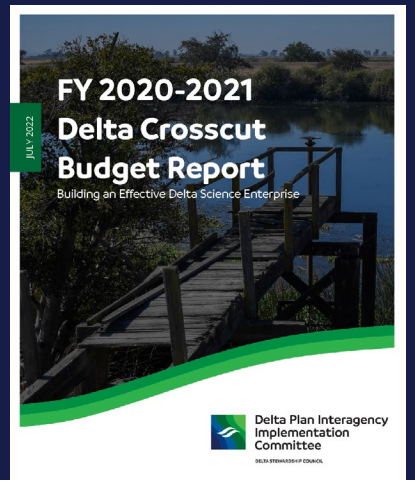
DEC 2022

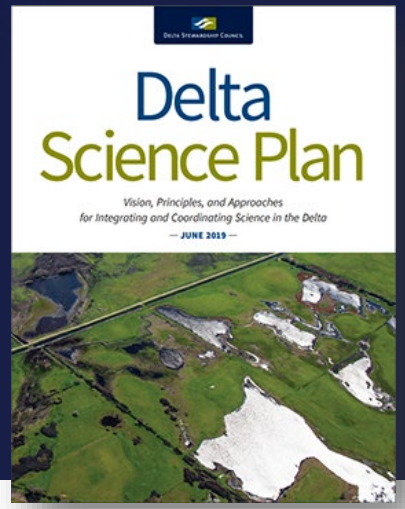
# Delta Science Tracker

Delta Science Program

DELTA STEWARDSHIP COUNCIL

# Why do we need a Delta Science Tracker?

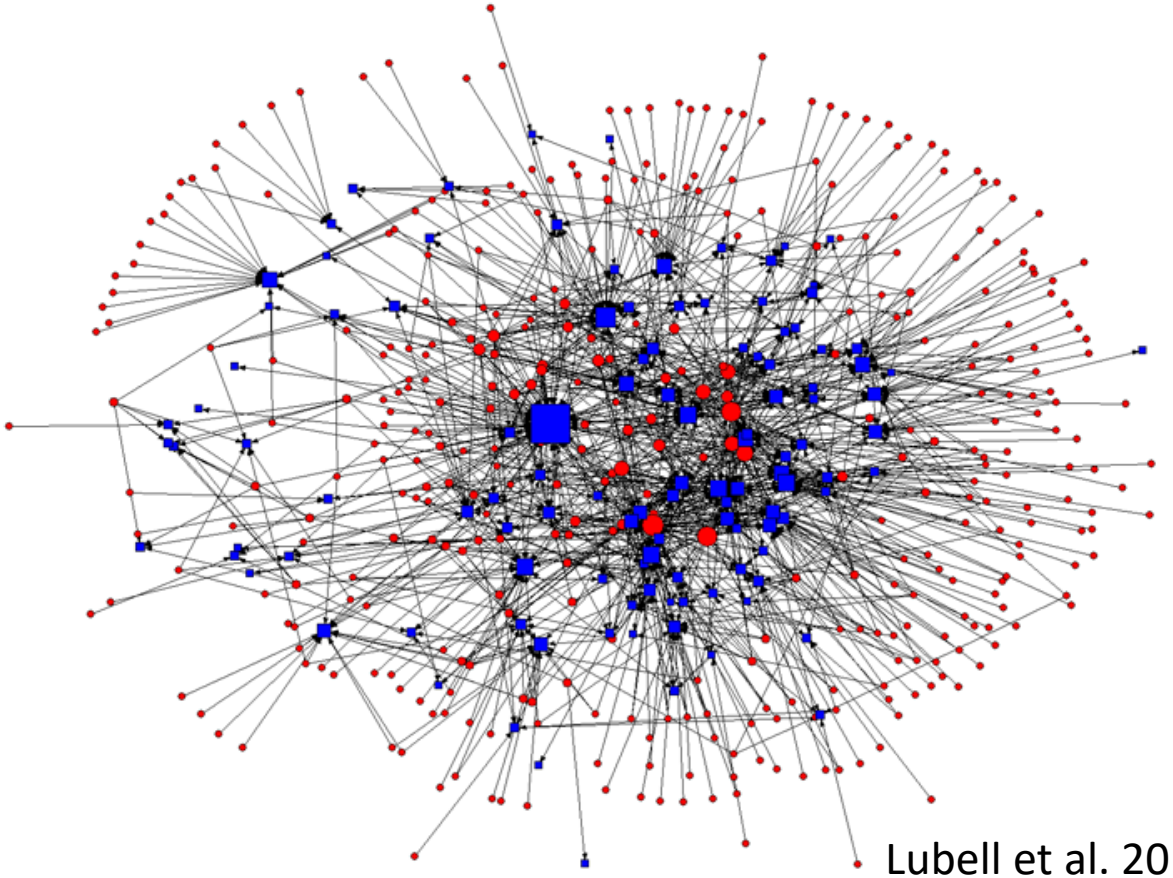



**The Delta is complex**

$116 million for science in FY20/21

Hundreds of entities involved



Lubell et al. 2014

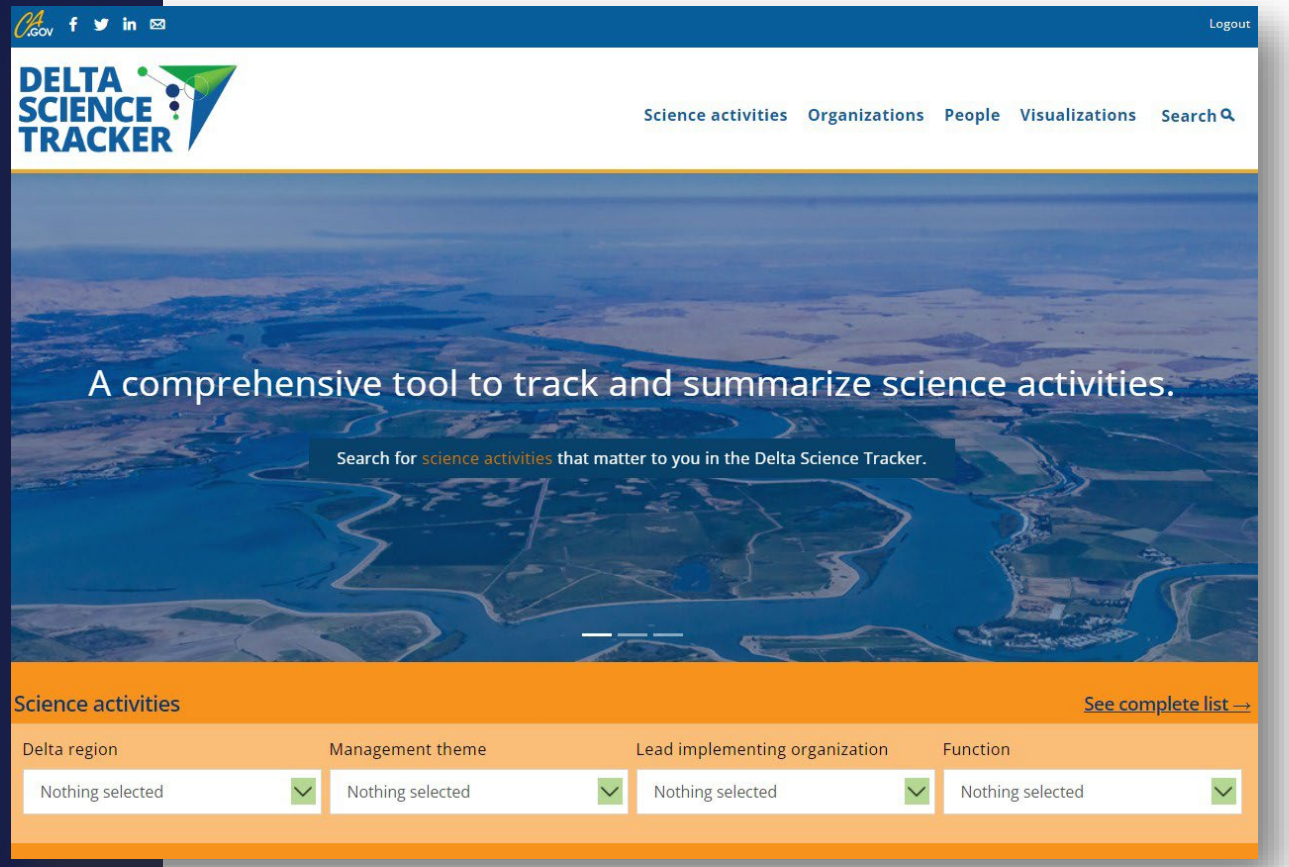
# A ‘one-stop shop’ for Delta science

- **What** activities are underway?
- **Who** is involved?
- **When and where** have activities occurred?
- **What management questions** are being addressed?
- **What funding sources** support these activities?
- **How is funding allocated** to different activities or topics?
- **How connected** are various agencies and scientists in conducting these activities?

DELTA SCIENCE TRACKER

# Goals

1. Establish an inventory of activities
2. Track funding and progress
3. Foster collaborations
4. Communicate outcomes



DELTA SCIENCE TRACKER

# Project Partners

Delta Science Program

DELTA STEWARDSHIP COUNCIL

BUREAU OF RECLAMATION

DEPARTMENT OF WATER RESOURCES · STATE OF CALIFORNIA

ESSA

SFEI | AQUATIC SCIENCE CENTER

SAN FRANCISCO ESTUARY INSTITUTE & THE AQUATIC SCIENCE CENTER

CALIFORNIA DEPARTMENT OF FISH & WILDLIFE

STATE WATER CONTRACTORS

SWC

Served by the State Water Project

FOUNDED IN 1982

DWR · USBR · USFWS · SWRCB · CDFW · USEPA · USACE · NMFS · USGS

Interagency Ecological Program

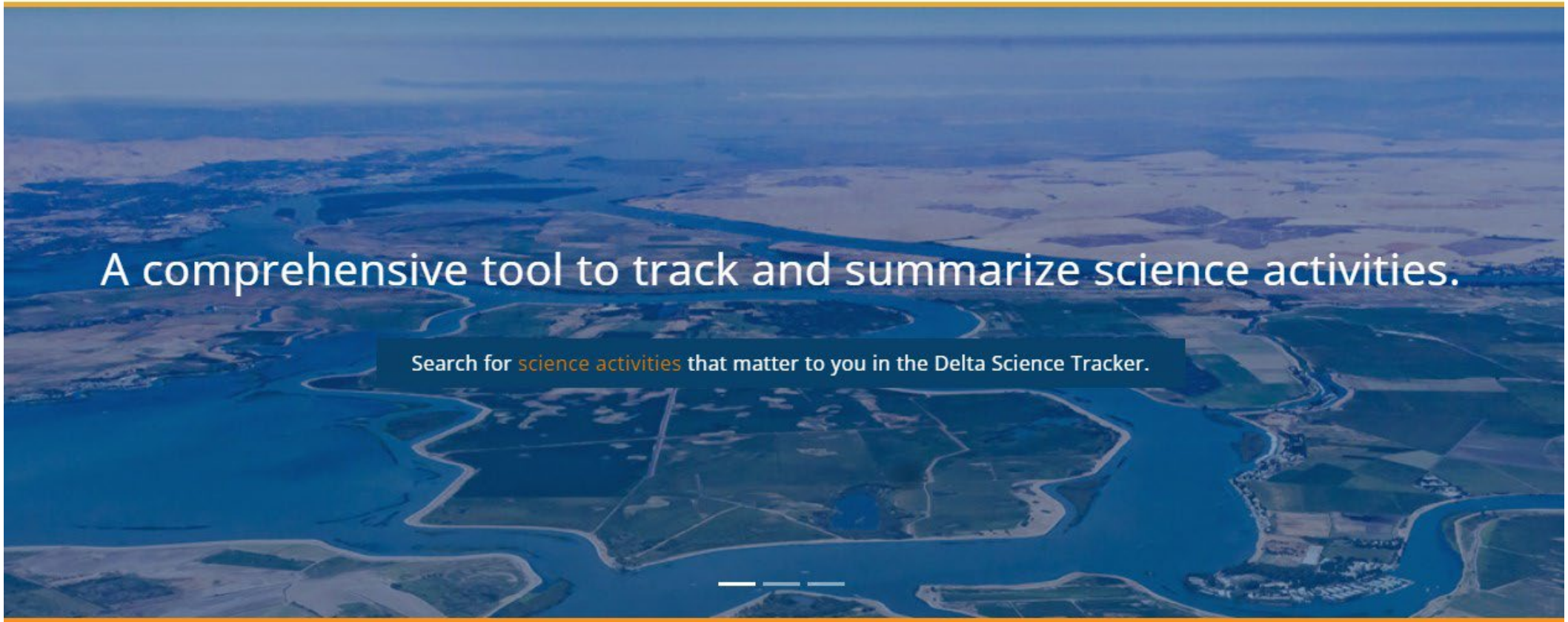
COOPERATIVE ECOLOGICAL INVESTIGATIONS SINCE 1970

USGS

science for a changing world

# DELTA SCIENCE TRACKER






## Science activities

See complete list →

Delta region: Nothing selected

Management theme: Nothing selected

Lead implementing organization: Nothing selected

Function: Nothing selected

Delta region

Nothing selected

Management theme

Nothing selected

Lead implementing organization

Nothing selected

Function

Nothing selected

Submit

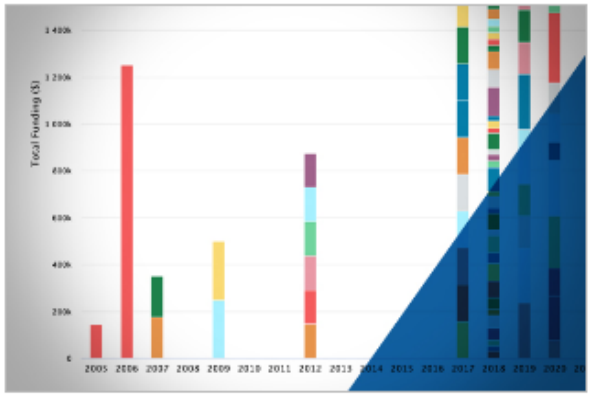
## About the Tracker

The Delta Science Tracker is a tool to improve coordination and collaboration of science activities in a way that is valuable to scientists, decision-makers, and managers in the Delta. The Delta Science Tracker allows users to explore and visualize recent research and monitoring efforts through the lenses of science activities, organizations, and people.

## Visualizations

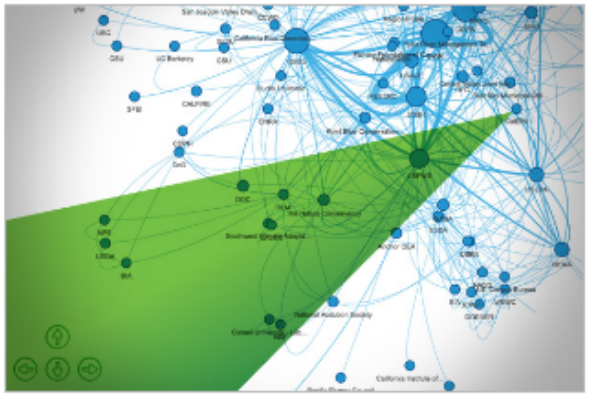
### Science activities

Visualize the number of science activities taking place in a variety of categories.




### Funding

See the distribution of funding to science activities, according to different sources, times, and topics.



### Collaboration

See the networks of people and organizations working together on different science challenges.

## Featured projects

Synthesis, Targeted foundational research

### Delta Wetland Resilience and Blue Carbon

This project estimates carbon storage for the past, present and future Delta, as well as GHG fluxes and elevation change based on chosen restoration and rice farming scenarios in the future Delta usin...

More about this project >

## What's new in the Delta

### Recently updated activities

- Recreational Hunting as an Ecosystem Service of Restoration in the Bay-Delta Watershed
- Synchrony of Native Fish Movements: Synthesis Science Towards Adaptive Water Management in the Central Valley (FishSync)
- Fish out of breath: Assessing, developing, and validating physiological bioindicators of hypoxia across the Delta
- Mapping the adaptation governance network of the Delta
- Examining the relationship between Longfin Smelt, zooplankton, and

**Tweets from @DeltaCouncil** Follow on Twitter

**Delta Stewardship Council** @DeltaCouncil · Dec 8

The Delta ISB's last meeting of the year is now #livestreaming bit.ly/3h5KpAw!

Tune in as the Board discusses its review of the Delta Conveyance Project's Draft Environmental Impact Report + the next steps for submitting the review to @CA_DWR.

# Project partners

The Delta Science Tracker is developed and maintained by a partnership of the Delta Stewardship Council, the Bureau of Reclamation, the Interagency Ecological Program, the California Department of Fish and Wildlife, State Water Contractors and other agencies.





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DELTA SCIENCE TRACKER

Science activities | Organizations | People | Visualizations | Search

# SCIENCE ACTIVITIES

26 records

Reset filters

Text search

aquatic vegetation

Management theme: Nothing selected

Science theme: Nothing selected

Type: Nothing selected

Delta region: Nothing selected

Status: Nothing selected

Advanced

Organizations and funding programs

Submit

## Records

Last updated | Title

Title: Delta Region Areawide Aquatic Weed Project [DRAAWP]

Lead: CALIFORNIA DEPARTMENT OF PARKS AND RECREATION [PARKS]

# Science activity profiles

DELTA SCIENCE TRACKER

Science activities Organizations People Visualizations Search

## SCIENCE ACTIVITY

← All science activities

Views | 85

Science activity #49858, updated 18 November 2022

### Low-Cost Satellite Remote Sensing of the Sacramento-San Joaquin Delta to Enhance Mapping for Invasive and Native Aquatic Vegetation

#### Description / purpose

Invasive aquatic vegetation (IAV) acts as an ecosystem engineer by changing habitat conditions and water quality. This negatively affects the survival of native species. Over the past 15 years, IAV has more than doubled its footprint in the Sacramento-San Joaquin Delta waterways. The State of California spends millions of dollars each year to control IAV in the Delta-Suisun region and costs are likely to continue to rise. Gaining a better understanding of the spread, life history characteristics, and potential vulnerabilities of these species can lead to more effective control strategies.

The recent launch of the Sentinel-2 satellite can fill temporal gaps left by annual airborne surveys. This study will create a data pipeline for sustained, low-cost satellite-based monitoring of aquatic and marsh vegetation year-round. To quantify one of the Delta Plan performance measures, the time and degree of floodplain inundation for the Yolo Bypass will be measured. This study will result in new metrics to measure progress toward habitat goals in several restoration sites.

# See project participants and their roles and affiliations

## Collaborators

Susan Ustin, Principal investigator - University of California - Davis [UC Davis]

Erin Hestir, Principal investigator - University of California - Merced [UC Merced]

Shruti Khanna, Co-investigator - California Department of Fish and Wildlife [CDFW]

## Activity status

| | |
|---|---|
| 1 | Awarded / Initiating (2019) |
| 2 | In progress / Ongoing (2019 - 2021) |
| 3 | Complete |

## ORGANIZATION

Organization #49750

### University of California - Davis [UC Davis]

**Description**

Founded as a primarily agricultural campus, the university has expanded over the past century to include graduate and professional programs in medicine (which includes the UC Davis Medical Center), law, veterinary medicine, education, nursing, and business management, in addition to 90 research programs offered by UC.

**Science activities led**

- #49797 Investigation of the resilience of the salt marsh harvest mouse and best management practices in response to climate change →
- #49798 Effects of copper exposure on the olfactory response of Delta smelt [Hypomesus transpacificus]: Investigating linkages between morphological and behavioral anti-predator response →
- #49807 Defining habitat quality for young-of-year longfin smelt: Historical otolith-based reconstructions of growth and salinity history in relation to geography, climate, and outflow →
- #49815 The Effect of Drought on Delta Smelt Vital Rates →
- #49818 Quantifying Biogeochemical Processes through Transport Modeling: Pilot Application in the Cache Slough Complex →
- #49819 Reconstructing juvenile salmon growth, condition and Delta habitat use in the 2014-15 drought and beyond →
- #49822 Problems and Promise of Restoring Tidal Marsh to Benefit Native Fishes in the North Delta during Drought and Flood →
- #49823 Application of cutting-edge tools to retrospectively evaluate habitat suitability and flow effects for Longfin Smelt →

**See funding details:**
- **Source(s)**
- **Amount(s)**
- **Recipient(s)**
- **Expenditures**

Activity status

| 1 Awarded / Initiating (2019) | 2 In progress / Ongoing (2019 - 2021) | 3 Complete |
|---|---|---|

## Funding summary

Total allocated funding: $425,346

**Delta Stewardship Council:** $425,346

| | |
|---|---|
| Contract # or labor code | 18201 |
| Implementing organization | University of California - Davis [UC Davis] |
| Funding organization | Delta Stewardship Council |
| Funding Source | Delta Stewardship Council - General Fund |
| Date of award | 2019-06-30 |
| Date of fiscal year-end | 2022-06-30 |
| Total award amount | $425,346 |
| State type of obligation | Not provided |
| Federal type of obligation | Not provided |
| Reimbursability | |
| Procurement mechanism | Contracted competitive or direct award |
| Annual expenditures | 2019 - $0.00<br>2020 - $136424.37 (Actual)<br>2021 - $220140.00 (Actual)<br>2022 - $67570.10 (Actual) |

## Location

SUBBASINS

DELTA REGIONS

## Geographic tags

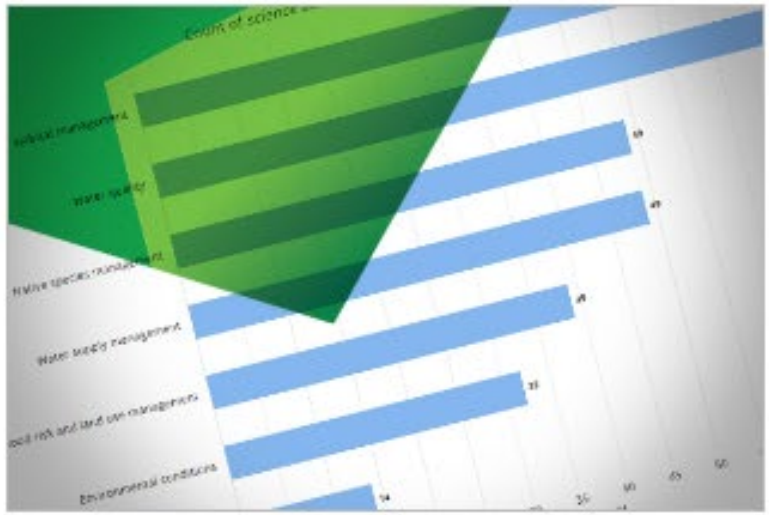
None specified

# Access publications, reports, and other outputs

## Products and outputs

| Type | Title | Description | Views |
|---|---|---|---|
| | Ade C, Khanna S, Lay M, Ustin SL, Hestir EL. 2022. Genus-Level Mapping of Invasive Floating Aquatic Vegetation Using Sentinel-2 Satellite Remote Sensing. Remote Sensing 14(13):3013. | Publication | 6 |
| | The Sacramento-San Joaquin Delta genus and community level classification maps derived from airborne spectroscopy data. | KNB repository for project data and reports | 4 |

# Visualizations



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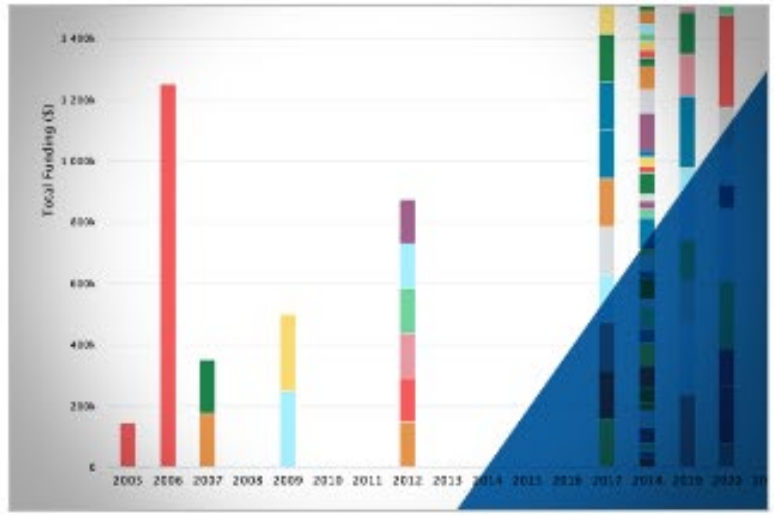


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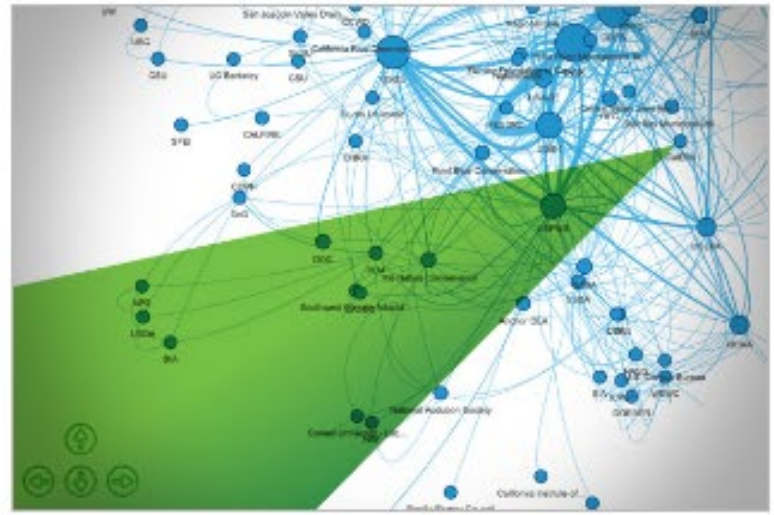
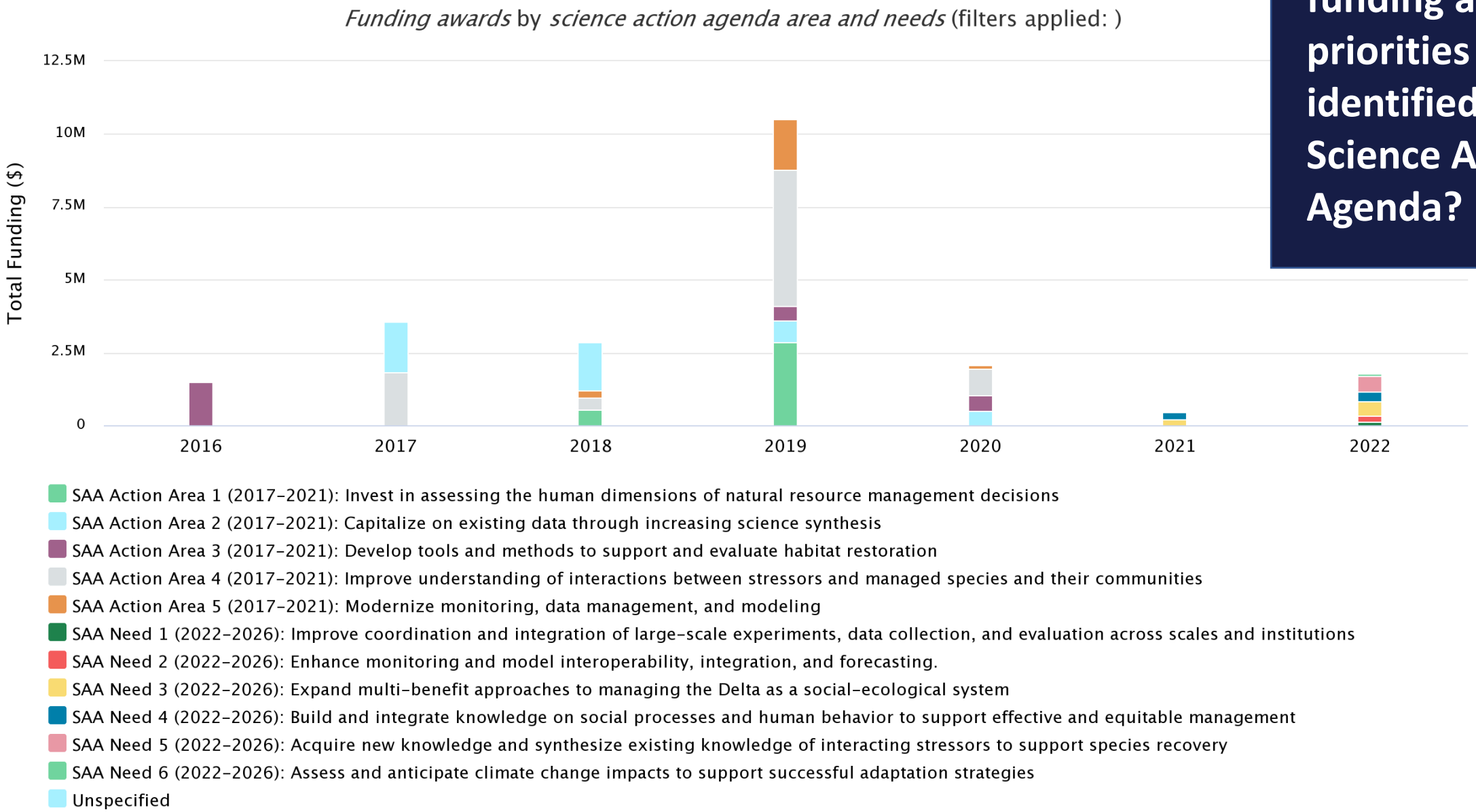


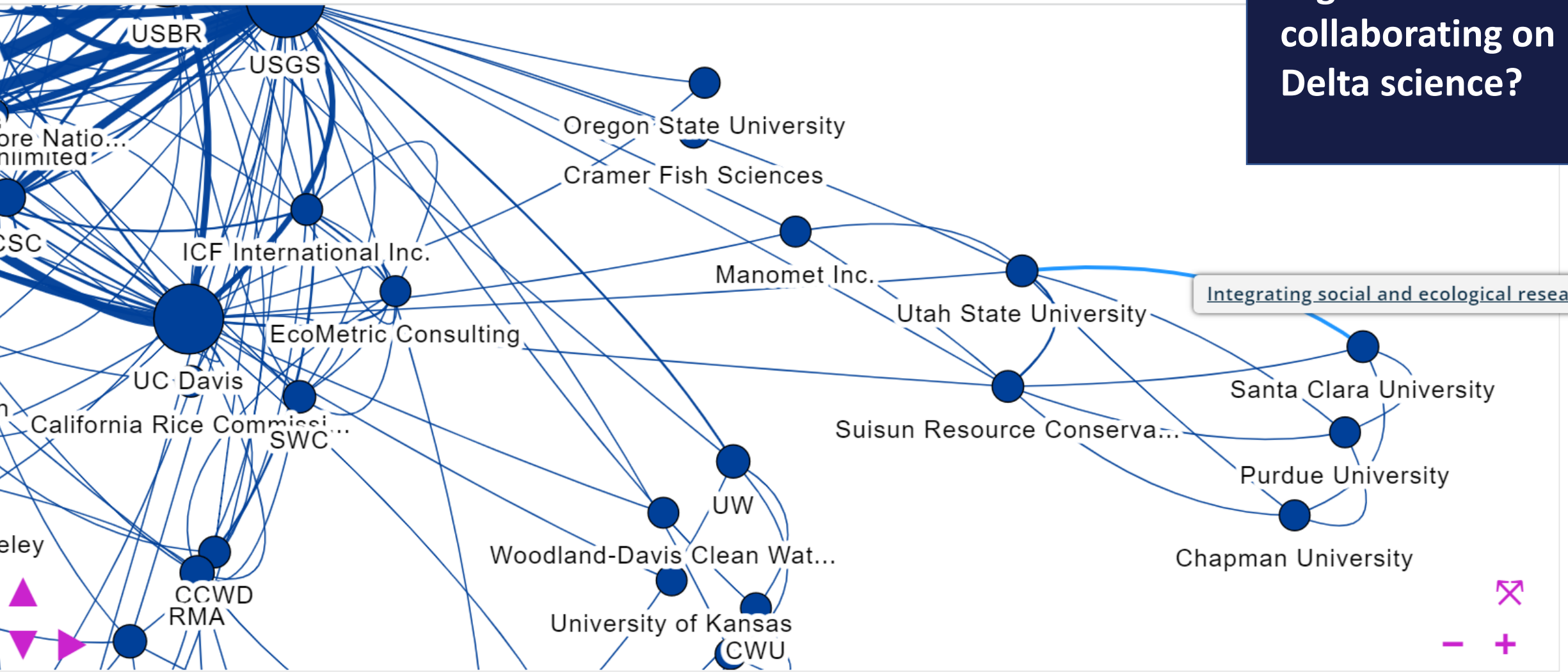
## Collaboration

See the networks of people and organizations working together on different science challenges.

# How has Council funding addressed priorities identified in the Science Action Agenda?



# How are organizations collaborating on Delta science?




Download data

Download image

Science activity #52581, updated 29 November 2022

# Integrating social and ecological research to control invasive species: fostering collective action among private and public stakeholders

## Description / purpose

This project will establish an integrated pest management approach for Phragmites (Common reed), an aggressive invasive plant in Delta wetlands. Results will highlight social and cultural barriers to collective action for invasive species control, and include communication tools for developing a regional strategy for Common reed control.

## Linked science activities

Edit

None specified

## Collaborators

+ Add

| | |
|---|---|
| John Takekawa, Principal investigator - Suisun Resource Conservation District | Edit role |
| Zhao Ma, Principal investigator - Purdue University | Edit role |
| Karin Kettenring, Principal investigator - Utah State University | Edit role |
| Virginia Matzek, Principal investigator - Santa Clara University | Edit role |
| Richelle Tanner, Principal investigator - Chapman University | Edit role |

## Activity status

Update

1 Awarded / Initiating (2021) | 2 In progress / Ongoing (2021 - 2024) | 3 Complete

# Thank you

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