

SENATE GOVERNANCE & FINANCE COMMITTEE
SENATE NATURAL RESOURCES & WATER COMMITTEE

The Governance and Financing of the Bay Delta
Conservation Plan: Overview of the Issues

Committee Background

This is the third in a series of hearing on the Bay Delta Conservation Plan (BDCP).

On April 30th, the Senate Natural Resources and Water Committee and the Senate Select Committee on the Delta held an informational hearing titled “The Bay Delta Conservation Plan: Overview of the Issues.” The purpose of the hearing was to give the administration an opportunity to describe the project and answer questions from the members. Testifying that day were Secretary of Natural Resources John Laird, Department of Fish and Wildlife Director Chuck Bonham, and Department of Water Resources Director Mark Cowin.

On May 14th, these same committees held a second informational hearing on the BDCP to hear different perspectives on the plan from water contractors, local government officials, and environmental groups. That day’s panelists were Roger Patterson from Metropolitan Water District, David Guy from the Northern California Water Association, Greg Gartrell with Contra Costa Water District, Jason Peltier with Westlands Water District, Sacramento County Supervisor Don Nottoli, Doug Obegi with the NRDC, and Brent Walthall with the Kern County Water Agency.

A recap of both those hearings is attached.*

* Also available at: <http://mavensnotebook.com/2013/05/08/mavens-minutes-joint-informational-hearing-natural-resources-and-water-and-select-committee-on-the-sacramento-san-joaquin-delta-the-bay-delta-conservation-plan-overview-of-the-issues/> and <http://mavensnotebook.com/2013/05/20/mavens-minutes-joint-informational-hearing-natural-resources-and-water-and-select-committee-on-the-sacramento-san-joaquin-delta-the-bay-delta-conservation-plan-perspectives-on-the-plan/>

This hearing is intended to focus on the proposed governance and financing of BDCP. The witnesses will address five key issues:

- The proposed institutional structure and organizational arrangements that will be established to govern and implement the BDCP.
- The estimated costs associated with implementation of the BDCP over the proposed 50-year term of the Plan.
- The potential sources of funding for the BDCP implementation.
- The direct economic benefits of implementing the BDCP to the state's urban and agricultural water agencies receiving water supplies from the Central Valley Project (CVP) and the State Water Project (SWP).
- The direct economic benefits of implementing the BDCP to the state as a whole.

To provide a context for members of the Senate Natural Resources and Water Committee this paper:

- Briefly describes the current governance structure for the SWP and CVP and proposed governance for the BDCP.
- Summarizes the fiscal aspects of the proposal.
- Identifies major assumptions, key issues the committee members may wish to explore, and other related topics.

It is important to note that this paper is based on chapters 7 – 9 of the “Bay Delta Conservation Plan: Revised Administrative Draft” and the associated appendices. Some of the narrative in those chapters is subject to interpretation. Consequently, some comments in this paper may not comport with the views of the authors of those chapters or with the proponents of the project. Also, this paper does not discuss the statewide economic analysis that was released on August 5, 2013.

Implementing BDCP

BDCP is intended to comply with the federal Endangered Species Act (ESA) and the California Natural Community Conservation Planning Act (NCCPA) for a range of activities related to the operation of the State Water Project (SWP) and Central Valley Project (CVP), including the diversion and export of water from the Delta and its tributaries. These activities can be grouped as follows:

- Water Facilities and Operation (CM1, CM 22) *
- Natural Community Protection and Management (CM3, CM11)
- Natural Community Restoration (CM2, CM4-CM10, CM 12)
- Other Stressors Conservation (CM13-CM21)
- Monitoring, Research, Adaptive Management, and Remedial Measures
- Program Administration

These activities will occur across a number of different time scales, requiring different types of implementation oversight. For example, constructing conveyance facilities is expected to occur in the first 10 years of BDCP, while operating that facility is to occur during the following 40 years. The governance issues associated with constructing the facility are quite different from those associated with operating the facility. Similar issues also arose with initiation of the state water project.

To understand BDCP’s proposed governance structure, it is helpful to first understand the current structure.

Current Governance Structure

DWR owns and operates the SWP, holds all the water rights for the SWP, and holds all of the permits required to operate the SWP, including the incidental take permits. DWR has contracts with 29 contractors. The contracts provide, among other things, that the contractors will pay all SWP costs, including a “Delta Water Charge” and a “Transportation Charge,” except recreation, fish and wildlife enhancement and flood control costs. Consistent with Governor Edmond G. “Pat” Brown’s *Contracting Principles for Water Service Contracts*, “Each contracting agency will agree that, in the event in any year is unable or fails through other means to raise the funds necessary in any year to pay the State the sum required under the contract, it will use its taxing or assessment power to raise such a sum.”[†] Such terms are still in effect.[‡]

The California Water Commission was created the same time that DWR was created from the former Department of Public Works to “confer with, advise, and make recommendations to the director [of DWR] with respect to any matters and subjects under his jurisdiction. The rulemaking power of the department shall be exercised in the following manner. All rules and regulations of the department, other than those relating exclusively to the internal administration and management of the department, shall be first presented by the director to the commission and

* CM refers to specific conservation measures within BDCP. The categorization of activities is from Bay Delta Conservation Plan, Revised Administrative Draft, Chapter 8, May 2013, Table 8-41.

[†] California Legislature, Supplement to Appendix To The Journal Of The Senate, 1960 Regular Session, 1960, pp. 51-53

[‡] See for example, Article 34 in “Contract Between The Metropolitan Water District Of Southern California And The State Of California Department Of Water Resources For A Water Supply And Selected Related Agreements”, as of January 1, 2005.

shall become effective only upon approval thereof by the commission.”* The commission’s SWP specific responsibilities are to:

- Conduct an annual review of the construction and operation of the SWP and report to DWR and the Legislature with any recommendations;
- Hold public hearings on all additional facilities proposed to be added to the SWP and name any new facilities; and
- Adopt a resolution of necessity, and give each affected person a venue to be heard, before DWR may commence an eminent domain proceeding.

Similarly, the U.S. Bureau of Reclamation (USBR) owns and operates the CVP, holds all the water rights for the CVP, and holds all of the permits required to operate the CVP, including the incidental take permits. It too has contracts with water agencies governing the financing of the CVP.

There are, however, at least two key differences between the SWP and CVP. First, the CVP includes a number of distinct “units,” many of which do not require moving through or around the Delta.[†] Conversely, all but 3 of the SWP contractors rely on moving water through or around the Delta.[‡] Second, the cost allocation and financing system of the SWP ensures that the SWP contractors pay all costs of the SWP, whereas the CVP’s system does not guarantee full repayment, and there is some question as to whether the costs will be fully repaid.[§]

Because both the CVP and the SWP convey water in the Sacramento River and the Delta, facility operations are coordinated based on the Coordinated Operating Agreement, the Bay-Delta Plan Accord, and many other agreements. To ensure that both projects operate consistent with the various operation agreements, water rights conditions, endangered species requirements, and other permits, there is an “Ops Group.” This group, composed of both state (Dept. of Fish and Wildlife, DWR, and State Water Resources Control Board) and federal (Fish and Wildlife Service, National Marine Fisheries Service, USBR, and Environmental Protection Agency) representatives, meets in public each month. Three areas of project operations are overseen by the Ops Group:

- The adjustment of export limits to minimize endangered species' take or to improve fishery conditions in general.
- The operation of the Delta Cross-channel.
- Changes in the point of diversion to improve fishery conditions or make up losses to water supply caused by previous operational changes to improve fishery conditions.

* Water Code §161.

† For example, the Sacramento Canals Unit of the Central Valley Project was designed to provide irrigation water in the Sacramento Valley, principally in Tehama, Glenn, and Colusa Counties.

‡ City of Yuba, County of Butte, and Plumas County Flood Control & Water Conservation District.

§ See for example, Department of Interior, Office of the Inspector General, *Central Valley Project, California: Repayment Status And Payoff*, Report No.: WR-EV-BOR-0003-2012, March 2013.

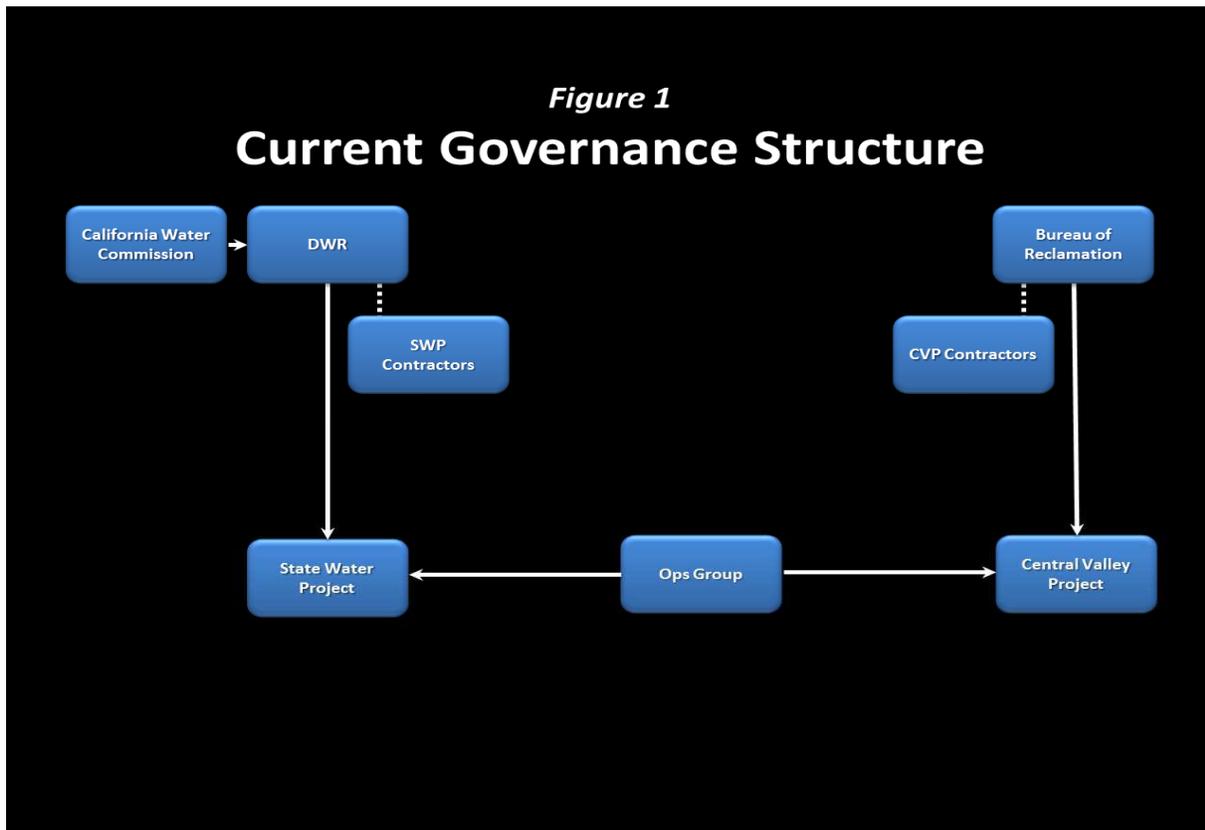
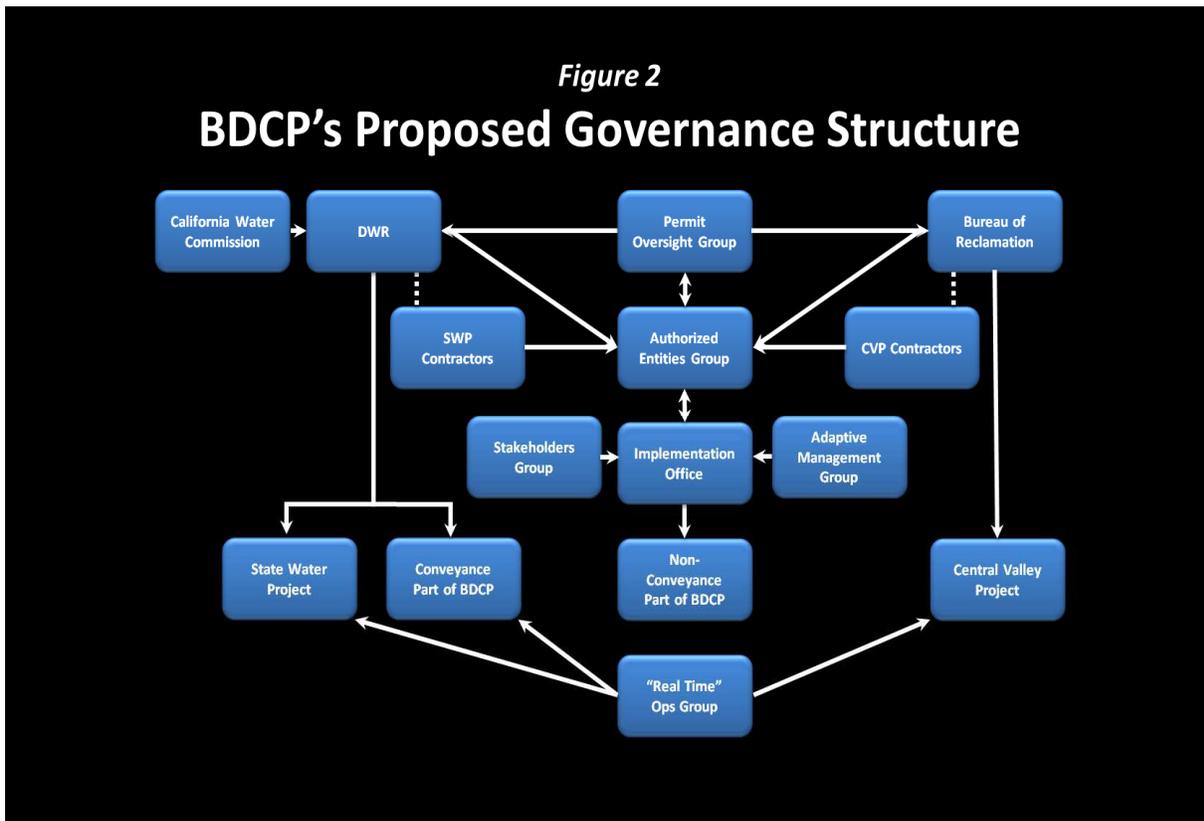


Figure 1 shows this current governance structure. The DWR and USBR are in charge of the SWP and CVP respectively. Each has a contractual relation with its respective contractors. The California Water Commission oversees DWR. And the Ops Group ensures the operations of both systems are consistent with current permit conditions.

BDCP's Proposed Governance Structure

Proponents of BDCP are proposing to create a number of new oversight and management groups to implement BDCP. Figure 2 depicts staff's understanding of the proposed governance structure for BDCP.



Permit Oversight Group would be composed of the state and federal fish and wildlife agencies, specifically, the Regional Director of U.S. Fish and Wildlife Service (USFWS), the Regional Administrator of National Marine Fisheries Service (NMFS), and the Director of the California Department of Fish and Wildlife (CDFW) or their designees. Proponents of BDCP anticipate that USFWS, NMFS, and CDFW will issue regulatory authorizations for BDCP activities pursuant to the federal ESA and the NCCPA, as applicable. Consistent with the existing law, the fish and wildlife agencies would retain responsibility for monitoring compliance with the BDCP, approving certain implementation actions, and enforcing the provisions of their respective regulatory authorizations. In addition to fulfilling those regulatory responsibilities, the state and federal fish and wildlife agencies would also provide technical input on a range of implementation actions that will be carried out by the Implementation Office (described below). The Permit Oversight Group would not be a separate legal entity nor would it be delegated any authority by the member agencies. The Permit Oversight Group would meet publicly with the Authorized Entities Group at least quarterly.

Authorized Entities Group would consist of the Director of DWR, the Regional Director for Reclamation, and a representative of the participating state contractors and a representative of the participating federal contractors, if they are issued permits pursuant to the Plan. Its purpose would be to provide program oversight and general guidance to the Program Manager regarding the implementation of the Plan. The Authorized Entity Group would be responsible for ensuring that the management and implementation of the BDCP are carried out consistent with its provisions, the Implementing Agreement, and the associated regulatory authorizations.

The Authorized Entity Group would meet in public at least quarterly to review issues that arise during the implementation of the Annual Work Plan and Budget.

Implementation Office would be led by a Program Manager, who would be selected by and report to the Authorized Entity Group. The Program Manager would manage, coordinate, oversee, and report on all aspects of Plan implementation, subject to the oversight of the Authorized Entity Group. The Program Manager, with the assistance of the Implementation Office staff, would ensure that the BDCP is properly implemented throughout the duration of the Plan. For those activities involving functions that, under state and federal law, cannot be delegated (e.g., water operations, water contracting, procurement, expenditures of state and federal funds), the Program Manager would coordinate with the appropriate designated state or federal official to ensure that the necessary function is carried out. The Program Manager may be a state employee, a federal employee, or a person retained under a personal services contract or other mechanism.

The Program Manager would direct, oversee, and select staff for the Implementation Office. The Implementation Office, which would not be a legal entity authorized to enter into contracts directly or hold property in its own name, would administer the implementation of the BDCP under the existing authorities of the Authorized Entities.

The Implementation Office would assume responsibility for the implementing a broad range of actions, including:

- Overseeing and coordinating the administration of program funding and resources, including budgets and work plans.
- Overseeing and/or implementing conservation measures.
- Technical and logistical support to the Adaptive Management Team (described below) with respect to the administration of the Adaptive Management and Monitoring Program,
- Coordinating with Delta-wide governance entities, including the Delta Stewardship Council, the Delta Science Program, the Delta Protection Commission, and the Delta Conservancy.

The Program Manager would meet the staffing needs of the Implementation Office by drawing from existing personnel at DWR, USBR, State and Federal Contractors Water Agency (SFCWA), and from other sources, including from sources outside of agencies.

The Program Manager would also select the Science Manager. The Science Manager would, among other things:

- Chair the Adaptive Management Team (described below) and assist the team in the development and administration of the Adaptive Management and Monitoring Program, in coordination with the Interagency Ecological Program (IEP), and other science programs.

- Engage in regular communication and coordination with the Delta Science Program and the Independent Science Board, in a manner consistent with the Delta Reform Act, as well as with other outside scientists and, as directed by the Adaptive Management Team, coordinate or contract with the Independent Science Board, the Delta Science Program, or other scientists to obtain input and review to support the Adaptive Management and Monitoring Program.
- Assist the Adaptive Management Team in synthesizing and presenting the results of studies and research, compiling the findings of monitoring efforts, and summarizing the current scientific knowledge on relevant Delta resources to the Program Manager, the Authorized Entity Group, Permit Oversight Group, Stakeholder Council (described below), and others.

Adaptive Management Group would be chaired by the Science Manager, and would consist of representatives of DWR, USBR, CDFW, USFWS, and NMFS; the IEP Lead Scientist; a Delta Science Program representative; the State and Federal Contractors Water Agency Science Manager; and the Director of the NOAA Southwest Fisheries Science Center.

The Adaptive Management Team would have primary responsibility for administration of the adaptive management and monitoring program, development of performance measures, proposed changes to conservation measures, and proposed modifications to the biological objectives.

The Adaptive Management Team would operate by consensus. In the event that consensus is not achieved, the matter would be elevated to the Authorized Entity Group and the Permit Oversight Group for resolution. Any proposed changes to conservation measures or biological objectives would be elevated to the Authorized Entity Group and the Permit Oversight Group for their concurrence or for their own determination regarding the matter. If concurrence was not achieved, the entity or entities with decision-making authority would make a decision.

The Adaptive Management Team would hold public meetings at least quarterly.

Stakeholders Group would consist of representatives from entities and organizations with an interest in BDCP-related issues or otherwise engaged in BDCP matters. At a minimum, representatives of the following entities would be invited to participate on the Stakeholder Council:

- Representatives of DWR and Reclamation;
- Representatives of SWP and the CVP water contractors;
- Representatives of other authorized entities;
- Representatives of USFWS, NMFS, and CDFW;
- Representatives of other state and federal regulatory agencies, including the U.S. Army Corps of Engineers, EPA, and SWRCB;

- A representative of the Delta Stewardship Council;
- A representative of the Delta Protection Commission;
- A representative of the Delta Conservancy;
- A representative of the Central Valley Flood Protection Board; and
- Representatives of San Joaquin, Sacramento, Solano, Yolo, and Contra Costa Counties.

Additional members would be selected from the following categories by the Secretary of the California Natural Resources Agency, in consultation with the directors of the relevant departments of the agency, such as DWR and CDFW:

- At least three representatives from conservation groups with expertise in fish and wildlife management and/or the management of aquatic habitats and other natural lands;
- At least three representatives of local government agencies within the Delta;
- At least one representative of fishing organizations;
- At least one representative of hunting organizations;
- At least one representative of recreation organizations;
- At least two representatives of Delta reclamation districts;
- At least two representatives of Delta agriculture;
- At least three scientists with expertise in the management of natural lands, and native plant and animals species;
- At least one representative of water agencies located in the Sacramento Valley;
- At least one representative of water agencies in the San Joaquin River watershed;
- One representative from organized labor working in the building trades;
- One representative from the exclusive representatives of state-employed scientific or engineering professionals; and
- Other stakeholders whose assistance will increase the likelihood of the success of Plan implementation, including Delta civic organizations and members of the general public.

The Program Manager would convene and facilitate the Stakeholder Council at least quarterly, to exchange information and provide input to the Program Manager concerning the current significant issues at hand. Stakeholders would have the opportunity to inquire about implementation matters, be apprised by the Program Manager of issues of interest, and make

recommendations concerning pending decisions and other implementation matters. Stakeholder Council meetings would be open to the public.

Real Time Operations. DWR and USBR would collaborate with the state and federal fish and wildlife agencies in making real-time operational decisions. These decisions would be designed to increase fish benefits without compromising water supply availability provided under the Plan and its regulatory authorizations. Should the agencies choose to make a real-time operations adjustment to provide a short-term fisheries benefit, the resulting impact on water supply would be calculated. Subsequent real-time operational actions would be taken to restore any water supply impact resulting from the prior decision.

Real-time operational decisions are separate and distinct from the adaptive management process.

Supporting Entities. The Implementation Office, through the Program Manager, may request that other entities, referred to as Supporting Entities, perform certain implementation tasks, where such entities have the authority, resources, expertise, and willingness to successfully undertake and complete the task. Where specific tasks are so assigned, the Program Manager will ensure that tasks and associated responsibilities are carried out properly and in coordination with other implementation actions. The Authorized Entities could be Supporting Entities. Other Supporting Entities could include:

- The Delta Conservancy
- Sponsors of regional conservation planning programs, such as those engaged in natural community conservation plan (NCCP) and/or habitat conservation plan (HCP) development
- State and federal agencies, including NMFS, USFWS and CDFW.
- Other public agencies and private entities that have authority, capacity, or expertise to implement actions described in the conservation strategy in a cost-effective, reliable, and timely manner.

The take authorizations that will be issued pursuant to the BDCP would provide regulatory coverage under the ESA and the NCCPA for all activities covered by the Plan. As such, no additional take authorizations would be required to implement these activities, regardless of whether the action is carried out by the Implementation Office or a supporting entity.

Questions The Members May Wish To Explore:

- *Why doesn't the Permit Oversight Group include either the State Water Resources Control Board (SWRCB) or US Environmental Protection Agency (EPA)?* BDCP operations will need to be consistent with conditions imposed on water rights to ensure compliance with the federal Clean Water Act and California's Porter-Cologne Water Quality Control Act. To ensure actions taken for endangered species purposes don't conflict with water quality requirements, it may be prudent to include SWRCB and EPA in the Permit Oversight Group.

- *What is the role of the Delta Watermaster within the governance structure of BDCP?* The Sacramento-San Joaquin Delta Reform Act of 2009 (Delta Reform Act), among other things, established the Delta Watermaster. Under that Act, the Delta Watermaster has the authority to require monitoring and reporting, authority for approvals delegated to an officer or employee of the board by the terms of a water right permit or license, authority to approve temporary urgency changes, and authority to issue a notice of a proposed cease and desist order or administrative civil liability complaint. Given those authorities, and their potential effect on BDCP implementation, it may make sense to more explicitly explain the Delta Watermaster's role.
- *What is the role of the California Water Commission?* The Legislature created the Commission to oversee DWR, especially the construction and operation of the SWP. The BDCP documents repeatedly state that the conveyance system will be built, owned, and operated by DWR.* Moreover, the Commission would likely be the entity to adopt a resolution of necessity in any eminent domain proceedings for the conveyance facility. Why shouldn't the construction and operation of BDCP also be under their oversight?
- *What is the role of the Delta Stewardship Council, especially with respect to any future amendments to BDCP?* The Delta Reform Act provides that BDCP will become a part of the Delta Plan, if BDCP meets a number of specific requirements. However, the Act is silent as to what the requirements are to amend BDCP, either by the Delta Stewardship Council or by the Authorized Entities Group, once BDCP is in the Delta Plan.
- *Why would some, but not all, of the SWP and CVP contractors need specific take authorization under BDCP?* As noted in the discussion of supporting entities above, "The take authorizations that will be issued pursuant to the BDCP will provide regulatory coverage under the ESA and the NCCPA for all activities covered by the Plan. As such, no additional take authorizations will be required to implement these activities, regardless of whether the action is carried out by the Implementation Office or a supporting entity."[†] If DWR will build, own, and operate the conveyance facility, and all activities of supporting entities are covered under BDCP, why would any of the SWP and CVP contractors need specific take authorization?
- *If no SWP and CVP contractors need specific take authorization under BDCP, why should they be on the Authorized Entities Group?*
- *If some, but not all, SWP and CVP contractors receive specific take authorization under BDCP, what additional authorities and responsibilities are assumed by those contractors that receive specific take authorization under BDCP?* For example, do such contractors expose themselves to greater liability should something go wrong with BDCP? Do they make a greater financial commitment to BDCP than other SWP or CVP contractors?
- *What type of legal entity would the Implementation Office be?* Would it be a state agency? Federal agency? Joint powers authority? Something else?

* See, for example, Bay Delta Conservation Plan, Revised Administrative Draft, Chapter 7, March 2013, page 7-7.

[†] Bay Delta Conservation Plan, Revised Administrative Draft, Chapter 7, March 2013, page 7-16.

BDCP Costs and Potential Funding

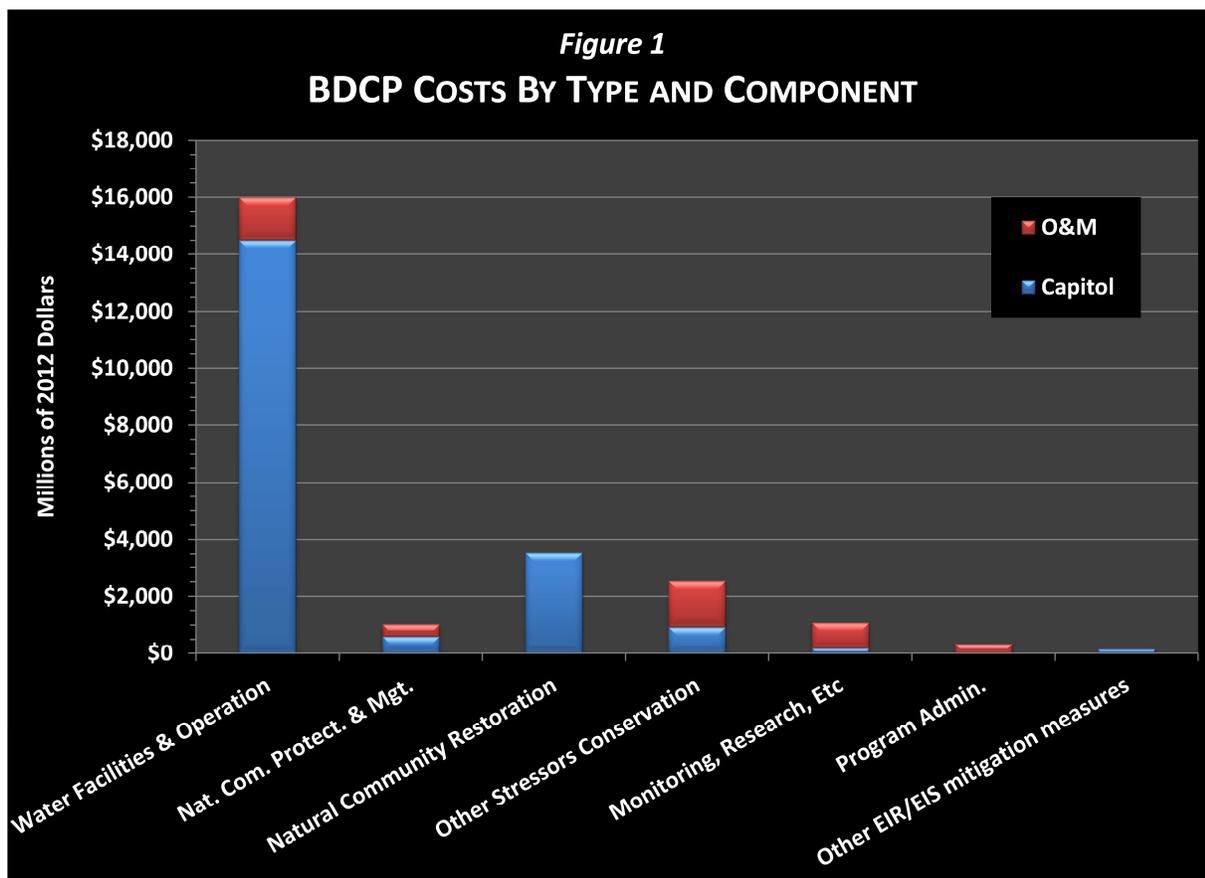
Chapter 8 of the Revised Administrative Draft presents cost estimates and potential funding for BDCP. The cost analysis quantifies both the overall estimated cost of the BDCP and the estimated cost of specific plan components. These estimates were used to establish the funding requirements for plan implementation over the course of a 50-year term and beyond the permit term. Based on those estimated implementation costs, the potential sources of funding were then identified for BDCP implementation and the mechanisms that will be used to secure such funds.

The cost estimates are reported in undiscounted 2012 dollars. Cost estimates developed for major BDCP elements, such as water facilities, tidal natural community restoration, and Yolo Bypass improvements, include various contingencies as specific cost line items. Where cost contingency has not been explicitly factored into a cost estimate, a 20% contingency is added.

It is important to note that the cost estimates do not include costs to finance the project, such as revenue bond issuance fees, interest payments, or other financing charges.

Table 1 and Figure 3 show the capital and operations and maintenance (O&M) costs by major BDCP component. The table shows that total capital costs for the 50 year period are estimated to be \$19.9 billion. O&M costs for that period are estimated to be \$4.8 billion, for a total cost of \$24.7 billion.

BDCP Component	Type of Cost		
	Capital	O&M	Total
Water Facilities & Operation	\$14,510	\$1,492	\$16,001
Natural Community Protection & Mgt.	\$603	\$429	\$1,032
Natural Community Restoration	\$3,549	\$0	\$3,549
Other Stressors Conservation	\$931	\$1,603	\$2,534
Monitoring, Research, Adaptive Mgt, & Remedial Measures	\$178	\$913	\$1,091
Program Admin.	\$0	\$337	\$337
Subtotal	\$19,771	\$4,774	\$24,544
EIR/EIS mitigation measures not counted elsewhere*	\$142	\$0	\$142
Total	\$19,913	\$4,774	\$24,687
* Included in BDCP's cost estimate tables, not in BDCP's funding estimate tables			
Note: Detail may not add due to independent rounding			
Source: Bay Delta Conservation Plan, Revised Administrative Draft, Chapter 8, May 2013 Tables 8-37 and 8-38			



The potential funding sources for BDCP are just that – they are an accounting of funding sources that the proponents of BDCP believe would be reasonably likely to be available. As noted in the Chapter 8, “It is important to note that this chapter is not a financing plan for the state or federal water contractors or any other party. Separate financing plans, funding agreements, legislative authority, and other documents will be needed to enable the use of certain funding sources. This chapter provides an overview of potential funding sources that are likely to be available to support the implementation of the BDCP.”*

Moreover, “Details of the financing and repayment described in this section from the Authorized Entities and other sources are still being determined through on-going discussion between the state and federal governments and between the government, the state and federal water contractors and other interests. Issues still under discussion include aligning the financing and repayment responsibilities with the ‘beneficiary pays’ principle, among other related issues.”†

Nonetheless, “Consistent with the ‘beneficiary pays’ principle and in recognition of public benefits associated with environmental restoration of this important region, it is assumed that a state and federal investment will be available and necessary to implement BDCP ... This public

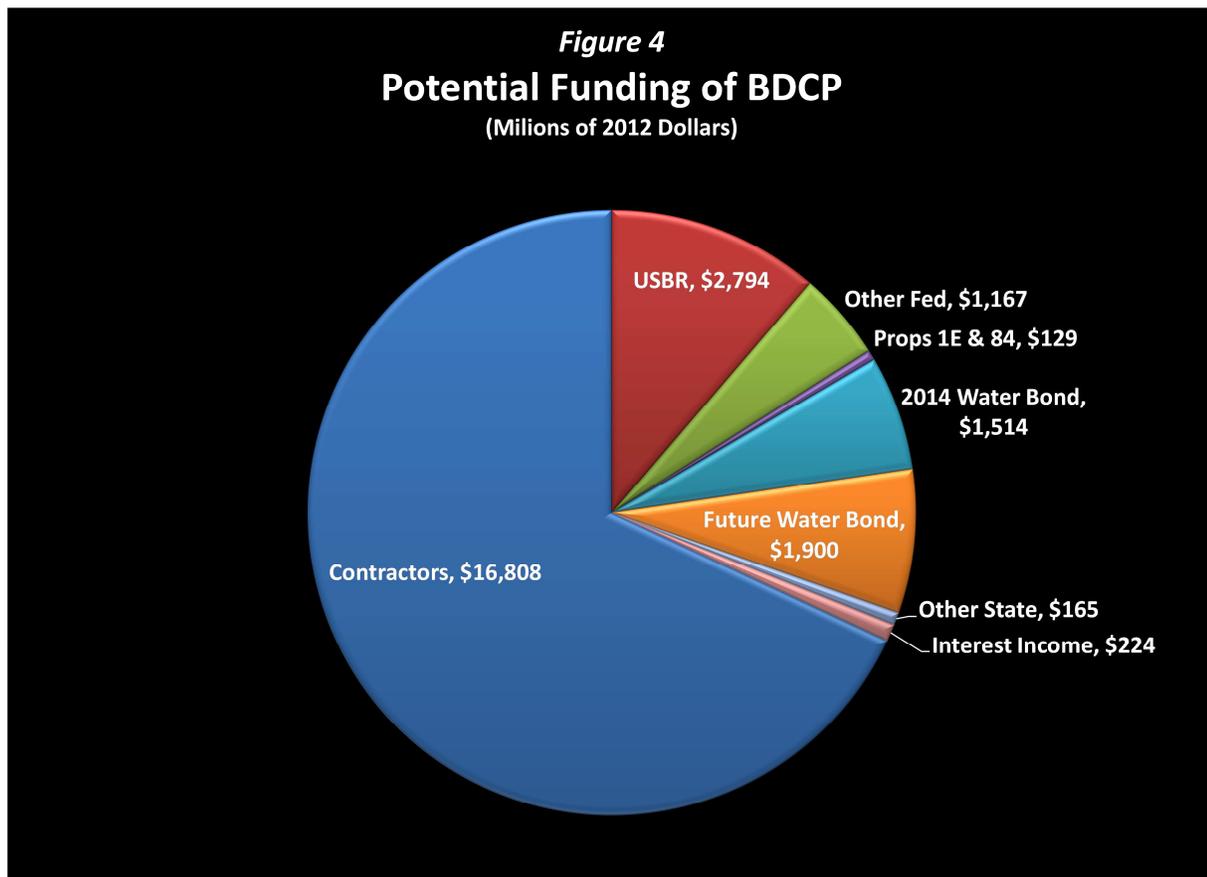
* Bay Delta Conservation Plan, Revised Administrative Draft, Chapter 8, May 2013, p.8-73

† Bay Delta Conservation Plan, Revised Administrative Draft, Chapter 8, May 2013, p. 8-80

contribution is further justified by the fact that many of the stressors contributing to the decline of the Delta ecosystem and dependent species are not directly related to operations of the SWP and CVP.”*

Figure 4 shows the potential funding of BDCP in aggregate. It shows the SWP and CVP contractors providing \$16.8 billion, or about 68 percent of the total funding. USBE and other federal funding covers another \$4.0 billion or about 16 percent of the total funding. The state is anticipated to provide another \$3.7 billion or about 15 percent of the total funding, including \$1.5 billion from the 2014 water bond and another \$1.9 billion from future water bonds.

“More than 14% of BDCP funding is expected to come from the 2014 water bond and a second bond passed later in the permit term. Based on past performance, both water bonds are expected to be approved by the voters. However, if one or both of the water bonds fail, they can be put on the ballot again 2 years later. If the water bonds do not pass in 2014, 2016, or thereafter, then additional funding sources will need to be found for the BDCP in order to maintain compliance with permit terms.”† It is not clear from the draft BDCP plan how that would be accomplished.



* Bay Delta Conservation Plan, Revised Administrative Draft, Chapter 8, April 2013, p. 8-2.

† Bay Delta Conservation Plan, Revised Administrative Draft, Chapter 8, April 2013, p. 8-131.

**TABLE 2
POTENTIAL BDCP FUNDING BY SOURCE AND COMPONENT
(MILLIONS OF 2012 DOLLARS)**

Funding Source	Water Facilities & Operations	Nat.Com. Protect. & Mgt.	Nat. Com. Restoration	Other Stressors	Monitoring Research Etc.	Program Admin.	Total
Contractors	\$15,974	\$246	\$256	\$198	\$104	\$30	\$16,808
USBR	\$0	\$310	\$562	\$1,142	\$680	\$100	\$2,794
Other Fed Funds	\$0	\$351	\$477	\$10	\$265	\$65	\$1,167
Props 1E & 84	\$0	\$0	\$108	\$21	\$0	\$0	\$129
2014 Water Bond	\$0	\$184	\$805	\$525	\$0	\$0	\$1,514
Future Water Bond	\$0	\$0	\$1,300	\$600	\$0	\$0	\$1,900
Other State Funds	\$0	\$40	\$20	\$15	\$90	\$0	\$165
Interest Income	\$17	\$0	\$0	\$64	\$0	\$143	\$224
Total Funding	\$15,990	\$1,126	\$3,567	\$2,576	\$1,139	\$338	\$24,737
Total Cost	\$16,001	\$1,032	\$3,549	\$2,534	\$1,091	\$337	\$24,544
Difference	(\$11)	\$94	\$19	\$42	\$48	\$1	\$192

Source: Bay Delta Conservation Plan, Revised Administrative Draft, Chapter 8, May 2013, Table 8-41

**Figure 5
BDCP Funding By Component**

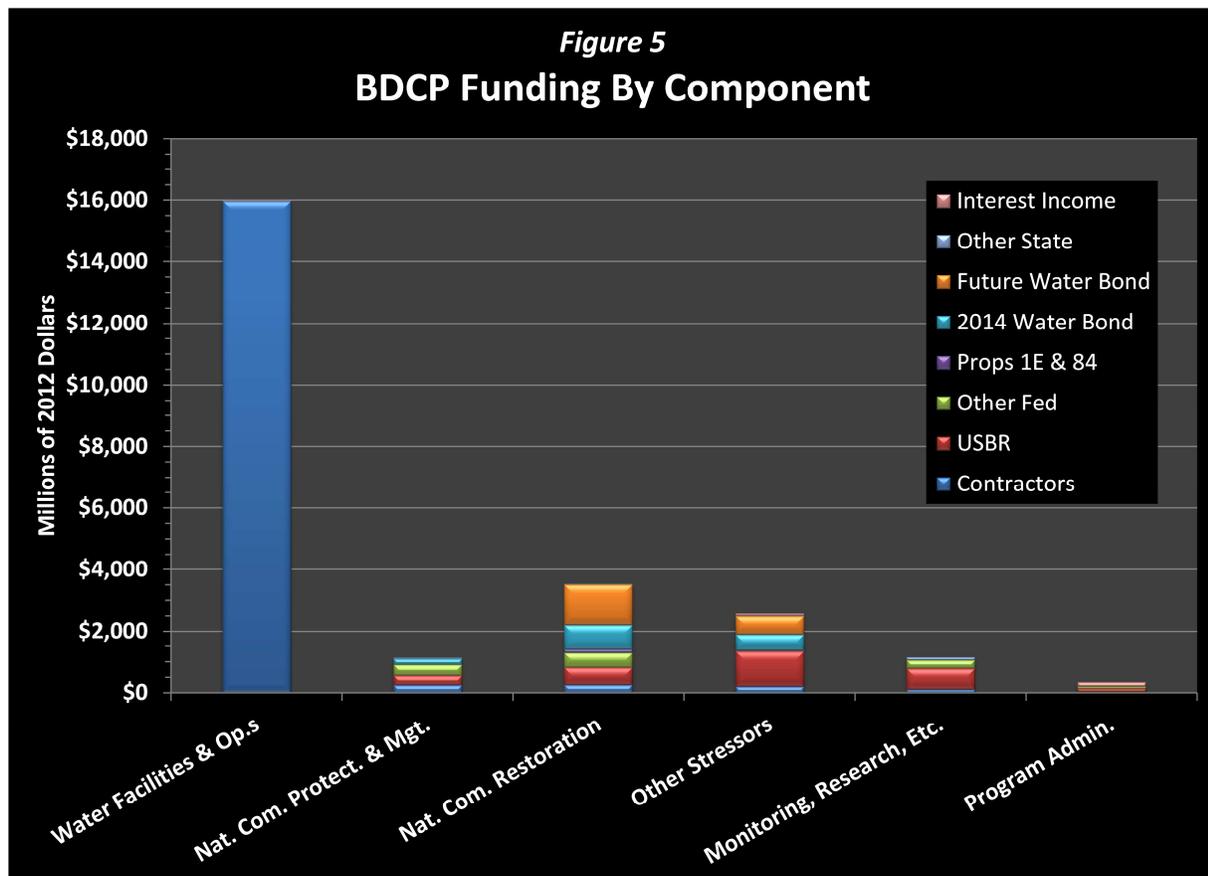


Table 2 and Figure 5 show BDCP funding by funding source and BDCP component. The most prominent feature is that the SWP and CVP contractors are anticipated to pay all of the costs of building and operating the water facilities, and relatively little of the rest of BDCP costs.

There is a rather puzzling statement in a “note to reader” at the beginning of the detailed discussion of potential funding sources. “... [T]here is uncertainty in the water supply provided by BDCP. To offset this uncertainty, the state and federal governments may consider additional investments in BDCP consistent with the ‘beneficiary pays’ principle.”* One plausible interpretation is that the proponents of BDCP are contemplating at least the potential for state and/or federal funding for some part of the building and operating the water facilities.

Questions The Members May Wish To Explore:

- *Why is it the state’s responsibility to fund the ecosystem improvements that are necessary in order for DWR and USBR to get multi species take under an NCCP/HCP? Under the “beneficiary pays” concept, one of the key benefits of BDCP is multi-species take authority, so shouldn’t those who get that benefit pay all costs necessary to get that take authority?*
- *Shouldn’t the Legislature have a role in determining how much state funding will be committed to BDCP? The draft documents appear to suggest that anyone who receives any “benefit” from the project should pay for that benefit, regardless of whether the person receiving the “benefit” wants it at that price or not. In other words, the BDCP proponents are committing, or at least creating the strong expectation of funding, significant expenditures to be paid ultimately from the state’s General Fund for BDCP activities.*
- *What is the back-up plan in case the voters do not approve new bond funding or Legislature decides not to appropriate funds per the financing plan? Will the SWP/CVP contractors be required to back-stop those funds?*
- *What meaning did the authors intend to convey with the comment under “note to reader?”*

Benefit/Costs of Alternatives

As part of the development of the BDCP, a range of alternate approaches were considered. The alternatives are briefly described in Table 3.

* Bay Delta Conservation Plan, Revised Administrative Draft, Chapter 8, May 2013, p. 8-80

**TABLE 3
BDCP ALTERNATIVES**

Alternative	Description
BDCP Proposed Action	Dual conveyance with three intakes & up to 9,000 cfs diversion capacity
A: W Canal 15,000 cfs	Dual conveyance with west canal alignment, 5 intakes, & up to 15,000 cfs diversion capacity
B: Tunnels 6,000 cfs	Dual conveyance with 2 intakes & up to 6,000 cfs north Delta diversion capacity
C: Tunnels 15,000 cfs	Dual conveyance with tunnel/pipeline, 5 intakes, & up to 15,000 cfs diversion capacity
D: Tunnels 3,000 cfs	Dual conveyance with 1 intake, up to 3,000 cfs north Delta diversion capacity; & reduce tidal natural communities restoration to 40,000 acres
E: Isolated 15,000 cfs	Isolated conveyance with pipeline & five intakes, with up to 15,000 cfs north Delta diversion capacity
F: Through Delta	Through Delta conveyance with Delta channel modifications & different intake locations
G: Less Tidal Restoration	Same as BDCP Proposed Action but with tidal natural communities restoration to 50,000 acres
H: More Restoration	Same as BDCP Proposed Action but with increased tidal natural communities restoration to 75,000 acres, seasonally inundated floodplain restoration to 20,000 acres, & channel margin enhancement to 40 linear miles
I: More Spring Outflow	Same as BDCP Proposed Action but with increased spring outflow to 44,500 cfs
Existing Conveyance Scenario	Existing Conveyance Scenario Description
Existing Conveyance High-Outflow Scenario	Existing conveyance with Fall X2, enhanced spring outflow, without San Joaquin River inflow/export ratio
Existing Conveyance Low-Outflow Scenario	Existing conveyance facilities with no Fall X2 or spring outflow
cfs = cubic feet per second Source: Bay Delta Conservation Plan, Revised Administrative Draft, Appendix 9.A, May 2013, Table 9.A-1	

Are any of these scenarios equivalent to the Portfolio Approach discussed in our hearings on April 30th and May 14th? In a word, no. While Alternative D does include a 3,000 cfs conveyance system and may have a similar Delta floodplain and tidal marsh habitat restoration program as the Portfolio Approach, it does not include the additional south of Delta storage, the investments in south of Delta water supplies, improved water agency integration, or levee improvements that are in the Portfolio Approach.*

Each of the alternatives in Table 3 was evaluated to determine the economic implications for the SWP and CVP contractors. That is, the benefits and costs to the SWP and CVP contractors were estimated for each of the alternatives.

The analysis estimated benefits in three broad categories.

- Water supply reliability benefits, which were calculated separately for urban and agricultural agencies, but reported together.
- Water quality benefits, resulting from reduced salinity levels in the south Delta.
- Reduced seismic risks benefits, resulting from constructing seismically sound conveyance facilities.

The economic benefits of the BDCP to the SWP and CVP contractors were calculated to the year 2075 and expressed as present values. This period was chosen to reflect the expected 50-year useful life of the proposed new conveyance facilities. To ensure consistency, costs were also calculated out to year 2075 and expressed in discounted 2012 dollars. Note: this is different from the way the cost and funding estimates were made in the previous section of this background paper. Consequently, the costs estimates for the alternatives shown below are not comparable to those discussed in the previous section.

Table 3 summarizes the benefits and costs to the contractors under each alternative relative to the Existing Conveyance High-Outflow and Low-Outflow Scenarios. The table also includes the facility size and the level of mean Delta deliveries associated with each scenario. For comparison, the table also shows what would be delivered under the Existing Conveyance High-Outflow and Low-Outflow Scenarios.

Table 3 shows that expected deliveries using the existing conveyance system are expected to decline from the historical average of about 5.3 million acre-feet per year (MAF) to between 3.4 and 3.9 MAF. All but one of the scenarios, Alternative E, are expected to deliver more than the existing system.

Two of the scenarios, Alternative D and Alternative E show estimated costs to the SWP and CVP contractors exceeding estimated benefits. A more detailed look at the estimated benefits shows why.

* More information on the Portfolio Approach can be found on the Senate Natural Resources & Water Committee Website under Informational Hearings, April 30, 2013. <http://sntr.senate.ca.gov/informationaloversighthearings>

**TABLE 3
BENEFITS AND COSTS OF BDCP ALTERNATIVES**

Alternative or Scenario	Facility Size (cfs)	Deliveries (MAF)	Total Benefits	Total Costs	Net Benefits
BDCP Proposed Action High-Outflow Scenario	9,000	4.705	\$18,011	\$13,328	\$4,683
BDCP Proposed Action Low-Outflow Scenario	9,000	5.591	\$18,795	\$13,343	\$5,452
A: W Canal 15,000 cfs	15,000	5.009	\$23,820	\$10,789	\$13,031
B: Tunnels 6,000 cfs	6,000	4.487	\$14,967	\$12,123	\$2,844
C: Tunnels 15,000 cfs	15,000	5.009	\$23,820	\$15,381	\$8,439
D: Tunnels: 3,000 cfs	3,000	4.188	\$8,918	\$10,039	-\$1,121
E: Isolated 15,000 cfs	15,000	3.399	-\$7,531	\$15,436	-\$22,967
F: Through Delta	N/A	4.172	\$9,301	\$4,887	\$4,414
G: Less Tidal Restoration	9,000	4.705	\$18,011	\$13,146	\$4,865
H: More Restoration	9,000	4.705	\$18,011	\$13,219	\$4,792
I: More Spring Outflow	9,000	4.338	\$13,508	\$13,182	\$326
Existing Conveyance High-Outflow Scenario	N/A	3.446			
Existing Conveyance Low-Outflow Scenario	N/A	3.889			

Source: Bay Delta Conservation Plan, Revised Administrative Draft, Appendix 9.A, May 2013, Table 9. A 2

Table 4 and Figure 6 show the estimated benefits for each alternative. Generally, about 88% ± of the benefits for each alternative are associated with improved water supply reliability, about 10% ± derive from improved water quality, and only about 2% ± are associated with reduced seismic risk. Two notable exceptions are Alternative E and F. As noted above, Alternative E is estimated to produce less water than the existing system. The lost benefits from a lower water supply overwhelm the otherwise superior improvement in water quality associated with exporting only Sacramento River water and the likewise superior reduction in seismic risk. Conversely, Alternative F shows positive improvements in water supply reliability, but no improvement in water quality, and an increase in seismic risk over the current conveyance system.

Perhaps not surprisingly, the alternatives with the greatest net benefits to the SWP and CVP contractors are Alternatives A and C. As most of the benefits accrue from increased water supply reliability, it makes sense that the alternatives that provide the most water provide the most benefits. Between the two alternatives, Alternative A has the highest net benefits because of the lower construction costs associated with building a surface canal compared to twin tunnels.

**TABLE 4
BENEFITS OF BDCP ALTERNATIVES BY TYPE OF BENEFIT**

Alternative or Scenario	Water Supply Reliability	Water Quality Benefits	Seismic Risk Benefits
BDCP Proposed Action High-Outflow Scenario	\$15,722	\$1,819	\$470
BDCP Proposed Action Low-Outflow Scenario	\$16,642	\$1,789	\$364
A: W Canal 15,000 cfs	\$21,305	\$1,952	\$563
B: Tunnels 6,000 cfs	\$13,130	\$1,524	\$313
C: Tunnels 15,000 cfs	\$21,305	\$1,952	\$563
D: Tunnels: 3,000 cfs	\$7,799	\$1,063	\$55
E: Isolated 15,000 cfs	-\$11,937	\$3,741	\$665
F: Through Delta	\$9,363	\$0	-\$62
G: Less Tidal Restoration	\$15,722	\$1,819	\$470
H: More Restoration	\$15,722	\$1,819	\$470
I: More Spring Outflow	\$11,128	\$1,910	\$470

Source: Bay Delta Conservation Plan, Revised Administrative Draft, Appendix 9.A, May 2013, Tables 9.A-7, 9.A-8, & 9.A-9

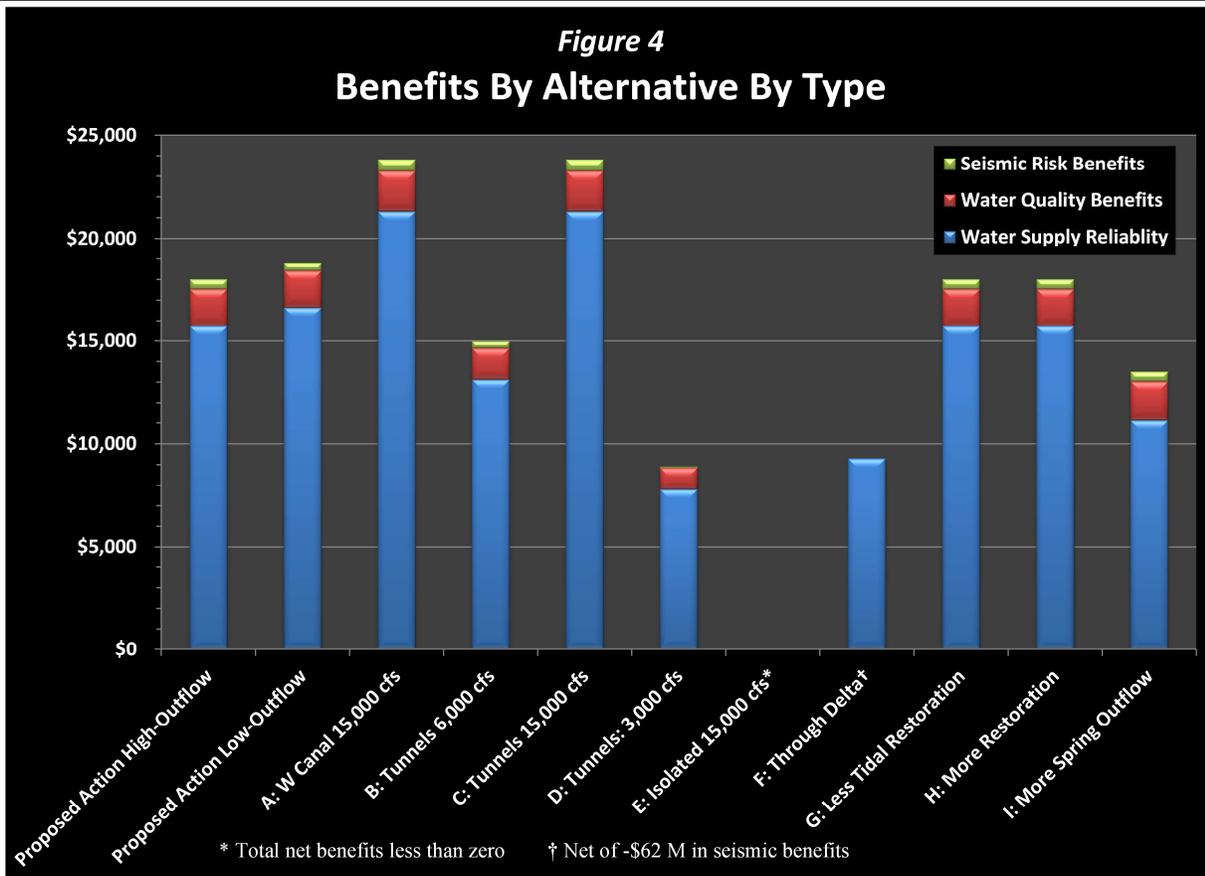


TABLE 5
BENEFIT-COST RATIOS OF BDCP ALTERNATIVES

Alternative or Scenario	Benefit-Cost Ratio	Return on Investment
BDCP Proposed Action High-Outflow Scenario	1.35	35%
BDCP Proposed Action Low-Outflow Scenario	1.41	41%
A: W Canal 15,000 cfs	2.21	121%
B: Tunnels 6,000 cfs	1.23	23%
C: Tunnels 15,000 cfs	1.55	55%
D: Tunnels: 3,000 cfs	0.89	-11%
E: Isolated 15,000 cfs	(0.49)	-149%
F: Through Delta	1.90	90%
G: Less Tidal Restoration	1.37	37%
H: More Restoration	1.36	36%
I: More Spring Outflow	1.02	2%
Source: Committee Staff, based on Table 3 (above)		

Another way to evaluate the alternatives is to look at their benefit-cost ratio or equivalently their return on investment. Generally, if an alternative has a benefit-cost ratio greater than one, the benefits of the alternative outweigh the costs, and so the alternative is considered a viable investment. Moreover, when comparing two otherwise equivalent alternatives, the alternative with the larger benefit-cost ratio is considered the better investment because it returns more benefits per dollar of costs. The key phrase is “otherwise equivalent.” It is not unusual for the alternative with a lower benefit-cost ratio being selected over an alternative with a higher benefit-cost ratio. An alternative may perform well from a strictly economic perspective, but may not be acceptable for non-economic reasons.

Alternative A has the highest benefit-cost ratio at 2.21. That means for every \$1.00 spent on Alternative A, the SWP and CVP contractors would receive \$2.21 in benefits for a return on investment of 121%. However, it was not selected as the Proposed Action because of the likelihood for additional take of protected species due to the increased number of north Delta intakes and a much larger surface footprint of the west canal, relative to the BDCP Proposed Action.

Alternative F has the next highest benefit cost ratio, at 1.90. It was not selected as the proposed actions because it would not be practicable from a technological perspective; it does not meet the all known, available, and reasonable technology (AKART) standard. The main problem according to the BDCP analysis is that the proposed through delta alternative would require two 7,500 cfs fish screens at the Delta Cross Channel and Georgiana Slough. Each of those would be more than twice the size of any known facility in California.

Alternative C had the third highest benefit-cost ratio at 1.55. It was rejected because it would have a lower level of ecosystem protection for aquatic species do to a more heavily on south Delta intakes.

The BDCP Proposed Action Low-Outflow Scenario, then, is the alternative with the highest benefit-cost ratio of the remaining alternatives.

Questions The Members May Wish To Explore:

- *What is the marginal cost of the water produced by BDCP under each alternative? Is it at a price agricultural water contractors would be willing to pay?*
- *Are the benefits to agricultural contractors under the preferred options comparable to the benefits to urban? The water supply benefits for agricultural and urban water users were calculated separately but not reported separately. How would the benefit-costs ratios for agricultural water users compare with the urban water users under the proposed alternatives? Would the benefit cost ratios for agricultural water users exceed 1.0?*
- *How would the analysis change if the proportion of funding from the contractors were to increase? In the previous section on BDCP Costs and Potential Funding, staff raised questions on the application of the beneficiaries pay concept. It might be that SWP and CVP contractors would be required to pay a higher percentage for the costs. How great a portion of BDCP costs could be assigned to the contractors before the benefit-cost ratio approaches 1.0?*
- *How would the analysis change if only some of the contractors decided to receive water from BDCP?*
- *Is it possible to conceive of and evaluate a through Delta alternative that does meet the AKART standard?*
- *How sensitive are the benefits to assumptions? Are some estimates more robust than others? What are the most critical assumptions?*