Evaluating Alternative Sampling Designs in Inland Freshwater Lentic Systems

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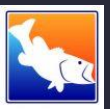


Sport Fish Ecology Lab

Fishing Regulations

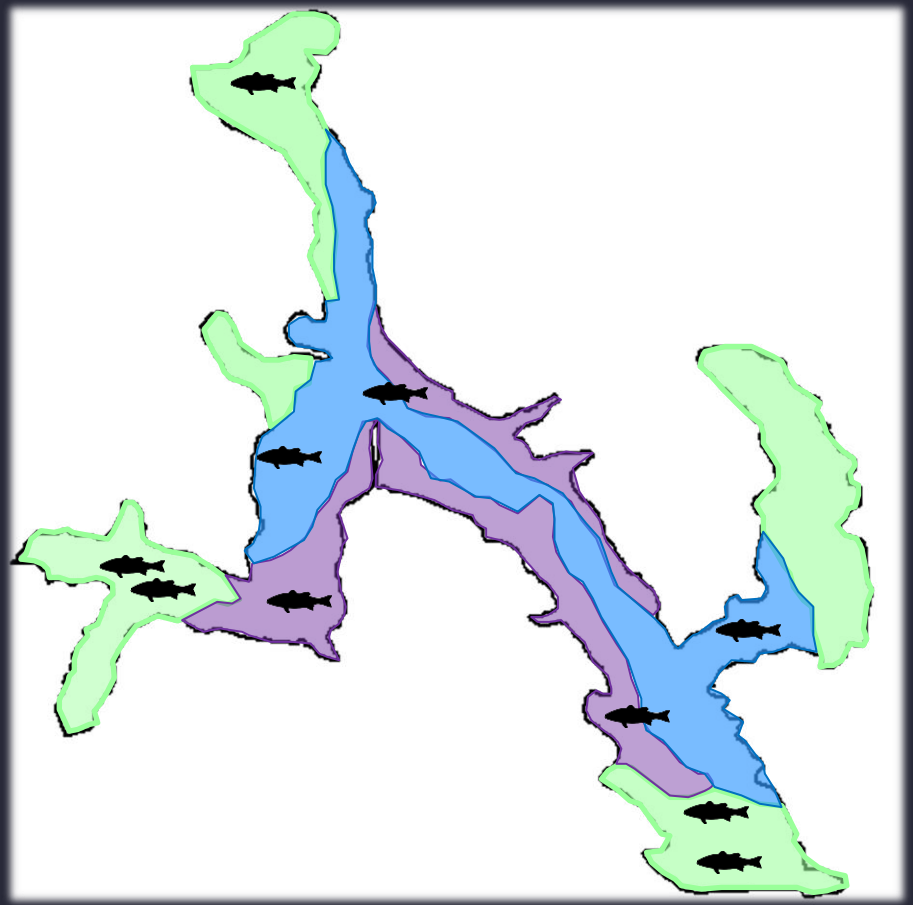
Paris Twin East Lake Fixed Site Design

Stratified Random Site Design

Strata #1 Sample Sites

Strata #2 Sample Sites

Strata #3 Sample Sites

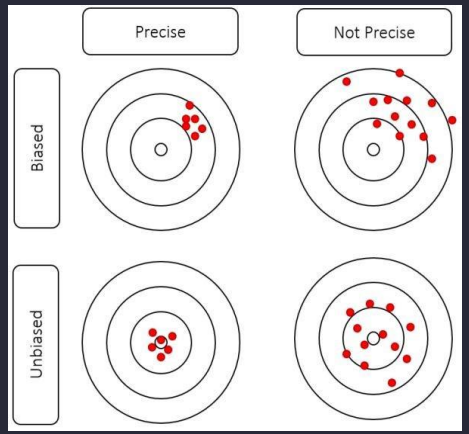


Research Questions

1

Bias/Precision of Designs

Identify the differences in biannual sport fish population assessments using a **fixed, random**, **hybrid**, and **stratified random** sample site designs in small - medium sized midwestern lakes and impoundments



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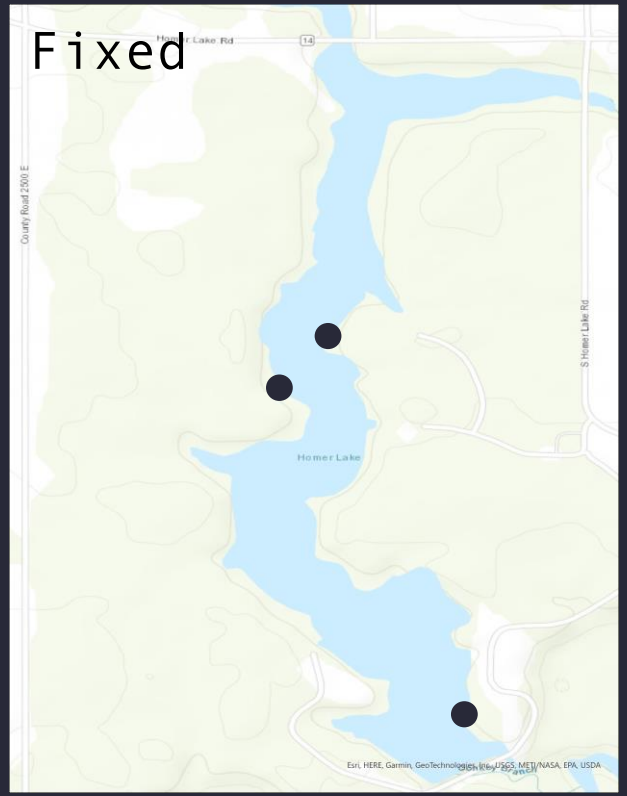
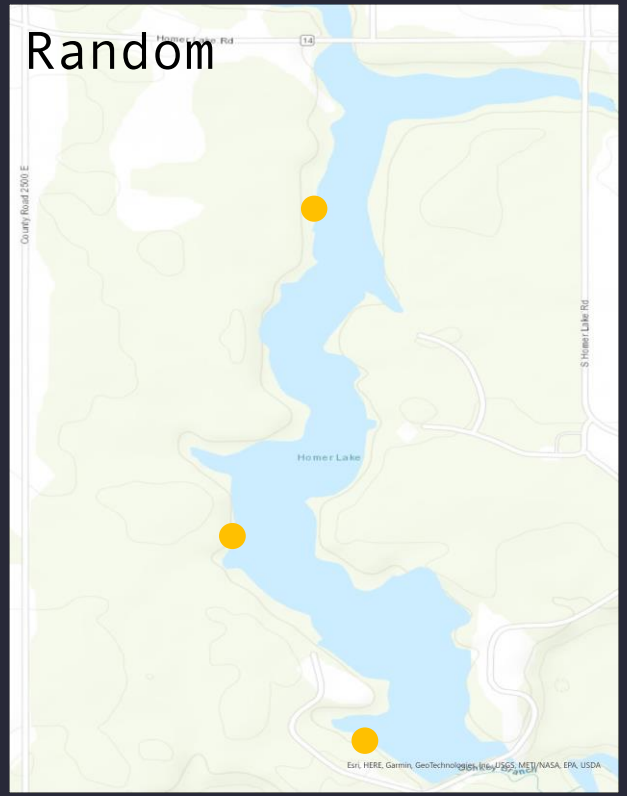
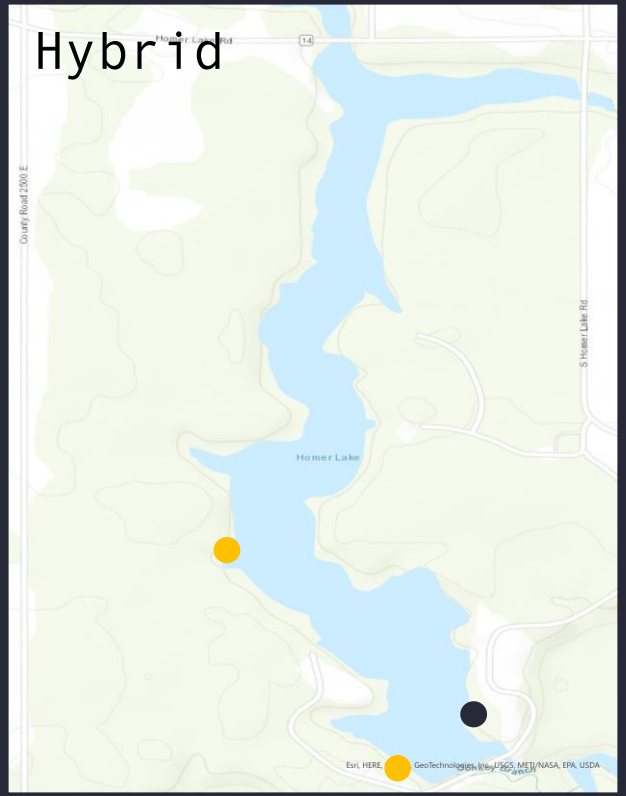
Efficiency of Designs

Determine the optimum number of sampling events needed to obtain parameter estimates that represent the sport fish community

Sampling Designs







Methods

Side-Scan Sonar

Obtain habitat information of focal areas

Process

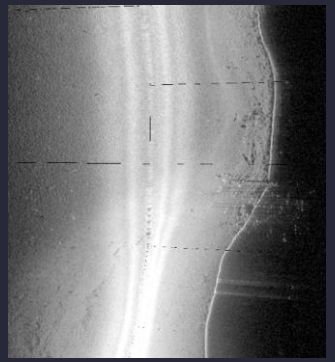
Create sediment/structure & bathymetric maps

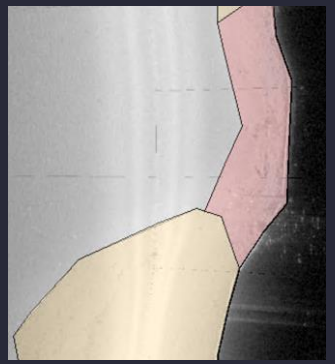
Sampling

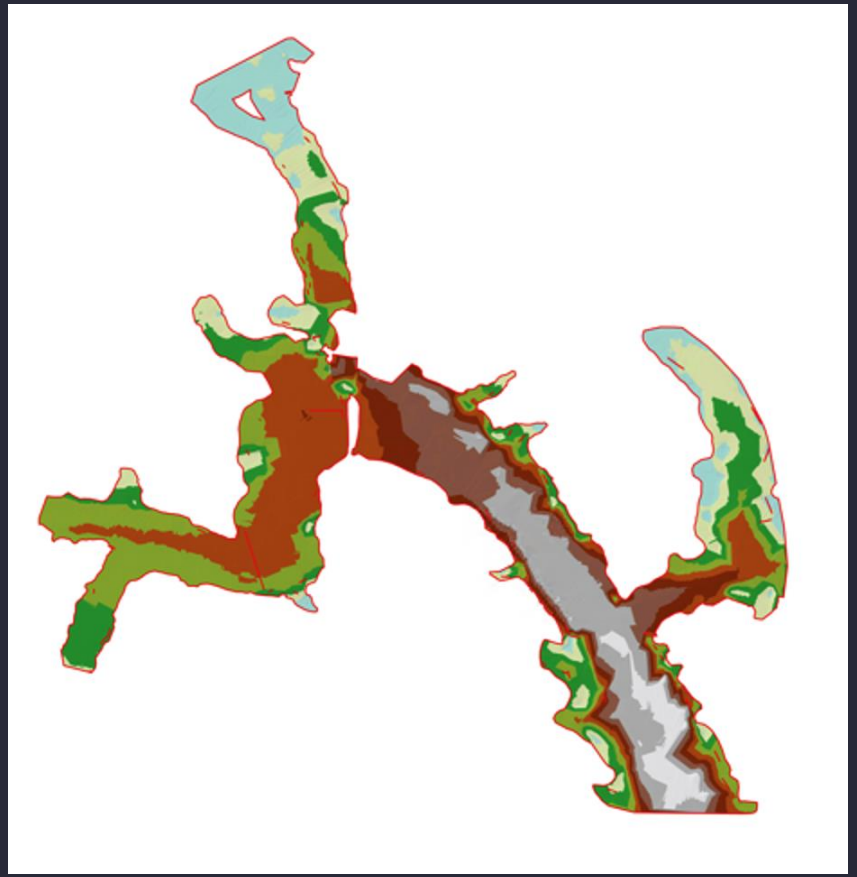
PDCEF in Spring & Fall 2021

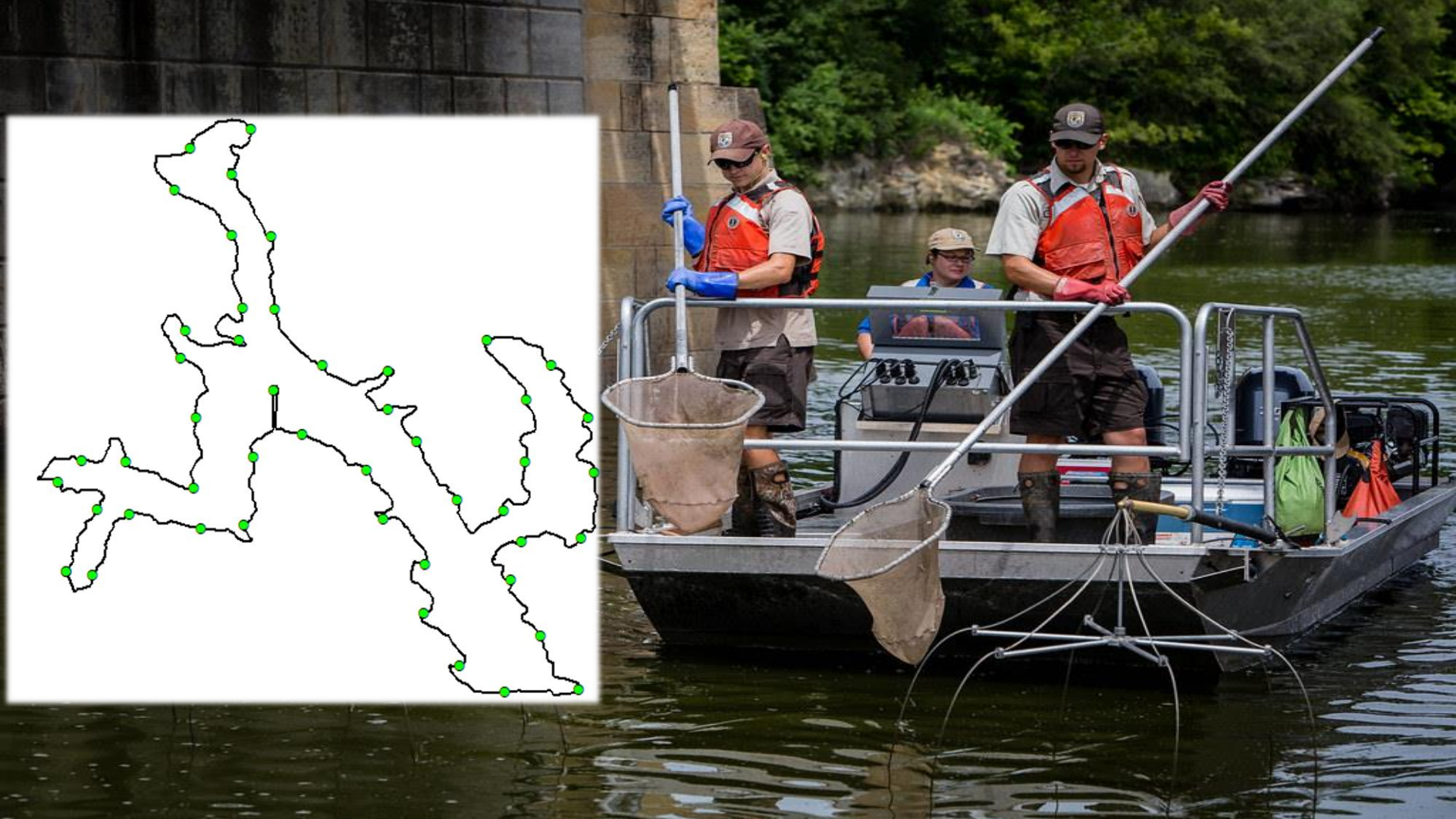
Analysis

Resampling method simulations









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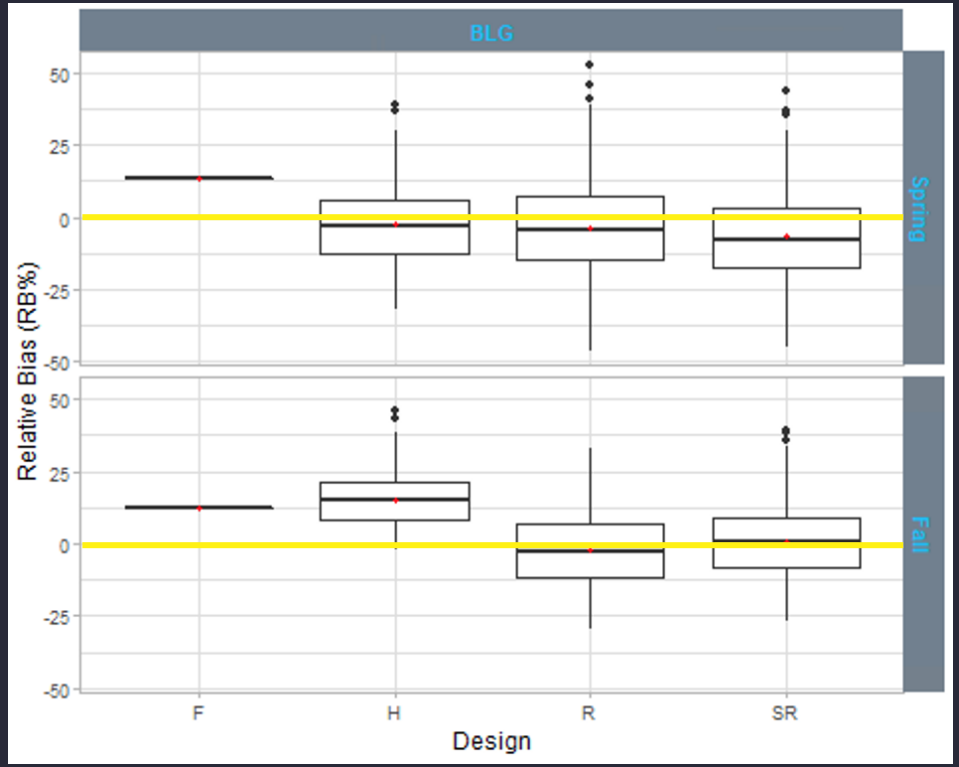
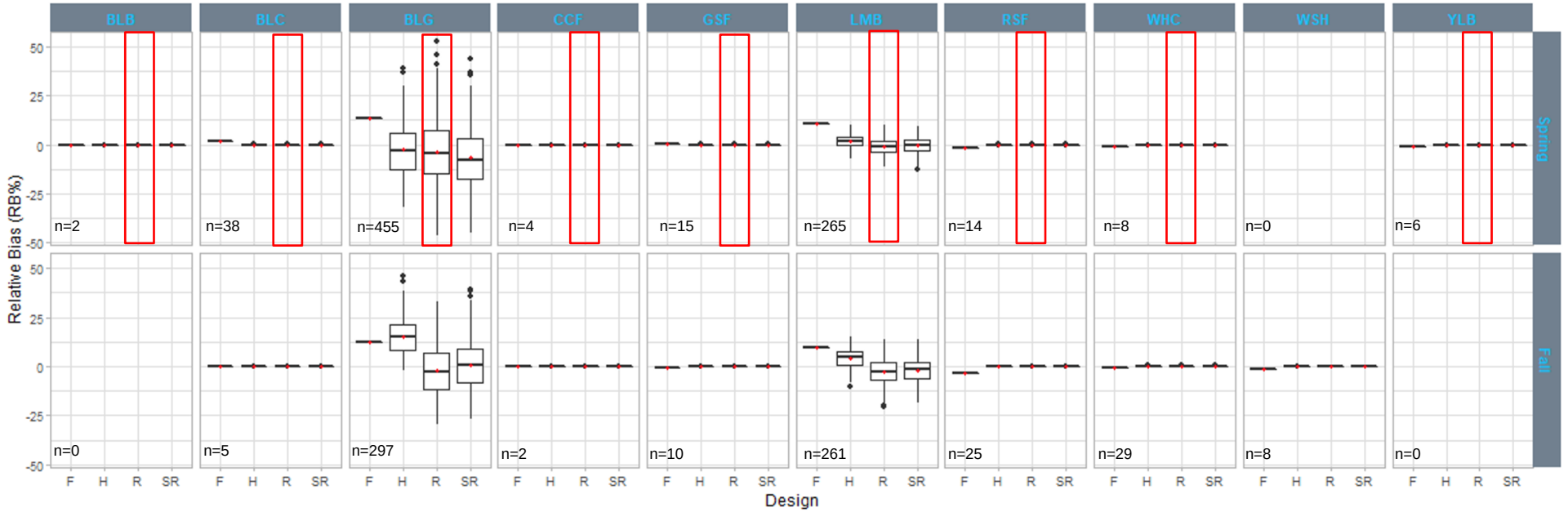
% Relative Bias of Designs



F: Fixed
H: Hybrid (1 Fixed, 2 Random)
R: Simple Random
SR: Stratified Random

% Relative Bias of Designs



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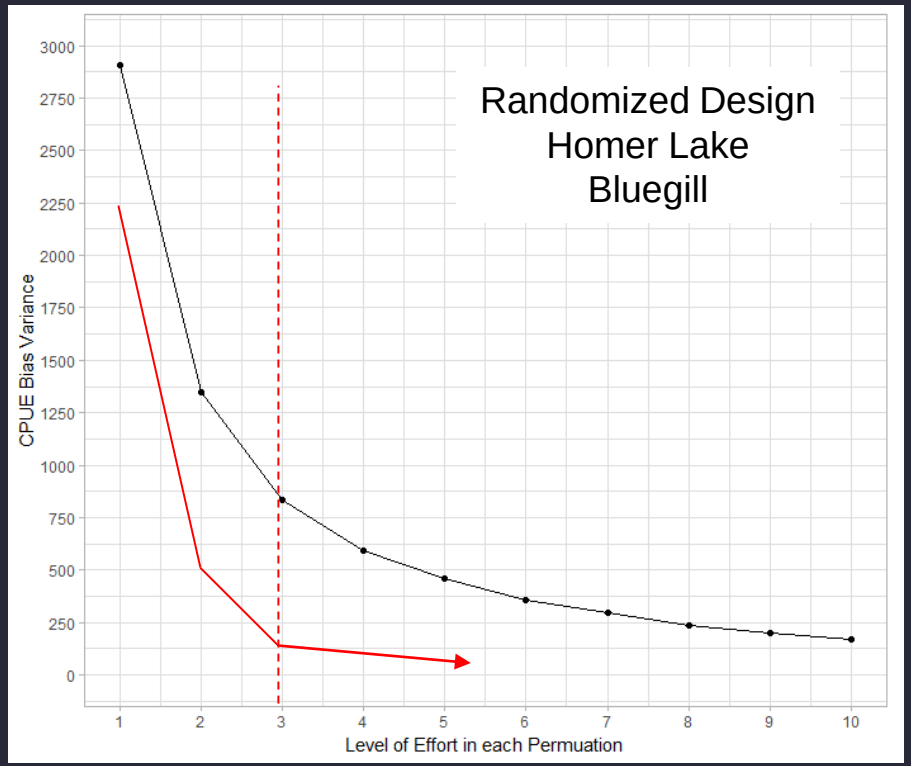
CPUE Variance of Bias Estimates by Effort



Next Steps

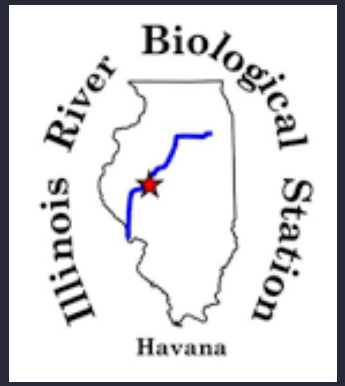
Bias/Precision	CPUE	W_r	PSD
Homer	☑		
Walnut			
Paris East			
Paris West			

Efficiency	CPUE	W_r	PSD
Homer	☑		
Walnut			
Paris East			
Paris West			

Acknowledgements

Prairie Research Institute

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN



Thank You

Questions?

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Sport Fish Ecology Lab

Homer Lake

Fixed Sites: A, B, C

- A + 2 random transects
- B + 2 random transects
- C + 2 random transects
- A + B + 1 random transect
- A + C + 1 random transect
- B + C + 1 random transect