

Threatened and Endangered Species (TES) Study

Technical Advisory Panel (TAP) – Critical Review of the Aquatic Life Report

TES Study Background

- Task 6 of the Upper Santa Clara River (USCR) Chloride TMDL states that an evaluation of appropriate chloride thresholds for endangered species should be conducted, and instructs the Los Angeles County Sanitation Districts to prepare and submit a report on endangered species protection thresholds.
- In 2004, Advent-Environ was retained by the Santa Clarita Valley Sanitation District (District) to prepare a report examining the effects of chloride on aquatic life in the Upper Santa Clara River, with the objective of developing an acute and chronic threshold recommendation specific to biota in the USCR, with special emphasis on protecting threatened and endangered species. This report was entitled, *Evaluation of Chloride Water Quality Criteria Protectiveness of Upper Santa Clara River Aquatic Life: An Emphasis on Threatened and Endangered Species (the Aquatic Life Report)* (September 2004);
- In 2007, Advent-Environ updated the 2004 Aquatic Life Report, based on new information collected since the 2004, and to narrow the scope of the 2004 report to specifically focus on whether the existing USEPA National Ambient Water Quality Criteria (AWQC) for chloride (230 mg/L as a chronic threshold and 860 mg/L as an acute threshold) were protective of USCR Threatened and Endangered Species. This updated report was entitled, *Evaluation of Chloride Water Quality Criteria Protectiveness of Upper Santa Clara River Aquatic Life: An Emphasis on Threatened and Endangered Species (the Aquatic Life Report)* (May 1, 2007);

TES TAP Purpose and Charge

The TES TAP was assembled to assess the usefulness of the available information for determining whether the US Environmental Protection Agency's national freshwater aquatic life criterion for chloride (acute = 860 mg/L and chronic = 230 mg/L) is adequately protective of threatened and endangered species that are relevant to the Upper Santa Clara River Collaborative Process study area.

The available information used by the TES TAP in its evaluation includes: (1) information from the 2004 and 2007 *Aquatic Life Reports*; (2) information from presentations and Q&A sessions held with the TES TAP membership on May 22, 2007; and (3) *The Aquatic Life Report Executive Summary and Addendum*, prepared in August 2007 as a supplement to the 2007 *Aquatic Life Report*, and in response to comments and requests from the TES TAP.

The TAP was asked to examine this and other relevant materials as needed. In the event that the available information was not sufficient for assessing the protectiveness of the USEPA criterion, then the TAP was asked to discuss the reasons why the available data are insufficient (e.g., missing relevant data, missing TES species, faulty analyses, etc.) and make recommendations on any additional information that is needed. The following statements provided by the TAP members represent the evaluation and review of each of the three members of the TES TAP.

TES TAP Membership

Dr. Eric Stein

*Principal Scientist - Watershed Department
Southern California Coastal Water Research Project*

Brian Finlayson

*Supervisor - Pesticide Investigations Unit
California Department of Fish and Game*

Dr. Luis A. Cruz

*Ecological Risk Assessment Branch, Health and Ecological Criteria Division
Office of Science and Technology, Office of Water
U.S. Environmental Protection Agency*

Dr. Eric Stein

Principal Scientist - Watershed Department

S. Ca. Coastal Water Research Project

Since October 2006 I have served on the Threatened and Endangered species Study (TES) Technical Advisory Panel (TAP) to offer recommendations on chloride thresholds for endangered species in the Upper Santa Clara River Collaborative Process study area, including an objective review of the technical and scientific adequacy of the Aquatic Life Report conducted by Advent Group, Inc. In particular, the TES TAP was asked to evaluate whether the established national U.S. Environmental Protection Agency (EPA) aquatic life criteria for chloride (230 mg/L for chronic exposure and 860 mg/L for acute exposure) are protective of resident threatened and endangered species in the study area.

Over the past year I have reviewed several drafts of the Aquatic Life Report, and participated in several conference calls and meetings with other TAP and project team members. In particular, I have focused on an evaluation of whether the Aquatic Life Report follows accepted scientific methodologies and practices, and whether this document is a sufficient basis for decision-making. The primary concerns with early drafts of the report were that it failed to consider an adequate breadth of taxa and species based on current and historic distribution of sensitive species in both the Santa Clara River and its tributaries. In addition, the TAP suggested additional investigation of effects of chloride on important food sources for species of concern.

I commend the project team for their responsiveness to the TAP's comments. The final report and addendum adequately addresses all of the TAP's concerns and provides a comprehensive assessment of appropriate surrogate species and important food sources. I believe the report is scientifically sound and based on accepted principles of research review. I believe that this information supports the conclusion that the current (EPA) acute and chronic criteria for sodium chloride of 860 mg/L and 230 mg/L (as chloride) appear to be protective of threatened and endangered species of the Upper Santa Clara River. I'm unaware of any other information that contradicts this conclusion.

Mr. Brian Finlayson

Supervisor - Pesticide Investigations Unit

California Department of Fish and Game

I was asked to serve in February 2007 on the Threatened and Endangered Species Study (TES) Technical Advisory Panel (TAP) to offer recommendations on chloride thresholds for endangered species in the Upper Santa Clara River Collaborative Process study area, including an objective review of the technical and scientific adequacy of the Aquatic Life Report conducted by Advent Group, Inc. In particular, the TES TAP was asked to evaluate whether the established national U.S. Environmental Protection Agency (EPA) aquatic life criteria for chloride (230 mg/L for chronic exposure and 860 mg/L for acute exposure) are protective of resident threatened and endangered species in the study area. The views expressed here are mine and do not necessarily reflect those of California Department of Fish and Game.

I have reviewed the Executive Summary and Addendum (dated August 2007) to Evaluation of Chloride Water Quality Criteria Protectiveness of Upper Santa Clara River Aquatic Life: An Emphasis on Threatened and Endangered Species (dated May 2007). I concur that this information supports the conclusion that the current (EPA) acute and chronic criteria for sodium chloride of 860 mg/L and 230 mg/L (as chloride) appear to be protective of threatened and endangered species of the Upper Santa Clara River. I am unaware of any other information that contradicts this conclusion.

In the Advent-Environ report entitled, *Evaluation of Chloride Water Quality Criteria Protectiveness of Upper Santa Clara River Aquatic Life: An Emphasis on Threatened and Endangered Species* (dated May 2007), it was concluded that existing EPA ambient water quality criteria for chloride are protective of Upper Santa Clara River aquatic life, including threatened and endangered species. This was based in part on surrogate toxicity data for the threatened and endangered amphibian arroyo southwestern toad and California red-legged frog and the threatened and endangered fish, unarmored three spine stickleback. It was also based on assessment of more recent toxicity data generated after the 1988 criteria were developed. In response to issues raised by the TAP to the original report, an Executive Summary and Addendum (dated August 2007) was prepared.

The key comment on *Evaluation of Chloride Water Quality Criteria Protectiveness of Upper Santa Clara River Aquatic Life: An Emphasis on Threatened and Endangered Species* (dated May 2007) was that some of the threatened and endangered species were not considered because of their exclusion from consideration due to the criteria used for the Upper Santa Clara River. However, when considering these other species, it is evident that current EPA criteria are protective, often with large margins of safety. The conclusion that current EPA chloride criteria are protective of reptiles is based on physiological and life-history considerations, and current EPA chloride criteria reflect data for known chloride-sensitive organisms.

Dr. Luis A. Cruz

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It is my opinion that the final report and addendum addressed the TAP's concerns expressed; taxa inclusion/exclusion, use of appropriate surrogate species and important food source species. The information provided and amended led support to the conclusion that the current EPA aquatic life criteria for acute and chronic sodium chloride of 860 mg/L and 230 mg/L (as chloride) respectively appear to be protective of threatened and endangered species of the Upper Santa Clara River.

The views presented here do not necessarily represent those of the US EPA.

Some comments are listed below.

1. In the first page under Comment 2, last sentence, I suggest a re-wording of this sentence (disclaimer) to read as:

It does not imply that the USEPA Resident Species Approach to site-specific criteria derivation is applied to the USCR, nor does it imply that any USCR site-specific chloride criteria is been developed at this time.

With that change no more disclaimers are needed later on. The response in page 6 can be left unaltered.

2. In page 18 and others (21, 23, 36) there is the mention of ACR values used (developed by USEPA or Advent-Environ). Readers are sometimes referred to a report by Advent-Environ (2007) or through footnotes for additional information. I suggest adding a table with the calculations or showing how the numbers were calculated at the end of the present summary or at the end of the final document. This could be a table with columns showing the ACR values, the source and any other comment that will facilitate their interpretation and origin. This will facilitate the review by the Project Team and/or any other stakeholders.
3. I also suggest a thorough editing of this document. There are a series of typos all throughout the document that will be easy to correct but is imperative to correct.
4. Make sure that the geographical and geological features mentioned in the document are or have been made available (as figures) in the final document that the Project Team will be reviewing.