**Additions to Activities Already a Part of Your**

**Biology Curriculum**

• Animal Dissections. Look in the stomach of a fish, shark, or mussel. What did it have for its last meal?

Was the animal living in the wild or was it from a farm? Try to identify any remains. Analyzing gut contents is used to understand the food web. For many fish species, it is nearly impossible to see them feed in the wild, yet their gut contents tell us what they eat and the percentages of each species eaten.

• Microscopic Organisms. When studying microscopic organisms, take a look at marine phytoplankton.

Take a sample of water from the sea. It is best to use a net with a small mesh size to catch the small phytoplankton. Use keys to identify the plankton. If purchasing pre-made slides, buy a set of marine phytoplankton. Compare the size of diatoms to dinoflagellates or other phytoplankton. Diatoms are the dominant phytoplankton in the upwelling regions such as the Gulf of the Farallones. Dinoflagellates are the food of choice for sand crabs.

• Photosynthesis and Respiration. Measure the change in the oxygen concentration of water in a light and dark bottle. This was the original way to measure photosynthesis in the ocean. In the dark bottle (cover a flask with tape), only respiration can happen. In the light bottle, both photosynthesis and respiration occur. First measure the oxygen concentration of water from the ocean, the bay, or a lake. Then fill the dark and light bottles with water from the ocean, the bay, or a lake. Let sit for 24 hours. Measure the oxygen concentration of the water in both the dark and light bottles. The light bottle should have an increase in oxygen if there were phytoplankton present.

• Chlorophyll a and Other Photosynthetic Pigments. Using a simple chromatography procedure include marine algae in your list of samples to analyze. You can collect algae at the shore (be sure you have a permit if needed, check with the beach manager). A description of this activity can be found in S.E.A. Lab: Marine Science for High School Students in Chemistry, Biology and Physics. UNC Sea Grant Publication Unc-SF-90-01.

• Food Web Connections. Students can make mobiles or drawings to represent the food web. They should connect the organisms using arrows to show the feeding relationships in an ecosystem. Different groups of students can work on different habitats (open waters of the coastal Gulf of the Farallones, the open ocean water, the sandy beach, and the rocky intertidal zone).