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## *Green sturgeon numbers on the rise? Time will tell...*



(images/1greensturgeon.JPG)

*Green sturgeon. Photo Credit: NOAA Fisheries*

“But my gut feeling is that the adult population is increasing and, being cautiously optimistic, production may also start to increase with improvements to spawning habitat accessibility.”

— Joe Heublein, *Green Sturgeon Recovery Coordinator, NOAA*

*By Steve Martarano*

August 16, 2016

**Green sturgeon is a rarity these days** for a fish species found in the San Joaquin-Sacramento Delta – because its numbers could be increasing.

While high-profile Delta species such as Delta smelt and winter-run Chinook salmon are at record lows and facing possible extinction, that doesn't seem to be the case with Sacramento River green sturgeon – listed as threatened by the National Oceanic and Atmospheric Administration (NOAA) under the Endangered Species Act in 2006.

Recent efforts to assist green sturgeon appear to be helping. Whether the increase marks a long-term trend is to be determined.



(images/7sturgeon-Lodi.jpg)

*Green Sturgeon. Credit: David Dominguez/USFWS*

Data collected through the month of June from U.S. Fish and Wildlife Service's rotary-screw trap surveys at the Red Bluff Diversion Dam (RBDD) showed a juvenile green sturgeon 2016 Relative Abundance Index – which measures catch per unit volume – at an all-time high for the survey at over 30 fish per acre-feet of water volume sampled.

This represents a 34 percent increase from the previous high in 2011. For comparison, the 2015 index was 3.3 fish per acre-feet.

“The green sturgeon [adult] run in the Sacramento River has been surveyed since 2010, and that's the only real abundance information we have so it's very hard to say if this indicates the population segment is definitely turning the corner.” said NOAA's green sturgeon recovery coordinator **Joe Heublein**. “But my gut feeling is that the adult population is increasing and, being cautiously optimistic, production may also start to increase with improvements to spawning habitat accessibility.”



(images/6RedBluff-Salmon-count.jpg)

*Rotary screw trap at the Red Bluff Diversion Dam. Credit: Steve Martarano/USFWS*

**One of the only sources of sturgeon production data**, the Red Bluff Fish and Wildlife Office's Sacramento River Juvenile Fish Monitoring program is a seven-day per week operation that utilizes four rotary screw traps located at the base of the dam. The primary objectives of the project are to obtain abundance data for all runs of Chinook Salmon and Steelhead passing through the dam site, as

well as to gather relative abundance and trend information for juvenile green sturgeon and Pacific lamprey. The project has been in operation and collecting data since 1995.



(images/2JoeHeublein.JPG)

NOAA's Joe Heublein with white sturgeon. Credit:

NOAA

Fisheries

Trends in abundance for green sturgeon have shown high variability for a variety of reasons, but with better precipitation levels in 2016, adults appear to have responded favorably in terms of juvenile production. The Southern Distinct Population Segment of green sturgeon, which includes the Sacramento River population, was included as one of the species covered under NOAA's 2009 OCAP Biological Opinion for the Federal Central Valley Project and California State Water Project.

As part of the Reasonable Prudent Alternative (RPA) to keep Green Sturgeon from extinction, several actions were identified per the Biological Opinion to reduce impacts to the population. In addition, since their numbers started to decline in the early 1990s, restrictions were imposed on both the recreational and commercial catch of Southern Distinct Population Segment of green sturgeon and since the federal listing in 2006, all harvest has been prohibited.

**Green sturgeon juvenile yearly abundance has been up and down** – mostly down – since the survey started in 1995, but the latest numbers for the anadromous species has attracted the attention of scientists with USFWS and NOAA who are exploring possible reasons for the large increase this year.

One of those improvements noted by NOAA's Heublein appears to be that adult green sturgeon are now able to spawn as a group again in the prime spawning grounds above Red Bluff.

Prior to 1967, green sturgeon adults were able to reach the prime spawning grounds in the Sacramento River above Red Bluff. From 1967 to 1988, however, nearly all green sturgeon adults were blocked at Red Bluff due to the construction and year-round operation of the Red Bluff Diversion

Dam. From 1988-2011, the dam became a part-time operation with the underflow gates of the dam being raised for varying amounts of time to allow for free passage of green sturgeon, salmon and steelhead and then lowered to divert water to farmers.

This part-time dam operation meant that early arriving adult green sturgeon on their way to the spawning grounds made it past the dam with the gates raised while later arriving Green Sturgeon were blocked when the gates were lowered and thus the spawning population was split, said **Bill Poytress**, a fish biologist with the Service's Red Bluff office.



(images/4Poytress.jpg)

*USFWS' Bill Poytress at Red Bluff Diversion Dam. Credit: Steve Martarano/USFWS*

**During this part-time operation the dam blocked up to 35 percent** of green sturgeon and also delayed an estimated 15 percent of winter-run salmon and 70 percent of spring-run salmon from their upstream migration to their prime spawning grounds. Beginning in 2012, the gates were raised permanently, allowing for free passage of all fish after a new water pumping plant with juvenile fish screens was built to deliver water to farmers.

"We're now starting to see the effects to green sturgeon because of those actions," Poytress said.

Heublein agrees that raising the gates should be a factor to improved abundance moving forward, and he attributed the recent increases to catch restrictions and increased 2016 precipitation, which increased flows on the Sacramento River. He said that permanently raising the diversion dam gates meant some of the larvae captured in the screw traps in 2016 may have been produced in areas that were historically inundated by Lake Red Bluff and inaccessible to spawning sturgeon.

What does the recent data mean for long-term prospects for green sturgeon?

"Given that it takes sturgeon 15-plus years to mature, I don't think we'll see a significant effect from the year round raising of the Red Bluff Diversion Dam gates on the adult green sturgeon population for another 10 more years," Heublein said.

*Steve Martarano is the public affairs officer for the San Francisco Bay-Delta Fish and Wildlife Office located in Sacramento, Calif.*

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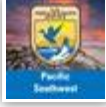
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