

**Low pH levels:**

San Diego River

*What does this mean?*

pH measures hydrogen concentration in water and is presented on a scale from 0 to 14: 0-6 is acidic, 7 is neutral, and 8-14 is basic. Natural waters usually have a pH between 6 and 9. CO<sub>2</sub>, minerals & soils, decaying vegetation, and nitric acid (HNO<sub>3</sub>) & sulfuric acid (H<sub>2</sub>SO<sub>4</sub>) caused by air pollution from car exhaust and power plants (also known as acid rain) can all affect the pH of our water. The EPA has set standards for pH levels in drinking water- a pH lower than 6.5 or higher than 8.5 is considered unhealthy to drink. Extreme pH values are unsuitable for most aquatic organisms. Many biological processes, such as reproduction, cannot function in acidic or alkaline waters. Immature aquatic species are even more sensitive to extreme pH levels. High pH levels can harm fish by denaturing cellular membranes. Changes in pH can also affect aquatic life by altering other aspects of water chemistry.

**Low DO levels:**

Mesa Grande Reservation

Santa Ysabel Reservation

Pauma Reservation

San Pasqual Reservation

Sycuan Reservation

San Clemente Canyon

San Diego River

Mission Bay- Santa Clara Point

*What does this mean?*

Dissolved oxygen (DO) is a basic requirement for a healthy aquatic ecosystem. Most fish and aquatic insects breathe oxygen dissolved in the water column. Most fish species suffer if DO concentrations fall below 4 mg/L because there isn't enough oxygen available in the water to sustain life. Larvae and juvenile fish are even more sensitive and require even higher concentrations of DO. Oxygen concentrations in the water column fluctuate under natural conditions, but severe depletion usually results from human activities that introduce large quantities of biodegradable organic materials (like sewage & pet excrement) into surface waters. In polluted waters, bacterial degradation of organic materials can result in a net decline in oxygen concentrations in the water. Low DO levels can also result from chemical reactions from introduced chemicals in the water. Other factors, such as temperature and salinity, influence the amount of DO in the water too- warm water cannot hold as much oxygen as cold water.

**High Turbidity levels:**

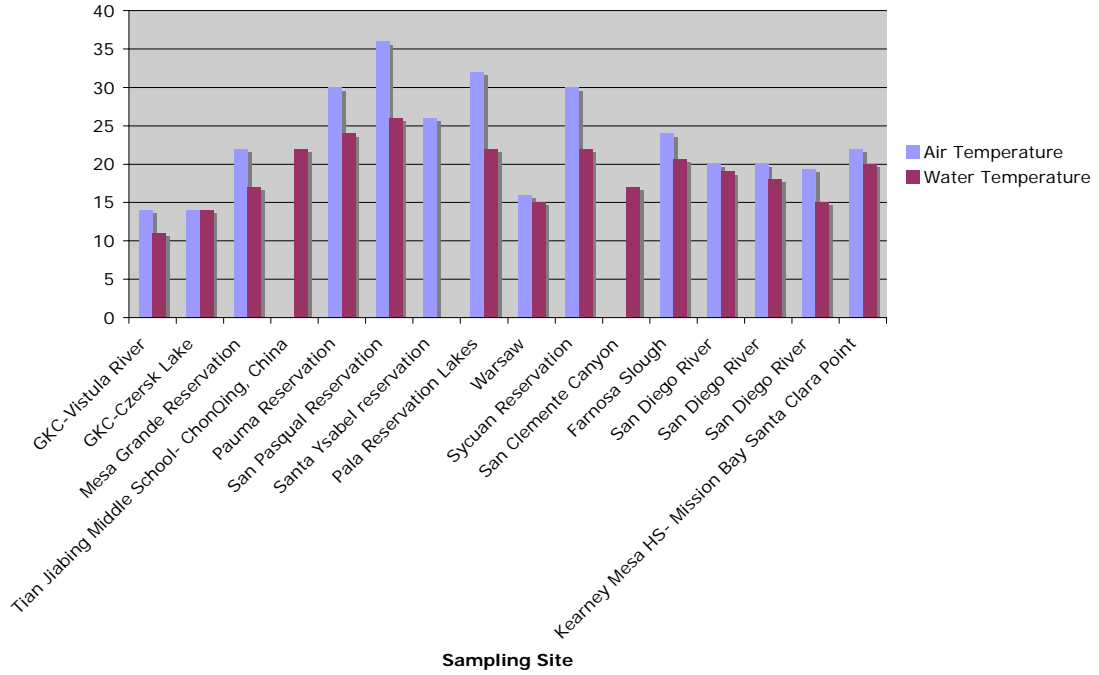
Pauma Reservation

*What does this mean?*

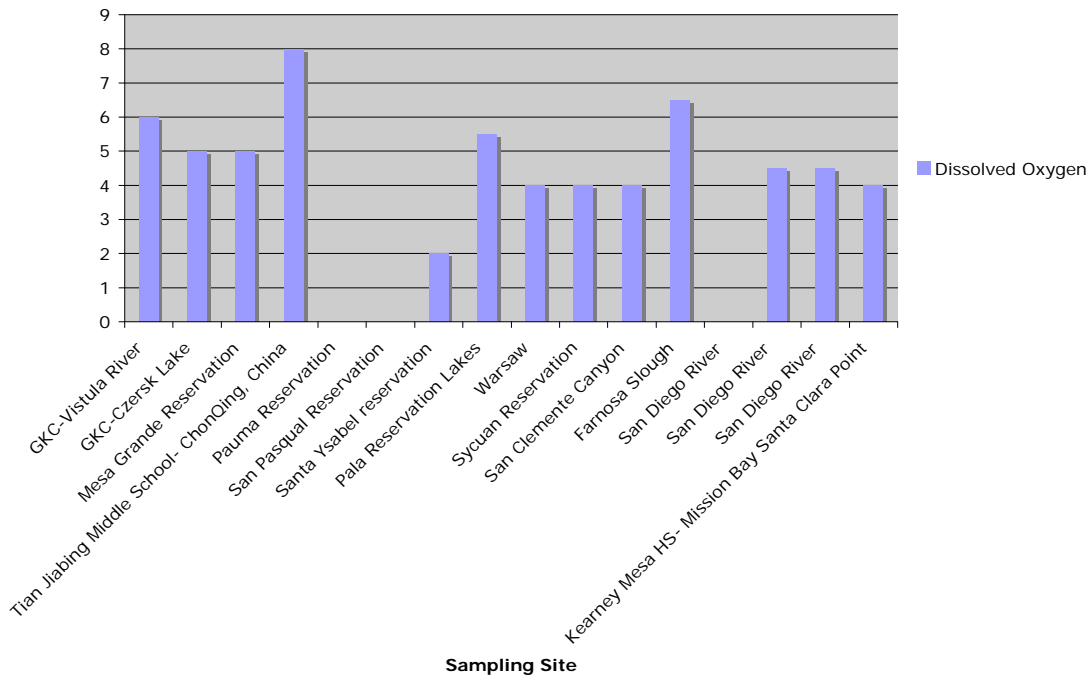
Turbidity is the measure of cloudiness of water- the cloudier the water, the greater the turbidity. Suspended matter such as clay, silt and organic matter cause cloudiness, as

well as plankton and other microscopic organisms that interfere with the passage of light through the water. Turbidity itself is not a major health concern, but high turbidity can provide a medium for microbial growth, or indicate the presence of microbes. High turbidity can be caused by soil erosion, urban runoff and high flow rates.

WWMD 18 October 2006: Air & Water Temperature



WWMD 18 October 2006: Dissolved Oxygen



WWMD 18 October 2006: pH

