



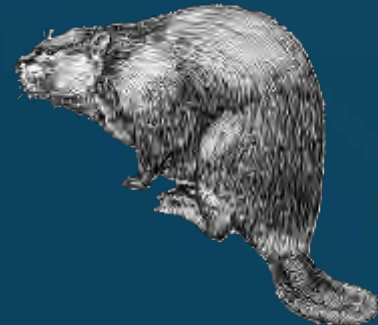
Current Distribution of Beavers in California: Implications for Salmonids

Eli Asarian
Riverbend Sciences



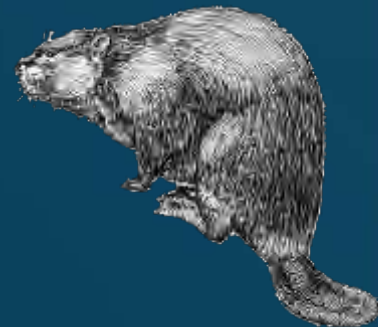
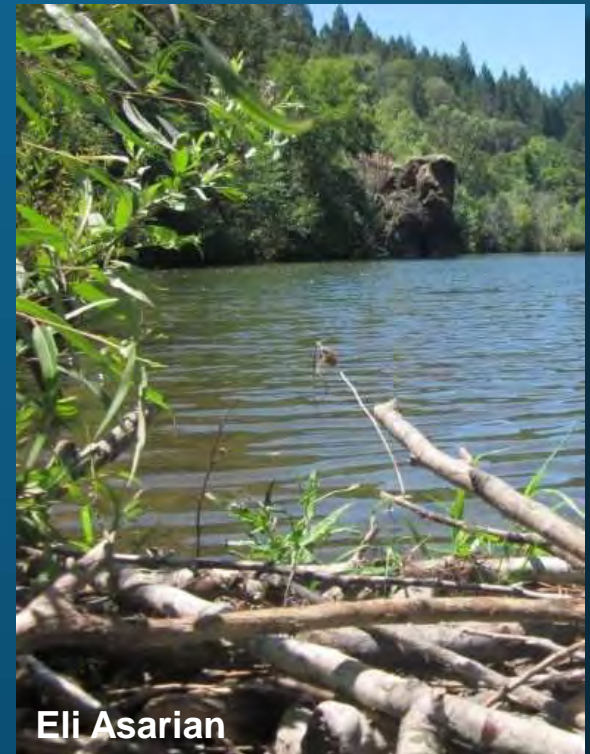
Riverbend Sciences

Presented at:
Salmon Restoration Federation
Conference
3/19/2014



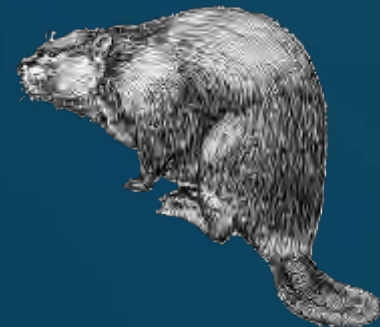
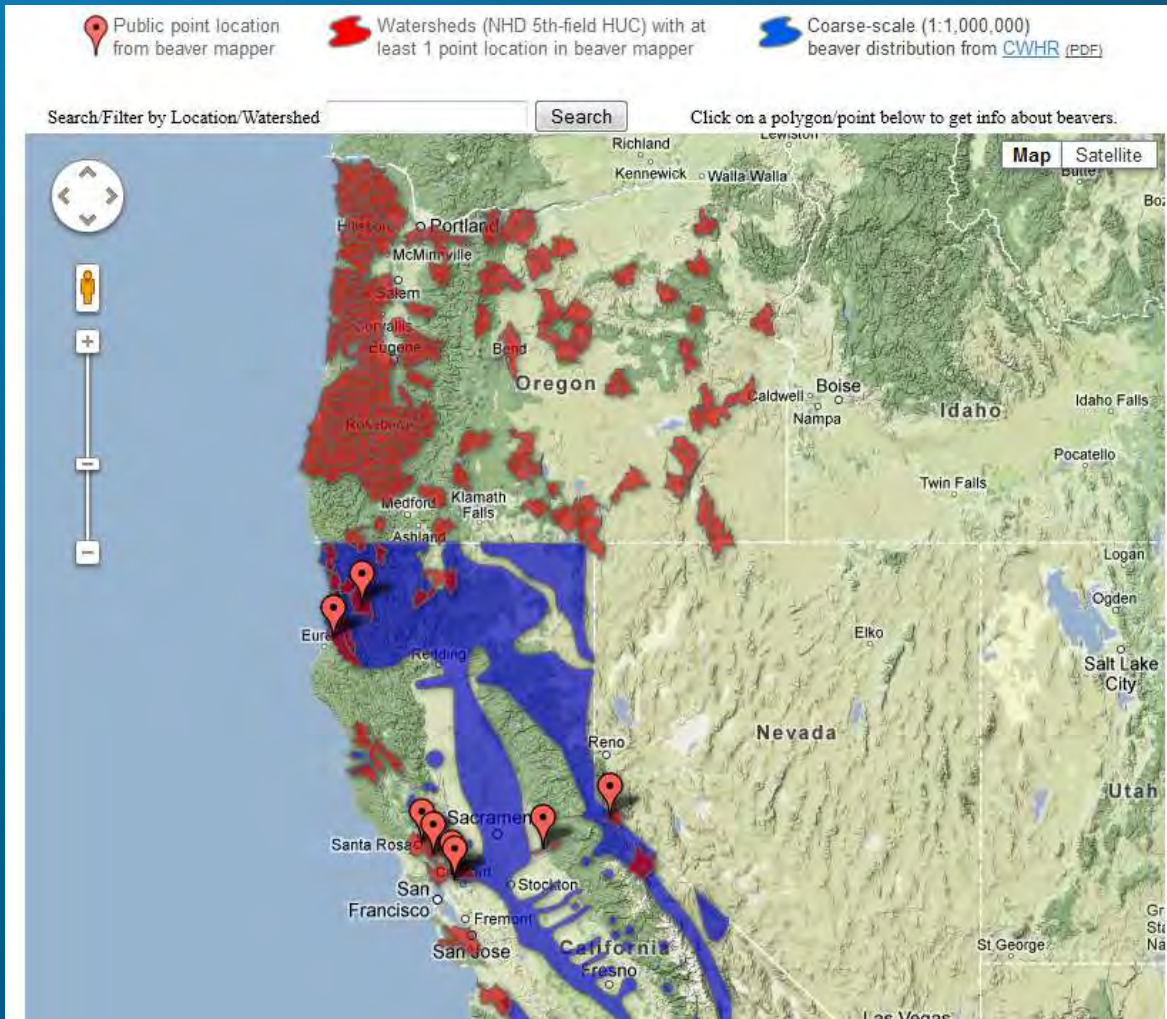
Presentation Outline

- Beaver Mapper
- Current beaver distribution
 - Interactions with salmonids
 - Recent expansion



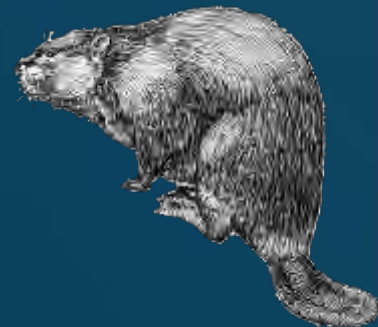
What is the Beaver Mapper?

- Web-based map system for entering, displaying, and sharing information on beaver distribution



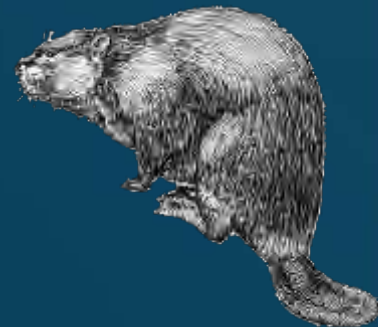
Live Demo

<http://www.riverbendsci.com/projects/beavers>



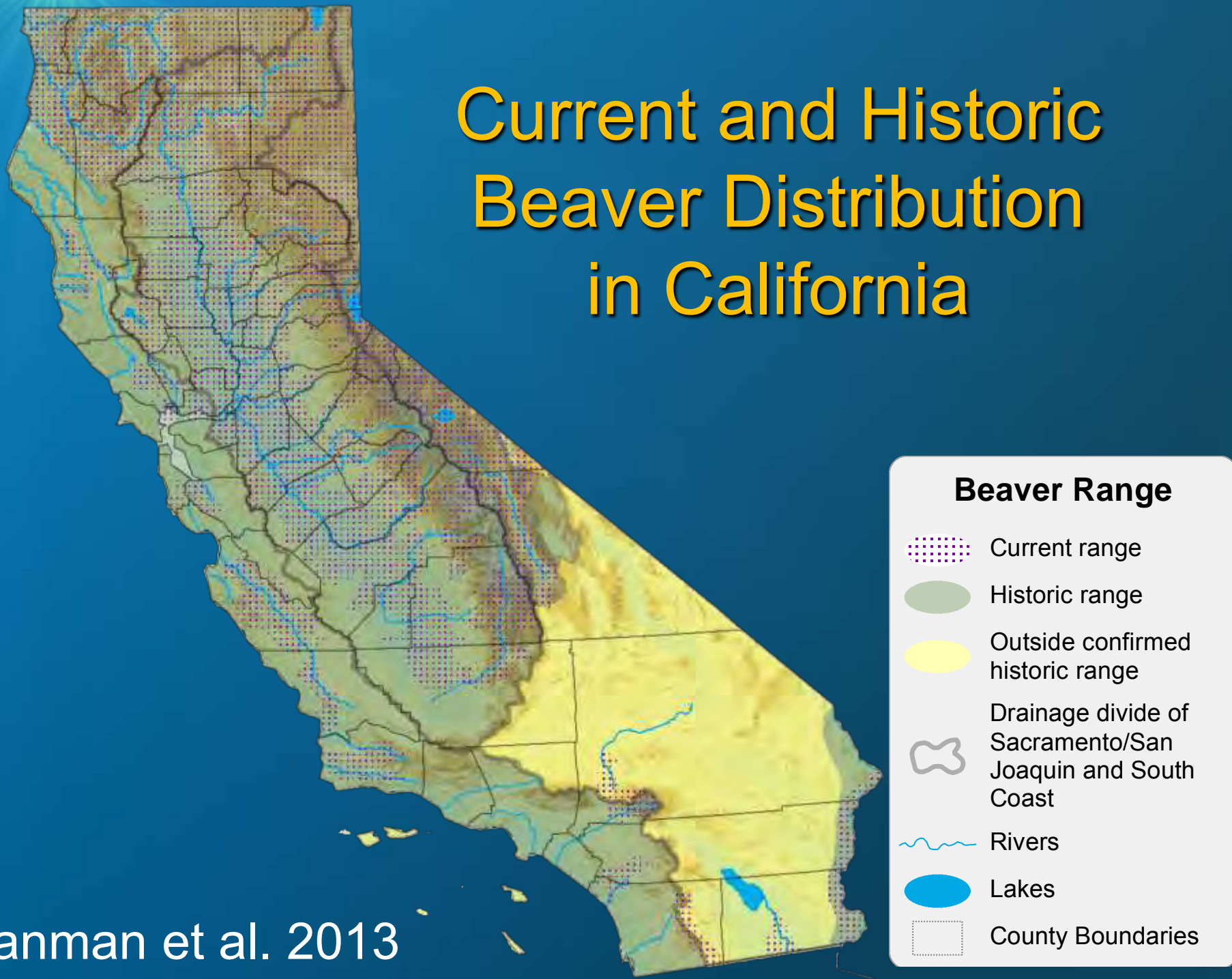
How Can You Help?

- Contribute data
 - Via website
 - Contact me:
 - info@riverbendsci.com
 - 707.832.4206
 - Bulk update for large datasets
- Funding
 - New data
 - System improvements

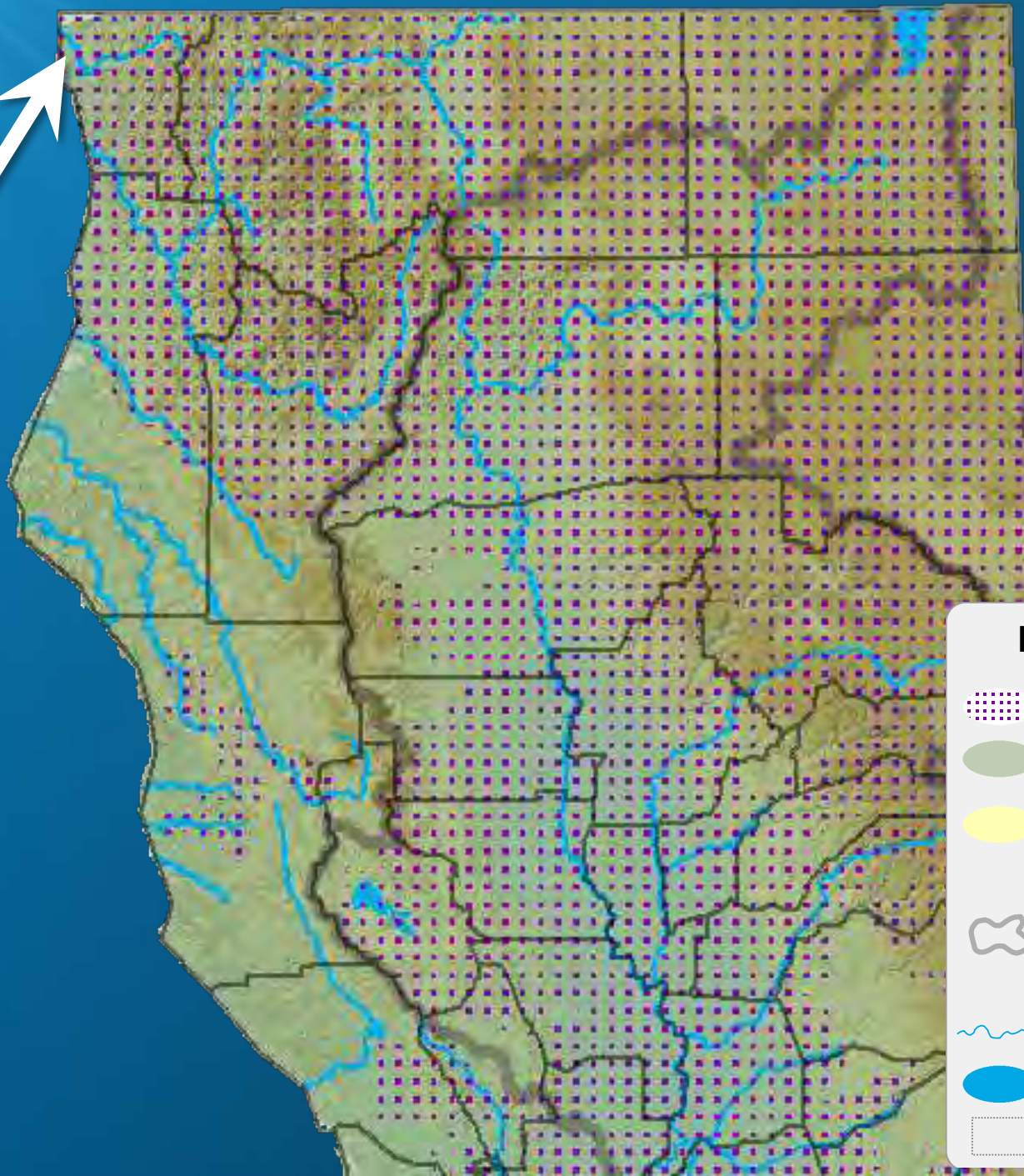


Current and Historic Beaver Distribution in California

Lanman et al. 2013



Smith
River



Beaver Range



Current range



Historic range



Outside confirmed
historic range



Drainage divide of
Sacramento/San
Joaquin and South
Coast



Rivers



Lakes



County Boundaries

Beaver Bank Lodge Smith River




Marisa Parish,
(Humboldt State Univ.
MS thesis)



**Lower
Klamath
River**

**Middle
Klamath
River**

Beaver Range

-  Current range
-  Historic range
-  Outside confirmed historic range
-  Drainage divide of Sacramento/San Joaquin and South Coast
-  Rivers
-  Lakes
-  County Boundaries

Beaver Pond on W.F. McGarvey Creek (Trib to Lower Klamath River)

from:
**Sarah Beesley &
Scott Silloway,
(Yurok Tribe
Fisheries Program)**

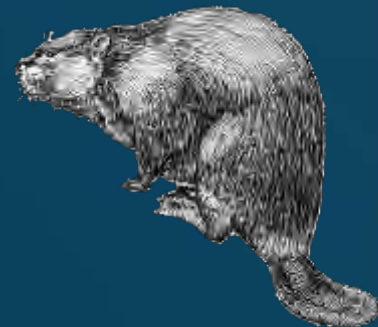


Beaver Pond on Spruce Creek (Trib to Klamath River Estuary)

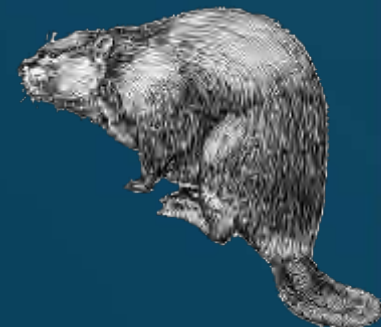
43 coho juveniles
50 steelhead/cutthroat)



from:
Scott Silloway (2010) report
(Yurok Tribe Fisheries Program)



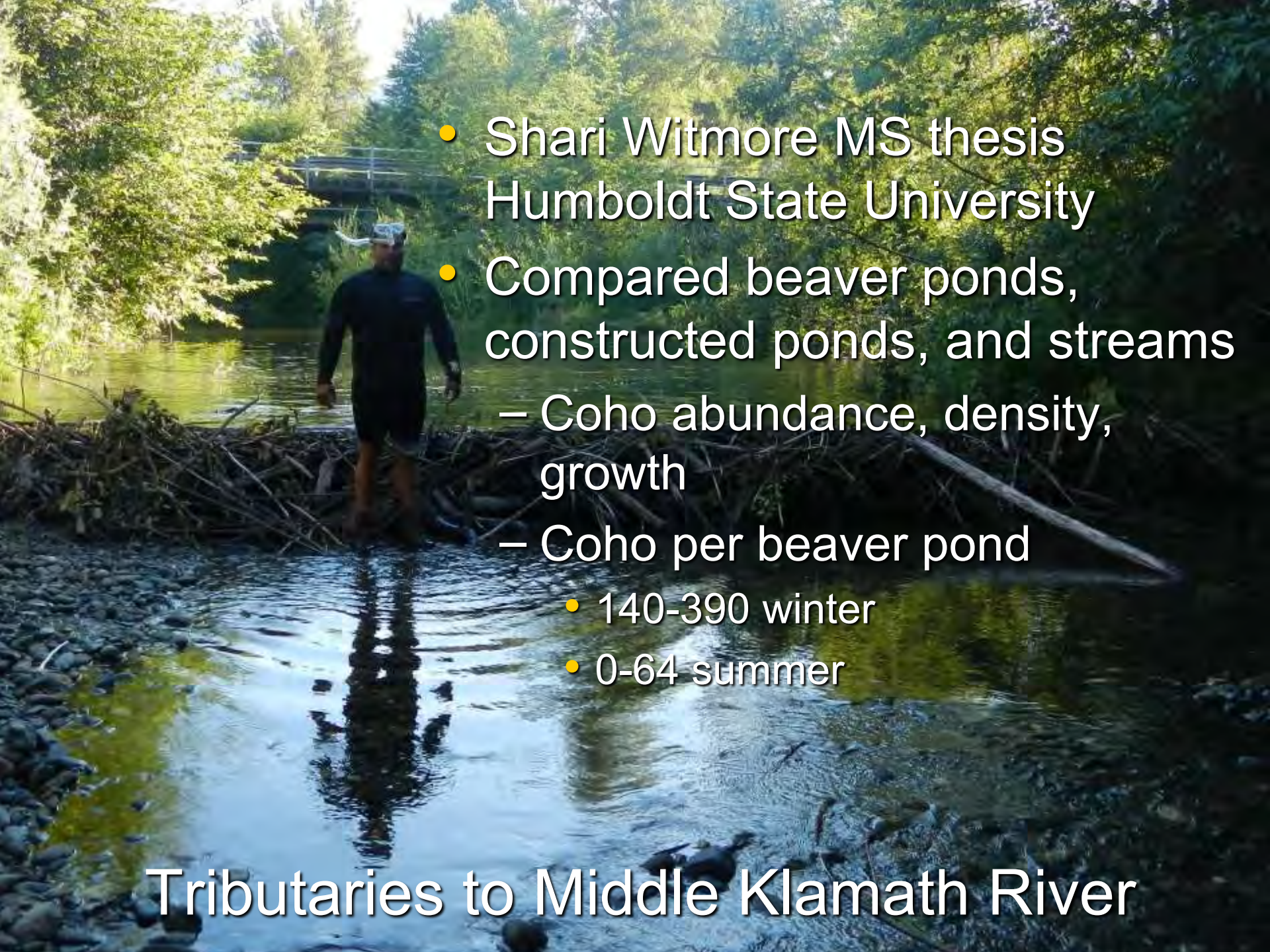
Boise Creek (Trib to Middle Klamath River)



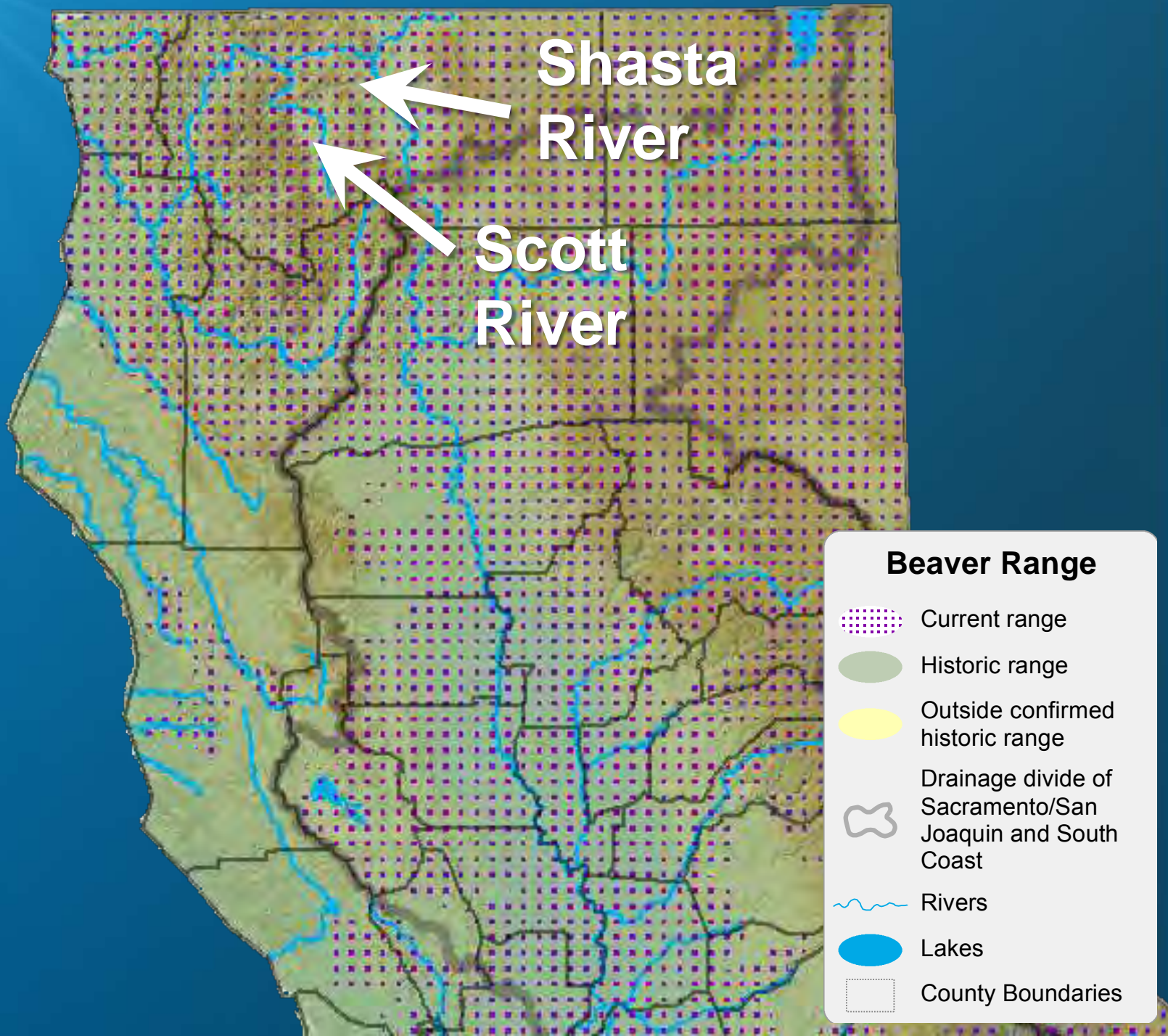
from:
Mid-Klamath Watershed Council



Brock Dolman: Occidental Arts and Ecology Center

- 
- A person wearing a black wetsuit and a white cap stands in a shallow stream, facing away from the camera. In the background, a beaver dam made of sticks and branches spans the width of the stream. The surrounding area is lush with green trees and foliage, reflecting in the water. The scene is set in a natural, wooded environment.
- Shari Witmore MS thesis
Humboldt State University
 - Compared beaver ponds,
constructed ponds, and streams
 - Coho abundance, density,
growth
 - Coho per beaver pond
 - 140-390 winter
 - 0-64 summer

Tributaries to Middle Klamath River



Beaver Pond on Moffett Creek (Trib to Scott River)

from:
Sari Sommarstrom,
Scott River Water Trust



Pool in French Creek Below Beaver Pond (Trib to Scott River)

from:
Sari Sommarstrom,
Scott River Water Trust

09.06.2012 11:28

- 2013: ~20 dams on Scott R & tribs
- Scott River Watershed Council grant
 - 5 artificial beaver dams coming!



Sugar Creek Beaver Dam/Pond (trib to Scott River)



Mary Olswang – CDFW



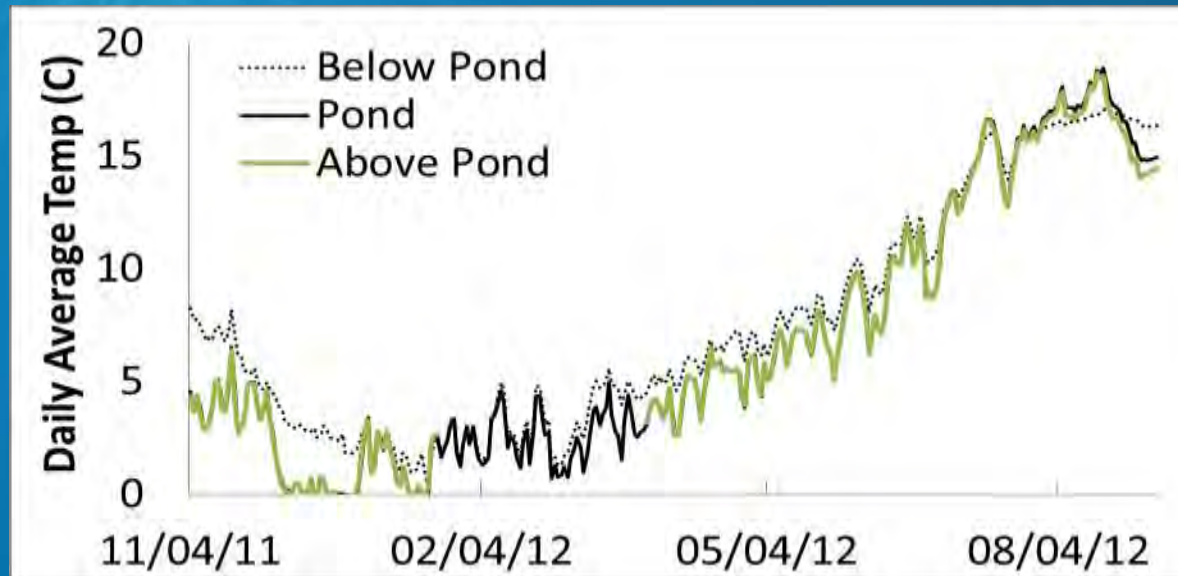
Mary Olswang – CDFW



Siskiyou RCD



Mary Olswang – CDFW



Sugar Creek Study by CDFW 2011-2012

- 1200 coho and 50 steelhead observed in pond & creek above
- PIT tagged 371 coho, 20 steelhead in pond
 - 2 detected at Waukell Creek (trib. to estuary)
 - 2 detected as returning adults





Hole-in-the- Ground Creek (trib to Shasta River)

"What had existed as riffle-pool type habitat with marginal woody debris became pond type habitat with submerged woody debris. Coho were observed in schools of approximately 20 to 100 throughout the fall and winter of 2008/2009 in these pond habitats."




Chesney et al. (2009) CDFW

**Redwood
Creek**

Mad River

Beaver Range

-  Current range
-  Historic range
-  Outside confirmed historic range
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Strawberry Creek (trib to Redwood Creek)






Photos:
Bob Pagliuco (NOAA Fisheries)

Recent Range Expansion



Beaver Range

-  Current range
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Ten Mile Creek
(SF Eel River)

A satellite map of a mountainous region. A yellow line is drawn across the landscape, connecting two creeks. The line starts at a creek in the lower-left and extends towards the upper-right. The terrain is rugged with brown and green patches. A road labeled '101' is visible near the start of the yellow line. A white arrow points from the text 'Overland 1 mile!' to the yellow line. In the top right corner, there are navigation controls for Google Earth, including a compass, a hand icon, a person icon, and a zoom slider.

Overland 1 mile!

Long Valley Creek
(Outlet Creek,
Mainstem Eel)

Redwood Hwy

Sonoma Creek








Santa Rosa Creek
(Russian River)



Data CSUMB SFML, CA OPC
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Data LDEO-Columbia, NSF, NOAA

Google earth

Beaver Range

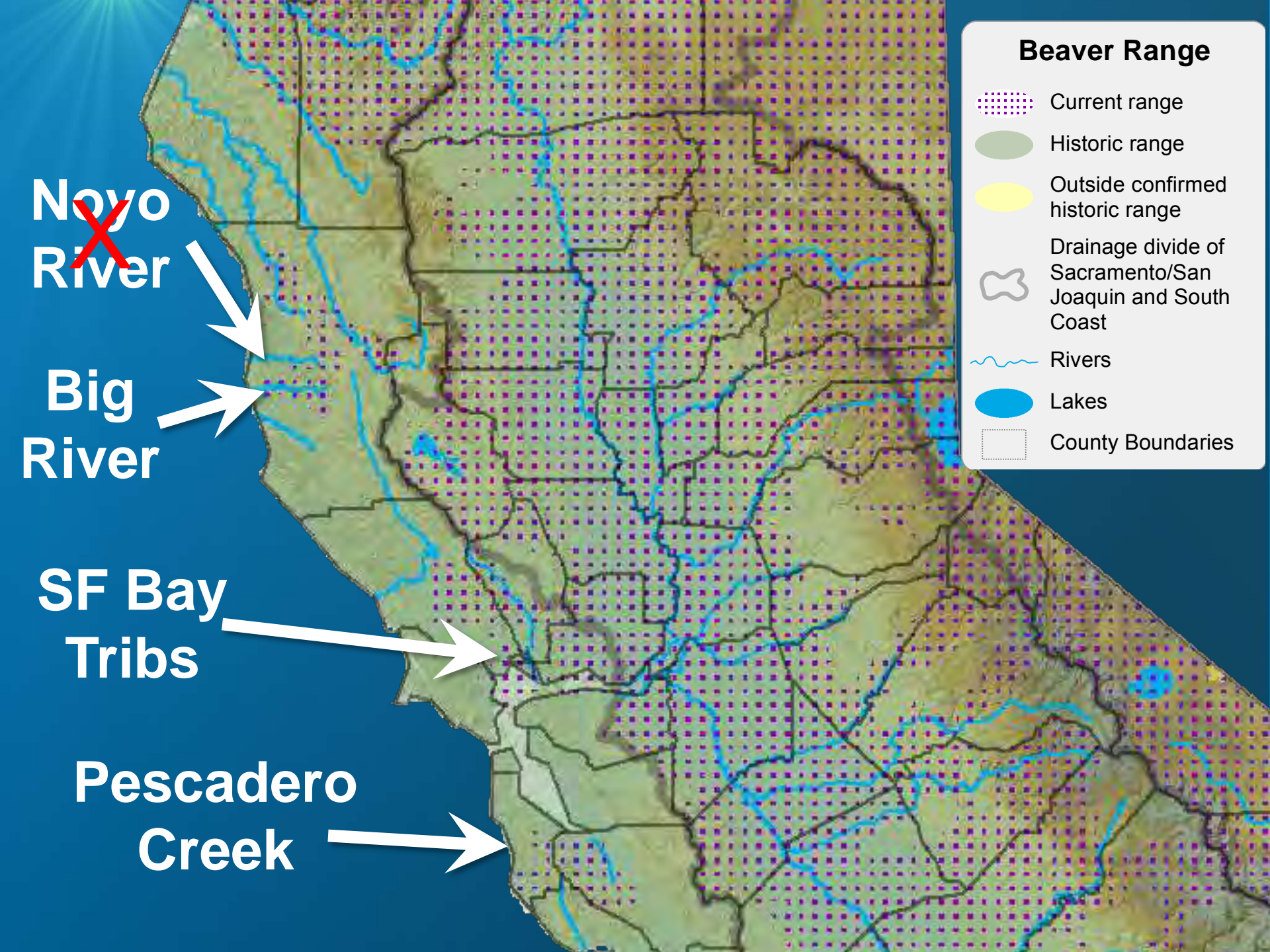
-  Current range
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~~Noyo River~~

Big River








SF Bay Tribs

Pescadero Creek





Beaver Range

-  Current range
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Salinas R.

Meadow Cr.

Arroyo Grande Cr.

Sisquoc R.

Santa Ana R.

San Antonio Cr.







Santa Ynez R.

San Mateo Cr.

Temecula Cr.

?

Beaver Range

-  Current range
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Sisquoc R.



Sisquoc River



Matt Stoecker
(Stoecker Ecological)

11 and 14 inch *O. mykiss* in beaver dam pool plus small Arroyo chub.

Conclusions

- Beaver range expanding
 - Including overland dispersal
- Beavers provide excellent habitat for coho
 - Other salmonids use ponds also
- Adult fish passage vs. juvenile rearing?
 - Net population-level effect?
- Dams: tribs on mainstem floodplain
- Landowners need assistance with beaver issues
- Beaver Mapper
 - <http://www.riverbendsci.com/projects/beavers>