

ABSTRACT

Kemujan Island's mangrove park has been forced shut after years of neglect, ecological destruction from illegal shrimp aquaculture, and infrastructure so degraded that tourists broke their leg on a rotting plank. The real cost, however, falls on local fishermen, who now travel 5 to 10 times further out to sea because the mangrove nursery grounds that once sustained their catch have been destroyed. This project proposes a mutualistic architectural framework that makes that connection the foundation of design: three interdependent typologies placed across the medial and distal mangrove zones, including a water-accessible fishing hub with live ecological monitoring, a community nursery and rehabilitation station with direct economic incentives through mangrove crab cultivation, and an interpretive trail that teaches through spatial experience rather than signage. All structures are built on tidal-responsive systems, floating pontoons, small-diameter pipe piles placed outside root zones, and modular decking, so the architecture works with the intertidal environment instead of against it. The goal is not an upgraded ecotourism site. It is an ecosystem that a fishing community understands, protects, and maintains because they can see exactly what it gives them back.

Keywords: Mutualistic Design, Mangrove Rehabilitation, Community Based Ecology, Tidal-Responsive Architecture, Kemujan Island