

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

2018 Strawberry Creek Weir Summary

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Introduction

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 located in Sturgeon Bay, Wisconsin in Door County and has been in operation since the early 1970s. Strawberry Creek Weir 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 2018. 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 numbers 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 2018 Strawberry Creek Summary

Approximately 117,700 Chinook Salmon fingerlings from the Wild Rose State Fish Hatchery were stocked into a rearing pond at SCW on May 4, 2018. These Chinooks were reared in the pond for three weeks and released on May 24. Rearing activities involved feeding twice daily, monitoring conditions (e.g., temperature, dissolved oxygen) and routine maintenance. A seine net was used to direct Chinooks out of the pond and into the creek for release. The pond was seined on May 24 and again May 29, after some Chinooks remained in the pond. All Chinooks stocked lake-wide from 2011-2016 were marked with adipose fin clips and coded wire tags (CWTs). This program then shifted focus to steelhead *Oncorhynchus mykiss*. All Chinooks stocked at Strawberry Creek in 2018 still received adipose fin clips but didn't

receive CWTs. About 30,000 Chinooks stocked at Strawberry Creek in 2018 received a left ventral fin clip in addition to an adipose clip for future age assignments.

Autumn 2018 Strawberry Creek Summary

The SCW and pond were open for 21 consecutive days for Chinook Salmon spawning from Sept. 28 to Oct. 18, 2018. Specific work dates for egg and data collections were Oct. 1, 4, 8, 11, 15 and 18. This work at SCW was successful overall regarding the number of Chinook Salmon returned, the biological data collected and meeting egg collection goals.

A water pump powered by a diesel engine at the SCW was operated continuously from Sept. 28 to Oct. 18, 2018, to supplement stream flow. Even without operating the pump, plenty of standing water was available in Strawberry Creek for Chinook Salmon to easily swim upstream. This high stream water level was due in part to a high lake level, similar elevation and proximity of the SCW to Lake Michigan (< 0.5 stream miles downstream). Even with high water, operating the pump still seemed to help the Chinooks run by providing even more water and flow.

A total of 3,910 spawning Chinook Salmon were handled at SCW during 2018, with a total of 348 females spawned and over 1.9 million eggs collected (Table 1). This number (3,910) is below the long-term average of 4,682 but an increase compared to 3,047 in 2016 and 1,869 in 2015 (Figure 1). Enough Chinook eggs were collected at the SCW during 2018 to meet the DNR's hatchery production goals for planned Chinook stocking in 2019.

Almost all Chinook Salmon at the SCW were processed for data, including length (millimeters), weight (kilograms), gender, lamprey scars, fin clips and CWTs. Fish health samples were also collected from a subsample. The total length for male Chinooks ranged from 12.0 to 45.1 inches and averaged 31.9; females ranged from 24.9 to 42.2 inches and averaged 35.1. The average weight of age-3 female Chinook in 2018 was 22.4 pounds (N=205) based on known age-3 fish from CWTs collected at SCW (Figure 2).

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 2018. (Note: Every fish wasn't always removed from the pond each day, and instead fish were sometimes processed at a later date).

Date	Chinooks Processed	Females Spawned	Eggs Collected	Average Eggs Per Female
Oct. 1, 2018	244	0	0 ^a	0
Oct. 4, 2018	717	84	441,595	5,257
Oct. 8, 2018	1,322	84	476,645	5,674
Oct. 11, 2018	487	72	391,652	5,440
Oct. 15, 2018	298	60	334,468	5,574
Oct. 18, 2018	798	48	293,725	6,119
TOTALS	3,866 ^b	348	1,938,085	5,569

^a Female Chinook Salmon were still hard.

^b An additional 44 Chinook Salmon were removed from the pond and stream and just tallied from Sept. 27 to Oct. 16 (3,866 processed + 44 tallied = 3,910 total).

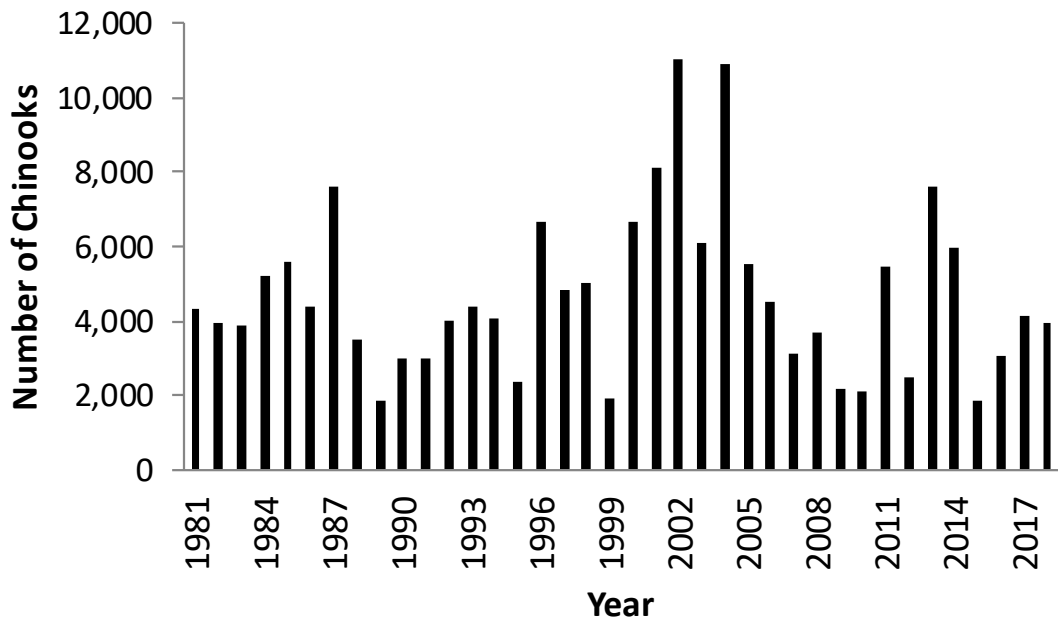


Figure 1. Numbers of Chinook Salmon handled during autumn spawning operations at the Strawberry Creek Weir per year from 1981-2018. Several factors impact these numbers including stream flow from rainfall and supplemental water pumping, lake level, water temperature, stocking numbers, survival rates and dates of operation for the weir.

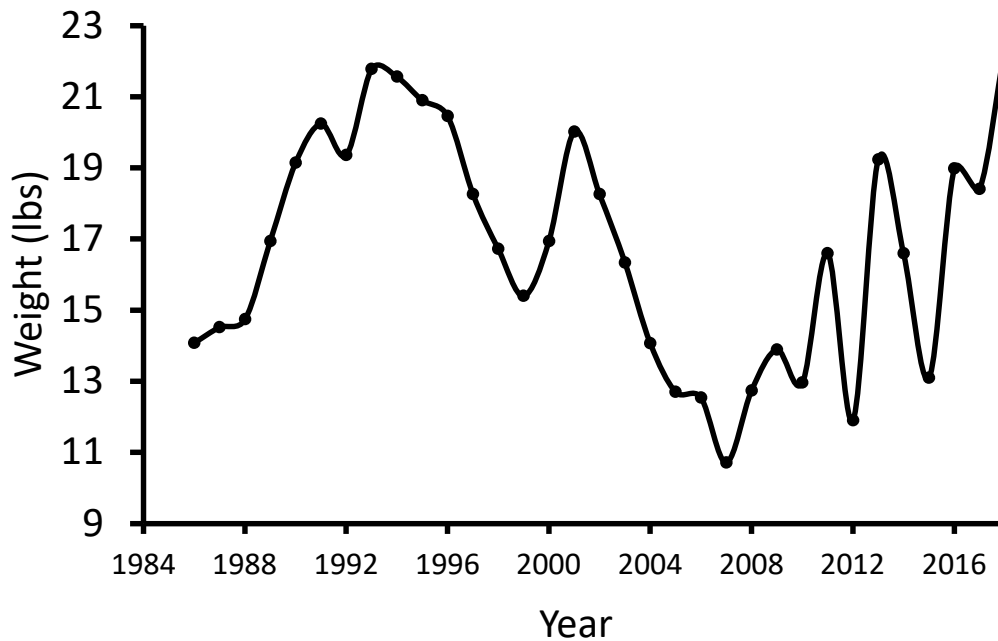


Figure 2. The average weight of age-3 female Chinook Salmon processed at the Strawberry Creek Weir per year from 1986-2018. Many factors impact Chinook size including alewife biomass, Chinook abundance and the ratio of predator to prey.

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