BIOLOGY IN ENGLISH

El Niño–Southern Oscillation alters weather patterns

When the Humboldt Current is not as cool as usual, upwelling of nutrients does not occur, stagnation results, the fisheries decline, and climate patterns change globally. This phenomenon, called an *El Niño–Southern Oscillation*, has a profound effect on the weather; a severe El Niño affects the weather over three-quarters of the globe (**figure 1**).

During an El Niño, southern California is hit by storms and even hurricanes, and the deserts of Peru and Chile receive so much rain that flooding occurs. A jet stream (strong wind currents) can carry moisture into Texas, Louisiana, and Florida, with flooding a near certainty. Or the winds can turn northward and deposit snow in the mountains (**figure 2**) along the West Coast so that flooding occurs in the spring. Some parts of the United States, however, benefit from an El Niño. The Northeast is warmer than usual; few, if any, hurricanes hit the East Coast; and there is a lull in tornadoes throughout the Midwest.

Eventually, an El Niño dies out, and normal conditions return. The normal cold-water state off the coast of Peru is known as *La Niña* (the girl). Since 1991, the sea surface has been almost continuously warm, and two record-breaking El Niños have occurred. Some scientists are seeking data to relate this environmental change to global warming, a rise in environmental temperature due to greenhouse gases in the atmosphere.

ANSWER

Ordinarily, strong winds assist the movement of waters away from the coast so that cold, nutrient-rich water rises to the surface. Do you predict these winds are as strong as usual during an El Niño?

Figure 2
Frozen berries for cold climate out of season.

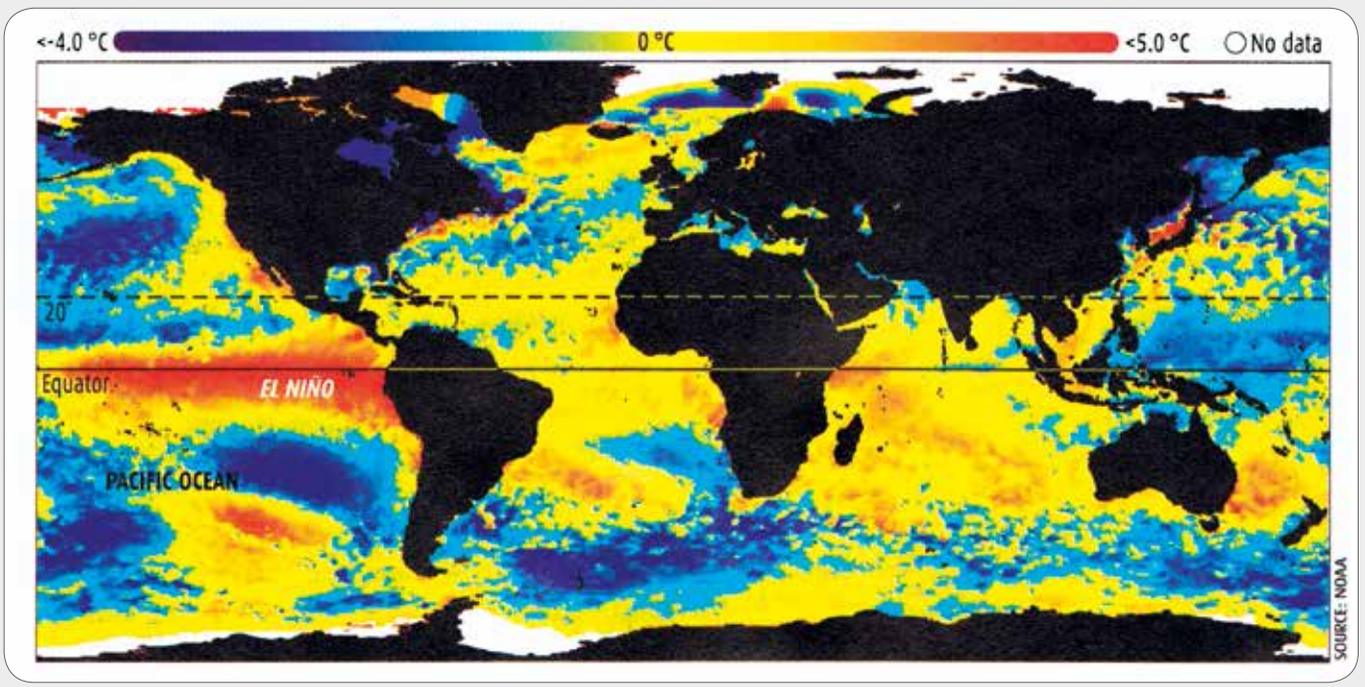

Figure 1 In this satellite image of anomalies in average sea surface temperatures, taken during 1998, you can see the very strong El Niño that helped make it one of the warmest years on record.