

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

2023 Strawberry Creek Weir Summary

The Wisconsin Department of Natural Resources (DNR) operates three salmon and trout egg collection facilities on Lake Michigan tributaries, including the Strawberry Creek Salmon Spawning Facility, or Strawberry Creek Weir (SCW) discussed herein. SCW is in Sturgeon Bay, Wisconsin in Door County and has been in operation since the early 1970s. SCW is the DNR's primary egg collection facility for Chinook salmon *Oncorhynchus tshawytscha* and typically provides the entire egg quota needed by the DNR to produce Chinook salmon for stocking into Lake Michigan.

This basic report summarizes the number of fish processed at SCW during 2023. Please note that these numbers cannot be interpreted as absolute numbers of fish returned. Many variables impact these spawning runs, including stream flow, lake level, water temperature, stocking numbers, survival, harvest, dates of operation for each weir, etc. These factors vary from year to year and can impact the number of fish available and processed at each egg collection facility. Egg collection goals also vary from year to year, depending on projected stocking quotas, DNR production needs, and egg requests from other states or agencies.

Spring 2023 Strawberry Creek

Approximately 111,920 Chinook salmon fingerlings from the Wild Rose State Fish Hatchery were stocked into a rearing pond at SCW on April 17, 2023. These Chinooks were reared in the pond for about five weeks and released on May 23, 2023. Rearing activities included feeding twice daily, monitoring water conditions (i.e., temperature, dissolved oxygen) and routine maintenance. Screens were pulled on the downstream end of the pond on May 23, and the pond was seined twice on May 30 to push the last of the fish out of the pond. All Chinooks stocked at SCW in 2023 had adipose fin clips. Additionally, both ventral fins were clipped on about 30,000 Chinooks stocked at SCW in 2023 for future age assignments.

Autumn 2023 Strawberry Creek

SCW was operated for Chinook salmon spawning from Sept. 29 to Oct. 18, 2023. The weir was open and fishing for 19 nights. Specific processing dates for egg and data collections were Oct. 2, 5, 9, 12, 16 and 19. The number of Chinook salmon processed for data each day were 654, 574, 924, 581, 495 and 236, respectively (a total of 3,464). In addition to the 3,464 spawning Chinook salmon processed for data, another 493 mortalities were removed from the pond and tallied at SCW during 2023 (a total of 3,957). This number of Chinook (3,957) is below the long-term average of 4,609 (Figure 1). Overall, 650 female Chinooks were spawned, and nearly 3.5 million eggs were collected (Table 1). The Chinook eggs were transferred to Wild Rose State Fish Hatchery, where they were incubated, hatched and raised until the following spring for stocking into several Lake Michigan tributaries.

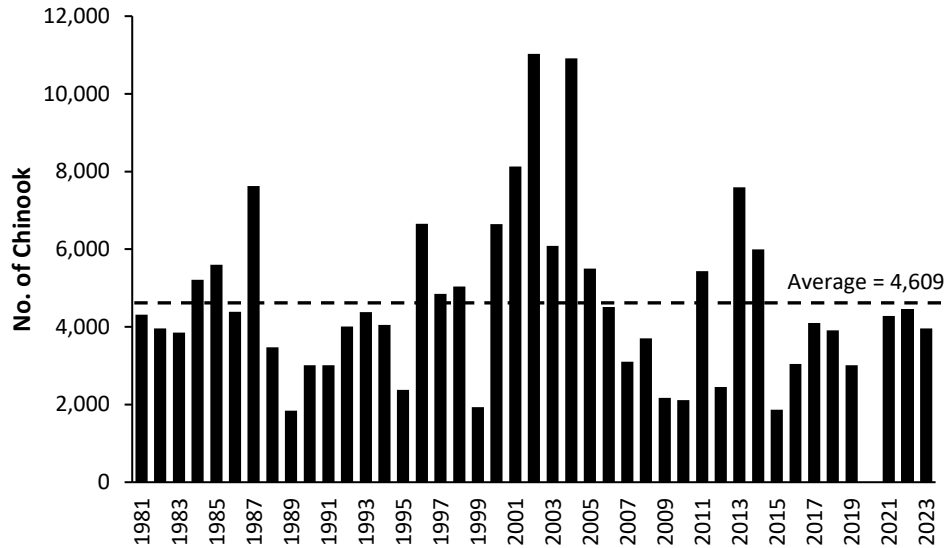


Figure 1. Numbers of Chinook salmon handled during autumn spawning operations at the Strawberry Creek Weir per year from 1981-2023 (2020 data not available). The long-term average is 4,609 (dotted line). Several factors impact these numbers including stream flow from rainfall and supplemental water pumping, lake level, water temperature, stocking numbers, survival rates, dates of operation for the weir, etc.

Table 1. Numbers of Chinook salmon processed for data, females spawned, eggs collected and average number of eggs per female at Strawberry Creek Weir during autumn 2023. (Note: All fish were not always removed from the pond each day, and instead fish were sometimes processed at a later date).

Date	Chinooks Processed	Females Spawned	Eggs Collected	Avg. Eggs Per Female
Oct. 2, 2022	654	0	0	--
Oct. 5, 2022	574	79	375,254	4,750
Oct. 9, 2022	924	114	561,314	4,924
Oct. 12, 2022	581	180	991,082	5,506
Oct. 16, 2022	495	179	1,032,969	5,771
Oct. 19, 2022	236	95	538,332	5,493
Total	3,464*	650	3,498,951	5,289

*An additional 493 Chinooks were removed from the pond and stream and were just tallied from Sept. 29 to Oct. 21 (3,464 processed + 493 tallied = 3,957 total).

Almost all Chinook salmon at SCW were processed for data, including total length (mm), weight (kg), sex, lamprey scars and fin clips. Fish health veterinarians also collected samples from a subsample of fish. The total length for all Chinooks ranged from 11.1 to 42.8 inches (average = 32.8 inches) and ranged in weight from 0.6 to 29.5 pounds (averaged 12.8 pounds). A total of 2,013 males were sampled and ranged in total length from 11.1 to 42.8 inches (average = 32.2 inches) and in weight from 0.6 to 26.5 pounds (average = 11.6 pounds). A total of 1,451 females were sampled and ranged in total length from 18.7 to 41.9 inches (average = 33.5 inches) and in weight from 6.5 to 29.5 pounds (average = 13.9 pounds). The average weight of age-3 female Chinooks in 2023 was 18.0 pounds (N=346) based on known age-3 fish from fin clips at Strawberry Creek (Figure 2).

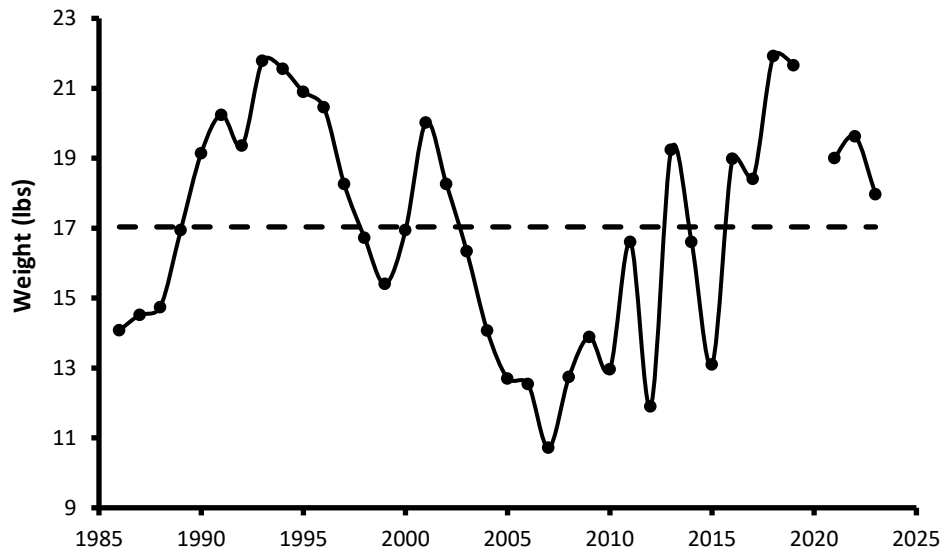


Figure 2. The average weight of age-3 female Chinook salmon processed at the Strawberry Creek Weir per year from 1986-2023 (2020 data not available). The long-term average is 17 pounds (dotted line). Many factors impact Chinook size including alewife biomass, Chinook abundance and the ratio of predator/prey (etc.).

A water pump powered by a diesel engine was operated continuously to supplement stream flow at SCW from Sept. 29 to Oct. 18, 2023. The water level in Strawberry Creek was relatively low prior to pump operation. The pump increased flow and ensured that Chinook salmon could easily swim upstream and seemed to trigger the annual Chinook spawning run by increasing stream flows. The water pump went down due to mechanical issues sometime between the evening of Oct. 1 and the morning of Oct. 2. The mechanical issues caused the pump to stop supplying SCW with fresh cool oxygenated water, which led to increased stress and mortality of the fish that were being held at that time. All the fish in the pond on Oct. 2 were removed and the pump was repaired and running on the evening of Oct. 2.

For additional Lake Michigan fisheries information, please visit our website:
<http://dnr.wi.gov/topic/fishing/lakemichigan>

For fishing information, please visit:
<http://dnr.wi.gov/topic/fishing/lakemichigan/OutdoorReport.html>