

From: **Gordus, Andy@Wildlife** <Andy.Gordus@wildlife.ca.gov>
Date: Wed, Aug 15, 2018 at 11:20 AM
Subject: San Luis Reservoir and O'Neil Forebay – Herbicide Treatment 2018
To: Stephen Rudzinski <ssrudzinski@gmail.com>
Cc: Sam Bishop <sambishop@totlcom.com>, Lee Haskin <lee@gurglersonline.com>

Steve,

This is a follow-up to your concerns about DWR herbicide treatment at O'Neil Forebay and the striped bass population.

Striped Bass Population

I could not find any information that indicates the striped bass population is declining. Our reservoir biologist surveyed the San Luis Reservoir two years ago and he observed all size and age classes. He also informed me that bass do reproduce in the reservoir. Conversations with USBR and DWR staff, and our current and retired fisheries biologist all indicated that fish still get past the fish screens in the delta and are pumped into the forebay, because the screens are not 100% effective. Around 2005, the department collaborated with DWR, Parks and Rec and a local Fresno fishing club to install and maintain striped bass holding pens in the forebay. The local club maintained the nets and fed the juvenile fish until they were large enough to be released. This is the last known time striped bass were actively stocked into the forebay. Because bass are long lived, this cohort should still be present in the forebay. I also checked fishing reports for the past year and bass fishing seems to be fairly consistent across the year.

Herbicide Treatment

As with most herbicides, Endothall is non-toxic to aquatic animals, including fish. Pesticides inhibit intracellular enzymes. Plants and animals have significantly different intracellular enzymes, as such herbicides inhibit enzymes that are not present in animals. 2,4,5-T is one of the few herbicides that impact animals. The herbicide itself was not toxic to animals, but during the synthesis of the chemical during production, there was secondary reaction that produced trace levels of dioxin, which is the most toxic toxicant known to humans. 2,4,5-T is commonly known as agent orange and has been illegal in the US for decades.

I met with DWR staff last week (Aug 7, 2018) at the reservoir. The treatment occurs annually in June along a narrow stretch on the west side of the forebay and they do not treat the main reservoir. They treat approximately 6% of the volume and 2% of the water surface area. Attached is a map of the treated area. DWR has to be very cautious as to what chemical they use, and where and when they treat because this water is used for human drinking water consumption downstream from the reservoir. In 2018, they did not treat the canal area near the pumps. The two primary reasons why

they treat submergent aquatic plants is 1) to prevent plants from clogging the pumps at the dam and 2) Park and Rec requests treatment for public water recreational use, primarily swimming areas. The treatment is not 100% effective as we observed patches of submergent aquatic plants within the treated area during our visit. Also emergent aquatic vegetation (cattails, tules, rush) exist along the shoreline which provides fish habitat. There was some blue-green algae patches present, but overall, visual water conditions on the west side looked good.

Harmful Algal Blooms (HAB)

On the east side of the forebay we observed large scum mats of blue-green algae (cyanobacteria), with a strong odor along the entire eastern shoreline. This area did not look very appealing for public use at this time.

We also visited the Basalt boat ramp on the reservoir. This is the location where water samples are collected for algal toxin analysis. The water looked like “pea soup” with the water having long green strings and clumps of blue-green algae. Last week, DWR issued a public health warning not to touch the water or eat the fish from the reservoir. The forebay has also been tested for algal toxins and concentrations have not reached public health concerns. However, concentrations could affect fish, as fish would avoid toxin areas, plus blue-green algae can impact dissolved oxygen (DO) and again fish would avoid low DO areas.

HAB’s have become a common issue across most of our reservoirs throughout the region, state and country. Our summers are longer and hotter, with warm temperatures beginning earlier in the year and extending longer into the fall. The 5-year drought also impacted our reservoirs with little to no water to fill and flush the reservoirs each winter/spring. Add in nutrient loading and conditions are just right for HAB. Some years we will have a serious HAB, with toxin production resulting in a fish and wildlife die-off. Other years we can still have a serious HAB with no toxin production, but still loose fish to low DO. As such, HAB’s can cause a fish die-off because of toxin production and/or cause low DO. To date, we have not observed or received reports about any fish die-offs at the reservoir or the forebay.

Below is the California Water Quality Monitoring Council HAB web page that provides algal toxin information throughout the state, including San Luis Reservoir.

https://mywaterquality.ca.gov/habs/where/freshwater_events.html

Enforcement

It is my understanding our wardens have already contacted you about poaching concerns at the reservoir.

During our telephone conversation, you indicated your group traditionally fishes at the forebay during October. As mentioned above about longer hot summers and increased HAB's, I suggest delaying your trips to November or possibly early December, well after temperatures cool and after HAB's have die-off and algal toxins are no longer present. Toxins can exist well over a month after temperatures cool. This occurs because as the cells die, they lyse and release toxins well after they die.

If you have any further questions, please do not hesitate to contact me.

Andy

<https://www.wildlife.ca.gov/Science-Institute/Featured-Scientist/Tag/andrew-gordus>

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