

**City of Stockton's Written Summary
in Response to the Key Issue and Associated Questions
for the Delta Flow Criteria Informational Proceeding**

In response to the State Water Resources Control Board's (State Water Board) key issue and questions presented in the December 16, 2009 *Notice of Public Informational Proceeding and Pre-Proceeding Conference* to develop Flow Criteria for the Delta, the City of Stockton (Stockton) believes that it is unnecessary and inappropriate to consider "other stressors" in this specific proceeding. However, given that the State Water Board's revised notice dated January 29, 2010, indicates there will be a topic-based panel on other stressors, Stockton encourages the State Water Board to avoid disproportionate consideration of other stressors. Further, in light of continuing statements about the effects of ammonia on Delta fish populations by some parties that indicate a lack of understanding of current knowledge, and a general concern about other stressors related to wastewater treatment discharges, the State Water Board should, if it considers this topic, consider the following information as it relates to the Stockton Regional Wastewater Control Facility (RWCF).

Ammonia

In 2002, the RWCF received a National Pollutant Discharge Elimination System (NPDES) discharge permit (R5-2002-0083) with a first-time ammonia limit of a monthly average of 2 milligrams per liter (mg/l) and a daily maximum of 5 mg/l, which became effective in 2008. In order to meet that limit, the RWCF constructed enhanced wetlands and nitrifying biotowers which went into operation in 2006, with startup operations stabilized in 2007.

The Fact Sheet of our current permit (R5-2008-0154) notes that:

Additional "real time" data for both the effluent and receiving water was obtained, and therefore, the effluent and receiving water monitoring data from September 1992 through December 2007 were evaluated to determine the accuracy of the evaluation of the acute and chronic ammonia criteria. An acute ammonia toxicity criterion was calculated for each receiving water pH value using the CMC equation based on salmonids present. A chronic toxicity criterion was calculated for each paired receiving water 30-day average temperature and pH using the CCC equation based on early life stages present. A total of 619 receiving water ammonia concentration samples (either R2 or R2a, whichever was greater) were compared to its paired acute and 30-day average chronic criteria for ammonia.¹

¹ Regional Board Order R5-2008-0154, Attachment F, Section IV.C.3.f, Exhibit 1-City of Stockton.

As a result of this evaluation, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) found that the previous NPDES permit limits are "protective of the beneficial uses" and those limits were not changed in the City's most recent permit. The State Water Board has specifically considered, and upheld, these limits, in its Order No. WQO 2009-0012.

Included in Exhibit 2 are two graphs that indicate that (1) the current RWCF ammonia discharge has been reduced to 1/10th of the previous discharge, and (2) ambient ammonia levels in the receiving water have never exceeded the USEPA acute or chronic ammonia criterion since installation and startup of the new treatment facilities in 2007, and typically have not exceeded the USEPA acute or chronic criterion for freshwater aquatic life in the period prior to installation of the new nitrification facilities, with the exception of a brief period in early 2004. Collectively, Exhibits 1 and 2 provide key information regarding the lack of current or historic impact to beneficial uses due to ammonia levels in treated effluent from Stockton's RWCF. Thus, ammonia discharges from Stockton's RWCF should not be a factor in determining delta flow criteria.

Effect of Stockton's Discharge on Juvenile Chinook Salmon

The Vernalis Adaptive Management Plan (VAMP) is a 12-year program to protect juvenile Chinook salmon migrating from the San Joaquin River through the Delta. A part of VAMP includes the release of juvenile salmon equipped with transmitters at multiple locations. In 2007, "a high number of acoustic transmitters were detected at a very small, localized site at Stockton."² The report notes that "[t]hese tags were motionless indicating the tags were either in dead fish or had been defecated by a predator."

In response, Stockton conducted its own investigation and engaged fish biologists and water quality specialists to investigate the fish mortality event that occurred in 2007. The results of Stockton's investigation were submitted in a report to the Central Valley Water Board entitled: *Assessment of Fish Mortality Observed in the San Joaquin River Near Stockton in May 2007* (Robertson-Bryan, Inc. 2007) (RBI Report). (See Exhibit 4-City of Stockton.) RBI found "[t]he high concentration of tags scattered around the bridge coupled with the fact that no dead fish were observed, provides evidence supporting the idea that tagged Chinook salmon were simply eaten by predators that were holding near the railroad bridge and the tags were defecated at the predatory fish holding site." (RBI Report at p. 16, Exhibit 4-City of Stockton.) The RBI Report concluded that "[a]vailable May 2007 monitoring data from the RWCF indicate that all water quality parameters were within limits set forth in the RWCF's NPDES permit. Based on this review of available data, it is unlikely that any of the constituents assessed herein that are influenced by the RWCF

² 2007 Annual Technical Report, San Joaquin River Group Authority, January 2008, Chapter 5, Mobil Monitoring, page 55, Exhibit 3-City of Stockton.

discharges caused the mortality of the 116 tagged juvenile Chinook salmon observed in the vicinity of the railroad bridge in May 2007." (RBI Report at p. 17, Exhibit 4-City of Stockton.)

Further, the Central Valley Water Board and the California Department of Fish and Game jointly conducted an investigation at the RWCF as a result of the motionless tags and concluded that "[t]here are no indications of acute or chronic toxicity in the plant effluent during two separate sets of tests around the timeframe of the fish mortality event."³

As a result of the discovery of the motionless tags during the 2007 VAMP investigations, the 2008 VAMP program included water quality monitoring in the San Joaquin River adjacent to the Stockton WWTP during the 2008 VAMP fish release. The investigation concluded that "concentrations of ammonia are below the CCC established by the USEPA for protection of fish health."⁴

During the 2009 VAMP program, juvenile Chinook salmon were placed in cages at the Stockton RWCF outfall, and at Durham Ferry as a control group, for 40 hours. "No differences were observed in bioassay groups held adjacent to the WTP [Stockton Wastewater Treatment Plant] or Durham Ferry sites."⁵ "No indications of significant tissue changes were observed at either site by histology." "Blood clinical chemistry and WBC count data did not demonstrate any consistent difference between bioassay groups." In short, there was no evidence of a negative impact on the juvenile Chinook salmon as a result of being held adjacent to the Stockton RWCF outfall.

In light of the significant evidence put forward by VAMP, Central Valley Water Board investigators and fish biologists, the State Water Board should not rely on speculative statements and comments that may be made by other parties with respect to this issue. Discharges from Stockton's RWCF have no discernible effect on juvenile Chinook salmon.

In summary, we recommend that an evaluation of other stressors, particularly related to wastewater treatment plant discharges, not be given unwarranted over-emphasis in preparing Delta flow criteria to protect public trust resources.

³ High Fish Mortality Near Stockton Regional Wastewater Control Facility Discharge Location, letter to Mark Madison, Stockton Municipal Utilities from Patricia Leary, Regional Water Quality Control Board, dated June 20, 2007, Exhibit 5-City of Stockton.

⁴ 2008 Annual Technical Report, San Joaquin River Group Authority, January 2009, Chapter 6, Complimentary Studies related to the VAMP, page 70, Exhibit 6-City of Stockton.

⁵ FY2009 Technical Report: Health and Physiological Assessment of Vamp Release, U.S. Fish and Wildlife Service, September 2009, Conclusions, Exhibit 7-City of Stockton.