

January 16, 2015

## **UC Davis, Dr. Thomas Harter Data Request**

### **Background**

The Initial Data Request was received in early December (attached). Because CV-SALTS Meeting Calendar was dark in December, we communicated that the data request would be considered at the Executive Committee in January. We apologized to Dr. Harter noting that this timing is not ideal for his project.

Technical Project Manager Richard Meyerhoff and Daniel Cozad CVSC ED review the request and determined it was complete and requested substantial data. In follow-up email with Dr. Harter, they indicated they have significant data and were using the CV-SALTS data for corroboration of their modeling and to identify which IAZ their areas may be associated with.

Based on the review by Richard Meyerhoff, all requested data were available online from state databases, with the exception of the Initial Analysis Zones (IAZ) GIS data developed for the Phase I conceptual model.

### **Recommendation**

We recommend the Executive Committee considered the request and provide the GIS coverage/Shape file containing the IAZ boundaries because this information is not on other online water quality databases. We recommend the transmittal of the IAZ data clearly indicating that the IAZ boundaries were selected for modeling convenience and intended to be for Initial Analysis, and not to be considered management areas or to have any other use or meaning. The other water quality data is available online and data related to well information that is not available on line is likely considered confidential and subject to restrictions. We recommend the Executive Committee authorize the CV-SALTS Technical Project Manager, Richard Meyerhoff to provide the data and assist the UC Davis team as appropriate. Should other data needs be identified, such requests will be brought back to the Executive Committee for consideration.



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Re: CV-SALTS Data Access Request

Dear Daniel,

My research group is currently working under a research grant sponsored by the California Department of Food and Agriculture's Fertilizer Research and Education Program. The project title is "Nitrogen Fertilizer Loading to Groundwater in the Central Valley". The anticipated project completion date is December 2015. The project is led by myself with Drs. Stuart Pettygrove, Minghua Zhang, and Tom Tomich as co-investigators.

This project will provide the first long-term assessment of past and current nitrate loading to groundwater on irrigated lands across the entire Central Valley of California; assess the long-term implications for groundwater quality in the Central Valley (Sacramento Valley, San Joaquin Valley, and Tulare Lake Basin); and provide a planning tool to better understand local and regional groundwater quality response to specific best management practices and policy/regulatory actions. The project outcome will provide critical information about the link between management practices, policy, and future groundwater nitrate conditions to growers, agricultural organizations, agricultural consultants and extension groups, to policy makers, and to regulatory agencies. In particular, we envision that this assessment will provide an important and critically needed scientific framework for the implementation of the salt and nutrient basin plan amendment and of the "irrigated lands regulatory program". These are regulatory programs under California's Porter-Cologne Act that will increasingly focus on the regulation, assessment, protection, and monitoring not only of surface water but also of groundwater quality below irrigated lands and elsewhere.

The target audience for the project outcome include growers, agricultural commodity groups, researchers in irrigation and crop nutrient management and in water quality (including universities, U.S. Geological Survey), agricultural consultants, Natural Resource Conservation Service, UC Cooperative Extension, Resource Conservation Districts, regulatory agencies including local planning agencies, Central Valley Regional Water Quality Control Board, State Water Resources Control Board, and U.S. Environmental Protection Agency Region 9.

As part of this project, we are modeling nitrate loading to agricultural crops, including nitrate in irrigation water. We also model groundwater transport to domestic, irrigation, and municipal wells in the Central Valley, based on the USGS Central Valley Hydrologic Model, utilizing computer methods that we have developed as part of this and other recent projects. Our methods are specifically geared to accommodate a large number (10s to 100s of thousands) of individual contaminant (nonpoint) sources as well as large number of wells (10s of thousands) to simulate the long-term spatial and temporal variability in groundwater nitrate contamination in production wells resulting from various sources of nitrate loading.

We would like to use the following data to a) develop IAZ specific deep groundwater nitrate statistics as proxy of irrigation water quality, b) to verify our groundwater modeling results against actual data, and c) to provide some statistical analysis of the data. Our region of interests the area overlying the Central Valley groundwater system (the area of concern to CV SALTS):

- well ID (ideally a well ID that allows us to link to construction records, if we obtain them from DWR under a confidentiality agreement)
- IAZ (initial analysis zone) within which the well is located
- Zip code of the well location, if available
- Township-range-section-subsection identifier for the well if available (we have a signed agreement with CDPH to keep public water supply well data confidential)
- well location (lat / long) to specified spatial accuracy, where known
- well location accuracy
- well type (e.g., domestic, public, irrigation, monitoring, dairy domestic, or dairy monitoring)
- depth to top of screen (if known)
- depth to bottom of screen (if known)
- data source (e.g., USGS NWIS)
- nitrate detection limit
- salinity detection limit
- nitrate measurement date
- nitrate concentration
- salinity measurement date
- salinity concentration/level (TDS or EC)
- concentration units
- any other useful data to properly interpret the nitrate and salinity data

Ideally, we would like to receive the requested data in MS Excel Format (one row for each record, with complete attribute set in columns).

We would be interested in the most recent REVISED dataset based on the dataset that has been described in the recent Memorandum from Luhdorff & Scalmanini on "Phase II Conceptual Model - Task 3: Groundwater Data Refinement and Updates, May 15, 2014" (or any more recent updates).

Most of our data analysis will be statistically processed results and not allow for the identification of individual well locations in the context of nitrate data. We may produce maps similar to those already published by CV-SALTS showing maps with dots that will not allow identification of wells to accuracies better than 0.5 miles (or 1 mile, if required). We will provide CV-SALTS with our final project report as well as any data/programs that will become publically available as part of this project.

We have read and agree with the following disclaimers:

#### 1. General CV-SALTS Electronic Data Disclaimer

The information contained on the CV-SALTS website and electronic geodatabases has been drawn from many sources for use by CV-SALTS in development of the Central Valley Salt and Nitrate Management Plan and will be subject of future work. The original sources were considered reliable, but have not been validated. The CV-SALTS Program, and the San Joaquin Valley Drainage Authority (SJVDA) as contracting agent and its consultants offer no warranty, express or implied, with respect to the interpretation, advice, or opinion made by individuals or organizations associated with the data on this website; likewise for the accuracy, completeness, or timeliness of the information for any particular purpose.

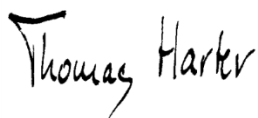
Users should contact Central Valley Salinity Coalition or Regional Water Quality Control Board to verify the appropriateness of using the information before taking action in reliance on it, because information may have changed since the last update of geodatabase or it may not be appropriate for a specific regulatory use. All contents of data provided or posted on the website may not be resold or otherwise used for trade or any commercial purposes without the expressed written consent of the Central Valley Salinity Coalition. Documents linked to this site may also be protected under U.S. or foreign copyright laws, and permission to reproduce may be required. CVSC does not relinquish any copyrights for use ad derivative work, no derivative works shall impede the use of date developed or provided by CV-SALTS and CVSC for any purpose. For more information, to request assistance or use permission contact the Central Valley Salinity Coalition [info@cvsalinity.org](mailto:info@cvsalinity.org)

#### 2. BUOS ACCESS DISCLAIMER

For the GIS Files of the 2006 303(d) List of Water Quality Limited Segments

The GIS files for the 2006 303(d) List of Water Quality Limited Segments (requiring TMDLs, being addressed by USEPA approved TMDLs and being addressed by actions other than TMDLs) were created for reporting purposes by the SWRCB and RWQCBs. These GIS representations of the areal extent of impaired waters are estimated and should not be considered authoritative for the development of TMDLs or other regulatory actions. The TMDL (Total Maximum Daily Load) effort may ultimately address more or less area. Mapping the 303(d) listed waters is a work in progress and may be updated during listing cycles to better define the impacted areas.

Kind Regards,



Thomas Harter, Ph.D.

Robert M. Hagan Endowed Chair in Water Management and Policy