

Assessing Habitat Use by Juvenile Chinook Salmon in the Willamette River Basin

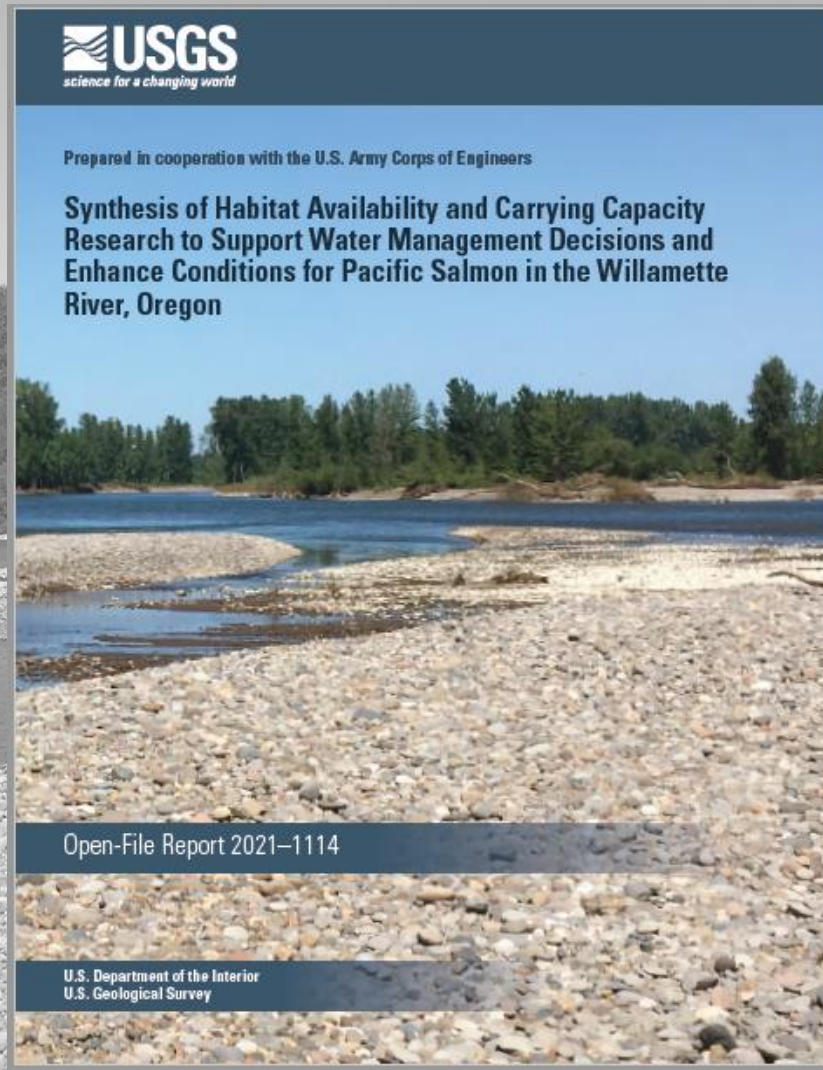
Tobias Kock¹, Gabriel Hansen¹,
Russell Perry¹, and James White²

¹U.S. Geological Survey, Western Fisheries Research Center

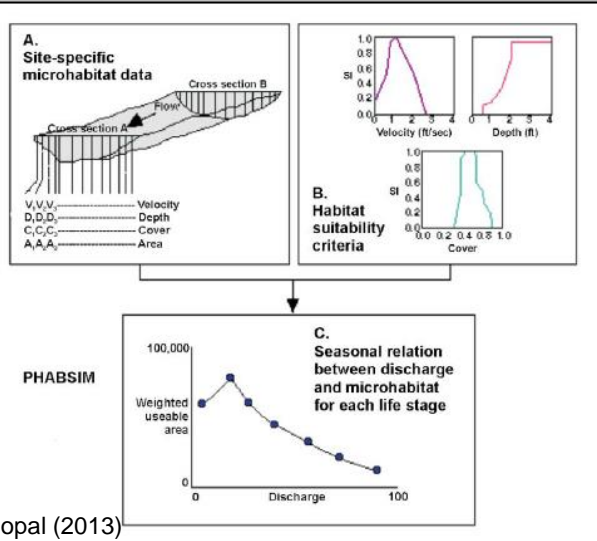
²U.S. Geological Survey, Oregon Water Science Center

April 12, 2022

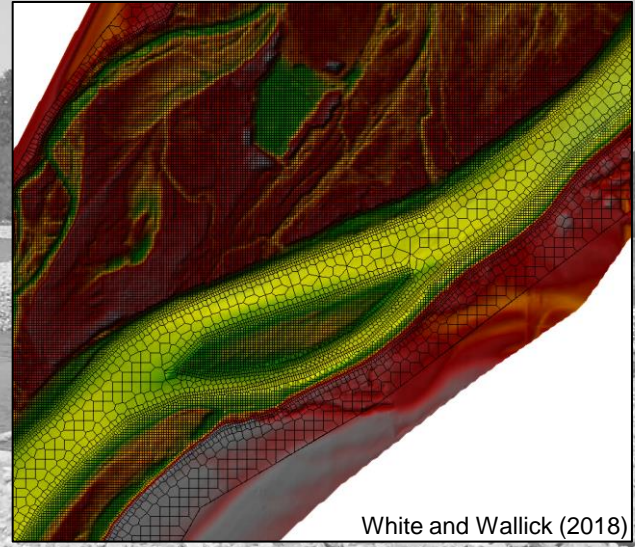
Background



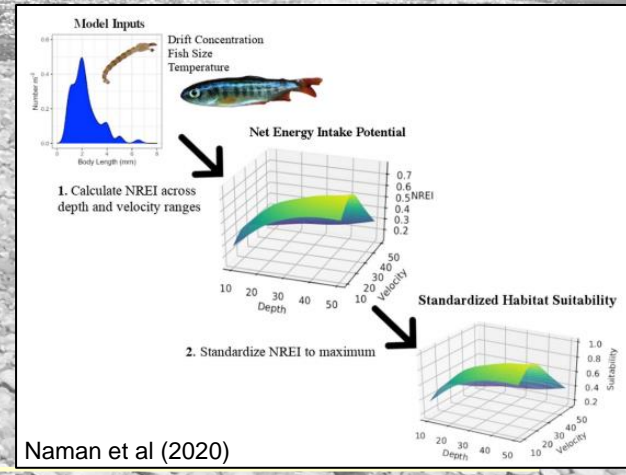
Research Approaches



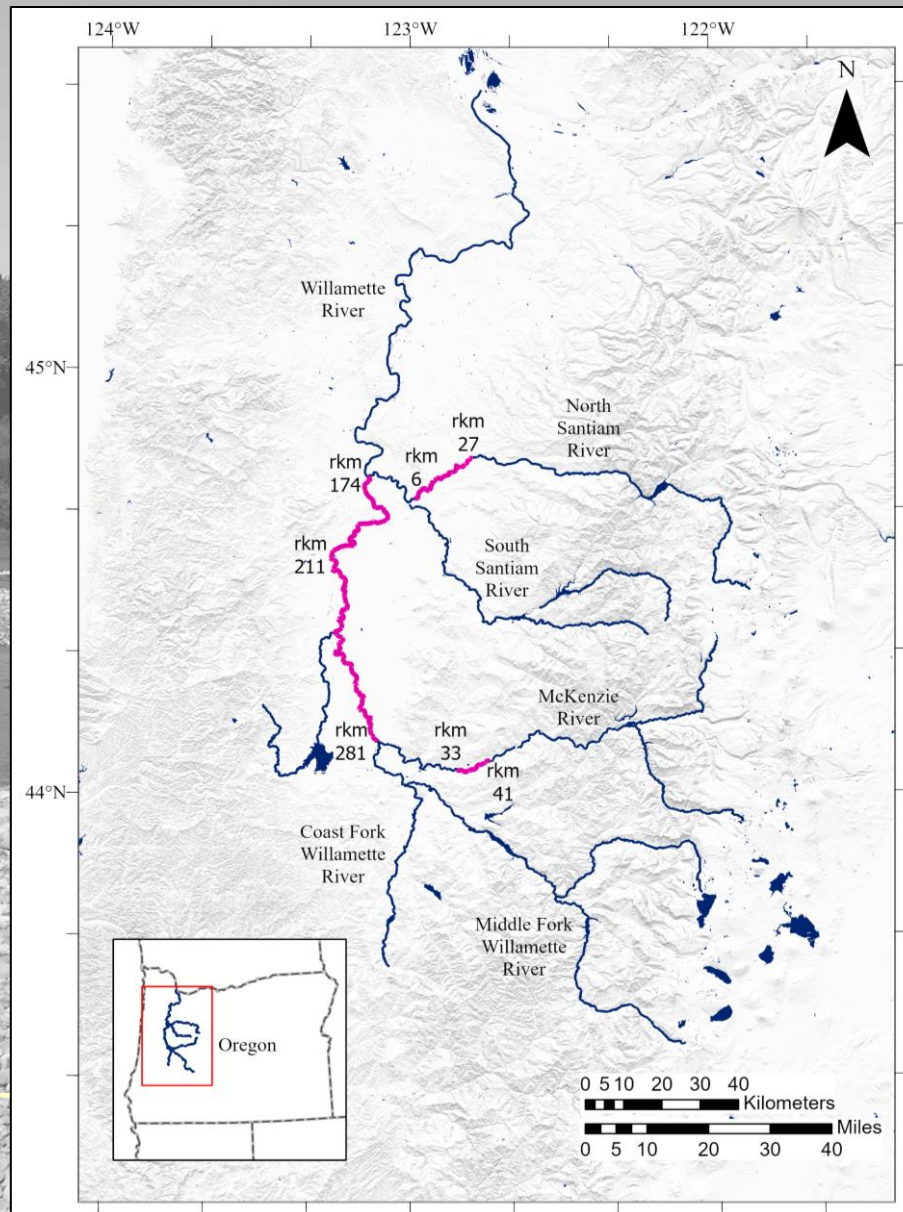
Gopal (2013)



Increasing effort, expense, inference



Study Area and Study Design

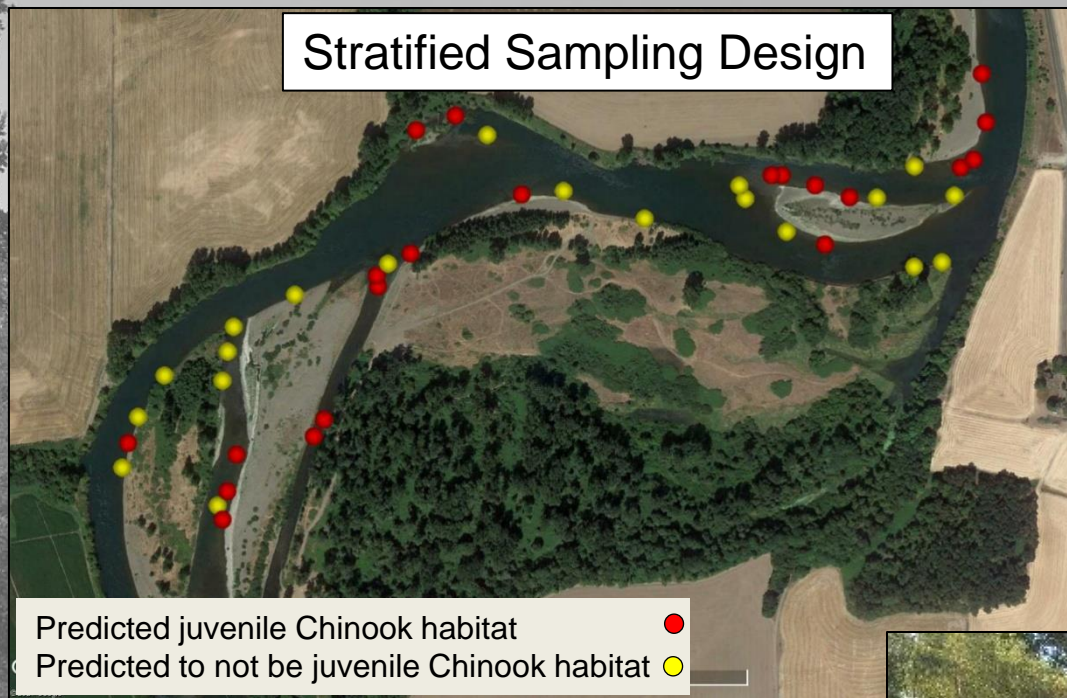


Sampling periods:

- June 2–July 23, 2020
- April 18–30, 2021
- June 1–10, 2021

Study Designs

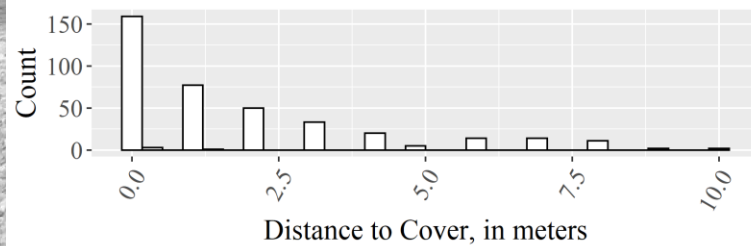
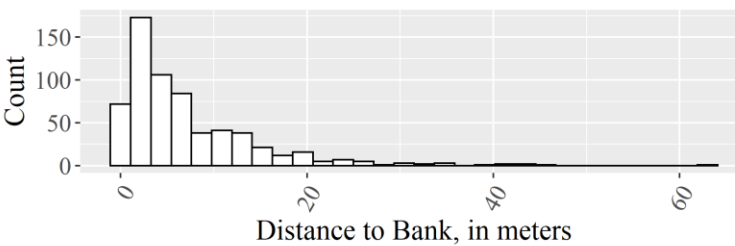
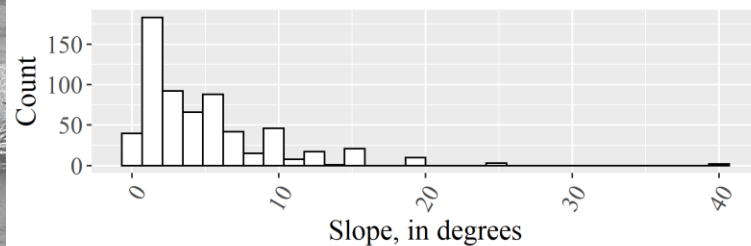
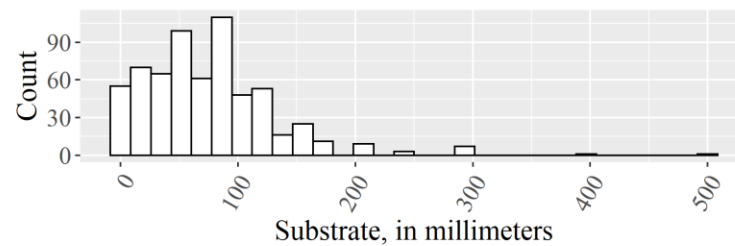
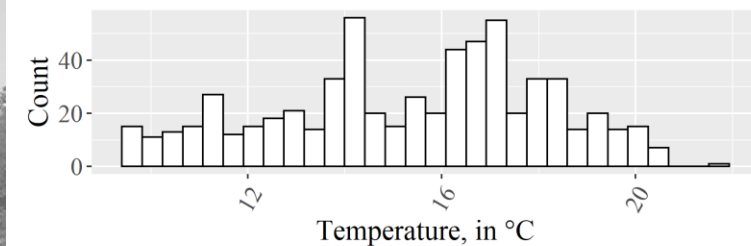
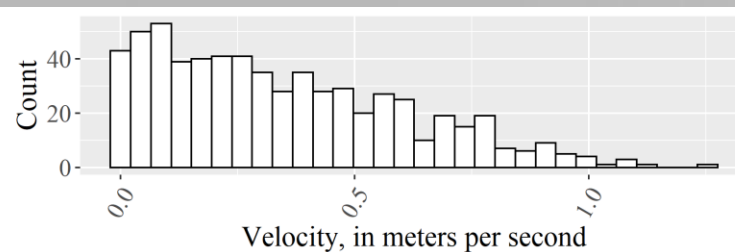
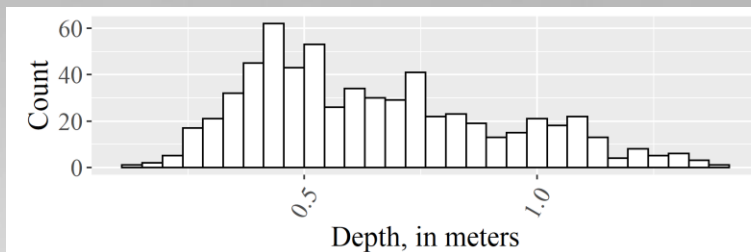
Stratified Sampling Design



Targeted Sampling Design

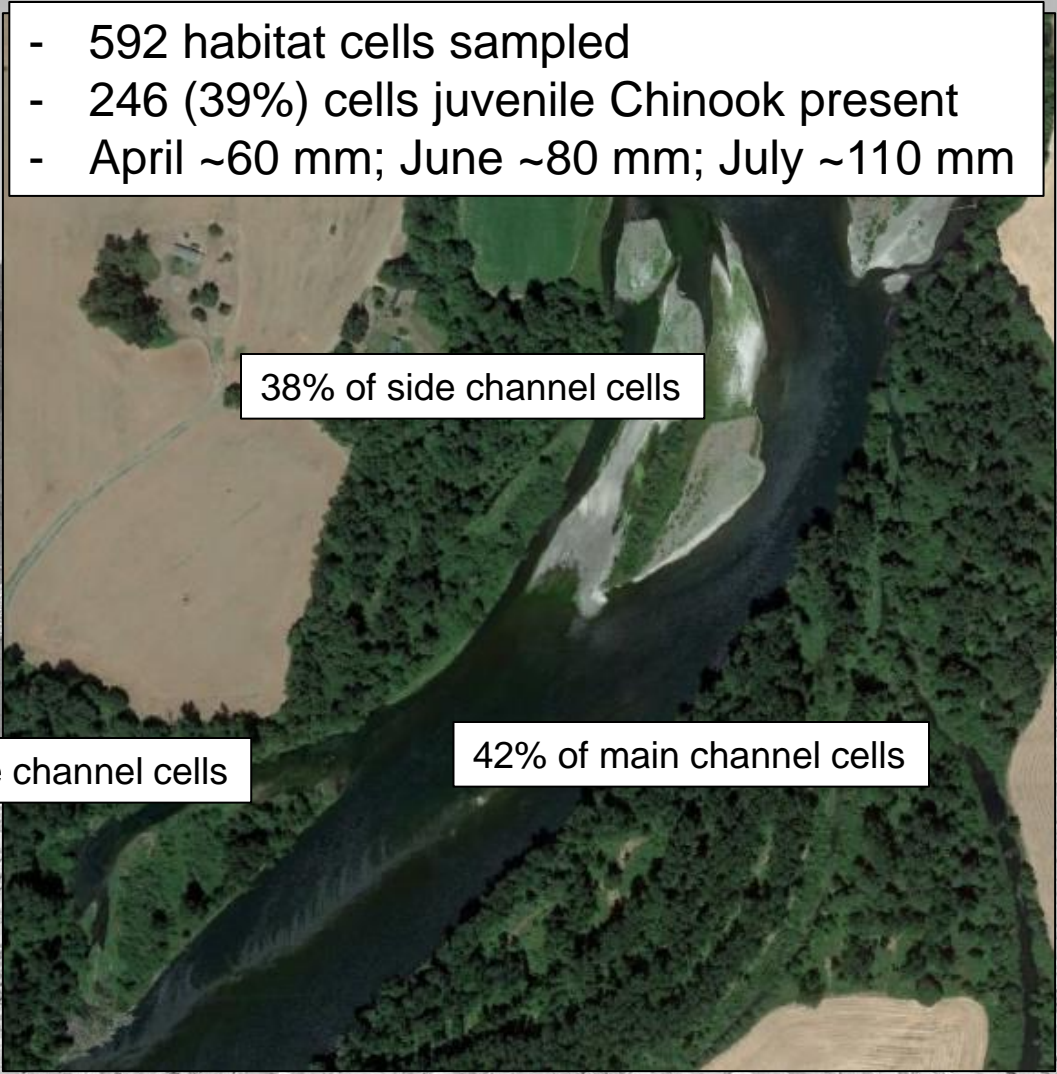


Habitat Attributes



Juvenile Chinook Salmon Observations

- 592 habitat cells sampled
- 246 (39%) cells juvenile Chinook present
- April ~60 mm; June ~80 mm; July ~110 mm



38% of side channel cells

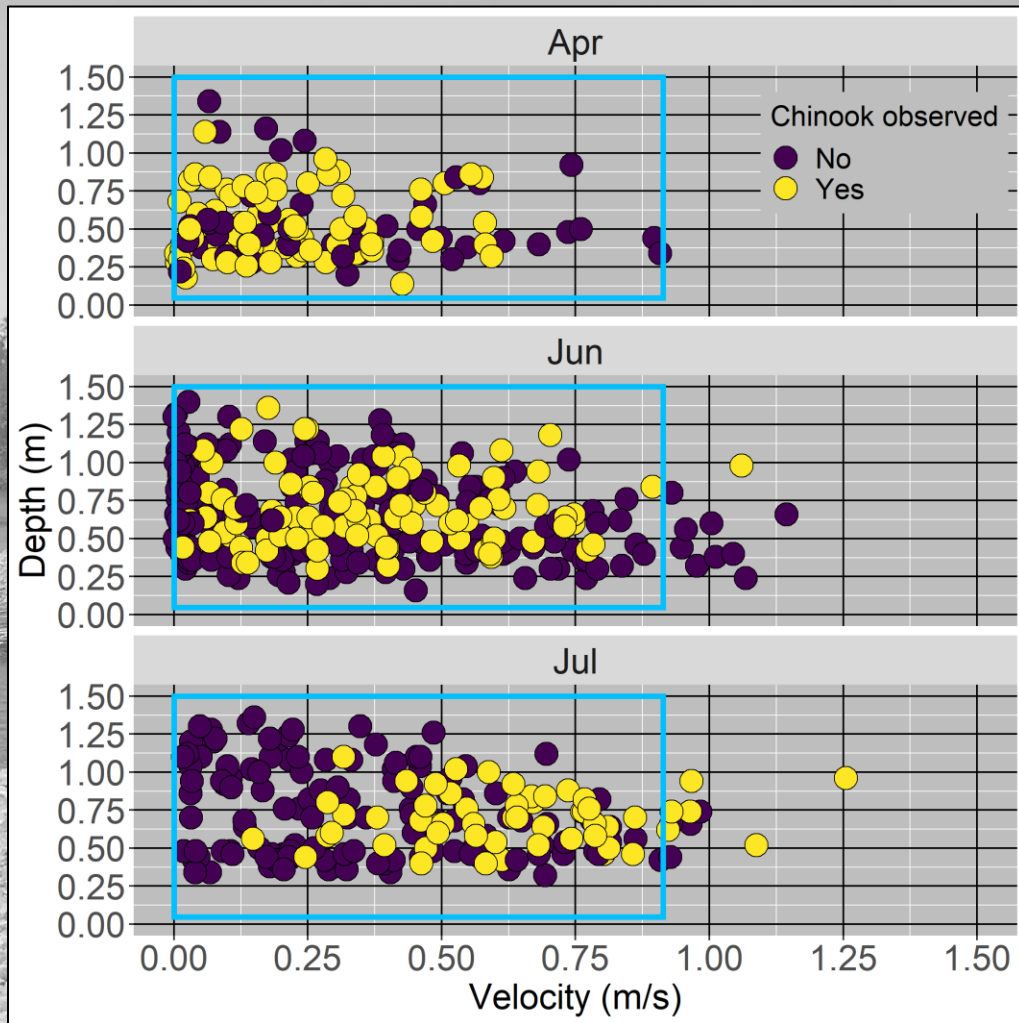
7% of side channel cells

42% of main channel cells

Juvenile Chinook Salmon Observations



SWIFT Broad Criteria

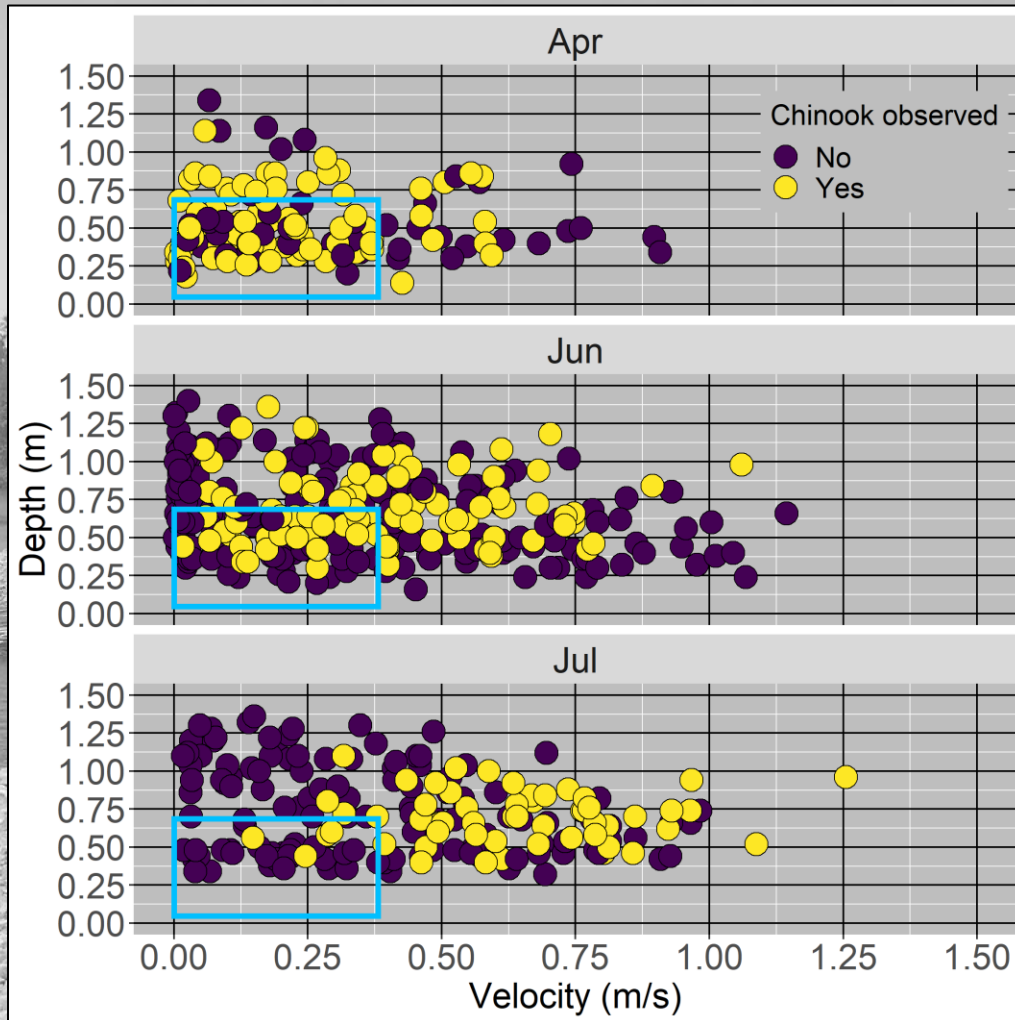


All cells within habitat criterion

1 of 10 cells (10%) outside of criterion had juvenile Chinook salmon present

6 of 10 cells (60%) outside of criterion had juvenile Chinook salmon present

SWIFT Narrow Criteria

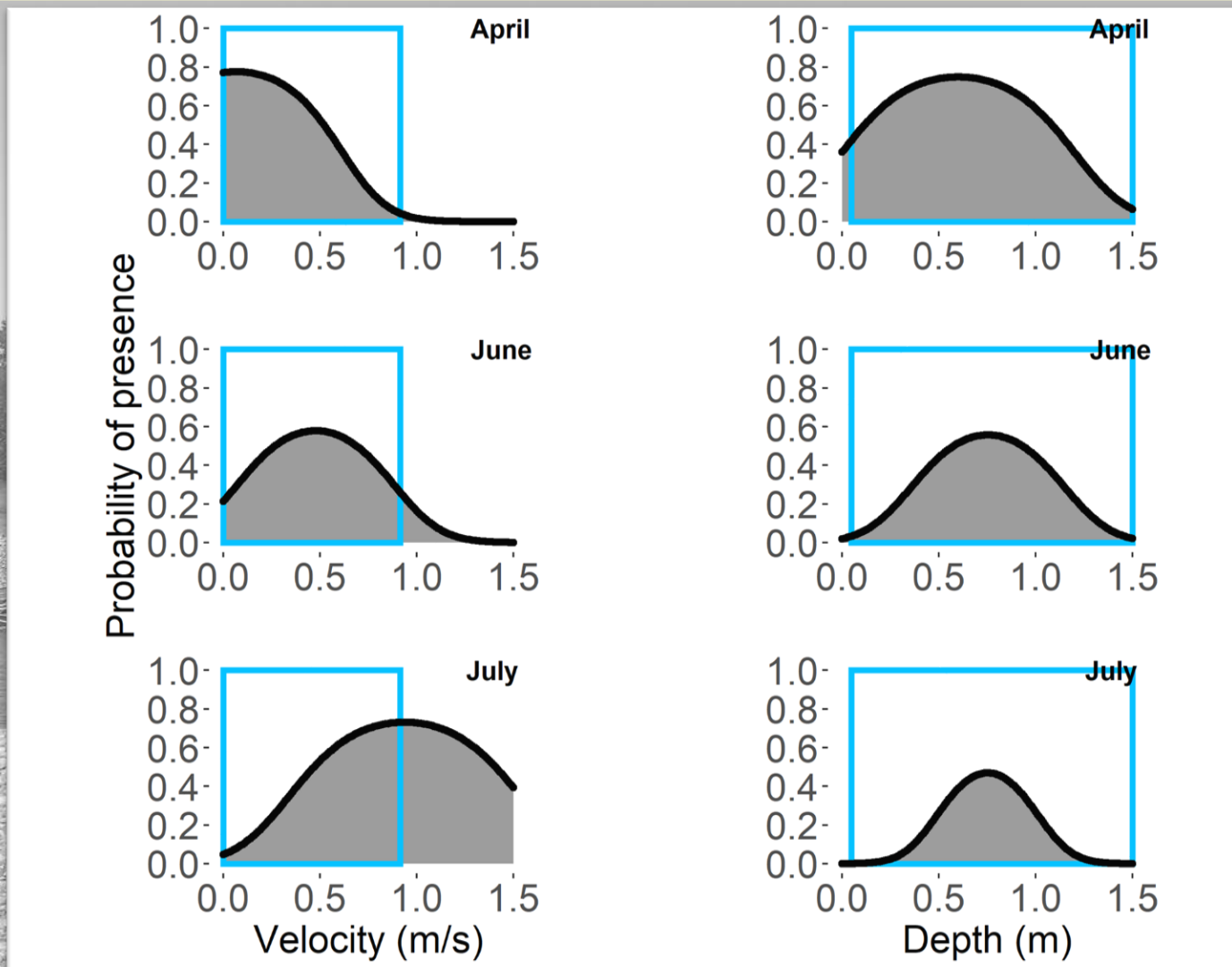


26 of 49 cells (53%)
outside of criterion
had juvenile Chinook
salmon present

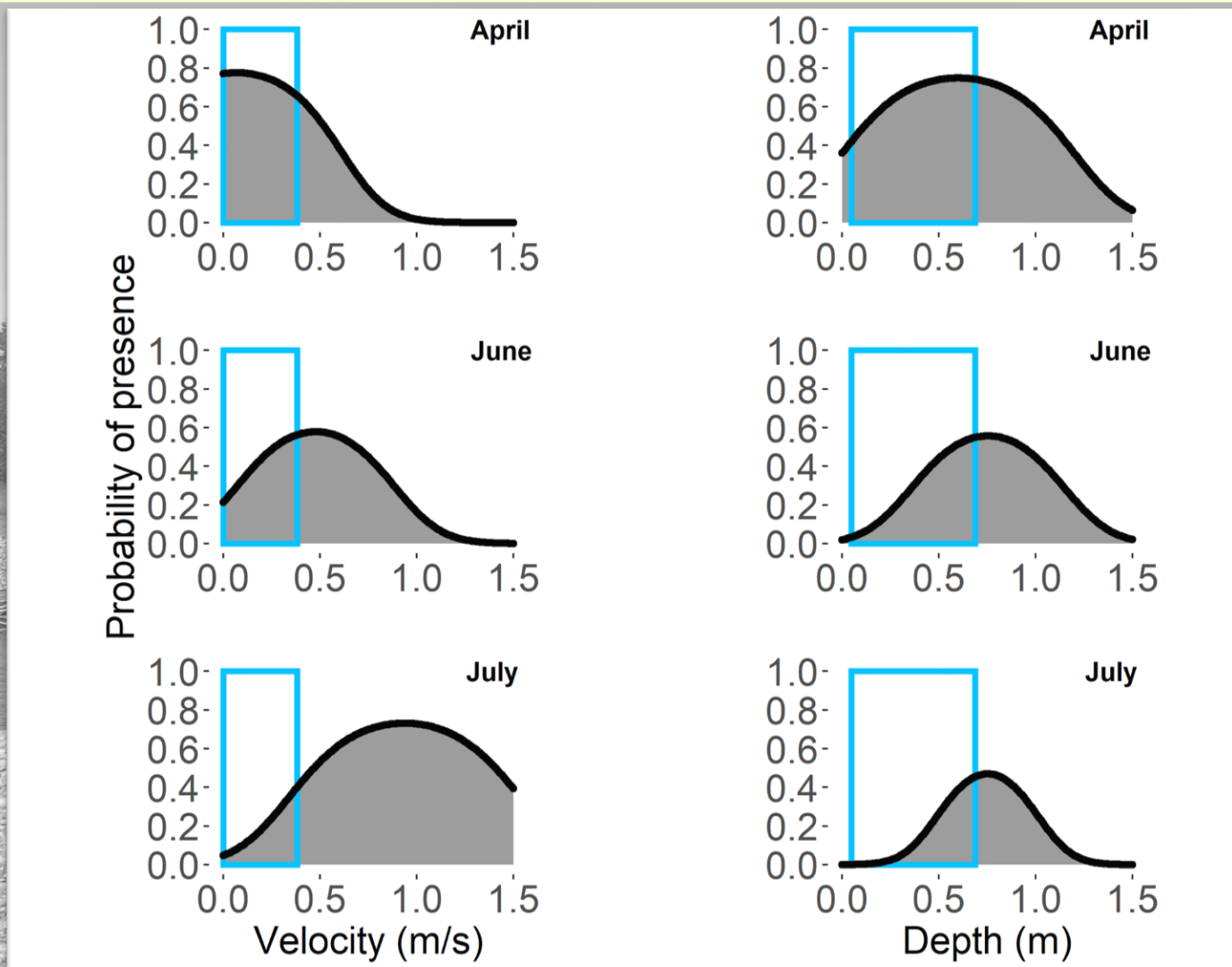
65 of 206 cells (32%)
outside of criterion
had juvenile Chinook
salmon present

51 of 150 cells (34%)
outside of criterion
had juvenile Chinook
salmon present

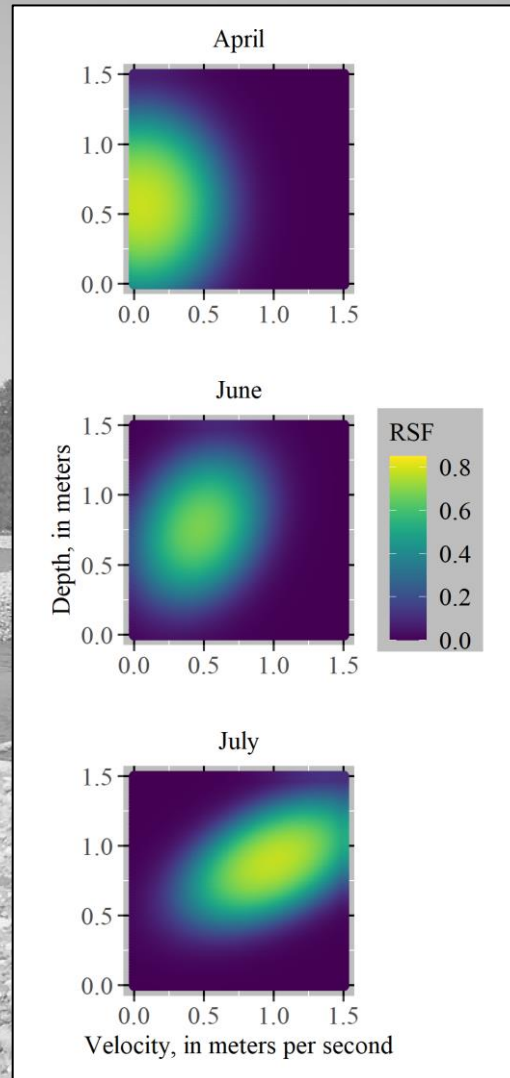
Estimated Resource Selection



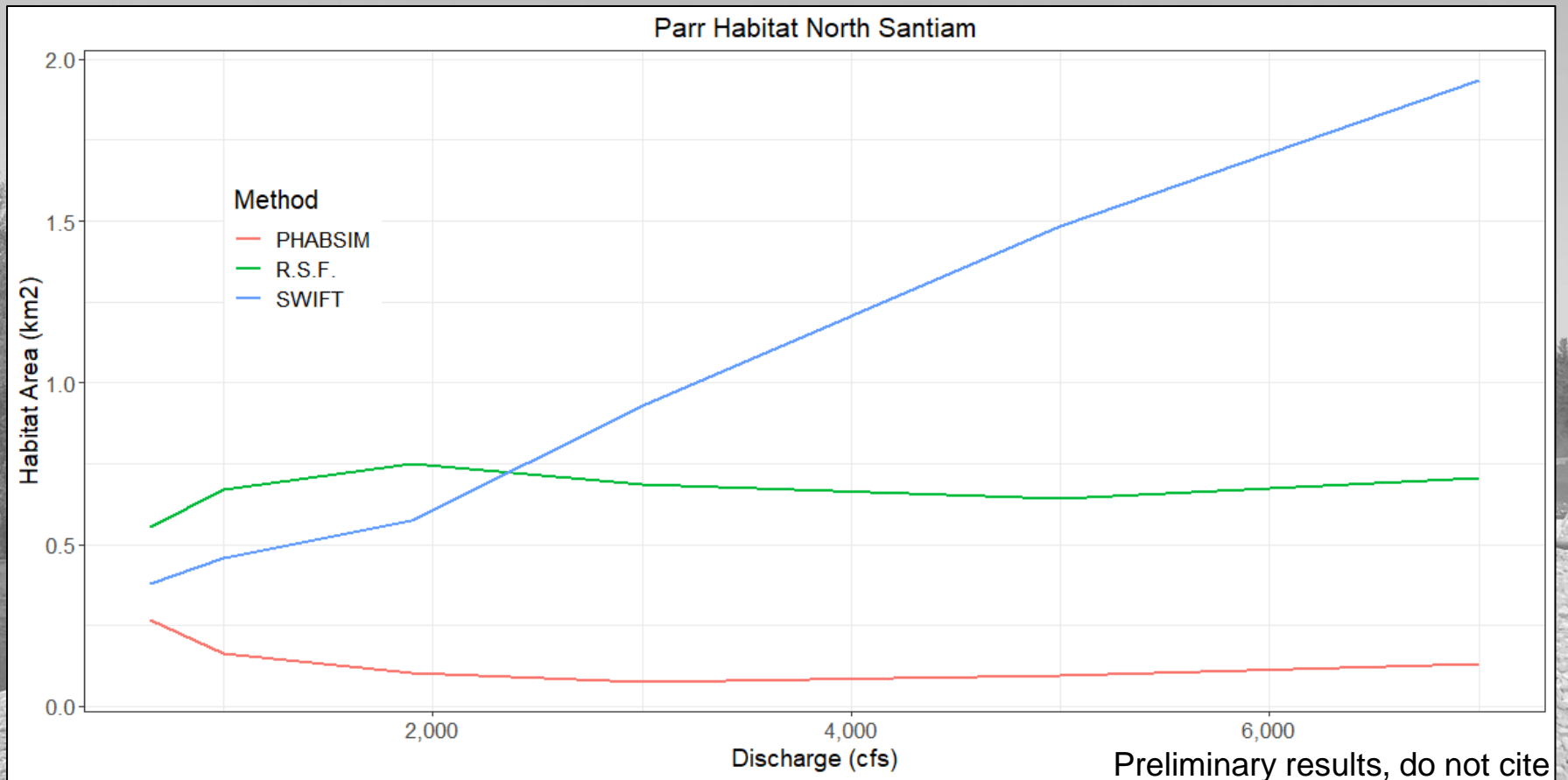
Estimated Resource Selection



Estimated Presence Probability



Habitat Inputs and Estimation



Questions

