

BEEHIVE BEND SUB-REACH

IN THIS ISSUE

- ▶ PROJECT UPDATE
- ▶ GOOD SCIENCE & GOOD SENSE
- ▶ HYDRAULIC MODELING WITHIN THE SUB-REACH
- ▶ SOCIOECONOMIC ASSESSMENT
- ▶ UPCOMING MEETINGS
- ▶ WHY YOU RECEIVED THIS NEWSLETTER
- ▶ ABOUT THE NATURE CONSERVANCY
- ▶ PARTICIPATION IS THE KEY

Project Update

Generations of landowners have farmed the upper Sacramento Valley into one of the World's most agriculturally productive and valuable regions. The toil of this mighty watershed over the millennia has yielded the rich, fertile soil deposits that sustain the economies and families of those who live on, and reap from the Sacramento Valley's bounty.

More and more Californians are coming to the realization that sustainability and responsible stewardship of our natural resources is what retains the value of our collective enterprises, from agriculture to recreation, in the world market. We, as Californians, owe the Sacramento River, and the wondrous natural processes that shaped the Upper Sacramento Valley landscape.

COHABITATION & RESTORATION

In the same spirit, we need to respectfully include stakeholders' rights to survive, protect, grow and prosper on their land. We envision a future where flood and erosion control work in tandem with projects that attempt to reintroduce natural riparian vegetation and restore a limited river meander. If properly planned and implemented, habitat restoration can provide valuable conservation benefits, improve public safety, and ensure viable communities along the Sacramento River.





We need to respectfully include stakeholders' rights to survive, protect, grow and prosper on their land, where flood and erosion control work in tandem with projects that attempt to reintroduce natural riparian vegetation and restore a limited river meander.

COOPERATIVE RESPONSIBILITY

Innovative tools in hydrology and economics are being brought to bear in this complex evaluation of the Beehive Bend Sub-Reach, defined as the land within the levees along River Miles (RM) 165 - 176. New significant data is now being evaluated in these crucial stages of forming a comprehensive restoration strategy for the reach.

Good science, however, must be tempered with good sense. Intimate knowledge is needed from the inhabitants that live and work along this precious river corridor; that practical wisdom is invaluable to the success of the Sacramento River Project.

GOOD SCIENCE

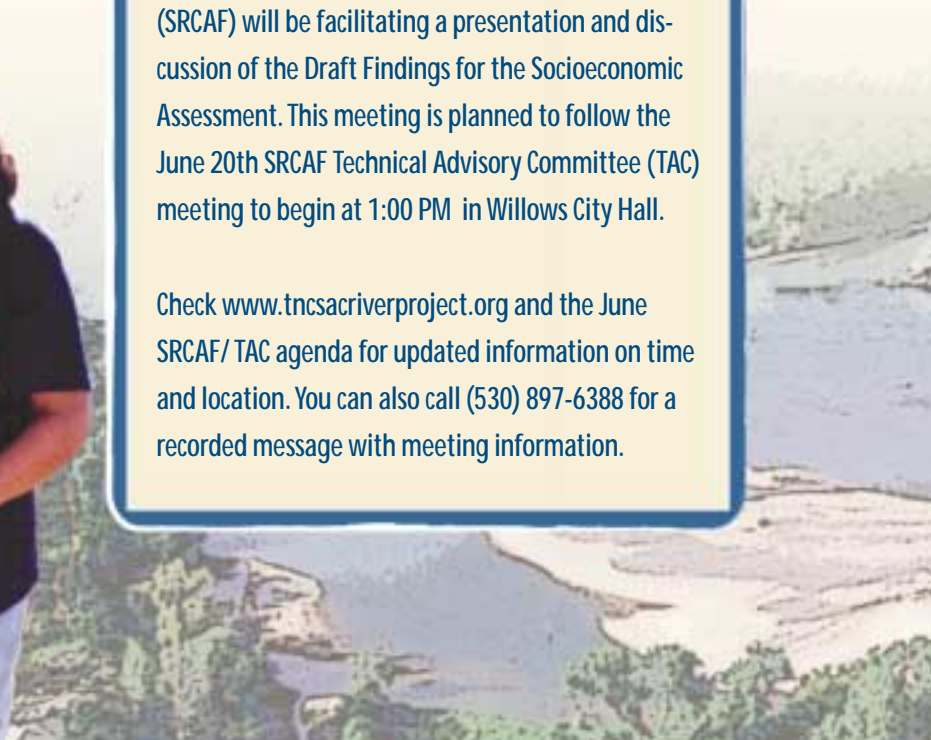
Using the most advanced methods and software available, two consulting firms – Ayres Associates and Jones & Stokes Associates – are helping The Nature Conservancy's Sacramento River Project identify potential impacts, both positive and negative, that riparian restoration might have on humans and habitat within the sub-reach. We are using this information to help us develop strategies that aim to minimize impacts while safe-guarding this riparian corridor. We also want to hear the concerns and ideas of stakeholders regarding conservation efforts of the Sacramento River Project.

Get involved. It's your land, your children's future and every Californian's river.

HOW TO GET INVOLVED

The Sacramento River Conservation Area Forum (SRCAF) will be facilitating a presentation and discussion of the Draft Findings for the Socioeconomic Assessment. This meeting is planned to follow the June 20th SRCAF Technical Advisory Committee (TAC) meeting to begin at 1:00 PM in Willows City Hall.

Check www.tnacsacriverproject.org and the June SRCAF/ TAC agenda for updated information on time and location. You can also call (530) 897-6388 for a recorded message with meeting information.



HYDRAULIC MODELING STUDIES

During a stakeholder meeting in Willows on February 27th, The Nature Conservancy presented the results of a hydrologic study of the Beehive Bend Sub-Reach produced by the highly regarded 3rd party engineering firm Ayres Associates. Ayres' hydrologists have mathematically predicted how changes in riparian vegetation and land use affect water surface levels and changes in main channel velocity. The data used is derived from cross section profiles of the river channel, roughness values of land use (see side bar) and a given flow of water in the channel within the levees of the Beehive Bend Sub-Reach.

Three models, or scenarios, were examined in the Ayres study.

- **Model Run 1** was taken from existing land use determined from aerial photographs and a peak flow of 150,000 cubic feet of water per second, recorded in 1998. This model was used as benchmark data for the next two Model Runs.

- **Model Run 2** was prepared as an evaluation tool and not as a real conservation strategy. Model Run 2 examines the Beehive Bend Sub-Reach with all land use within the levee converted to natural riparian vegetation. The purpose of Model Run 2 was to see if such aggressive riparian re-vegetation would surpass the maximum allowable water elevation and additionally, to identify sensitive areas. Although Model Run 2 did not surpass the three foot levee encroachment (four feet at bridges) it did, however, surpass Federal Emergency Management Agency (FEMA) guidelines that state that water surface level may not increase more than one foot. As expected, there were areas that stood out as flood sensitive to full conservation of natural riparian habitat under Model Run 2, which gave scientists valuable data in which to approach Model Run 3 as a real life working strategy.

Three areas showed up as sensitive to full riparian re-vegetation in Model Run 2

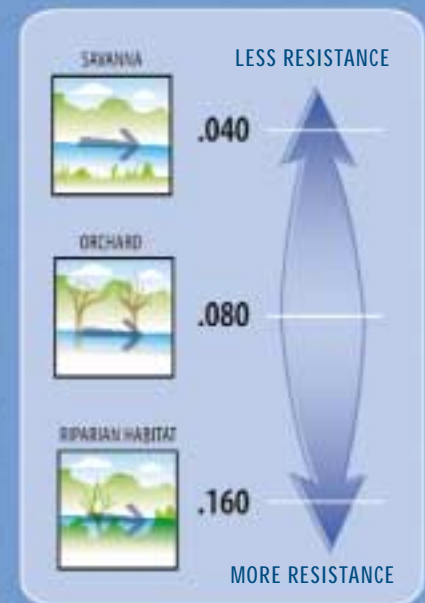
- The levee constriction downstream of RM 164
- The Highway 162 bridge at RM 168.5
- The east side levee upstream of RM 175

- **Model Run 3** - Taking into account the data gained from Model Run 2, Model Run 3 was carefully designed to maximize natural riparian vegetation conservation and restoration while fully complying with water elevation requirements. For example, planting a mixture of native grasses and sedges on certain TNC converted orchards would help complement the conservation of full riparian forests in other areas of the reach. While fine-tuning of a working model on the ground is inevitable, in many cases Model Run 3 reduces the probability of water surface increase during peak flow rates over existing conditions.



Water flows over a smooth surface with less resistance than over a rough surface. This same principal is a component used to evaluate particular types of land use within the levees. Each type of land is given a roughness value (see figure below) that helps identify "numerically" how fast or slow water moves through a given area.

Roughness Values



With mathematical predictions from the Ayres hydraulic models, The Sacramento River Project is well under way to drafting specific action on the ground in regards to riparian habitat restoration for the Beehive Bend Sub-Reach.

SOCIOECONOMIC ASSESSMENT OF ESTABLISHING A RIPARIAN CORRIDOR WITHIN THE SACRAMENTO RIVER CONSERVATION AREA

Restoring agricultural land to riparian habitat along the Sacramento River has potential costs and benefits—both environmental and economic. As part of the Beehive Bend Sub-Reach Planning process, a socioeconomic assessment is being conducted to examine the economic consequences that may result from conservation efforts along the Sacramento River riparian corridor. The consulting firm, Jones and Stokes Associates, Inc., is conducting the assessment.

The Socioeconomic Assessment will identify potential economic costs and benefits to counties, landowners, and the general public that could result from restoring lands within the riparian corridor. It provides information to better understand how socioeconomic conditions could change over the next 30 years as restoration is implemented. The information has been developed as a tool to support the ongoing planning and implementation of SRCAF related projects.

The approximately 100-mile reach of the river being analyzed is located within Glenn, Colusa, Butte and Tehama Counties between the cities of Red Bluff and Colusa. Thirty-eight thousand acres within this riparian corridor include both public and privately held lands, with agriculture (mostly orchards) being the primary use of the private property. Because lands along this portion of the river are highly erodible and flood-prone but have value as habitat, the corridor is considered potentially suitable for returning to natural riparian processes.

The following six topics areas are being evaluated:

Effects on Agricultural Resources

Determining potential losses in crop production and changes in crop value.

1. How much of the county's important farmland base will be displaced by habitat restoration?
2. How will the county's crop production levels change?
3. How will the county's crop production values change?

Potential Loss of Agricultural Benefits

Determining potential losses in net profits to agricultural operators.

1. What are the expected losses in net profits from agricultural operations displaced by restoration?
2. What are the primary factors that affect profitability and how do net profits vary from year to year?

Flood Control Economics

Identifying potentially avoidable flood control costs and damages along the affected river corridor.

1. What are the costs associated with protecting stream banks along this portion of the river?
2. How are these costs expected to change in the next 20 to 30 years after habitat conversion?
3. What are the costs to landowners and the government of periodic flooding of these lands?

Ecosystem and Recreation Benefits

Identifying potential habitat restoration-related benefits to recreation users and society.


1. How would a riparian corridor enhance recreation opportunities, including fishing and wildlife viewing?
2. How would recreation use along the 100-mile river corridor be expected to change as restoration is implemented?
3. What change in recreation related spending could the four counties that border the river corridor expect?
4. What kinds of benefits accrue to society for habitat restoration along the Sacramento River?

Regional Economic Effects


1. How will displacement of farming in the Inner River Zone (between levee system) directly affect employment and income levels within the county?
2. Will employment and income directly generated by habitat restoration activities and recreation-related spending offset losses associated with displaced farming?
3. How will these offsetting effects indirectly affect employment and income in other sectors of the economy?
4. Which communities are likely to be most affected, both negatively and positively, by the regional economic impacts of restoration?

Fiscal Effects on Local Government


1. How will property acquisitions and restoration activities affect property tax revenues?
2. How will the displacement of farming activities and subsequent restoration activities affect sales tax revenues accruing to the county?
3. Will state and federal revenue-sharing payments, made in lieu of property tax payments, offset property tax losses to the county?
4. What will the net fiscal impact of restoration be on individual counties?



The toil of this mighty watershed over the millennia has yielded the rich, fertile soil deposits that sustain the economies and families of those who live on and reap from the Sacramento Valley's bounty.



Restoring agricultural land to riparian habitat along the Sacramento River has potential costs and benefits, both environmental and economic.





Californians are coming to the realization that sustainability and responsible stewardship of the Sacramento River is what will guarantee the viability and value of our collective enterprises – both now and for future generations of Californians to come.

WHY YOU RECEIVED THIS NEWSLETTER

In 2001, The Nature Conservancy received a CALFED grant to develop management strategies and restoration actions for conservation land along the Sacramento River between River Miles 165 and 176, called the Beehive Bend Sub-Reach. Sub-reach planning analyzes opportunities to coordinate management and restoration potential within the context of other land uses and critical infrastructure along the river. Sub-reach planning includes consideration of stakeholder interests, including landowners and land managers along the river. TNC obtained your name and address from public records through the county clerk's office. If you know someone who would like to be on our mailing list, or if you do not wish to receive this newsletter in the future, please call (530) 897-6388 or e-mail jkarolyi@tnc.org. Leave your name and address and/or name and address of the person you want to add to our mailing list.

Beehive Bend newsletters are used to update progress on this project. Reports at SRCAF meetings will provide more frequent updates, as needed. For specific planning activities, we will hold public meetings or workshops to hear your questions, suggestions, and concerns. We will announce future meetings and workshops in advance online at www.tncsacriverproject.org, in these newsletters, and in the SRCAF notes.



Your input is crucial to the success of this project, so when decisions are made and actions are implemented you will know that your voice has been heard and your concerns have been factored into the restoration equation.



[ABOUT THE NATURE CONSERVANCY]

The Nature Conservancy (TNC) is an international nonprofit membership organization. TNC's mission is to preserve the plants, animals, and natural communities that represent the diversity of life on earth by protecting the lands and waters they need to survive. TNC's Sacramento River Project works cooperatively within the SB 1086 Sacramento River Conservation Area Forum (SRCAF) framework to achieve SRCAF goals and objectives. For more information about The Nature Conservancy and our work along the Sacramento River, visit us online at www.tnacsriverproject.org or call (530) 897-6388. For more information about The Nature Conservancy of California, visit www.tnccalifornia.org. For more information about the SRCAF, you can visit their website at www.sacramentoriver.ca.gov or call (530) 528-7411.



The Nature Conservancy
 Sacramento River Project
 500 Main Street
 Chico, California 95928

BULK RATE
 U.S. POSTAGE
PAID
 REDDING, CA
 PERMIT NO. 27

NEXT MEETING:
 SOCIOECONOMIC IMPACT STUDY
 JUNE 26, 1:00 PM @
 WILSONS CITY HALL
 FOR MORE INFORMATION VISIT
WWW.TNACSACRIVERPROJECT.ORG
 OR CALL (530) 897-6388



PARTICIPATION IS THE KEY

Cooperation and participation is crucial in the development and implementation of a comprehensive, balanced strategy that is inclusive to both stakeholders' and environmental interests.

