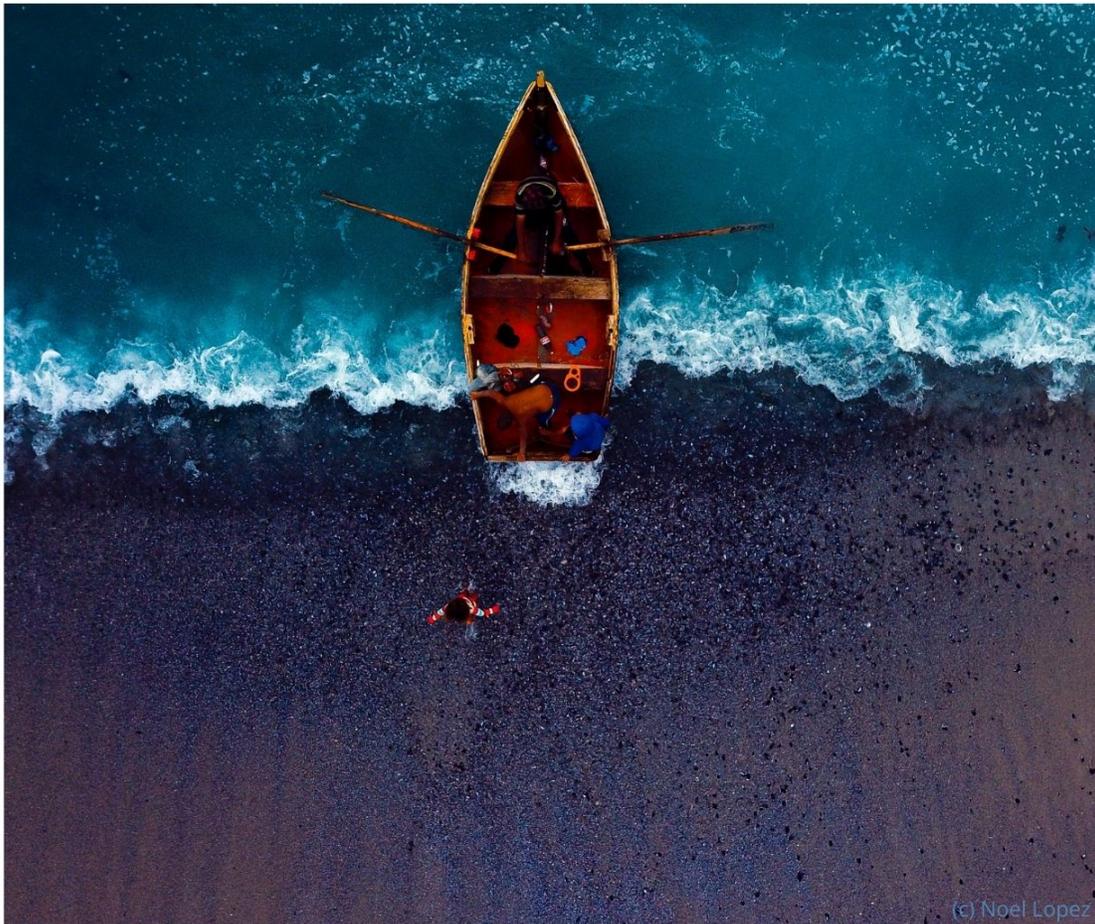


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BOOK OF ABSTRACTS

Functional diversity: a need for assessing the ecological response of reef fish assemblages to a disturbance in protection strategies

Diversidad funcional: Una necesidad para evaluar las respuestas ecológicas de los ensamblajes de peces arrecifales a disturbios en estrategias de protección

Diversité fonctionnelle: nécessité d'évaluer la réponse écologique des assemblages de poissons de récif à une perturbation des stratégies de protection

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ABSTRACT

Developing and evaluating process-oriented metrics, such as functional trait diversity metrics, is a high priority to assess the ecological responses of reef fish communities to disturbances and for adaptive ecosystem-based management in marine protected areas (MPAs). We applied five functional diversity metrics (functional entities, redundancy, richness, dispersion, and evenness) to fish assemblage data from an 11-year monitoring dataset of coral reefs in the U.S. Virgin Islands to assess: 1) the spatio-temporal variance in the trophic function of fish communities before, during and after a mass coral bleaching event in 2005; and 2) the association of fish functional diversity with benthic composition, diversity, and structure of reefs inside and outside of No-Take and Multiple Use MPAs. The lack of spatial variation in fish functional diversity metrics suggested no MPA effects during the evaluated time. After the coral bleaching event in 2005, the number of fish functional entities, functional richness, and variation (dispersion) declined inside a No-Take MPA in St. Croix, failing to return to pre-disturbance values over the subsequent seven years. Reefs with high topographic complexity and hard coral species richness supported high richness and redundancy of functional roles. We concluded that functional diversity metrics based on the trophic function of fishes should be considered as tools to monitor ecological functional recovery in MPAs.

KEYWORDS: Functional diversity, fish assemblages, coral reefs