SAVE THE AMERICAN RIVER ASSOCIATION

RiverWatch

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Sacramento's stormwater system is aging

this issue

Major Fish Kill Below Shasta Dam

BY CLYDE MACDONALD

There are a number of distinct species of Salmon in California. The most endangered is the winter-run, which spawns (lays its eggs) in winter. These fish were listed as endangered in 1994.

These fish require cool water for spawning and rearing. Mostly, these fish need water that is 56 degrees or less. Warmer temperatures are a problem for salmon because their metabolism goes up with temperature (requiring more oxygen), but the oxygen concentration in the water goes down as the temperature increases. Disease is also a problem with warmer water temperatures.

Shasta Dam, which is on the Sacramento River above Redding, was completed in 1945. The federal Bureau of Reclamation operates the dam as a part of the multi-dam Central Valley Project.

The dam blocked salmon from traveling upstream to the spawning grounds above damsite. Today, the fish either spawn in the areas just below

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Sacramentans to Vote for a Fee Increase To Repair the City's Decrepit Stormwater System

BY STEPHEN GREEN

City of Sacramento residence and business owners will receive a mailed ballot in mid-February asking them to vote on a measure to increase utility fees to fund repairs and upgrades to the city's aging and deteriorating stormwater system.

The city's storm drain system is up to 100 years old. Levees, pipes and pumps are deteriorating. Without repairs or improvements, there is increased risk of polluting rivers and creeks, and of flooding many neighborhoods during severe storms.

In many neighborhoods, including downtown, there is a "combined system" that transports both storm water and sewage to the treatment plant. When overflows occur, the polluted water threatens the health of people and animals, and can contaminate homes and businesses.

During the heavy rains last December and in early January, overflows occurred throughout the city. Save the American River Association has been testing water in the Lower American River and found increased and unsafe levels of contamination during the rainy periods.

The utility fee increase would provide funds to:

- Protect drinking water and supplies.
- Keep trash, pesticides and harmful chemicals out of rivers and creeks.
- Prevent sewage and human waste from overflowing onto neighborhood streets.
- Provide safe, clean water during future droughts and emergencies
- Replace aging and deteriorating pumps that prevent flooding.
- Repair aging water pipelines and infrastructure.

The city's last utility fee increase was in 1996. City officials calculated that most single-family homeowners would see their utility bill increase by about $6

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Stormwater

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per month. The cost would vary for properties smaller than one-tenth of an acre or larger than a quarter acre. Income-eligible customers may qualify for utility bill assistance.

Bills for the fees could be directly sent to tenants, subject to local and lease limitations. Industrial and commercial property owners would pay their share based on estimated surface area of their properties.

Without repairs or improvements, there is increased risk of polluting rivers and creeks, and of flooding many neighborhoods during severe storms.

All funds raised by the fee increase would be used only for Sacramento's stormwater system and would be subject to citizen oversight and public audits.

Save the American River Association is urging Sacramento residents to vote for the fee increase. Ballots must be returned within 45 days.

More information on the fee increase can be found at:

Cityofsacramento.org/Utilities/Water-Pollution-Flood-Prevention/FAQs ■

Fish Kill

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the dam or are artificially spawned in a mitigation hatchery.

From about March to about November, the coldest water is deep in the reservoir. Some of this cold water is used to manage the temperature of the water released from the dam — as a means to protect winter-run,

In the drought and heat of 2021, there wasn't much cold water in the reservoir.

The high water temperatures in the Sacramento River last year "cooked" most of the young winter-run Chinook Salmon. An estimated 31 million eggs were laid, but only about 800,000 survived (2.6 percent), as described by state and wildlife officials in a year-end letter to the National Marine Fisheries Services.

State officials estimated that only about 100,000 will make it to the Delta because of water temperatures and predation.

So, what is the cause of these temperature problems? The weather is a big part of it: not much water in a drought and warmer air temperatures. Last spring, the bureau shipped thousands of acre feet of water to water-rights holders in the Central Valley. That greatly diminished the size of the cold-water pool as the drought persisted.

By late summer, "the hot water that came out of Shasta Dam flooded the Sacramento River and killed the majority of the winter-run," said John McManus, president of the Golden State Salmon Association which represents commercial fishers. "They knew they were going to cook the eggs. It has everything to do with water management and allocation."

Doug Obegi, an attorney for the Natural Resources Defense Council, said the fish die-off "is the inevitable consequence of draining the reservoirs early in the year, primarily for agribusiness.…It should have been prevented." Bureau officials responded that their water release plan "was developed in close coordination with federal and state fish agencies and conditionally approved by the state Water Resources Control Board."

Because the fish have a three-year life cycle, major losses in just one season could put the fish on the brink of extinction. ■

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JOHN MCMANUS
PRESIDENT OF THE GOLDEN STATE SALMON ASSOCIATION

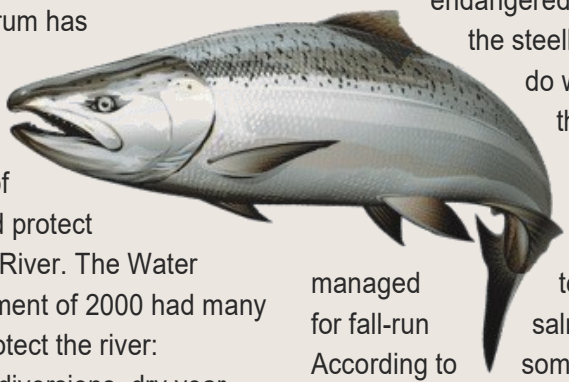
Salmon and the American River

BY CLYDE MACDONALD

The Lower American River has many species of fish, but only has one run of salmon: fall-run, which spawns in the fall and is not listed as endangered.

Fall-run salmon also need cool water, but not as cold as for Shasta's winter run. Fall-run salmon need temperatures of below about 65 degrees for good health, but can tolerate temperatures up to about 71.

SARA has been a member of the Sacramento Water Forum since 1993. The Forum has two co-equal goals: meet the water needs of the region and protect the American River. The Water Forum Agreement of 2000 had many features to protect the river: limitations on diversions, dry year cutbacks in water diversions, habitat improvement programs, and conservation programs.



In the years since the first agreement, the Forum has gotten a three-part flow standard included in federal environmental requirements (called Biological Opinions). The standard has three elements: minimum end-of-year targets for water storage in Folsom; minimum flow releases from Folsom, and a comprehensive temperature plan, which is based on the temperatures of the layers of water in Folsom Reservoir.

The Water Forum is now engaged in negotiating a second agreement. This agreement will be much more complicated than the 2000 agreement because our understanding of the system is much better and because we are including climate change, which will significantly affect water reliability, river flows, and river temperatures.

In 2021, cool water from Folsom was used in the summer and early fall to protect Steelhead Fish, which are endangered. Most likely the steelhead did not do well. In the fall, the deep cold water in the reservoir was used to managed temperatures for fall-run salmon. According to some verbal reports, this year's fall-run was a little better than last year – and not a disaster. But the reports are not in yet.

For 2022, Folsom Reservoir is doing pretty well with the big storms. Unfortunately, the big storms did not provide that much water to Oroville and Shasta Reservoirs. Given that all these reservoirs are connected by a coordinated operating agreement, we aren't out of the woods yet. So, keep conserving. ■

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.

Pass Fees Are Based On Use:

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** 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 Web site arpf.org/visit
- At REI stores in Sacramento, Roseville and Folsom
- 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 ■

For Fourth Year, CDFW Finds Zero Delta Smelt in Fall Midwater Trawl Survey

BY DAN BACHER — *From his Stockton Record column*

2021 was a very bad year for Delta smelt and other declining fish populations on the Sacramento-San Joaquin River Delta.

For the fourth year in a row, the California Dept. of Fish & Wildlife has caught zero Delta smelt in its Fall Midwater Trawl (FMWT) survey on the Sacramento-San Joaquin River Delta.

The Delta smelt, once the most abundant fish in the entire Delta Estuary, numbered in the millions before state and federal projects started exporting massive quantities of water to San Joaquin Valley agribusiness and Southern California water agencies.

Found only in the Delta, the 2-to-3-inch fish that smells like cucumber is considered an "indicator" species because it indicates the overall health of the Delta ecosystem. The FMWT 2021 sampling season began September 1 and was completed on December 16.

The survey ended just after the U.S. Fish & Wildlife Service and the California Dept. of Fish & Wildlife, along with the California Dept. of Water Resources and the U.S. Bureau of Reclamation, experimentally released 12,800 captively produced Delta smelt on December 14 and 15. The fish were raised at the University of California, Davis, Fish Conservation and Culture Laboratory in Byron, California.

The purpose of this Delta smelt project is "to benefit conservation of the species through studies of experimental release of captively produced fish into a portion of its current range," according to the service: http://owly/W2FiSOHeENQ

Delta smelt

As the hatchery-raised smelt are released into the estuary, the dramatic collapse of Delta smelt and other pelagic (open water) species continues on the Delta, the largest estuary on the West Coast of Americas.

In a December 21st memo summarizing the results of the survey, James White, CDFW environmental scientist wrote, "The 2021 abundance index for the Delta Smelt was O and was tied with 2018 through 2020 for the lowest in FMWT history. This is a continuation of a pattern of low indices that occurred in recent years."

"No Delta Smelt were collected from any stations during our survey months of September-December. An absence of Delta Smelt catch in the FMWT is consistent among other surveys in the estuary," he wrote.

However, White noted than another survey, the Enhanced Delta Smelt Monitoring (EDSM) survey of the U.S. Fish & Wildlife Service (USFW) caught 8 Delta Smelt, including 6 marked individuals – obviously from the experimental release – and 2 wild individuals, among 65 sampling days (between 9/1 and 12/17) comprised of 784 tows.

The federal survey's catch occurred on December 16 and 17, 2021. "Delta Smelt numbers are very low and below the effective detection threshold by most sampling methods," wrote White.

The Delta smelt has declined to a point of virtual extinction in the wild

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In Memoriam

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

JANET BAKER

FLORENCE BARTH

MARGARET (PEGGY) BERRY

STEVE FLANNERY

ERIC R GERSTUNG

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SGT PATRICK J LUCAS

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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.** ■

Western Pine Beetles Threaten Our Forests

It's hard to imagine that beetles the size of a grain of rice could be devastating pine forests in California. But drought and warming temperatures are enabling Western Pine Beetles to breed faster, live longer and expand their range.

Since 2010, drought conditions and beetles have killed an estimated 163 million trees statewide according to the U.S. Forest Service.

Western Pine Beetles are chewing up Ponderosa Pines in the Sierra Nevada and Coulter Pines in the Coast Range.

A recent study in the journal Global Climate Change reported that the southern Sierra Nevada has been especially hard hit. Some woodlands are being replaced by shrubs and grasslands.

As those trends continue, the outlook for increased fire danger and diminished forests in water headlands becomes more severe. Beetles are attacking trees in other areas, but damage has been greater in pine forests.

Drought is killing trees. But the weakened state of trees in dry times makes it harder for trees to resist insect attacks. Gangs of Western Pine Beetles tunnel under the bark and excavate egg galleries. In the process, they introduce a blue stain fungus into the inner bark and sapwood which interferes with water movement in the tree and reduces the tree's defenses. Sapwood decay fungi also can be introduced.

Mature beetles are only one-quarter of an inch long. They are native to California and begin attacking trees in the spring. By mid-to-late summer, another generation of beetles emerges and continues to chew trees. Then in fall, a smaller generation of beetles comes out. But in drought years, their numbers can greatly expand. The last generation will leave winter larvae in the trees which can hatch the following spring. ■

Western Pine Beetle

Double-crested Cormorants Are Strong Swimmers

Powerlines stretch across the American River downstream from the Nimbus Fish Hatchery. They are one of the favorite hangouts for Double-crested Cormorants, *Phalacrocorax auratus*. When a fish is spotted, they dive into the water and are agile enough to chase their catch along the bottom of the riverbed if necessary.

This goose-sized bird is one of six species of cormorants in North America and one of 38 species worldwide. They are black or grayish-black with orange-yellow skin on their face and throat, and measure about three feet long with a wingspan of 4.5 feet. They have a hooked bill and powerful webbed feet which make them excellent swimmers. When they emerge from water they perch on bluffs or nearby snags where they spread their wings to dry while chomping on the catch. They tend to consume about a pound of food each day.

Observers will often hear deep guttural grunts along with croaks and gargles.

The Double-crested name comes from tufted feathers on both sides of their heads that are present only during nesting season.

Cormorants do not nest until they are three-years-old. They tend to breed in colonies on cliff ledges or bluffs near water, and on ground or trees. The female make flimsy-looking nest with sticks and debris brought to the site by the male. Occasionally pebbles are found in the nest and the cormorants treat them as eggs.

The females lay two-to-seven eggs. Both parents feed the chicks and bring them water. The ground-nested chicks leave the nests in three-to-four weeks and wander through the colony, but return to the nest to feed. Their first flight occurs in five-to-six weeks and they are independent in about nine weeks.

Many of the cormorants migrate on the continent when seasons change. But on the California coast and Central Valley, they are year-around residents. They know when they've found a good place. ■

Smelt

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due to several factors, including invasive species, drought and declining water quality, but none has a bigger impact than the changes in the Delta ecosystem caused by the export of massive amounts of water to corporate agribusiness interests in the San Joaquin Valley. The indexes for other pelagic species, including striped bass, longfin smelt, threadfin shad, American shad, Sacramento splittail and Wakasagi, varied in the 2021 survey, but show a dramatic overall decline of the fish since the beginning of the survey in 1967…

I will be following the progress of the experimental reintroduction of hatchery-raised Delta smelt into the wild.

I am not optimistic about its success because of the dramatic changes in the Delta ecosystem that have been caused by water exports south of the Delta by the State Water Project and the Central Vallely Project over the decades – combined with the impacts of invasive species, toxics, declining water quality and other factors – and the apparent unwillingness of the state and federal governments to make the necessary changes in their water export and dam operations needed to save the Delta smelt and other fish populations. ■

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SAVE THE AMERICAN

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