



Land of the West Wind

Volume 18 Issue 4

December 2018

SRCD Water Manager's Update

Greetings from the SRCD Water Managers. We hope that everyone is having a successful duck season. We use this small corner of our SRCD Newsletter to bring attention to some of the projects we have been working on, and to highlight deadlines important to our readers.

- Post Work Reports, including photos of any exterior work are due before January first! Please let us know if you need help with those reports.
- The Managed Wetland Drainage Assessment has been completed and the summary results will be posted on the website. More information on page 4.
- The new work permit will go out early in the New Year. Unlike last year, we will not have to wait for approval for a reissue of the Regional General Permit #3. **You can expect to have the 2019 application in January.**
- SRCD has been monitoring water quality and coordinating drainage events in areas of prime concern for low dissolved oxygen content since fall flood up began in September. We appreciate the cooperation of the clubs - - for the last few years, monitoring efforts have been focused in Goodyear, Boynton, and Peytonia Sloughs. Beginning in January, other sloughs will be monitored as a requirement of the RGP #3.
- Diversion restrictions for salmon are still in place. The restriction on the prohibited sloughs increases to a **FULL CLOSURE** on February 21st.

Managed Wetland Mosquito Reduction for 2018 Fall Flood Season

By Waite Colbaugh, SCMAD District Biologist

The Solano County Mosquito Abatement District (SCMAD) is completing its 88th season. This year, Solano County was among the 41 counties in California where West Nile Virus (WNV) was detected. Fortunately, SCMAD detected viral activity early and performed abatement to greatly reduce the risk to the public. 2018 was the first year since 2011 in which Solano County did not have a reported human infection of WNV.



Photo Credit: SCMAD District

This year, the fall flooding of the Suisun Marsh began in August and continued through October. Most duck clubs began flooding after October 1st, which greatly reduced the risk of WNV transmissions. In 2018, the SCMAD performed larvicide treatments to 2,809 acres of managed wetland properties and 2,322 acres of CDFW properties.

I, along with the rest of the SCMAD staff, would like to thank everyone who participated in the 50/50 Cost Share Program, as well as those who signed and returned waivers to the SCMAD office. The cooperation between the Suisun Marsh landowners, SRCD, and SCMAD continues to be a valuable tool in managing mosquito populations in Solano County.

Wishing you all a safe and plentiful hunting season!

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Quarterly newsletter of the Suisun Resource
Conservation District

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SRCD's public meetings are
held at 2 PM on the second
Wednesday of each month at the
Solano County Supervisors Chambers
675 Texas Street
Fairfield, CA 94533

UC DAVIS

Graduate Student Research Update

By Jacqueline Satter, Daniel Smith, Mason Hill

This fall marked the second year of research for three UC Davis graduate students who are investigating food abundance, diet, body condition, and overall health of waterfowl in the Suisun Marsh. These projects are part of the ongoing collaboration between SRCD, DWR, USGS, CDFW, and UC Davis to better understand how waterfowl are using this important ecosystem and to improve future management efforts. These projects would not be possible without the support and interest from the private duck clubs and their members who have provided access to their property and donated their time to assist us in our research endeavors.



From the left: Dan Smith, UC Davis, Jeff Kohl USGS, John Eadie *Raveling Endowed Waterfowl Professor*, UC Davis, Jacqueline Satter UC Davis.



Holly Coates and Luke Mathews processing ducks

Dan Smith, with a huge amount of help from USGS staff, has sampled 80 managed wetlands and 17 tidal wetlands across Suisun Marsh. These samples will provide insight of the abundance of food for waterfowl in these wetland types, and is critical in estimating how many ducks the Marsh can support over the winter.

Smith's future research efforts will focus on obtaining a better understanding of what drives wetland seed production in both managed and tidal wetlands.

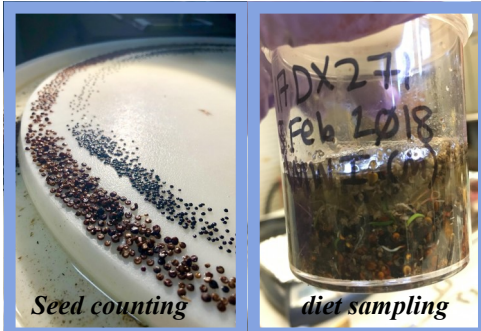
Jackie Satter had a very successful first year collecting esophageal samples of dabbling ducks from hunters at the GIWA check station and duck clubs throughout the Marsh. In her second year, she is focusing more on the body condition aspect of the study, while she and her team tediously sort and count seeds eaten by over 850 ducks sampled in 2017-2018.

These findings will build on the study conducted by Ed Burns twenty years ago, expanding on the number of species studied and using techniques that highlight invertebrates and plants as food items in conjunction with seeds. It also will provide insight on what seeds are eaten and how those choices are influenced by nutritional value, grit, or accessibility. These data will be especially valuable when aligned with results of the landscape-level food abundance and availability data collected by Smith.

Mason Hill is conducting a similar study within the Marsh and in the San Francisco Bay focusing on the diet and body condition of diving ducks. He and his team obtained over 140 samples from 4 diving species and are looking forward to a successful second field season. Diving ducks play a vital role in overall ecosystem health of the estuarine marsh that borders a tidal, ocean-influenced Bay.

Collectively, these studies will influence waterfowl food and water management in the marsh to provide the highest quality overwintering habitat for waterfowl and waterfowl hunters to thrive for generations to come.

Professor John Eadie and Jackie Satter



Mason and Luke Hawk with canvasbacks



Dan Smith with sampling gear



Managed Wetland Improvement Assessment

From April to September in 2018, the Suisun Resource Conservation District (SRCD) and California Waterfowl Association (CWA) conducted an assessment of Suisun Marsh managed wetland water control structures. Our goal was to assess the managed wetland drainage capacity and to develop a list of priority projects that could improve managed wetland habitats and functions for a range of fish and wildlife species.

The improvement assessment was supported by a planning grant from the Sacramento-San Joaquin Delta Conservancy and by the Department of Water Resources through the Delta Smelt Resiliency Strategy. The work was led by SRCD partnering with CWA contributing survey expertise and Research Management Associates (RMA) leading the hydrologic modeling. A summary report is available on the SRCD website under the resources tab (www.suisunrcd.org/resources).

The 3 primary objectives of this study were to:

- Enlist landowner-managers in the assessment with written permission for their involvement
- Conduct surveys to obtain highly accurate elevations for exterior water control structures
- Develop a simulation model and prioritization tool to assess which managed wetlands would most benefit from infrastructure improvements

**If your club was surveyed
and you wish to see the
modeling results, please
contact your Water Manager.**

A total of 91 of 102 private landowners in priority areas participated in the survey.

Nina Tortosa with survey equipment



An Excel prioritization tool was developed from the RMA hydrologic model to compare different drainage scenarios within wetlands and rank the best projects to improve drainage capacity among wetlands. The Excel tool was written as a user-friendly program, and **SRCD Water Managers were trained to operate the model to show landowners how infrastructure improvements may benefit their habitat management capabilities. If you wish to see modeling results, please contact your Water Manager.**

The model will allow us to objectively assess projects that best improve Marsh habitats and when projects will not provide major benefits, so landowners and managers alike may make informed choices about drainage solutions. Continued development of the model will allow us to examine which management alternatives will most benefit zooplankton production for foraging Delta Smelt and other species. It also will allow us to assess how future climate change effects including sea-level rise will affect tidal flooding and draining of Marsh managed wetlands.

Are Wildfires Likely to be More Common in Suisun Marsh?

By: Phelan McKinney

In the last few decades, wildfires have become a more frequent occurrence in California's wildlands. In Suisun Marsh, seven wildfires burned in this year alone. The Marsh Club and Can Can Club lost structures to separate small fires early in the year, while on August 10th, the large Nelson Fire reached the Potrero Hills and burned a total of 2,162 acres. The Branscombe Fire on October 7th burned across Montezuma Slough to Joice Island scorching 4,500 acres. That fire damaged the Belden's Landing fishing dock, and destroyed the DWR Belden's Salinity Compliance Station, but was controlled before threatening the Grizzly Island Wildlife Area complex. Shortly thereafter, the GIWA Crescent Unit briefly caught fire but was quickly put out. On November 8th, the Nurse Fire burned 1,500 acres near Denverton Ranch, and a separate November blaze lasted for days on the Grizzly Island Wildlife Area near Parking Lot 5.



Photo Credit: NBC Bay Area News



Photo Credit: CDFW

Fire suppression, timber management practices, and increased building into forest or chaparral areas are frequently cited as some of the reasons for the fire crisis. A changing climate also has been implicated, and scientific findings suggest increased frequency and intensity of fires is likely to continue. The Marsh is not subject to all factors contributing to increased wildfires; however, it has unique concerns of its own including intense winds and peat soils. Last November, average daily winds were 8 mph with gusts reaching > 40 mph, and with sufficient dry fuel, a wildfire can move very rapidly. The dry conditions and wind gusts over 50 mph in November made the Camp Fire in Paradise the most deadly fire in California history, burning 153,336 acres and resulting in 85 deaths.



Photo Credit: The Mercury News

With changing climate conditions, we have experienced extended periods of drought, and precipitation has been compressed into a shorter window that lengthens the time that the Marsh is vulnerable to wildfire. Peat soils found in wetlands provide an excellent fuel source, and the drier the peat, the longer it will sustain a fire. Recently, a peat bog in Indonesia burned for more than five years (Burning Mountain, a coal seam in Australia has the world record for burning for >6000 years!). In light of the potential for wildfires in the Marsh, creating defensible areas is critical to buy firefighters enough time to stop a fire. Cal Fire recommends a 30 foot buffer of defensible space around structures that includes no vegetation, and whenever possible, those types of spaces should be used to reduce threats.



Do Birdwatchers buy the Duck Stamp?

By: John Takekawa, SRCD

Supporting wildlife as a benefit for all people has been an underlying principle of the public trust doctrine in the United States. However, much of the conservation support has come from hunters and anglers. For example, hunting license fees totaled over \$800 million in 2016 with associated annual expenses of over \$25 billion. The duck stamp was initiated under the Migratory Bird Hunting Stamp Act of 1934 as a conservation fund with 98% going to land acquisition, but demographic changes predicted for the future suggest that this support may decrease.

Recent duck surveys indicate populations at record levels of nearly 50 million ducks in North America, although waterfowl hunters have decreased to < 1 million individuals which has led to concerns about future conservation support. In contrast, birdwatchers comprise a growing recreation group of > 45 million people that generate > \$40 billion annually. Birdwatchers support conservation, but few studies have examined how they contribute and especially in relation to the duck stamp.



Photo Credit: U.S. Fish and Wildlife

Hunters are required to purchase the federal stamp, but birdwatchers also buy it, although little is known about their contribution. In a recent study to assess birdwatchers purchasing duck stamps, Shipley et al. (2018) sampled from the nearly 60,000 participants in the Christmas Bird Count, the nation's longest-running citizen science bird survey started in 1900 hosted by the National Audubon

Waterfowl hunters are decreasing while birdwatchers are increasing, but they don't purchase duck stamps to support conservation.

Society. Nearly 20% purchased a duck stamp in the past 2 years, and 40% of that group (8%) were hunters who also purchased a hunting license. Only 14% were nonhunters. Participants in the Christmas Bird Count are very involved birdwatchers that may be more motivated to contribute to conservation than birdwatchers at large, indicating even lower likely birdwatcher participation in duck stamp purchases overall.

While birdwatchers contribute to conservation, the duck stamp has not been effective in obtaining funding support from nonhunting birdwatchers. However, recent efforts have been aimed at encouraging wider stamp purchases to support conservation, including a U. S. Fish and Wildlife Service program to "Save the Vanishing Species." Birdwatcher contributions to conservation through duck stamps may be increased with wider availability as well as improving knowledge of the benefits and value of the duck stamp program.

C. B. Cooper, K. Dale, G. LeBaron, and J. Takekawa. 2018. Do birdwatchers buy the duck stamp? *Human Dimensions of Wildlife*. doi:10.1080/10871209.2018.1517227.

Vegetation in the Suisun Marsh Helps to Save an Endangered Desert Species

BY: Sadie Trombley, California Department of Fish and Wildlife; University of California, Davis

The Amargosa vole (*Microtus californicus scirpensis*) is an endangered subspecies similar to the California voles in Suisun Marsh, except that they live exclusively in the desert oases of the Mojave Desert near Tecopa, California, 8 hours southeast.

Rediscovered in the 1930s after they were thought to be extinct, the total wild population is now less than 500 individuals. The Amargosa vole inhabits bulrush-dominated marshes surrounded by inhospitable desert in the Amargosa Valley watershed. These marshes are also home to hot springs frequented by people and their pets. Habitat loss and degradation are the primary threats to the Amargosa vole. The University of California, Davis keeps a captive colony of Amargosa voles to



Amargosa vole—Photo Credit UC Davis

Rodents such as the Amargosa vole play a vital role in their marsh habitat and even have positive impacts on waterfowl. The oasis marshes are an important stop over for waterfowl in the desert and serve as breeding grounds for some. The Amargosa vole helps spread bulrush and other important waterfowl food through seed dispersal. In addition, protecting habitat for the endangered vole also helps protect all the other wildlife that utilize the oasis marshes.

Another subspecies, the San Pablo vole (*M. c. sanpabloensis*), makes its home in San Francisco Bay. Few studies have been done on it, but the valuable ecosystem niche that the Amargosa vole occupies suggests its sister subspecies could have a beneficial effect on marsh ecosystems for the estuary.



Tecopa Wetlands
Photo credit CDFW



Three Square Bullrush

propagate young for release into the wild. The Amargosa vole's diet consists primarily of three-square bulrush (*Schoenoplectus americanus*), and captive voles require fresh bulrush to keep them familiar with their native diet.

This spring, UC Davis collaborated with the Grizzly Island Wildlife Area and harvested bulrush from the Marsh to feed the captive colony. This saves the vole team an 8-hour trip to Tecopa and allows convenient access to this plant vital for success of the Amargosa voles.

"To keep every cog and wheel is the first precaution of intelligent tinkering."

- **Aldo Leopold**, Round River: From the Journals of Aldo Leopold

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SRCD Seeking Associate Director Candidates

The Suisun Resource Conservation District represents the landowners of Suisun Marsh. SRCD provides technical assistance in permitting, water control, and habitat management to landowners to ensure that the wetland and wildlife values of the Marsh are sustained and enhanced.

SRCD is directed by a Board of Directors consisting of five appointed unpaid members who serve 4-year terms. Associate Directors are volunteers who support the SRCD in a variety of tasks and may become candidates to be a Director. Their tasks include: attending ≥ 6 board meetings annually, supporting special events (Public Meetings and Workshops), submitting articles for the newsletter or website, participate in committees (Public Relations, Lower Joice Island Habitat and Facilities, Associate Director reports), contribute to Board discussions, and review Board minutes.

If you are interested in becoming an Associate Director, please send an email to SRCD@suisunrcd.org with a detailed explanation of your background and interests.