supralittoral zones of the shore

**Bioaccumulate:** the act of gathering or collecting in a biological manner or organism.

**Biosphere:** all parts of the earth where life is found. It extends from the deepest oceans to the upper atmosphere and includes all the air, land and water where life exists.

**Biotic factors:** living things in the environment, such as plants and animals

**Black smoker:** submarine hydrothermal vents that have vent waters rich in black particles of metallic sulfides and temperatures around 350°C.

**CTD:** an instrument that is often used by scientists over the side of a ship to gather conductivity, temperature, and depth data. Often, there are other instruments attached to it.

**Carrageenan:** extract from seaweeds used as a stabilizer in foods and pharmaceutical ingredients

**Cephalopod:** any mollusk of the class Cephalopoda, having tentacles attached to the head

**Conclusion:** logical statement based on the observations and data collected during the experiment

**Control:** in an experiment, the standard for comparison. The control experiment setup is exactly like the experimental setup except that the control experiment does not contain the variable.

**Controlled conditions:** the physical conditions of the laboratory, or experiment that the scientist directs.

**Coral Reef:** a wave-resistant structure resulting from cementation processes and the skeletal construction of corals, algae, and other calcium carbonate-secreting organisms.

**Coriolis effect:** the deflection of air or water bodies, relative to the solid earth beneath, as a result of the earth's eastward rotation

**DDT:** a toxic compound formerly widely used as an insecticide

**Debris:** the remains of anything destroyed; ruins; rubble

**Deforestation:** to clear the forests of trees

**Dorsoventrally:** pertaining to the sides (dorsal and ventral) of the body. Dorsal pertains to the back, while ventral pertains to the front

**Drogue:** a device on a drifter that acts like an underwater sail

**Estuary:** a semi-enclosed body of water that has a free connection with the open sea and within which seawater is diluted measurably with freshwater that is derived from land drainage.

**Food Web:** the entirety of interrelated food chains in an ecological community

**Finite:** having bounds or limits, capable of being counted

**Heterotroph:** an organism requiring organic compounds for its principal source of food

**Hypothesis:** a prediction that can be tested

**Infauna:** the aggregate of animals that burrow into and live in the bottom deposits of the ocean

**Mangroves:** a grouping of trees belonging to the genus *Rhizophora*, tropical and subtropical trees adapted to being rooted in seawater

**Marine:** of or pertaining to the sea, pertaining to navigation or shipping

**Meroplankton:** animals that have life stages that spend some time in the plankton

**Messenger:** a small device attached to an oceanographic wire that is released to trigger a sampling bottle to close at a predetermined depth

**Morphological:** the branch of biology that deals with the form and structure of organisms

**Nekton:** the aggregate of actively swimming aquatic organisms in a body of water

**NEMO:** Nonpoint Education Municipal Officials

**Niskin bottle:** water sampling bottle with removable ends that used to collect water at depth

**Nutrients:** nourishing; materials providing nourishment as solutions or other materials

**Pathogens:** any disease-producing agent, especially a virus, bacterium, or other microorganism

**Pelagic:** of or pertaining to the open ocean or seas, living at or near the surface of the open seas

**Phyla:** taxonomic grouping together of all classes of organisms that have the same body plan

**Phytoplankton:** the aggregate of plants and plantlike organisms in plankton

**Piscivorous:** fish-eating

**Plankton:** aggregate of passively floating, drifting, or somewhat motile organisms occurring in a body of water, primarily comprising microscopic algae and protozoa

**Primary productivity:** The amount of organic matter synthesized by organisms from inorganic substances within a given volume of water or habitat in a unit of time

**Pollution:** the introduction of harmful substances or products into the environment.

**PCB's (polychlorinated biphenyls):** any member of a family of highly toxic, possibly cancer causing compounds

**PORTS:** Physical Oceanographic Real Time System

**Rosette sampler:** a circular metal array used to attach up to 24 Nansen or Niskin bottles to. Using so many bottles allows for waters to be collected at several predetermined depths.

**Refractometer:** an instrument for determining the refractive index of a substance (Refractive index measures the change of direction of a ray of light sound, heat in passing obliquely from one medium into another in which the wave velocity is different

**Salinometer:** device used to measure the salinity of seawater by determining its electrical conductivity

**Scientific Method:** problem-solving procedure used by scientists: define the problem, make a hypothesis, test the hypothesis, analyze the results, and draw conclusions.

**Sessile:** permanently attached, not free moving

**Silt:** earthy matter, fine sand, or a fine sediment. Usually carried by moving or running water and deposited

**Substrate:** the surface or medium on which an organism lives or grows

**Terrestrial:** consisting of land as distinct from water, of or pertaining to land, growing or living on the land

**Turbidity:** not clear or transparent because of stirred-up sediment or the like; clouded; opaque

**Variable:** in an experiment, the factor that is being tested.

**Vertebrate:** having an internal skeleton of bone or cartilage that includes a braincase and a spinal column, and comprising mammals, birds, reptiles, amphibians, and fishes

**Viruses:** ultramicroscopic (20 to 300 nanometers in diameter), metabolically inert, infectious agent that replicates only within the cells of living hosts, mainly bacteria, plants, and animals.

**Zooplankton:** the aggregate of animal or animal-like organisms in plankton

---

### **Web sites of Interest for Teachers and Students**

---

#### **Pollution**

- [http://seawifs.gsfc.nasa.gov/OCEAN\\_PLANET/HTML/education\\_lesson1.html](http://seawifs.gsfc.nasa.gov/OCEAN_PLANET/HTML/education_lesson1.html)
- [http://seawifs.gsfc.nasa.gov/OCEAN\\_PLANET/HTML/peril\\_watershed.html](http://seawifs.gsfc.nasa.gov/OCEAN_PLANET/HTML/peril_watershed.html)
- [http://seawifs.gsfc.nasa.gov:80/OCEAN\\_PLANET/HTML/peril\\_wetlands.html](http://seawifs.gsfc.nasa.gov:80/OCEAN_PLANET/HTML/peril_wetlands.html)
- [http://seawifs.gsfc.nasa.gov:80/OCEAN\\_PLANET/HTML/reflections\\_suggestions.html](http://seawifs.gsfc.nasa.gov:80/OCEAN_PLANET/HTML/reflections_suggestions.html)
- [http://seawifs.gsfc.nasa.gov:80/OCEAN\\_PLANET/HTML/toxins\\_dioxin.html](http://seawifs.gsfc.nasa.gov:80/OCEAN_PLANET/HTML/toxins_dioxin.html)
- <http://educate.si.edu/lessons/currkits/ocean/pollution/essay.html>

#### **Year of the Ocean**

- <http://marine.er.usgs.gov/yoto/drifters.html>
- <http://www.yoto98.noaa.gov/facts/gen.htm>
- <http://www.cmc-ocean.org/mdio/facts.html>
- <http://drifters.doe.gov>

#### **Other sites materials were referenced from in this packet:**

- [http://topex-www.jpl.nasa.gov/discover/ocean\\_planet.html](http://topex-www.jpl.nasa.gov/discover/ocean_planet.html)
- <http://topex-www.jpl.nasa.gov/education/education.html>
- <http://www.epa.gov/OWOW/estuaries/coastlines/winter97/galv.html>
- <http://www.epa.gov/owowwtr1/estuaries/coastlines/coastlines6.1/sarasota.html>
- <http://color.mlml.calstate.edu/www/mbnms/docs92/kelp4.htm>
- <http://NASA.gsfc.daac>
- <http://seaweb.org/safinaoped.html>

**To follow the progress of the Year of the Ocean Drifters Project explore its web site:**

<http://www.yoto98.noaa.gov>

**Or other related web sites with data and other information:**

The Global Drifter Center (GDC)

<http://www.aoml.noaa.gov/phod/dac/gdc.html>

*Atlantic Oceanographic and Meteorological Laboratory (AOML)*

*National Oceanic and Atmospheric Administration (NOAA)*

National Data Buoy Center (NDBC) <http://seaboard.ndbc.noaa.gov>

*National Weather Service (NWS)*

*National Oceanic and Atmospheric Administration (NOAA)*

Marine Environmental Data Service (MEDS)

[http://www.meds.dfo.ca/MEDS/e\\_home.html](http://www.meds.dfo.ca/MEDS/e_home.html)

*Canadian Federal Department of Fisheries and Oceans (DFO)*

U.S. Coast Guard International Ice Patrol

<http://www.rdc.uscg.mil/iippages/home.html>

**Consortia**

Consortium for Oceanographic Research and Education (CORE)

<http://core.cast.msstate.edu/corehmpg1.html>

**Educational Activities**

The Globe Program <http://www.globe.gov/>

SeaWifs

[http://seawifs.gsfc.nasa.gov/OCEAN\\_PLANET/HTML/search\\_educationalmaterials.html](http://seawifs.gsfc.nasa.gov/OCEAN_PLANET/HTML/search_educationalmaterials.html)

**Oceanographic Research**

Oceanography of the Intra-Americas Seas

<http://aoml.noaa.gov/phod/wimp/iai>

Scripps Institutions of Oceanography <http://sio.ucsd.edu>

United States Geological Survey <http://marine.er.usgs.gov/yoto/>

---

## References

---

Coastal Challenges: A guide to coastal and marine issues. 1998. National Safety Council's Environmental Health Center, Washington, DC . 178pp.

International Year of the Ocean Fact Sheets Guide to Additional Resources. published by: U.S. Department of Commerce, National Oceanic and Atmospheric Administration Office of Public & Constituent Affairs. 1998. 26pp.

Leonard, W.H. 1998. Biology: A Community. South Western Educational Publishing Company. Cincinnati, OH. 576pp. Funded by: The National Science Foundation

Trant, D.J. 1968. Reviews on Zooplankton Methods. United Nations Educational Publishing Company. New York, NY 174pp.