

INFORMATION ITEM

Lead Scientist's Report

Summary: Delta Lead Scientist Dr. Laurel Larsen will discuss an article from *San Francisco Estuary and Watershed Sciences* which represents a synthesis review of lessons learned from the 2012 – 2016 and other droughts, present a report out from the Sacramento River Spring Run Chinook Salmon Workshop, review upcoming events, and provide the By the Numbers Report.

DROUGHT AND THE SACRAMENTO-SAN JOAQUIN DELTA, 2012 – 2016: ENVIRONMENTAL REVIEW AND LESSONS. SAN FRANCISCO ESTUARY AND WATERSHED SCIENCES. JUNE. 2020.

The Sacramento-San Joaquin Delta (Delta) is responsible for the storage and delivery of about 45 percent of California's water runoff, before this runoff continues its journey to be stored, diverted, or reunited with the Pacific Ocean as outflow (*Lund et al. 2010*). This water supports vast arrays of ecosystems and livelihoods, almost all of which are threatened during periods of drought. Precipitation patterns in California are becoming increasingly unpredictable as the climate changes, with the state experiencing more frequent extreme wet and dry years than the rest of the country (*Dettinger et al. 2016*). Drought is becoming a recurrent threat; the 2012 – 2016 drought highlighted what is at risk. During this drought period, conflicting management mandates sometimes obscured which actions were to be prioritized. This review, by Dr. John Durand and colleagues at the UC Davis Center for Watershed Sciences, summarizes important management actions made during the 2012 – 2016 drought period, emphasizing the use of science, and offers recommendations to consider in preparation for future droughts.

In this study, the authors synthesized a report based on hydrological data, which informed water management actions, and guided discussions with 27 agency staff, stakeholders, and researchers on drought management during the 2012 – 2016 drought in the Delta. The study reviewed key management actions associated with four drought management priorities: supporting health and safety, controlling saltwater intrusion, preserving cold water in Shasta Reservoir, and maintaining protections for endangered species. The study highlights lessons learned and offers suggestions to improve resource management during future droughts. One key insight is that a state declaration of pre-drought conditions would allow scientists and managers to better prepare for potentially worsening conditions. The authors also recommended more interagency support of independent expert evaluation of conflicting data and management implications. Other recommendations include improved transparency and

documentation of institutional drought knowledge, the development of a Delta drought management plan, and rebuilding vulnerable fish and wildlife populations during antidrought periods to promote ecosystem resilience. All recommendations urge the consideration of the influence of climate change.

This research was published in SFEWS, which is funded by the Council with support from UC Davis John Muir Institute of the Environment and the eScholarship Publishing group. SFEWS is unique as it publishes research specifically about the science and resource management of the San Francisco Bay, the Delta, and upstream watersheds. This scope allows managers and stakeholders in these areas to have access to high quality, geographically specific science to inform their management needs. The article is pertinent to the coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. It encourages actions that could lead to more efficient use of water resources, especially in the context of an environmentally changing Delta due to climate change. The study is also relevant to Chapter 3 of the Delta Plan, which addresses a more reliable water supply, by highlighting the need to increase water conservation and improve water management information as a core strategy to achieve the coequal goals. This study showcases the value of capitalizing on existing data through increasing science synthesis as well, which is an action identified in the 2016-2021 Science Action Agenda.

2020 SACRAMENTO RIVER DRAINAGE SPRING RUN CHINOOK WORKSHOP REPORT OUT

The Delta Science Program, in coordination with DWR and CDFW, hosted a three-day workshop on Spring-run Chinook salmon from September 8 to 10, 2020. The workshop convened subject-matter experts and served as a stock-taking of best available science for generating spring-run population estimates in order to help inform management of the State Water Project. The first day of the workshop consisted of expert presentations and Q&A, providing fodder for breakout session discussions on the second day. The third and final day included a recapping of the outcomes of the breakout sessions, a workshop synthesis and outlining of next steps by DWR's Lead Scientist Ted Sommer and DSC's Deputy Executive Officer for Science Louise Conrad, as well as a general discussion. The virtual workshop was well attended (with over 200 participants) and well received.

ON YOUR RADAR

2022 – 2026 Science Action Agenda: Delta Management Questions Workshop

On September 29, the Delta Science Program is hosting a workshop to discuss and refine the top Delta management questions received as part of the process to update the Science Action Agenda. Questions addressing a number of themes were received

through a recent survey and other outreach methods. Registration officially closed on September 22 but visit the Council's website or contact engage@deltacouncil.ca.gov for more information or to register.

2020 IEP Workshop Sessions

The Interagency Ecological Program (IEP) is continuing to hold its annual workshop sessions virtually. The IEP is an association of state and federal agencies who have collaborated to provide timely, highly specialized ecological data for management of the Bay-Delta system since the 1970s. This year's workshop aims to communicate recent developments in synthesis, evaluating progress of management projects, native species habitats, and environmental stressors among other topics.

Technical Session Topics are as follows:

- **September 24, 2020** Suisun Marsh: One Suisun Marsh, A Wildlife Balancing Act
- **September 29, 2020** Science Communication: Messaging Beyond the Ivory Tower.
 - Senior Environmental Scientist Lynn Takata of the Delta Stewardship Council will moderate the session. She will also be giving a presentation entitled Considerations for the Scientist Communicator: Audiences, messages, and Platforms from 1:35 – 1:55 p.m.
- **October 8, 2020** Suisun Marsh 2: Aquatic-Terrestrial Linkages & Restoration
- **October 13, 2020** Plenary session.
 - This session will be moderated by IEP Lead Scientist Steve Culberson. He is also presenting on Monitoring Scientifically and Thinking Ecologically from 9:55 – 10:15 a.m. More information is available [2020 IEP Workshop Program](#)

Science Needs Assessment Workshop

On October 5 – 6, the Delta Plan Interagency Implementation Committee (DPIIC) and Delta Independent Science Board (Delta ISB) will host a two-day virtual workshop that focuses on identifying long-term science needs. The workshop will consider physical, chemical, biological, and human processes, as well as the infrastructure needed to integrate and support efforts for developing a bolder and more forward-looking Delta Science Strategy. This workshop takes a step towards fulfilling the Delta ISB and 2019 Delta Science Plan's call for anticipatory science that considers long-term climate change effects. Please join to consider and discuss items including but not limited to: What is currently known about future environmental change? What will future decision-makers need to know? What is necessary to create a science enterprise capable of

supporting a changing Delta and Suisun Marsh? More information is available on the [Council's website](#).

Zooplankton Ecology Symposium

On October 27th – 28th, the Delta Science Program is hosting a virtual symposium featuring the latest research on zooplankton ecology and monitoring. This symposium will span two consecutive half-days with talks and panel discussions focusing on the San Francisco Estuary, as well as work from other systems. The primary audience for this symposium is scientists and will include content on zooplankton biology and ecology, current monitoring programs, emerging methods for data collection, and the IEP's integrated zooplankton dataset. There will be a panel discussion on data synthesis. The Delta Science Program is organizing this symposium in collaboration with IEP and the California Department of Fish and Wildlife and the California Department of Water Resources.

BY THE NUMBERS

Delta Science Program staff will provide a summary of current numbers related to Delta water and environmental management. The summary (Attachment 1) will inform the Council of recent counts, measurements, and monitoring figures driving water and environmental management issues.

LIST OF ATTACHMENTS

Attachment 1: By the Numbers Summary

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