

California's draft Bay Delta conservation plan incomplete; needs better integration to be more scientifically credible

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A draft plan to conserve habitat for endangered and threatened fishes in the California Bay-Delta while continuing to divert water for agricultural and personal use in central and southern California has critical missing components, including clearly defined goals and a scientific analysis of the proposed project's potential impacts on delta species, says a new report from the National Research Council. In addition, the scientific information in the plan is fragmented and presented in an unconnected manner, making its meaning difficult to understand.

The [delta](#) region receives fresh water from the Sacramento and San Joaquin rivers and their tributaries, and water from the delta ultimately flows into the [San Francisco Bay](#) and the Pacific Ocean. Pumping stations divert water from the delta, primarily to supply Central Valley agriculture and southern California metropolitan areas. The effects of an increasing population and the operation of the engineered water-control system have substantially altered the delta ecosystem, including its [fish species](#).

The November 2010 draft of the Bay Delta Conservation Plan (BDCP) aims to gain authorization under the federal [Endangered Species Act](#) and companion California legislation for a proposed water diversion project, such as a canal or tunnel that would take water from the northern part of the delta directly to the south while protecting the region's ecosystems. To date approximately \$150 million has been spent in developing the

BDCP, which is being prepared by a steering committee of federal, state, and local agencies, environmental organizations, and other interest groups. The plan is slated for completion by 2013 and would be implemented over the next 50 years.

The draft BDCP states that the principal component of a habitat conservation plan is an "effects analysis," which the plan defines as "a systematic, scientific look at the potential impacts of a proposed project on those species and how those species would benefit from conservation actions." However, the effects analysis is still being prepared and was not included in the BDCP, resulting in a critical gap in the science. Without this analysis, it is hard to evaluate alternative mitigation and conservation actions.

The BDCP lacks clarity in its purpose, which makes it difficult to properly understand, interpret, and review the science that underlies the plan, stated the panel that wrote the report. Specifically, it is unclear whether the BDCP is exclusively a habitat conservation plan to be used as an application to "take" -- meaning to injure, harass, or kill -- listed species incidentally or whether it is intended to be a plan that achieves the co-equal goals of providing reliable water supply and protecting and enhancing the delta ecosystem. If it is the latter, a more logical sequence would be to select alternative projects or operation regimes only after the effects analysis is completed.

Furthermore, the draft BDCP combines a catalog of overwhelming detail with qualitative analyses of many separate actions that often appear disconnected and poorly integrated, the panel said. There are many scientific elements, but the science is not drawn together in an integrated fashion to support the restoration activities. The panel noted that a systematic and comprehensive restoration plan needs a clearly stated strategic view of what each scientific component is intended to accomplish and how this will be done.

"There is a strong body of solid science to support some of the actions discussed in the BDCP, but because the science is not well-integrated, we are getting less from the science than we could," said panel chair Henry Vaux, professor emeritus of resource economics at the University of California in Berkeley and Riverside. "As our report concludes, a stronger and more complete BDCP -- and the panel identified several areas for improvement -- could contribute importantly to solving the problems that beset the delta."

Provided by National Academy of Sciences

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