

Relationships between Numbers of Immature Pink Shrimp Caught in Everglades National Park and the Tortugas Commercial Catch

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Abstract

Preliminary results are presented of studies on relative abundance of pink shrimp (*Penaeus duorarum*) in Everglades National Park.

Sampling stations have been established in the western and southern openings of the Whitewater-Coot Bay estuary. Postlarval shrimp have been collected with one meter plankton nets since August 1965 in simultaneous surface and bottom hauls. Preliminary results show postlarval shrimp enter the estuary in greatest numbers in the summer. Abundance within a month is apparently influenced by moon phase and is highest during the time of the new and first quarter moons.

Bimonthly sampling of juvenile pink shrimp emigrating from the southern exit (Buttonwood Canal) has been carried out since January 1963, and in the western exit (Little Shark River) since October 1965. The abundance shows a varying pattern, in which there may be one or two periods of high abundance within a year. Postlarvae entering in October-November winter in the estuary and leave in highest abundance in March and April, at an average size of 18mm carapace length. Most of the postlarval shrimp enter from April-August. These exhibit rapid growth and appear to spend only a month or two in the estuary.

When a time lag is used a positive correlation exists between the relative abundance of emigrating juveniles and catch per unit of effort of small shrimp on the Tortugas grounds.

Based on this relationship a forecast of increased abundance of small shrimp on the fishing grounds can be made, but only shortly before they are available to the fishery.

Using commercial landing data, an apparent movement of size groups through the Tortugas fishery can be seen. This appears reliable enough that a forecast of up to 4 months can be made of increased abundance of 41-50 count shrimp.