Pomona Lake Water Quality Data

2001 - 2011

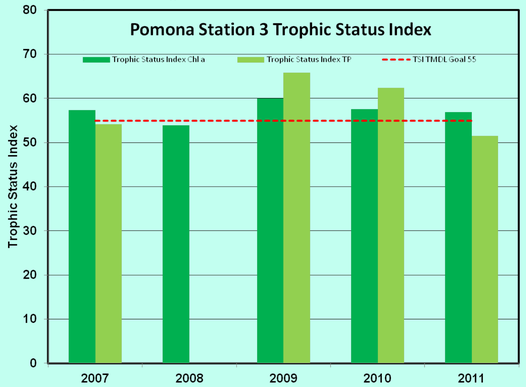
Pomona Lake:

- Built on 110 Mile Creek reaching full pool in 1965.
- Watershed = 322 sq miles / 206,080 Surface Acres (SA)
- Capacity:
  - Flood Control: 176,123 Acre Feet (AF) / 8,522 SA
  - Multipurpose: 64,208 AF / 3,865 SA/ 52 miles of shoreline
- Operating project purposes: flood control, water quality, recreation, fish and wildlife, and water supply.
- Avg. annual inflow (1980-2011)=155,900 AF, 2011 inflow=57,500 AF

The US Army Corps of Engineers (COE) Water Quality Program collects monthly water samples (April – September) at Pomona Lake. These figures present data collected between 2001-2011 from up to 6 sites. The sites include inflow (#11), four lake sites (#7,12,14,3), and the outflow (#2). Thirty-four chemical, physical and biological parameters are measured to evaluate water quality. COE use this data to describe conditions and changes from the inflow, lake, and outflow focusing on eutrophication, nutrients, sediment, herbicides, metals, and contaminants.

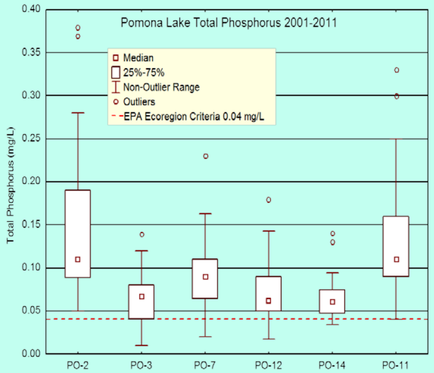
Trophic Status Index

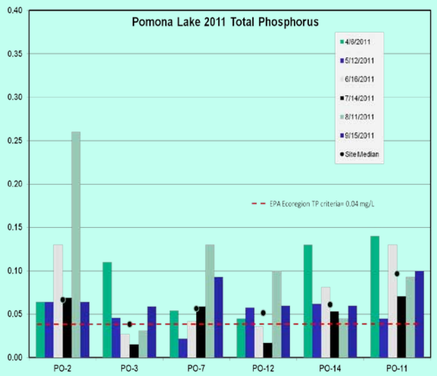
Trophic Status Index (TSI) is a calculation based on average summer chlorophyll a from algae, total phosphorous, or secchi measurements. TSI is used to describe the eutrophication process in numeric terms which can be used for comparison of changes and effects over time. EPA has worked with water quality partners to develop Total Maximum Daily Loads (TMDL) to regulate nutrient enrichment to keep Pomona Lake water quality acceptable for recreational, aquatic life, drinking water, and industrial needs. TSI value of less than 55 calculated from chlorophyll is the goal.



Total Phosphorus

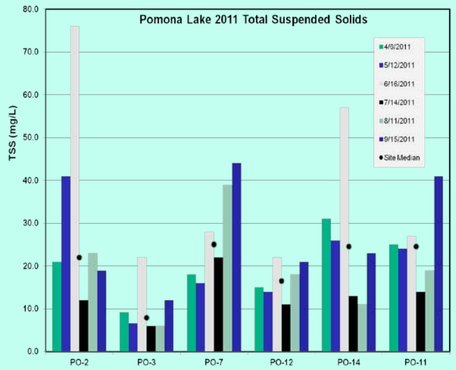
Total phosphorus (TP) median concentrations from 2011 Pomona Lake samples were higher than EPA Ecoregion Criteria (0.04 mg/L) except at the dam (PO3). Median TP at all Pomona Lake sites are in the range of high biological productivity leading to high algae populations and rapid fish growth as indicated by eutrophic class designation. In 2011, Pomona TP concentrations were similar to long term averages and trends with phosphorus concentrations highest in spring and fall months. Similar to most impoundments, higher TP concentrations and a wider range of data is usually found in the upper lake sites and inflows due to mobilized nutrients bound to silt particles transported in moving water near the inflows and biological uptake or decline of TP as the water moves through the lake.

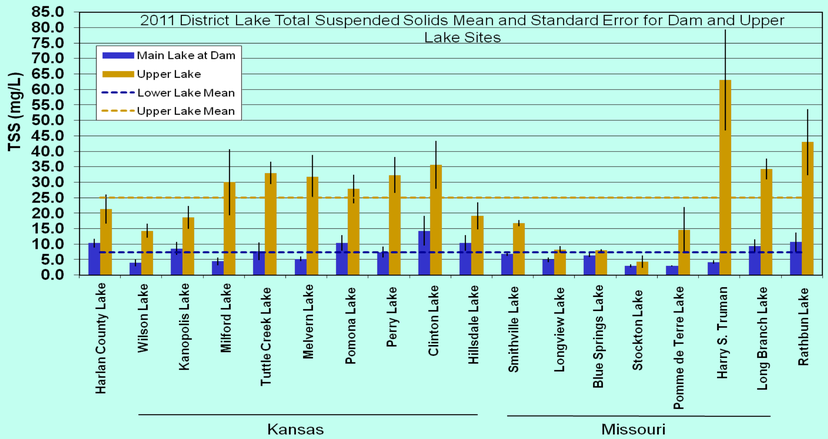




Total Suspended Solids

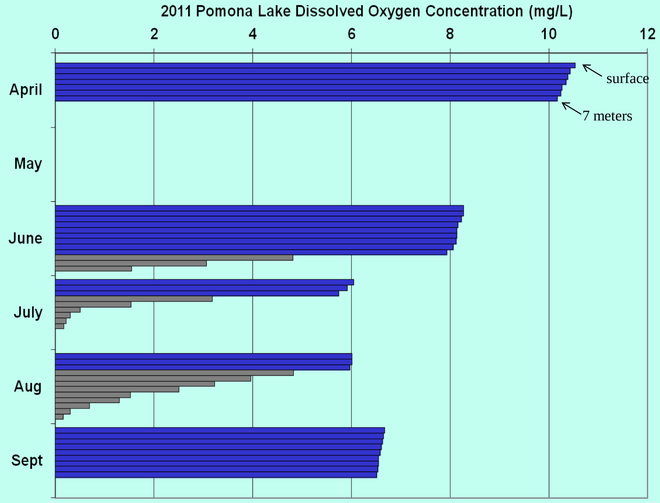
Total Suspended Solids (TSS) is a good index used to describe erosion in river basins, sedimentation or filling rates of downstream reservoirs. TSS is also closely linked to nutrient and contaminant transport through river systems. Pomona Lake TSS values at the upper and lower sites were above average for District lakes with 62% of TSS settled out as water moved from the upper lake to the dam. Small particle size of sediments and short travel distance/time from inflows to dam influence TSS settling rate.





Dissolved Oxygen

Dissolved oxygen is a key factor in aquatic species location, growth, and ultimately survival in lakes. Some lakes undergo a process called stratification or develop layers based on temperature and oxygen. This process begins in late spring, remains throughout the summer, and breaks apart (de-stratifies or 'turns over') in the fall. The figure below shows dissolved oxygen measured in the water column in one-meter intervals (e.g. each row in each month represents one meter of depth) from April through September. Pomona Lake stratifies for a short period of the summer, but adequate (5 mg/L) dissolved oxygen is typically available. In 2011, the top 3 meters of the lake was well oxygenated for fish and aquatic life throughout the summer.



Water Quality Concerns:

- Sediment inputs
- Eutrophication
- DO (shallow depth of stratification

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