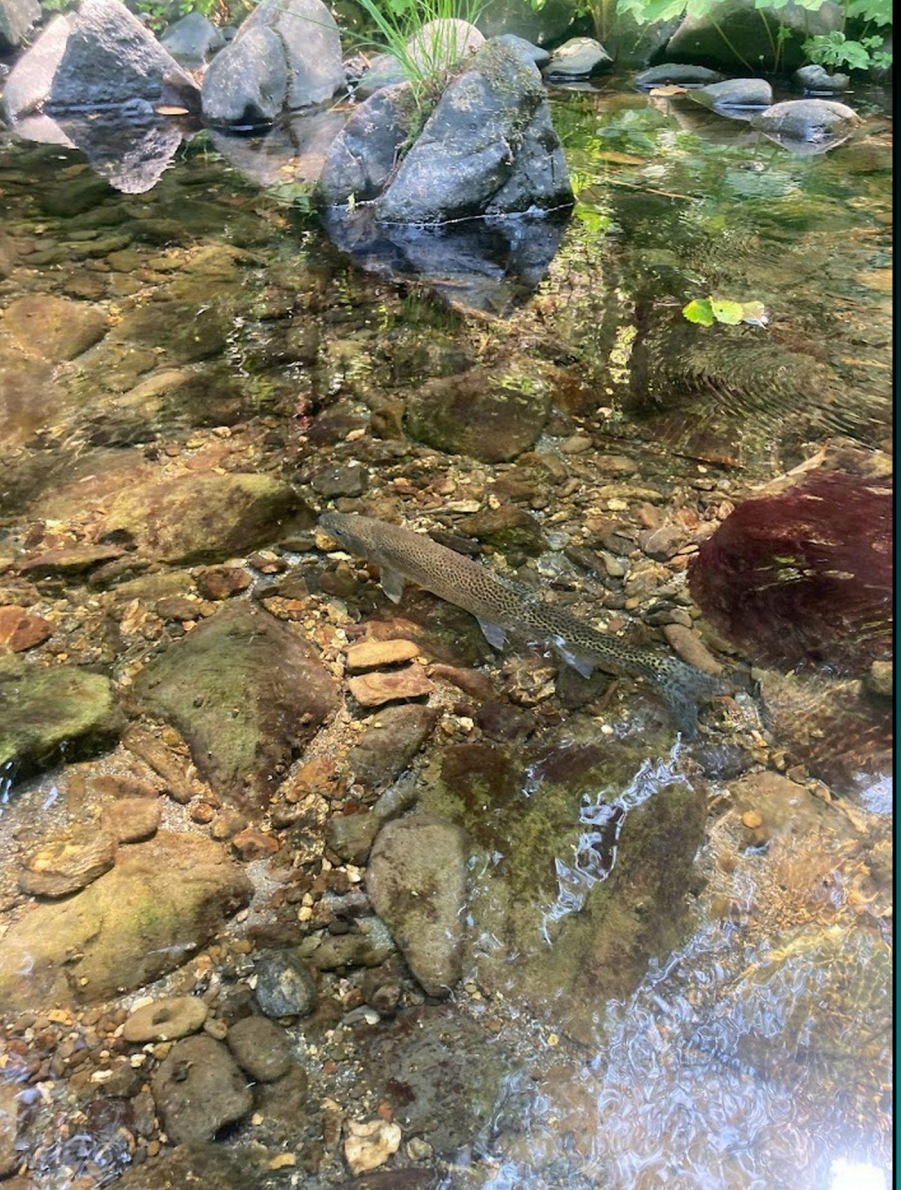


Hybridization and population structure of Coastal Cutthroat Trout at the southern tip of their range

Sam Rizza – TRIB Research

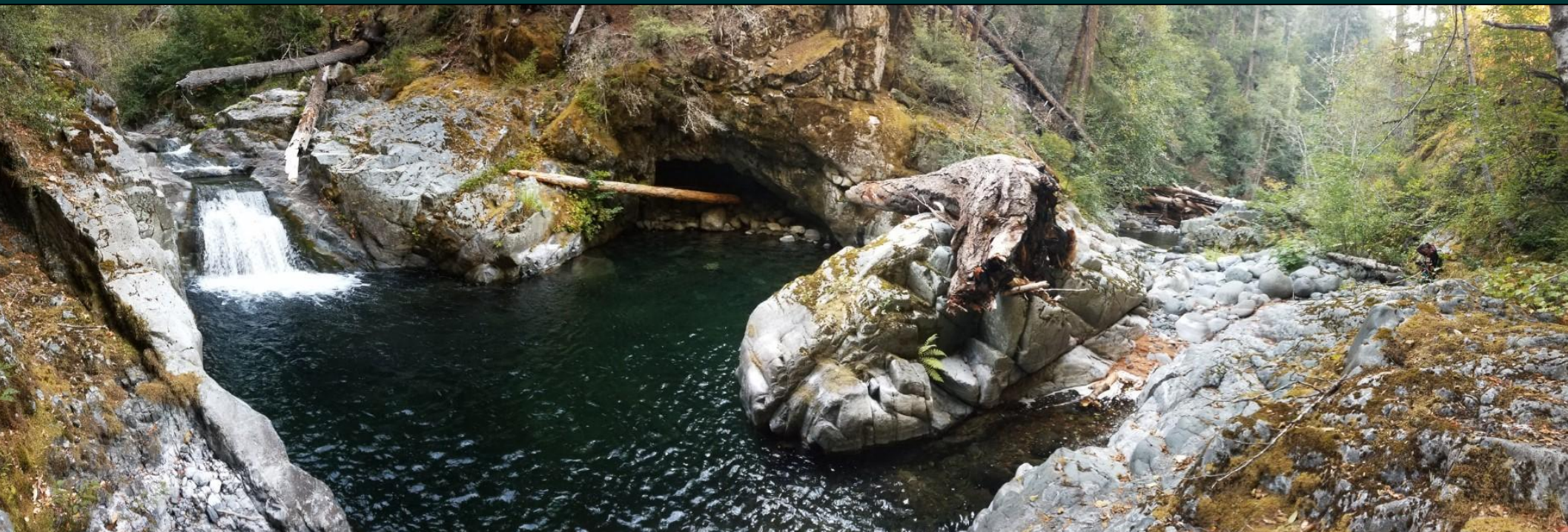
TRIB Research

- Farming, community events, and fisheries research nonprofit
- Wood-fired pizza!
- BLM grants

TRIB

Research Questions

1. How is hybridization manifested across the landscape?
2. How are CCT populations related at the southern tip of their range?

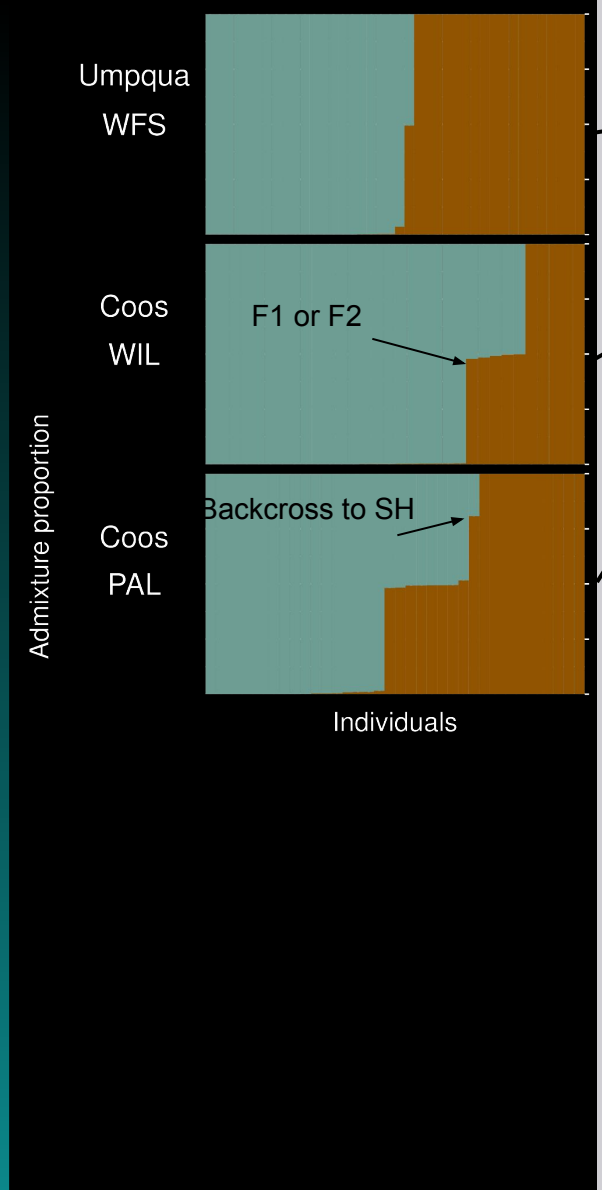


Methods

- Study area: Eel River, CA to Umpqua River, OR
- Night netting, seining, fishing, outmigrant traps
- RADseq (sbf1)
- 964 samples from 56 locations

Hybridization

- Outmigrant traps and estuary sites
- High proportion of recent hybrids
- Likely F1 hybrids are outmigrating



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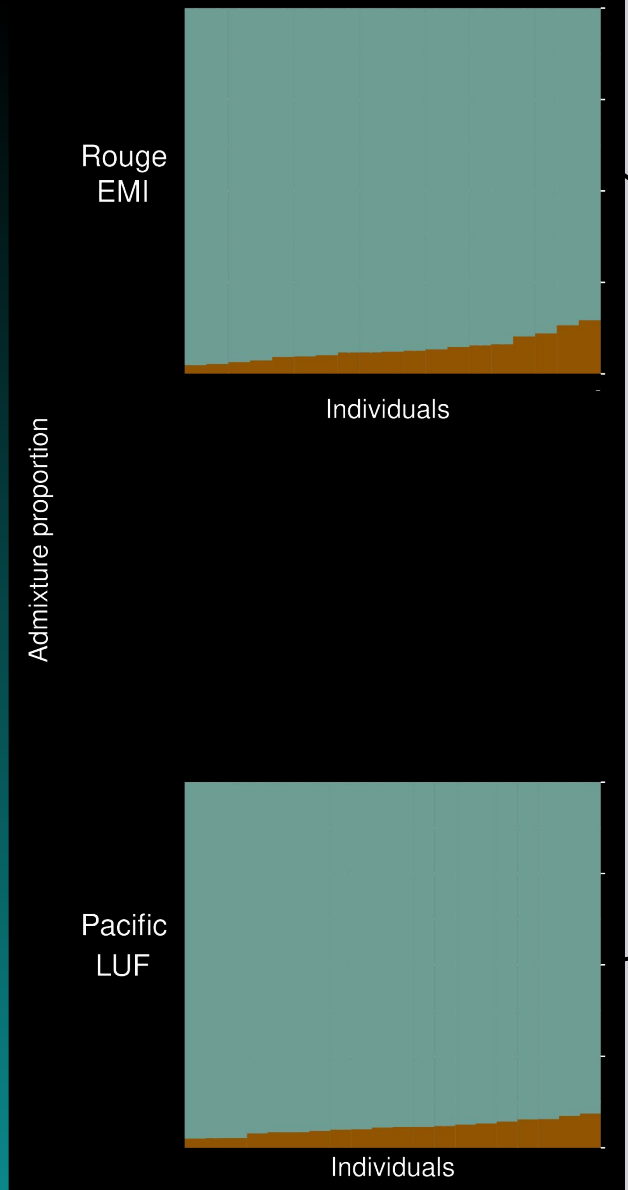
Hybridization

- Low level of SH admixture
- Manmade barriers
- Historic stocking

"The Humboldt association will receive 150,000 cut-throat trout from the United States Bureau of Fisheries station in Yellowstone Park this summer." (1924)

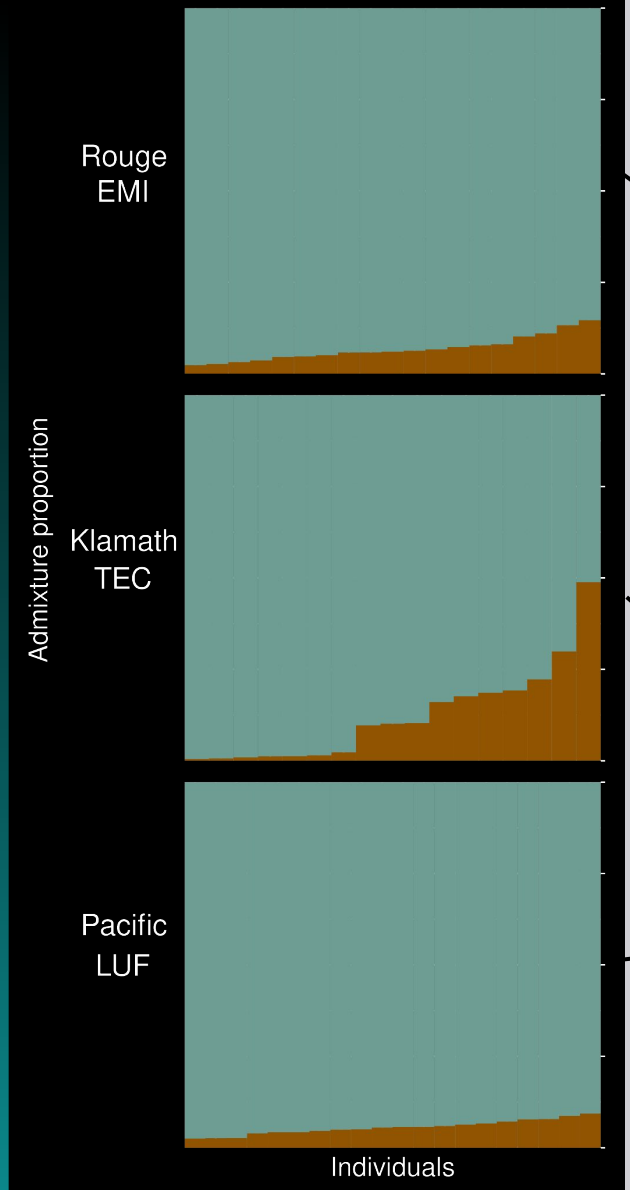


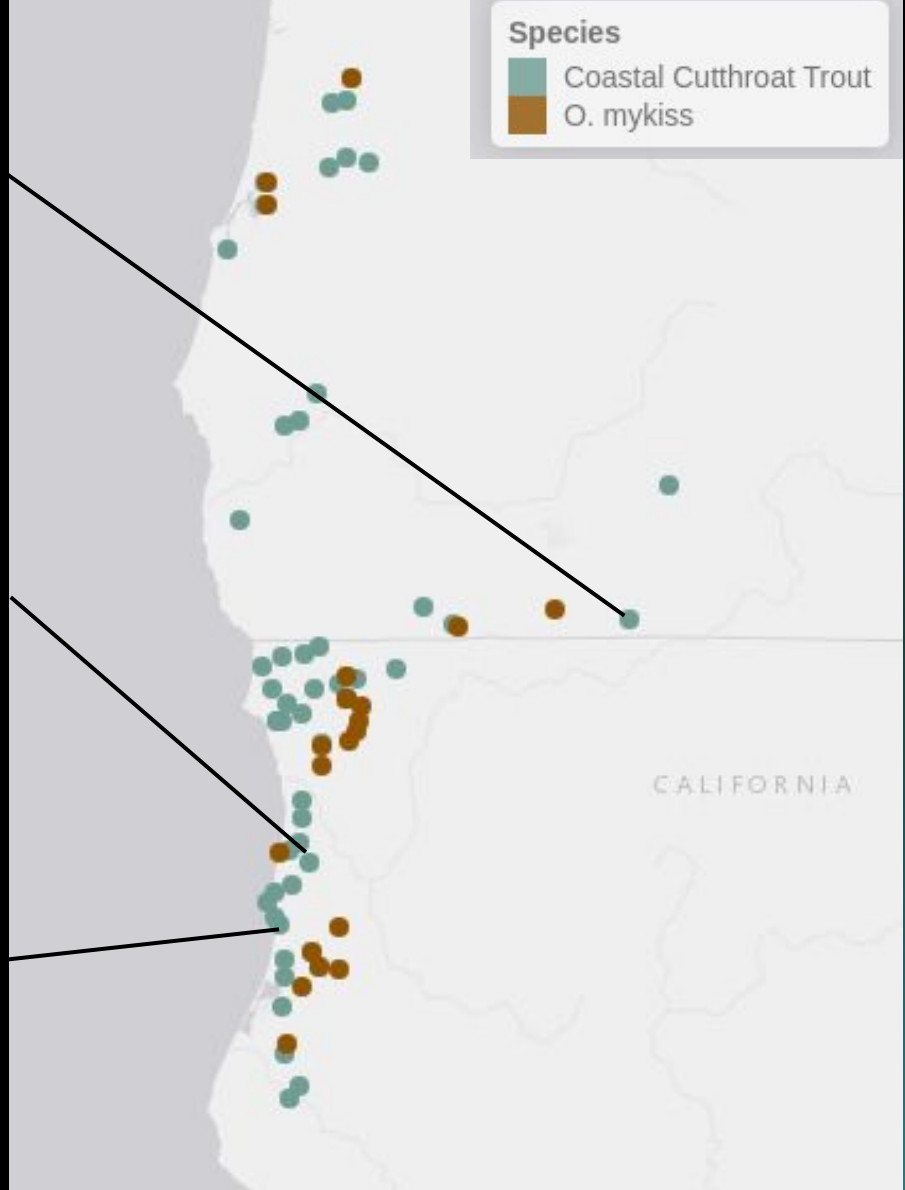
Hybridization

- Low level of SH admixture
- Manmade barriers
- Historic stocking

"The Humboldt association will receive 150,000 cut-throat trout from the United States Bureau of Fisheries station in Yellowstone Park this summer." (1924)

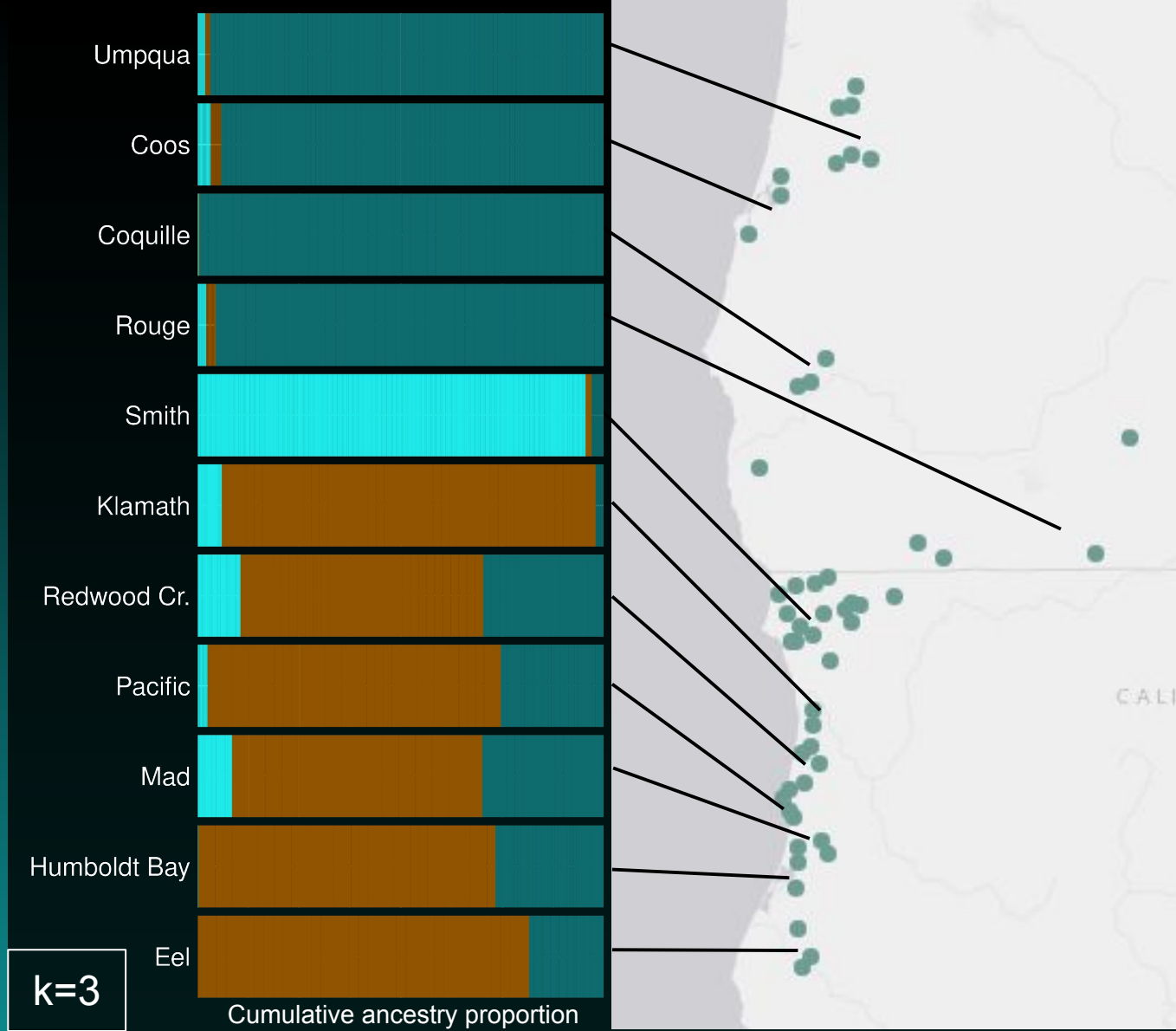
- Partial barriers





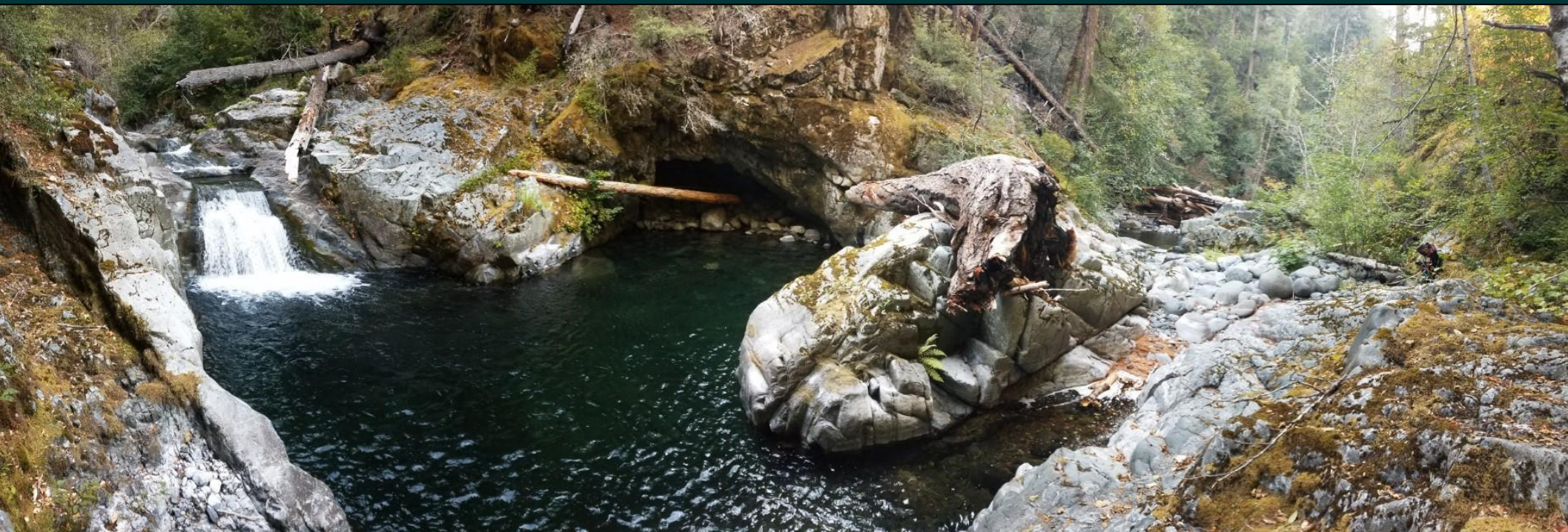
Coastal Cutthroat Trout population structure

- 728 CCT
- Three main groups
- The Smith River is distinct
  - Food availability and thermal conditions
  - Limited stocking
  - Rugged coast



Further Research Questions

1. How is hybridization exhibited across the genome?
2. Is there a genetic basis for the anadromous/resident life histories?
3. What is going on with the above barrier resident populations?



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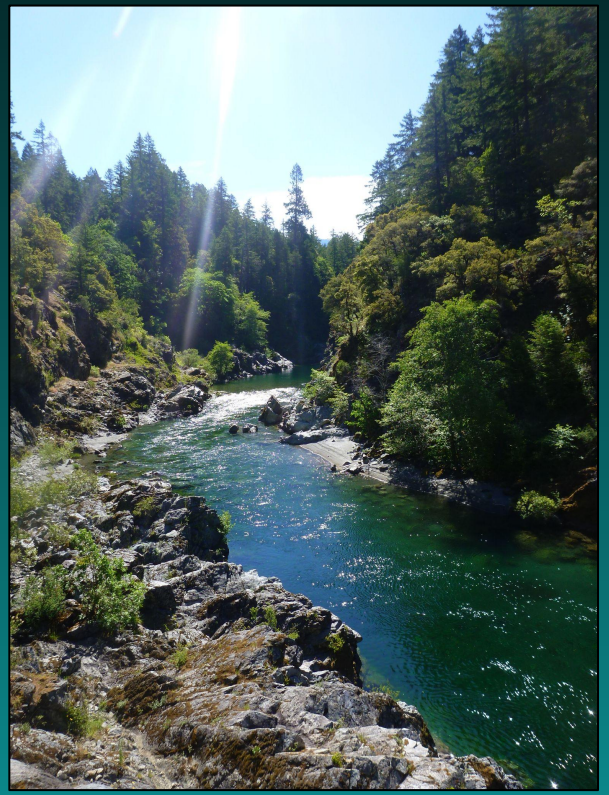
Natalie Okun
Dylan Keel
Jon Hollis
Nick Van Vleet



EXTRA SLIDES WITH MORE DETAIL OF ALL THE SAMPLE LOCATIONS

Well do we remember back in the mid-1930s landing a large cutthroat trout out of Elk river below the old waterworks dam. It was a sea-run fellow, like Hap's, and silvery colored like a Rainbow-Steelhead. Only it obviously wasn't that species. Green as we were, that was apparent. And the trout put up one whale of a hairy-chested battle. Puzzled, we took it to the late Sam Wells, who knew his trout.

Sam took one look at that streamlined square-tail and grinned. "One of the nicest cutthroats I've seen in some while," he said. "Where did you get it? And what with?"

"Elk river," we replied, "and with salmon roe."

Sam winced a little at the "salmon roe" part, but agreed that the stream was too muddy from heavy rains to use anything else. He also gave us a lecture on fly fishing for cutthroat and what sport it could be. "Use large flies, and red ones," he advised.

Coastal cutthroat trout population structure

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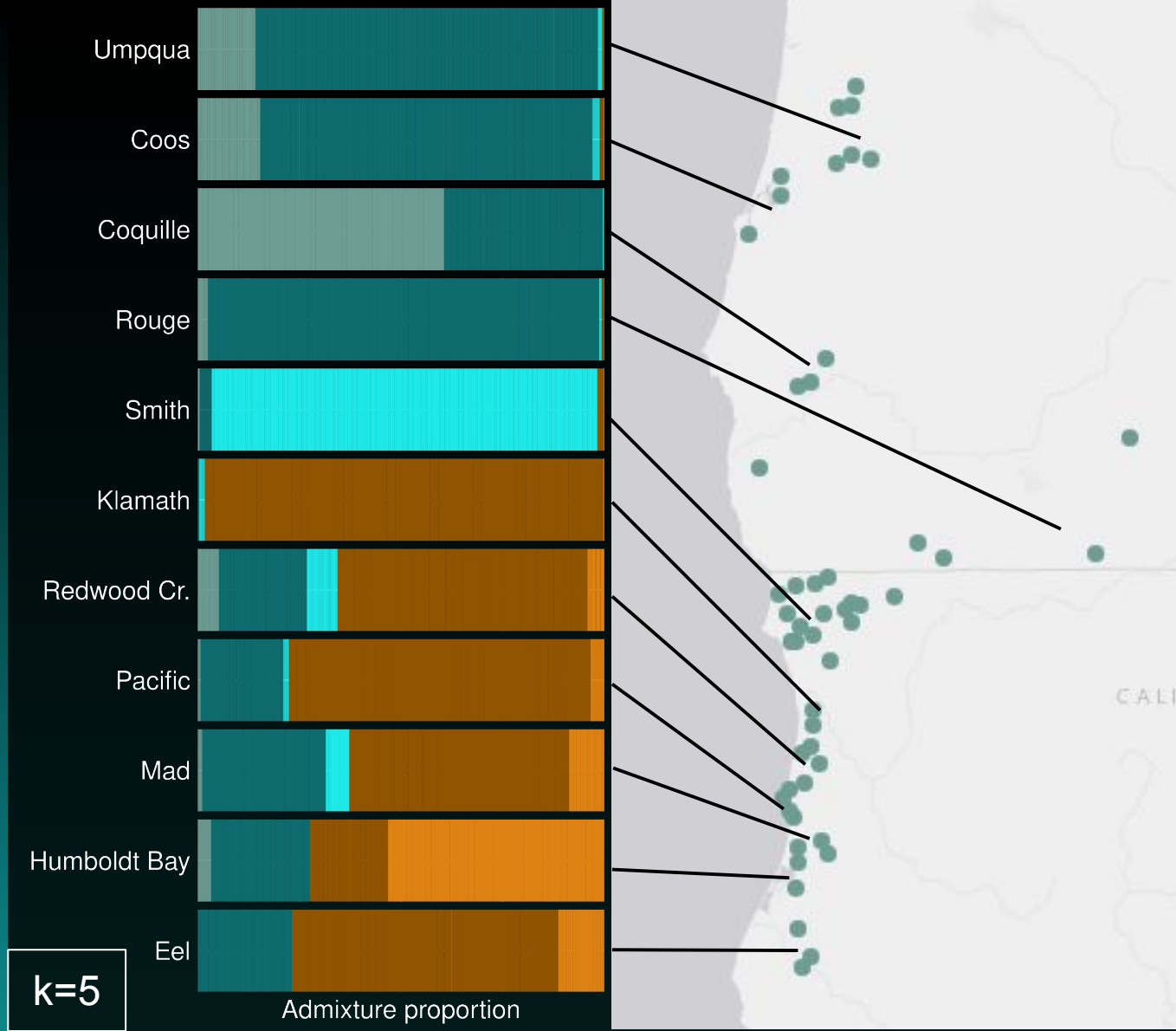
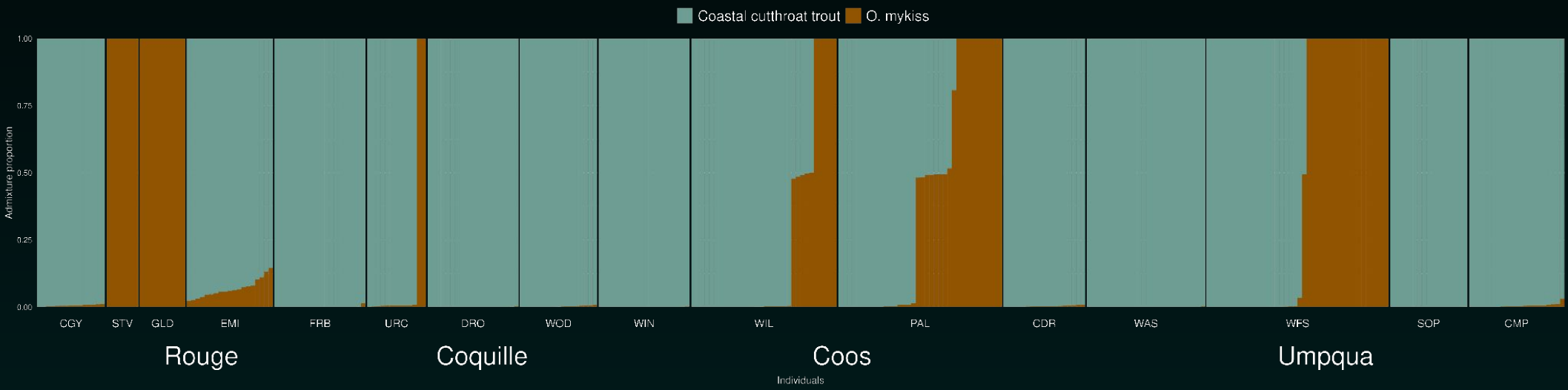


Research question

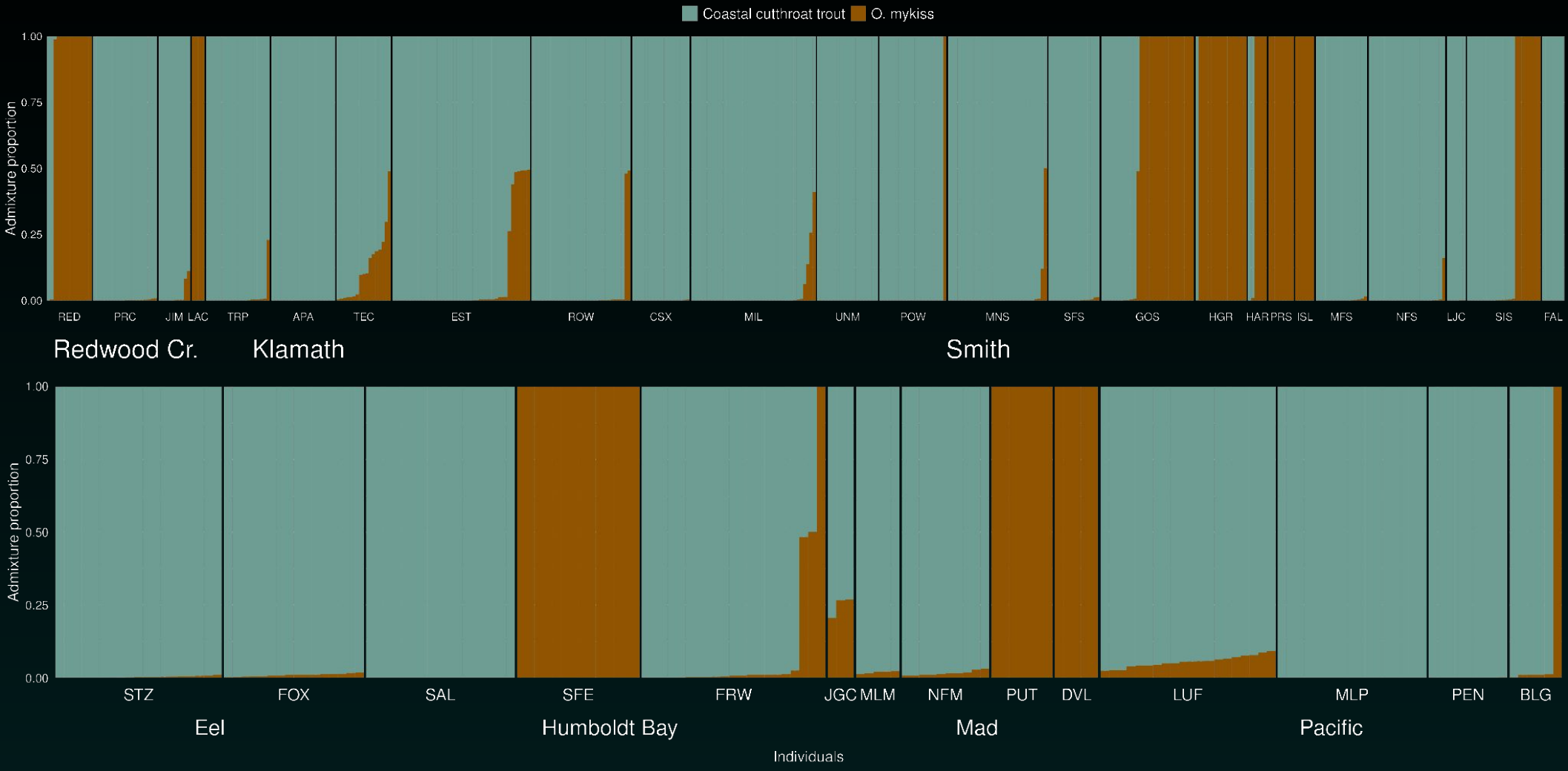
Can we expand the scope of the hybridization study spatially and within the genome? YES!

- 964 samples with successful sequencing results

Oregon CCT/SH hybridization



Northern California CCT/SH hybridization



Coastal cutthroat trout population structure