

10/19 Small group

## South Delta Progress Report

### Salinity and Selenium

#### History and Background

Selenium is a trace element that is a vital nutritional supplement in very small doses. At higher doses it causes severe reproductive problems. Selenium is naturally occurring in the Western Hills of the San Joaquin Valley. It is most prevalent in alluvial fans (sediment flows) emanating from the Western Hills. Selenium is a constituent of concern in drain water from irrigated farm land on the western side of the San Joaquin Valley.

Selenium is often coupled with various forms of salt. Salt, at higher concentrations, inhibits agricultural production. Informal and undocumented opinions state that about one million acres in the San Joaquin Valley will cease agricultural production in the next 20 years because of salt buildup. Saline water is also more difficult to reclaim from municipal wastewater for use on agriculture.

#### Progress

CALFED has started a Salinity/Selenium Work Group that will be addressing methods for reducing salt and selenium from the San Joaquin Valley. The goal is to have San Joaquin River water meet Water Quality Criteria for salt and to eliminate adverse effects of selenium on wildlife.

The Work Group has listened to several presentations of what systems have been employed in the efforts to reduce salt and selenium. The group has focused on how to best govern project selection.

#### Sustainable Solutions

Most notably, the idea of sustainable methods was agreed upon. Some projects help meet in-stream salt concentration criteria, but have net accumulation of salt on irrigated lands. This tactic will inevitably destroy the productivity of the farm land. The group has agreed upon looking at projects that are most closely balance salt input and export. This will ensure longevity of the farm land and meeting our goals.

One such solution has been demonstrated on the Red Rock Ranch in the San Joaquin Valley. The Integrated On-Farm Management System irrigates crops and recycles drain water. Drain water is reused on increasingly more salt tolerant crops until the drain water is evaporated to crystalline salt. The salt crystals are harvested. Researchers are looking for markets for the different forms of salt that are harvested. There are still unanswered questions on this project, but it looks promising.

#### Project Selection Criteria

The following Project Selection Criteria were developed from the workgroups and the WQPP:

1. Seriousness of the water quality problem to be addressed by the proposed action
2. Degree to which the problem and solutions are well understood
3. Likelihood of the proposed solution eliminating impairment of beneficial uses
4. Availability of a willing and competent lead implementing entity

5. Timeframe in which the benefits of the action can be realized and measured
6. Benefits and costs of the action in relation to other proposed actions
7. Ability to leverage CALFED funds by partnerships with other entities and funding sources, including existing sources of CALFED agency funds
8. Equitable distribution of water quality benefits regionally and by beneficial use categories
9. Level of environmental documentation and permits required
10. Compliance with CALFED solution principles
11. Compliance with Delta Protection, CVPIA and other laws and statutes governing water quality and supply in the Delta
12. Amount of local involvement (want local involvement in design and sustaining the projects)
13. Design and development of an adequate monitoring program
14. Tie-in to the goals and objectives in the CALFED Water Quality Program Plan

#### **Where Do We Go from Here?**

CALFED staff toured many projects including the Red Rock Ranch. There are a few projects that are promising. All of them need additional work to establish their sustainability. The biggest hurdle is the disposal of collected salt.

The Work Group will decide on some projects that will meet the selection criteria. Funds will be identified and a lead agency will be selected. The Work Group anticipates working through Directed Actions to achieve its goals of research.

Wide spread implementation of solution principals will be done on a voluntary basis, with cost sharing to the greatest degree possible.

Funds need to be identified for the above directed actions.