# Estimating Oxygen Demand and Algal Nutrient Loadings from SJR DWC Watershed

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As part of developing San Joaquin River (SJR) deep water channel (DWC) oxygen demand load estimates the following information will be needed.

Total area of the SJR watershed that contributes water to the SJR DWC and areas of the SJR tributaries that are part of the SJR DWC watershed

- Dominant land uses (acres) in each of the SJR tributaries broken down to:
    - Irrigated agriculture
        - Also broken down for each major crop type
    - Dry land (non-irrigated) agriculture with type of crop
    - Forest
    - Urban areas (acres) with estimated current populations
        - Method of urban stormwater runoff disposal
            - Discharge to SJR or a tributary
            - Infiltration to groundwater
            - Does the groundwater of the area of infiltration contain high nitrate which discharges to surface waters?

    - Information on nutrient (N and P) as well as BOD and ammonia concentrations and export per unit area per month/year for each type of land use

    - Information on water export-discharge to surface waters in irrigation tail water and stormwater runoff from agricultural areas

    - Export of SJR and tributaries waters for agricultural purposes with information on location of export and estimated amounts per month

    - Information on agricultural water/waste management practices that leads to shallow groundwater pollution by nitrate that contributes nitrate to the SJR surface water system

NPDES permitted domestic wastewater treatment plant flows, type of treatment, populations served, planned expansions-expected population growth over the next 10 to 20 years

- Information on BOD, ammonia, nitrate, nitrite, organic N, total P, and sol ortho P concentrations, and loads per year/month

- If domestic wastewaters are discharged to land or are stored in lagoons is there stormwater runoff/overflow from these areas to the SJR surface water system?

Dairies and feedlots with information on total numbers of animals, area, method of manure and wastewater disposal

- Monitoring data for N and P and BOD concentrations and loads
    - Impact of stormwater runoff from the dairy area and any waste management facilities to surface waters (N and P, BOD and ammonia concentrations and loads per month/year)

- Impact of shallow groundwater polluted by nitrate derived from dairy/feedlot operations on nitrate concentrations in surface waters
    - Are the dairies/feedlots polluting groundwaters in their area through infiltration of waste waters?
    - Does the shallow groundwater in the vicinity of the dairies/feedlots discharge to the SJR surface water system?

Information on industrial waste and wastewater discharges to surface waters and groundwater infiltration that can lead to increased oxygen demand loads (BOD, ammonia, N and P) in the SJR system

Information on atmospheric contributions of N and P to the SJR watershed and SJR waters

Other nutrient and oxygen demand loads in the SJR DWC watershed