

Rising Sea Near The Delta Also Impacts Inland Waters

By Stephen Green

For years, scientists and engineers have been telling us that happenings in the Sacramento-San Joaquin Delta can cause impacts on the rivers and streams that feed it.

A recent study of how climate change will affect the Delta concluded that by mid-century, the sea will rise of about 2.5 feet. That will require an increase of about one million acre-feet per year of fresh water flowing from Northern California's Central Valley reservoirs into San Francisco Bay to hold back Bay salt water from intruding into the Delta.

To supply that amount of fresh water would require the release of about ten percent of the "full" capacity of the bigger reservoirs in Northern California — including Folsom Reservoir. And maybe the release of twenty percent of reservoir water in drier years.

That would substantially reduce available fresh water supplies in Northern California and

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Chinook Salmon — Photo by Jay Mather

American River Salmon Are At Risk As Our Climate Changes

BY MARY BETH METCALF

Climate change and a warming planet are a reality. How will these changes affect our American River salmon? What can be done to mitigate negative effects?

For a number of years, Save the American River Association board member and fish expert Felix Smith has been cautioning the SARA board — and members of the Sacramento Water Forum — about the status of salmon in not only the American but the entire Sacramento River watershed. Already the issues of water flow and appropriate (cold) temperatures required for salmon to thrive and even survive struggle with the other huge demands for American River water. There is a need for fresh water to replenish the Delta watershed continuously and block sea water incursion.

There is an obligation to provide water "downstate" — both for human consumption and agriculture in the Central Valley. With all the water issues already present, it is no wonder that numbers of salmon have been dropping, raising the question of what is in the future.

Salmon and other fish populations

clearly depend on the health of the rivers they inhabit. Michon Scott in the Climate.gov publication — See Footnote (1) — assessed the effect of climate change on the Sierra Nevada snowpack. Warmer winters change the snow level along with the ratio of rain to snow. With less water stored as snow and with the possibility of the snowmelt starting earlier and rain replacing snowfall, the threat of early flooding can be a problem for young fish. Also, with early melting, the slow release of water into the mountain rivers will occur over a shortened time period affecting water storage and summer water flow. With just 1 degree C of increased winter temperatures, there is a 70% chance of the snow level moving uphill in our part of the Sierra Nevada.

The health of the rivers and the Sacramento-San Joaquin Delta was addressed in a study by Dettinger et al - Footnote (2) — as part of a large study of western water sheds and climate change. This group studied four separate water sheds including the Sacramento-San Joaquin Delta system. The paper notes that the Delta is a

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Salmon At Risk

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weak point in a \$3 trillion economy and is under threat by drought, change in the ratio of rain-to-snow and rising sea levels brought on by a warming climate. Stabilizing the Delta is considered the most critical single water problem in California and possibly the most pressing environmental problem in the United States (2).

There is a standoff in the North Bay between the rising sea levels with its salinity and the possibly diminishing river flows which provide the fresh water for the Bay-Delta estuary, waters which are in high demand. The Delta is threatened by the “full range of potential climate-change impacts expected across the west, along with major vulnerabilities to increased flooding and rising sea levels.” (2).

Where does that leave the salmon? Already it is a struggle to provide adequate river flows and cold water in the American River. An extensive study undertaken by NOAA, the USGS and university researchers — Footnote (3) — assessed the current status and the vulnerability to climate change of 52 Pacific coast populations of salmon and steelhead, including those distinct population groups in the Sacramento River watershed, including the American River. Of 52 distinct populations segments of both salmon and steelhead that call the Pacific coast their home, 31 already are considered at least at risk if not endangered.

With climate warming a current fact and likely to worsen, salmon will be threatened by further temperature rises and changes in river flows. When the fish get to the sea they will encounter a rising sea and increased ocean acidification, both factors caused by climate change.

This discouraging outlook darkens

“Western water and proposed climate change are a precarious mix. Nineteenth-century water law, twentieth-century infrastructure, and twenty-first-century population growth and climate change are on a collision course throughout the West.”

**MICHAEL DETTINGER, ET AL
WESTERN WATER AND CLIMATE
CHANGE IN ECOLOGICAL
APPLICATIONS**

further for our area in that the projection suggests that the most heavily impacted salmon groups are those at the southern border of their range — that is, Sacramento-San Joaquin Delta watershed. The adaptive capacity of the southernmost populations is thought to be the lowest with so much loss of habitat such as flood plains and fresh-water estuaries that in the past provided space for young salmon to mature before completing their trip to the ocean.

There are suggestions for hope that various populations will be adaptable to the need by changing their migration patterns and spawning times. Primarily, however, the negative impacts of human intervention require human mitigation. These areas of mitigation might include improving the estuaries and freshwater habitats, and improving water management for rivers whose flow is governed by

dam releases. In some of the tributaries of Sacramento River, dam removal might be a possibility, allowing the fish access to their historic breeding grounds.

But all told, according to Dettinger et al, “western water and proposed climate change are a precarious mix. Nineteenth-century water law, twentieth-century infrastructure, and twenty-first-century population growth and climate change are on a collision course throughout the West.” (2) The historical water difficulties need to be addressed soon and comprehensively. (2) It seems as if the wild salmon of the American River have a lot stacked against them. They are among the populations considered the most vulnerable and least likely to adapt. Fresh water estuaries and floodplains have diminished over the years. Change in the snowpack, both in volume and in relation to rainfall add to the peril. And dam removal on the American River is not a consideration. Addressing flow volume and temperature and the American River’s share of fresh water needed in the Sacramento-San Joaquin Delta are challenges for the water and fish experts. Failure could easily result in the loss of our specific distinct population group.

Scott, Michon. “Warming Winters and dwindling Sierra Nevada snowpack will squeeze water resources in parts of California” in Climate.gov, December 19, 2018.

Dettinger, Michael et al. Western Water and Climate Change in *Ecological Applications*, 25(8), 2015, pp 2069-2093.

Crozier, Lisa et al, *Climate vulnerability assessment for Pacific salmon and steelhead in the California Current Large Marine Ecosystem* was published by **PLOS ONE**, July 24, 2019. (doi.org/10.1371/journal.pone.0217711). ■

Delta Impacts

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elsewhere. The clear implication of the report is that more fresh water outflow would be required as sea rise continues beyond mid-century, maybe another million acre-feet by the end of the century.

For the American River, the increased outflow would have a significant impact on flows, temperatures, Folsom storage, and water supplies in the area. Less snowfall and more rain in the Sierra Nevada during winter months would force changes in reservoirs storage operations and increase flooding in some areas.

Those increased flow projections are just one of the findings of the first part of a two-part study by the Delta Stewardship Council (a state agency) entitled "Delta Adapts" which is on the Council's web site.

The study also found that water exports from the Delta may be significantly reduced – exports that provide drinking water for 27 million Californians, water for unique ecosystems such as Suisun Marsh,

and water for California's multi-billion-dollar agricultural industry. As we head into another drought this year, the U.S. Bureau of Reclamation announced that agricultural water service contractors served by the Central Valley Project will initially receive only five percent of their allocations, and the state Central Valley Project announced an initial estimate of 10 percent of historical water deliveries to city and agricultural customers.

In addition, there would be serious risks to the Delta's agricultural islands, some of which are now up to twenty feet below sea level and surrounded by high levees.

In wet years between droughts, flooding could threaten 148,000 acres of Delta agricultural land. Vulnerable communities include Stockton, Lathrop, Pittsburg, Antioch, Isleton, Terminous, Thornton and Walnut Grove, in addition to the Port of Stockton and sections of Interstate 5.

Warmer temperatures already are increasing toxic algal blooms in critical Delta habitats and recreation areas. Those blooms will continue to spread as temperatures rise.

The next phase of the Delta Stewardship Council study will develop an Adaptation Strategy which will identify steps to address the risks and vulnerabilities. The research effort will continue to involve local, state and federal agencies, stakeholder groups, service providers, water districts, and academic scientists and engineers.

"The time to act is now," the report concluded. "Over the long term, climate change in the Delta is expected to harm human health and safety, disrupt the economy, diminish water supply availability and usability, shift ecosystem function, compromise sensitive habitats and increase the challenges of providing basic services. Many of these impacts will disproportionately affect vulnerable communities." ■

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Warren Truitt has been Serving SARA for Two Decades

BY ALAN WADE

Warren V. Truitt (the “V” is just a “v”) has been an important factor in the growth and development of the Save the American River Association for the past two decades. Currently serving as vice president, he joined SARA in the late ‘90’s, and succeeded me as SARA president in 2007.

Until then, our entire operation was centered in the home of our late Secretary Wanda Denson. Upon her retirement, after many years of service, Warren oversaw SARA’s move to a new office space, and recruited our current office manager, Sara Stephens.

Warren is a native Californian, scion of a six generation California family on his mother’s side. He was born in 1942 in Oakland. Early in the war years, his father joined the U.S Army Air Corps, and Warren and his mother followed his war time career. They later returned to California, eventually settling in Albany where Warren spent his early years.

He was graduated from Ells High School in 1960, where he played football and basketball, and excelled in academics. He recalls with pleasure spending many summers at Lake Tahoe with relatives, no doubt a strong influence in his love of nature.

Warren was graduated from San Francisco State in 1965, and married his wife Mary. They have been together for 56 years, raising two children—Warren III (“Buzz”) and Elizabeth. He entered the world of business as a sales trainee in 1966, with the Zellerbach Corporation, and



Warren V. Truitt

was assigned to working in what is now called Silicon Valley. He recalls this as a very exciting time, during which he received an award as “Rookie of the Year,” only the first in numerous awards and promotions during his career with the Zellerbach.

That part of his career ended with a hostile takeover of the company in 1987. He capped his career with the venerable Bancroft-Whitney Publishing Company, having received many awards as a top sales performer.

Warren officially retired from the business world on the first day of 2000, the new century. He spent some good years riding his bicycle and traveling with Mary. Meanwhile, SARA badly need a board member with Warren Truitt’s skills and background, and we’re fortunate to have him join our SARA Board of Directors in 2003. We were

immediately confronted with the “Parkway in Peril” era during which the very life of the Parkway was threatened from many sides.

Warren was selected by the National Society of the Daughters of the American Revolution to receive their 2012 Conservation Award.

Warren helped lead SARA’s head-on approach to the many challenges we faced. Since his accession to our presidency in 2007, Warren has played a leadership role in bringing about a full 15-member Board, an exceptional office manager, a health treasury, solid membership and continues in its now historic role as “*Guardians of the American River and Parkway since 1961*.” We expect that Warren V. Truitt will continue as a key leader in the continuing struggle to protect Sacramento’s “jewel”. ■

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SARA appreciates the support of our generous members. Without your support, SARA would not be able to continue our role as *Guardians of the American River and Parkway since 1961*. New and renewing members are listed in *RiverWatch* according to their preference (indicated on the SARA membership/renewal form).

Support County Parks — Buy An Annual Pass

The Pass pays for itself in 10 visits and all funds go directly towards maintaining and operating the 15,000-acre system. For as little as \$50 per year, you can have unlimited access and parking in the parks.

Pass holders receive free daily entry into Regional Parks and annual passes are valid for one year from date of purchase.

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Vehicle and small watercraft:	\$80
Parks supporter pass*	\$50

** This pass is for those who want to support Parks but do not drive to Parks facilities*

Where to Purchase Your Parks Pass

- Online through the American River Parkway Foundation
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- Patriot Cycles in Fair Oaks
- Effie Yeaw Nature Center at Ancil Hoffman Park
- Regional Park offices and park kiosks
- American River Parkway Foundation office at the William B. Pond Recreation Area ■

In Memoriam

Save the American River Association has received donations honoring the memory of the following friend:

WILLIAM DILLINGER

Save the American River Association frequently receives donations in memory of lost loved ones, many of whom were users and supporters of the American River Parkway. Some donors give names. Others prefer to remain anonymous. SARA notifies family members when donations are made. The money is used to further SARA's advocacy work on behalf of the Parkway. Contributions may be made by check or online via SARA's website. **SARA also has a Legacy program.**

For information on the program, please contact the SARA office. ■

www.sarariverwatch.org

The McCloud is California's Most Endangered River

American Rivers, a national advocate for clean and healthy rivers, has released its annual list of the ten most endangered rivers in the U.S. California's McCloud River ranked Number 7 because of the federal government's plan to raise the height of Shasta Dam.

Shasta Dam on the Sacramento River would be raised 18.5 feet, expanding its reservoir and flooding more than 5,000 acres of forest and riverside habitat, including 39 sacred sites of the Winnemen Wintu Tribe.

The McCloud River flows out of the Cascade Range, draining the conifer forests skirting Mount Shasta. It flows 77 miles to the Pit River, a tributary of the Shasta Reservoir.

Several rare and endangered wildlife and plant species are found along the McCloud including the Shasta Snow-Wreath, Shasta Salamanders, McCloud River Redband Trout and Pacific Fisher. In 1989, California adopted the Wild and Scenic Rivers Act which banned dam construction on the McCloud in an effort to protect the river's fish and wildlife habitat, scenic beauty and pristine waters.

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SARA Board member George Nyberg places stickers on waste cans urging people not to litter.

SARA, Waste Management Place 100 New Waste Cans on Parkway

Metal waste cans on the American River Parkway tend to rust and deteriorate over time. And sometimes they are vandalized.

Last winter, Save the American River Association partnered with Waste Management, North America's largest waste services company, to acquire 100 replacement cans for the Parkway.

Working with staff from Sacramento County's Regional Parks Department, deteriorating cans were removed and replaced with the new ones.

SARA and Waste Management agreed to provide 100 more cans next year and perhaps for several more years as the need exists.

Most Parkway visitors properly dispose of their waste. But more litter has been accumulating during the Pandemic. More people from out of the region have been visiting the Parkway. And the number of homeless campers in the greater Sacramento area has increased by 20 percent. ■

SAVE OUR PARKS. PLEASE DON'T LITTER.



Save the American River Association

*Guardians of the American River
and Parkway since 1961*

**This trash can is brought to you by Waste Management and
Save the American River Association.**

McCloud

Continued from Page 6

Shasta Dam, 600 feet in height, was completed in 1945 without any ladders for fish passage. It backed up waters of the Sacramento and Pit Rivers and 26 miles of the McCloud River, devastating salmon populations above the dam.

The Winnemen Wintu name means “middle water people” which is a reference to the McCloud, according to the tribe’s spiritual leader, Caleen Sisk. “The river and our salmon – winter-run Chinook – define our existence, shape our spiritual practices and provided us with food for millennia,” Sisk said. “Because of this connection, Shasta Dam looms over the river – and our tribe – as an ongoing threat.”

Before Shasta Dam was completed, the federal government recognized that Native Americans would lose homeland, burial sites and food resources. Congress passed the Central Valley Project Indian Lands Acquisition Act directing federal agencies to compensate the Winnemen Wintu for their losses. Eighty years later, no compensation has been given to the tribe.

Westlands Water District in the San Joaquin Valley has led efforts for years to raise Shasta Dam to provide more water for Central Valley interests. Once Westlands lobbyist, David Bernhardt, was appointed Interior Secretary in the Trump Administration, efforts got underway to raise the dam.

But now President Joe Biden has replaced Bernhardt with Deb Haaland, the first Native American to hold the post. That has given Native Americans around the nation new hope that there will be efforts to address their long-neglected issues.

Haaland “has an opportunity to point the federal government toward justice for the river and my people,” said Caleen Sisk.

On American Rivers list of ten most endangered rivers, there are two more in the West. The Snake River in Idaho, Oregon and Washington, and the Pecos River in New Mexico. ■

Golden Poppies Grace California

In 1816 or 1820, depending on which source you consult, a naturalist and member of the Prussian Academy of Scientists named Adelbert Von Chamisso sailed into San Francisco Bay aboard the Russian ship *Rurik*.

The rolling hills around the Bay were ablaze with golden blooms and Von Chamisso immediately set out to investigate the plant that would eventually become California’s official state flower. He wrote the first description of the plant we now call the Golden Poppy. But he named it *Eschscholtzia californica* in honor of the ship’s physician, Johann Friedrich Eschscholtz.

Over the years, the plant was given other names including *La Amapola* (flame thrower) and *Copa de Oro* (cup of gold). But early American settlers began calling it the Golden Poppy and legislation making it California’s official state flower was signed by Gov. George Pardee in 1903.

Research by botanist Francis Lloyd found that Native Americans in California “ate the herbage, either boiling or roasting it and then putting it in water. It makes a drug like morphine and was used for

headache and insomnia.” Golden Poppy seed also was ground for flour. Poppy oil, derived from seeds, is used in cooking. The oil also is used today in paints, varnishes and soaps.

Golden Poppies range from Southern California to southern Washington State. In most California counties, they are seen from February to September and are most common on grassy slopes, open meadows or in cultivated gardens. They grow to a height of 8-to-24 inches and blossoms are cup-shaped measuring 2-to-3 inches. The coloring is deep orange or yellow orange. Some are yellow at the tips and orange at the base.

The flowers close at night and on cloudy days. Their spicy fragrance attracts beetles which serve as pollinators. Flowers produced early in the season tend to larger than those that bloom later on.

The California Poppy Reserve is located in the Antelope Valley on 1,745 acres west of Lancaster in Northern Los Angeles County. It is open to the public. April 6 has been designated as California Poppy Day and May 13-to-18 is Poppy Week. ■



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