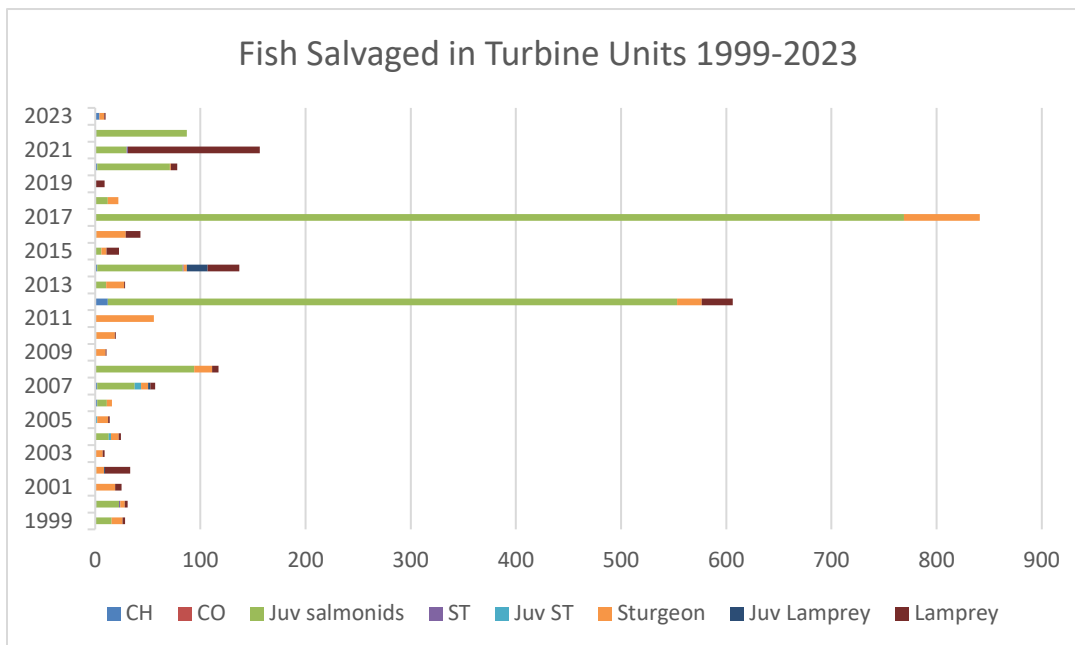


Report on Fish Salvage from Turbine Units

Included in the chart below are averages of ESA-listed and species of interest fishes salvaged from the draft tube and scroll case of BON Units per year, between 1999-2023. Fish salvage numbers were used from Annual Fish Passage Reports to obtain total counts per salvage for each species, which were used to obtain averages for each species for each year. As indicated in the graph below, the average number of fish salvaged from the draft tube and scroll case of turbine units is variable year to year, and the years with the highest numbers of fish salvaged (2017 and 2012) are associated with higher-than-average river flows within those years. It should also be noted that the number of units that are dewatered is variable year to year, and averages reported in this chart have not been adjusted to account for the number of units salvaged per year. Only ESA-listed fish species and species of interest (Pacific Lamprey and White Sturgeon) were included within this count data, other incidental species numbers are recorded in fish salvage reports but are excluded from this graph. Of the fish species listed below, juvenile salmonids and sturgeon generally make up the largest proportion of fishes salvaged from these units.



Background on Slow Roll:

Between the years 2006-2008, several mass mortalities of sturgeon were observed at Bonneville Lock and Dam, which were later associated the start-up of units that had previously been out of service leading to injury and mortality of sturgeon who sequestered within the draft tubes and scroll case when tail logs were removed. In April 2008, Bonneville Project proposed an addition to the Fish Passage Plan to slow roll units that have been idle/out of service for more than 12 hours and recommended that adjacent units be operated to flush fish prior to placing tail logs in the unit to be out of service for the purpose of better protecting sturgeon in the draft tube and turbine environment, which was approved at the January 2009 FPOM meeting (**MOC 09BON003**).

“5.4.7. From 1 December through 30 April, turbines which have been idle/out of service for more than 12 hours will be started by slow rolling the unit after manually tipping turbine blades from flat to steep back to flat.”

This change was later amended to extend slow roll procedures for sturgeon to year-round due to reprogramming of Powerhouse 1 and 2’s digital governors to be programmed for automatic slow roll at the 20 January 2012 FPP meeting (**MOC 12BON003**).

“Proposed Change: Extend slow roll procedures for sturgeon to year-round.

5.7. Turbines which have been idle/out of service for more than 12 hours will be started by slow rolling the unit after manually tipping turbine blades from flat to steep and back to flat.

6.5.2. Turbines which have been idle/out of service will be started by slow rolling the unit after manually tipping turbine blades from flat to steep and back to flat.”