

One of the greatest values of mangrove forests is that they provide nursery habitat for commercially important juvenile fish that may later enter coastal and offshore fisheries, and coral reefs. The dense root structure of mangrove trees retains free-floating fish larvae, provides refuge for young fish, shelter against predation, and a surface for algae to grow on that forms the base of ecosystem food webs.

The fish community of the Caroni Swamp however has rarely been studied, with only one published account in 1970, and two studies performed since. Many areas remain unsurveyed and substantial changes may have occurred since previous studies. We also have little understanding of the importance the Caroni Swamp has in supporting fisheries in the Gulf of Paria, and how the features of the Caroni translate to its success as a nursery ground for valuable fish. Answering these questions is pivotal in understanding whether changes in the Caroni Swamp ecosystem may have a knock-on effect to impact fish stocks in the Gulf of Paria. These fisheries are integral to the culture of coastal communities in Trinidad and Tobago, and provide jobs and food to thousands of people.

Conservation of habitat for fish species is complicated by their mobility. Often fish roam over large areas or migrate between habitats used for feeding or avoiding predators. If juvenile fish populations are to be effectively conserved it is imperative to identify and conserve all utilised habitats. Alternatively, if fish show little capability or willingness to move into other areas, then impacts to their preferred habitats may have exaggerated consequences. A large part of this project is to compare the fish communities in different regions of the swamp to identify hotspots, and to determine how fish move around the swamp and what regions or habitats they utilise at different times.

Nursery grounds that promote rapid juvenile growth rates can also signify important habitats for conservation. Rapid growth implies the presence of sufficient food resources and larger fish are generally less susceptible to predation and stress related mortality, while possessing greater reproductive capacity and a better chance of entering the adult population.

To summarise the aims of this project:

- 1) To conduct an extensive survey of the juvenile fish population in the Caroni Swamp: including previously unsurveyed channels, and surveys to monitor changes in the fish community over time;
- 2) To correlate the distribution of juvenile fish with a number of environmental and habitat features. These features include, but a salinity, channel depth, pollutants, dissolved oxygen, vegetation density, predator density, etc;
- 3) To compare growth rates of juvenile fish of selected species between different regions of the swamp and correlate growth rates with environmental features;
- 4) To examine the connectivity and movement of juvenile fish between different habitats and channels;
- 5) To demonstrate and quantify the movement of young fish from the Caroni into the Gulf of Paria;