

Appendix 3: Summary of results.

Relationship & Table	Model	Number of time points	Findings	Interpretation
Relationship 1: Site characteristics Table 1	Linear regression (cross-sectional)	1	Site characteristics, including province, agroecological zone, and surface area, were significantly associated with biomass and species diversity. Year was significantly associated with species richness. CFR type was significantly associated with biomass.	CFR sites are heterogeneous. The differences between CFRs that we observe affect biomass and biodiversity within them. Further, analyses should include strong controls by site to account for these differences when assessing the underlying ecological and intervention dynamics.
Relationship 2: Habitat quality Table 2	Linear regression (panel), fixed effects for Community Fish Refuge	13, every 3 months	Species richness and biomass were associated with month. In the previous period, high water temperature and ideal pH are negatively associated and Secchi depth is positively associated with biomass.	The flood pulse and other seasonal factors play a strong role in CFR system dynamics. This dynamism may shape the appropriateness and effectiveness of biophysical and governance changes. Independently of temporal cycles, water quality was associated with fish biomass.
Relationship 3: Management actions Table 3	Linear regression (annual panel), fixed effects for Community Fish Refuge	3	The month of May was associated with poorer water quality.	While we observe strong seasonal effects on water quality, we were not able to detect a robust effect of activities designed to improve the CFR environment or water quality (e.g., clearing excess vegetation, fencing, deepening refuges). However, our model is not able to identify a <i>lack of</i> effect either, and associations between management activities and water quality merits further study.
Relationship 4: Governance actions Table 4	Linear regression (annual panel), fixed effects for Community Fish Refuge	3	Governance meetings were positively associated and governance activities were negatively associated with species richness. Fundraising to support governance activities was positively associated with biomass.	We find some evidence of associations between governance activities and fundraising with species richness and biomass, respectively. Although the mechanism through which these operate is not clear, it suggests an identifiable role of governance improvements in fishery productivity and diversity.