

Update on biointegrity science

Presentation to SCCWRP Commission

September 6, 2024

Special focus on
modified channels



Why
bioassessment?



The state is moving towards using bioassessment tools in various programs and policies

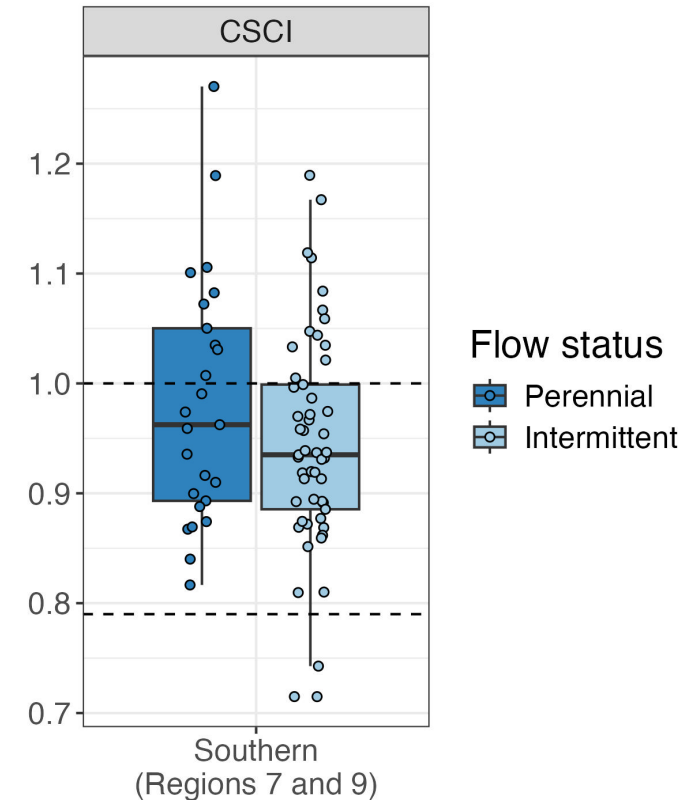
- Region 9's proposed biological objectives
- Statewide biostimulatory provisions
- SCCWRP has developed tools to assess biointegrity in wadeable streams
 - California Stream Condition Index (CSCI)
 - Algal Stream Condition Index (ASCI)

However, some questions arise:

- How do indices work in intermittent streams?
- How do we use them in modified channels?

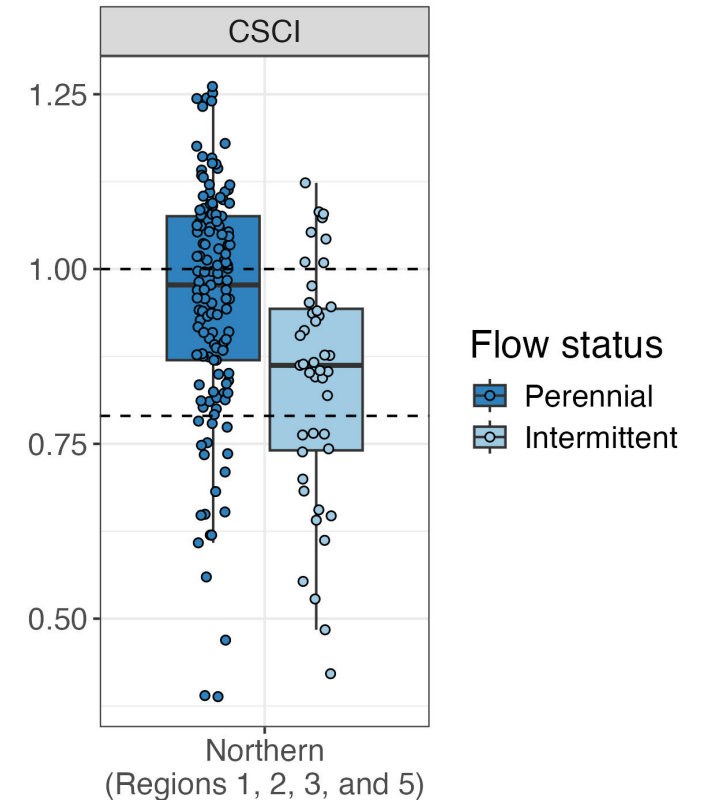
No problems in Southern California

- We compared scores at intermittent vs. perennial reference sites
 - Minimal disturbance in the watershed
 - No reach-scale disturbance (unmodified channels only)
- CSCI scores are similar in perennial and intermittent reference streams



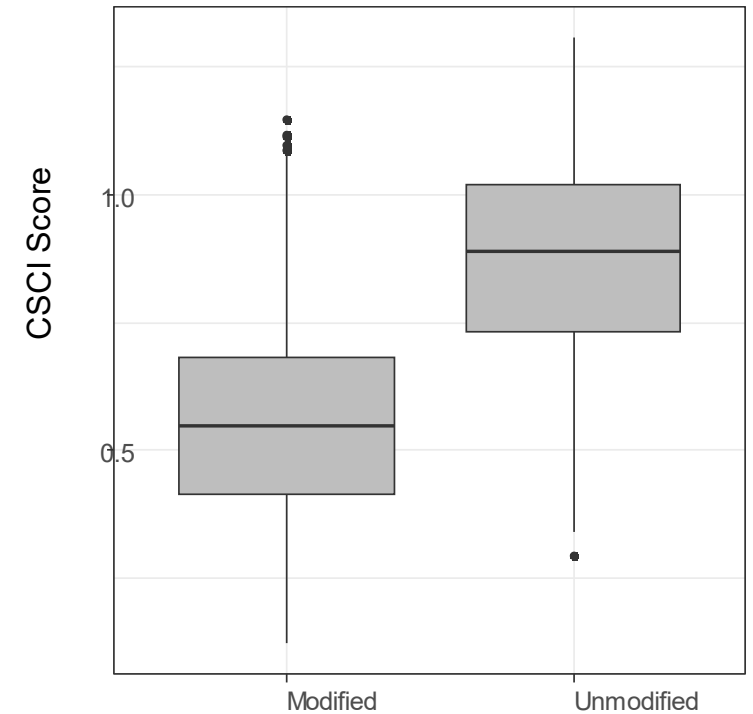
Scores differed in Northern California

- Two possible fixes:
 - Calibrate a new index
 - Requires a lot more data than we have right now
 - Calculate a threshold for northern California intermittent streams
 - We already did this
 - 10th percentile of ref sites is 0.61 (vs 0.79 for perennial streams)



However, some questions arise:

- How do indices work in intermittent streams?
- How do we use them in modified channels?



Key Questions for Modified Channels

- What ranges of scores do we see in different types of modified channels?
- What's the relative influence of WQ and modification on index scores?

Approach

- We classified modified channels based on bed and bank material
- We examined ranges of scores at all available sites we knew to be modified
- We evaluated response to WQ stress within each class of modified channel

Modified channels take many forms



Soft bottom
2 hard sides



Soft bottom
1 hard side

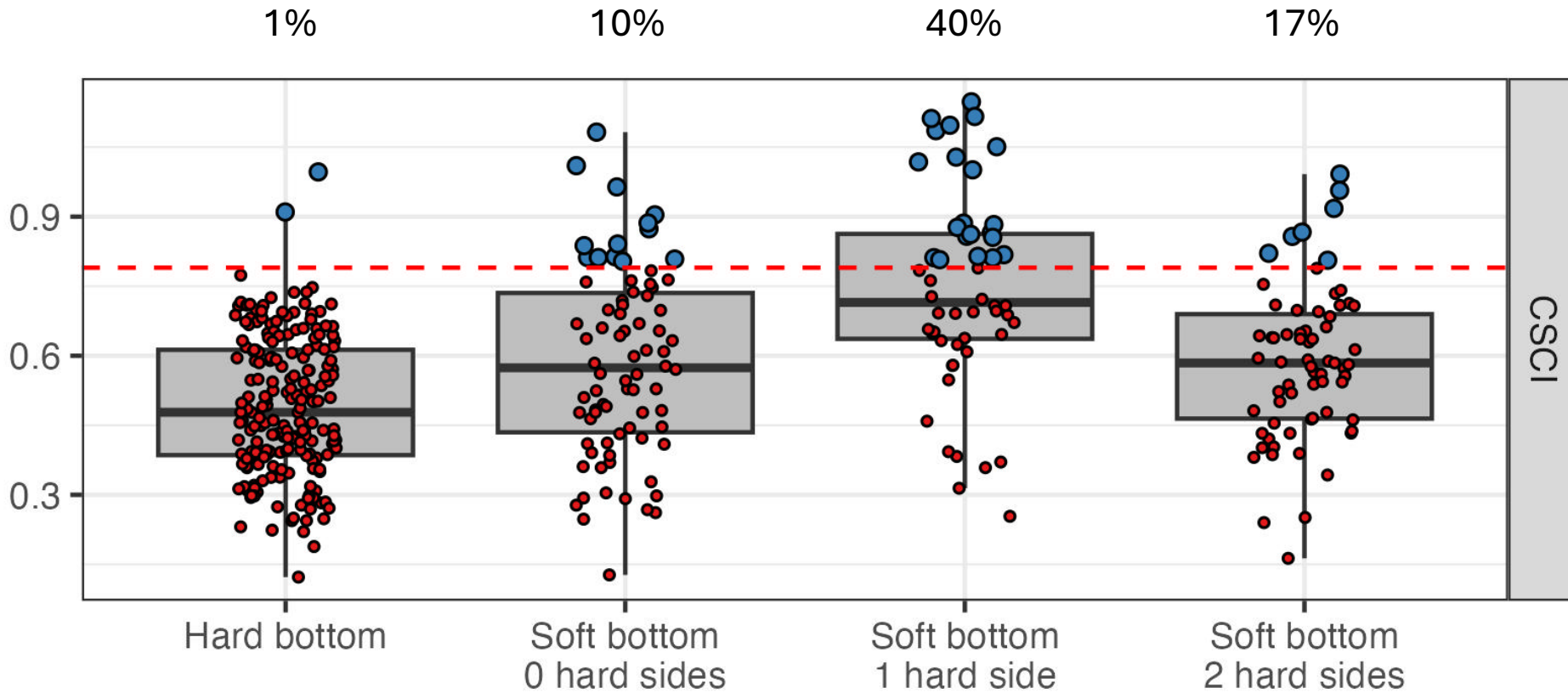
Hard
bottom



Soft bottom
No hard sides

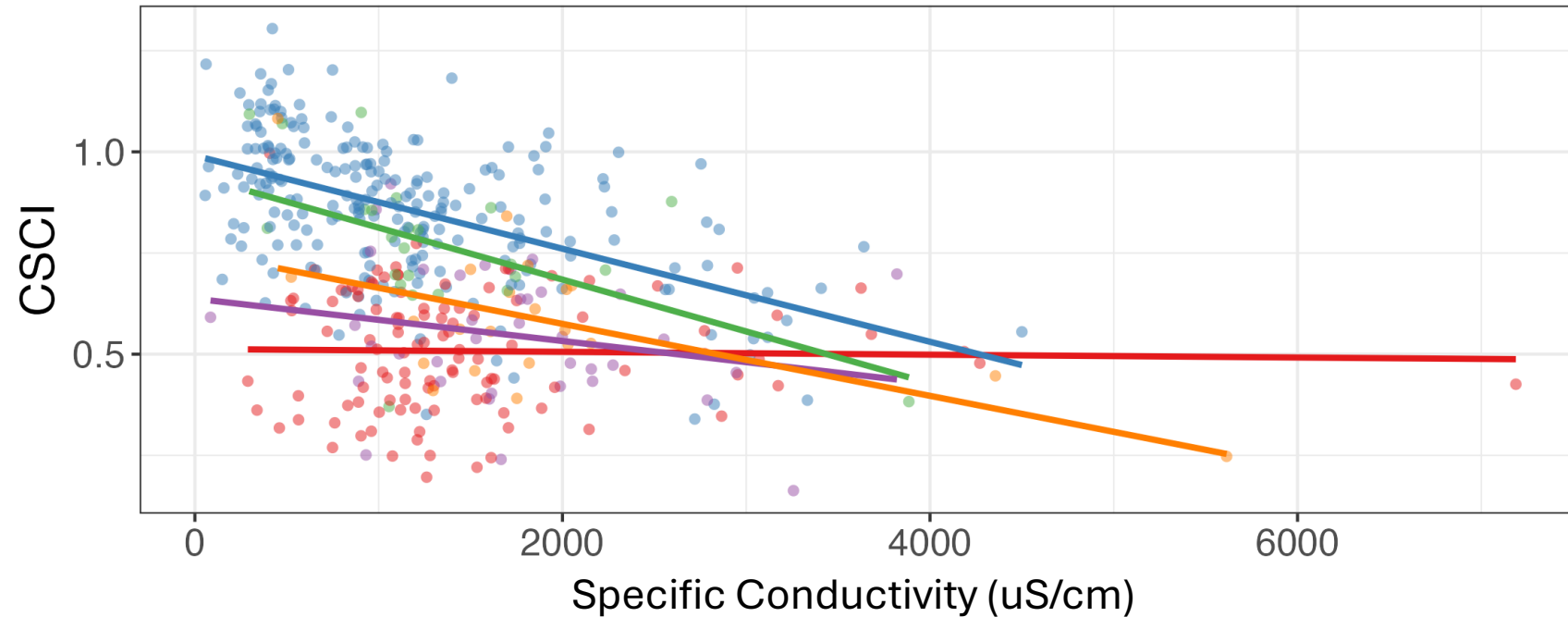


What scores are observed in modified channels?



Score \geq Ref10? • No • Yes

What's the relative influence of WQ and modification on index scores?



Class

— Hard bottom

— Soft bottom, 1 hard side

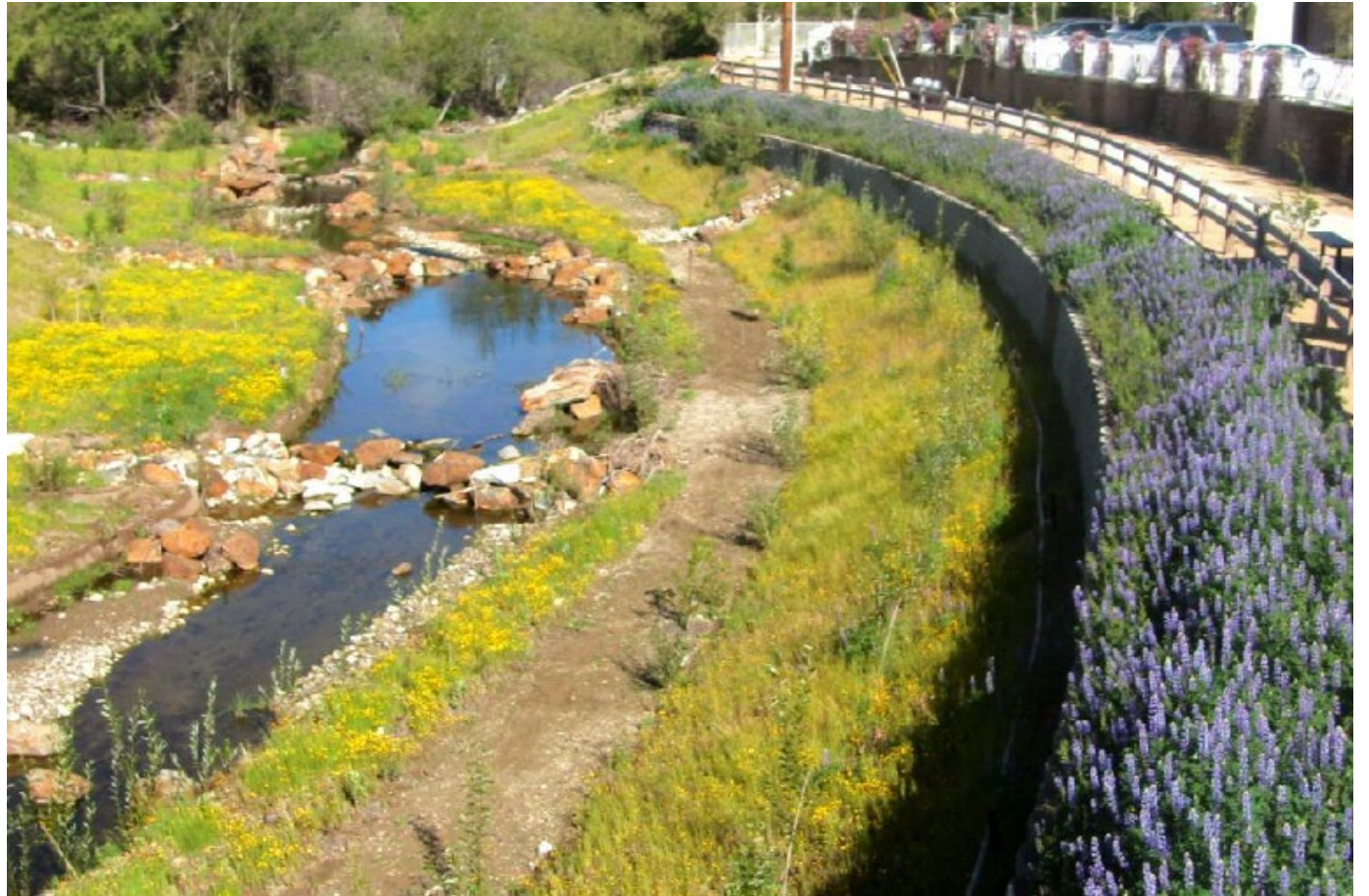
— Soft bottom, no hard sides

— Natural

— Soft bottom, 2 hard sides

Next steps

- High-scoring channels
- Causal assessments
- Flow ecology
- Restorations & BMPs



Restored portion of Arroyo Calabasas



Questions?