

CVPIA SIT Call-in Meeting July 10, 2019

Agenda



1. Status of interim Science Coordinator (Cesar/Rod)
2. Update on Science Coordinator hiring process (Cesar)
3. Update on habitat decay proposal (Rod)
4. Update on Chinook DSM calibrations (Adam and Jim)
5. Watershed expert meetings: Food for thought (Jim and Adam)
6. New Business

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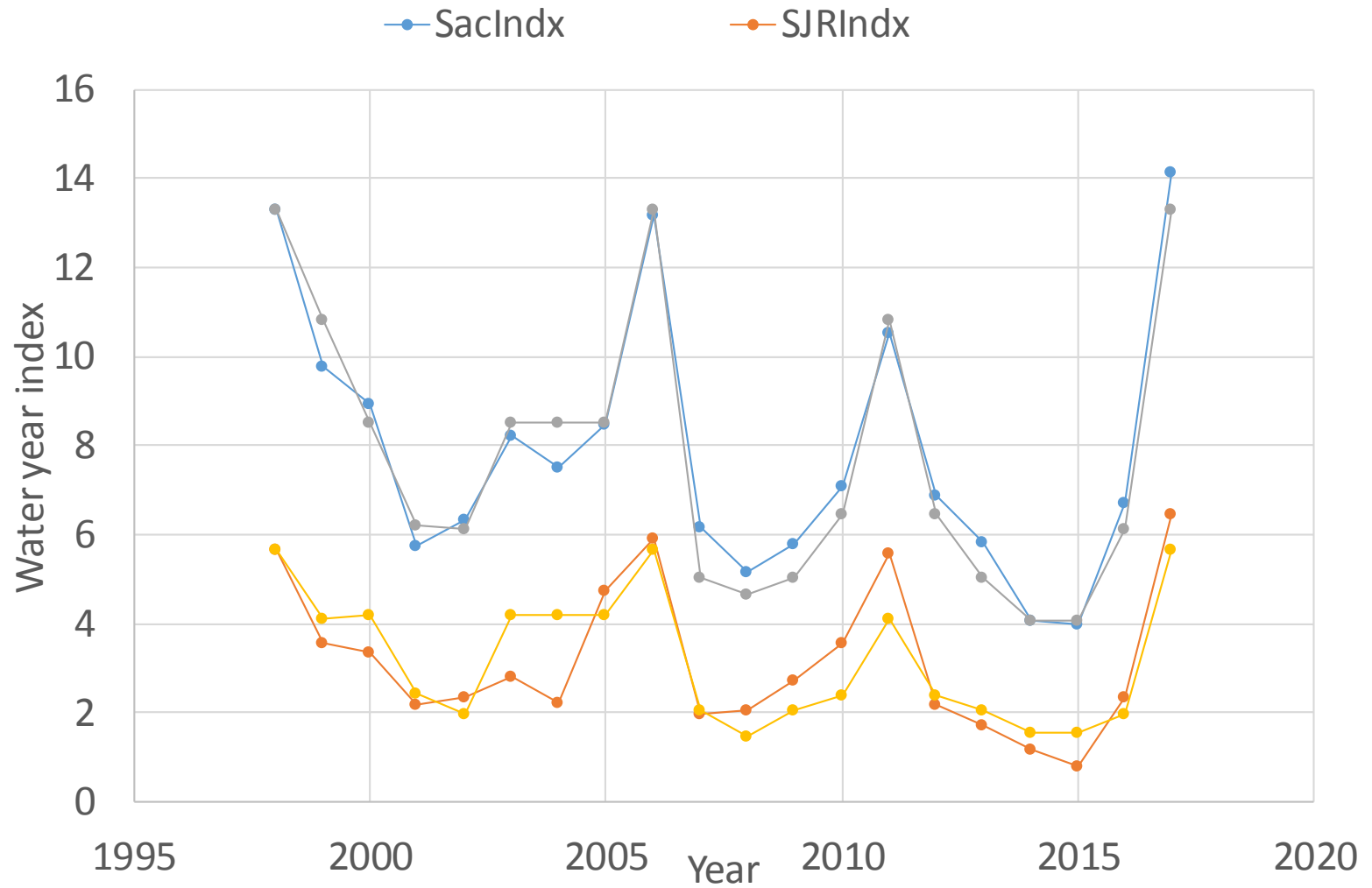
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Update on Chinook DSM calibrations

Issues with Chinook DSM calibrations

- Fuzzy DSM Inputs
 - Modeled vs. Estimated vs. Scaled Habitat Amounts
 - Proxies (like predator contact points)
 - CalSim Years vs. Fish Data Years
- Fuzzy Fish Data
 - Missing Years
 - Hatchery Fish vs. Natural Fish
- Complexity
 - Complex Model
 - Complex DSM Inputs

1998 – 2017 for calibration



Update on Chinook DSM calibrations

New(ish) Approach

- Calibrated using empirical escapement estimates (GrandTab) from 1998–2017
 - Adjusted for capture efficiency and proportion hatchery
- Parameters estimated using a genetic algorithm or quasi-Newton (AKA variable metric algorithm) methods
- Examined predicted and observed adult escapement
 - Minimized the sum of squared differences

Update on Chinook DSM calibrations

New(ish) Approach

- Parameters estimated:
 - juvenile rearing survival in tributaries (each separately where data exist)
 - juvenile rearing survival the delta
 - juvenile outmigrant survival mainstem (Sac. and SJ separately)
 - juvenile outmigrant survival through delta
 - adult en route survival
 - ocean entry survival (each separately where data exist)
 - contact points vs juvenile survival (due to predation)
 - proportion water diverted vs juvenile rearing survival (trib)
 - total amount of water diverted vs juvenile rearing survival (trib)
 - the effect of total amount of water diverted on juvenile delta rearing survival
 - temperature effect on egg survival (winter run only)

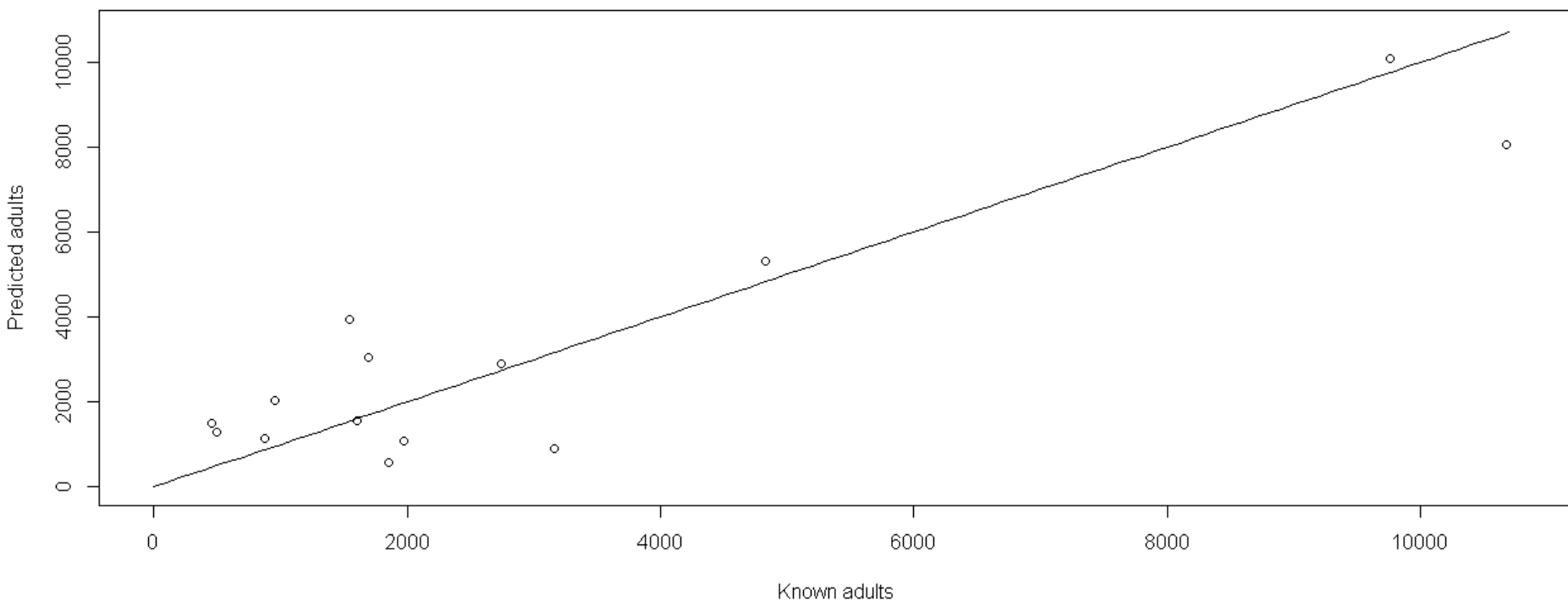
Update on Chinook DSM calibrations

New(ish) Approach

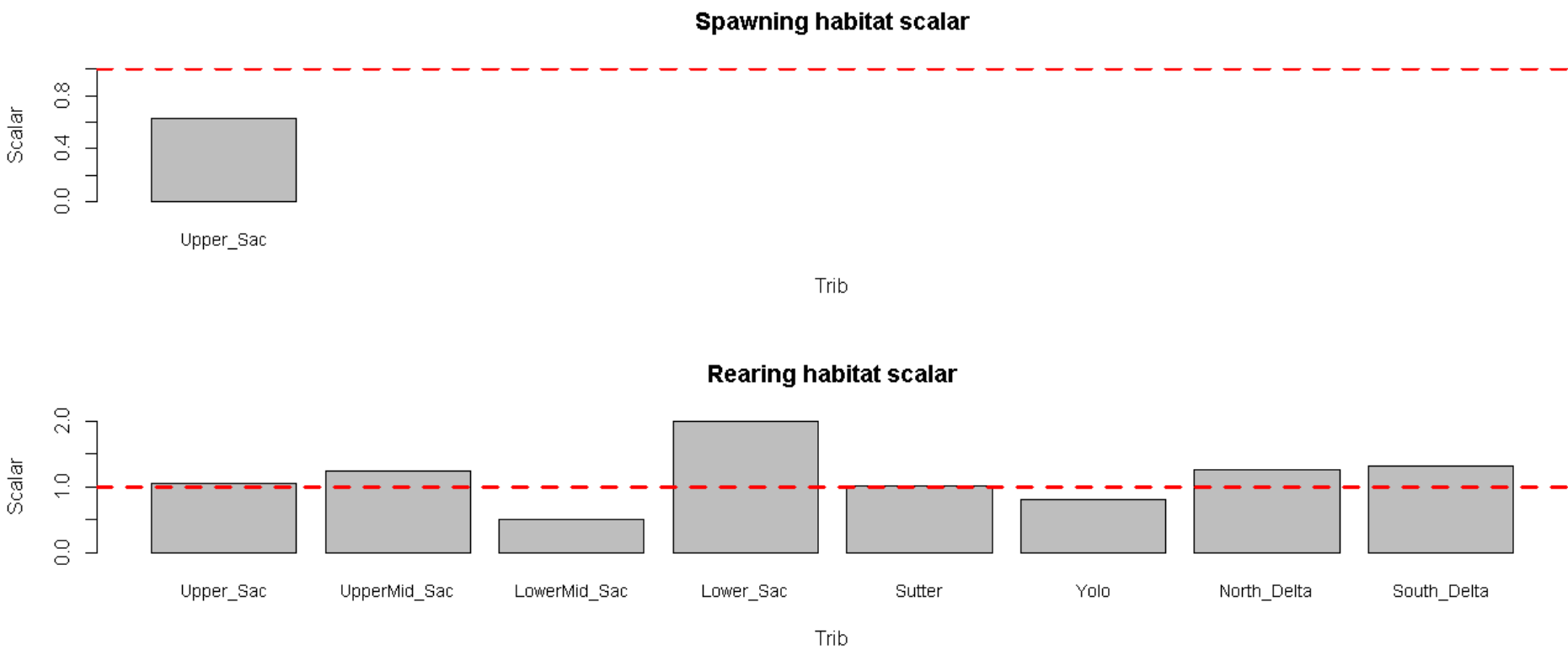
- Scaled Habitat Inputs:
 - Based on tribes where data exist
 - Spawning habitat scalars, range: 0.5 – 1
 - Rearing habitat scalars, range: 0.5 – 2

Winter Run

Upper Sac, cor = 0.903

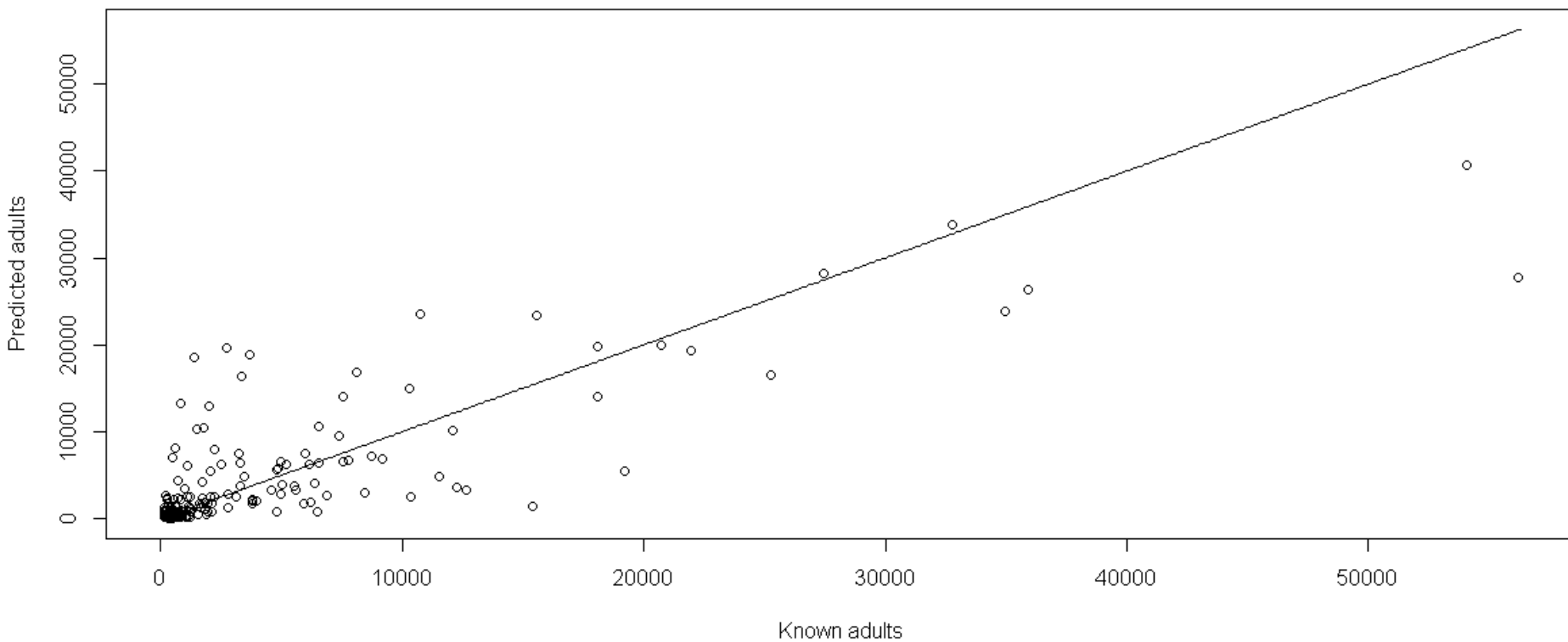


Winter Run

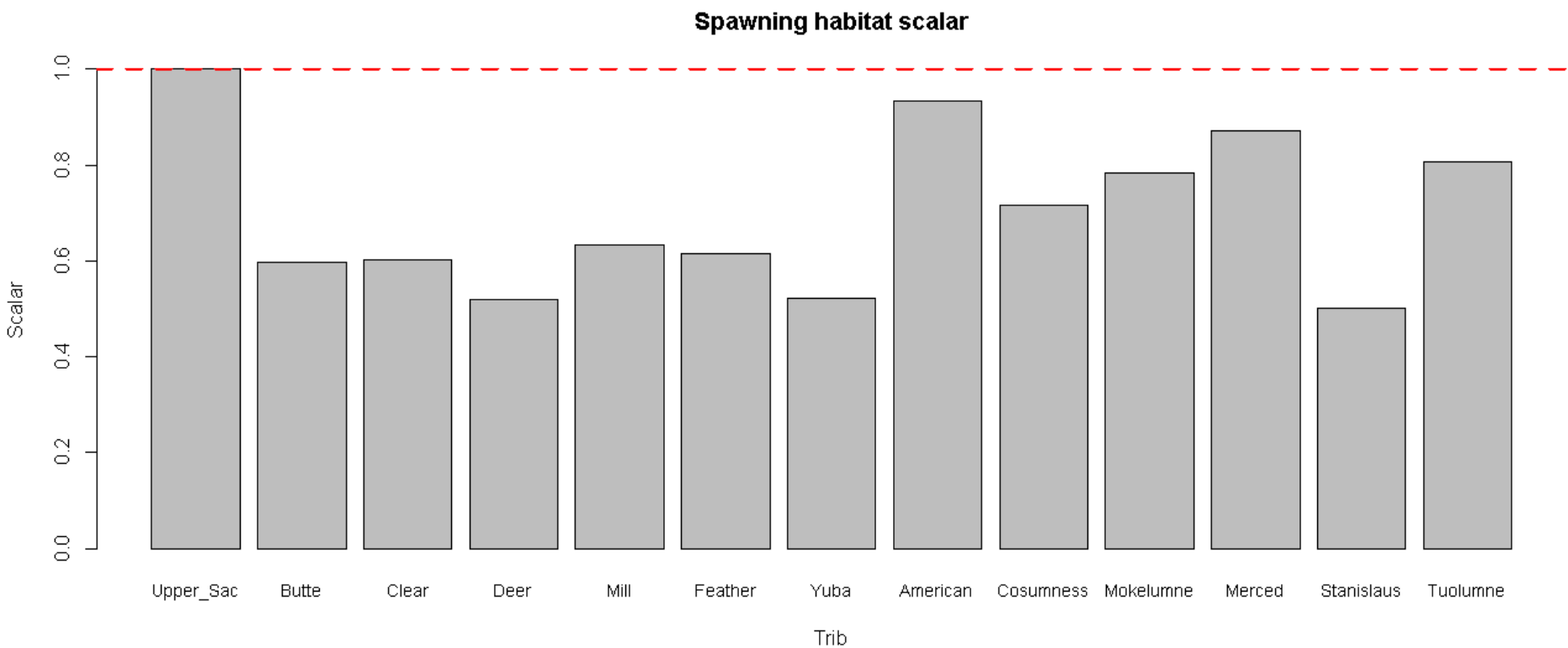


Fall Run

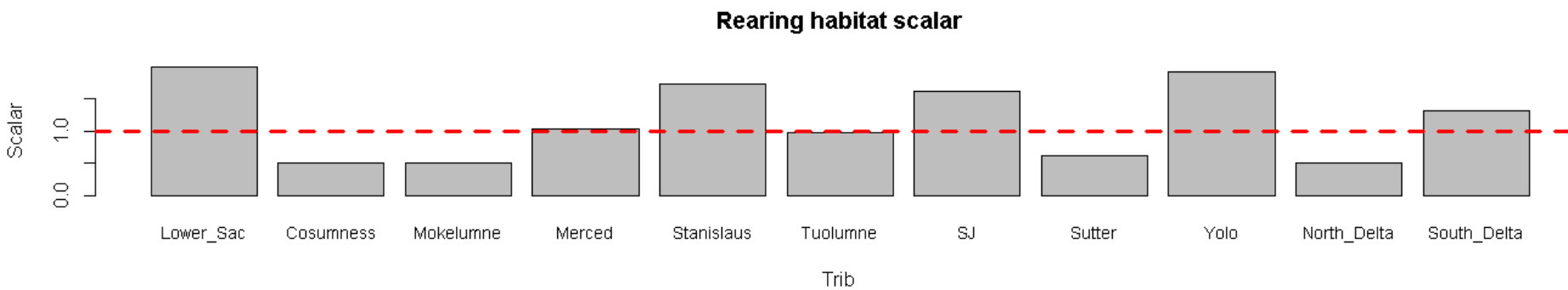
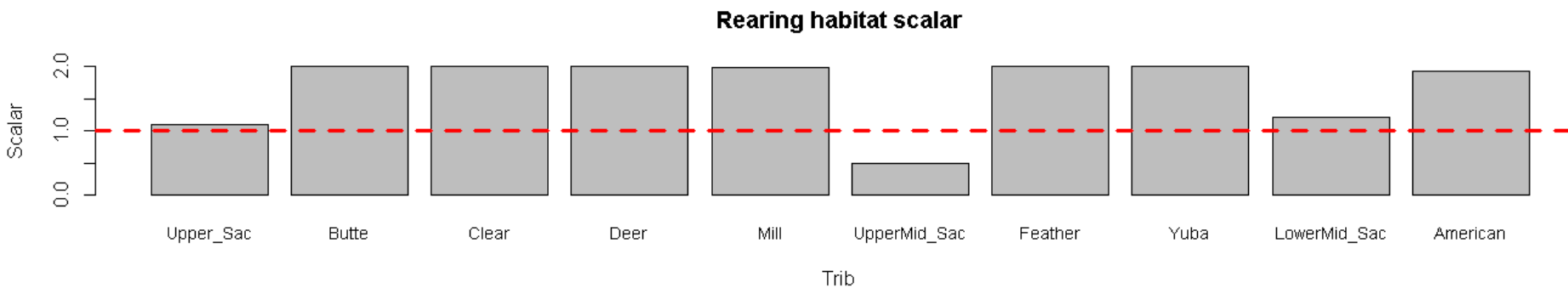
All tribes, cor = 0.81



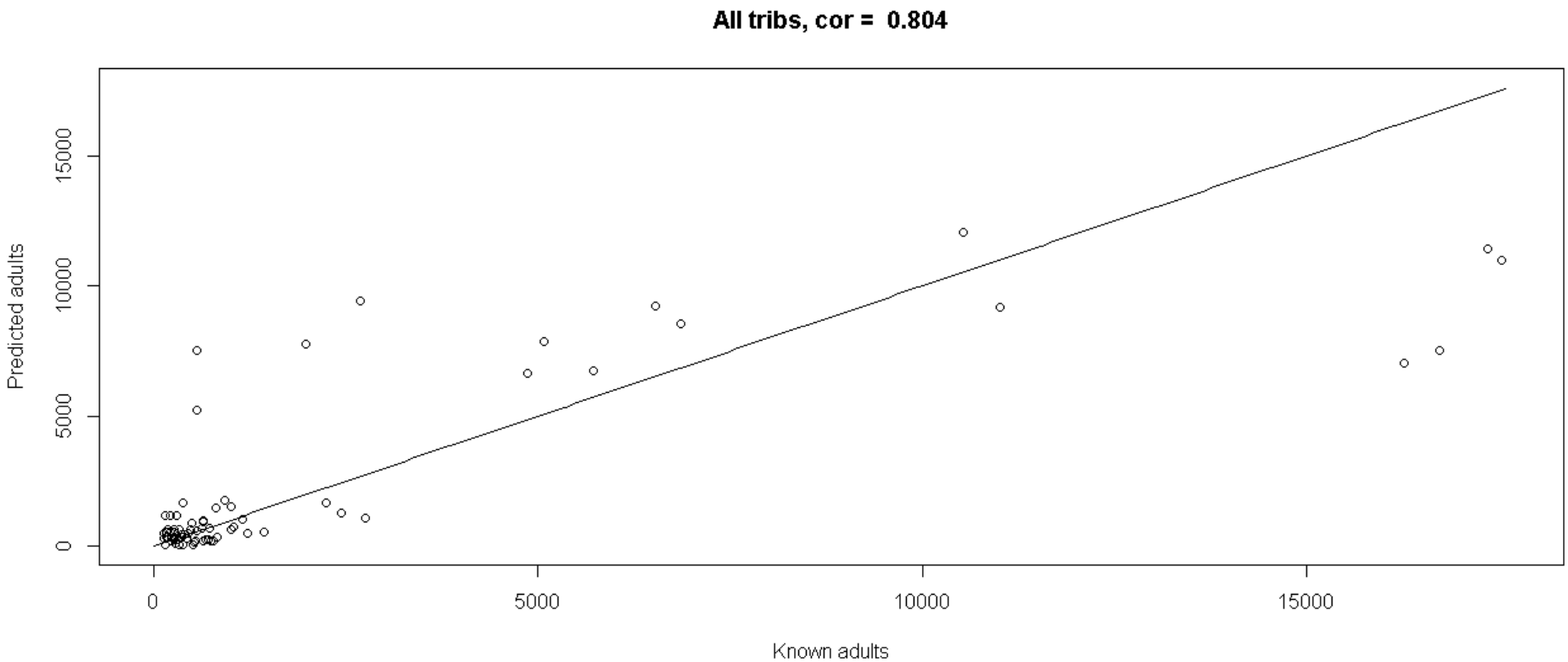
Fall Run



Fall Run



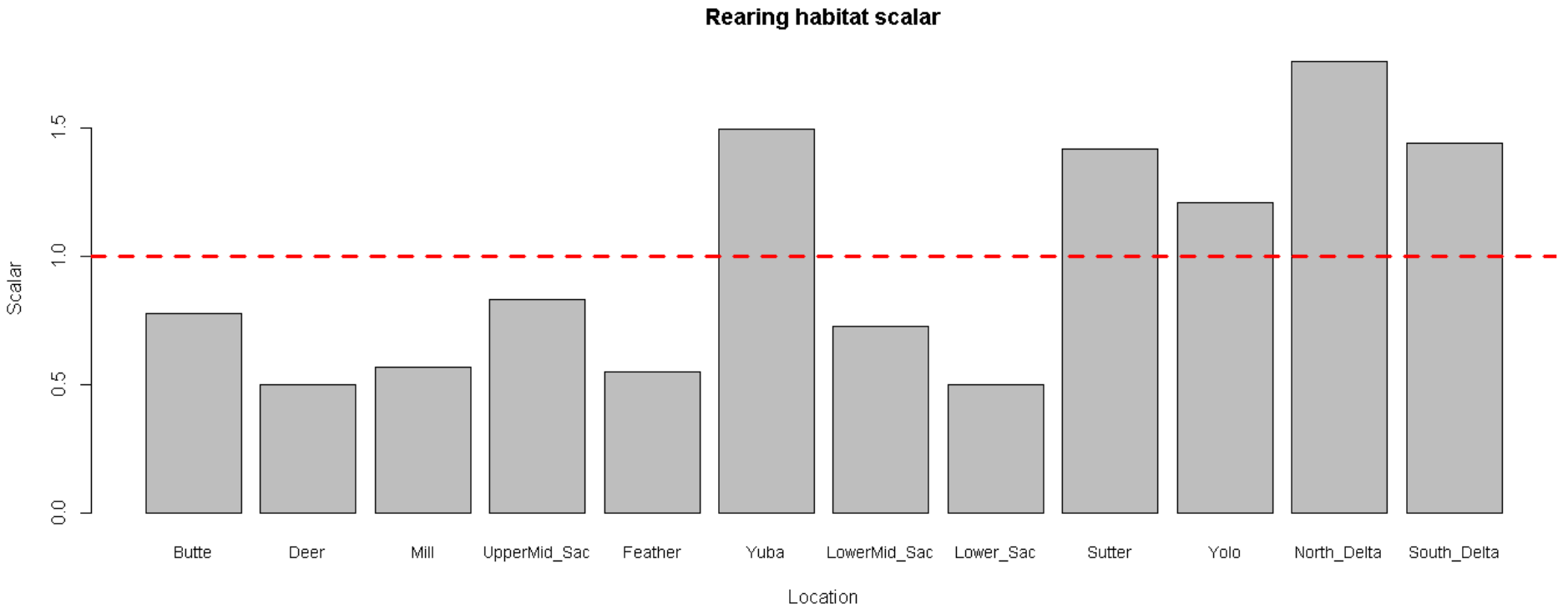
Spring Run



Spring Run



Spring Run



Next Steps

- Send calibrated Chinook DSMs to FlowWest
- Integrate the 3 Chinook Runs into a single DSM
- Calibrate the O. mykiss DSM

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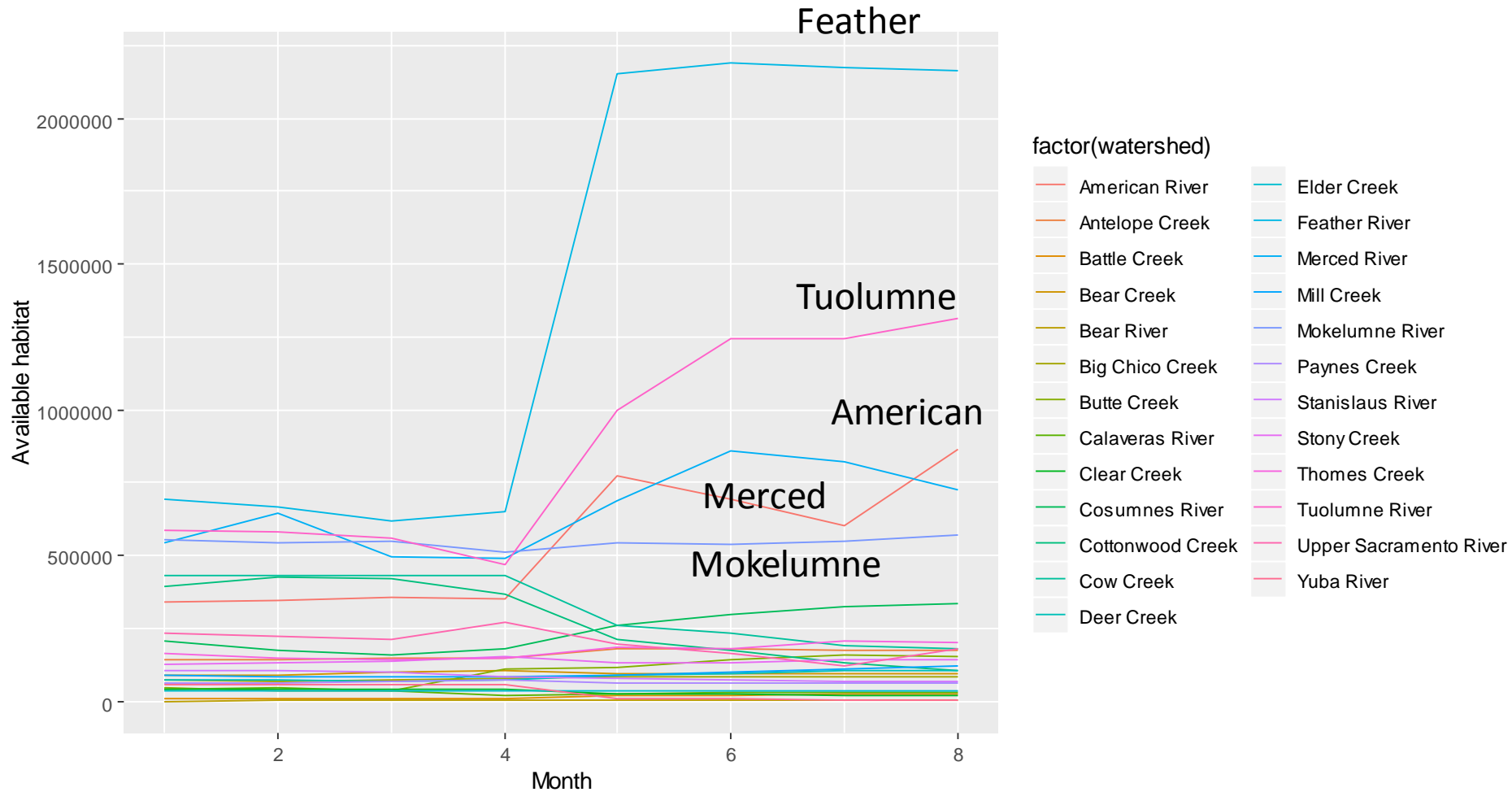
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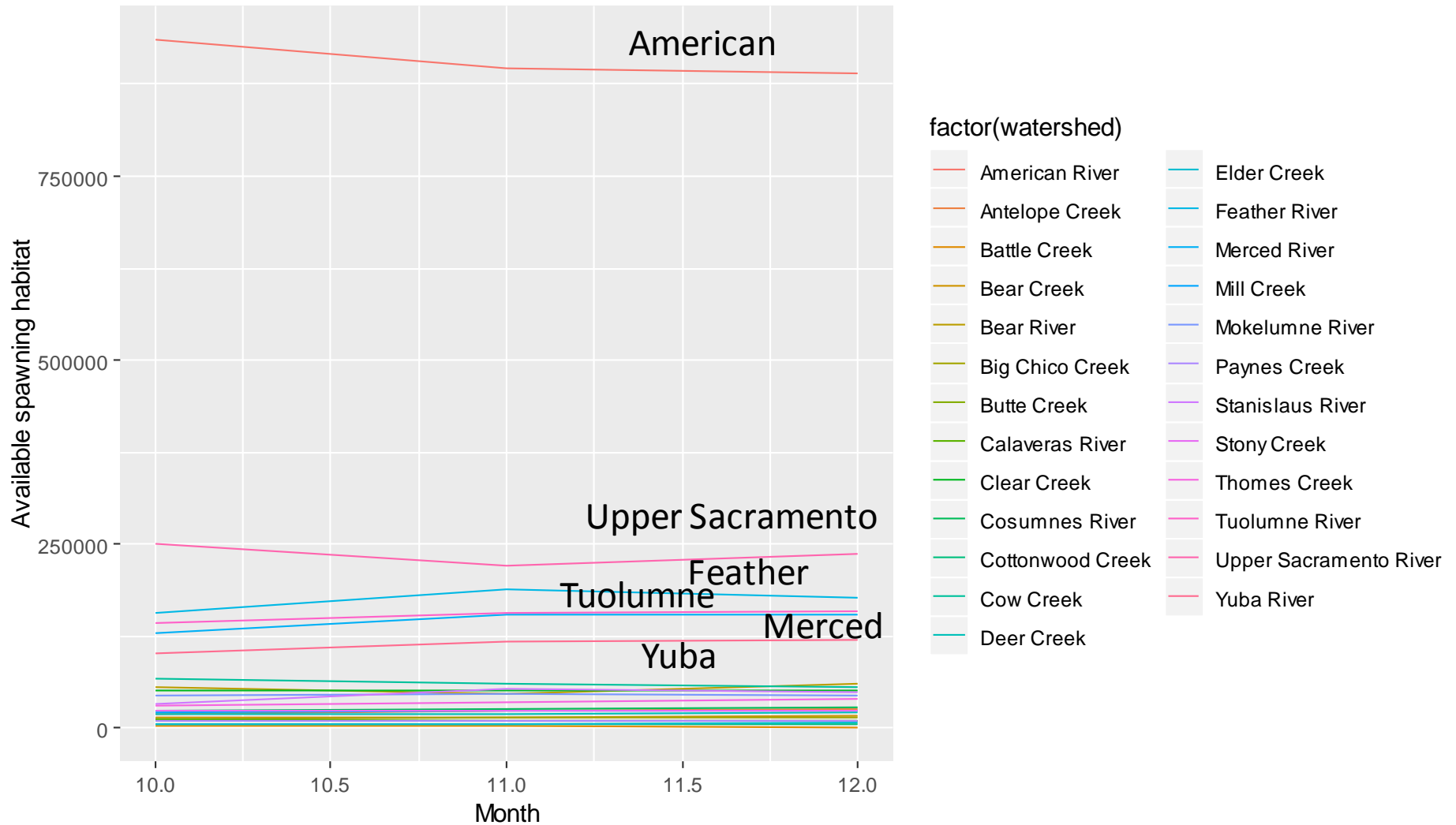
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Habitat availability dynamics (calibration period)

Average rearing in channel habitat by month



Average spawning habitat by month



Grouping tributaries by habitat dynamics

Large Decrease

Yuba, Cow Ck, Cottonwood, Clear, Upper Sac

Small Decrease

Stanislaus, Calaveras

Stable

Elder, Big Chico, Mok, Bear Ck, Paynes Ck, Stony Ck

Small Increase

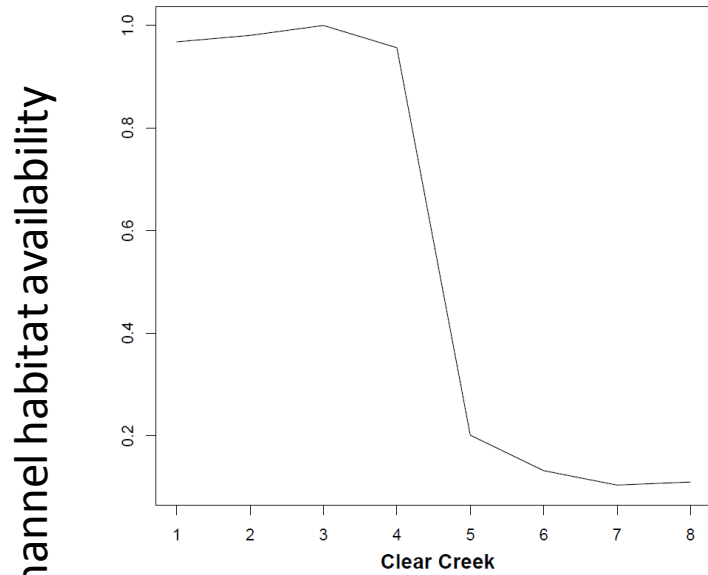
Bear R, Antelope, Thomes, Deer, Mill

Large Increase

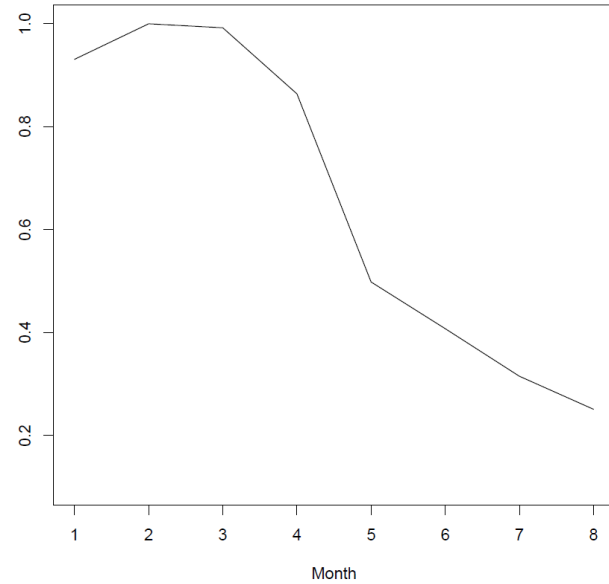
Tuolumne, Merced, Cosumnes, American, Feather, Butte, Battle

Examples of Large Decrease

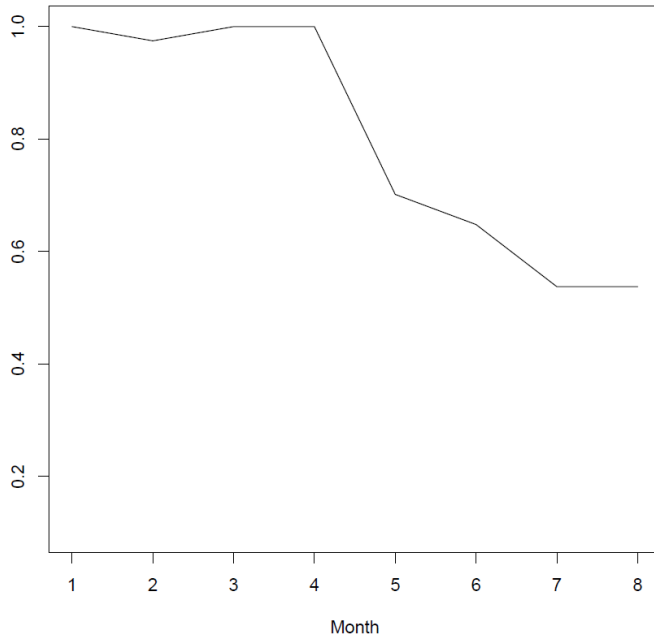
Yuba River



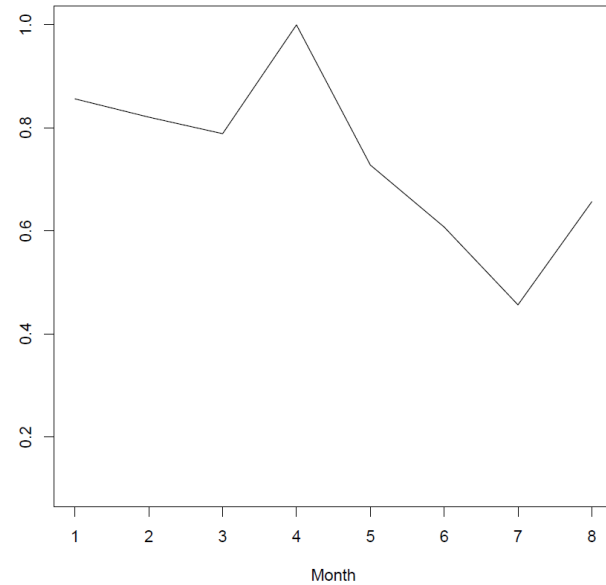
Cottonwood Creek



Clear Creek



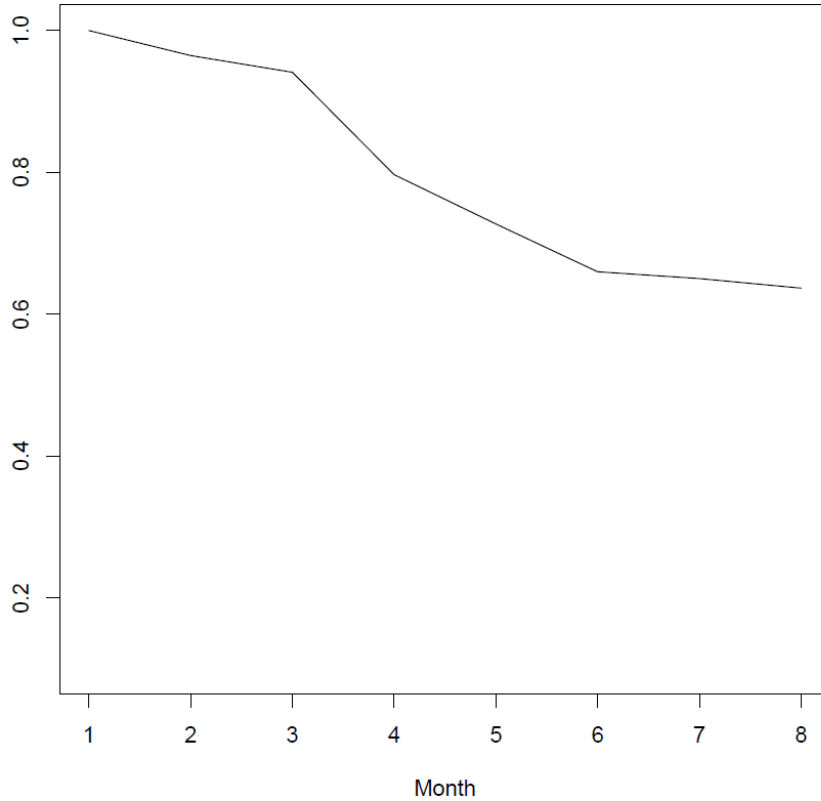
Upper Sacramento River



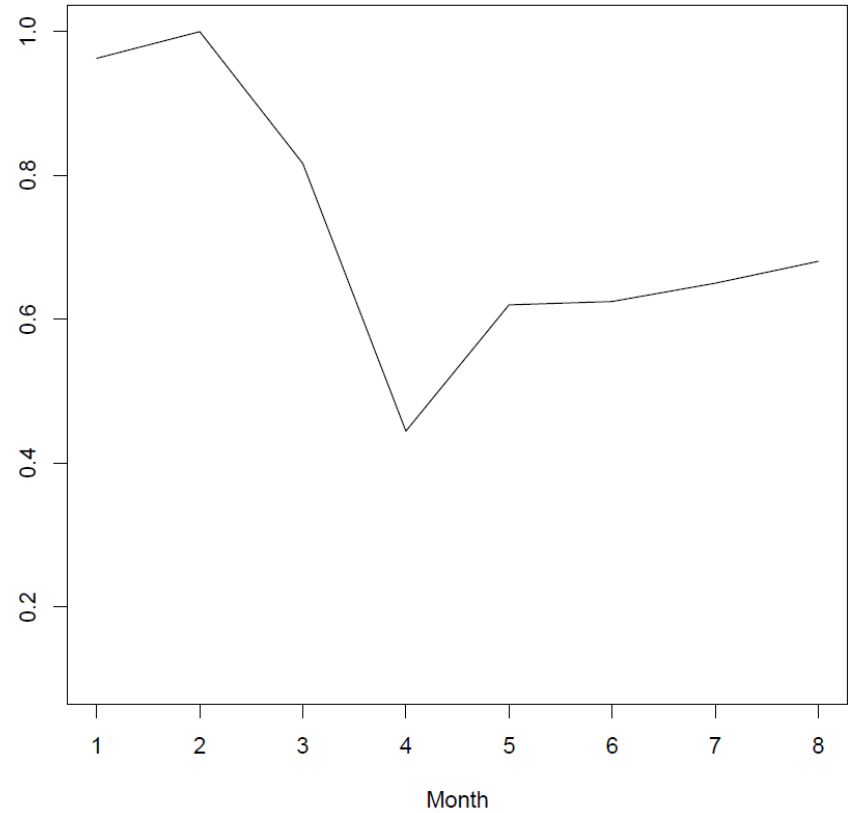
Examples of Small Decrease

Relative in-channel habitat availability

Stanislaus River



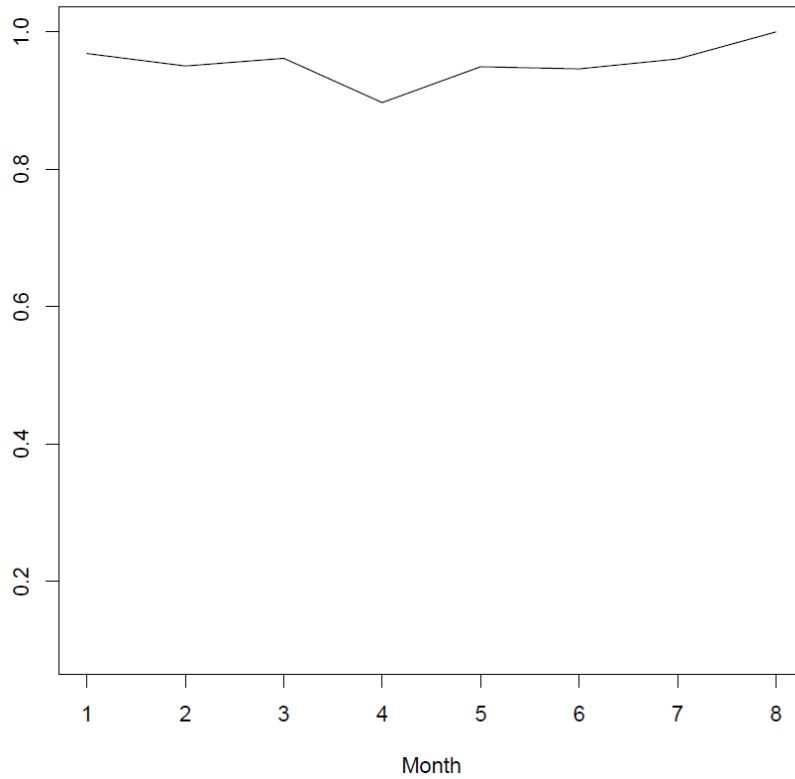
Calaveras River



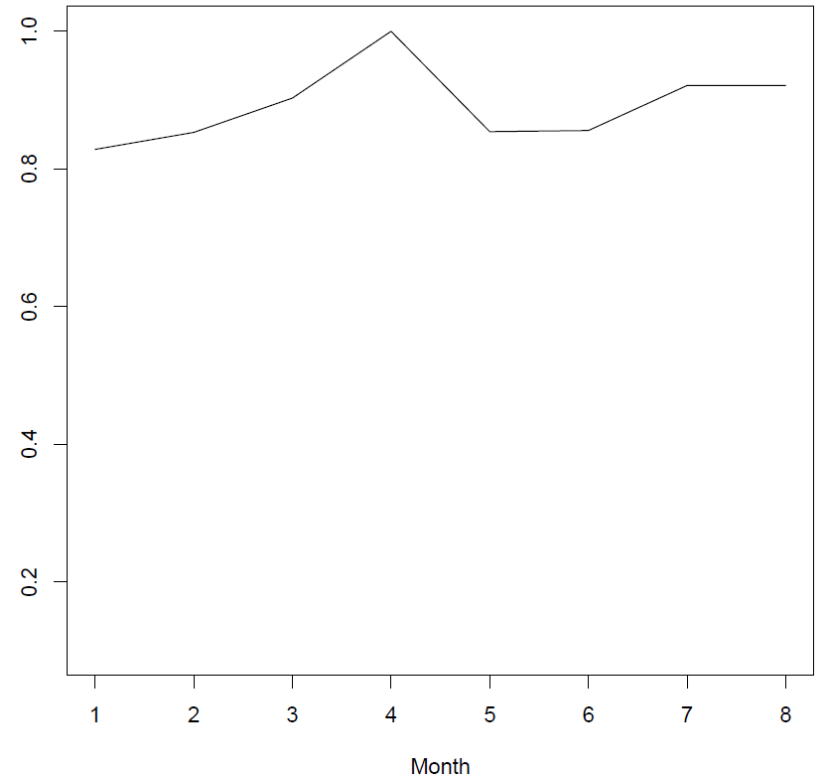
Examples of Relatively Stable

Relative in-channel habitat availability

Mokelumne River



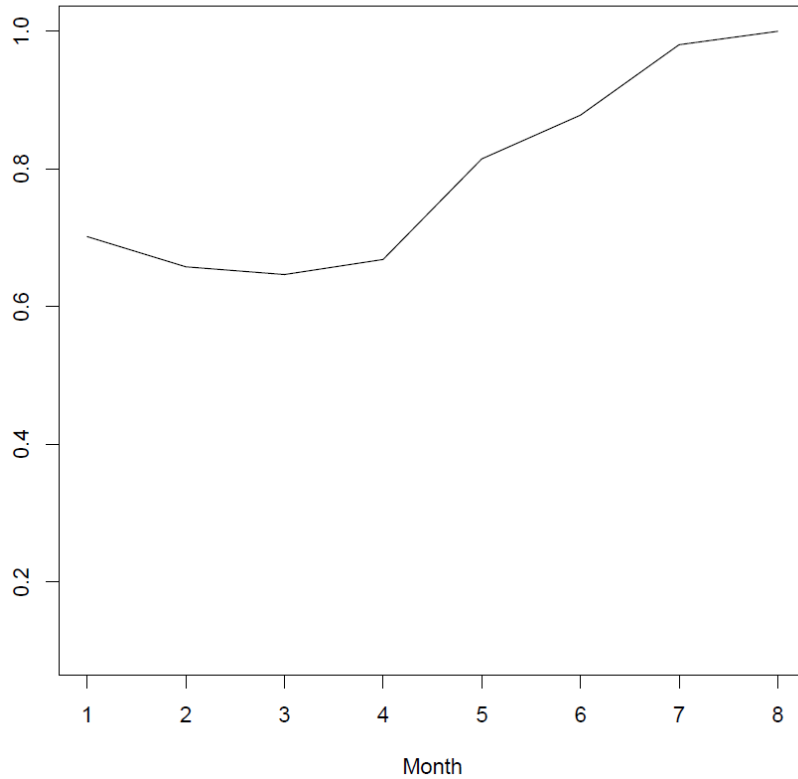
Stony Creek



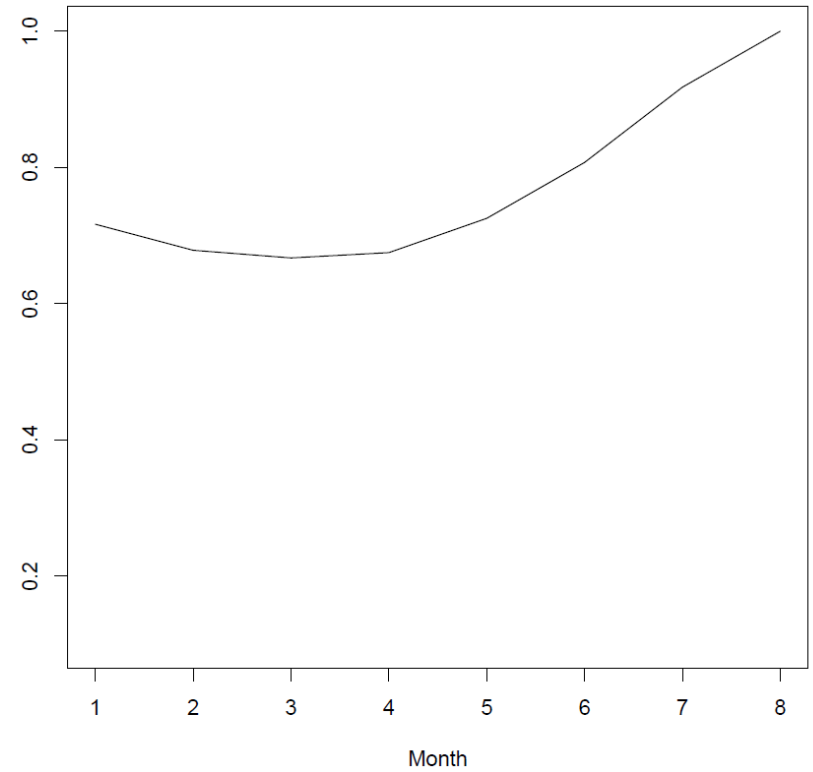
Examples of Small Increase

Relative in-channel habitat availability

Deer Creek



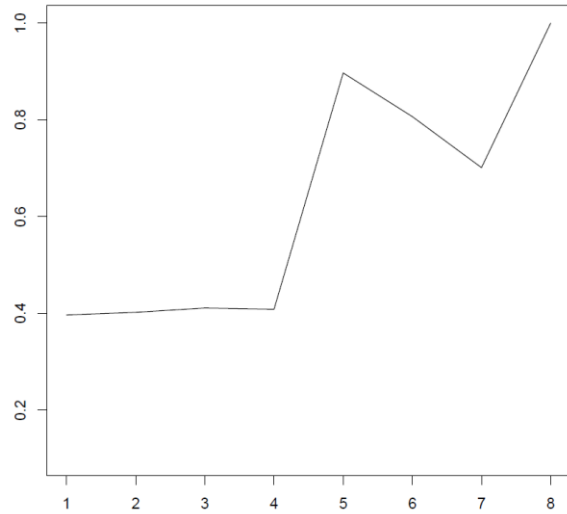
Mill Creek



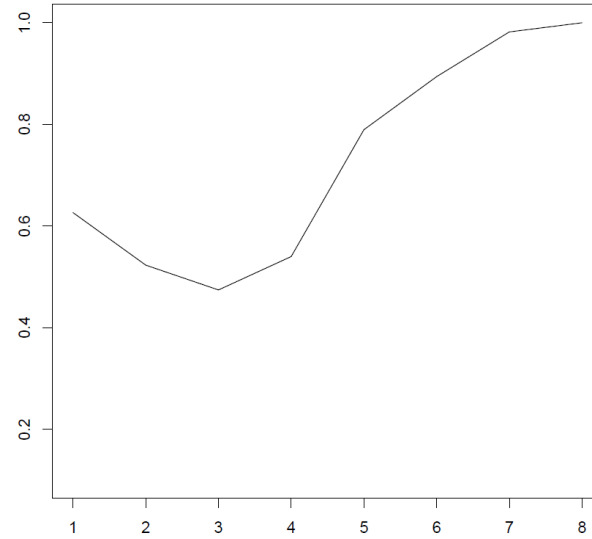
Examples of Large Increase

Relative in-channel habitat availability

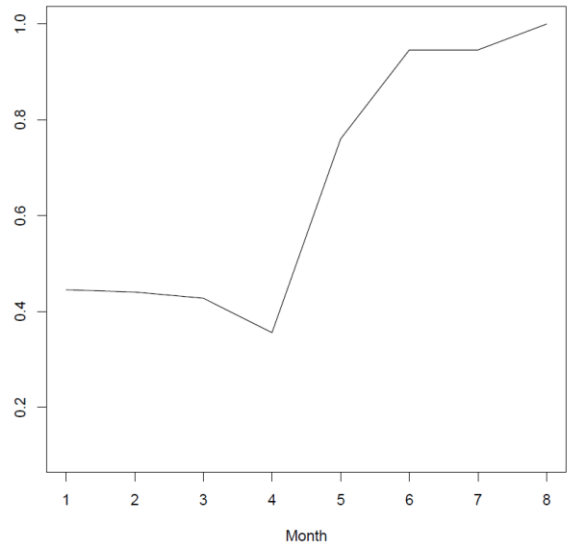
American River



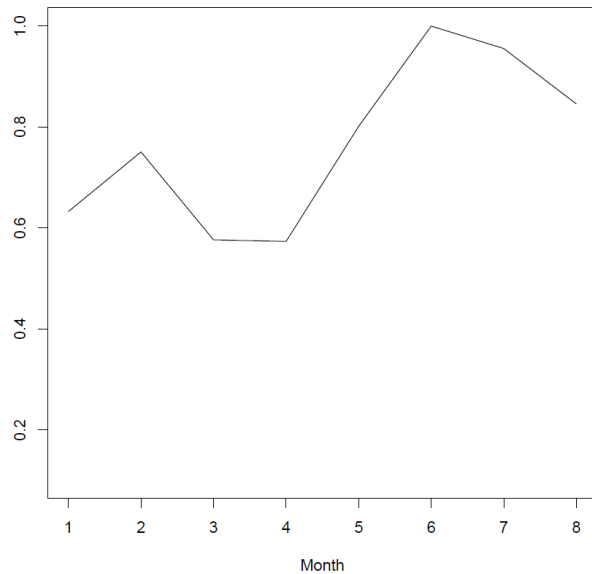
Cosumnes River



Tuolumne River



Merced River



Ask the experts?

- Are these habitat dynamics reasonable?
- Do you expect these patterns to play out across the entire reach or specific areas, e.g., below xxx water diversion?

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Next meeting: Call-in Meeting on Wednesday, July 24 (meeting information below)

Join WebEx meeting

<https://oregonstate.webex.com/join/duarteadoregonstate.edu>

Meeting no. 929 715 832

Join by phone

+1-415-655-0002 US Toll

Access code: 929 715 832