




SALMONSCAPE

PRIORITIES FOR CONSERVING CALIFORNIA'S SALMON AND STEELHEAD DIVERSITY

Pacific salmon and steelhead are indicator species for healthy watersheds and support a \$1.5 billion commercial and recreational fishing industry. California is the southernmost region of the Pacific salmon range. Their complex life-cycle spans a variety of habitats from inland streams and rivers, through coastal estuaries and ocean waters and back again. However, 85% of the salmon and steelhead found here are sufficiently threatened to be on a trajectory towards extinction if present trends continue (Moyle, 2011). The Nature Conservancy (TNC) of California is currently demonstrating effective salmonid conservation strategies at seven platform engagement sites across the state to halt the decline. In order to find the best places to replicate these strategies, we analyzed and ranked all of the watersheds that support or contribute to salmon habitat. The resulting SalmonScape (the top 20% watersheds) represents the area where conservation organizations can be most efficient in conserving and restoring salmon and steelhead in California. Given the concentration of the best habitat and wild salmon and steelhead runs in the northwest portion of the state, TNC's Salmon Initiative will focus in the near term on the rivers and estuaries of the North Coast and Klamath River Basin.

SACRAMENTO RIVER TNC Platform Salmon Engagements
 TNC Salmon Initiative Focus Area
 SalmonScape Watersheds
 Major Streams

Sub-Watershed Ranking for Salmonid Conservation



Methods: The SalmonScape relies on data collected by Trout Unlimited in a comprehensive database entitled the Conservation Success Index (CSI) (Williams et al. 2007), which integrates population viability data compiled from regional, state and federal salmon experts by the Wild Salmon Center as part of the North American Salmon Stronghold Partnership (http://www.wildsalmoncenter.org/programs/north_america/strongholds.php). The CSI data includes information about current and historical distribution and population integrity of 6 salmonid runs in California and southern Oregon (Coho, fall Chinook, spring/summer Chinook, winter Chinook, winter steelhead and summer steelhead). It also contains information about the habitat integrity for each of these runs, bundled in 5 categories (watershed condition, temperature, watershed connectivity, water quality, and flow regime).

The Nature Conservancy, California, weighted each subwatershed based on the population and habitat integrity scores for each of the 6 runs, and then used a conservation planning tool called Zonation to rank the subwatersheds from least to most important (Moilanen et al. 2008). The subwatersheds with the highest score (out of 100) are the most important for conserving and restoring salmonid diversity. Subwatersheds that rank in the top 20% of the study area (scores > 80) were chosen to represent the SalmonScape for the state. Please note that this analysis focuses on those places where salmon still persist, not where they have been extirpated and may be reestablished.

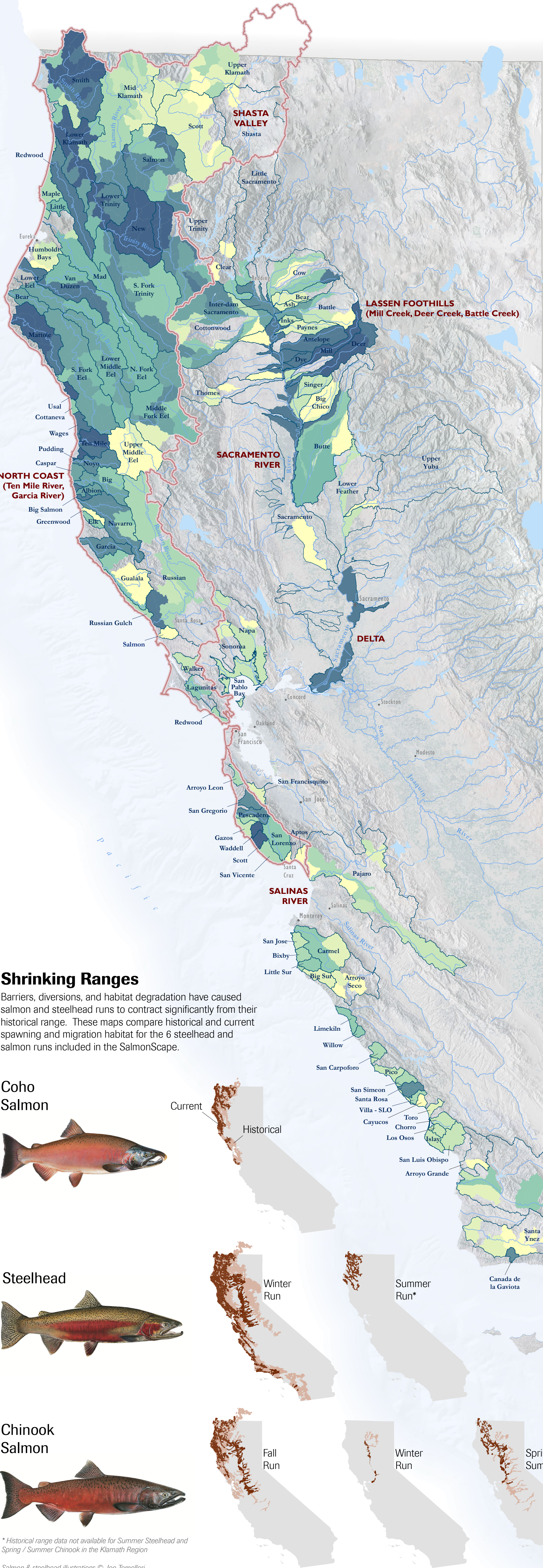
For more information about the methods used to generate the SalmonScape, please see Howard, J., K. Klausmeyer, and S. Liu. 2011. SalmonScape: Prioritizing California's Anadromous Salmon Habitat. Version 1.1. Unpublished report. The Nature Conservancy, San Francisco, CA. 31 pages + Tables and Appendix.

References:
Moilanen, A., Leathwick, J.R., and J. Elith. 2008. A method for freshwater conservation prioritization. *Freshwater Biology*, 53: 577-592.

Moyle, P. B., J. V. E. Katz, and R. M. Quiñones. 2011. Rapid decline of California's native inland fishes: A status assessment. *Biological Conservation* 144:2414-2423.

Williams, J.E., Haak, A.L., Gillespie, N.G., and W.T. Colyer. 2007. The Conservation Success Index: synthesizing and communicating salmonid condition and management needs. *Fisheries*, 32: 477-482.

0 25 50 Miles



Shrinking Ranges

Barriers, diversions, and habitat degradation have caused salmon and steelhead runs to contract significantly from their historical range. These maps compare historical and current spawning and migration habitat for the 6 steelhead and salmon runs included in the SalmonScape.

Coho Salmon



Steelhead



Chinook Salmon



* Historical range data not available for Summer Steelhead and Spring / Summer Chinook in the Klamath Region

Salmon & steelhead illustrations © Joe Tomelleri