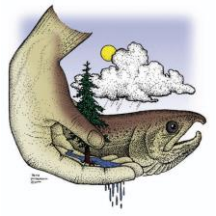

Padden Creek Smolt Trap

Data Summary

What is a smolt?

A "smolt" is one of the life stages of a juvenile salmon. This life stage occurs when the juvenile salmon begins its migration from freshwater to the estuary and adjusts to living in saltwater. Different Pacific salmon species spend different amounts of time rearing in freshwater. For example, coho salmon spend one to two years rearing in freshwater after they emerge from the gravel as fry. They reach about 2-4 inches (50-100 millimeters) in length before they begin migration to the estuary as a smolt. The timing of this movement correlates with spring freshets (high water flow from snow melt or spring rains).

What is a smolt trap?

A smolt trap is a standard tool used to quantify how many fish are moving through a water system. The trap is designed to capture juvenile fish during their spring outmigration from freshwater down to the estuary. The trap is a stream-wide V-shaped corral that points downstream. The structure funnels fish into a holding box while allowing stream flow to continue downstream. The holding box is used so fish can be safely held onsite until they are identified, counted, and released. An upstream trap is also installed to allow upstream fish passage. The traps are checked multiple times each day.

Padden Creek Smolt Trap Data:

The City of Bellingham conducted smolt trapping activities on Padden Creek, a tributary to Bellingham Bay, during the annual spring outmigration period in 2018. To our knowledge, this was this first study of this kind on Padden Creek.

Table 1 shows the total number of fish, by species, caught during the spring of 2018. Chum (*Oncorhynchus keta*) were the most abundant salmon species encountered by our trap. We also intercepted large numbers of non-native perch, which were removed from the stream system.

Figure 1 shows the number of salmonids (salmon and trout species) identified and counted each day during smolt trapping activities conducted by the City of Bellingham on Padden Creek. Stream flow is also represented in Figure 1. Outmigration of fish in Bellingham's streams tends to increase after rain events, particularly in early May. This pattern of outmigration can be seen as a bell-shaped curve centering on peak flow events with fish numbers tapering on either side of the curve. This trend arises from the fact that salmonids have adapted to using high flow rain events as an energy-saving mode of downstream transport.

For more information, please contact:
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Table 1.

2018 Padden Creek Smolt Trap Summary

Common Name	Species	Number
Chum	*Oncorhynchus keta*	7,544
Coho	*Onchorynchus kisutch*	1,085
Unknown Trout sp.	*Onchorynchus sp.*	117
Cutthroat	*Onchorynchus clarki*	76
Steelhead/ Rainbow	*Onchorynchus mykiss*	54
Three-spine stickleback	*Gasterosteus aculeatus*	29
Prickly Sculpin	*Cottus asper*	5
Pumpkinseed	*Lepomis gibbosus*	2
Blue Gill	*Lepomis macrochirus*	1
Perch	*Perca flavescens*	10,883
	TOTAL FISH	19,796
	Total Salmonids (salmon & trout)	**8,876**

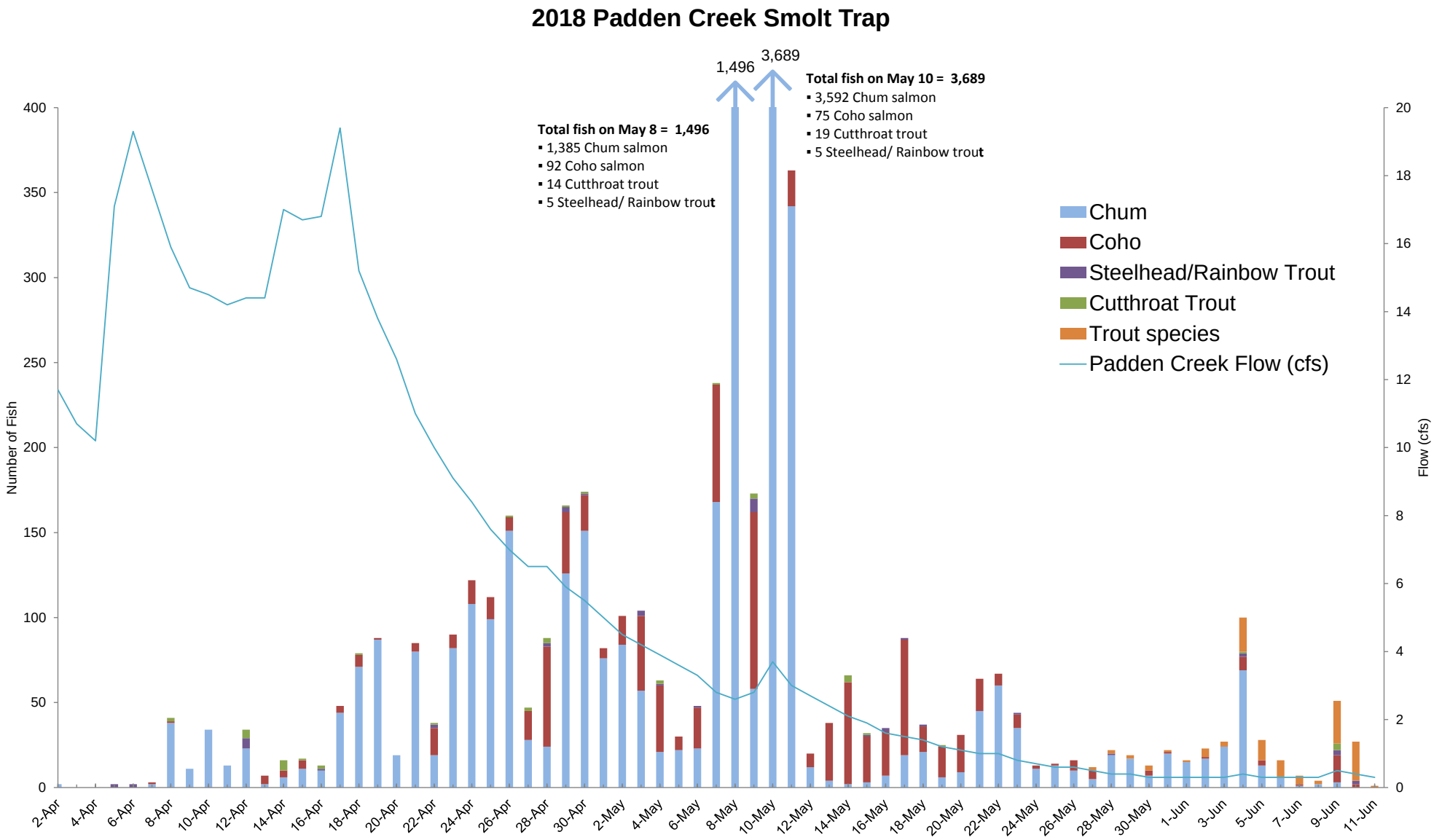

Figure 1. Daily salmonid counts during the 2018 outmigration at a smolt trap on Padden Creek in Bellingham, WA.