

MMWD Fish Tales

North Bay Watershed Association Board Meeting – May 5, 2017





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San Rafael Creek King Salmon





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Lagunitas Creek & Coho Salmon

Home to the largest and most stable population of
coho salmon in Central California



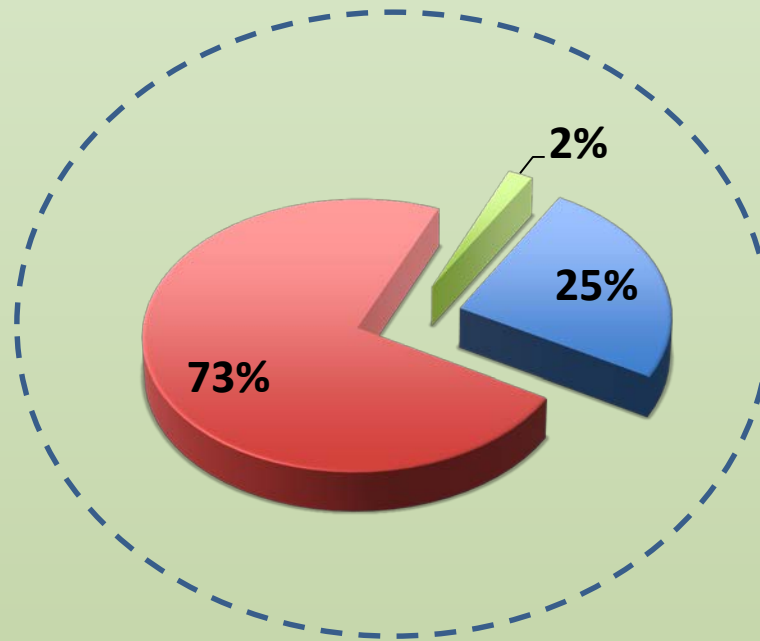


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Estuary Access & Habitat

Mouth of Creek is Open Year-Round – No Sand Bar

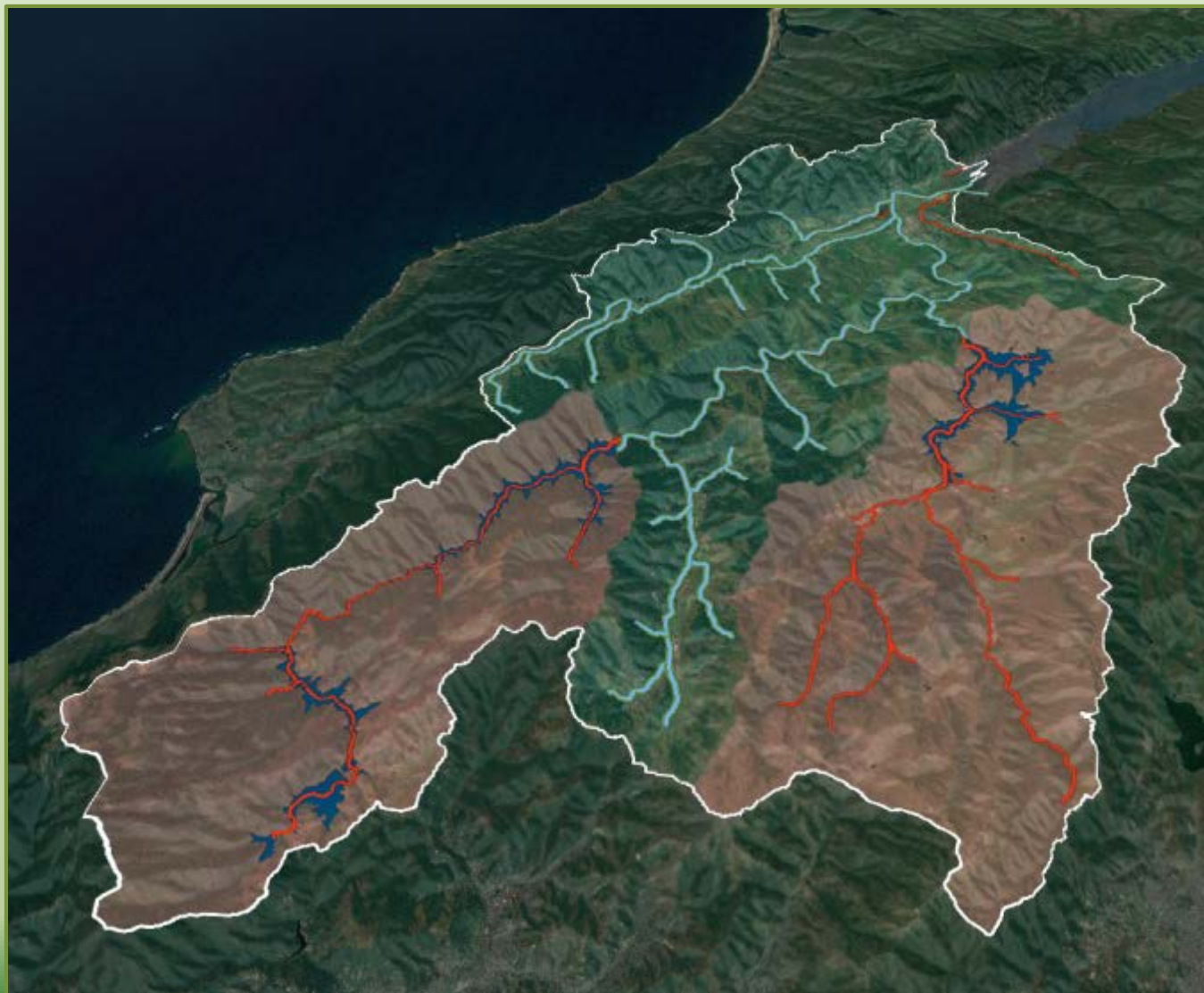




- Imported
- District Reservoirs
- Recycled



Human Impacts - Habitat Loss



**50% of watershed
cut off by MMWD
dams.**

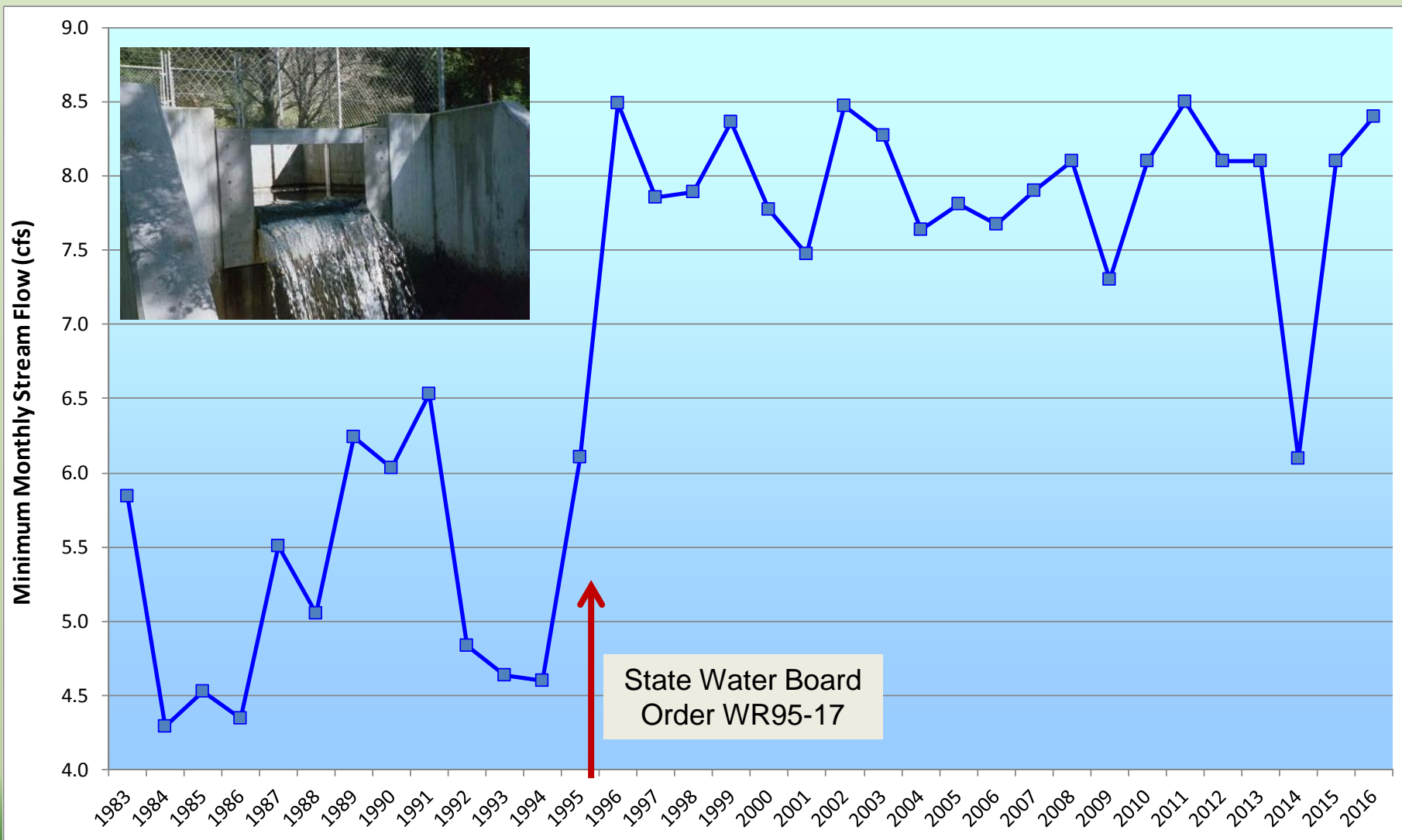
**Blocking access to
streams with:**

- **Rearing habitat**
- **Lower winter flows for eggs and fry**
- **Cooler water**
- **Better spawning gravel**



Flows for Fish

More water for Lagunitas Creek – Since 1995





Water for People and the Environment

People

- Residential, businesses, and irrigation

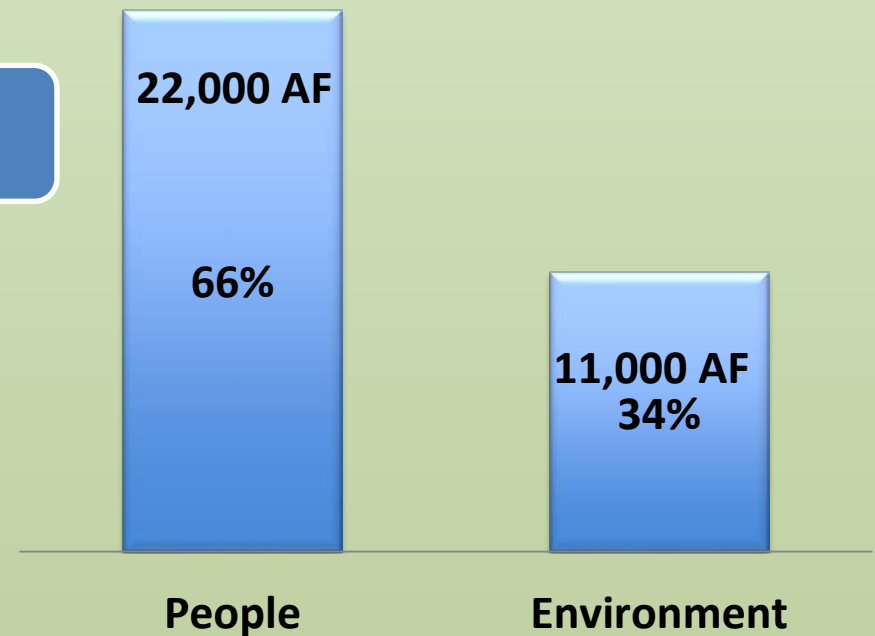
Environment

- Water is released to protect the largest Coho run in Central California



Coho Salmon

Annual Avg. Water Use =
33,000 AF/year



MMWD has invested \$17M in fisheries enhancement since 1997

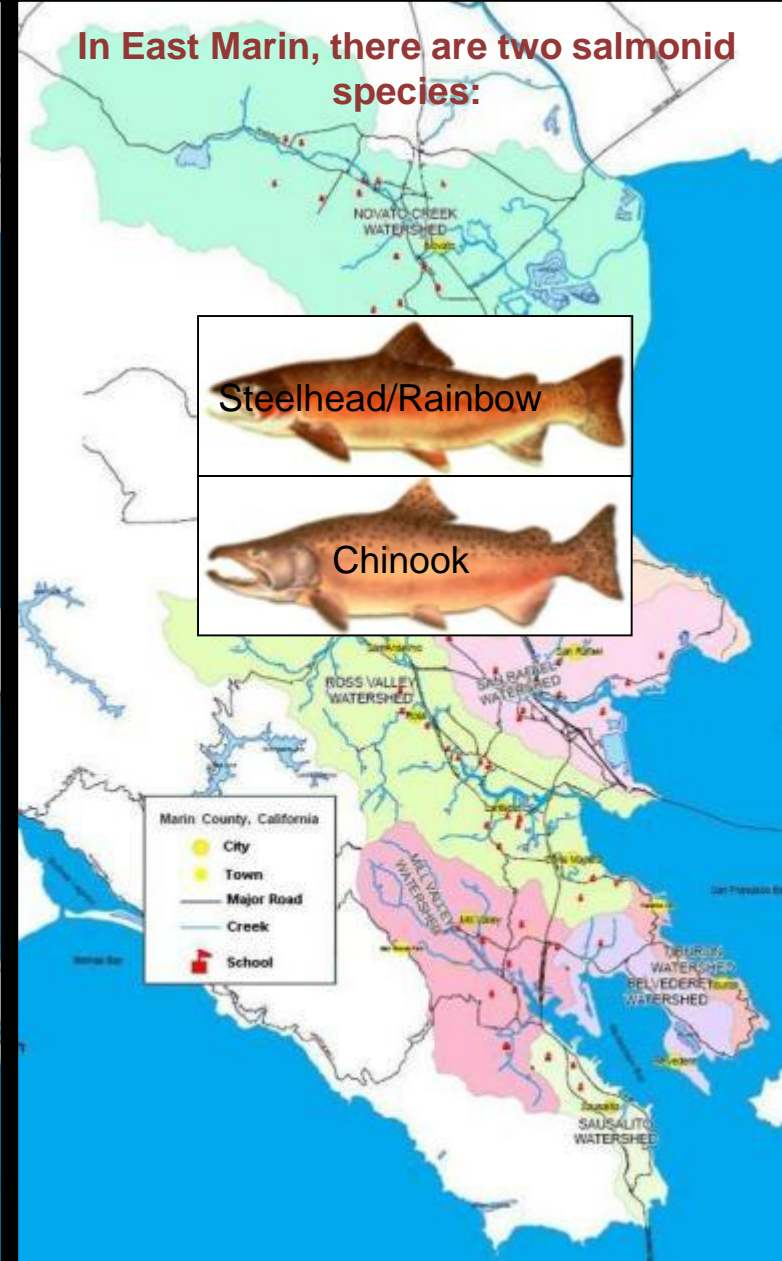
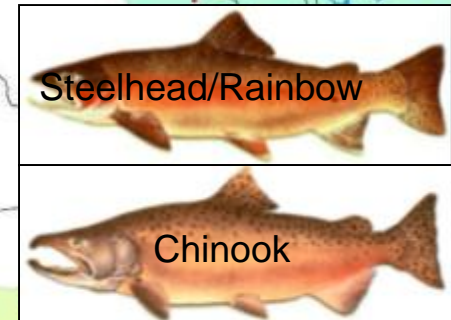


Marin Watersheds

In West Marin, there are four species of salmon & trout:

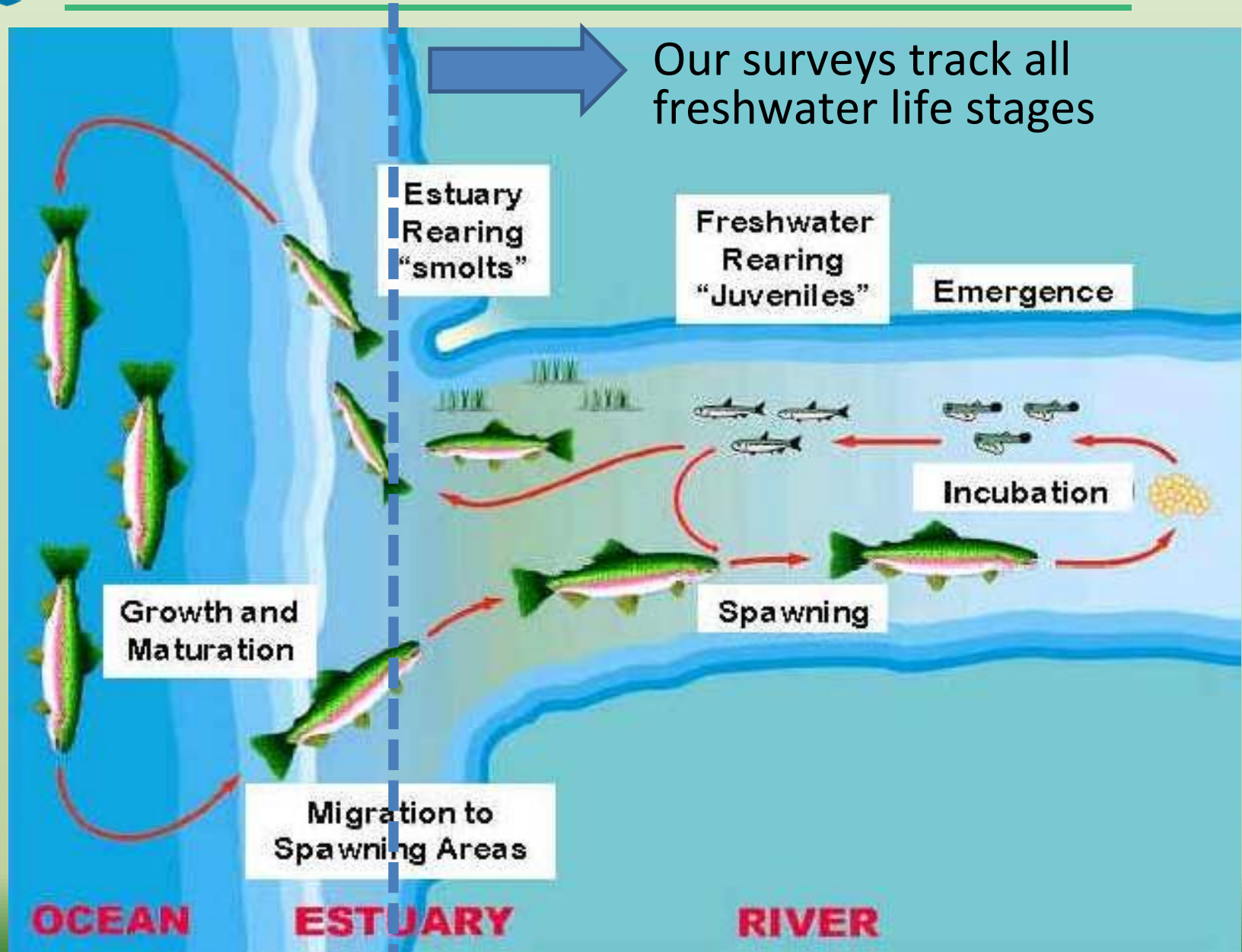


In East Marin, there are two salmonid species:





Salmon & Steelhead Life Cycle





Salmon Spawner Surveys



- Finding fish and redds (nests)



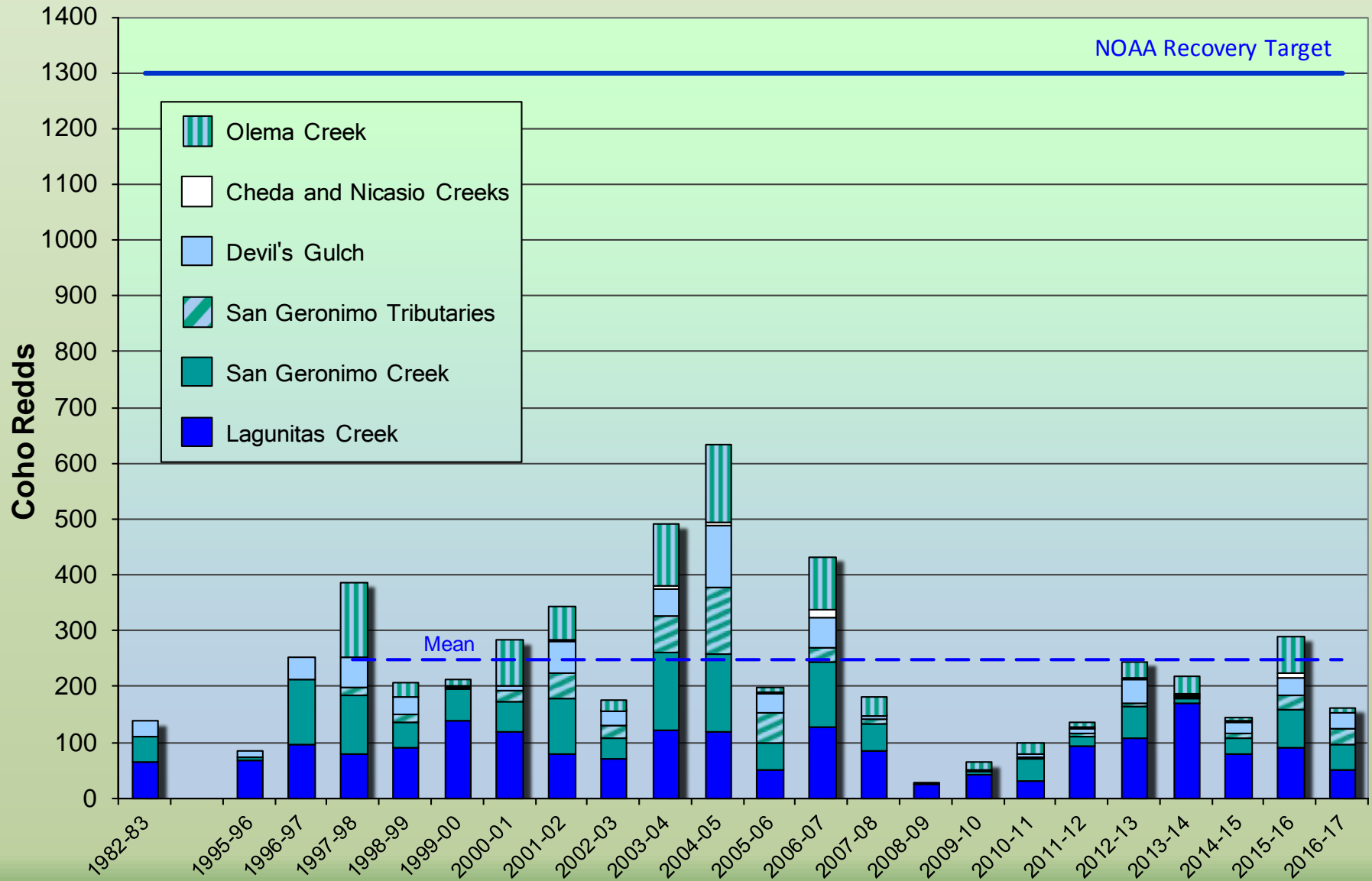
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Salmon Spawner Surveys





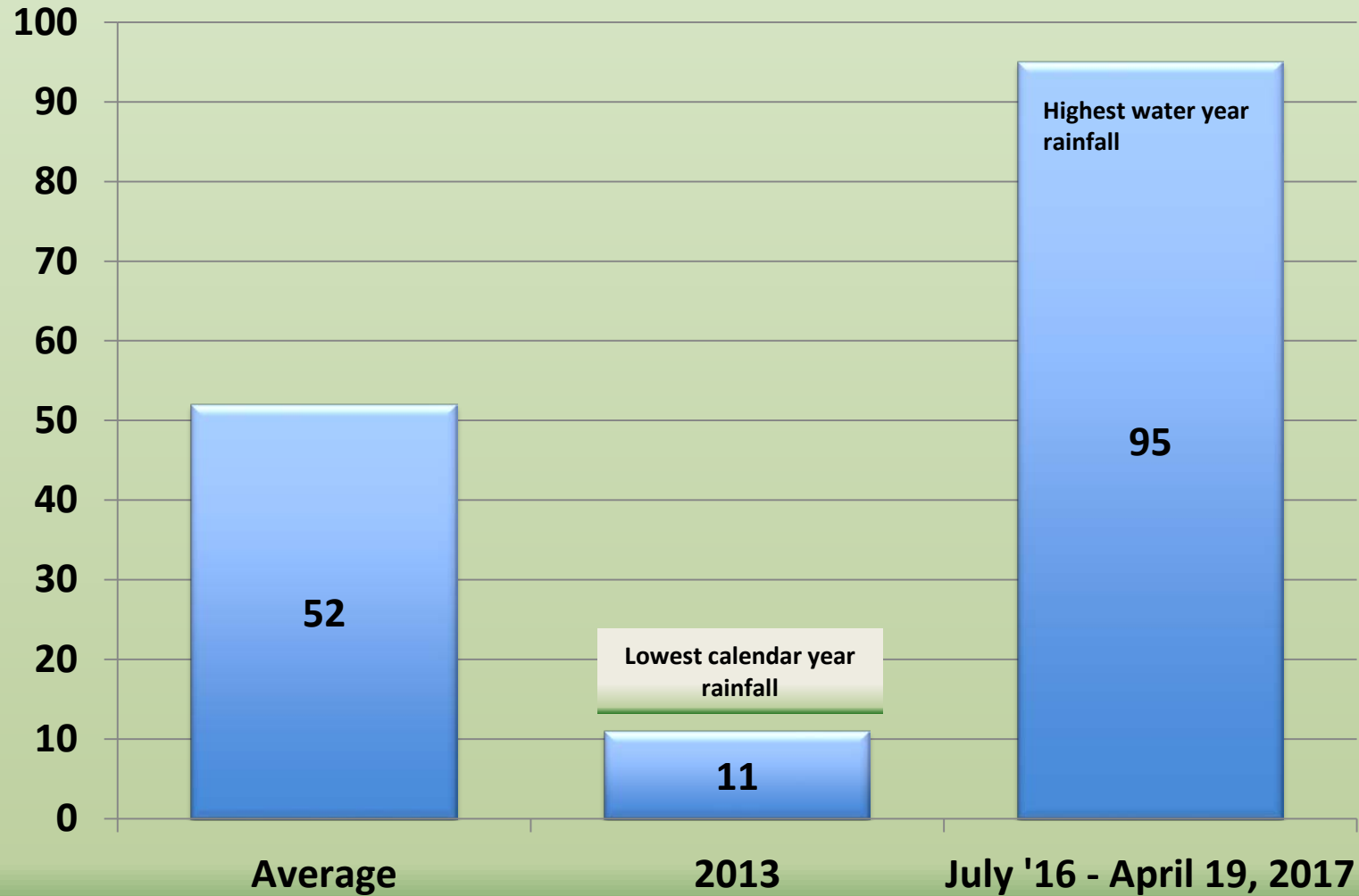
Adult Coho Returns



Note: The NOAA recovery target is 2,600 adults or 1,300 redds assuming two fish per redd.



Lake Lagunitas Annual Rainfall (inches)





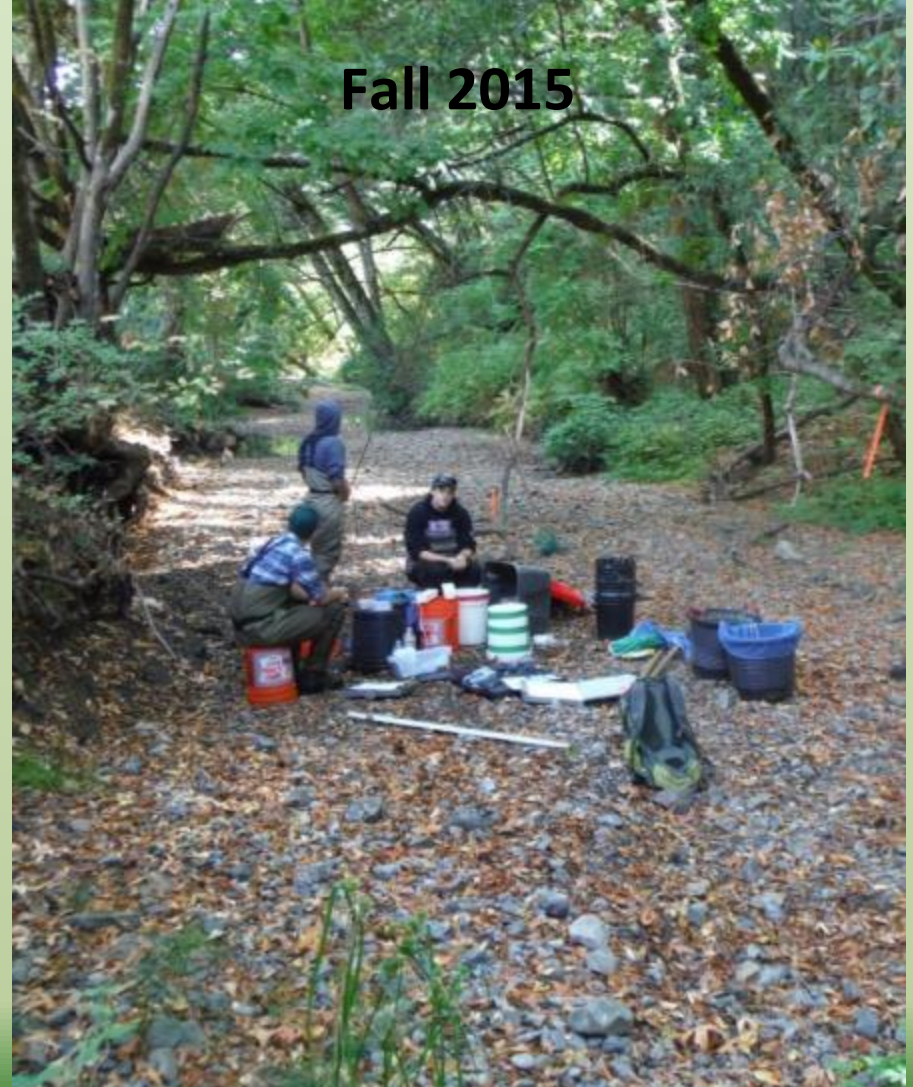
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Surviving Environmental Extremes

Fall 2014



Fall 2015





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Extreme Flooding & Habitat Impacts





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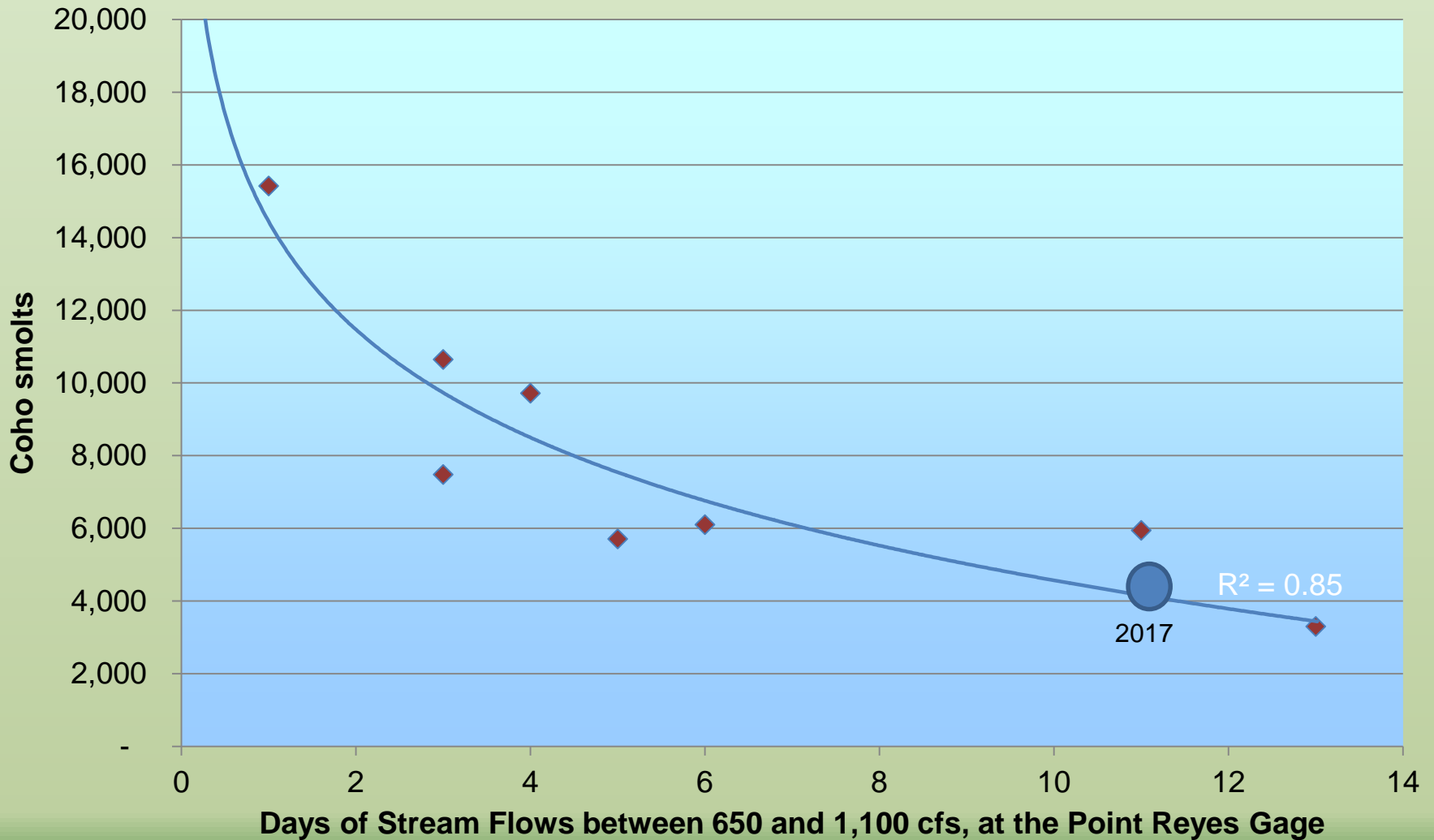
Smolt Surveys

Rotary Screw Trap





Prediction for the 2017 Smolt Population





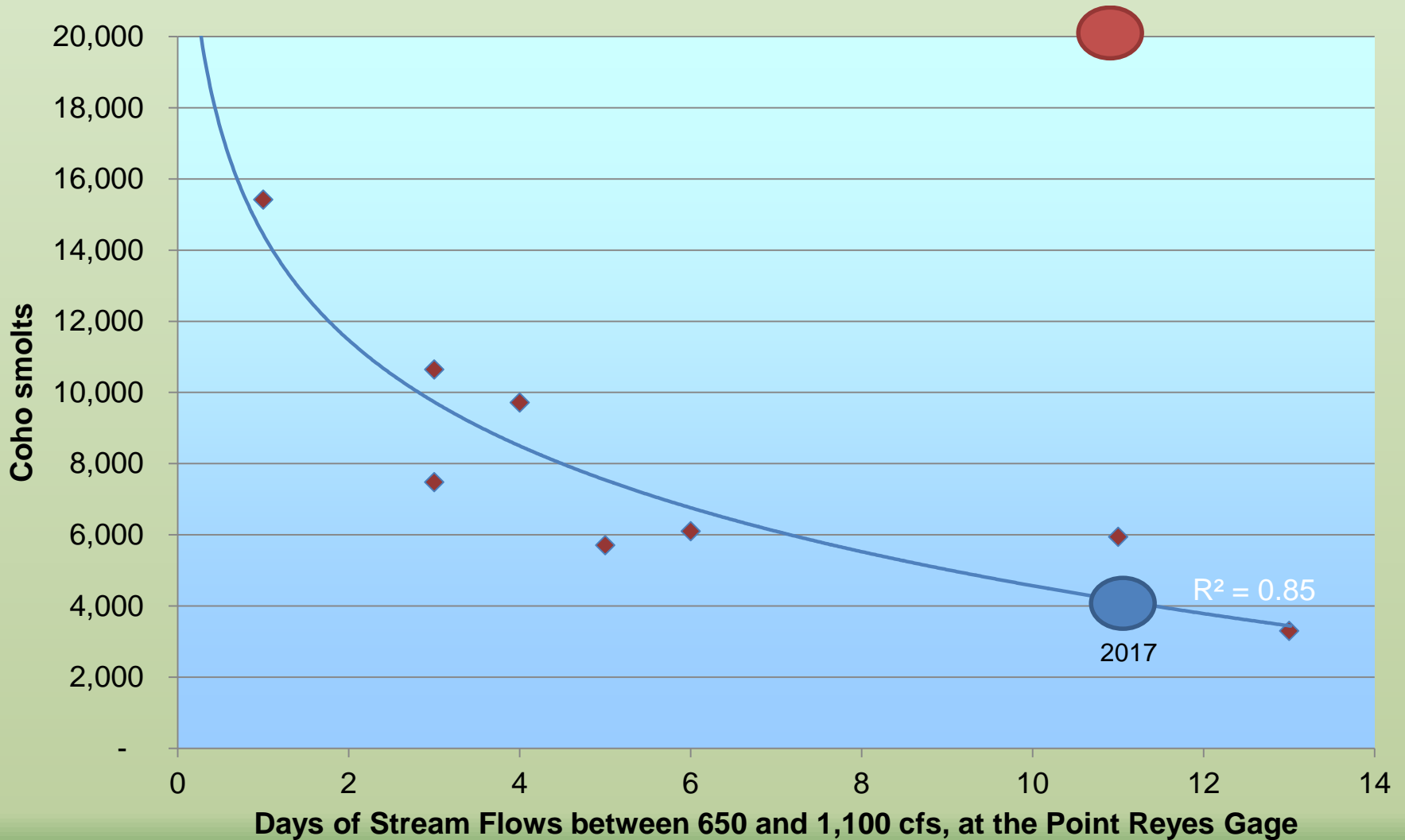
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Things May Not be What They Seem





Prediction for the 2017 Smolt Population





Biotechnical Bank Stabilization & Revegetation

Before



After



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Habitat Enhancement Efforts

Large woody debris structures (LWD)





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High Flow Refuge from LWD





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Fish passage improvements





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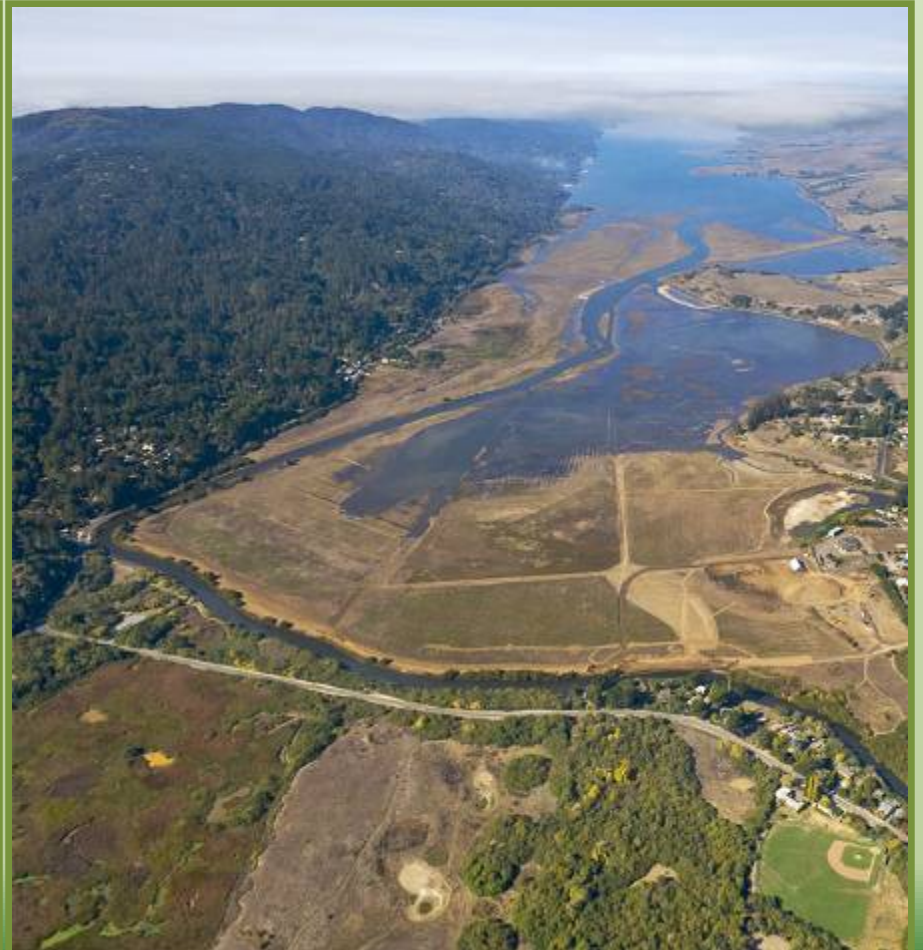
Habitat Enhancement Efforts

Estuary Restoration – Giacomini Wetlands

Before



After





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Habitat Enhancement Efforts

Estuary Restoration - Giacomini Wetlands

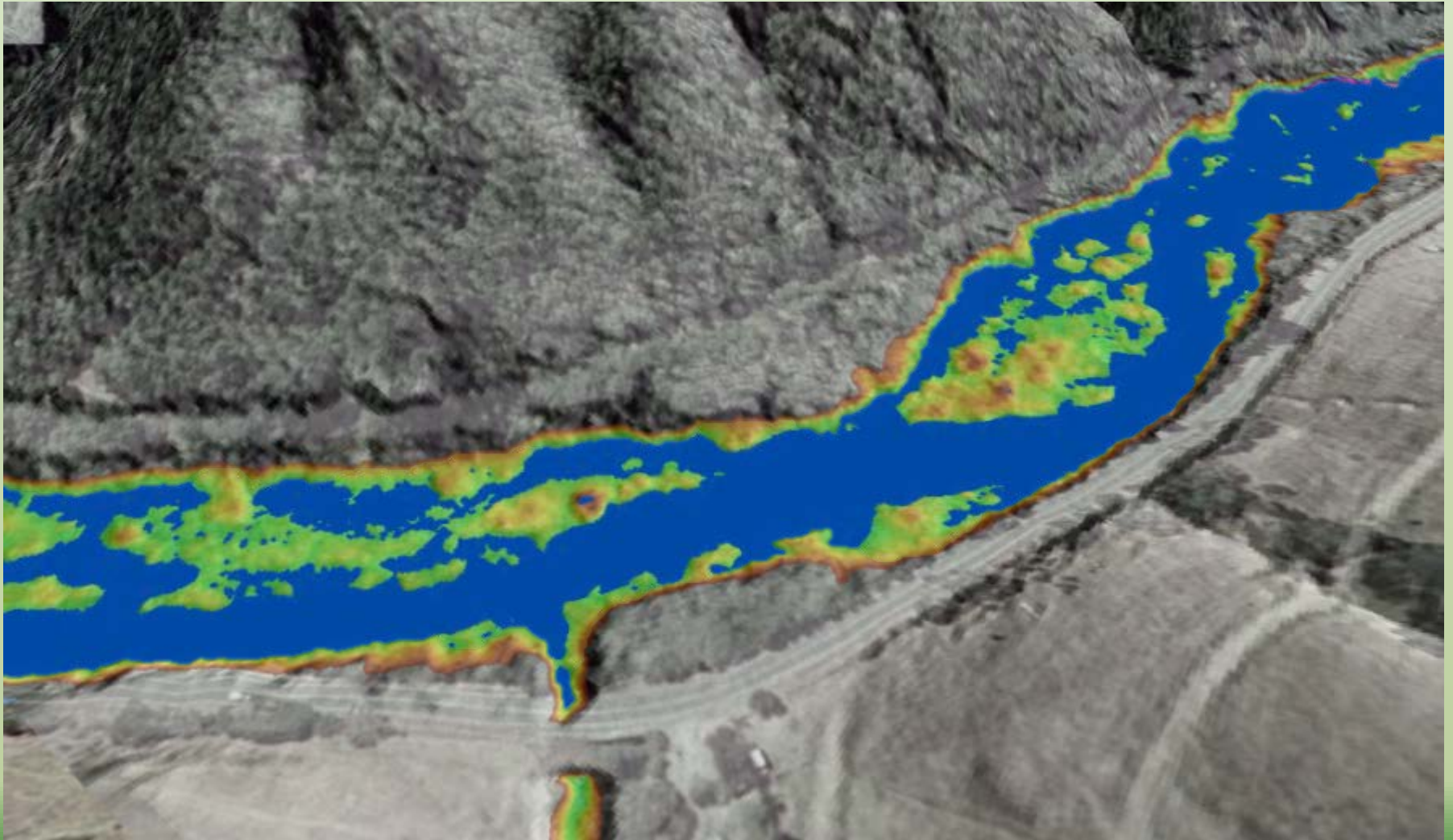




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Habitat Enhancement Efforts

Winter Habitat & Floodplain Enhancement





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Habitat Enhancement Efforts

Winter Habitat & Floodplain Enhancement



South Fork Eel River Salmon Enhancement Group



Thank you

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