

A dual conveyance system, as envisioned by the BDCP, would create options that would move water through the Delta's interior or around the Delta through an isolated conveyance facility. The BDCP participants are evaluating how these water "operations" could be guided by new rules designed to be helpful for fish, but also to ensure enough of a flow of water to protect water quality and other habitat. Dual conveyance has the potential for providing the most options to meet the BDCP's planning goals, and also for addressing the threat of levee failure posed by earthquakes and the effects of climate change.

These new rules are detailed requirements designed to provide improved habitat conditions for fish, including factors such as temperature, depth, turbidity, salinity, residence time and velocity. Providing these water attributes for fish is intended to benefit each species by: improving survival, fitness, distribution, growth rate; reducing mortality; providing spawning and rearing habitat; and providing nutrients. In addition, the rules help meet other objectives, such as reducing fish "entrainment" at the existing state and federal pumps.

Currently, pumps for the state and federal water projects are located in the southern Delta. Operation of the pumps is often detrimental for fish and their habitat. The pumps are strong, and can pull fish, nutrients and other organic matter toward the southern part of the Delta, at times creating reverse (backwards or upstream) flows. Under these current conditions, water operators do not have many options for changing these water flows, except to reduce the level of pumping.



In addition to meeting water supply reliability goals, the water conveyance approach envisioned by BDCP helps fish and their habitats in these five fundamental ways:

### 1. **Aligning Water Operations to Mimic Natural Seasonal Flow Patterns**

Current flow management operations seasonally store water in reservoirs for steady releases throughout the year. Flow management envisioned by the BDCP would allow for greater variability to flows seasonally when fish need it most.

### 2. **Reduce Physical Impact of a Southern Diversion Point (Risk of Entrainment)**

Diverting water from the southern Delta creates greater conflicts between water operations and the needs of fish than the northern Delta. By adding a point of diversion for the State Water Project and federal Central Valley Project in the northern Delta and allowing for real-time, flexible operation of both southern and northern diversion points, fish can be better protected.

### 3. **Protect Fish with State-of-the-Art Fish Screens**

New northern diversion points would be fitted with state-of-the-art fish screens to avoid and minimize the likelihood of entrainment of fish and other aquatic organisms.

### 4. **Improve and Better Approximate Natural Flow in the Estuary**

Reducing the frequency, duration and rate of reverse flow—by minimizing south Delta pumping and providing for a more natural east-to-west flow pattern through dual conveyance—improves conditions for fish.

### 5. **Create New Habitat Areas**

New flow patterns linked with habitat restoration areas create opportunities to re-establish important ecological processes associated with the interaction between land and water in a way that is beneficial to fish and that more closely resembles natural estuary function.

## Frequently Asked Questions

### 1. **Why is the Bay Delta Conservation Plan contemplating isolated conveyance?**

Changing the design of the basic plumbing is an important part of fixing the Delta. Use of an isolated facility around the Delta would help restore the more natural east-west flow patterns that characterized the Delta estuary historically to the benefit of Delta habitats. As a major component of the BDCP conservation strategy, as well as a covered activity, improved Delta conveyance is expected to help stabilize and gradually recover legally protected species and also ease current operational constraints on essential water supplies from the Delta.

### 2. **Will the implementation of the BDCP increase salinity in the Delta?**

Preliminary analyses suggest that operating a new north Delta diversion in combination with the existing pumps in the south Delta, in addition to strategically located habitat restoration, will help maintain existing agricultural and drinking water quality in the Delta. Additional modeling of water flows and quality for fish, in-Delta use, and water export is likely to be completed as part of the draft plan. Impacts on water quality also will be assessed as part of the BDCP's environmental review and in water rights and water quality deliberations and proceedings before the State Water Resources Control Board and in other regulatory processes.

### 3. **Why can't the pumps be turned off for good?**

The state and federal water projects provide 25 million Californians with some portion of their water for homes, businesses, agriculture, and recreation. There is no way simply to turn the pumps off because there is no realistic way to replace all of the water that would be lost without severe economic damage to the state. Water purveyors across the state are implementing improvements in conservation and advancing potential innovations like desalination. A more environmentally sustainable and reliable way to move water through the Delta must be found.

### 4. **Why can't the existing pumps be fitted with better fish screens? Wouldn't that protect the fish?**

Even if better screens were used at the pumps in the southern part of the Delta, the pumping still would pull the fish toward a dead-end in the south. Nutrients and organic matter still would be pulled in as well. The detrimental water flows that disrupt natural processes and species life cycles still would occur. While fish screens might save some fish at the pumps, in the long run their habitat would still be significantly impaired.

### 5. **If dual conveyance doesn't create any new water, why spend the money on it?**

BDCP is considering dual conveyance because, from a water reliability perspective, it would protect against threats to levees posed by earthquakes and long-term sea level rise in the Delta. Dual conveyance also provides critical capacity and flexibility to change flow patterns in a way that is needed to restore basic ecological functions in the Delta such as production of food for fish, spawning and rearing habitat, and flows that support safe fish migration. Water users who rely on the State Water Project and federal Central Valley Project would pay for dual conveyance facilities.

*Note: An environmental review will evaluate the environmental effects of the BDCP, including various alternatives to the BDCP.*

The water operations and flow measures developed to date by the BDCP Steering Committee will be used for modeling purposes, which will provide data upon which to develop proposed water operations rules, including adaptive ranges, that will be identified in the Public Draft plan. The descriptions of the rules below represent elements of a potential framework for which the BDCP participants will conduct further study and evaluations before including them in the draft plan.



**Fremont Weir/Yolo Bypass**

Mimic seasonal floodplain inundation by enabling more spills of water into Yolo Bypass under specified conditions, including limited duration and depth.

Objectives: (1) increasing spawning and rearing habitat for splittail and rearing habitat for salmonids, (2) providing alternate migration corridor to the mainstem Sacramento River, and (3) increasing effectiveness of habitat and food transport in Cache Slough.

**Inflow**

Potential new approach to ensuring a specified freshwater inflow to the Delta using the cumulative Eight River Index—the sum of the runoff from the eight major rivers of the Sacramento and San Joaquin valleys that helps determine the duration of the fish and wildlife salinity and flow standard at Chippis Island or Port Chicago during February through June.

Potential objectives: (1) maintain hydrologic synchrony (seasonal and daily increases and decreases in river flows) between the mainstem Sacramento River and its tributaries, (2) maintain environmental cues used by fish and other aquatic species to signal spawning, migration, and other population responses and behaviors, and (3) increase the survival and growth of covered fish inhabiting the river and estuary.

**Outflow**

Combination of existing State Water Resources Control Board regulations, relaxed restrictions on Roe Island trigger, and additional restrictions on fall outflows.

What is new or changed: Patterns of outflow do not change significantly. Outflow is expected to be similar to current patterns.

Objectives: (1) Provide sufficient outflow to maintain desirable salinity regime downstream of Collinsville during the spring, and (2) explore range of approaches toward providing additional variability to Delta inflow and outflow.

**North Delta Diversion Bypass Flows**

Establish minimum river flows with a fraction of flows above that minimum that would be available for export depending on the season. Ensures that Sacramento River flows are always greater than export diversions and that flows support the habitat needs of covered fish and the ecological needs of the Delta as a whole.

What is new or changed: Five new intakes create a new point of diversion in the north Delta; operated in conjunction with south Delta diversions to maintain water quality and meet biological needs of all covered fish species.

Objectives: (1) maintain fish screen sweeping velocities, (2) avoid unnatural upstream transport from downstream channels, (3) support salmonid and pelagic fish transport to regions of suitable habitat, (4) minimize predation effects at the new diversion facility and downstream, and (5) maintain or improve the overall quality of rearing habitat in the north Delta.

**Rio Vista Flows**

Use State Water Board requirements plus additional minimum seasonal flows to assist migrating fish.

What is new or changed: Addition of seasonal minimum flow requirements.

Objectives: maintain flows for migrating salmonids and smelt.

**Delta Cross Channel Gate Operations**

Open or close the gates seasonally when fish are present.

What is new or changed: Currently the Delta Cross Channel gates are closed between February and late May for fishery protection. Operations under the BDCP that are currently being investigated include closing the Delta Cross Channel gates during ten months of the year with open gates in July and August to help ensure suitable Delta water quality.

Objectives: (1) reduce transport of outmigrating Sacramento River fish into central Delta, (2) maintain flows downstream on Sacramento River, and (3) provide sufficient Sacramento River flow into interior Delta when water quality for municipal and industrial use and agriculture may be of concern.

**South Delta Channel Flows**

Investigate a range of outflow options that would reduce, maintain, or increase the minimum outflows currently required under the projects water right permits.

What is new or changed: Significantly higher flows in Old and Middle Rivers, reducing effect of reverse flows and much lower exports from the south Delta using the through-Delta system.

Objectives: (1) improve the survival of covered fish by reducing the risk of entrainment losses at the south Delta exports, (2) increase survival of juvenile salmon and steelhead by reducing delays during migration and straying off course, (3) improve downstream transport of larval and juvenile fish, and (4) improve the production of food resources within the Delta and Suisun Bay.

**Isolated Conveyance**

(canal or tunnel design to be determined)

**Operations for Delta Water Quality and Circulation**

Establish maximum limit on south Delta pumping during July through September.

What is new or changed: The south Delta export pumps would be used during the summer months to maintain circulation of water within central and south Delta channels to avoid stagnant conditions, reduce algal accumulations, and maintain suitable salinity. This operation would ensure that not all diversions occur from the north Delta during the summer. The summer exports would include opening the Delta Cross Channel gates to increase the flow of freshwater from the Sacramento River into the Delta.

Objectives: (1) maintain a minimum level of pumping from the south Delta during summer to provide limited flushing for general water quality conditions (reduce stagnation and prolonged water residence times), (2) municipal and industrial, and agricultural salinity improvements, and (3) allowing operational flexibility during other periods to operate either north or south diversions based on real-time assessments of benefits to fish and water quality.

Primary factor in managing Delta flows



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