

Assessing the Catchable Finfish Resources of a Remote Caribbean Bank: The Alice Shoal, Jamaica-Colombia Joint Regime Area

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The submerged banks of the central Caribbean are potential growth areas for regional fisheries because of their relative inaccessibility. In an effort to foster conservation of possibly valuable offshore resources, the governments of Jamaica and Colombia are supporting exploratory research prior to authorizing access by fishermen. The project aims to provide both fisheries dependent and independent assessments of the composition and biomass of the deep slope and shallow demersal finfish communities. Experimental stock depletion methods have been modified for application to a 500 km² bank (Alice Shoal) with an average depth of 25 m on top, and an average slope angle of 60° to the 500 m contour. For the deep slope communities, a small (@ 6 km), representative section of the bank's perimeter was selected on the basis of natural barriers to fish migration. A Leslie stock depletion experiment was conducted in this area from the Jamaican fisheries research vessel R.V. DOLPHIN in May 1995, using hand and vertical set lines with multiple baited hooks (two sizes), deployed at depths of 70 - 365 m, at a mean effort intensity of @ 400 hook hours per day. A complete hydrographic survey of the bank, benthic habitat mapping and video fish censuses were conducted from the Colombian oceanographic research vessel A.R.C. PROVIDENCIA in February 1996. The results were used to select sites for experimental stock depletions of shallow demersal species, and to extrapolate the results of biomass estimates from experimental areas to the whole of Alice Shoal, and to nearby banks.

On the basis of these surveys, three benthic habitats spread over a 15 km² area of the bank top were fished down using 90 wire mesh fish traps deployed from the R. V. DOLPHIN in August 1996. The experimental design used simultaneous removal from three widely separated sites in each habitat stratum (each with 10 traps each) in order to minimize the error of the biomass estimator. Visual fish censuses were used to provide independent indices of abundance throughout the capture sequence. The results of the joint research program have significantly enhanced international collaboration on fisheries in the Caribbean region, and are being used to manage a developing fishery with the goal of long term ecological sustainability.

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