

**M e m o r a n d u m**

To : Mr. Dick Daniel

Date : November 30, 1995

From : Department of Fish and Game

Subject : Habitat Restoration for Fishery Resources

Thanks for your November 17 response to my E-mail message to Lester. I have absolutely no quarrel with the premise that habitat restoration is an essential element of any Bay-Delta restoration plan. As I tried to make clear in my E-mail message, I also have no quarrel with the hypothesis that restoration of shallow water and shaded riverine habitat has value for some fishery resources. I have no doubt that improving the quality of and increasing the amount of such habitat would increase certain fishery resources. Hence as a general proposition, improving such habitat is a reasonable element in restoration plans.

My problem with the direction I perceive the program going in is twofold. The first is what specific habitat changes do we envision striving for in such habitat restoration, and what species do we expect them to benefit. For example, shallow water habitat in the Delta can have a number of quite different characteristics. It can be dominated by emergent vegetation such as tules, by submergent aquatic vegetation, bushes such as willows, open water such as sandy beaches, and in recent years by water hyacinth.

A more careful consideration might well identify other equally or more important issues. Presumably each of these different types of sub-habitat would favor different fish species and very likely the degree of benefit would differ. Bay-Delta restoration needs to have some specific goals such as increasing the number of Delta smelt. Relating that to restoration of shallow water habitat includes identifying which type of shallow water habitat to target, how that target could be achieved and some idea of the magnitude of benefit to Delta smelt. In contrast I perceive a drift towards saying lets restore shallow water habitat and that will be good for Delta smelt without any specifics as to habitat type or evidence of benefit.

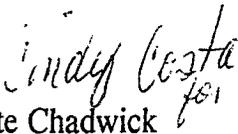
You say, "Unfortunately, there is no readily available information on habitat restoration benefit." I agree and the main point of my E-mail was that we need to develop such information or at least better organize the facts and hypotheses that are available. My memo suggests a way of doing that. While I believe we are not going to have the information we really want, I also believe partially analyzed information exists which could provide helpful insights and other useful information could be gleaned from the literature.

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Two sources of partially analyzed data are DFG's electrofishing surveys in the Delta and the Fish and Wildlife Service's beach seine surveys. I did some quite extensive beach seining in the late 50s, but that information may have been lost. The U. S. Fish and Wildlife Service document you sent mentions some pertinent literature, but only in reference to salmon. At any rate, I urge you to reconsider my proposal.

The second problem I perceive with the present approach is that habitat restoration also includes elements such as the magnitude of flows, the direction of flows and the magnitude of diversions. I am confident that you agree. Evidence of benefits for fisheries is much stronger and more specific for these than for restoration measures such as shallow water habitat. Yet some people may be considering options such as maintaining the status quo for water management and complementing that with other habitat restoration measures. Without better specific evidence on the value of the other habitat restoration measures, I do not consider that a credible option. For example, even though I agree that shallow water habitat restoration might help offset some of the recent decline in fish populations, I doubt that the public will accept it as a partial offset for water development impacts without much better evidence of the benefits.

I hope this clarifies my thinking. We need to both discuss the issue more between ourselves and involve others in the discussion. I say that with the realization that you have been doing a lot of the latter.

  
Pete Chadwick  
DFG/CALFED Bay-Delta Liaison

cc: Mr. Lester Snow, CALFED Bay-Delta Program  
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