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### An Evaluation of Alternatives to the BDCP

Updated March 25, 2014

The Bay Delta Conservation Plan (BDCP)<sup>1</sup> now appears to be struggling to achieve the co-equal goals of the Delta Reform Act of 2009. The time has come to more seriously consider alternatives that are not simply variations on the same theme of constructing an isolated conveyance around or under the Delta. In this note a simple comparison is made between the BDCP and four alternatives, the Western Delta Intakes Concept (WDIC)<sup>2</sup>, the Environmental Water Caucus (EWC) Responsible Exports Plan<sup>3</sup>, the NRDC portfolio-based approach<sup>4</sup> and Congressman John Garamendi's Water Plan for California<sup>5</sup>.

The preferred conveyance alternative that is currently included in the BDCP consists of three 3,000 cfs intakes located along the Sacramento River between Freeport and Courtland, an intermediate forebay, and something like 35-mile long twin tunnels that will take water by gravity flow to the vicinity of the existing South Delta pumping plants. The intakes will be provided with modern fish screens but the design of these fish screens is yet to be finalized and tested. Because use of the Sacramento River intakes will be limited by stringent bypass flow requirements, significant export flows will still be drawn across the Delta to the South Delta pumps, but the BDCP includes no provision for channel or levee improvements. And the BDCP includes no mechanism for extracting more water in wet years to make up for extracting less water in dry years. To the contrary, the BDCP preferred alternative relies on reducing Delta flows during drier months to meet export water supply demands<sup>6</sup>.

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<sup>1</sup> <http://baydeltaconservationplan.com/Home.aspx>

<sup>2</sup> <http://fixcawater.com/solution.html>

<sup>3</sup> <http://www.ewccalifornia.org/reports/responsibleexportsplanmay2013.pdf>

<sup>4</sup> <http://switchboard.nrdc.org/blogs/bnelson/Portfolio%20Based%20BDCP%20Conceptual%20Alternative%201-16-13%20V2.pdf>

<sup>5</sup> <http://garamendi.house.gov/sites/garamendi.house.gov/files/documents/WaterPlanForAllOfCalifornia.pdf>

<sup>6</sup> See Table C.A.-34 on page C.A-110:  
[http://baydeltaconservationplan.com/Libraries/Dynamic\\_Document\\_Library/BDCP\\_Effects\\_Analysis\\_-\\_Appendix\\_5\\_C\\_Attachment\\_C\\_A\\_-\\_CALSIM\\_and\\_DSM2\\_Results\\_4-13-12.sflb.ashx](http://baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/BDCP_Effects_Analysis_-_Appendix_5_C_Attachment_C_A_-_CALSIM_and_DSM2_Results_4-13-12.sflb.ashx)

	Western Delta Intakes Concept	Bay Delta Conservation Plan	EWC Responsible Exports Plan	NRDC Portfolio Plan	Garamendi Water Plan for All
<b>Cost</b>	Middling	Highest	Lowest	Middling	Middling?
<b>Protects Delta from salt water intrusion</b>	Yes	No	Yes	Maybe	Maybe
<b>Provides more sustainable export water supply</b>	Sustained average exports in the order of 6 maf per year	Lower exports, maybe 5.? maf, and no provision for a 6-year drought	Even lower exports, 2- 4 maf, but much increased conservation and recycling	4-4.3 maf through 3,000 cfs tunnel and through Delta plus 1 maf from recycling etc.	2 maf through Delta plus 2 maf semi-isolated plus 2 maf from savings
<b>Restores more natural flow through the Delta</b>	Yes	No	No	No	No
<b>Takes little or no water in periods of low flow</b>	Yes	No	No	Maybe	Not clear
<b>Maintains both export and Delta water quality</b>	Yes	Marginal	Marginal	Maybe	No
<b>Creates new habitat</b>	Yes	Yes	Mostly just riparian	Yes	No
<b>Self-regulating</b>	Yes	No	No	No	No
<b>Simple to design, permit and construct</b>	Yes	No	Yes	No	No
<b>Negative impacts on the Delta as a Place</b>	No	Yes	No	Not as bad	No
<b>Negative impacts on Delta agriculture</b>	No	Yes	No	Still pretty bad	No
<b>Includes flood control benefits</b>	Yes	No	Yes	Maybe	Yes
<b>Contributes to improved transportation</b>	Yes	No	No	No	No

**Table 1 – A Simple Evaluation of Alternatives to the BDCP**

A more complete description of the WDIC can be found in the White Paper “A Self-Regulating, Inclusive and Sustainable Solution for the Sacramento San Joaquin Delta” and its Addendum, downloadable from the <http://fixCAwater.com> web site. In brief it includes a large forebay on Sherman Island into which water would be drawn through permeable embankments, which would serve as the world’s largest and finest fish screens, and tunnels less than half the length of the BDCP tunnels which would convey water to a new Brushy Creek Reservoir adjacent to the Clifton Court Forebay. It might also include a pumped storage hydro-electric facility between the Brushy Creek Reservoir and a further enlarged Los Vaqueros Reservoir to make the project energy positive. This scheme would be operated in conjunction with new South of Delta storage, mostly in currently drawn-down groundwater basins, in order to create enough storage for the State to survive as much as a six-year drought.

The WDIC does not specifically include funding for additional conservation and recycling, but clearly these things, plus stormwater capture and brackish and ocean water desalinization, should and will be an important part of future water management in California. However, these activities are largely the province of local or regional water districts. As water for export from the Delta becomes more expensive, as it will under plans such as the Bay Delta Conservation Plan or the Western Delta Intakes Concept, local and regional water agencies will increasingly turn to these alternative sources of supply and develop more regional independence, as called for by the Delta Reform Act of 2009, and the State should support these efforts as appropriate.

The Environmental Water Caucus “Responsible Exports Plan” (REP) calls for the levee improvements recommended in the Economic Sustainability Plan (ESP) developed by the Delta Protection Commission<sup>7</sup> in order to contribute to more reliable export water supply, but it puts a cap on exports of 3 maf per year, and goes further in detailing measures to compensate for reduced exports including retirement of agricultural lands with impaired drainage. The REP Plan includes no new conveyance facilities through the Delta, apart from further improved levees, so that water and fish will continue to be sucked across the Delta, but the EWC Plan includes improved fish salvage facilities at the South Delta pumps.

Earlier version of the comparison table in this note included something called the DESP alternative based on the recommendations of the ESP. The DESP alternative includes full implementation of the levee upgrades that are recommended in the ESP and habitat improvements that are compatible with existing farming operations. The DESP, like the REP, addresses head on one of the major reasons often cited in the media as a justification for an isolated conveyance such as that proposed under the BDCP, which is that the Delta levees will explode or dissolve in a large earthquake leading to saltwater

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<sup>7</sup> <http://forecast.pacific.edu/desp.html>

intrusion that might interrupt water exports for as long as three years. That scenario is hyperbole and is not supported by recent DWR studies of the consequences of even a worse than worst case levee failure scenario. However, the peer-reviewed Economic Sustainability Plan pointed out that a further-improved levee system would not only address the hazards to water exports posed by earthquakes but also would provide improved flood protection, would allow planting on the water side of levees to create shaded riparian habitat, and could be constructed for between \$2-4 billion. While the Economic Sustainability Plan, which is directed solely to economic sustainability of the Delta does not address all current problems of the Delta nor the problem of export water supply reliability, it is a far cheaper and less intrusive solution to the perceived earthquake problem than constructing twin tunnels under the Delta for \$16 billion as proposed by the Day Delta Conservation Plan (BDCP) and it is far more cost-effective because levee improvements serve multiple purposes. The DESP can in fact be viewed as a “no regrets” first stage of the WDIC. The DESP components can and should be funded for immediate construction while the water exporters figure out whether they can afford the additional cost of the full WDIC. For the purposes of the comparison table in this note, the DESP alternative can be taken to be similar to the REP.

The NRDC portfolio-based conceptual alternative includes a single 3,000 cfs tunnel from the North Delta and more stringent bypass flow requirements than the BDCP. It includes \$1 billion for levee improvements and provides for up to 1 maf of new South of Delta storage at an unspecified location. It calls for the conversion of 40,000 acres of Delta farmland to unspecified habitat, a smaller acreage than the BDCP, but still a significant number. It specifically calls for a \$2 billion investment in water recycling and a \$3 billion investment in urban conservation in order to reduce the demand for water south of the Delta by about 1 maf per year. Such efforts would not be discouraged under the BDCP, the WDIC and the DESP, however, no specific funding is provided under these plans and therefore the NRDC is credited with an additional 1 maf in terms of water supply reliability.

The “Water Plan for All of California” proposed by Congressman John Garamendi emphasizes conservation and recycling to create an additional 2 maf of water per year, restricts through Delta conveyance to 2 maf in “normal” water years and provides 2 maf per year in a semi-isolated conveyance with an intake on the Sacramento Ship Channel. It also encourages additional storage and levee improvements and proposes expanded monitoring of the snowpack and stream flows to better optimize reservoir operations.

The colored backgrounds in each cell of the comparison table indicate the relative success of each alternative with regard to the issues listed in the left-hand column, green indicating more success and red indicating less success or that the issue is ignored. The relative importance of the various issues could be indicated by varying the height of each row although that has not been done in this presentation. If that were done, greater

weight would, for instance, be given to cost. Even without more detailed scoring and weighting, it is clear that the BDCP comes in fifth among these five alternatives on both impacts and benefit-cost. The WDIC comes in first, the DESP or the REP second, and the NRDC and Garamendi plans equal third. But all of the WDIC, the DESP, the REP, the NRDC and the Garamendi plans are credible alternatives, and therefore must be considered in any evaluation of alternatives that is required under NEPA or CEQA and the Clean Water Act Section 404 analysis, and in any comparative benefit-cost analyses undertaken as part of the BDCP.