

# CORAL REEFS OF MISKITUS CAYS, NICARAGUA

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**ABSTRACT:** The Miskitus Cays, on the Caribbean coast of Nicaragua, consist of eighty mangrove and two sand and gravel cays, surrounded by seagrass beds, octocoral gardens, patch reefs, reef crests, extended algae platforms, short reef walls, and two marginal reefs around the sand cays. Seventy sites were inspected and eighteen sites were selected for rapid assessments in order to determine the status of the coral reefs. Linear transects and the intercept point methods were used to determine the relative benthic cover, and the density, size and health of coral colonies was estimated following the AGRRA protocol. Water was highly turbid due to the shallowness of the reefs and high wave energy. Northwest reefs, closer to the Coco river mouth, were affected by terrestrial sediments and were overgrown by algae whereas storm damage was evident in the eastern reef crest fronts. In total, 39 stony coral species were found and 12 new species were reported for Cayos Miskitus. Mean live coral cover was high (43.4%), but it was still lower than the algae cover (54.2%). Mean coral diameter (59.7 cm) and height (4.2 cm) were high but total mortality (27.9%), bleaching (4%) and diseases (3%) were low. Reefs of Nicaragua are in the best condition of the Caribbean region of Central America but good management of the fisheries, the marine reserve, and the Coco river basin are urgent to maintain reef quality.

# HABITAT CONDITION AND ASSOCIATED MACROFAUNA REFLECT DIFFERENCES BETWEEN PROTECTED AND EXPOSED SEAGRASS LANDSCAPES

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**ABSTRACT:** Seagrass landscape configurations associated with different physical settings can affect habitat-structure and plant-animal relationships. We compared shoal grass (*Halodule wrightii*) habitat and macrofaunal variables between two fragmented seagrass landscapes at barrier-island locations subject to different disturbance regimes. Five seagrass habitat variables including above ground biomass (AGB), shoot number, per shoot biomass, epiphyte biomass and below ground biomass (BGB), differed significantly between the island landscapes. Per shoot biomass and epiphyte biomass also varied significantly over the seagrass growing season; and epiphyte biomass showed a strong landscape-time interaction. Abundances of microgastropods normalized to AGB differed significantly between landscapes. An inverse relationship between the abundance of microgastropods and epiphyte loading suggests a possible functional link. However, additional temporal mismatch between epiphyte loading and microgastropod abundance indicates that controls on epiphyte loading were complex. Seagrass habitat was more fragmented within the Cat Island (CI) landscape. Wind direction and strength imply that the CI landscape experienced more physical disturbance than the Horn Island (HI) landscape. This study highlights some potential links involving landscape configuration, habitat structure, and macrofaunal associations which can be further addressed using hypothesis-driven research.

# SEAGRASS DISTRIBUTION IN THE PENSACOLA BAY SYSTEM, NORTHWEST FLORIDA

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**ABSTRACT:** Aerial surveys of seagrass coverage in the Pensacola Bay system (PBS) have been conducted during 1960, 1980, 1992 and 2003. This report summarizes the results for the 2003 survey and compares the results to those previously reported for other surveys. The estimated coverage of seagrass for the PBS during 2003 was 1,654 ha. Continuous and patchy coverages ranged from 0 to 684 ha and 11 to 543 ha, respectively, for five PBS subsystems. In 2003, the majority of seagrass coverage occurred in Santa Rosa Sound (76%). Declines in total coverage occurred for East Bay (93%) and Escambia Bay (75%) whereas increases were observed for Pensacola Bay (32%) and Santa Rosa Sound (8%). The approximate 9% decline (about 160 ha or 395 a) in total coverage since 1992 represents an estimated 7 to 8 million dollar loss in ecological services. The changes in coverage are likely due to naturally occurring and anthropogenic factors but it is not possible to differentiate the relative contributions of these factors alone and in combination on seagrass distribution. The ability of seagrasses to exist long-term in Florida's fourth largest estuarine system is uncertain due to the adverse effects of rapid urbanization in the watershed. Active resource management which includes more frequent in-situ monitoring and aerial assessment and the availability of relevant water and sediment quality criteria protective of submerged aquatic vegetation are needed to prevent future declines.

# VARIABILITY IN ESTIMATING ABUNDANCE OF POSTLARVAL BROWN SHRIMP, *FARFANTEPENAEUS AZTECUS* (IVES), MIGRATING INTO GALVESTON BAY, TEXAS.

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**ABSTRACT:** Three sets of monitoring data were used to examine the variability associated with abundance estimation of postlarval brown shrimp, *Farfantepenaeus aztecus* (Ives) in Bolivar Roads, Texas—the main connection between the Gulf of Mexico and Galveston Bay. Abundance of postlarvae (PL) caught with Renfro beam trawl varied greatly in different years on the same dates. A “spring peak” of brown shrimp PL migrating into Galveston Bay was found for 2 April with a quadratic regression fit to 6-day moving averages of daily mean abundance from 22 yrs of monitoring data:  $\ln(\text{PL}+1) = 0.8736 + 0.09037\text{Day} - 0.0004934\text{Day}^2$  ( $\text{adj-R}^2 = 0.83$ ,  $n = 159$ ), where Day is Julian day. Abundance varied by four orders of magnitude (0 to 24,616 PL/tow) in just 4 d during a four-week intensive monitoring of PL during the 1987 spring peak. Abundance also varied by three orders of magnitude between the North and South Jetty sites during the same collection time. During a third study, PL abundance varied by two orders of magnitude along 360 m of the beach in < 4 hr. These investigations demonstrate that detecting significant differences in PL shrimp abundance in a pass requires substantial sampling that may not be logistically possible. However, best estimates could be obtained by including as many dates as possible, followed by including more sites, and finally by collecting during both day and night. Conclusions drawn from abundance studies of PL shrimp, fish, and crab immigrants through estuarine passes that are based on only a few samples should be reviewed.

# PRELIMINARY SURVEY OF FISH COMMUNITY COMPOSITION IN SEAGRASS HABITAT IN TWO BACK-REEF LAGOONS OF THE SOUTHERN MEXICAN CARIBBEAN

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**ABSTRACT:** Little is known about seagrass fish communities in the southern Mexican Caribbean. Diurnal and nocturnal fish community structure in seagrass habitat were compared between back-reef lagoons using a visual census technique in a natural protected area within a national park (Xcalak) and an unprotected area (Mahahual). Seagrass fish communities differed significantly between the two locations in the daytime and Xcalak supported greater total fish densities. Species richness did not differ statistically between locations. Observed nighttime fish communities were characterized by low species richness and low fish abundance when compared to diurnal communities. Heavy tourist use and coastal development may have degraded seagrass habitat at Mahahual causing lower fish abundance. Also, proximity of seagrass to mangrove habitat in Xcalak may have led to increased abundance and differences in species composition between locations. More extensive analysis and monitoring of the relative functioning of back-reef habitats in these two systems is needed as coastal development and fishing pressure continue to threaten the area.

**RESUMEN:** No se conoce mucho sobre la comunidad de peces en pastos marinos en el sur del Caribe mexicano. La estructura de las comunidades de peces nocturnas y diurnas en pastos marinos se obtuvo mediante censos visuales y se comparó entre la laguna arrecifal de un área protegida (Parque Nacional Arrecifes de Xcalak) y un área no-protegida (Mahahual). Las comunidades de peces fueron diferentes significativamente entre los dos sitios durante el día, Xcalak registró las mayores densidades de peces. No existe diferencia estadísticamente significativa con respecto a la riqueza de especies entre sitios. Las comunidades de peces nocturnas presentaron valores bajos de riqueza de especies y de abundancia con respecto a las comunidades diurnas. El desarrollo turístico y costero de Mahahual, podrían estar degradando el hábitat de pastos marinos, y como consecuencia el registro de bajas abundancia de peces. En contraste, en Xcalak, la proximidad del ecosistema de manglar adyacente a los pastos marinos podría estar influenciando con una mayor abundancia de peces y cambios en la composición de especies con respecto a Mahahual. Mientras en el área continué el desarrollo costero y la pesca en el área, es necesario un análisis más extensivo (escala temporal y espacial) del funcionamiento de ambas lagunas arrecifales.

# SHELL UTILIZATION PATTERN BY THE HERMIT CRAB *ISOICHELES SAWAYAI* FOREST AND SAINT LAURENT, 1968 (ANOMURA, DIOGENIDAE) FROM MARGARITA ISLAND, CARIBBEAN SEA, VENEZUELA

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**ABSTRACT:** *Isocheles sawayai* is a hermit crab that is occasionally mentioned in the literature, and recently its distribution was extended to Venezuelan waters. Because no information on the biology and shell use patterns of this species inhabiting Caribbean waters is available, we provide the first information on shell occupation patterns of *I. sawayai* from Venezuela. Specimens were collected monthly from January to December 2000 along the sandy shore of Margarita Island, Venezuela. The 942 specimens collected showed different shell use patterns between the sexes and according to the reproductive condition of the females. The gastropods *Leucozonia nassa* (37.37%), *Engoniophos uncinatus* (25.37%), *Nassarius vibex* (4.88%), *Melongena melongena* (4.25%), and *Stramonita haemastoma* (3.82%) represent 76% of the total occupied shells. Of the total of 26 different shell species occupied by *I. sawayai*, males were found occupying 21, while females were found occupying all 26 shell species. In general, both sexes most frequently occupied *L. nassa* and *E. uncinatus*. However, the percentage of females occupying these shells was significantly higher than that of the males. Regression analyses showed the best correlation between crab size, shell aperture width, and shell internal volume. The current comparative investigation, in combination with other South Atlantic populations of *I. sawayai*, provided further evidence of shell use adaptation in hermit crabs from different areas, and increases our insight into shell use of shallow-water hermit crabs.

# SEASONAL PATTERNS OF JUVENILE FISH ABUNDANCE IN SEAGRASS MEADOWS IN TEAGUE BAY BANK BARRIER REEF LAGOON, ST. CROIX, U.S. VIRGIN ISLANDS

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**ABSTRACT:** Considerable knowledge has been gained regarding fish use of nearshore habitats such as seagrass meadows or mangrove lagoons in the Caribbean (e.g., evaluation of nursery value, trophic linkages). However, few studies have been conducted on fish recruitment to seagrass habitat around the Caribbean. Juvenile reef fish in seagrass meadows at Teague Bay, St Croix, U.S. Virgin Islands were surveyed from October 1998 through September 1999 using a visual census technique. Grunts (Haemulidae) were the most abundant juveniles observed (60% of all fish), followed by wrasses (Labridae, 20%) and parrotfishes (Scaridae, 13%). French grunt, *Haemulon flavolineatum*, were the most numerous species (59.5% of all fish), followed by slippery dick, *Halichoeres bivittatus* (18.5%), and bucktooth parrotfish, *Sparisoma radians* (10.4%). Most numerically abundant fish species demonstrated peaks in recruitment during late summer and fall. Our results imply that the functioning of seagrass beds incorporates strong seasonal patterns of small-fish abundance that need to be accommodated in any study wishing to understand their importance to fisheries.

# **CARPOAPSEUDES HEARDI N. SP. (TANAIDACEA: APSEUDOMORPHA) FROM CARIBBEAN WATERS NEAR TOBAGO**

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**ABSTRACT:** *Carpoapseudes heardi* n. sp. is described from samples collected from depths of 421 and 537 m off Tobago and is the first Caribbean record for the genus. The new species bears a resemblance to *Carpoapseudes serratospinosus* Lang, 1968 and other related species in the shortened dactylus unguis combination of pereopod 1, but has parallel eyespines like *Carpoapseudes bacescui* Guțu, 1975 and *Carpoapseudes simplicirostris* (Norman and Stebbing, 1886). Other diagnostic characters include pereopods 2 and 3 with basal spurs, labrum with paired lobes, labial palp with two terminal setae, maxillipedal bases with outer crenulations, and pleopods with 1-articled rami. It was found to lack an epistomal spine and has an unusual form of the third pereopod short propodal spine.

**RESUMO:** *Carpoapseudes heardi* sp. nov. é descrito de amostras coletadas em profundidades entre 421 e 537 m ao largo de Tobago, o primeiro registro do gênero no Caribe. A nova espécie se assemelha a *Carpoapseudes serratospinosus* Lang, 1968 e outras espécies no encurtamento da combinação dátilo-unguis no pereópodo 1, mas possui lobos oculares paralelos como *Carpoapseudes bacescui* Guțu, 1975 and *Carpoapseudes simplicirostris* (Norman e Stebbing, 1886). Outros caracteres diagnósticos incluem pereópodos 2 e 3 com esporas basais, labrum com lobos pareados, palpo labial com duas cerdas terminais, base do maxilípede com crenulações externas e pleópodos com ramo uniaarticulado. É diferenciada pela ausência do espinho do epistoma e possui um curto e incomum espinho no própodo do terceiro pereópodo.

**SHORT COMMUNICATION**

**AN UNUSUAL REACTION AND OTHER OBSERVATIONS OF  
SPERM WHALES NEAR FIXED-WING AIRCRAFT**

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**SHORT COMMUNICATION**

**OCCURRENCE OF LARVAL AND JUVENILE FISH IN MANGROVE HABITATS IN THE SIAN KA'AN BIOSPHERE RESERVE, QUINTANA ROO, MEXICO**

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**SHORT COMMUNICATION**

**FIRST RECORD OF *CERATASPIS MONSTROSA*, A LARVAL OCEANIC PENAEOID CRUSTACEAN, FROM THE GULF OF MEXICO**

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**SHORT COMMUNICATION**

**DOCUMENTATION OF A GULF STURGEON SPAWNING SITE ON  
THE YELLOW RIVER, ALABAMA, USA**

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**SHORT COMMUNICATION**

**BEHAVIOR OF AN ESCOLAR *LEPIDOCYBIUM FLAVOBRUNNEUM*  
IN THE WINDWARD PASSAGE AS DETERMINED BY POPUP  
SATELLITE ARCHIVAL TAGGING**

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