



National Park Service
U.S. Department of the Interior
Yosemite National Park
Resources Management and Science

Looking Downstream Spring 2022 update

National Park Service Research in Poopenaut Valley



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Purpose of Looking Downstream project

Investigate the riverine, riparian, wetland, and meadow ecosystems in Poopenaut Valley below O'Shaughnessy Dam to assess their overall condition and inform future water management for ecological benefit

Methods

- Quantify the hydrology (river, tributary, and groundwater flows) across a range of environmental conditions
- Vegetation surveys of riparian, wetland, and meadow habitats
- Bird and bat surveys of riverine and riparian habitat
- Benthic macroinvertebrate surveys



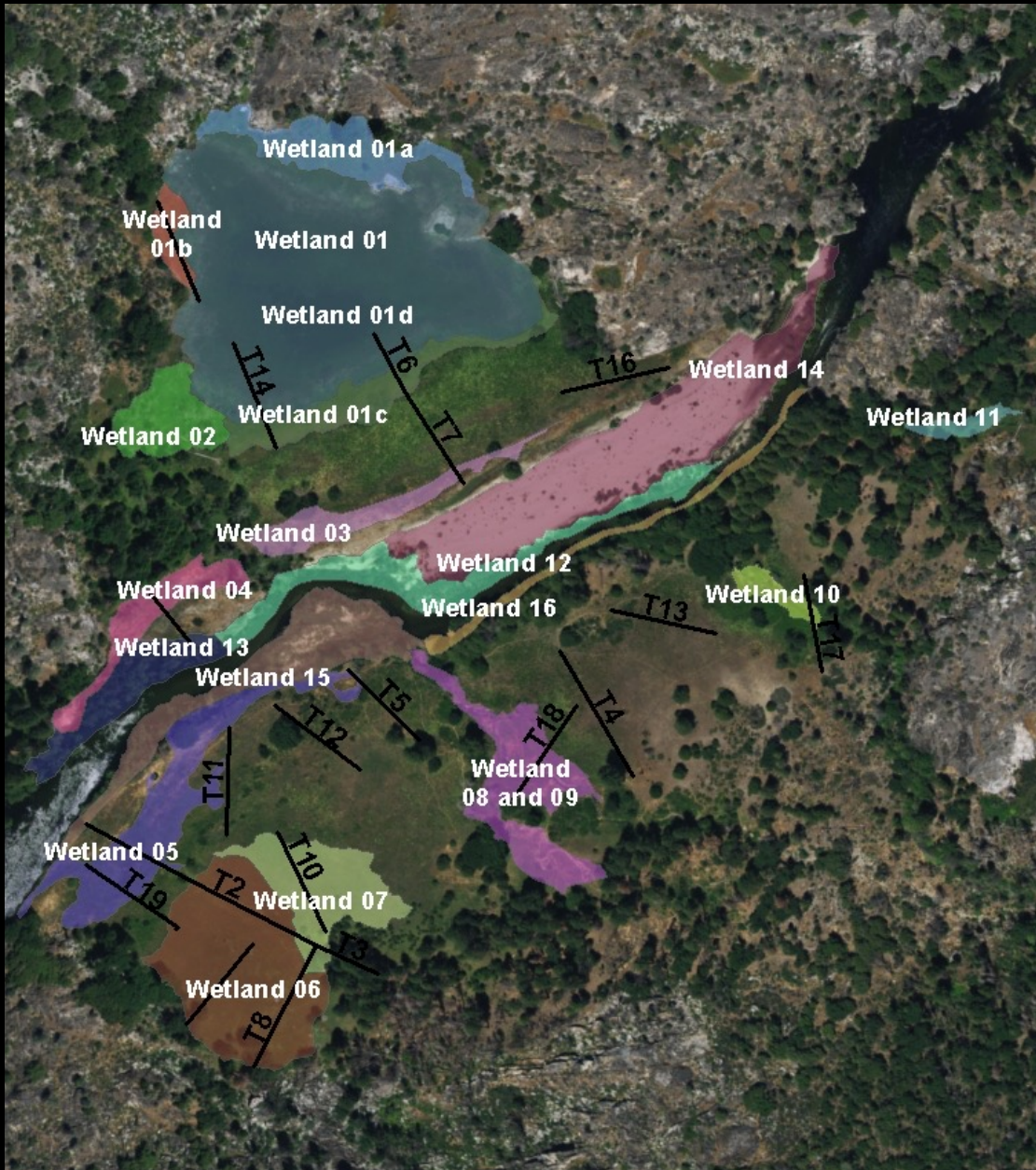
Poopenaut Valley hydrologic monitoring



- River discharge
- Tributary discharges
- Seasonal pond stage
- Groundwater levels (piezometers)



Wetland, meadow, and riparian vegetation monitoring



- Annual vegetation surveys (species composition, % cover, invasive species) along transects in Poopenaut Valley
- Monitoring change in wetland area and plant assemblages due to more frequent inundation
- Wetland delineation every 5 years, will be done this summer



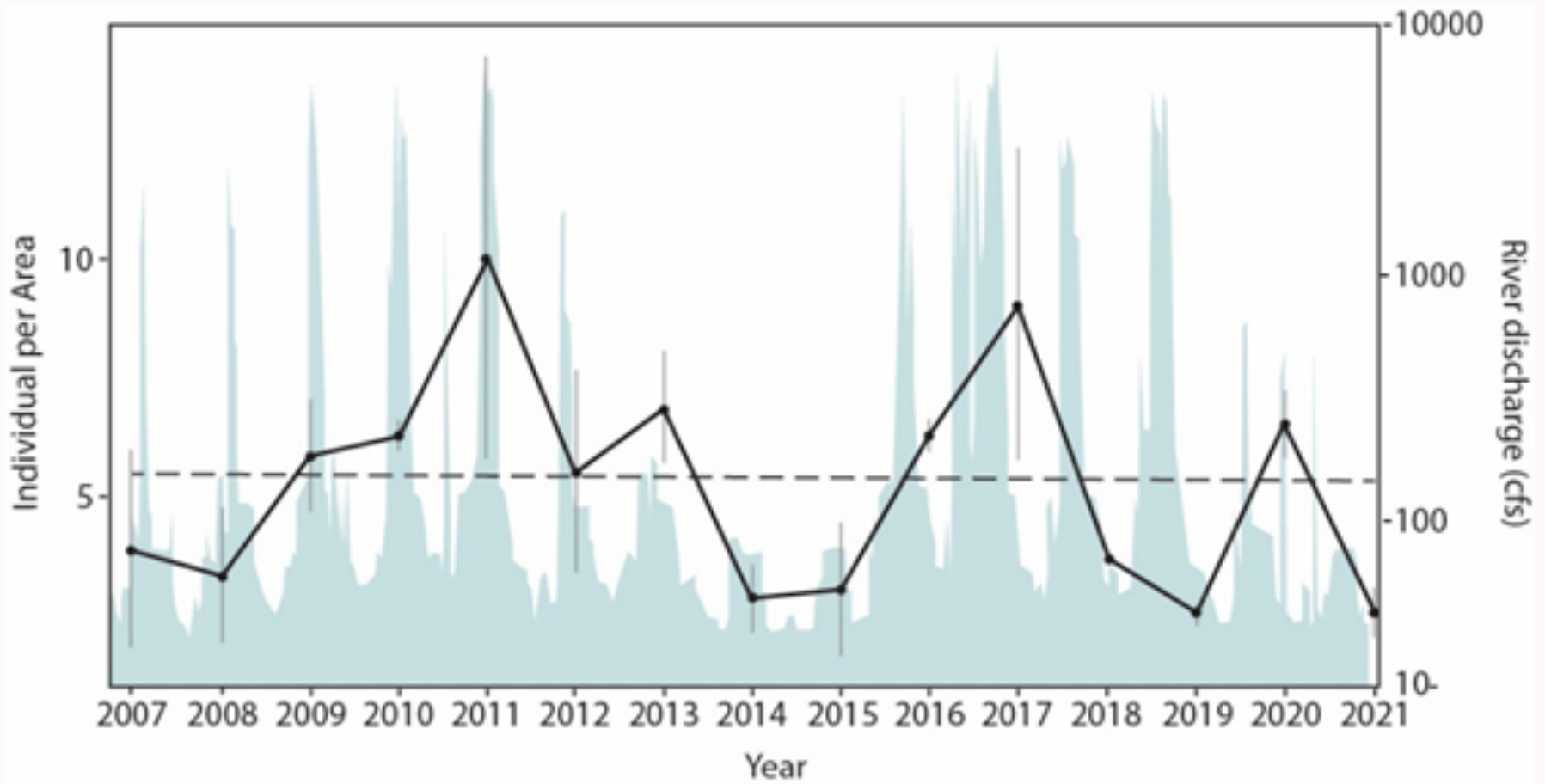
Poopenaut Valley bird surveys

- 16th consecutive year of breeding bird surveys in Poopenaut Valley
- Surveys include point counts, area searches, and territory mapping
- Hired avian surveyor, who will begin surveys in early May
- Good access to north side of Poopenaut Valley this year due to low flows



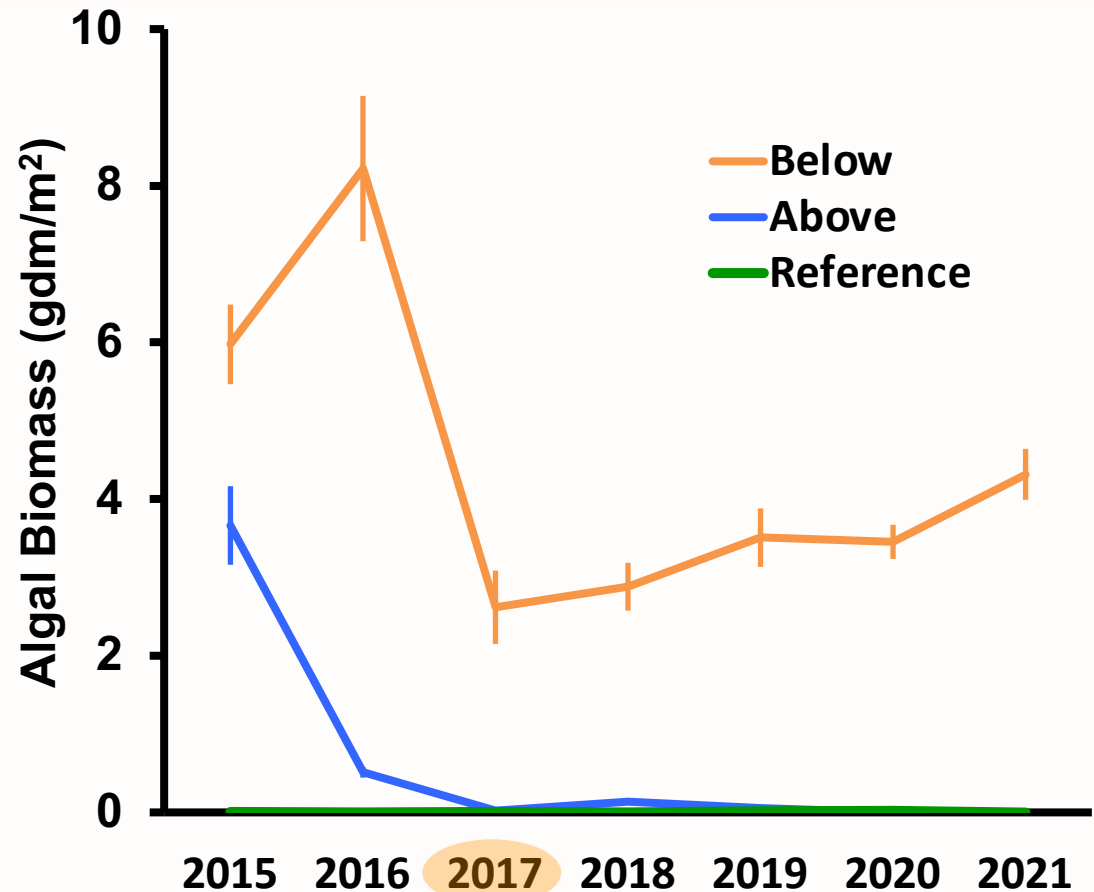


Bird abundance relationship to river discharge (2007-2021)

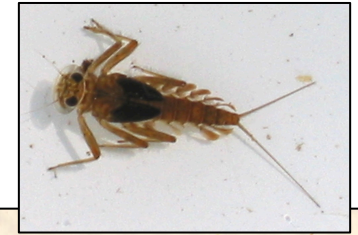


River insects and algae above and below Hetch Hetchy reservoir

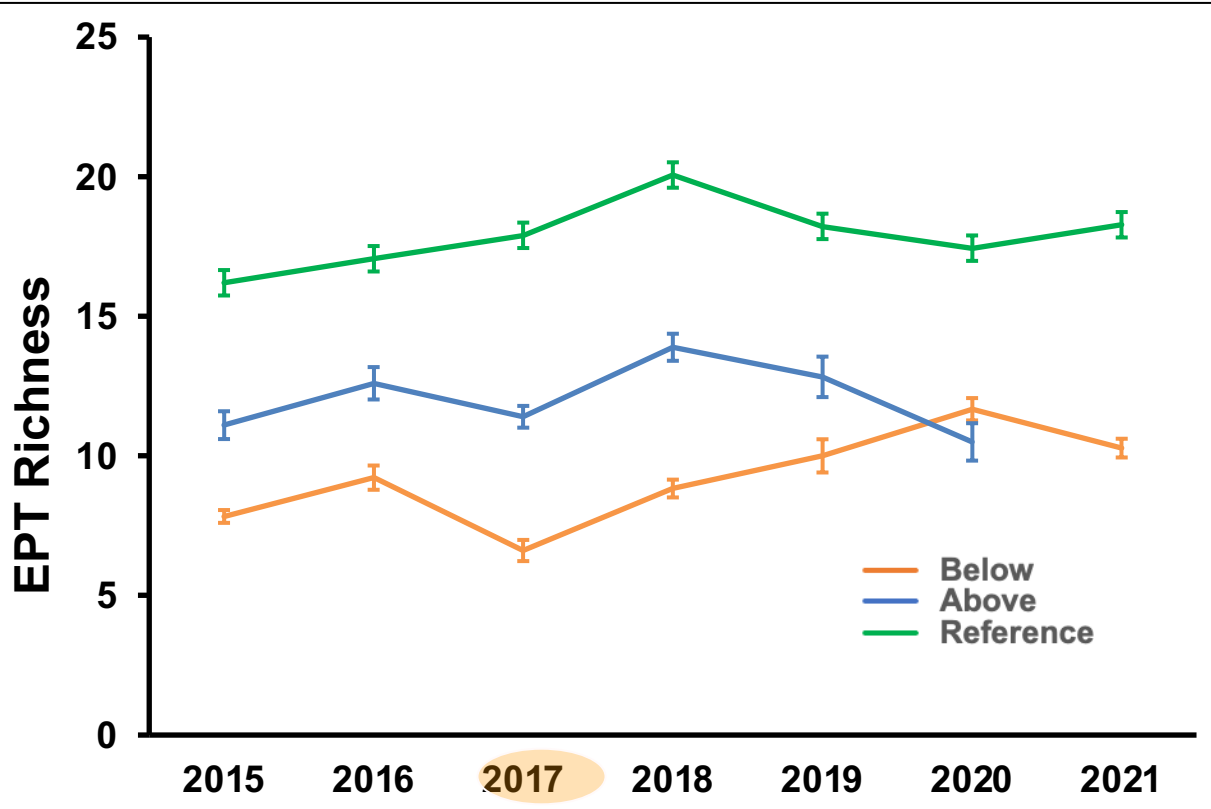
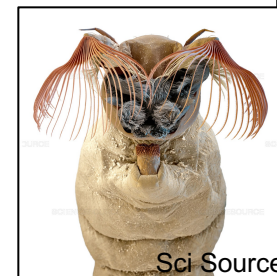
- Dam releases in 2017 scoured algae from rocks, positive effects still evident in 2021
- No rock snot (*Didymosphenia geminata*) since 2017 scouring event
- But filamentous green algae increasing in abundance below dam



New EPT taxa appeared below the dam following 2017 releases



- Number of species of mayflies, stoneflies, and caddisflies (EPT) increased below dam through 2020
- EPT *may* now be decreasing again below the dam



TUOLUMNE RIVER GEOMORPHIC ANALYSIS

FINAL REPORT
Cooperative Agreement #P19AC00882

by

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March 14, 2022



Tuolumne River through the middle of Tuolumne Meadows, August 2020.

The following narrative is the Final Report for Cooperative Agreement #P19AC00882 between the University of California and the National Park Service for the project "Geomorphic Assessment of the Tuolumne River in Tuolumne Meadows." Key personnel for this agreement are Derek Booth and Peter Downs, PI and co-PI from the University of California Santa Barbara (and authors of this Report); and Greg Stock, Catherine Fong, and Rachel Hallinan from Yosemite National Park. Acknowledgments of assistance are also due to Timothy Kuhn and Timothy Babalis (National Park Service), Elizabeth Haddon and Stephen DeLong (US Geological Survey), and Jessica Lundquist (University of Washington).



Tuolumne River Geomorphic Analysis

- NPS requested report to inform ongoing riverbank monitoring efforts and future restoration actions in Tuolumne Meadows
- Provides new and important insights into the geomorphic condition of the river as it flows through Tuolumne Meadows
- Identifies key river characteristics and potential restoration actions