

**Hearing in the matter of California Department of Water Resources and United States
Bureau of Reclamation Request for Change in Point of Diversion for California WaterFix**

**Testimony of Ed Whitelaw
FION! and ECONorthwest**

I, Ed Whitelaw, do hereby declare:

I. INTRODUCTION

My name is Ed Whitelaw. I am professor emeritus of economics at the University of Oregon, where I continue to teach in the economics department and the Robert Clark Honors College. I received a Ph.D. in economics from the Massachusetts Institute of Technology in 1968. I founded ECONorthwest (ECONW) in 1974. ECONW provides analysis in economics, finance, planning, and policy evaluation to businesses and governments. I am now founder and president of FION!, which is subcontracting to ECONW on this matter. I have over forty years of experience in the practice of economics, where one of my areas of focus is environmental and natural resource economics. I have testified on economic matters in administrative, legislative and Congressional hearings, and in courts. Exhibit CWIN-4 contains a copy of my vita, which summarizes my qualifications.

II. OVERVIEW OF TESTIMONY

My testimony will describe my analysis of the claim by the Department of Water Resources and U.S. Bureau of Reclamation (the “Petitioners”) that their petition to change the point of diversion for the State Water Project and the Central Valley Project would not injure other legal users of water. Specifically, I describe my conclusion that the petitioners failed to substantiate their claim. I describe my analysis more fully in my report, Exhibit CWIN-6.

III. CONTEXT FOR MY ANALYSIS AND TESTIMONY

In their Petition for Change, the Petitioners seek authorization from the State Water Resources Control Board (“SWRCB”) to add three points of diversion to their water rights for the State Water Project and the Central Valley Project. Petitioners propose to locate these new points of diversion on the Sacramento River between Clarksburg and Courtland. A necessary condition for the Petitioners to prevail, as I understand, is for them to persuade the SWRCB that their proposed change would not injure other legal users of water. This condition has become known as the “no injury” rule.

IV. ANALYSIS

I understand that the burden rests with the petitioners to show the proposed change meets the “no injury” rule. In this section I summarize our analysis of the petitioners’ claims.

A. Changes in Points of Diversion Must Meet the “No Injury” Rule

In the matter at hand, the petitioners propose changes to water diversion in the Delta. The Delta region houses and hosts a variety of legal users, e.g., farmers, municipal water providers, subsistence fishers, recreational users and others. As we understand, the no injury rule requires that the petitioners show that none of these users would be harmed by the petitioners’ proposal. In economic terms, injury would materialize as increases in cost or decreases in benefit. For example, the change in point of diversion would lead to higher costs for farmers or municipalities in the Delta region if they would have to cope with decreases in water quality or quantity. To show that the proposal would not injure other legal users requires an analysis of the effects on other legal users.

B. Petitioners Fail to Heed the “No Injury” Rule

Based on our review of petitioners’ testimony submitted in this matter, I find they failed to show the proposed change would meet the no injury rule. To be clear, they failed because they provided no analysis of the effects of their proposal on the other legal users of water in the Delta region. To address the rule’s requirement to show that the proposal would spare all legal users of water from injury, the petitioners should have described the proposal’s causal sequence of effects and substantiated the underlying explanations of the effects. They also should have substantiated the risks and uncertainties associated with these effects. Moreover, they should have evaluated these effects on all of the other legal users in the Delta region. We find, however, no evidence that they evaluated the effects of their proposal on even one—let alone all—legal users of water in the Delta region.

Rather than analyze and report their proposal’s effects on other legal users of water, the petitioners simply assert—without substantiating—that they meet the no injury rule. Specifically, they claim their proposal would not significantly change the probability or frequency of exceeding the D-1641 Delta water-quality standards. Their claim misses the point, namely, demonstrating compliance with the D-1641 standards is not sufficient to address injury to other legal users of water.

C. Professional Standards for Analyzing the Petitioners’ Claims

Economics proffers a set of powerful tools for analyzing policy issues such as the one at the heart of this matter: whether the Petitioners’ proposed change in point of diversion would injure other legal users of water. Such effects—injury, harm, damages, losses or the like—manifest themselves in economics as costs, or, more precise,

opportunity costs. Petitioners failed to meet the professional standards and use the available tools for analyzing the effects of their proposal.

Relevant methods of analysis include the following:

With-Without Analysis: Any credible economic analysis of the effects of some action, e.g., changing a point of diversion, involves comparing conditions with the action to conditions without the action, while—this is the challenge—ensuring all other conditions remain equal between the two scenarios.

Accounting for Uncertainty and Risk: “Uncertainty” and “Risk” are terms of art in economics. Since these terms play an important role in this matter, I present their definitions here.

Risk: “A context in which an event occurs with some probability or where the size of the event has a probability distribution”

Uncertainty: “A situation in which the likelihood of an event occurring is not known at all. That is, no probability distribution can be attached to the outcomes.”

Policy Analysis 101: The basic version involves three models: Descriptive model (How things are). Normative model (How things should be). Prescriptive model (How to get from the descriptive model to the normative model).

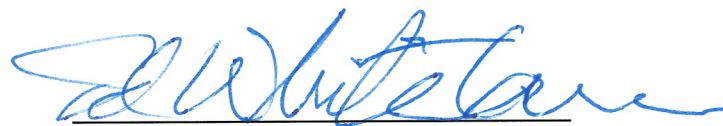
Relevant Market, Relevant Product, and Relevant Geography: These are terms of art at the intersection of economics and litigation, especially in antitrust litigation. They serve to identify the market, product, and geography relevant to a particular good or service, e.g., water or the flow of ecosystem services from a river, lake, reservoir or estuary.

There are also professional standards for evaluating expert testimony, which I refer to as the Kelly-Frye standards. The Petitioners also failed to meet these standards.

D. ADAPTIVE MANAGEMENT

Based on our review of Petitioners' testimony, I find they did not show that their proposal would not "injure any other legal users of water." Instead, they propose to rely on adaptive management. Their proposal to rely on adaptive management suffers from four fatal errors, any one of which is sufficient to render their proposal to use adaptive management irrelevant to the matter at hand. First, their Adaptive Management Plan ignores the "other legal users of water." Second, the petitioners don't understand "uncertainty," neither the concept nor its consequences, and they compound this gap in their knowledge by assuming, implicitly and incorrectly, risk neutrality among the other legal users of water. Third, they ignore the state of the science in developing adaptive management programs. By doing so, they fail to design a program that would be likely to produce successful outcomes given ecological and institutional factors at play in the Bay-Delta. Fourth, they fail to detail a sufficient, long-term funding plan for their Adaptive Management Program.

Executed on this 1st day of September, 2016 in Eugene, Oregon.



Ed Whitelaw