and gorgonians, which covered 28 % of the area. Vegetated habitats (8) represented 13 % of the area, while unconsolidated habitats (7) occupied 59 % of the area. Abundant coral patches on a sandy matrix, small coral patches surrounded by a seagrass halo, dominance of coral limestone patches aligned parallel to the prevalent waves, deep sand channels, and extensive gorgonian plains are all examples of previously uncharted habitats. Mangrove habitat could not be mapped with SSS. Habitats recognized were related to biologically relevant measures Bstructure, rugosity, benthic community composition and abundance- that are known to be the factors affecting fish community structure. Therefore, SSS is a particular valuable technique for quantitative assessments of habitat distributions important for fish management, e.g., habitat abundance and connectivity for essential fish habitat or MPA design.

KEY WORDS: Habitat characterization, side scan sonar, small scale habitats, coral habitats

Identificación de Habitats de Arrecife de Coral a Pequeña Escala desde Imágenes de Sonar Lateral de Alta Resolución

Una caracterización detallada de hábitats es importante para entender como los organismos reaccionan y usan su ambiente, y para estudiar muchos procesos ecológicos que ocurren a pequeña escala. Sin embargo, un conocimiento detallado necesita ser extendido sobre grandes áreas para determinar la distribución espacial de hábitats y su conectividad. Este asesoramiento de hábitats a mayor escala es crucial para determinar los efectos de disturbios, hetereogeneidad y dispersión entre parches de hábitats sobre las poblaciones marinas. Desafortunadamente, la identificación detallada de hábitats sobre grandes áreas es desconocida para la mayoría de las áreas de coral. En este trabajo, un total de 60 km^2 afuera de La Parguera, Puerto Rico, fue inspeccionada usando un sonar lateral (SSS). Las imágenes adquiridas fueron de alta resolución (0.15 m) y permitieron la identificación de 21 habitats diferentes. Los hábitas más estructurados (6) estuvieron dominados por corales y gorgonios, los cuales representaron un 28% del área. Los hábitas con vegetación (8) representaron un 13 %, mientras que los hábitas de sedimentos no-consolidados ocuparon un 59 % del área. Abundantes parches de coral en una matriz de arena, pequeños parches arrecifales rodeados por un halo de pasto marino, dominancia de parches de coral alineados paralelos al flujo de las olas, canales de arena profundos y extensas planos de gorgonios fueron todos ejemplos de hábitats previamente no mapeados. Los manglares no pudieron ser mapeados con un SSS. Los hábitats reconocidos se relacionaron con mediciones biológicas relevantes B estructura, rugosidad, composición de comunidades bénticas y abundancia- que son conocidos factores que afectan la estructura de la comunidad de peces. Por lo tanto, SSS fue una técnica particularmente valiosa para asesoramientos cuantitativos de la distribución de hábitats importante para el manejo

pesquero, e.g., abundancia de hábitat y conectividad para EFH ó AMP.

PALABRAS CLAVES: Caracterización de hábitats, sonar lateral, hábitats a escala detallada, hábitats de coral

Vertical Distribution of Larval Fishes off La Parguera, Southwest Puerto Rico

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The vertical distribution of fish larvae from the southwest coast of Puerto Rico were described from samples collected during two cruises, Feb/95 and May/96 along three meridional (North-South) transects (67°00'; 67°03; and 67°06 W) running perpendicular to the coastline off La Parguera. The shelf-edge (SE-13) and three offshore positions (OC-17, OC-29 and OC-46) were occupied along each transect, for a total of 12 stations per cruise. These stations were sampled in vertically stratified, step-oblique tows at three discrete depths (surf 0-20, mid 21-40 and deep 41-60 meters) within the surface mixed layer using a 1 m^2 Tucker Trawl fitted with three 202 im mesh nets and standard flow meters. Conductivity, temperature, depth, and chlorophyll-*a* concentrations were measured using a CTD profiler with an integrated fluorometer. Water column density profiles at the different stations for February and May cruises showed permanent stratification with well developed pycnoclines associated with increasing salinity and a decline of water temperature with depth.

A total of 15, 638 fish larvae representing 82 families were identified during the study. Pre-flexion coral reef fish larvae did not show any statistically significant pattern of abundance in their vertical distribution within the surface mixed layer. Only a few families at post-flexion stage showed statistically significant differences of abundance between depths, or between day and night samplings. While a more comprehensive vertical sampling program based on a larger number of samples may be required to provide definitive conclusions on reef fish vertical distributions for some taxa, some trends were apparent. Abundance of oceanic type larvae, such as myctophids, gonostomatids and photichtyids increased with depth, as well as coral reef fish larvae of the Gobiidae and Scaridae families. Conversely, Clupeiformes, Pomacentridae, Haemulidae and Holocentridae were more abundant at shallower depths within the surface mixed layer. Lutjanidae were found mostly in mid water.