

# **Supplemental Correspondence**

## **Exhibit (B)**

**Public Correspondence received after  
January 23, 2020**



## **2019 LOWER COLUMBIA RIVER WHITE STURGEON POPULATION AND FISHERIES**

### **Top Five Key Issues:**

1. There is a lack of specific conservation management criteria for White Sturgeon, especially older females.
2. Water flow and temperature are already likely to be a limiting factor in spawning success.
3. Warm temperatures during white sturgeon juvenile rearing (post spawn) may also be limiting.
4. The immediate and cumulative effect of sport and commercial harvest on white sturgeon population health is unknown.
5. Is the encounter rate in the White Sturgeon fishery on ESA-listed Green Sturgeon within limits and not a factor in their recovery?

**A summary of the rationale behind these top five key issues follows, below.**



## Memorandum to the Oregon Fish and Wildlife Commission

### 2020 Columbia River White Sturgeon Management and Conservation

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Effective conservation management for white sturgeon in the Columbia River below Bonneville Dam, and for those above that dam, depend on biological information that is not provided to Commission by staff.

Issue No. 1: A lack of specific conservation management criteria for White Sturgeon

Solution No. 1:

- A. Establish population criterion based on adult female sturgeon including older and larger females.
- B. Quantify the amount of suitable spawning habitat available for sturgeon in the lower Columbia
- C. Identify water temperature and flow criteria necessary to provide successful spawning and rearing

Discussion:

Without this biological information it is impossible to develop a white sturgeon conservation plan. The previous conservation plan adopted by the Oregon and Washington Commissions was inadequate to sustain sturgeon reproductive success.

According to ODFW the juvenile and adult population structure is low - below the 60% conservation status target. Relevant statements in literature<sup>1</sup> from the Fraser River, BC for female white sturgeon:

“A female sturgeon that is 2 meters (6.5 feet) in length can release 400,000 eggs, whereas larger females can release upwards of 4 million.

“Females take longer to reach maturity and will remain juveniles until approximately 160-170 cm in length (5.2 to 5.5 feet), which is about 25-30 years of age,

“Female sturgeon spawn infrequently, with as many as 9-12 years between spawning events for older fish. Younger females may spawn more frequently (perhaps 3-6 years between events)

“Spawning occurs in the late spring and early summer (typically in June).

“We do know that old female sturgeon can grow many eggs (over 4 million eggs in a single spawning) ...that young females will grow only a fraction of this (perhaps only a few hundred thousand eggs). Large adult female sturgeon are the most important... for population growth.”

Comment: It takes 2.5 to 3 decades to produce a female spawner, so overharvest of juvenile sturgeon can reduce the number of female spawners and interfere with spawner abundance and reproductive success. Older females are more productive than young females, producing over 4 million eggs compared to a few

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<sup>1</sup> <https://hsbc.frasersturgeon.com/rhspsc/Lesson1/Articles/Article1.pdf>



hundred thousand eggs from young females. Therefore, if the goal is to increase the number of sturgeon, it is important to have a population structure that includes large females.

“Large adult female sturgeon are the most important white sturgeon for population growth.”

ODFW and WDFW should set a conservation plan that sets a target number of large female sturgeon.

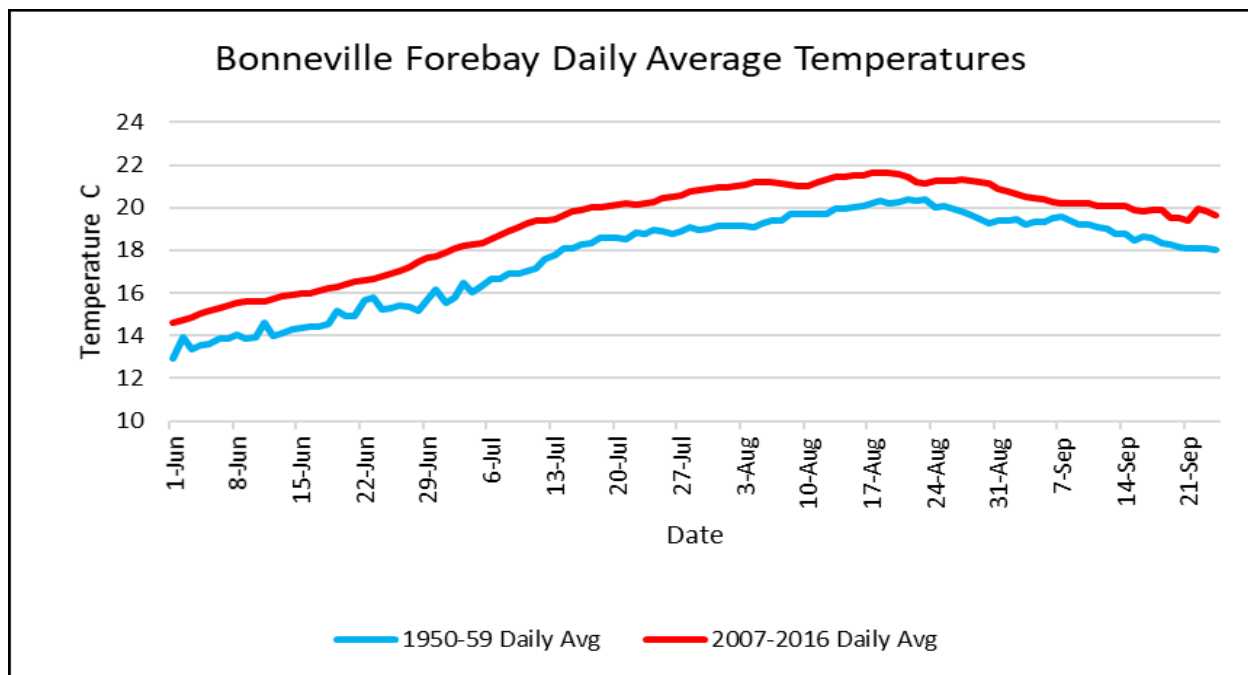
Issue No. 2: Water flow and temperature are already likely to be a limiting factor:

Is water temperature in the Columbia River interfering with white sturgeon spawning success?

“In order to spawn successfully, white sturgeon must find a part of the river that is the correct depth and has proper flow.”

“The water temperature must be between 14 and 18 degrees Celsius (57 – 64.4 F). Without proper depth, flow, or temperature, success of spawning is greatly reduced.”

Comment: The Columbia River is warming and the current water temperature in late June, at the end of June spawning periods, has increased since 1950 so that on the first of June the water temperature is 57F and by June 15th it is 60.8F. By June 29th the Columbia River below Bonneville Dam is 64.4F. In 1950-59 the June 29th temperature was 60.8F. – therefore, the spawning time temperature in the Columbia River is increasing due to development and climate change and has become a limitation of white sturgeon reproductive success. Increasing water temperatures must be accounted for in the development of a successful white sturgeon conservation plan.



The presence of warming water during the period when white sturgeon spawn in June should be addressed as a climate change issue given the increasing temperature from the 1950s to present day. With warming water and lower flows, sturgeon reproductive success is likely to continue to be poor - thus

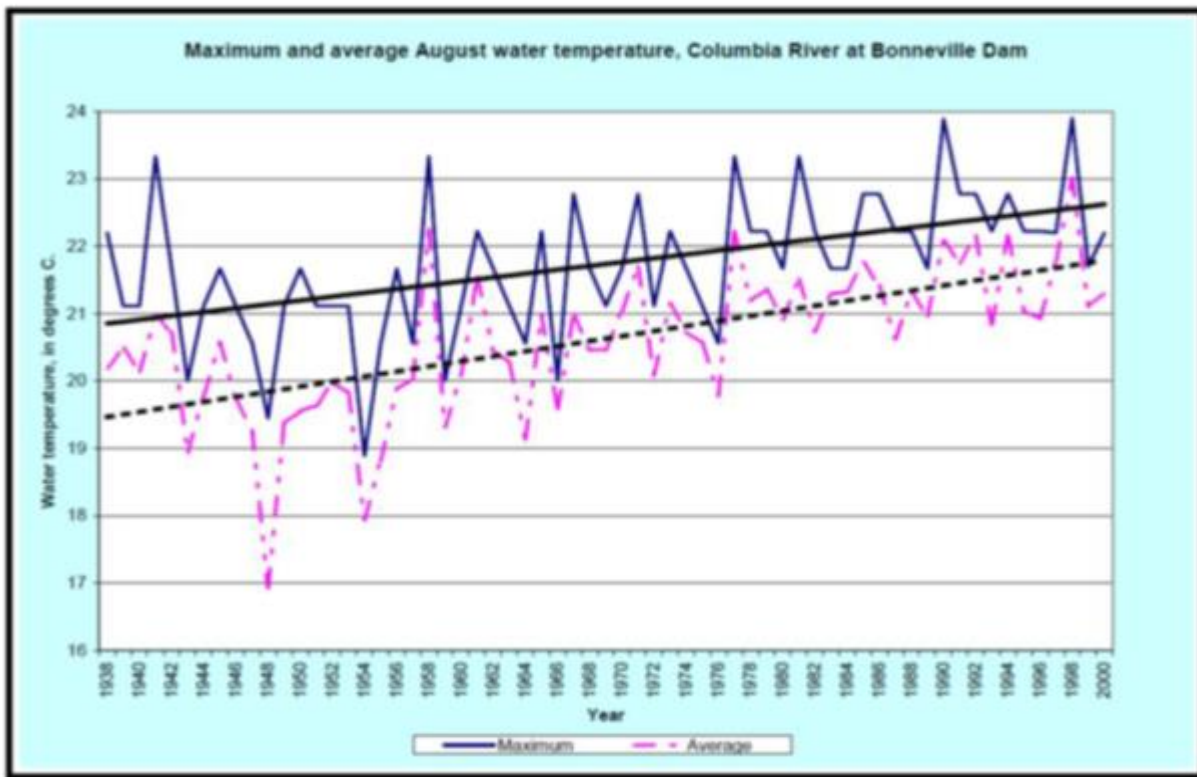
ambitions to kill more sturgeon in the sport fishery should be re-considered and a shift to actual conservation management related to climate change, that results in increasing successful breeding of largest females (more eggs), and a focus on rebuilding large sturgeon spawner abundance.

Lastly, removal of Snake River dams to improve cool water flows in the mid-Columbia must be considered part of the long-term management. According to the EPA CWR 2019, the lower Columbia will become a lethal migration corridor for salmon as soon as 2040 and it will affect sturgeon as well. The warm water in 2015 should have been a wake-up call regarding emerging conditions.

As stated in the EPA Cold Water Refugia Draft Report released in October, 2019:

"August mean temperatures in the Lower Columbia River are projected to increase from near 22°C currently to near 23°C in 2040 and near 24°C in 2080. August mean temperatures in the 23-24°C range would likely result in a significant amount of lethality to migrating adult salmon and steelhead. It is therefore likely that fewer salmon and steelhead will migrate in the Lower Columbia River during mid-July through August in the future under these warming trends, resulting in a change in the timing of salmon and steelhead runs."

These August temperature readings at Bonneville Dam indicate an increasing warming of the river in June that may well limit sturgeon spawning success.



Comment: Warm Temperatures during white sturgeon juvenile rearing may also be limiting.

In the ODFW report, it is unclear if staff analyzes or reports on the optimal temperature range for the newly spawned sturgeon juveniles. If June is the end of spawning and the CR waters keep warming



through July and August, there is a high likelihood that the warming waters impact the survival and productivity of the newly emergent sturgeon - even if adult spawning success is good throughout the spring spawning period.

We could not find any literature on juvenile white sturgeon and their survival when exposed to warm water influences during juvenile rearing. The literature from Fraser River (BC) did not mention this issue, but then the Fraser does not have any mainstem dams. The question of temperature effects on rearing juveniles and on adults is a key point, and without that information the ODFW plan would be incomplete. As in the Fraser, there are probably a small number of old large females in the Columbia that produce the most eggs. This information should be collected and analyzed by staff.

Comment: What is the effect of sport fishing harvest on white sturgeon population health?

The sport and commercial kill fishery was closed from 2014 – 2016 due to low adult and juvenile abundance. According to the report, the 2019 kill fishery for sport and commercial fisheries harvested 4,723 fish. The conservation threshold for adults is 9,250 fish. As the status of juveniles is low, it is likely indicating a “productivity issue.”

At the time of the closure, catch and release angling was allowed – and angler use declined by 94%. White sturgeon mortality information in a catch and release fishery was not provided, and the biological support and rationale for a conservation threshold of 9,250 adult sturgeon was not provided to the Commission.

Finally, another issue that must be addressed is the encounter rate in the White Sturgeon fishery on ESA-listed Green Sturgeon.

### **Conclusion:**

Reproductive failure has been the management outcome in the past resulting in a closed fishery. Management is not managing the resource in order to keep all “the parts” of the white sturgeon life history and genetic diversity that contribute to a productive, resilient and diverse white sturgeon population because the agency improperly seeks to meet or balance its “use and enjoyment” obligation before it meets its “prevent the serious depletion” conservation mission.

What we have now is a reproduction problem for sturgeon, yet the agency is trying to justify a fishery. The previous sturgeon plan was a failure for the same reasons and the new plan will make the same mistakes unless the commission chooses to elevate conservation over user group's satisfaction and agency culture. It appears that ODFW is more concerned about angler participation than it is in establishing criteria for sustainable sturgeon productivity.

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