

**Lessons Learned from a Caribbean-Wide Population Genetics Study of Nassau Grouper:  
The Value of Genetics Data for Fisheries Management of Aggregating Reef Fishes**

**Las Lecciones Aprendidas de un Estudio de Conectividad Genética de Cherna Criolla:  
El Valor de los Datos de la Genética Para la Gestión de las  
Pesquerías de Peces de Arrecife de Agregación**

**Les Leçons Tirées de l'Étude de la Connectivité Génétique Mèrou Rayé:  
La Valeur des Données de Génétique pour la Gestion des  
Pêches de Poissons de Récifs Agrégation**

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**EXTENDED ABSTRACT**

Analyses of mitochondrial and nuclear markers allow us to uncover the demographic history as well as ecological and evolutionary processes that have impacted species over time. As such, genetic data has proven useful for fisheries management of commercial species. Nassau grouper (*Epinephelus striatus*) have experienced significant population declines over the past few decades throughout the Caribbean Sea. Using mitochondrial and nuclear markers I investigated population structure and effective population sizes of Nassau grouper throughout the Caribbean basin. I acquired tissue samples from 16 populations around Mexico, Belize, Cuba, the Cayman Islands, the Bahamas, Turks and Caicos, the U.S. Virgin Islands and Antigua and Barbuda. Samples were genotyped for two mitochondrial markers and one microsatellite loci. A power analysis was performed to ensure that markers were variable enough to recover a signature of population structure if it were present. I then investigated the relationship between census population size of spawning aggregations from monitoring data and effective population size, as well as the presence of population bottlenecks. Results suggest that Nassau grouper exhibit population structure across the Caribbean Sea at both a regional and local scale, reflecting broad-scale oceanographic patterns. Estimations of effective population size suggest evidence of decreased genetic diversity in populations, as well as the presence of inbreeding in two instances. Results will be used to contribute to future management and conservation decisions made for Nassau grouper.

KEY WORDS: Nassau grouper, fisheries management, genetic connectivity, spawning aggregations