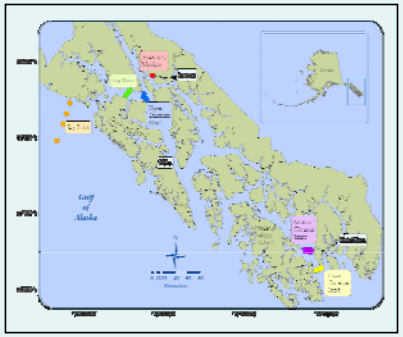
Jacob J. LaCroix
Joseph A. Orsi
Alex C. Wertheimer
Emily A. Fergusson
Molly V. Sturdevant
William R. Heard
Bruce L. Wing

Interannual Variation in Indices of Juvenile Coho Salmon in Coastal Southeast Alaska

Auke Bay Laboratory
Alaska Fisheries Science Center
11305 Glacier Hwy,
Juneau, AK 99801
(907) 789-6088
Email: Jacob.LaCroix@noaa.gov

Introduction: We examined a 10 year time series of biophysical conditions associated with juvenile salmon collected from the Southeast Coastal Monitoring Project from 1997 to 2006.

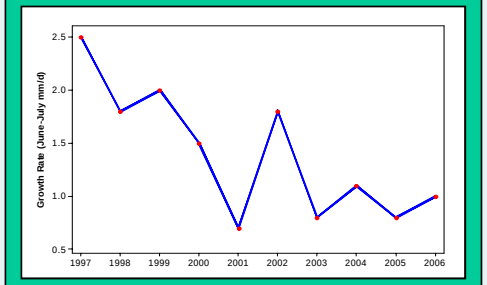


Methods: Data were collected on juvenile salmonids, zooplankton and environmental conditions using surface trawls, bongo nets and CTD casts.

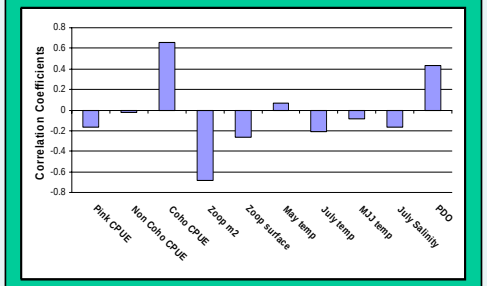
Objectives: To analyze the relationships of juvenile coho salmon abundance, growth and condition with associated biophysical parameters, and to evaluate how these indices influence survival and harvest of coho salmon.

Results: Juvenile and adult coho salmon data summaries.

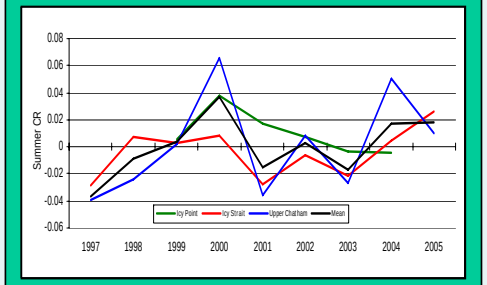
Average apparent growth of juvenile coho



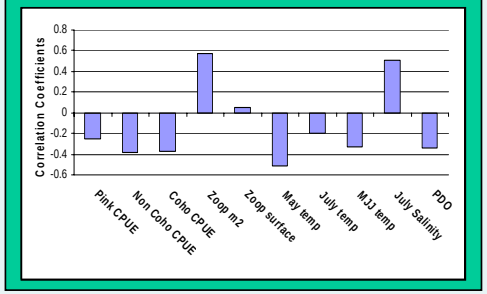
Factors related to growth



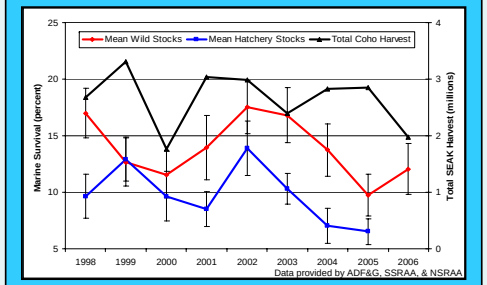
Condition Residuals (CR)



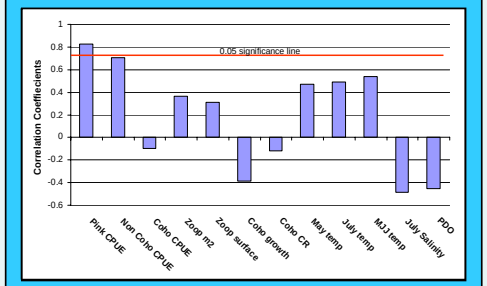
Factors related to CR



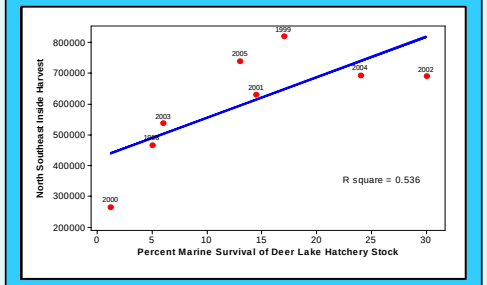
Marine survival and harvest of coho



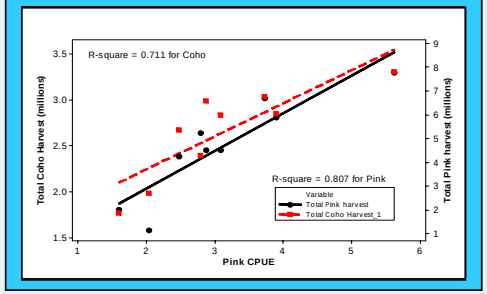
Factors related to coho harvest



Coho harvest vs. marine survival



Coho and pink harvest vs. pink CPUE

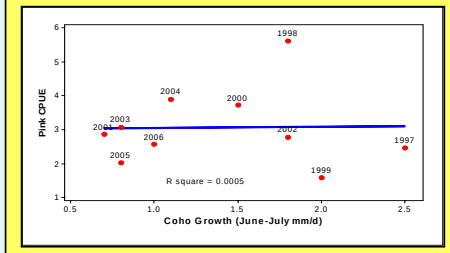


Hypotheses: Environmental conditions vs. the predator buffering hypothesis. Year-class strengths of both pink and coho salmon are positively associated with the abundance of juvenile pink salmon in the prior year.

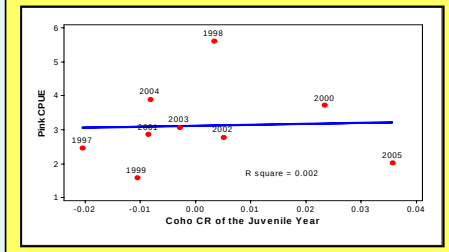
H1: Higher juvenile pink abundances are indicative of a "good" environment for juvenile coho, resulting in better growth and survival.

H2: Juvenile pink and other non-coho salmonids buffer juvenile coho from predation, so higher abundances of these "buffer" fish increase coho survival.

Pink CPUE is not related to coho growth



Pink CPUE is not related to coho CR



Conclusion: Because growth and condition of juvenile coho salmon did not increase with increasing abundance of juvenile pink salmon, we reject H1, and support H2; indicating that juvenile coho salmon in Southeast Alaska marine environments may be benefiting from another mechanism, such as predator buffering by other more abundant juvenile salmonids.