



## Lead Scientist's Report

---

**Summary:** Delta Lead Scientist Dr. John Callaway will discuss an article from *San Francisco Estuary and Watershed Science* on contaminant research in the Bay-Delta, review updates from the publication *Estuary Pearls*, cover the National Council for Science and the Environment Conference, summarize the eDNA Symposium, highlight upcoming events, and provide the By the Numbers Report.

---

**Review of and Recommendations for Monitoring Contaminants and their Effects in the San Francisco Bay-Delta. Connon, R.E., et al. San Francisco Estuary and Watershed Science. December 2019.**

Contaminants can build up in ecosystems over time, leading to impacts across multiple components of the ecosystem, and levels of multiple contaminants in the Bay-Delta currently are toxic to organisms. In January 2017, a symposium co-hosted by the UC Davis Coastal and Marine Science Institute and Delta Science Program aimed to identify critical information needed to monitor contaminants, with a focus on evaluating effects to the Bay-Delta organisms.

This article presents a review of the findings from that symposium. The review:

- Highlights challenges that limit understanding of contaminant effects in the Bay-Delta, including effects of multiple pollutants and environmental stressors (e.g., increased temperatures);
- Outlines developments in tools and approaches, including advances in interpretation of monitoring data to assess adverse outcomes of contaminant effects and the improvement of analytical techniques; and
- Provides recommendations to be incorporated into ongoing contaminant monitoring efforts.

The conclusions of this paper build on those from a 2016 State of Bay-Delta Science review (Fong *et al.* 2016), including a call for better integration of new techniques, more timely sharing of information, and collaboration among regulators, policy makers, and scientists. New screening and analytical methods could allow for better evaluation of the effects of contaminants and interacting stressors on priority species in the Bay-Delta. These approaches would provide a framework for a multi-disciplinary and long-term contaminant monitoring program that provides information for how to alleviate ecologically detrimental outcomes.

The need to assess the impacts and combined effects of contaminants is addressed throughout Chapter 6 of the Delta Plan (in particular in the Science and Information Needs section). The recommendations outlined in the article also coincide with objectives in the Delta Science Plan and Science Action Agenda, including improved collaboration and synthesis to advance scientific understanding.

### **Updates from *Estuary Pearls***

*Estuary Pearls* is a subset of the “can’t miss” articles from the *Estuary News* magazine, which are both produced by the San Francisco Estuary Partnership and reach a broad readership of interested public, estuary managers and scientists. In the coming months, a pilot effort will be put forth to incorporate summaries of the *San Francisco Estuary and Watershed Science (SFEWS)* articles in quarterly releases of *Estuary Pearls*. These summaries of *SFEWS* articles will reach the broad audience of *Estuary Pearls* and draw attention to important Bay-Delta research. In addition, upcoming editions of *Estuary Pearls* will feature interviews with recently retired scientists, highlighting the importance of retaining institutional knowledge for the Bay-Delta system. Both *Estuary News* and *San Francisco Estuary and Watershed Science* are supported by the Delta Stewardship Council. Access to *Estuary News* and *Estuary Pearls* is available at <https://www.sfestuary.org/estuary-news/subscribe/>.

### **National Council for Science and the Environment Annual Conference**

The 30<sup>th</sup> Annual Conference for the National Council on Science and the Environment was held in Washington, D.C., January 6-9, 2020. The conference focused on the role of science in environmental decision-making and included talks from agency scientists, economists, and international representatives. Key takeaways of the conference included the need for improved communication between decision-makers and scientists and the value of trust and relationship building between these groups. California Sea Grant State Fellow Dr. Kate Melanson attended the conference and relayed information from the conference back to the Delta Stewardship Council staff.

### **eDNA Symposium: How to Achieve a True Consensus for Best Environmental DNA Practices**

Environmental DNA (eDNA) is genetic material that has been shed from organisms and can be found in water, sediment, and soil. The science of eDNA has made great progress in the last few years, and a whole research field has developed around eDNA that provides promising non-invasive approaches to address a range of monitoring and ecological questions. The technology is developing rapidly, but numerous challenges remain for sample collection, analysis, and interpretation. At this time, eDNA methods should be used to complement but not substitute for traditional monitoring approaches.

On January 29, 2020, the Coastal and Marine Sciences Institute of UC Davis and the Delta Science Program organized a symposium, inviting eDNA experts to present the newest developments in the field, cover current monitoring efforts, outline strengths and limitations, suggest solutions, and address policy issues. With a broad audience of academic scientists, agency staff, and stakeholders, the workshop highlighted the need for consensus on the application of the tool in the Bay-Delta.

## **On your radar**

### ***Interagency Ecological Program (IEP) 2020 Annual Workshop:***

The annual IEP workshop brings together agency staff, scientists, and managers to share information, research, and outcomes from IEP activities across the Bay-Delta. The meeting will be held in Folsom from March 18-20 and will include presentations from several Delta Science Program staff.

### ***Summaries of the following completed events will be made available soon:***

- Estuarine Connectivity Symposium
- Integrated Modeling Steering Committee Workshop

## **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 (provided at the Council Meeting).

Attachment 2: Visual abstract for Article Summary.

## **Contact**

Dr. John Callaway  
Delta Lead Scientist  
Phone: (916) 445-0463