Bay Delta Conservation Plan (BDCP)
Steering Committee (SC) Meeting
April 22, 2010, 9:00 a.m. to 11:30 p.m.
California Farm Bureau Federation Conference Room
2300 River Plaza Ave, Sacramento, CA

Draft Meeting Notes

Associated documents/handouts:

- *Agenda*
- *Draft Steering Committee Meeting Agendas*
- *BDCP Key Decisions by Major Issue*
- *BDCP Important Related Actions and Separate Analyses*
- *The Logic Chain Architecture*
- *The Logic Chain and Its Uses in the Bay Delta Conservation Planning Process – User's Guide – Draft April 20, 2010*
- *#2 Objective for Winter-run Chinook Salmon*

Action Items and Key Decisions

- None

Updates

- Despite the steady rainfall in California, Oroville Reservoir is not doing as well as some other reservoirs in terms of accumulated water storage. DWR will announce an allocation update on Friday, April 23.
- DWR has released a solicitation for Delta levee and habitat restoration proposals with $15 million set aside for levee issues and tidal habitat projects. Proposals are due May 24, 2010. Information about submitting proposals is available on the DWR website.
- DWR will soon release a draft solicitation for Delta infrastructure project proposals in Stockton, Solano, and Contra Costa counties.
- The Nature Conservancy is developing a Delta ecological flows tool that will allow the evaluation of a suite of ecological indicators, including how they vary across different flow conditions and operations in the Delta. The design document for the tool has been released for agency review and comment. Comments are due back at the end of the first week of May 2010. The first-run version of the tool is expected to be released in October 2010.
- On April 19, USFWS announced the beginning of a 30-day comment period on the Sacramento splittail status review. The comment period will close on May 20, 2010. More information is available online at the Federal Register and the USFWS website.
- DFG announced that the Ecosystem Restoration Program is preparing a Proposal Solicitation Package (PSP) that focuses on habitat restoration projects in the Delta and investigations that would address uncertainties in habitat restoration. The PSP will be released by June 30, 2010.
- Metropolitan is hosting two events next Wednesday - the dedication of the Drop 2 Reservoir, an off-stream storage facility for Colorado River water; and the start-up of a one-year pilot run of the Yuma Desalting Plant at one-third capacity on the Colorado River. The two projects combined will generate 100,000 acre feet per year of new water.
- On April 29, DWR will be touring the site of the non-physical barrier ("bubble curtain") established this year at the head of Old River and invites the Steering Committee members to attend.
- John Cain will replace Richard Roos-Collins as the American Rivers representative to the Steering Committee, as Mr. Roos-Collins moves on to begin his work as a member of the Delta Stewardship Council. The Steering Committee thanked Mr. Roos-Collins for his years of service on the Steering Committee and contributions to BDCP development.

- US Bureau of Reclamation has announced a water allocation update; for south of Delta water contractors the allocation has been increased to 30 percent.

Process and Schedule

Karen Scarborough discussed two handouts related to process and schedule - *Draft Steering Committee Meeting Agendas* and *BDCP Key Decisions by Major Issue.* The *Draft Steering Committee Meeting Agendas* reflects the expectation that many issues will be addressed throughout May and June. More detail on the agendas of the coming months will be made available. In response to several requests from Steering Committee members, the *BDCP Key Decisions by Major Issue* handout identifies issues yet to be decided upon by Steering Committee members.

A point was made that addressing third party issues should be discussed sooner rather than later. It was noted that items on the *Draft Steering Committee Meeting Agendas* are not listed in chronological order. Ms. Scarborough reminded the Steering Committee that most BDCP draft chapters are available on the web, and Ms. Scarborough urged Steering Committee members to re-read them. The governance workgroup has received chapter comments from the Fishery Agencies and will consider those comments by the end of May. Richard Roos-Collins has served as a co-chair of the Governance Workgroup and will be replaced with an NGO Steering Committee member as co-chair. Ms. Scarborough made a request for volunteers. A request was made for an EIR/EIS status update and USACE section 404 permit process update. A point was made that the Steering Committee should develop a strategy to incorporate State Water Resources Control Board (SWRCB) flow criteria information into the BDCP analyses.

Separate Analyses

Karen Scarborough introduced the *BDCP Important Related Actions and Separate Analyses* handout which describes the status of the separate analyses identified as needed during the January 29, 21010 Steering Committee meeting, and the status of Important Related Actions (IRAs) that could potentially become Other Stressors conservation measures. The factors used to evaluate intake and conveyance sizing in the separate facility sizing analysis were described as: 1) water supply (quantity), 2) water supply reliability, 3) water quality, 4) environmental factors affecting fish and terrestrial species, 5) climate change effects, 6) cost, and 7) future alternatives (e.g., new storage). This analysis will consider issues relating to each of the factors that could arise with various facility sizing (e.g., 3k, 6k, 9k, 12k, and 15k cfs). These factors and this sizing analysis relate to other analyses currently underway. For example, the BDCP EIR/EIS is examining alternatives to the proposed project that could include sizing alternatives. Additionally, from a construction perspective, an optimization exercise of engineering and costs is in progress. Many analyses are moving concurrently; the challenge is to coordinate them.

A question was raised about the implementability of the proposed project. Phased construction was also discussed (i.e., construction of one tunnel at a time rather than both tunnels at the same time). Other topics discussed included the modeling for the intake/conveyance sizing analysis and the inclusion of an evaluation of reservoir cold water pool management in the BDCP Full Effects Analysis.

Public Comments:

Jonas Minton (Planning and Conservation League) suggested that phased building of the tunnels would provide the opportunity to see how well the first tunnel works before building a second. Mr. Minton also asked how the SWRCB flow criteria will be integrated into the BDCP intake sizing analysis. Ann Hayden (Environmental Defense Fund) responded that the BDCP development process is iterative and that this sizing analysis should be revisited when more information comes forward from the SWRCB.

Osha Meserve (Reclamation District 999 and Stone Lakes National Wildlife Refuge Association) expressed concern about the seven factors and how questions can shape answers. Ms. Meserve stated that many factors are not included in the facilities sizing analysis (e.g., impacts on existing communities, landowners, land uses, parks, refuges, recreation, and public trust uses of the Sacramento River). Ms. Meserve stated that these issues play into the feasibility of the project and in order for the sizing analysis to have weight with local stakeholders, it should include them.

Linda Dorn (Sacramento Regional County Sanitation District) asked what chapter contains the BDCP research program. Paul Cylinder responded that it will be in the monitoring and research section of Chapter 3, *Conservation Strategy*. Ms. Dorn also noted that the conservation measure related to ammonia is being reviewed in the Full Effects Analysis. It was

Ms. Dorn's understanding that only conservation measures going forward in the BDCP were included in the Full Effects Analysis. Dr. Cylinder responded that an ammonia conservation measure was being evaluated as an Important Related Action in conjunction and parallel with the Full Effects Analysis, but not within that analysis.

Ann Spaulding (City of Antioch) asked about the National Research Council (NRC) presentation given by Denise Reed at the last Steering Committee meeting and how Dr. Reed's solicitation of BDCP Steering Committee input for the next NRC report will tie into upcoming BDCP Steering Committee agendas. Karen Scarborough responded that this will occur in July and that Roger Patterson (Metropolitan Water District) will spearhead that effort with Dan Castleberry (USFWS).

Osha Meserve commented that in regard to Other Stressors Conservation Measure #4 *Reduce the Load of Agricultural Pesticides and Herbicides Entering Delta Waterways from in-Delta Sources*, which is now identified as an Important Related Action, it is fine to include its analysis. However, Ms. Meserve encouraged the Steering Committee to look at a broader range of inputs as in-Delta sources are not the only sources of pesticides and other pollutants that are toxic to fish. Ms. Meserve gave the example of the San Joaquin River and selenium. There is an effort underway by users of the San Joaquin River to attain a ten-year extension of the current selenium standards; and selenium is toxic. Ms. Meserve suggested that sources upstream of the Delta to the north and San Joaquin River toxics should also be looked at as part of this IRA analysis.

Public Outreach

Karla Nemeth gave an update on public outreach. An invitation was sent out to Steering Committee members for a tour of the Central Valley to be held on May 14th. As with all Steering Committee member field trips, after the number of interested Steering Committee members has been identified, the available space will be open for interested parties. The upcoming Delta tour will be scheduled for late May or early June.

The public outreach group is also working with Yolo County on the agenda for the local issues group for the Yolo Bypass conservation measure. The purpose of this effort is to solicit local input on ways to minimize conflicts with local land uses and other interests in the Yolo Bypass and benefits to fish species that the BDCP is seeking. The information gained from this group will be presented to Steering Committee members for consideration in revisions to conservation measures.

Presentation: BDCP Physical Modeling Update

Armin Munevar (CH2M Hill) gave a review of the BDCP physical modeling process for the Full Effects Analysis, focusing on future climate change projections and their effects on the Delta with and without the BDCP proposed project over time, with operating parameters as approved for analysis during the January 29, 2010 Steering Committee meeting. *See presentation posted on BDCP website.*

The BDCP modeling team has taken the established work products of climate change emissions scenarios which led to climate simulations and subsequent downscaled spatial information usable for modeling. This downscaled simulation information was then used by the BDCP modeling team to create hydrologic models used to inform operations models that were then applied to Bay-Delta models. There is much uncertainty regarding future climatic conditions. This broad range of potential future conditions is displayed in five general categories holding multiple possibility gradients each: drier with less warming (Q1), drier with more warming (Q2), wetter with more warming (Q3), wetter with less warming (Q4), and a fifth category that encompasses possibilities captured in Q1-Q4 (see slide 5). Every scenario predicts a future warmer than present day conditions; however, the variability of precipitation encompasses present conditions, less precipitation, and more precipitation. The predicted change in seasonal patterns of precipitation is not captured by the graph in slide 5; annual precipitation totals only are represented by the graph.

What the modeling has shown is a potential 1 to 2.5 ˚C increase in average monthly winter temperatures, and a 2 to 3.5 ˚C increase in average monthly summer temperatures in 2060 (roughly the end of the proposed permit term). Precipitation changes by 2060 are predicted to be variable during winter and early spring with generally lower precipitation during late spring, summer and fall. In terms of specific watersheds, lower elevation basins in the San Joaquin Valley will respond with earlier runoff; higher elevation basins will be less impacted by warming and the earlier snowpack melt, but they are impacted by overall amount of precipitation. Sea level rise is expected to increase saltwater intrusion from San Francisco Bay further east into the Delta. X2 (a commonly used salinity measurement) is predicted to move inland from 1-3 kilometers.

The BDCP modeling takes into account climate change projections, BDCP tidal marsh restoration effects, and BDCP dual conveyance proposed operations. Daily flow and operational analyses were done for Fremont and Sacramento weirs and the proposed north Delta intakes. Modeling was also conducted for the "no action" alternative. Annual Delta export supplies are predicted to decrease over time due to climate change both with and without the proposed project. Water storage at Shasta reservoir may become more difficult to manage for cold water pool purposes over time, solely as a result of changes in watershed precipitation and runoff input, not from potential increases in water usage. However, the BDCP proposed project increases water operations flexibility to the benefit of Shasta storage (slide 17) as diversion from the Delta is timed with when the water is present. Folsom reservoir projections are similar to Shasta with slight benefits to the increased water management flexibility. Oroville management is more dramatically affected by BDCP proposed operations with greater gains in storage when compared to no action.

Delta flow projections have some variability. Yolo Bypass flows are increased in inundation and duration during winter and early spring with the proposed project, while Sacramento River bypass flows at Freeport are similar with and without the proposed project. Sacramento River bypass flows downstream of the proposed intakes are lower year-round with the proposed project than with no action. Old and Middle river flows can be made less negative throughout much of the year with the proposed project; this will translate into benefits for delta smelt. A point was made about the constant low-level pumping provision in the January 29, 2010 operations proposed for analysis. This provision allows for up to 6% of the Sacramento River flows greater than 5,000 cfs to be diverted even if the bypass flow criteria are not met as a protective measure for the pump infrastructure. This enables some pumping to be reduced at the south Delta pumps in April and May.

Next steps in BDCP modeling will include examining the BDCP analytical range for sensitivity; a river temperature analysis; and hydrodynamic, water quality, and particle tracking modeling.

A concern was raised about the biological implications of climate change as large investments are to be made in water operations changes with the specific purpose of aiding the recovery of fish populations that could then be negatively affected by climatic changes that cannot be controlled. Mr. Munevar responded that the upcoming water temperature analysis will help examine that issue; however, a valid point was made that the future climatic trajectory and its effects may be difficult to overcome.

A request was made for Mr. Munevar to explain the factors that determine water temperatures in the Delta. Mr. Munevar responded that the water temperature in the Delta is somewhat influenced by river flows from the Sacramento and San Joaquin rivers, but the greater influence is atmospheric temperature. BDCP marsh restoration could provide temperature refugia in the Delta. A request was also made for access to the BDCP modeling information, as interested modelers would need it before the next modeling-for-modelers meeting. It was asked if a summary report on the Mini Effects Analysis had been made available. Paul Cylinder responded that summary and detailed tables of the Mini Effects Analysis results have been posted on the BDCP website. A request was made for more detailed information than is available in presentations on modeling results given at Steering Committee meetings. Mr. Munevar responded that the detailed modeling output information can be made available when the modeling and analysis are done. It was acknowledged that fine-tuning the model to take into account the effects of tidal marsh restoration was a complicated, time-consuming process. A question was raised about biological effects. Mr. Munevar responded that this physical modeling output will inform the biological analysis.

Public Comments:

Alice Rich (A.A. Rich and Associates) asked if the water temperature modeling would include daily temperatures or mean monthly temperatures. Mr. Munevar responded that the temperature models are sub-daily six-hour models. Dr. Rich asked how the temperature models are validated for accuracy (i.e., daily monitoring). Mr. Munevar responded that the models have been calibrated by the last five to ten years of data collected, but he would have to go back and look for more specifics on current monitoring for calibration. Dr. Rich asked if temperature refugia would be in the Sacramento and San Joaquin rivers. Mr. Munevar responded that temperature refugia created by marsh restoration would be in the Delta. Dr. Rich asked if there will be areas with a thermal cline. Laura King Moon responded that Conveyance workgroup gave a presentation on this topic a year ago, and that it is posted on the BDCP website. Mr. Munevar added there should be a cooling effect from tidal marsh and a warming effect as well in terms of water contact with the land.

Ann Spaulding (City of Antioch) brought up the projections for X2 moving inland and asked what the modeling predicts for the western Delta in terms of water quality; it would seem that this would not be positive for west Delta water users.

Paul Gilbert-Snyder (East Bay Municipal Utility District) asked about the schedule for the next modeling-for-modelers meeting. Paul Cylinder responded that it will depend upon whether the participating modelers want to have a meeting only on the hydrology and operations model, or wait until the Bay-Delta estuary hydrodynamic modeling is completed to discuss both. Interested modelers are to send their preferences to Karen Scarborough, and she will coordinate with Paul Cylinder and Armin Munevar on scheduling.

Jason Lofton (Sacramento Regional County Sanitation District) asked if the model shows increased frequency and duration of reverse flows on Sacramento River. Mr. Munevar responded that the analysis hasn't reached that point. They are currently looking at the broad system analysis. Mr. Lofton asked if Mr. Munevar expects that lowering flows could increase reverse flows. Mr. Munevar responded that he does not wish to speculate; however, given bypass flow criteria that do not allow diverting when flows are low, Mr. Munevar would not expect increased reverse flows. Mr. Lofton asked if this topic will be covered by the analysis. Mr. Munevar responded in the affirmative.

Discussion: Logic/Metric Update

Laura King Moon (State Water Contractors) discussed the progress made in the BDCP logic chain development. The purpose of this effort is to be more explicit and show the work of how the BDCP aquatic biological goals and objectives were developed. The methodology was developed, and then there was an independent science review of that methodology. The science review has recommended next steps; among them was to develop a more layperson description of the logic chain and its intended purpose. Ms. King Moon presented two handouts that aim to do that: *The Logic Chain Architecture* flow chart and *The Logic Chain and Its Uses in the Bay Delta Conservation Planning Process – User's Guide – Draft April 20, 2010. The Logic Chain Architecture* flow chart has been modified per suggestions of the science advisors. Campbell Ingram (The Nature Conservancy) noted that one "Stressor" box in the flow chart is colored differently. This is because not all identified stressors will be addressed by the BDCP or the stated goals and objectives. Ms. King Moon also noted that the Logic Chain is not meant to identify BDCP regulatory obligations. The Logic Chain group would like to get some comments back on this flow chart and the user's guide in the next week to help identify gaps.

Another recommended next step was to apply the logic chain to some species as first examples. Ms. King Moon discussed the *Objectives for Winter-run Chinook Salmon* handout, which is an example of how that would be done for each species. It is a small piece of what will ultimately be a very large table encompassing the reasoning behind the goals and objectives for all BDCP covered fish species. John Rosenfeld, John Cain, and Josh Israel were thanked for their work on developing the Logic Chain. The importance of this process and the transparency it gives to the BDCP process was noted.

Public Comments:

Alice Rich (A.A. Rich and Associates) asked if it has been considered that stress from stressors is cumulative and that looking at each stressor individually will not give a complete picture. Ms. King Moon responded in the affirmative.

General Public Comments:

None.

Attendees

Management and Representatives
Karen Scarborough (Chair, The Natural Resources Agency)
Marc Ebbin (DWR, The Natural Resources Agency)
Laura King Moon (State Water Contractors)
Karla Nemeth (The Natural Resources Agency)
Tom Howard (State Water Resources Control Board)
Jerry Johns (DWR)

Paul Robershotte (USACE)
Jason Peltier (Westlands Water District)
Roger Patterson (Metropolitan Water District)
Ann Hayden (Environmental Defense Fund)
Richard Roos-Collins (American Rivers)
Kim Delfino (Defenders of Wildlife)
Campbell Ingram (The Nature Conservancy)
Steve Ottemoeller (Friant Water Authority)
Melinda Terry (North Delta Water Agency)
Jim Fiedler (Santa Clara Valley Water District)
Carl Wilcox (DFG)
Federico Barajas (USBR)
Patti Idlof (USBR)
Chris Scheuring (California Farm Bureau Federation)
Greg Gartrell (Contra Costa Water District)
Deanna Sereno (Contra Costa Water District)
Dan Castleberry (USFWS)
Maria Rea (NOAA/NMFS)
Michael Tucker (NOAA/NMFS)
Paul Cylinder (SAIC)

On phone
Kurt Arends (Zone 7)
Gary Bobker (The Bay Institute)
Greg Thomas (Natural Heritage Institute)
Peter Landreth (Mirant)