



**Reach 4B, Eastside Bypass, and Mariposa Bypass
Channel and Structural Improvements Project
Landowner Meeting
Thursday, February 23, 2012, 1:30 p.m. – 4:30 p.m.
San Luis Canal Company
11704 Henry Miller Avenue, Dos Palos
Meeting Notes**

Attendees:

Michelle Banonis	Bureau of Reclamation – Mid Pacific Region
Carrie Buckman	CDM Smith (Consultant)
Brian Crook	CDM Smith (Consultant)
Blair Greimann	Bureau of Reclamation – Denver Technical Services Center
Chuck Hanson	Technical Advisory Committee
Richard Harman	Landowner
Larry Harris	Wolfsen
Rene Henery	Technical Advisory Committee
Reggie N. Hill	Lower San Joaquin Levee District
Chase Hurley	San Luis Canal Company
Zac Jackson	United States Fish and Wildlife Service
Dan McNamara	Landowner
Joe Merz	Cramer Fish Sciences (Consultant)
Leslie Mirise	National Marine Fisheries Service
Dave Mooney	Bureau of Reclamation – Mid-Pacific Region
George Park	Lone Tree Mutual Water Company
Stacy Porter	CDM Smith (Consultant)
Paul Romero	California Department of Water Resources
Kristi Sandberg	Bureau of Reclamation – Mid-Pacific Region
Magill Weber	The Nature Conservancy

Introductions, Meeting Objectives and Agenda

Brian Crook, facilitator, opened the meeting with introductions and reviewed the agenda. The primary purposes of this technical meeting were to describe the Value Planning Study recommendations and how they will be incorporated into the Reach 4B alternatives, present an overview of the alternatives evaluation and screening process, and discuss the final alternatives recommended for review in the Reach 4B Project environmental document.

Reach 4B Project Powerpoint Presentation

General Program Update

- Michelle Banonis informed the group that the San Joaquin River Restoration Program (SJRRP) Draft Environmental Impact Statement/Environmental Impact

Report (Draft EIS/R) comment period closed September 21, 2011. The team is in the process of responding to comments.

- The Final EIS/R with comment responses is anticipated to be released to the public in April/May 2012.
- This water year is most likely going to be designated as Critical High, with a small pulse released in spring and fall, then returning to low flows. The intention is to wet the channel and maintain connectivity with Sack Dam, but there will likely be very little flow.

Action Items from Previous Meetings

- Copies of the California State Lands Commission (CSLC) compilation plats and the Reach 4B preliminary draft levee alignments were distributed electronically to landowners after the last landowner meeting.
- Michelle has developed a diagram showing the overall Program EIS/R process and how the Reach 4B Project EIS/R fits in with the schedule and timing of the Program EIS/R. This figure will be made available on the SJRRP website.
- A handout was provided at this meeting showing the overall affected acres of land under each of the preliminary levee alignments.
- An updated field activity tracker list was provided as a handout at this meeting. All CSLC field activities are complete in Reach 4B. Upcoming biological and cultural surveys for Reach 4B have been added to this field activity tracker.

Value Planning Study

- Michelle Banonis provided an overview of the Value Planning Study conducted by Reclamation.
- The Value Planning Study developed a new alternative, called Alternative A, which included all flows in the Bypass system, levee setbacks in the Eastside Bypass to accommodate vegetation and floodplain habitat, sediment detention structures, and no actions in Reach 4B1 of the San Joaquin River.
- The Reach 4B team has integrated these recommendations into Alternative 2; however, the Value Planning recommendations did not follow the Settlement. The Reach 4B team is trying to incorporate the recommendations but is including modifications in Reach 4B1 to ensure capacity of 475 cubic feet per second (cfs) in order to meet Settlement requirements.
- Michelle noted that the Alternative 2 that incorporates Value Planning recommendations is not the “Preferred Alternative.” This will not be selected until the Reach 4B Final EIS/R is released, approximately December 2013.
- The group asked if there would be continual sediment removal in the Bypass under this alternative. The Reach 4B team explained that the engineers were trying to design the channel so that sediment removal would not be needed.
- Several participants made it clear that they fully supported the Value Planning recommendations but did not understand why Reach 4B1 would need to be modified to convey 475 cfs.
- Several participants asked Reclamation to consider including two different Alternative 2 versions, one as recommended by the Value Planning Study as a separate stand-alone alternative with no modifications in Reach 4B1, with the

understanding that this wouldn't meet all Settlement requirements, and an Alternative 2 that would have modifications in Reach 4B1 and would meet Settlement requirements.

- The group asked when a decision would be made on the Reach 4B Project. Michelle explained that the Preferred Alternative would be selected in the Final EIS/R; however, it would still require a final decision by the Secretary of the Interior. This final decision would be available as part of the Record of Decision, anticipated for release to the public in February 2014.
- Blair Greimann described the engineering in progress to incorporate the Value Planning recommendations into Alternative 2, specifically the new levee alignments for the Eastside Bypass Reach 2.
- Reclamation's Technical Service Center (TSC) has begun to study levee setbacks in the Bypass. They have determined that if vegetation is not managed, the vegetation increases the surface water elevation in the levees and this adversely affected flood control. Managing vegetation would provide fewer fish benefits and create a long-term operations and maintenance responsibility.
- The TSC examined several options for setback levees, including setting the existing levees back 500 feet and 1,000 feet, and modeled the water surface elevation changes.
- Even with the 1,000 foot setback, the modeling indicates that the water surface in the upstream portion of the Eastside Bypass Reach 2 would be about 3 inches higher than under existing conditions. This portion of the Bypass is very flat, so increasing roughness with additional vegetation has a greater effect on water elevations. In addition to widening the levees, it may also be necessary to raise them about a half a foot in this part of the Eastside Bypass. If this is not possible, we may also have to look at other strategies.
- The group asked why the TSC chose to set back the left bank rather than the right bank. The TSC has not developed a final recommendation about which bank to set back yet. Blair said that from a hydraulic perspective, it makes more sense to set back the left bank, but the TSC needs feedback from the landowners on potential issues.
- The group said that there is prime agricultural land on the west side and Refuge lands on the east side. It would likely be much more cost effective to select the east side.
- The group noted that setting back the west levee would take food out of production and would affect water district operations; therefore, there are many more impacts on the west side than the east side.
- The group asked why setbacks were needed for only 4,500 cfs of Restoration Flows. Blair clarified that Alternative 2 would increase the roughness by encouraging vegetation growth. Setbacks are needed to accommodate increased roughness without affecting flood control.
- The group said that if you build the channel and plant trees, the vegetation could back up water and could flood out the locals. The group noted that the designs are being completed in Denver, so how can they understand how the locals are affected?

- Blair stated that levee raises and setbacks are necessary in order to get the water surface elevation back to existing conditions, or in other words, to not increase the flood risk. The goal is to not increase the risk of flooding using these levee setbacks and raises.
- The group asked if trees were going to be allowed to grow between the levees, and if so, who would be responsible for the required maintenance. Blair said that the TSC wants to minimize maintenance so they are building a very conservative design to allow vegetation to grow with minimal maintenance.
- The group asked why we would encourage fish to stay in the reach by adding vegetation if we want the fish to get out as quickly as possible. Joe Merz said that we want juveniles to grow and get stronger in the reach before they migrate out.
- The group asked how long fish would be in the reach. Joe responded that it could be weeks to months, depending on the water year types.
- The group asked if they would be hatchery-raised to a certain size. Joe stated that the goal is to reduce use of the hatchery over time and eventually have a naturally self-sustaining population.
- Blair stated that we would be planting/revegetating the low flow channels under all of the alternatives, and we could have to irrigate for the first few years until the vegetation becomes established, although we are trying to minimize this practice because of the high costs.
- The group asked if the vegetation would encourage sediment deposition. Blair said that it would, but vegetation would be focused on the edges of the low-flow channel and sediment would still move through the main part of the channel.
- Blair clarified that setbacks in the Eastside Bypass were only required for Alternative 2. No other alternatives need levee setbacks in the Eastside Bypass at this time.
- Blair stated that the TSC is designing the system to make sure that flood risk is not increased over existing conditions.
- Blair then discussed subsidence in the Eastside Bypass and how this is affecting engineering designs. Significant subsidence has occurred in the upper end of the study area, near the Sand Slough area.
- The Army Corps of Engineers estimates up to an additional 9 feet of subsidence at Sand Slough and 2 feet at the downstream end of the Mariposa Bypass from 2000 to 2060. The TSC has not found other reports available on future subsidence. California Department of Water Resources and U.S. Geological Survey are completing surveys, and these results should improve our understanding of subsidence.
- Subsidence affects the levee designs. The TSC examined how it would affect surface water elevations. Freeboard would substantially decrease and significant impacts to flood control would occur even under existing conditions, without the Reach 4B Project. The TSC is working to assess what this would cost and how to account for it in their levee designs for the project.

Alternatives Evaluation

Initial Alternatives Development

- Carrie Buckman presented an overview of the initial alternatives development process, the four Initial Alternatives, and the evaluation criteria to screen the initial alternatives down to a reasonable range of alternatives to be evaluated in the Reach 4B EIS/R.
- Carrie described the four initial alternatives (Initial Alternatives 1 through 4).
- A handout was provided that lists the Initial Alternatives and various levee alignments.

Reach 4B Levee Alignments

- Blair Greimann presented a map of the different levee alignments associated with the four Initial Alternatives.
- Initial Alternative 1 could have levee alignments B, C, or D. Initial Alternative 2 could have levee alignment A, Initial Alternative 3 could have levee alignment A, and Initial Alternative 4 could have levee alignments A, B, or C.
- Levee alignment D represents the maximum reasonable extent and could incorporate side channel morphology.
- The group asked why the levees were needed. Blair explained that alignments B, C, and D were needed to incorporate floodplain habitat and flows up to 4,500 cfs under Alternative 1.
- The TSC developed this range of alignments by first developing the widest levee alignment possible for the required floodplain habitat and 4,500 cfs of flows based on the historic river geomorphology. Then they developed the narrowest levee alignments. They came up with a range and selected an alignment in the middle, alignment C. These are just ranges; the actual levees would be constructed somewhere within these ranges.
- The group asked what the widths were of the levees. Slide 20 of the presentation shows the widths of the different alignments.
- Levee alignment A essentially uses the existing levees (where they exist) but makes them continuous and increases the size in some locations. This alignment would have a maximum capacity of 1,500 cfs because this is the original design capacity of these levees.
- The group asked what the 4,500 cfs was driven by. Some in the group noted that they didn't think Reach 4B ever carried 4,500 cfs, or even 1,500 cfs.
- Dave Mooney explained that the Settlement arrived at that number by looking at the design capacity upstream in Reach 4A and decided that all that water should flow into Reach 4B. The group noted that the landowners were not considered when they came up with that number.
- The group asked if Blair was part of the team to make the decision on where the levees would be placed. Blair said that the TSC is technically evaluating the impacts, and providing that data and information to the decision makers, such as Michelle.
- Blair said that the Reach 4B team is now developing alternatives, examining potential impacts, analyzing impacts in an environmental document (the Reach 4B Project EIS/R), and then selecting a specific "Preferred Alternative". After a

Preferred Alternative is selected, the TSC would develop final designs and would site the levees based on the Preferred Alternative from the EIS/R.

- The group asked what percentage of input the landowners had in these decisions. Michelle and Dave stated that it is not possible to determine a numerical percentage, but landowner feedback is very important. Dave stated that they may not always be able to implement everything the landowners want because they are trying to address conflicting viewpoints. But it is very important that they fully understand what the landowners want so that they can do their best to address many of the issues. Dave asked the landowners to please speak up if they are concerned that the Reach 4B team does not understand their feedback.
- Blair then described the flood frequency for Reach 4B1 and presented a series of graphs.
 - Under Alternative 1, in a wet year (1984 in the model), flood releases would occur in winter and those would be routed down the Bypass as they are now. In spring, flows would ramp up March to April, and then back down to lower base flows with the Project.
 - During a dry year, smaller flows would occur in the winter (up to 480 cfs), there would be no flows in summer, and then the fall would have flows up to 50 cfs.
 - Under Alternative 2, flow would only go down Reach 4B1 if it exceeds 16,500 cfs, which did not occur in any of the years modeled. The group pointed out that historically, this did happen in 1997. Blair explained that the model uses historic hydrology data, but uses the future system improvements, which indicated that flow would not exceed 16,500 cfs.
 - Blair said that once flood flows come into play, the Lower San Joaquin Levee District would split the flows and operate the system. The TSC only makes an assumption as to how they might operate.
 - Alternatives 3 and 4 results fall between the Alternative 1 and 2 graphs.

Evaluation Criteria

- Carrie explained that evaluation criteria were developed under seven different categories (Project Objectives, Fisheries, Flood Control, Environmental Acceptability, Cost, Technical Feasibility, and Geomorphology/Sediment Transport).
- These criteria were used to evaluate the initial alternatives and select a range of alternatives to move forward for analysis in the EIS/R.
- The preliminary results of the Project Objectives, Fisheries, Flood Control, Environmental Acceptability, and Cost Criteria were distributed on a handout.

Fisheries Evaluation

- Joe Merz presented the evaluation criteria for fisheries.
- Joe first explained that the Reach 4B study area would function as an upstream migration corridor for adults and a downstream migration and rearing corridor for juveniles and out-migrants. There would be no spawning in this area.

- Joe described the three biggest parameters for fish are velocity, temperature, and depth. All three have to come together to create suitable habitat for fish. Joe is working with the TSC to analyze these parameters to determine suitable habitat in the Reach 4B project area. This is referred to as the Habitat Suitability Index, or HSI.
- Joe explained that fry are the younger fish and juveniles are slightly older, can swim faster, and can avoid predators better than fry. Juveniles tend to select faster moving water with greater depths than fry. Young fry like slow moving water close to banks, generally below 2 to 3 feet per second velocity.
- The three main parameters were used to identify optimal habitat in the Reach 4B study area. Joe explained that the 2-D hydrologic model allows the team to estimate acreages of suitable habitat.
- Temperature is an important factor for fish. As temperatures increase, the fish need more food, but when temperatures get too high, it can be lethal for fish. For instance, 55-67 degrees Fahrenheit is optimal for juveniles, but above approximately 74 degrees is lethal.
- These optimal temperatures were compared to preliminary temperature modeling results to identify suitable habitat.
- For some fisheries evaluation criteria (Adequate Pool and Channel Depths, Velocities), the channels were designed to meet specific fish passage requirements; therefore, all initial alternatives scored the same for those evaluation criteria.
- The group asked what fish parameters were being used because no salmon data exists for the San Joaquin River. Joe responded that he is using parameters such as temperature, velocity, etc. gathered from salmon in Central Valley streams.
- Joe stated that temperature analysis is not yet complete; therefore, the criteria scores for temperature have been left blank.
- Carrie added that the temperature modeling is very general. It is not at a fine enough scale to provide specific temperatures at specific locations, but it will give us a range of temperatures that we can compare to the optimal and lethal temperature ranges for fish to determine when such temperatures may occur.
- The group asked if temperatures were too high in Reach 4B to support salmon. Blair and Joe responded that, yes, in some times of the year temperatures are too high for fish, but it only matters if fish are present. Fish will not be present year-round in the Reach 4B study area. We will need to determine when fish are expected to be present and what temperatures would occur while they are present.
- The group asked what would happen if temperatures were too high. Blair responded that the current temperature modeling shows that with the water available, there are enough temperatures to meet fish needs at some time of the year, and that temperatures are not a fatal flaw.
- Rene also noted that sometimes localized groundwater pockets and areas of vegetation provide cooler water. Fish are good at making use of these areas to move through long stretches of higher temperatures.

- The group asked how much depth there would be in critical dry years. Blair stated that it depends on the time of year; however, in critically dry years, there are periods without flow.
- The group asked what would happen to fish in pools that are 30 feet deep when the flows stop during critically dry years. Blair indicated that he does not expect pools that are 30 feet deep. Also, the river would only be dry a portion of the time, not the entire year. Joe noted that having a big pool get too warm to support predator fish could actually be a good thing in some circumstances.
- The group noted that stagnant holes would be a health hazard. Blair said that pools would be largely the same as they are now.
- The group asked if fish would all leave at the same time. Joe said that over time, as they migrate, studies show that they actually go at different times. If some leave too early and die, the species builds resilience as the later fish survive. Rene added that we do not want too perfect a system because the fish need to develop to be resilient.

Geomorphology/Sediment Transport Evaluation

- Blair Greimann presented the geomorphology/sediment transport evaluation and the modeling results used in this evaluation.
- This is a very low energy system with an average slope of 1 foot per mile. Historically, it was a network of channels, not a single thread.
- Modeling shows, as we split the flows, the capacity for sediment transport decreases.
- As you introduce variable flows, it increases channel complexity.
- If you remove vegetation, you reduce variability. If we don't have vegetation, the system is not as stable for the low flow, and there would be no bank lines.
- The closer the levees are together, the higher the velocities and water surface elevation.
- Subsidence is an important factor occurring in certain areas.
- The TSC completed extensive flow and deposition modeling for each of the Initial Alternatives.
 - Alternative 1 – deposition in the upstream portion of Reach 4B1 near Sand Slough regardless of the levee option. The wider setbacks have more deposition. Downstream, the system is generally stable with some slight erosion all the way through Reach 4B2.
 - Alternative 2 – deposition in Reach 4B1, but not much. The flow that enters is very minor. In the Eastside Bypass, there would be regrading of the channel to reduce deposition. This would create a more stable system, but some erosion would occur in the downstream portion of the Eastside Bypass Reach 2 and the Mariposa Bypass.
 - Alternative 3 – increased deposition at Reach 4B1 near Sand Slough at 475 cfs and in the upstream portion of the Eastside Bypass because the Bypass would not be regraded. The downstream portion of the Eastside Bypass Reach 2 and the Eastside Bypass Reach 3 would have some erosion.

- Alternative 4 – under levee alignment A (1,500 cfs maximum capacity), there is more erosion as the levees are narrow, increased velocity. There is decreasing deposition in the upstream areas because of the narrow levees.
- All designs try to minimize erosion and deposition.
- Alternative 2 – would restore a slope in the bypass system to be a fairly self-sustaining system, but it would initially require almost 1 million cubic yards of material excavated.
- The group asked if flow would affect subsidence. Blair stated that subsidence looks to be due to groundwater pumping, but there is a long lag time. Even if you stabilize groundwater levels, compaction could still occur for a time. Restoring flow would restore groundwater to some extent, but we do not know how much.

Evaluation Results and Final Alternatives for Analysis in Reach 4B EIS/R

- Carrie discussed each of the alternatives and how they performed under the evaluation criteria. Carrie then discussed the alternatives recommended to be moved forward for analysis in the Reach 4B EIS/R. Slides 58-63 describe the alternatives proposed to move forward.
- The group had an extensive discussion on incorporating the Value Planning recommendations into Alternative 2 and how it might be presented in the EIS/R without improvements in Reach 4B1, knowing that it would not meet all the Settlement requirements. The group greatly appreciated the results of the Value Planning and supports Alternative 2 without any improvements in Reach 4B1. The group then requested that Alternative 2 be split into two separate and stand-alone alternatives, one with improvements in Reach 4B1, and one without.
- The group noted that the Settlement does not require flows in Reach 4B1, only capacity of 475 cfs. The group asked why the government would spend money improving capacity in Reach 4B1 if it would never (or very rarely) have flows. The group noted that several landowners believe the Reach 4B Project would work best if all flows were kept in the bypass. The group expressed frustration that the main reason the Natural Resources Defense Council wants the flows in Reach 4B is because it was once a river. The group said that historically, water didn't stay in that channel; it spread out because it was so flat, and flooded in a sheet of water across the land. The group stated that the Mariposa Bypass is actually an old channel.
- The group asked if these final alternatives would be presented in a document to comment on. Michelle stated that, yes, these final alternatives will be evaluated in the Reach 4B EIS/R. The public (including landowners) will have an opportunity to comment on the document. After all comments are received, decision makers will select the Preferred Alternative. This Preferred Alternative will be identified in the Final EIS/R which will be released to the public.
- Also, a Project Description Technical Memorandum is currently being developed. This document will describe the Initial Alternatives, the evaluation criteria and process, and the final alternatives to move forward in the EIS/R. This document is anticipated for release to the public in the next few months, before the EIS/R gets underway.

- The group had a discussion on the location of the levee setbacks in the Eastside Bypass under Alternative 2. The group noted that if levees setbacks occurred on the east side, slurry walls would probably not be needed as the duck clubs/Refuge lands would probably welcome the water. If levee setbacks were planned on the west side, landowners would likely require slurry walls all the way down the Eastside Bypass and this would be costly.
- The group had a discussion on silt removal. Some in the group felt that up to 15 feet of silt would need to be removed from Reach 4B of the San Joaquin River to convey flows. Blair said that they would not excavate much silt. The group noted that you would either have to remove the silt or raise the levees. Blair said the design considers raising levees. The elevations at the upstream end and downstream end of the reach are set, and decreasing the bed elevation in Reach 4B would prevent the river channel from matching up to those two elevations.
- The group had a discussion about the existing property along the bank of Reach 4B1. Even under Alternative 2, with 475 cfs in Reach 4B1, some of the Reach 4B1 levees may cut off portions of this property, and could affect existing structures. Blair discussed relocating the channel to avoid affecting existing structures. The levees under this alternative would only be a few feet high. The group also noted there are a variety of sensitive areas along Reach 4B1. Blair agreed to study these areas and work to design the levee alignments to avoid these areas whenever possible.

Feedback from the Group

- Some of the group support Alternative 2 with the Value Planning recommendations but do not want any improvements completed in Reach 4B1 and do not want any flows in Reach 4B1. Some in the group felt it would be a waste of money to improve Reach 4B1 under this alternative.
- The group expressed support for moving Eastside Bypass levee setbacks to the east under Alternative 2, to avoid prime agricultural land, impacts on water districts, and expensive seepage mitigation.

Action Items

- Distribute copies of Landowner Meeting minutes.
- Further develop levee alignments in Reach 4B1 to avoid sensitive areas such as existing heron rookery, existing structures, etc.
- Consider how to incorporate Alternative 2 into the Reach 4B EIS/R with no improvements in Reach 4B1, recognizing that this will not meet all of the Settlement requirements.