Measuring the influence of adjacent land development and sedimentation on the spawning behavior of Yellowtail Parrotfish (*Sparisoma rubripinne*) in Reef Bay, St. John.

Medición de la influencia del desarrollo de la tierra adyacente y la sedimentación en el comportamiento de desove del pez loro cola amarilla (*Sparisoma rubripinne*) en Reef Bay, St. John.

Mesure de l'influence du développement des terres adjacentes et de la sédimentation sur le comportement de frai du perroquet à queue jaune (*Sparisoma rubripinne*) à Reef Bay, St. John.

KAYLA BLINCOW[1], JENNA CHERAMIE[1], RICHARD NEMETH[1]
[1]*Center for Marine and Environmental Studies, University of the Virgin Islands,* [2] *John Brewers Bay, St. Thomas, USVI 00802,*
kaylamblincow@gmail.com, jenna.cheramie@gmail.com, rnemeth@uvi.edu

EXTENDED ABSTRACT

In recent decades, coral reefs have been increasingly exposed to anthropogenic stressors that can result in a phase shift from coral-dominated to algal-dominated reefs. One of these stressors is increased sedimentation. Herbivores, including parrotfish in the genus Sparisoma, are important regulators of algal growth in Caribbean coral reef systems. As grazers, the health of Sparisoma populations can be negatively affected by increased sedimentation in reef habitats, because it can alter the algal communities parrotfish rely on for foraging. We are investigating the relationship between sedimentation and reproductive output of yellowtail parrotfish (Sparisoma rubripinne) in Reef Bay, St. John, US Virgin Islands. Reef Bay encompasses two yellowtail parrotfish spawning aggregations, each located in distinct areas (east and west) of the bay that are characterized by markedly different levels of land development known to influence sedimentation rates.

We are monitoring Reef Bay using a variety of tools, including acoustic telemetry, fish follows, and sediment tiles and cups. We tagged 60 yellowtail parrotfish (30 from the west and east sides of the bay) using Innovasea VR13P tags and are monitoring them using a fixed array of VR2W receivers arranged throughout the major parrotfish migration pathways in the bay, including the spawning aggregation sites. We placed 6 sediment tile matrices throughout the bay and sampled them monthly to determine origin and rates of sedimentation. We also conducted fish follows, which involved following individual yellowtail parrotfish for 10 minutes at a time and recording the number of bites they took, the type of algae they bit, and the type of substrate the algae was on. Using this information, we calculated foraging rates.

We found that tagged parrotfish captured on the eastern and western areas of Reef Bay showed remarkable site fidelity (100%) to their respective spawning aggregations. Preliminary results show that the western side of the bay (more land development) has higher sedimentation rates, lower foraging rates, and fish spent less time at the spawning aggregation site. We are investigating these dynamics further by estimating foraging range of yellowtail parrotfish between the eastern and western sides of the bay, using benthic transects to characterize the algal communities and forage quality throughout the bay, directly measuring fecundity using analysis of gonads and spawning output at aggregation sites, and using passive acoustic and video monitoring to estimate the total number of parrotfish present at the aggregation sites.

KEYWORDS: animal movement, reef herbivory, algal-dominated reefs