Early Life History of Dolphinfishes in the Northern Gulf of Mexico

KEY WORDS: Coryphaena, dolphinfish, fish larvae, distribution, Gulf of Mexico

ABSTRACT

Common dolphinfish (Coryphaena hippurus) and pompano dolphinfish (Coryphaena equiselis) are economically and ecologically valuable pelagic fish found in tropical and subtropical oceans worldwide. Although they support both commercial and recreational fisheries, knowledge of their habitat use and ecology during early life is limited. Dolphinfish-larvae were collected during ichthyoplankton surveys of surface waters in the northern Gulf of Mexico (Gulf) in waters off of Texas and Louisiana (27 – 28° N 87 - 93° W) during June and July of 2007 and 2008. Dolphinfish larvae were relatively common in our sampling area (frequency of occurrence 63.2% and 55.3% in 2007 and 2008, respectively), and more than 700 larvae were collected during this two year study. Mean density (larvae/1000 m$^2$) of dolphinfishes was higher in frontal zones (1.5) and anticyclones (1.0) compared to the open ocean (0.7) and cyclones (0.5), suggesting that these features may represent important habitats for dolphinfish larvae. Mean standard length varied between seasons with smaller larvae observed in June (7.5 mm) compared to July (15.4 mm). A published age-length key was used to calculate hatch-date distributions, which suggested that spawning times of larvae collected in our surveys ranged from late May to late July with the majority of larvae from June spawning events (54%). Results of this study indicate that dolphinfish larvae are abundant throughout the northern Gulf and that this region may represent important spawning/nursery grounds for these species.
Prey Detection by Grey Snapper *Lutjanus griseus* and a Novel Means of Predator Avoidance

**KEY WORDS:** Grey snapper, chemical crypsis, toadfish, urea, predator avoidance

**PALABRAS CLAVE:** Pargo del manglar, evitar a los pradadores

Détection de Proie par le Vivaneau Gris *Lutjanus griseus* et un Nouveau Moyen d’Évitement des Prédateurs

**MOTS CLÉS:** Vivaneau gris, détection de proie, moyen d’évitement

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**ABSTRACT**

Studies of prey detection by olfaction in teleost fishes have focused largely on amino acids as odorants, while studies with respect to nitrogenous waste are few by comparison. Although threshold sensitivities for amino acids are often in the nano-molar range, gill and renal membranes are thought to be less permeable to amino acids than lower molecular weight compounds such as ammonia or urea. Furthermore, amino acids are generally conserved for protein synthesis and are a minor constituent of excreta. This study examined detection of ammonia, urea, and amino acids by *Lutjanus griseus* (gray snapper). *Opsanus beta* is a preferred prey item of *L. griseus*. *O. beta* is unique among teleosts in that adults can facultatively shift between ammonia and urea excretion. Experiments were conducted in 8,000 L outdoor mesocosms with flow-through seawater and a sediment/seagrass substrate to simulate natural habitat. Odorants were injected into small experimental shelters designed to mimic toadfish burrows. Shelters were equipped with low-light video cameras to remotely monitor snapper behaviours. Results indicate that *L. griseus* are more responsive to ammonia than either urea or an ammonia/urea mix with threshold sensitivities below 5 µM. Additionally, *L. griseus* are more responsive to an amino acid/ammonia mix than either an amino acid/urea mix or amino acids without waste-N. These results suggest that urea masks the aroma of ammonia but not those of amino acids.

The Richness and Abundance of Reef Fish of Serranilla, Alicia, and Bajo Nuevo, Seaflower Biosphere Reserve - San Andrés, Providencia and Santa Catalina, Colombia

**KEY WORDS:** Reef fish abundance, Seaflower Biosphere Preserve, Providencia and Santa Catalina, Colombia

**Riqueza y Abundancia Íctica de los Complejos Arrecifales de Serranilla, Bajo Alicia y Bajo Nuevo, Reserva de Biodiversidad Seaflower - Archipiélago de San Andrés, Providencia y Santa Catalina- Colombia**

**PALABRAS CLAVE:** Riqueza íctica, peces con interés ecológico y económico, Reserva de Biodiversidad Seaflower-Archipelago

**La Richesse Et l'Abondance des Poissons de Récif de Serranilla, Bajo Alicia, et Bajo Nuevo, Seaflower Réserve de la Biosphère - San Andrés, Providencia et Santa Catalina, Colombia**

**MOTS CLÉS:** Richesse et l’abondance des poissons, Seaflower Réserve de la Biosphère

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**ABSTRACT**

In April 2010, there was a scientific expedition to collect biological data to remote areas to the north of the Archipelago...