Lagunitas Creek Winter Habitat & Floodplain Enhancement Project

North Bay Watershed Association – March 2, 2018

MARIN MUNICIPAL WATER DISTRICT

Gregory Andrew, Marin Municipal Water District

Sponsors

California Department of Fish and Wildlife, Fisheries Restoration Grant Program (FRGP), with NOAA & Pacific Coast Salmon Restoration Fund

U.S. Fish and Wildlife Service, Coastal Program Fund

State Water Board EPA 319(h) Grant Program





Lagunitas Creek Watershed

Coho, Steelhead, & Ca. Freshwater Shrimp

109 sq. mi. watershed

52 miles accessible to salmonids; 50% of historic



Chronology for Winter Habitat Enhancement in Lagunitas Creek

2008: Limiting Factors Analysis.

2011: Lagunitas Stewardship Plan.

2014: Winter Habitat Assessment; Sediment TMDL

2017: Project Implementation.

Goals & Objectives

- Goal increase the winter carrying capacity for coho and steelhead; more and larger smolts.
- Goal improve water quality in accordance with the Lagunitas Creek sediment TMDL.
- Reconnect Lagunitas Creek to the floodplain.





Sites 1 - 9 and the Tocaloma Floodplain site.

Winter Habitat &

Floodplain Enhancement Sites







Tocaloma Floodplain Site Floodplain Side Channel (rendering)

Restored Floodplain Side Channel

Platform Bridge Road

Existing Channel











Bar Apex & Log Debris Retention Jam Sites



Bar Apex Jam (BAJ)



Bar Apex Jam (BAJ)



Log Debris Retention Jam (LDRJ)



Log Debris Retention Jam (LDRJ)











Unusual Fish Siting During August Construction



Pink Salmon in Lagunitas Creek – What We Know, and Possible Explanations



Justine Brumm and Gabby Guaiumi Watershed Stewards Program members



Pink Salmon in Lagunitas Creek



- October 24-December 7, 2017:
 - 13 live pink salmon observed
 - 16 pink salmon redds classified

	SURVEY DATE	TOTAL		
		Pink	Carcasses	Redds
	24-Oct-17	8	0	11
	30-Oct-17	2	0	4
	2-Nov-17	1	0	0
	30-Nov-17	1	0	1
	7-Dec-17	1	0	0
	SUBTOTAL	13	0	16



Pink Salmon Identification



Photos courtesy of Jon Jankovitz, California Department of Fish & Wildlife

Pink Salmon Identification





Ocean Stage



Spawning Male

Pink Salmon Life History

- 2-year life cycle
- Typically spawn in intertidal or lower reaches of streams and rivers
- Spawning in northern populations begins in mid-July. Spawning in California has been recorded mainly in October, but mature fish have been found in California streams as early as August



Status in California

- State of the Salmonids: Status of California's Emblematic Fishes 2017
- Listed as a Species of Special Concern by the California Department of Fish and Wildlife in 1995
- Continued uncertainty as to their status led to them being removed from the revised report in 2015
- **Critical Concern or Extirpated. Status Score = 1.6 out** of **5.0.** There are probably only one or two self-sustaining populations in California. It is highly likely that pink salmon will disappear from California streams, except as strays from northern populations, within the next 25-50 years, if they have not already.

Pink Salmon Throughout California



- Mad River: estimate of 60+ adults and about 20 redds
- Pescadero Creek: captured 4 adult pinks on 12-Sept-2017 and an additional 10 adults on 13-Sep-2017
- Big Creek: observed at least three adults in September 2017
- Data courtesy of: Ross Taylor; Jon Jankovitz, CDFW; Tommy Williams, NOAA

Why here and now?



- Straying from larger northern populations
 - Poor ocean conditions in 2015-2016 affecting pink salmon returning in 2017
 - Pacific Ocean temperatures much warmer than average
 - Attracts competitors and predators from southern waters
 - Lower food availability for salmon
 - Possible that pinks strayed south with other species in search of greater food opportunities

References

- Moyle, P. 2002. *Inland fishes of California*. Berkeley: University of California Press.
- Moyle, P., R. Lusardi, P. Samuel, and J. Katz. 2017. "State of the Salmonids: Status of California's Emblematic Fishes 2017." Center for Watershed Sciences, University of California, Davis and California Trout, San Francisco, CA. 579 pp.
- Skiles, T., Yoshiyama, R. and P. Moyle. 2013. "Pink salmon (Oncorhynchus gorbuscha) in the Salinas River, California: a new record and historical perspectives." California Fish and Game 99:55-59.

