



To: G. Fred Lee  
From: Nigel W. T. Quinn and Alice Tulloch  
Date: October 16, 2002  
Subject: Response to the Draft Peer Review Report dated July 1, 2002 from the San Joaquin River Dissolved Oxygen TMDL Studies Peer Review Panel, convened June 11 and 12, 2002.

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The draft final report for CalFed Project 01-N61-02 Tasks 1-5, 7 and 8 : *San Joaquin River Diversion Data Assimilation, Drainage Estimation and Installation of Diversion Monitoring Stations*, was reviewed by the San Joaquin River Dissolved Oxygen TMDL Studies Peer Review Panel, convened June 11 and 12, 2002.

The report did not elicit any major concerns nor were there any recommendations for changes, additions or corrections to the text. The committee concurred with the main findings of the report that San Joaquin River diversions and tributary inflows, especially from west-side sources, are critical to an understanding of algal biomass loading to the Deep Water Ship Channel.

One reviewer did suggest that the operation of the New Melones Reservoir on the Stanislaus River and the propensity for Stanislaus River diversions, in excess of water rights, might each affect algal biomass loading in the San Joaquin River.

#### Response

The reviewers are correct in their assumption that diversions along east-side tributaries have a large impact on the flow volume reaching the San Joaquin River. Diversions of water remove algal biomass from the tributaries, surface drainage from agricultural irrigation returns a portion of this algal load, together with chemical nutrients including N and P. However, compared to the west-side sloughs and tributaries in the southern end of the southern end of the Basin, the east-side tributaries are faster flowing, with relatively short flow paths from the point of diversion to the point of return. Hence the incubation time for algal biomass growth is limited. East-side sources of algal biomass are not expected to be as important as west-side sources such as Mud and Salt Sloughs. This concurs with Kratzer and Dahlgren's findings in the year 2000 studies. The authors suggest that continued monitoring, in support of the future HydroQual modeling project, should strive to validate our current assumptions and supplement the limited data collected to date on east-side tributary algal loads.

The reviewer may not be aware that there are six stream gauges along the Stanislaus River between Tulloch Reservoir (downstream from New Melones) and the confluence of the Stanislaus and San Joaquin Rivers. These stream gauges are operated either by the DWR or the USGS, two of which (Orange Blossom bridge and Ripon bridge monitoring stations) are part of the SJRMP Water Quality Subcommittee, real-time water quality

management network. The stream gauging sites are as follows in order from most upstream (near reservoir) to downstream (near confluence) :

Stanislaus River below Tulloch Reservoir - (USGS)

Stanislaus River below Goodwin Dam – (USGS)

Stanislaus River at Orange Blossom Bridge – (DWR, USGS)

Stanislaus River at Oakdale (DWR)

Stanislaus River at Ripon (USGS)

Stanislaus River at Koetitz Ranch (DWR) - (approx. 5 miles upstream of the confluence)

These various gauging stations allow estimation of river diversions (and return flows) to be made on a continuous basis and allow New Melones Reservoir operators to develop seasonal relationships between upstream and downstream gauged flows. Although there is no simple relationship between upstream flow and downstream flow, even after adjusting for seasonality, the current monitoring network is capable of short term estimates of tributary gains and losses by subreach.

#### Ongoing work

Every effort will be made to keep the new San Joaquin River diversion monitoring stations and new tributary stations operational in anticipation of upper watershed algal load studies in FY 2003 in support of CALFED-sponsored modeling activities.