



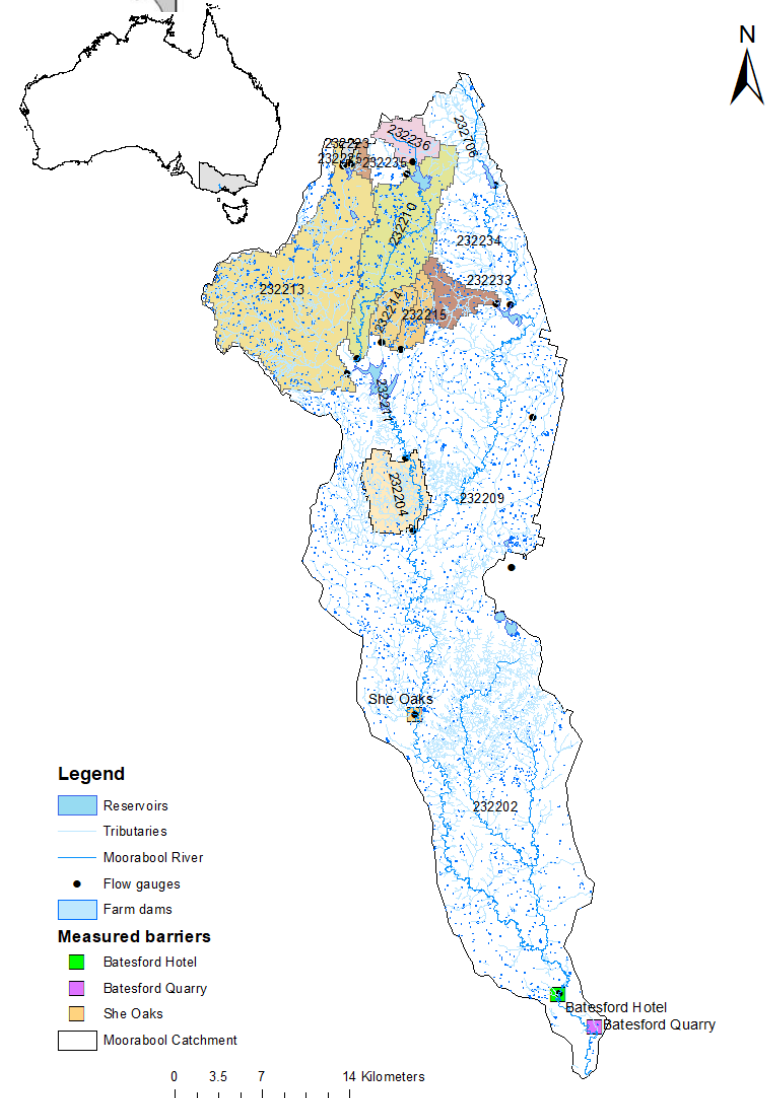
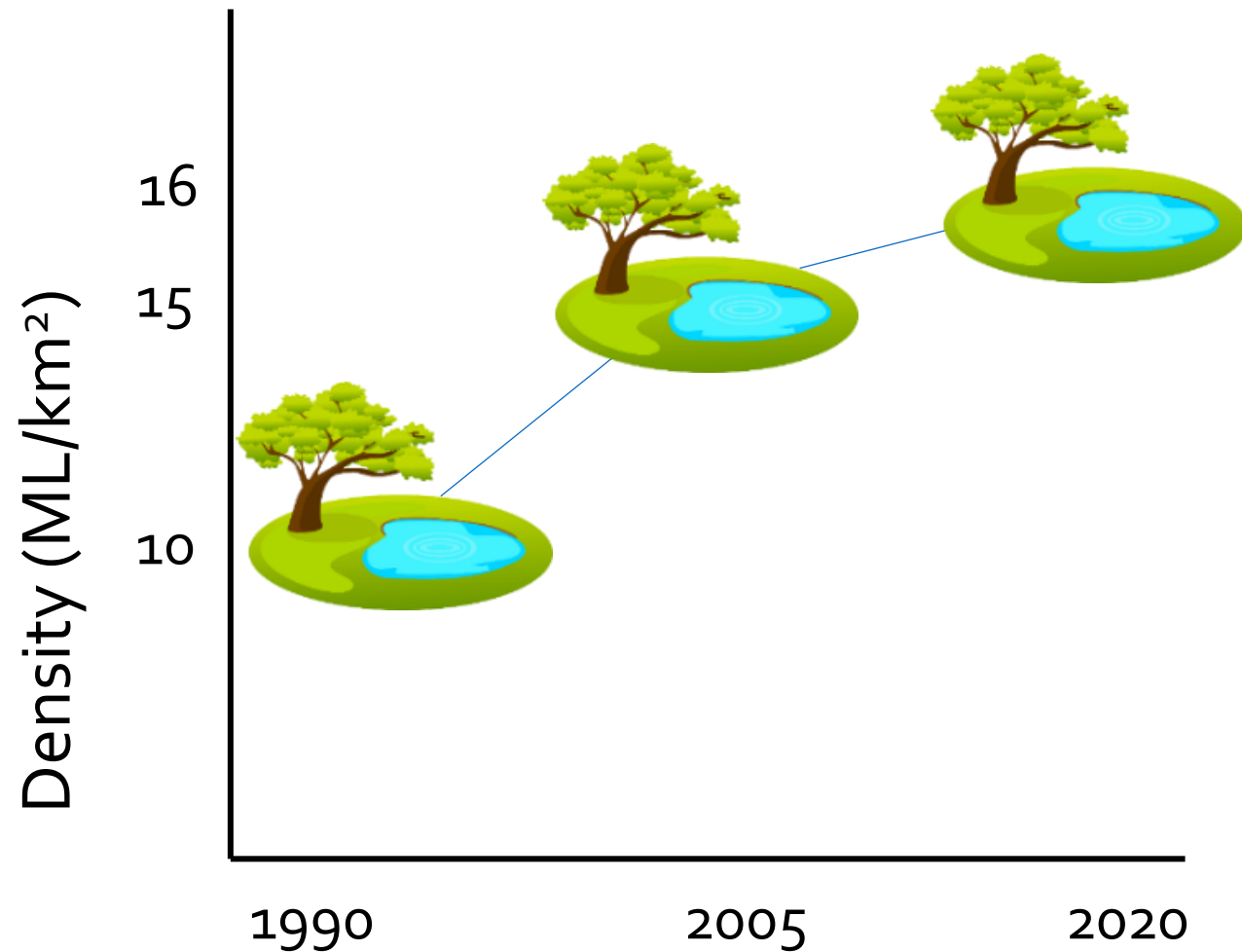
Impact of Farm Dams on Streamflow



Paulina Ramos, David Robertson, Rebecca Lester and Ty Matthews.



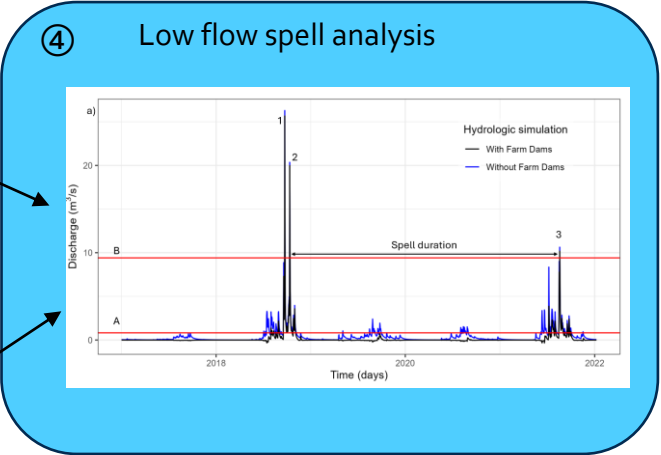
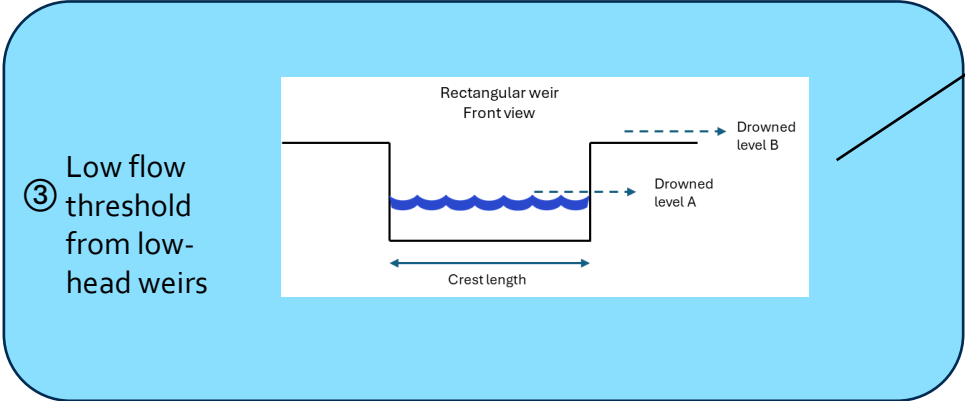
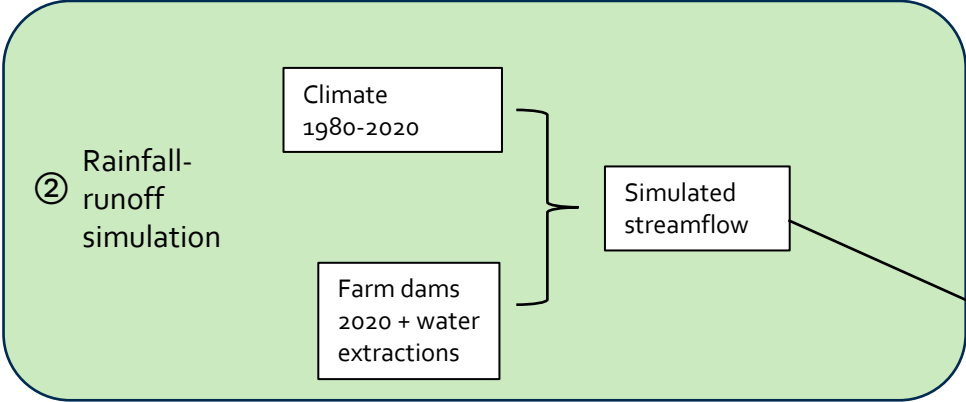
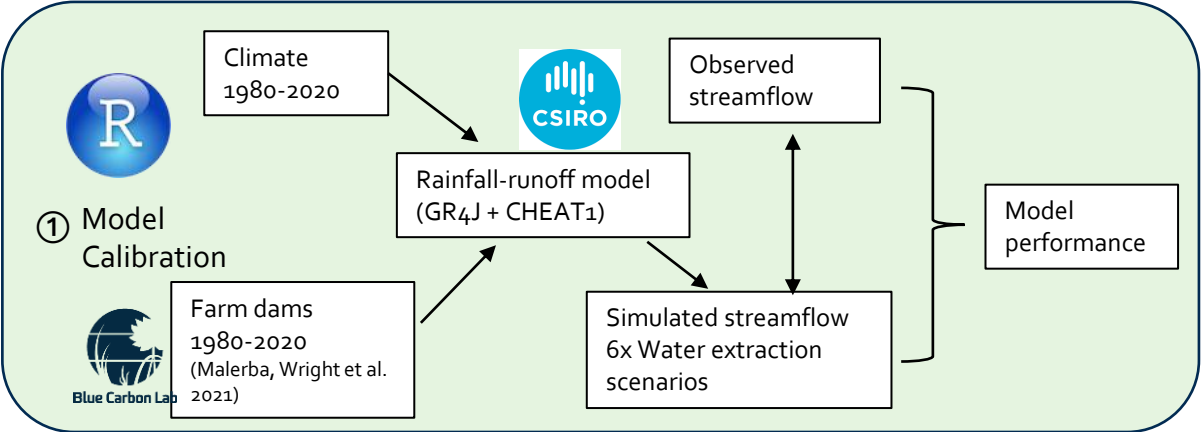
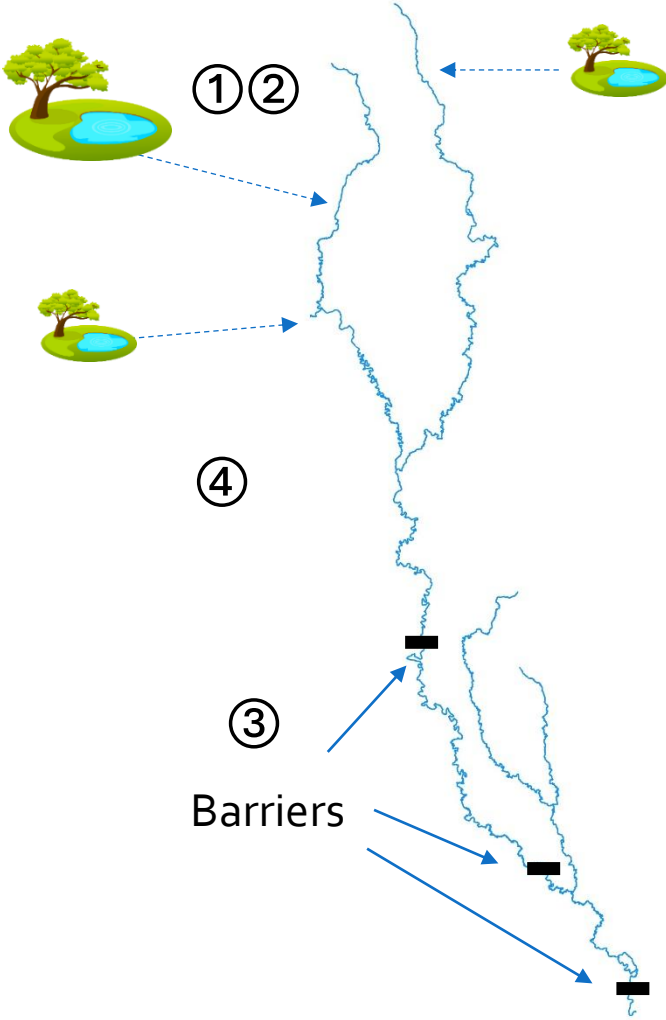
Introduction: The Moorabool River



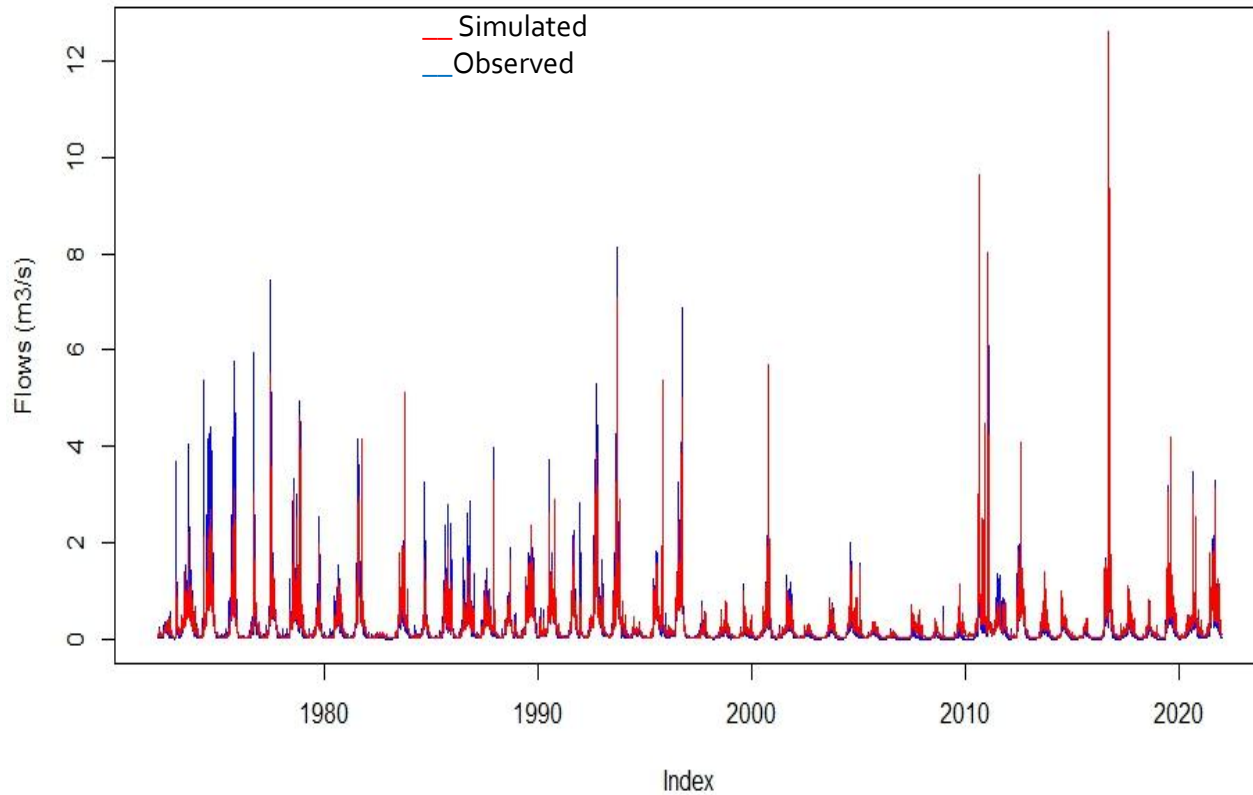
Ecological implications



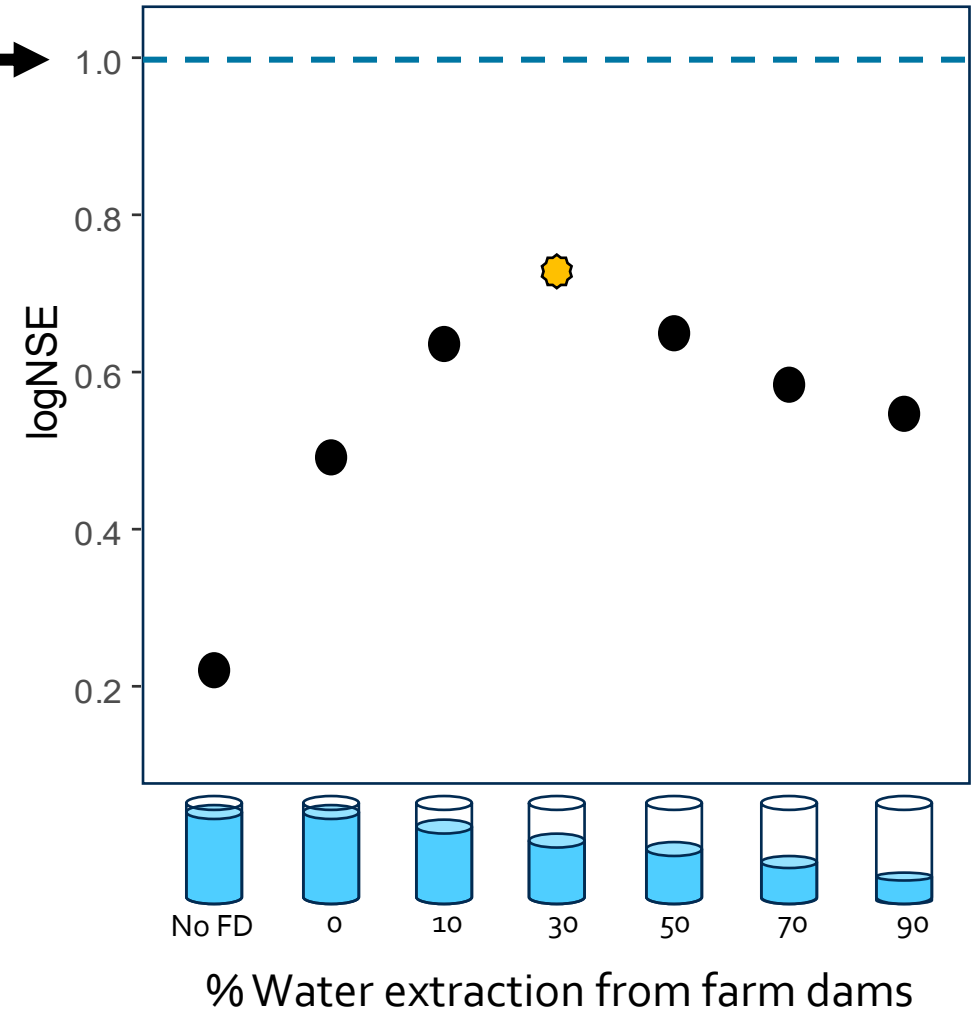
Methods



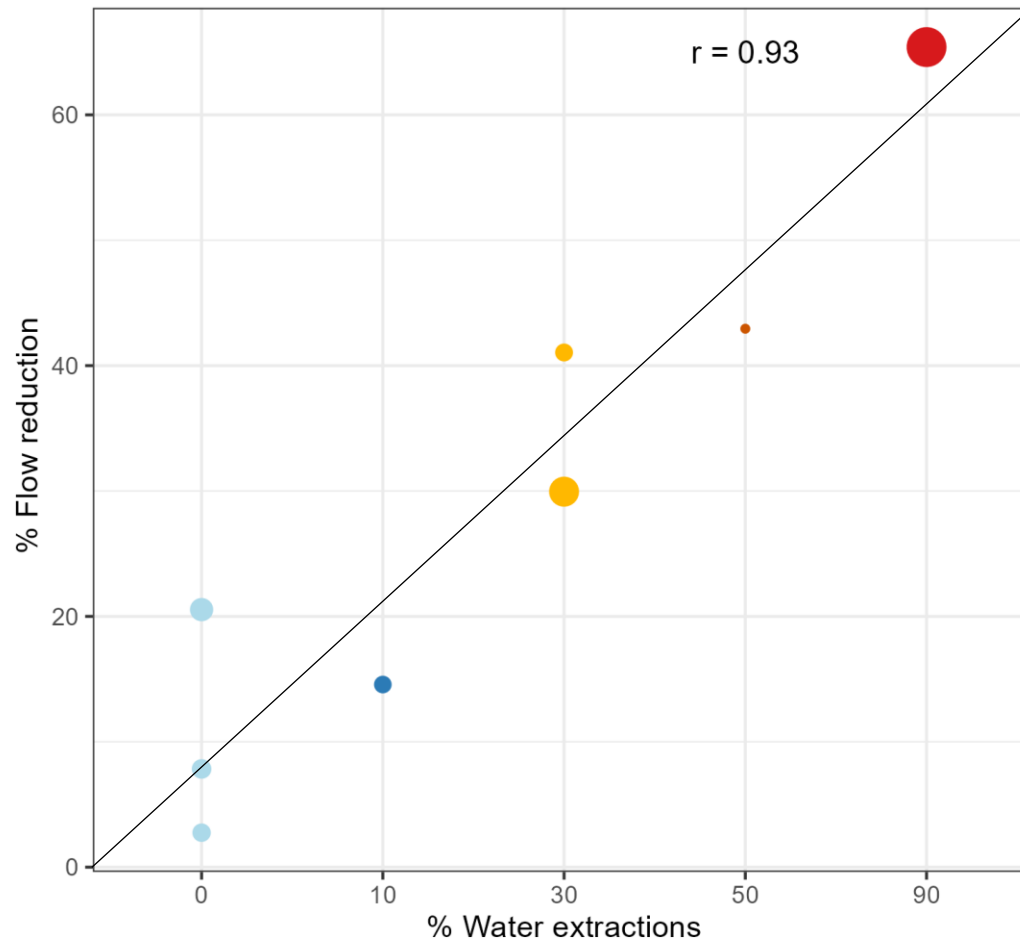
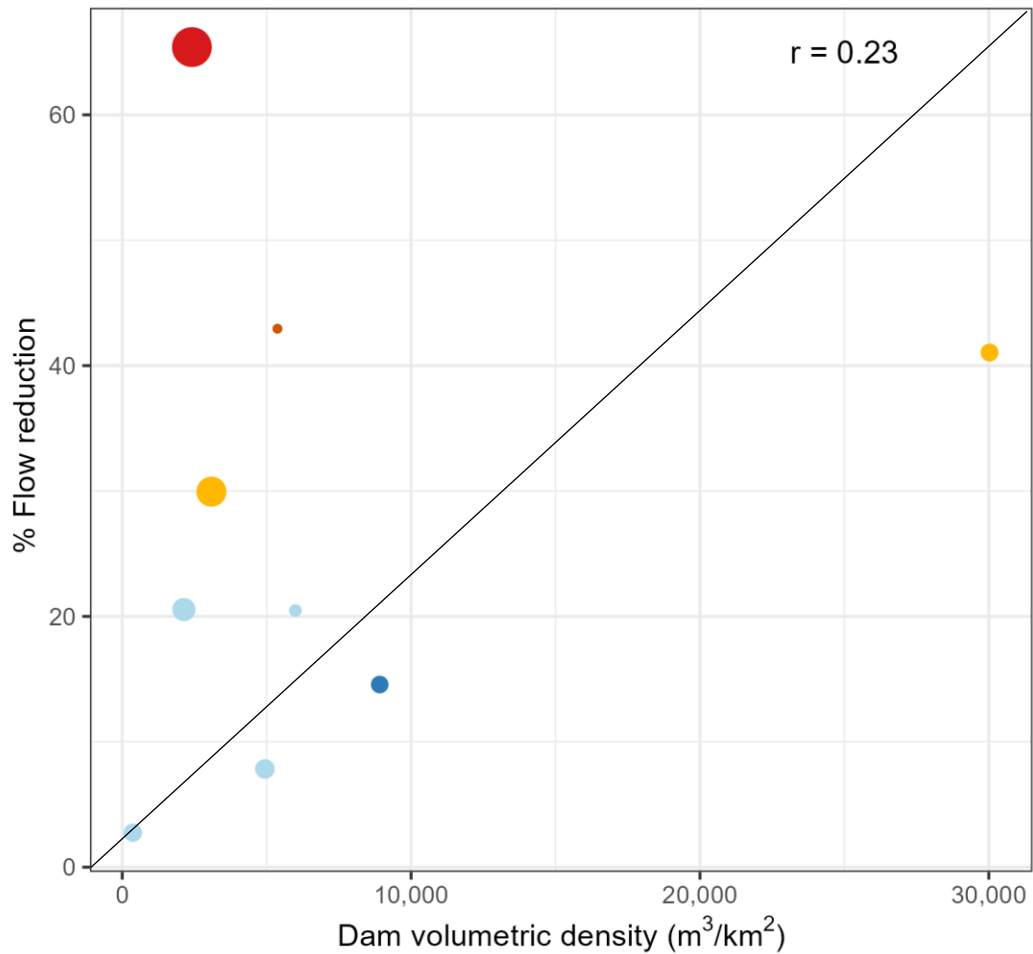
Results: Model performance



Optimal value



Results: Water extractions



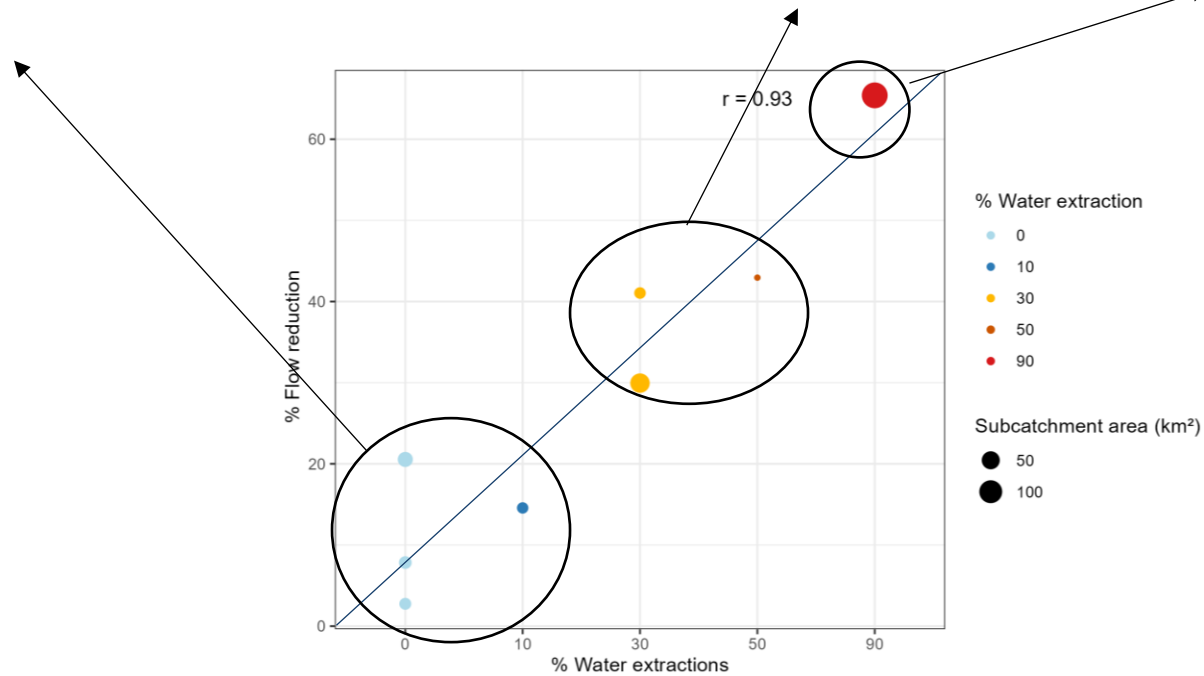
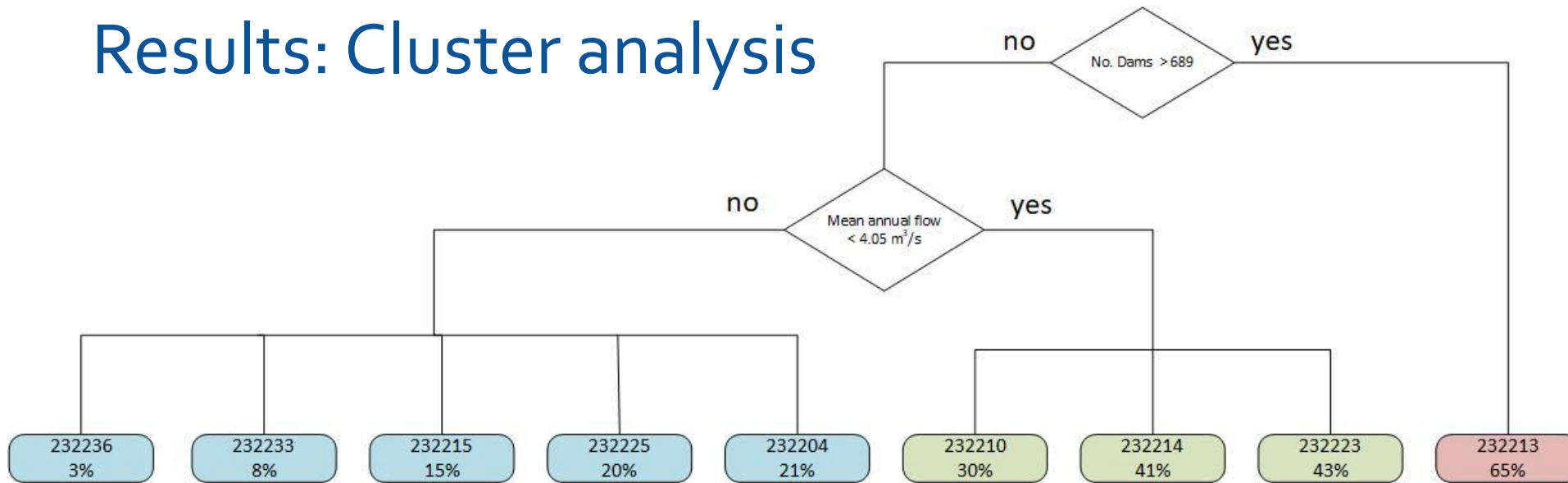
% Water extraction

- 0
- 10
- 30
- 50
- 90

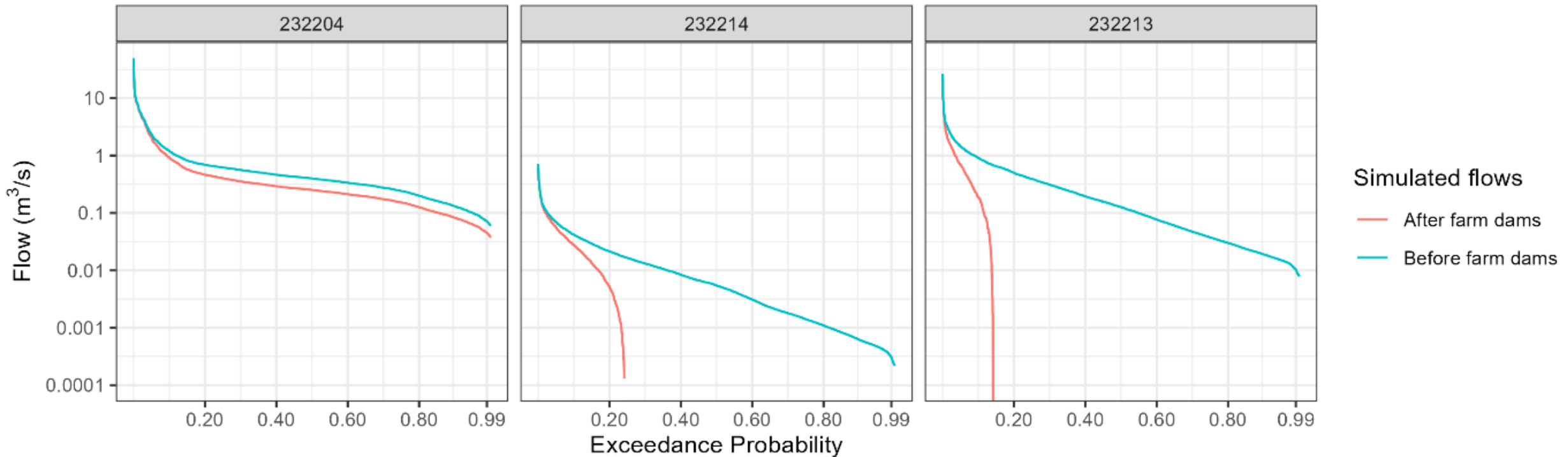
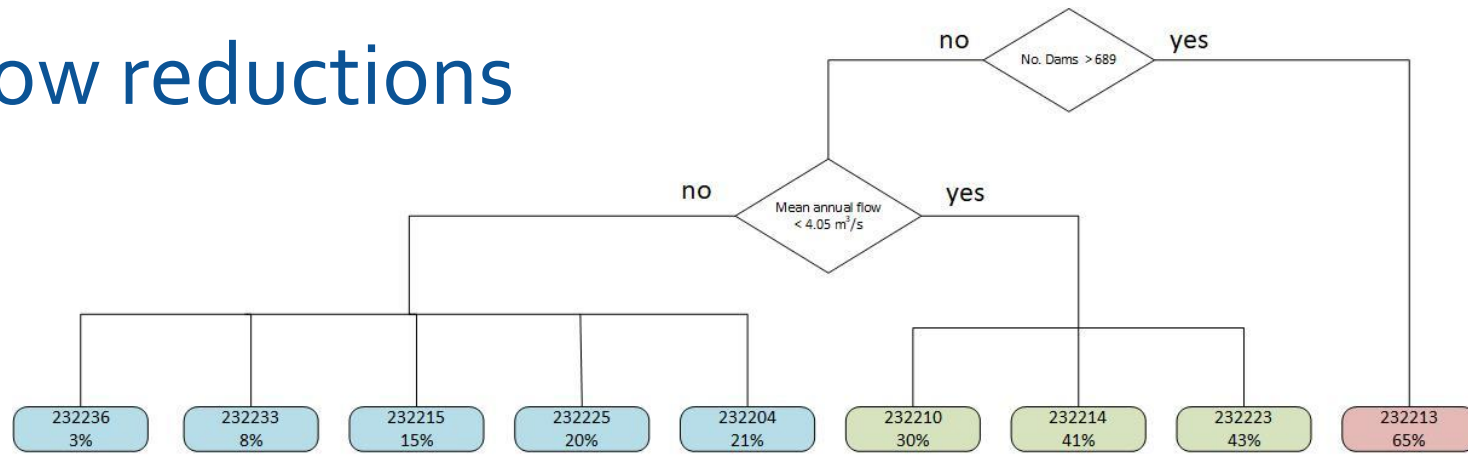
Subcatchment area (km²)

- 50
- 100

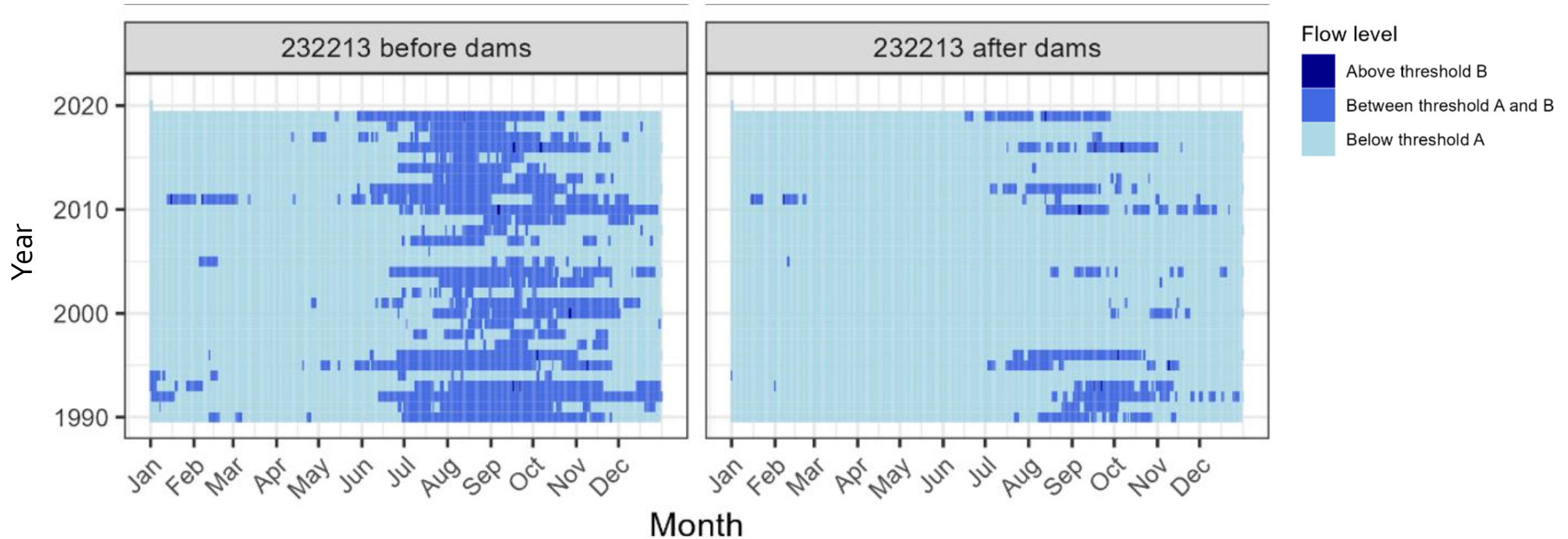
Results: Cluster analysis



Results: Flow reductions




Results: Low flow spell analysis



Key findings

Including the water extractions improved the hydrological simulation



Low-flow events become longer and more frequent



High flow events dropped by nearly 50% in 30 years.

Ecological and Management implications



Reduce streamflow leads to river fragmentation, lower water quality, reduce fish passage, and stress on aquatic ecosystems.



Farm dams are an important water source, but require sustainable extraction limits.



Policies should consider:

- Maximum dam densities.
- Remediation of barriers.
- Use of environmental flows to improve connectivity.



Climate change will potentially intensify these impacts.

