

# Adult Pink Salmon in the California Current System

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The southern edge of pink and chum salmon in North America extends to the Columbia River with small runs, with typically less than 100 individuals of each species returning to the Bonneville Dam each year. Trawl surveys conducted in the summer of 2011 revealed the presence of adult pink salmon off the southern Oregon and northern California coasts (see Fig 1).

Genetic Region	Odd Year	Even Year
Puget Sound	13	0
Hood Canal	1	0
Thompson River	2	0
Fraser River upper	6	0
Fraser River lower	7	0
East Coast Vancouver Island	10	2
B.C. Southern Mainland	12	10
Skeena River	10	7
B.C. Central Coast	58	50
B.C. North Coast	23	22
Haida Gwaii East	2	11
Haida Gwaii North	0	4
Haida Gwaii West	0	10

Table 1. Number of odd and even year populations by regional group used in the coast wide baseline to assign stock-of-origin to the five Pink salmon caught off California.

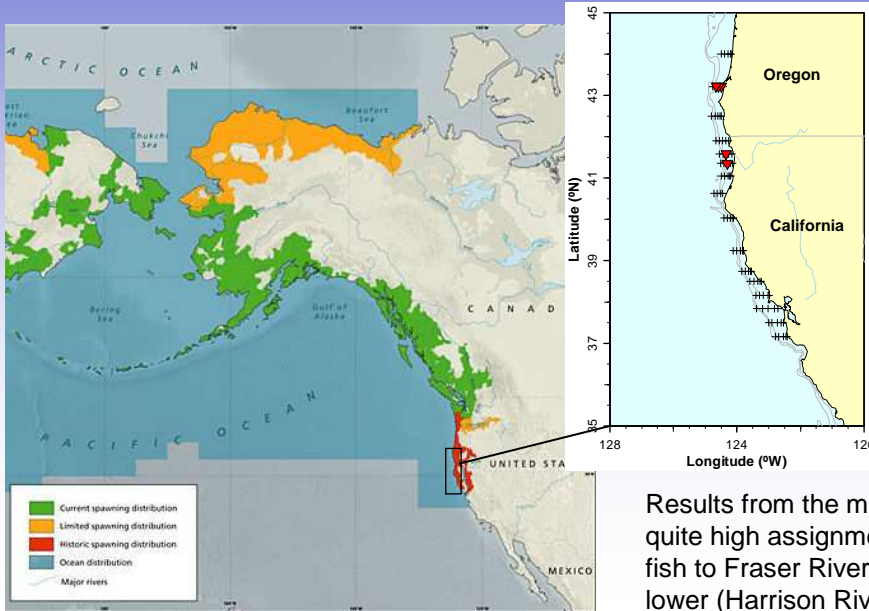


Fig 1. Range of Pink salmon along the west coast of North America from Augerot (2005). Inset shows trawl locations where Pink salmon were caught (red triangles).

It was initially thought that these fish originated from the Fraser River, as adult returns to this system have been typically above 20 million in odd years during the last decade, and the cooler temperature associated with the La Nina condition in 2011 may have pushed their landing further south than normal. To test this, we analyzed six Pink salmon for 17 microsatellite markers and compared this to a coastwide baseline of Pink salmon populations (Table 1) using the mixture analysis program ONCOR (Kalinowski et al. 2007)

Results from the mixed stock analysis using ONCOR indicated quite high assignments to individual populations, assigning two fish to Fraser River upper (Portage Creek), one to Fraser River lower (Harrison River), one to East Coast Vancouver Island (Quatse River) and one to BC North Coast (Tsamspanaknok Creek) and one fish to BC southern mainland (Kakweiken River). Individual fish assignments scattered over baseline may indicate that the source population for these six fish is not currently in the baseline. Given the anomalously high return of adult pink salmon to the Columbia River in 2011 (Fig. 3), we hypothesize that they originated from the Columbia River, and that ocean conditions they encountered during their smolt year were favourable to their survival. Extension of the microsatellite to include the Columbia River stocks will help to resolve this question.



Fig. 2  
Photo of  
Pink  
salmon  
adult  
caught off  
California

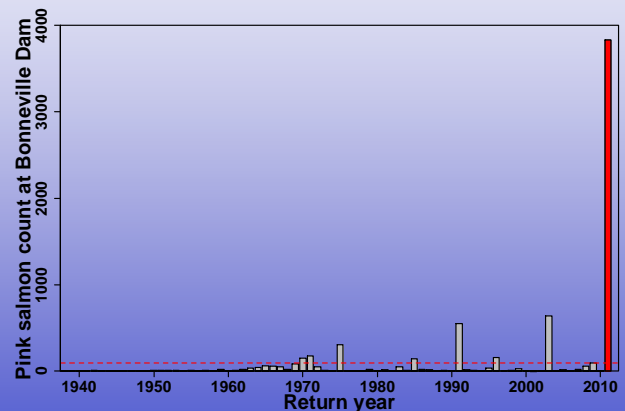


Fig 3. Passage of Pink salmon through Bonneville Dam from 1940 to 2011 Dotted line indicates mean counts across years. Data from the Fish Passage Center ([www.fpc.org](http://www.fpc.org)).

## References

Augerot, X. 2005. Atlas of Pacific salmon: The first map-based status of salmon in the North Pacific. University of California Press.

Kalinowski ST, KR Manlove, and ML Taper (2007) ONCOR: software for genetic stock identification. Montana State University, Bozeman.