United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, California 95825-1898

IN REPLY
REFER TO:
MP-740
ENV-8.00

OCT 27 2017

VIA ELECTRONIC MAIL ONLY

Jeanine Townsend
Clerk to the Board
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812-0100

Subject: Comment Letter – Basin Plan Amendment to Add Electrical Conductivity Water Quality Objectives in the San Joaquin River Between the Mouth of the Merced River and the Airport Way Bridge near Vernalis

Dear Ms. Townsend:

This letter responds to the State Water Resource Control Board's (State Board) September 28, 2017, "Notice of Opportunity to Comment" on the Basin Plan Amendment to Add Electrical Conductivity Water Quality Objectives in the San Joaquin River Between the Mouth of the Merced River and the Airport Way Bridge near Vernalis.

In general, the Bureau of Reclamation believes that establishing salinity objectives upstream of Vernalis could be beneficial to overall salt management, provided that the new objectives do not allow non-point source discharges to degrade existing salinity conditions immediately upstream of the State Board's compliance point at Vernalis, and are consistent with the State's Antidegradation Policy. As described in the attached technical report, Reclamation is concerned that the Regional Board's salinity objectives at the Maze Road compliance point appear to create new dilution flow demands for Reclamation and allow degradation of the Lower San Joaquin River (LSJR) water quality.

The new Water Quality Objectives (WQO) will allow water in the LSJR at Maze Road to reach an Electrical Conductivity (EC) of 1550 uS/cm during most years, and as high as 2470 uS/cm during extended dry periods. Maze Road is just three miles upstream of the Vernalis compliance point (700/1000 uS/cm). The objectives at Vernalis are primarily met by diluting water in the LSJR with flow from the New Melones reservoir. However, if the salinity at Maze Road is allowed to reach 1550 uS/cm (or 2470 uS/cm), Reclamation would be required to dilute this flow down to the new 700/1000 uS/cm objectives. As a result, complying with EC requirements between Maze Road and Vernalis will require Reclamation to release additional water from New Melones, which will not be available at all times.

Reclamation, therefore, respectfully requests that the State Board not approve the current Regional Board's "Basin Plan Amendment to Add Electrical Conductivity Water Quality Objectives in the San Joaquin River Between the mouth of the Merced River and the Airport Way Bridge near Vernalis" and requests the Regional Board reevaluate the EC WQOs for the reach of the LSJR between the Tuolumne River and the Stanislaus River.

If you have any questions, or require additional information, please contact Mr. Elwood Raley at eraley@usbr.gov or 916-978-5296.

Sincerely,

David van Rijn
Regional Planning Officer

Enclosure

Technical Report

Comment Letter – Basin Plan Amendment to Add Electrical Conductivity Water Quality Objectives in the San Joaquin River Between the Mouth of the Merced River and the Airport Way Bridge near Vernalis

The Bureau of Reclamation has been a key participant to many salinity efforts in the lower San Joaquin River, including the Central Valley Regional Water Quality Control Board's (Regional Board) real-time management program, Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS), and the Grassland Bypass Project. In general, Reclamation believes that establishing salinity objectives upstream of Vernalis could be beneficial to overall salt management, provided that the overall scheme results in less reliance on dilution flows at Vernalis.

Reclamation would like to bring a couple of issues to the State Water Resources Control Board's (State Board) attention. Reclamation remains uncertain of the impacts of the Regional Board's Basin Plan amendments on Central Valley Project (CVP) operations, given the Regional Board's "Response to Comments on Basin Plan Amendments to Establish Salinity Water Quality Objectives for the Lower San Joaquin River," specifically, the Regional Board's responses to Broad Issue No. 1 (Impact on Water Quality in the Delta), Broad Issue No. 2 (New Melones Reservoir Dilution Flows), and Comments Nos. 21 and 22 regarding sufficiency of the antidegradation analysis. As explained below, the Regional Board's responses to these comments are inadequate because they do not acknowledge that there are two distinct sections and do not explain how the newly adopted objectives apply to the two sections of the Lower San Joaquin River (LSJR) that have distinctly different levels of salinity. The Basin Plan amendments actually raise the allowable salinity concentrations in the section just upstream of Vernalis above amounts actually measured in that reach, and to levels much higher than required at Vernalis. The Regional Board has not adequately explained how this amendment reduces reliance on New Melones for dilution flows, nor how the amendment is consistent with State and Federal antidegradation laws and policies.

Background

On June 9, 2017, the Regional Board adopted new Electrical Conductivity (EC) Water Quality Objectives (WQO) for the LSJR from the mouth of the Merced River to the Airport Way Bridge near Vernalis. Objectives (EC at 25°C) include:

> Shall not exceed 1550 uS/cm (as a 30-day running average);
> Except during Extended Dry Periods, not to exceed 2470 uS/cm (30-day running average); and
> Shall not exceed 2200 uS/cm as an annual average (hereafter denoted 1550/2470/2200).

The compliance points for these objectives are at Crows Landing Road Bridge between the Merced River and the Tuolumne River, and at Maze Road Bridge between the Tuolumne River and the Stanislaus River, as shown on Figure 1.

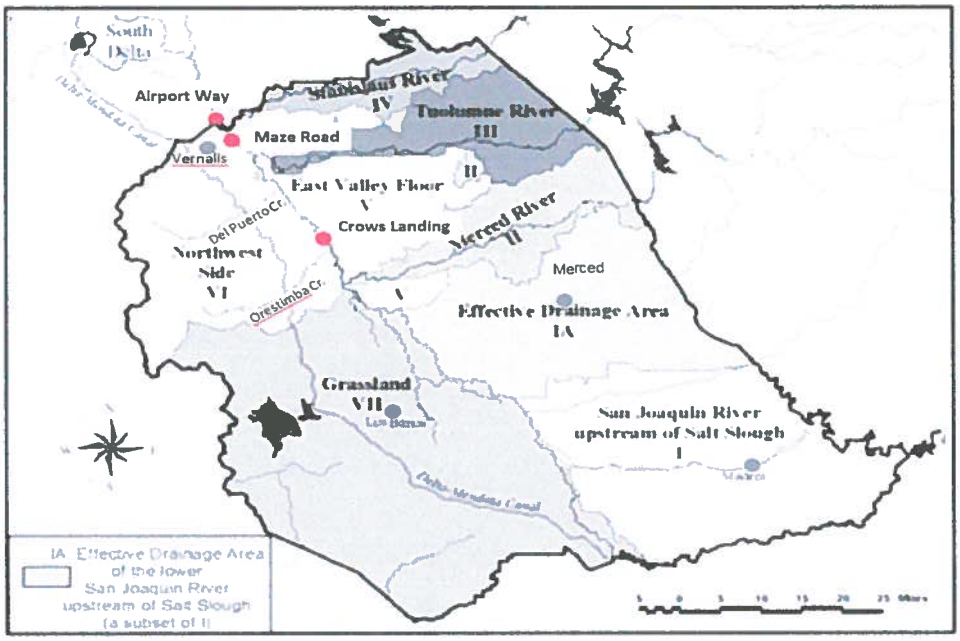

Figure 1. Lower San Joaquin River Watershed with compliance points between the Merced River and the Tuolumne River (Crows Landing Bridge), and the Tuolumne River and the Stanislaus River (Maze Road Bridge). (Note: The Maze Road compliance point is only 3 miles from the Delta compliance point at Airport Way.)

Comments

1. Creating New Dilution Demand – In its analysis, Reclamation finds that the new WQOs are inadequate to protect the existing water quality between the Tuolumne River and the Stanislaus River and as a result will require Reclamation to release dilution flows from the New Melones reservoir. The LSJR between the mouth of the Merced River and the Airport Way Bridge near Vernalis contains two distinct sections of water quality. One is the section between the mouth of the Merced River and the Tuolumne River, which is monitored at a station located near Crows Landing Bridge, and the other is the section between the Tuolumne River and the Stanislaus River, which is monitored at a station near the Maze Road Bridge. Data collected between January 1, 2010, and early September 2017, available from the California Data Exchange Center (CDEC), shows a significant difference in mean EC between these two reaches of the LSJR. At Crows Landing the mean EC is 1125 uS/cm, while at Maze Road Bridge the mean EC is 697 uS/cm, a difference of 428 uS/cm. The new WQOs may be appropriate for the data taken at Crows Landing Bridge with respect to the 1550 uS/cm, and the 2470 uS/cm during Extended Dry Periods (water years 2014 to 2017[1]). However, the new WQOs are inadequate to protect the existing water quality between the Tuolumne River and the Stanislaus River. An analysis of available CDEC data from this section of the LSJR shows that 100% of the data between January 1, 2010, and September 2017, is less than or equal to 1250 uS/cm, except during Extended Dry Periods (water years

[1] Water Year 2017, although the wettest year on record in Northern California, is considered an Extended Dry Period in the LSJR Watershed by regulatory definition.

2014 to 2017). During the Extended Dry Period 100% of the data is less than or equal to 1350 uS/cm (see Table 1).

Table 1. Summary of EC data (1/1/2010 – 9/11/17, CDEC) for the subject two sections of the LSJR.

Reach of LSJR Parameter	Tuolumne R. to Stanislaus R. (Monitored at Maze Road)	Merced R. to Tuolumne R. (Monitored at Crows Landing
Mean Electrical Conductivity (EC) as uS/cm	697	1125
Median EC (uS/cm)	736	1152
Std Dev. (uS/cm)	353	683
Mode	886	1345
Data ≤1250 uS/cm (Non-Extended Dry Period)*	100% (as a 30-day running average)	69.6% (as a 30-day running average)
Data ≤1350 uS/cm (Extended Dry Period)*	100% (as a 30-day running average)	50.4% (as a 30-day running average)

*Water Year 2017, although the wettest year on record in Northern California, is considered an Extended Dry Period by regulatory definition.

Reclamation's concern is that an EC of 1550 uS/cm, or higher, at Maze Road Bridge (which is approximately 3 miles from the Vernalis compliance point) creates a new dilution demand at Vernalis, which has a standard of 700/1000 uS/cm. The dilution demand is further increased if the EC at Maze Road Bridge is allowed to reach 2470 uS/cm during Extended Dry Periods. It is important to consider that there are no allowances for Extended Dry Periods for the standards at Vernalis.

2. Objectives Are Not Appropriate for Existing Water Quality – The adopted objectives are more than twice as high as the average salinity in the section of the LSJR between the Tuolumne River and the Stanislaus River, as measured at Maze Road. Regional Board staff's Response to Comments demonstrates that there is no need to have such high WQOs on the LSJR. When commenters expressed concerned about the high objectives, the Regional Board responded:

   a. *Broad Issue No. 1: Impact on Water Quality in the Delta* states "… modeled forecast of future salinity in the LSJR predicting that the river salinity will be lower than current and historic river salinity …"

   b. *Broad Issue No. 2: New Melones Reservoir Dilution Flows* states "See the response to Section 1, Broad Issue No.1 regarding the overall decrease in salinity concentrations in the LSJR …"

   Reclamation is not clear why the Regional Board would establish a water quality objective for salinity at a level much higher than the Regional Board believes will actually occur. Data

available from CDEC shows that the water quality in the section between the Tuolumne River and the Stanislaus River is capable of meeting a primary EC objective of 1250 uS/cm, which is protective of 100% of the almond crop yield. That data also shows that between January 2010 and September 2017, the highest annual average EC was 920 uS/cm. Therefore, an objective for annual average EC should be at, or near, 920 uS/cm.

Data demonstrates that the section of the river between the Tuolumne River and the Stanislaus River is capable of complying with an objective of 1350 uS/cm during Extended Dry Periods. An objective of 1350 uS/cm during Extended Dry Periods would be protective of an approximately 98% almond yield as shown in Figure 2.

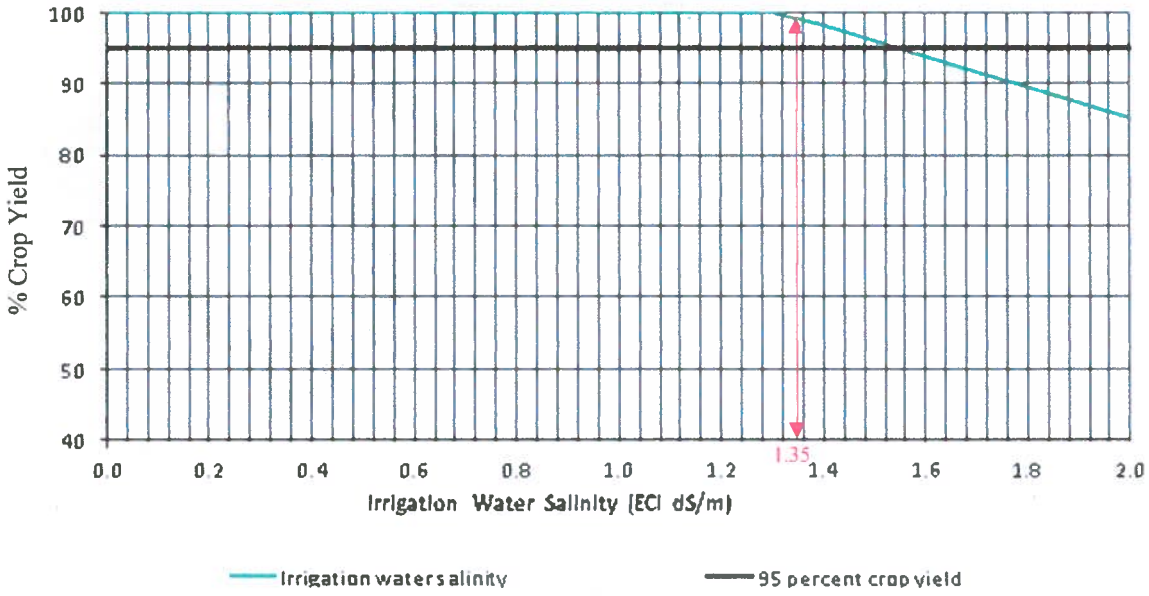

Figure 2. Relative Almond Crop yield
Source: Staff Report[2], Appendix B, Hoffman Modeling Memo, Figure 2

Figures 3 and 4 show that the existing data is usually compatible with a WQO set at 1250 uS/cm, and at 1350 uS/cm during extended dry periods.

[2] Proposed Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins to Establish Salinity Water Quality Objectives in the Lower San Joaquin River (Mouth of Merced to Vernalis) Draft Staff Report February 2017, Amended May 2017.

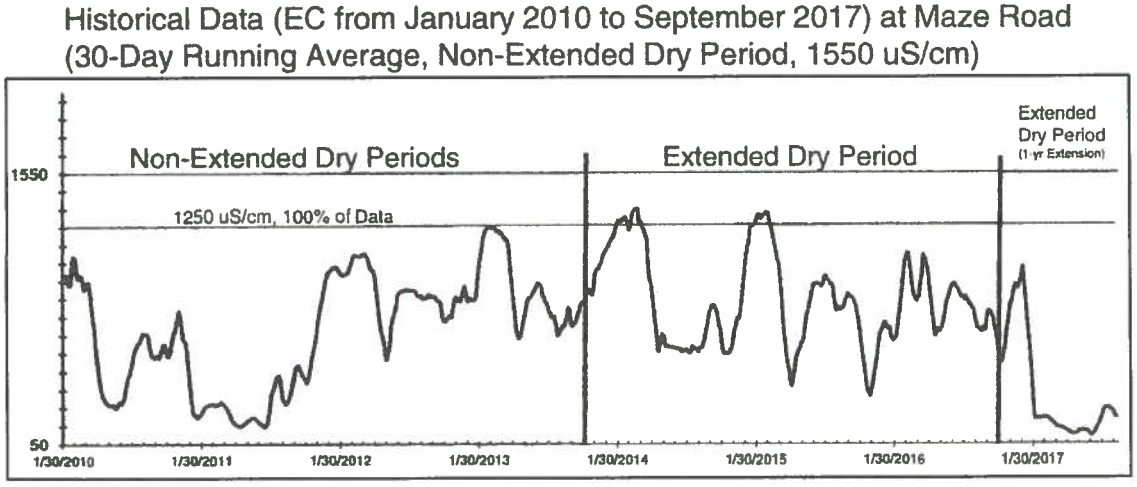

Figure 3. Graph showing that 100% of existing data is less than 1250 uS/cm during non-extended dry periods.

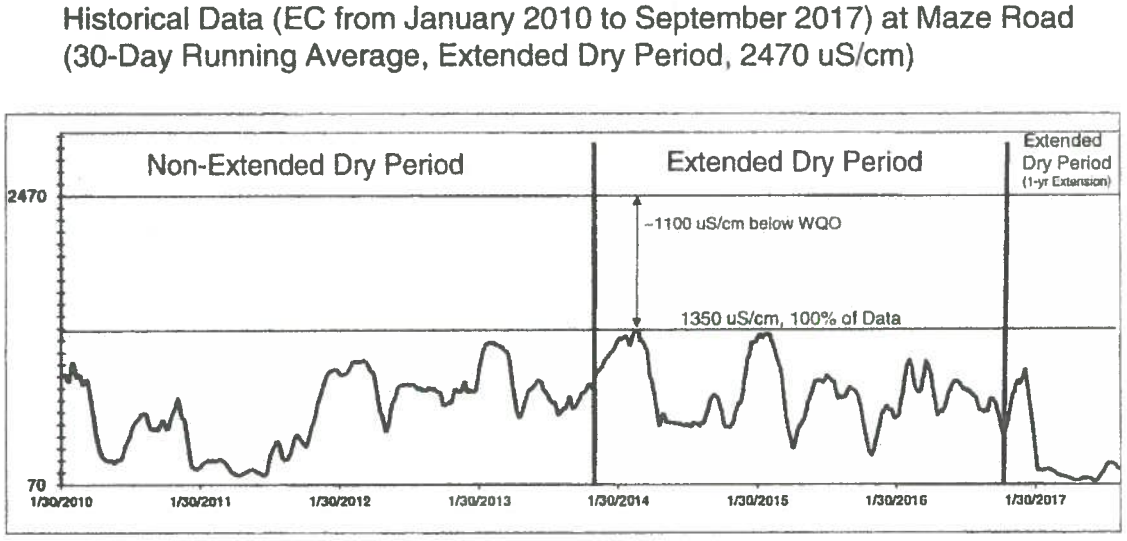

Figure 4. Graph showing that 100% of existing data is less than or equal to 1350 uS/cm during the extended dry period from October 1, 2013, to September 2017 (by definition the extended dry period includes water year 2017). Note that the adopted objective is approximately 1100 uS/cm above the maximum peaks of existing data.

3. Consistency with Federal and State Antidegration Policies – Reclamation is further concerned that the data demonstrates that the newly adopted objectives of 1550/2470/2200 (uS/cm) are not consistent with the State's Antidegradation Policy for the reach between the Tuolumne River and the Stanislaus River. The adopted amendment raises the legally allowable salinity concentrations to levels above which have actually been measured in this section. Regional Board staff concede that the EC of the LSJR at Maze Road would not be expected to approach the objectives of 1550/2470/2200 (uS/cm). Therefore, it is reasonable to set the objectives at levels consistent with an analysis that is based on existing water quality. It appears that the antidegradation analysis that was used to set the new objectives was based on water quality from the section of the LSJR that is monitored at Crows Landing.

The Staff Report suggests that the section of high quality water between the Tuolumne River and the Stanislaus River was not considered:

> "For baseline conditions, 30-day running average EC concentrations were evaluated at Crows Landing (location with the poorest water quality in Reach 83) from the beginning of the GBP (1996) through 2014."

The new WQOs allow water in the LSJR at Maze Road to reach an EC of 1550 uS/cm during most years, and as high as 2470 uS/cm during extended dry periods. Maze Road is just 3 miles south of the Vernalis compliance point. The objectives at Vernalis are met by diluting water in the LSJR with flow from the New Melones reservoir via the Stanislaus River. However, if the salinity at Maze Road is allowed to reach 1550 uS/cm (or 2470 uS/cm), there is not sufficient water under Reclamation control to dilute this flow down to the 700/1000 uS/cm objectives. The costs of dilution water and impacts of the Maze Road standard, especially given that it would be raised over existing conditions, was not discussed in the Staff Report or response to comments.

Summary

Reclamation believes that establishing salinity objectives upstream of Vernalis could be beneficial to overall salt management, provided that the new objectives do not allow non-point source discharges to degrade existing salinity conditions immediately upstream of the State Board's compliance point at Vernalis, and are consistent with the State's Antidegradation Policy. As described in this technical report, Reclamation is concerned that the Regional Board's salinity objectives at the Maze Road compliance point appear to create new dilution demands for Reclamation and allow degradation of the LSJR water quality.

The new WQOs will allow water in the LSJR at Maze Road to reach an EC of 1550 uS/cm during most years, and as high as 2470 uS/cm during extended dry periods. Maze Road is just 3 miles upstream of the Vernalis compliance point (700/1000 uS/cm). The objectives at Vernalis are primarily met by diluting water in the LSJR with flow from the New Melones reservoir. However, if the flow at Maze Road is allowed to reach 1550 uS/cm (or 2470 uS/cm), Reclamation would be required to dilute this flow down to the new 700/1000 uS/cm objectives. As a result complying with EC requirements between Maze Road and Vernalis will require Reclamation to release additional water from New Melones reservoir, which will not be available at all times.