# Long-Term Trends in Caribbean Parrotfish Abundance at Local, Regional, and Basin-wide Scales: Implications for Fisheries and Ecosystem Management

# Tendencias a Largo Plazo en la Abundancia de Peces Loro en el Caribe a Escala Local, Regional y en Toda la Cuenca: Implicaciones para la Pesca y el Manejo del Ecosistema

# Tendances à Long Terme de l'Abondance des Poissons Perroquets des Caraïbes à l'Échelle Locale, Régionale et à L'Échelle du Bassin: Implications pour la Pêche et la Gestion des Écosystèmes

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## EXTENDED ABSTRACT

Parrotfish species in the Caribbean are widely considered an important component of coral reef resilience (Jackson et al. 2014). However, in many locations throughout the Caribbean, fisheries routinely target parrotfish. Virtually nothing is known about region-specific stock status, either for individual species, or collectively. As such, efforts to develop fisheries management plans spanning local to regional scales would be well served by an assessment of abundance trends in common parrotfish species within and between Caribbean locations.

The Reef Environmental Education Foundation (REEF) Fish Survey Project, a citizen-science monitoring program, provides a 27-year time series of reef fish relative abundance based on diver observations throughout the tropical western Atlantic (Pattengill-Semmens and Semmens 2003). Using these data, we explored temporal trends in abundance of 5 common and conspicuous Caribbean parrotfish species (Queen Parrotfish, *Scarus vetula*; Redband Parrotfish, *Sparisoma aurofrenatum*; Stoplight Parrotfish, *Sparisoma viride*; Princess Parrotfish, *Scarus taeniopterus*; Striped Parrotfish, *Scarus iseri*) within and between the following locations: Key Largo, Florida, USA; Cozumel, Mexico; Grand Cayman, Cayman Islands; Roatan, Honduras; Tortola, British Virgin Islands; and, Bonaire, Netherlands.

We found that, in general, parrotfish species exhibited similar abundance trends within regions. On the other hand, we found little evidence for synchronous intra-specific trends across regions. Thus, regardless of species, parrotfish population dynamics appear driven by species-generic local processes (e.g. recruitment dynamics, non-specific fishing methods). These findings suggest that fisheries management generically targeted at the parrotfish family will likely have common effects across species.

KEYWORDS: Parrotfish, citizen science, reef fish trends

## LITERATURE CITED

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