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## **BEYOND THE PUMPS: CAN WE STUDY FLOW NEEDS?**

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Every day during the winter and spring, pumping operations for the state's two largest water projects in the Sacramento-San Joaquin Delta are fine-tuned to comply with detailed regulations via the Endangered Species Act. These same regulations provide no similar guidance on what flows are appropriate through the Delta and out to San Francisco Bay during this critical time in the lifespan of species such as salmon.

Over the years, a backwards way has developed for creating Delta outflow for the environment. Layers of pumping restrictions added since the 1990s have altered the path of water in this ecosystem. The resulting change in flow patterns is incidental to the actual pumping regulations. Flow that cannot be pumped due to restrictions in the south Delta is randomly showing up as an increase in Delta outflow in excess of what is required by regulations. While we have invested a lot of time and money into studying the estuary, we still know very little about how pumping-induced changes to flow affect the Delta ecosystem.

The last time a regulatory body managed spring flows in the Delta was when Bill Clinton was in the White House, in 1999. And the management directive was not from a federal wildlife agency, but the State Water Resources Control Board. That directive, known as Decision 1641, remains pretty much unchanged to this day.

We need to monitor, manage and understand the flow needs of the Delta estuary in an entirely separate approach than managing pumping operations in the southern Delta. Delta outflow is simply too important to be a side effect of export operations.

There has been much discussion over the years about providing "blocks" of water for the environment and investing in science to examine the ecosystem effects of various ways to manage this water. The latest example is emerging from a series of proposed voluntary agreements as part of the Water Board's Bay Delta Water Quality Control Plan update process.

Committing to blocks of water that can be solely dedicated to determining the needs of fish is the first step toward establishing a flow management plan that can be based on new and collaborative science. Precisely how do flow changes impact food production? Fish survival? Invasive species? If we were able to find new possible relationships or none at all, then we would have the foundation to unravel the underlying ecological reasons behind them and adjust our management approach accordingly.

Outflow in the spring is obviously important. Water once spread throughout the Central Valley 150 years ago before levees, dams and diversions channelized our rivers and Delta. Today's Delta is one of the most altered and managed on earth. How do we identify the right amount of spring flows in today's environment? Are spring pulses via strategically timed operations more beneficial than a steadier release pattern, for example? How should they be managed in combination with habitat restoration planned and underway? We simply don't know.

We can and should repeat this line of questioning for each season. Yet, each and every year, we in the water management community calculate the total amount of flow that makes it through the Delta to the Bay, the annual average. And we fight over the number as if it is ecologically important. Too often we gauge the importance of any given management proposal on how it may impact that average annual number. We simply have to get out of that way of thinking. It is not the way to keep score of who is winning and losing inside California water. Nature doesn't care about annual average outflow; the environment reacts to the specific conditions in which it exists. And we should, too.

If we do not apply, together, the same rigor to study and establish outflow criteria over the next 20 years like we have done with pumping and entrainment, we will all lose. Here is to looking for ways in the coming months to collaboratively resolve the outflow mystery.

This blog is part of a four-part series. Read the first in the series: [Finally, a new path toward managing water, rivers and the Delta](#)

Coming Next: [Restoring the land-water connection](#)