

# NEWSLETTER

California Chapter Society for  
Freshwater Science &  
Aquatic Bioassessment Workgroup



CALIFORNIA CHAPTER  
SOCIETY FOR  
FRESHWATER  
SCIENCE



## RECAP: 24th annual CABW / Cal-SFS Meeting held October 24-25th in Davis, CA.

The 24th Annual California Bioassessment Working Group (CABW) and 5th annual meeting of The California Chapter Society of Freshwater Sciences (Cal-SFS) was held at the UC Davis ARC Conference Center on October 24th and 25th, 2017.

Over 200 people registered and attended the meeting to learn about the California Rapid Assessment Method (CRAM), updates to the California Surface Water Ambient Monitoring Program (SWAMP) bioassessment resources, and statewide and regional policy updates. There were a total of 23 science and policy presentations from students, post-docs, research fellows, agency staff, NGOs, consultants, non-profits, and specialists. During the SFS session, 14 presentations covered a wide range of topics such as the effect of aquatic plants on temperature, the contribution of flow variability on river metacommunities, and new and emerging methods in stream science.

Two of the presentations are discussed further within this newsletter. J. Marty discusses how the California Tiger Salamander was successfully studied and managed on a busy air force base in the Central Valley (Page 3). Then, M. Robinson, J. Olson, and R. Mazor discuss their findings from their presentation on the development of biological indicators in dry phase non-perennial rivers and streams (Page 4.)

## Save the Date!

The 25th CABW / Cal-SFS Meeting will be held October 23rd & 24th, 2018 at UC Davis. For more information contact:

Jim Harrington at 916-358-2862 or  
[james.harrington@wildlife.ca.gov](mailto:james.harrington@wildlife.ca.gov)



**Above:** Jim Harrington (CDFW) once again organized a wonderful and comprehensive CABW / Cal-SFS meeting. **Below:** Cal-SFS Chair / President, Jeanette Howard (TNC), introduced the SFS session and facilitated the SFS meeting on Tuesday evening.



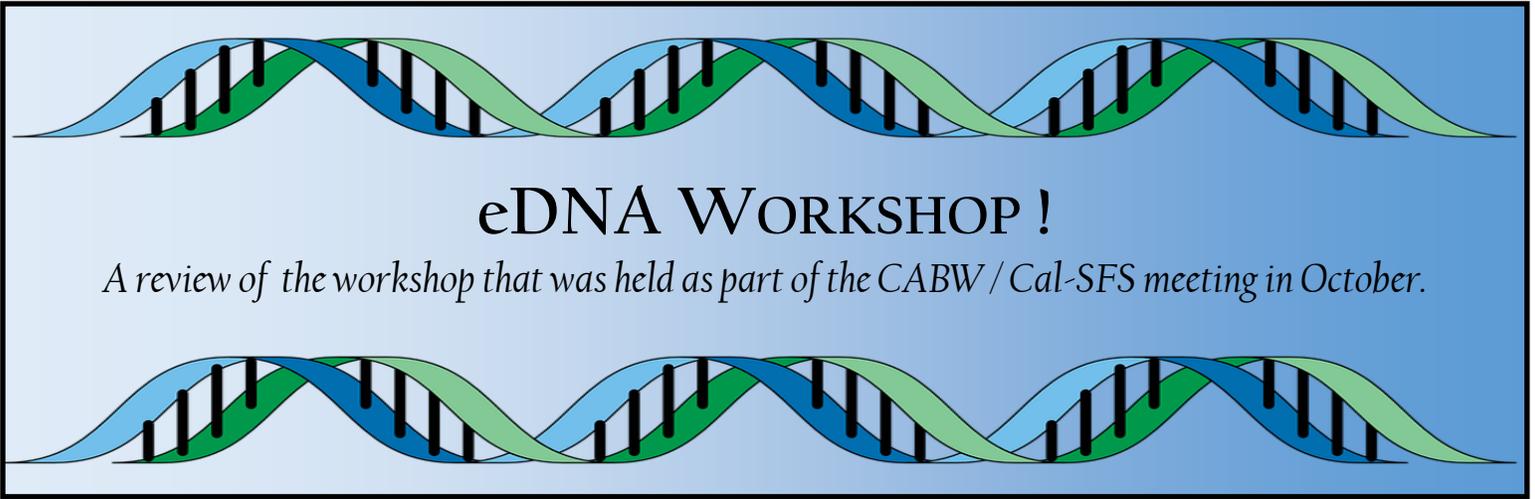
## JOIN CAL-SFS TODAY!!

**Being a chapter member has many benefits such as :**

- Chapters allow for the option of attending smaller, more focused meetings that better serve regional needs.
- Chapters provide affordable options for students to attend a professional meeting, facilitating networking and professional growth.
- SFS members with various expertise can assist chapters with specific needs and provide mentoring and information exchange.
- Regional leadership becomes a stepping stone to society leadership.
- Direct input on local events and outreach opportunities.
- And many more benefits!

**For more info and to become a member:**

<http://www.freshwater-science.org/chapters/california-chapter.cfm>



### Introduction to eDNA for Bioassessment

25 October 2017

**Above:** Title slide from the eDNA workshop.  
**Below:** John Olson and Dovi Kacev (pictured) presented the eDNA workshop on Wednesday October 25th, 2017 at the CABW / Cal-SFS Meeting at UC Davis, in Davis, CA. (Photo courtesy of SWAMP Newsletter 2017.)

The “Biomonitoring using eDNA” workshop, held on Wednesday afternoon, introduced the benefits of using eDNA in aquatic sampling and identification. The two-part workshop started by providing participants with an overview of molecular approaches and basic methods in the field and lab. The second part of the workshop focused on application of and analysis of eDNA and special considerations when using eDNA in research. The workshop provided some valuable rationale for eDNA being faster, less expensive, more accurate, and a less obtrusive way of detecting aquatic organisms in a variety of freshwater systems.

According to registration, 70 people attended the workshop resulting in \$800 in generous donations to the student travel fund allowing for several Cal-SFS students to attend the SFS annual conference in Detroit, 2018. (More information on the Cal-SFS student travel award details are provided on page 6).

### Traditional Barcoding

**Benefit:**

- Thorough
- Accuracy
- Reproducible

**Issue:**

- Time intensive
- Expensive

If you would like more information on the workshop or using eDNA in ecological studies you can contact the presenters:

**John Olsen (CSUMB) [joolson@csumb.edu](mailto:joolson@csumb.edu)**  
**Dovi Kacev (SCCWRP) [dovik@sccwrp.org](mailto:dovik@sccwrp.org)**

## JOIN US ON SOCIAL MEDIA!!

Facebook: Society for Freshwater Science - California Chapter

Twitter and Instagram: CalSFSsocial

## Thank you to the CABW / Cal-SFS 2017 sponsors and supporters!

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# The Year the California Tiger Salamander Lost its Unicorn Status

Jaymee Marty, Marty Ecological Consulting, Inc. Sacramento, CA

In May 2017, California tiger salamander (CTS; *Ambystoma californiense*) metamorphs started marching out of a stock pond on land adjacent to Travis Air Force Base, near Fairfield, CA. The CTS were found wandering through the grasslands around the airfield including onto roads and the active runway. This was a surprising event given that less than a half dozen adult CTS had been recorded on the 5,100-acre site prior to 2017. The Air Force responded by implementing morning runway checks to capture and relocate CTS metamorphs to safe burrow sites. In addition, a drift fence study was initiated adjacent to the breeding pond to better understand the movement patterns and size of the CTS population.

In total, 820 CTS were relocated: 154 from the runway and 666 from the traps. A total of 54 CTS were found dead either from vehicle strikes or from desiccation. This extraordinary phenomenon was caused by a longer than usual breeding pond hydroperiod due to the record winter rains of 2017 coupled with Air Force land management being more suitable for CTS migration than the property containing the pond.

Future efforts will focus on improving grassland management around the breeding pond on the adjacent property to favor CTS migration and continued monitoring of the population as these changes are made.

For more information: Contact J. Marty at [martyjt@me.com](mailto:martyjt@me.com)



*Top:* CTS in dry annual grasses. *Bottom right:* drift fence and pitfall trap set-up on Travis Air Force Base. *Bottom Left:* Bucket of CTS trapped and relocated. All images by J. Marty.



*Left:* A CTS in profile with scale. Image by J. Marty. *Right:* Current CTS range map courtesy of CaliforniaHerps.com.

## Need to report a California Tiger Salamander sighting?

Add your observations of reptiles and amphibians to the [H. E. R. P. Database](#) (Herpetological Education & Research Project) a [North American Field Herping Association](#) (N. A. F. H. A.) project. You can also add your observations of wild amphibians and reptiles to the [Global Amphibian BioBlitz](#) or the [Global Reptile BioBlitz](#) projects at [iNaturalist.org](#).

# Development of biological indicators for the dry phase of non-perennial rivers and streams.

*Matt Robinson and John Olson, Cal State Monterey Bay & Raphael Mazor, Southern California Coastal Water Research Project*

Non-perennial rivers and streams (NPRS) make up a substantial portion of all river networks world-wide. These systems can remain dry from weeks to years at a time, and the spatial and temporal extent of their dry phases are expected to increase. This will create challenges for river monitoring and management that rely on the presence of surface water for assessment.

With support from the Southern California Coastal Water Research Project and the San Diego Regional Water Quality Control Board, we are exploring the feasibility of using biological indicators to assess NPRS ecological condition during dry phases. We are focused on two biological assemblages: terrestrial arthropods and bryophytes (mosses).



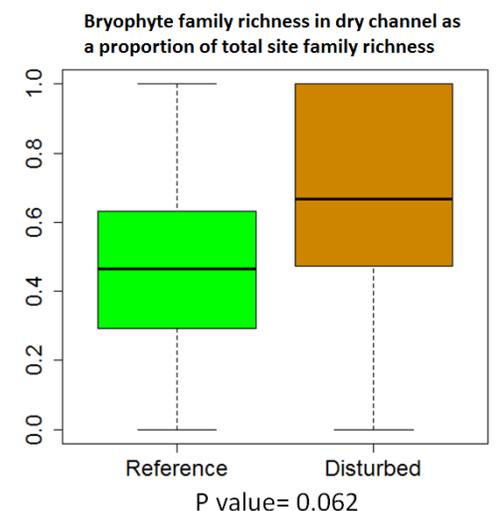
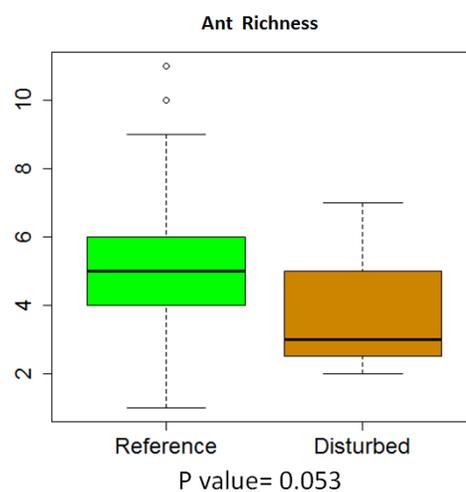
We sampled 39 NPRS sites in the San Diego region between July and August 2016. The sites ranged from reference condition ( $n = 24$ ) to having various levels of disturbance ( $n = 15$ ). We collected arthropod specimens within 160m dry stream bed reaches using ramped pitfall traps (Figure 1.) and a vegetation beating method. We also sampled the bryophyte community within the streambed and the riparian zones.

We developed dry phase metric analogs based on some of the same metrics commonly used for aquatic assemblages (i.e., species richness, functional feeding types). Preliminary analysis of these metrics indicate that multiple metrics (Figure 2.) may be sensitive to disturbance in NPRS.



*Above:* Figure 1. Ramped pitfall trap deployed in a dry riverbed. *Below:* Figure 2. Results demonstrating multiple metrics may be sensitive to disturbance in non-perennial rivers and streams.

Determining which dry phase metrics respond to disturbance is the first step in developing biological assessment methods for NPRS during the dry phase. We expect this work may be used to inform future development of a dry phase multimetric index which can be integrated into monitoring programs and used when traditional bioassessment methods are impractical.



# STUDENT SPOTLIGHT!

*Cal-SFS was able to support these students' travel to the Annual SFS Meeting in Raleigh, NC. Here they share a little of their experiences, their research focus, and their involvement with SFS.*

## Bronwen Stanford, Ph.D. Candidate

University of California, Santa Cruz

Greetings from Raleigh! Turnout of Californians felt noticeably smaller this year, likely due to a combination of the state travel funding ban and the distance, especially compared to our conveniently located Sacramento meeting last year. I was still able to meet up with a number of members of the CA SFS chapter, including some new faces. Tuesday's keynote speaker, Kristen Podolak, works in northern California on stream management and suggested in her talk that our cultural preference for sinuous meandering streams is based more on aesthetics than science, something that seems particularly true here in the arid West.

SFS offered several sessions on diversity on Sunday, as well as a mid-week training. A new diversity committee has already been formed to help shape the 2018 meeting, and I found it encouraging that SFS leadership is treating HB2 as a motivation to improve or at least better engage with inclusivity as a society. I presented as part of a special session on applications of meta-community theory, which was a well-attended session with a variety of talks attempting to consider dispersal limitation and the influence of spatial structure on communities. I shared results from my recently submitted meta-analysis showing that more natural cover increases resistance in streams subject to water quality disturbance, and got some great feedback from other SFS members. It's always inspiring to go hear from scientists working on such a range of questions related to our freshwaters. I'm deeply appreciative of the travel funding provided by the CA SFS chapter. Thanks so much for your support!



*Above: Bronwen conducting some water quality stream sampling. Below: Nick in front of his poster at SFS 2017 in Raleigh, NC.*



## Nick Macias, PhD Student

University of California, Santa Cruz

The 2017 annual meeting of the Society for Freshwater Science in Raleigh, NC was a great opportunity for me to network, as well as provide guidance and mentorship to future freshwater scientists through the societies INSTARS program. The week began with a reunion with some of the folks I worked with during my 2010 REU at the El Verde LTER. Dr. Augustin Engman (NC State) and Dr. PJ Torres (Denison University) were both graduate mentors during my time at El Verde and it was great to catch up with them in Raleigh. The INSTARS program began promptly on the first day of the conference and it was a great opportunity to meet some new faces and share some of my past experiences within the society to the 2017 cohort of INSTARS. We met daily throughout the course of the meeting to discuss the pros and cons of some of the presentations they had witnessed, as well as aided in introducing the cohort to some of the founding members of the society. As a graduate mentor, I was also able to provide feedback for the cohort during a practice run of their posters before the student poster session. Overall, I believe we will have a good percentage of the 2017 cohort participate in the 2018 meeting in Detroit.



## 2018 SFS Annual Meeting: Detroit May 20-24

*Navigating Boundaries in Freshwater Science*

[sfsannualmeeting.org](http://sfsannualmeeting.org)

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### California Chapter Society for Freshwater Science — Student Travel Grants for SFS 2018

#### Application Deadline: January 10, 2018

The California Chapter of SFS (Cal-SFS) has made two \$700 awards available to support the travel expenses of undergraduate or graduate students presenting at the 2018 SFS annual meeting in Detroit, Michigan. Awarded funds may be used to cover the costs of transportation, lodging, and/or registration. If the student is not yet a member of SFS and the California Chapter, a portion of the travel grant should be used to cover the cost of membership.

Cal-SFS is supporting student travel to the 2018 SFS meeting in Detroit in order to provide funding to students who otherwise would not be able to attend, and for whom not attending the meeting would be detrimental to their academic or professional development. Thus, students who have funding available through other sources, such as research grants or university awards, should not apply. Award funding will be given directly to students, and can be used for any expenses related to travel to the meeting.

#### Award recipients are expected to:

1. Attend the SFS meeting in entirety, including any California Chapter events, and provide assistance, if required, to chapter officers.
2. Submit an abstract by the January 26, 2018 deadline in order to present their research at the 2018 meeting, in either an oral or poster format.
3. Within two weeks after the conclusion of the meeting, submit a short article describing your experience at the meeting for publication in the Cal-SFS newsletter.
4. Maintain membership in the National society and Cal-SFS in 2018 and 2019.
5. Attend and present your research at the Fall 2018 Cal-SFS Chapter meeting, tentatively scheduled for late October in Davis.
6. Recipients of awards are expected to post on one of the Cal-SFS social media platforms (Twitter, FB, or Instagram) while at the meeting.

#### To Apply:

Please send a single electronic file (.doc, .docx, .pdf, or .txt) as an attachment in an email to Matt Cover ([mcover@csustan.edu](mailto:mcover@csustan.edu)) by **January 10, 2018**. Please include the following information in your application:

1. Full contact information (name, address, phone, email)
2. Student status (college or university, degree program, years in program, expected graduation date)
3. A brief statement of interest in the SFS meeting (< 250 words). Please describe:
  - A. How your academic and career goals will be advanced by attending the SFS meeting
  - B. Other scientific conferences where you have attended or presented
  - C. Evidence of financial need; other existing or potential sources of funding
  - D. Evidence of past or planned education or outreach activities that expand access and involvement in the field of freshwater science in California
4. A copy of your submitted abstract, OR a draft copy of the abstract you plan to submit by the January 26 deadline, and the name of the session you wish to present in.

Applications shall be judged on academic and career promise, demonstrated need, and the potential for championing freshwater science in California. A committee of Cal-SFS officers and members who are unaffiliated with any applicant shall review submissions and select a recipient by January 22. Award monies will be delivered, in the form of a check sent directly to the awardees, in late February.

#### Timeline

Cal-SFS Travel Grant Application deadline: January 10, 2018  
 Notification of winners of Cal-SFS Travel Grant: January 22, 2018  
 SFS Abstract submission deadline: January 26, 2018