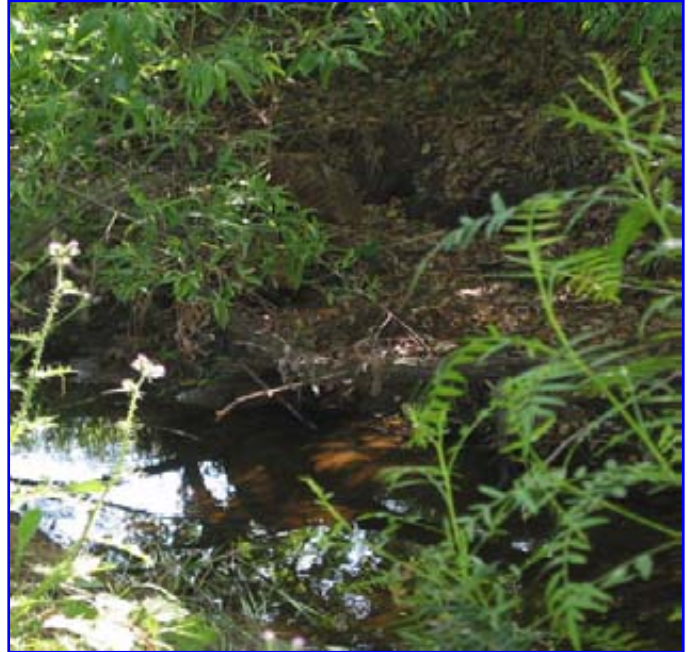# Temperature

Temperature is an important indicator of the general condition of a water body and the ecosystem it supports. The following physical and biochemical processes are all affected by water temperature: dissolved oxygen levels; the rate of photosynthesis of aquatic plants; the metabolic rates of aquatic organisms; and the sensitivity of aquatic organisms to toxic substances, parasites, and diseases. Changes in temperature can naturally affect these processes, leading to stress in organisms and death. Reproductive stages are the most sensitive to a change in temperature. The following are some factors that could cause a change in the temperature of a water body: weather, riparian shade, water level, dams, industrial discharges and storm water.

Example of Riparian Shade at Jamul Indian Village

Understanding the Impact of Temperature Fluctuations: Optimal temperature ranges depend on the water body. If temperatures are outside the optimal range for the water body for an extended amount of time, organisms will become stressed and die. For fish, there are two kinds of limiting temperatures: the maximum temperature for short exposures, and a weekly average temperature that may vary by time of year and life cycle stage. It would be beneficial to know optimal ranges for the organisms in the water body. Find out what the tribal, state, or federal standard range for temperature is to use as a comparison for the data you are collecting.

Algal bloom is caused by a variety of issues, including temperature.

Monitoring Temperature: There are a variety of monitoring devices available to measure temperature. What you select will depend on the monitoring objectives set forth in your environmental and monitoring program. The following equipment options are commonly used to collect temperature data from the field.

All options should be readily available at Laboratory supply stores:

- Thermometers
- Meters
- Multi-parameter probes
- Contract Laboratory (if necessary)

For additional information:
www.epa.gov/owow/monitoring/volunteer/stream

For more information, please contact your CWA Project Officer or Kristin Gullatt, Manager of the Water Division, Tribal Office at (415) 972-3432.