

Submitted by the Alaska Department of Fish and Game

March 3, 2024

Preliminary review of Rand and Ruggerone. 2024 by the Alaska Department of Fish and Game.

Pink salmon abundance used in the analysis:

- Adult pink salmon (i.e. returning adults) estimates from Ruggerone and Irvine (2018).
- Specifically, abundance of Eastern Kamchatka and North American pink salmon from 1977 to 2015 (Fig. 1).
- In analysis abundance index includes both wild and hatchery fish (i.e. they are treated as a single unit).
- This index is about 57% of North Pacific adult pink salmon abundance (average 1977-205).
- Other major areas of pink salmon production include Western Kamchatka and Russia Mainland and Islands (i.e. Sea of Okhotsk and south)

–2015.

Wild and hatchery component of adult pink salmon abundance:

- No pink salmon hatchery releases from E. Kamchatka
- Hatchery-produced pink salmon comprise 21% of abundance index (average 2005–2015)
 - Odd years = 16%
 - Even years = 27%

Change in abundance of pink salmon (1977–1982 vs. 2010–2015):

- Biggest increase in adult pink salmon abundance is attributable to the odd-year wild component (about 200,000,000 fish increase)
- Would suggest that result of sockeye scale growth analysis is largely being driven by this component of adult pink salmon abundance for the time period being studied.

	Average Adult Pink Abundance (millions)		
	1977–1982	2010–2015	Difference
Odd-years			
Wild	157.4	364.8	207.3
Hatchery	2.68	68.75	66.1
Total	160.1	433.5	273.4
Even-years			
Wild	124.2	125.8	1.6
Hatchery	3.5	50.7	47.2
Total	127.7	176.5	48.8

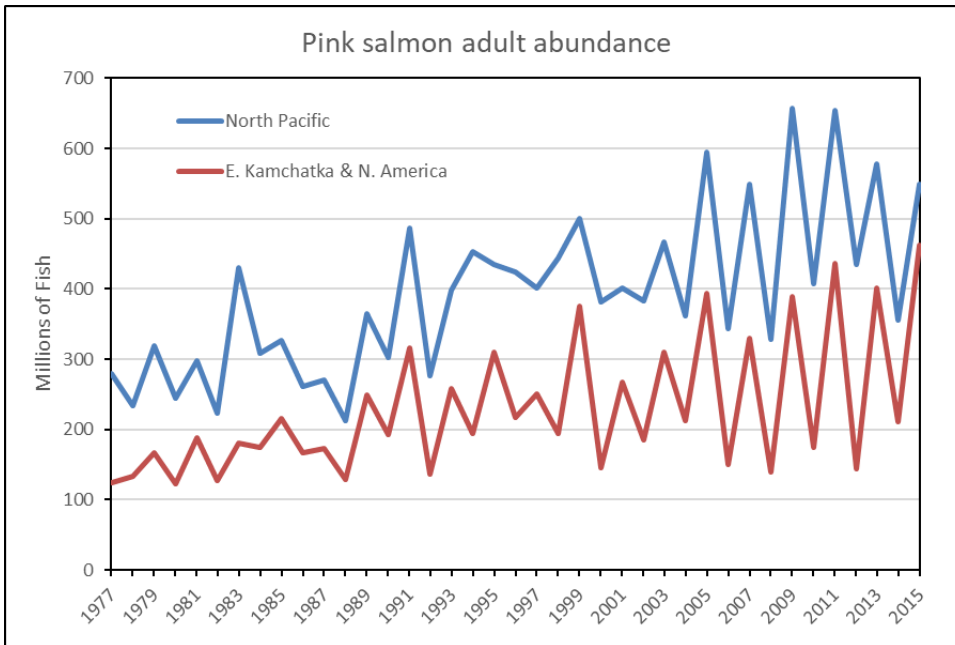


Figure 1. Total North Pacific pink salmon adult abundance estimates, and pink salmon abundance index used in Rand and Ruggerone (2024) – Eastern Kamchatka & North America, 1977

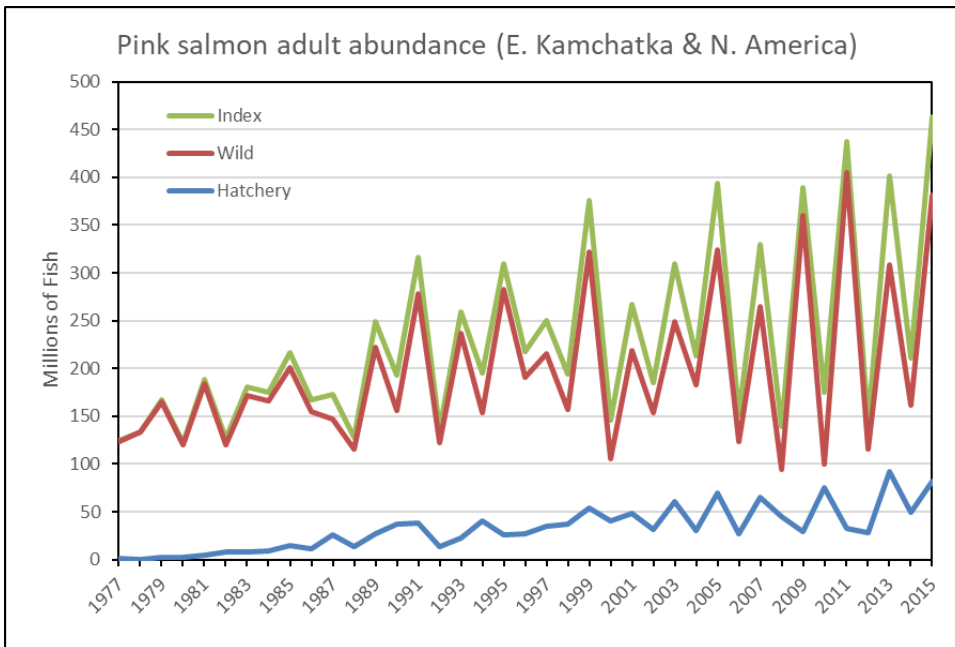


Figure 2. Wild and hatchery components of the adult pink salmon abundance, 1977–2015.

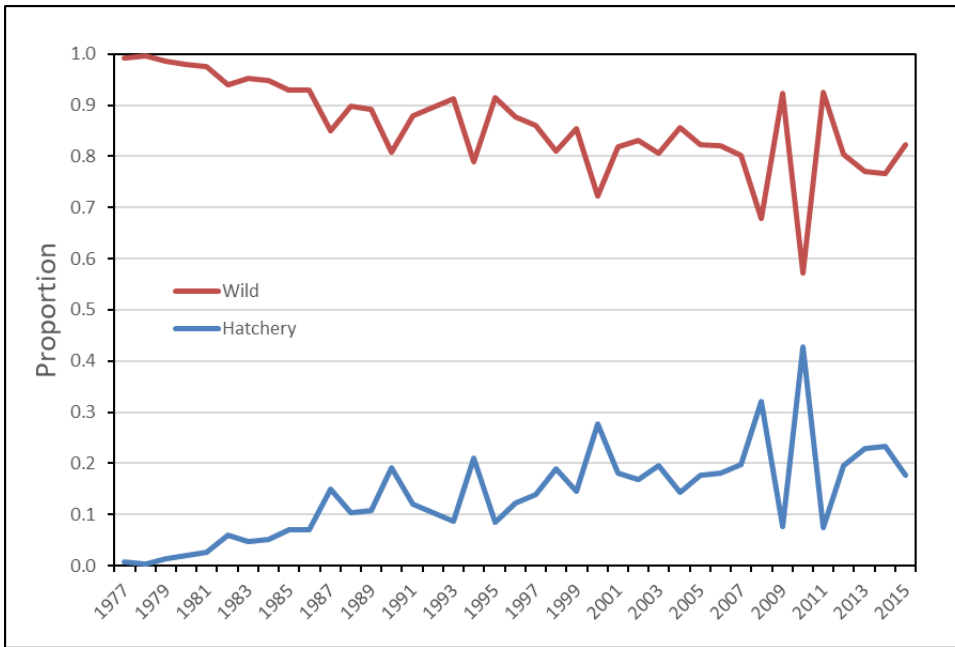


Figure 3. Proportion of wild and hatchery components of adult pink salmon abundance, 1977–2015.

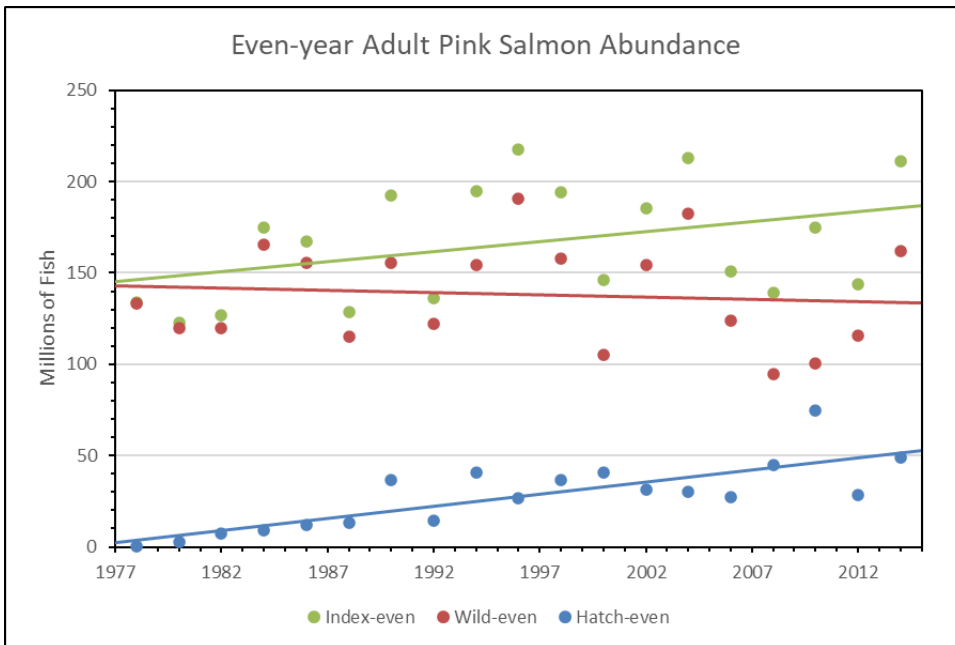


Figure 4. Total, wild and hatchery components of the even-year adult pink salmon abundance with simple linear regression lines indicating trends in abundance of components (1977–2015).

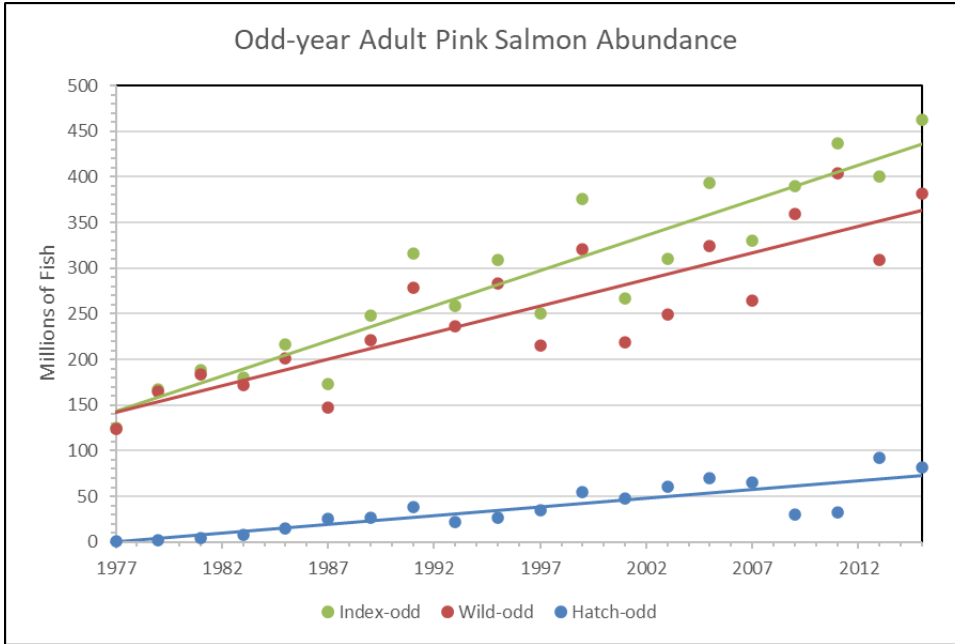


Figure 5. Total, wild and hatchery components of the odd-year adult pink salmon abundance with simple linear regression lines indicating trends in abundance of components (1977–2015).

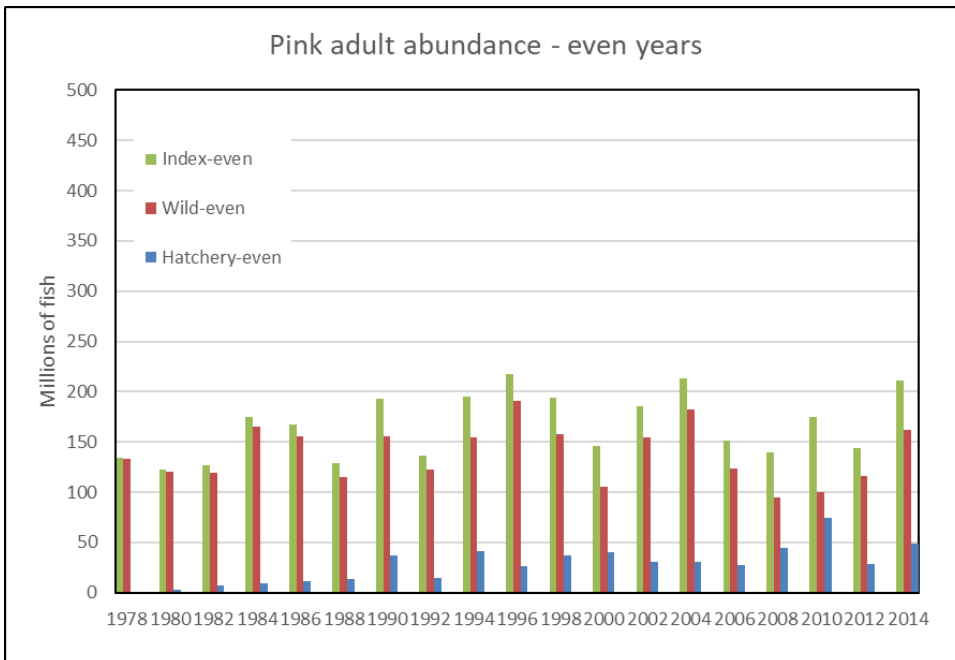


Figure 4 alternative. Total, wild and hatchery components of the even-year adult pink salmon abundance (1977–2015).

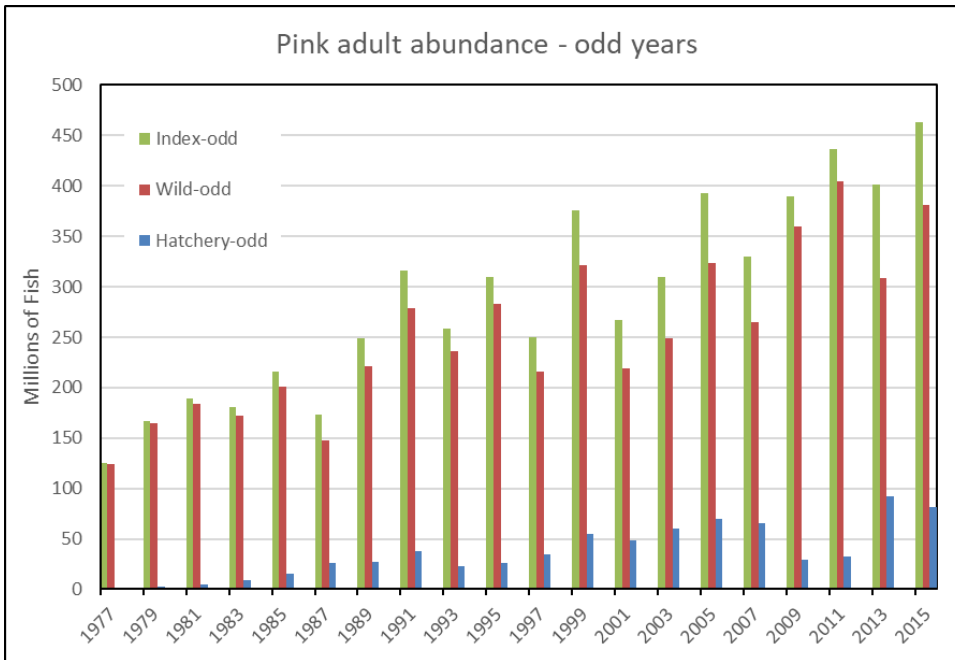


Figure 5 alternative. Total, wild and hatchery components of the odd-year adult pink salmon abundance (1977–2015).