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Essays on the California Drought

Samuel N. Luoma*

EDITORIAL

This is the third recent issue of *SFEWS* wherein we publish essays on a timely subject of interest to our readers. We hope to continue the publication of essays, but first it is important to define more clearly what we are seeking. As defined in our "Aims and Scope," an essay is "A scholarly, in-depth, well-informed, and balanced perspective or commentary on topics of interest to science and policy practitioners of the Sacramento–San Joaquin Delta and San Francisco Estuary region." Balanced analysis and minimal advocacy are a requirement for an *SFEWS* essay. About 2,000 words in length seems to appeal to our readers. This is evidenced by the large number of hits on individual articles in *Volume 11, Issue 3* that featured essays on science and policy interactions in the Bay–Delta. Readership of that issue in its first month was about 50% higher than any other single monthly total for the journal. Themes that cross (or address) barriers between science and policy seem a good focus for essays in that they extend our purview beyond most scientific papers. Another area where essays are useful is in briefly summarizing major outcomes from syntheses, workshops, or symposia that otherwise might go unpublished (e.g., Herbold et al. 2014).

We will continue to solicit essays on subjects that are of immediate importance. But we also encourage recommendations (or submissions) from our readers on appropriate subjects. The main aim of the journal will be to continue to publish credible, peer reviewed science (social and natural) relevant to the Bay–Delta. But we hope publication of essays is a mechanism to expand our scope (and readership) into relevant applications of our science.

In this issue I have solicited three essays on a subject that is of great interest to all Californians in 2014: drought. We are privileged to have two essays from influential policymakers in the water arena: Phil Isenberg, who was the first Chair of the Delta Stewardship Council and is now Vice-Chair; and Dr. Gerald Meral, who was Deputy Secretary of the California Natural Resources Agency until his recent retirement. We also have one essay from two of our pre-eminent researchers on climate issues: Drs. Michael Dettinger and Dan Cayan of the U.S. Geological Survey and Scripps Institution of Oceanography. I asked them all to think about the question: *What do we need to know to better prepare for, or cope with, drought in the Bay–Delta*? The goal was to use the present crisis to discuss what is needed both in the long-term and the short-term to address our vulnerabilities to drought, and perhaps to build from our past experiences with such situations. However, I emphasized that they not feel constrained by my question.

Recognizing that we are in a third consecutive year of extreme regional drought, it is of great concern to the public in general and the subject of a growing science and policy dialogue[1]. The essays provide

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1 University of California Drought Summit, California State Capitol; April 25, 2014, sponsored by U.C. Davis Center for Watershed Sciences and U.C. Center, Sacramento.

a complementary, insightful set of perspectives. The authors echo one theme from the recent report on the Bay–Delta from the Committee on Sustainable Water and Environmental Management in the California Bay–Delta (CSWEM et al. 2012). California is a water-scarce environment with a "remarkably variable hydroclimate" (see also Figure 2 in Dettinger et al. 2011). With or without drought, human and ecological demands for water are not aligned with supplies in California. There is a regularity to the drought cycle. It is an ongoing feature of our climate that will continue into the future, although the frequency, period, and intensity could be affected by climate change. The natural and societal mechanics of this drought and its place in the social and climatic chaos of the Bay–Delta are well addressed in the three essays. From that background, the essays unanimously emphasize that addressing California's water issues will require tenacious attention to long-term solutions.

While some important issues are amplified by drought, there is also the danger that the tactics necessary to combat one severe drought's effects will distract us from the longer-term strategies necessary to prepare for the droughts of the future (or perhaps even more severe situations than the present). Once knowledge becomes conventional understanding, it is human nature to forget that advances in knowledge originated from investments in science. We see important new scientific understanding in these essays, building from past investments in understanding climate. We also are reminded that it is similarly easy to forget that we have learned from past droughts. Some of the most important of today's policies (and policy proposals) reflect that learning. As a whole, these three essays point out that the effects of drought are complex and multi-dimensional; and sometimes not intuitively obvious. In describing the natural science dimension of this complexity we find important suggestions for future research. But we are reminded that the human and societal dimensions of the water challenges are just as important and complex as the natural dimensions. Because it is a crisis, a drought focuses the public's attention on the importance of water issues. We learn from these essays that may be both a good and a bad thing. Especially interesting are some of the scenarios of anticipated and unanticipated changes, in both natural and policy environments, that could occur with a prolonged drought.

Finally these essays reflect themes that arose in our discussion of science and water policy in the Bay–Delta in *Volume 11, Issue 3* of *SFEWS*. Inherent tensions in the partnership between science and policy stem from looking at problems through different lenses, just as there are tensions across the different dimensions of California water issues. Open communication, collaboration, and an on-going constructive dialogue are ingredients for easing such tensions and moving forward. We hope the thoughtful insights and valuable understanding found in these essays contribute to those ends.

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