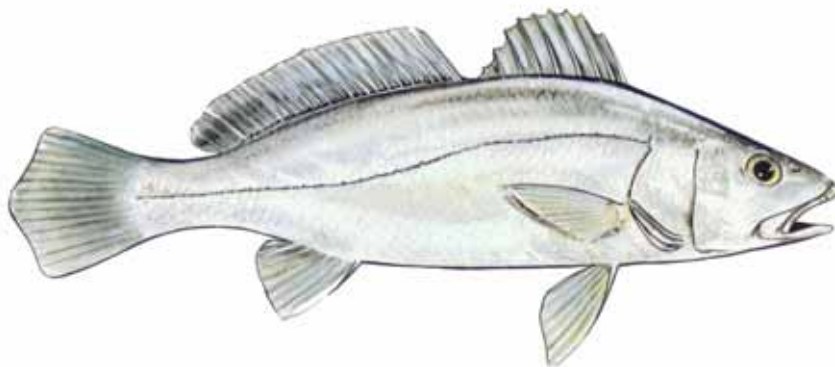


NT Coastal Reef Fish Population and Biology of the Black Jewfish

T. Hay*, I. Knuckey*, C. Calogeras* and C. Errity, Fisheries Research, Darwin

* Formerly DPIFM



INTRODUCTION

The black jewfish (*Protonibea diacanthus*) is a member of the Sciaenid family, which is also known worldwide as croakers or drums due to the distinct drumming noise it makes using its swim bladder. *P. diacanthus* is a migratory species found in turbid coastal waters throughout the Indo-West Pacific (India, Sri Lanka, Myanmar, the Malay Peninsula, Thailand, Indonesia, Northern Australia, the Philippines, China and Japan). It inhabits waters to 60 m and is an opportunistic carnivore, which preys on crustaceans, octopus, squid and fish. The black jewfish is a silvery green colour on capture and changes to a black colour after death. Numerous small dark spots are often present on the upper half of the body, tail and caudal fin. These spots are less visible and even absent on larger fish.

It takes a patient, determined angler and a good pair of gloves to land a large jewfish. Not only are they fun to catch but they are great to eat, and therefore highly prized amongst NT commercial and recreational anglers. Jewies can be targeted in creek, river and estuarine systems as well as on offshore reefs and wrecks. Heavy handlines and boat rods are most commonly used to land black jewfish using the basic patanoster reef fishing rig. They can be targeted using fresh oily fish baits, pilchards or squid and will also readily take a lure. There is no size limit for black jewfish, but a personal possession limit of five per person exists in the Northern Territory.

RESEARCH

Information on the length, weight, sex, stage of maturity and otoliths (ear bones) of *P. diacanthus* was collected from research trips around Darwin and by sampling the catches of NT commercial fishermen.

A total of 175 fish were sampled. The caught fish ranged between 37 and 126 cm total length (TL), with weights between 0.5 and 17.5 kg. The relationship between length and whole weight is illustrated in Figure 1.

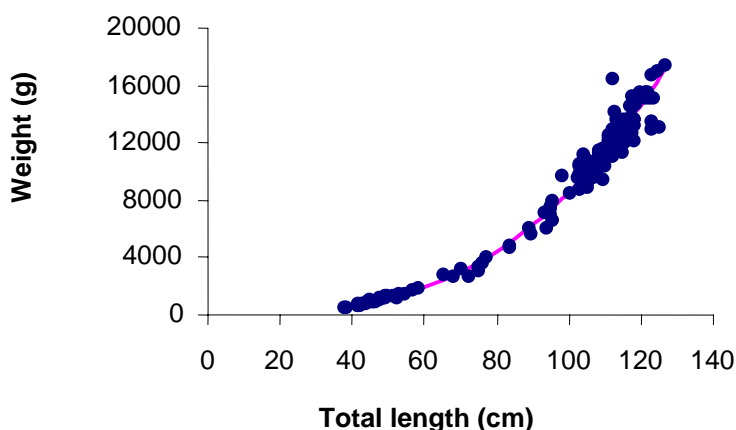


Figure 1. Length-weight relationship of *P. diacanthus*

Due to their large size, jewfish are not often kept whole (too big for the average esky). It is more common to find a jewie gilled and gutted, trunked (head and tail removed) or filleted. Recovery rates for each process are 90%, 65% and 30%, respectively.

The length frequency of male and female *P. diacanthus* (Figure 2) shows that, in this sample, males dominated in most size classes. It has been suggested that *P. diacanthus* move in same sex schools and this may explain the greater number of males in the sample. This aspect of the life-history of *P. diacanthus* may be important when considering the potential impact of fishing pressure on the population dynamics of the species.

Our sample appears to lack data relating to mid-sized fish. One explanation for this may be that fish aggregate in same size class schools in areas that are not often commercially fished.

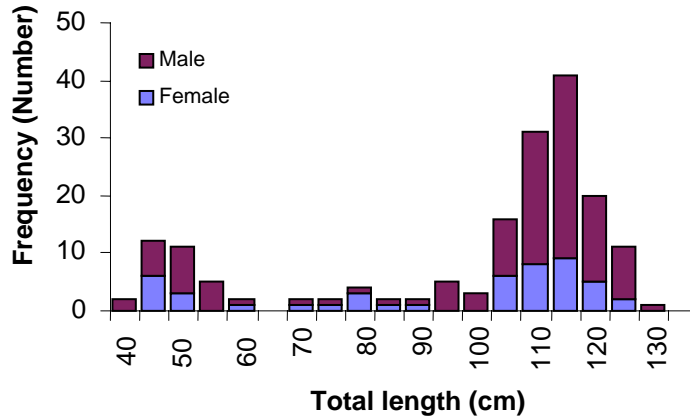


Figure 2. Length frequency of male and female *P. diacanthus*

Unfortunately due to the small number of fish sampled, we have too little data to accurately calculate the size at first maturity for each sex. Indian researchers have found that female *P. diacanthus* average size at first maturity was 85 cm. Initial observations of gonad maturity indicate that spawning occurs from October to April in NT waters.

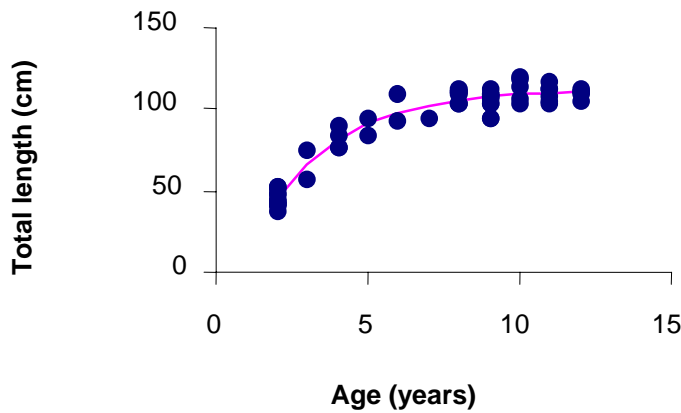


Figure 3. Age-length relationship of *P. diacanthus*

A small number of fish have been aged by counting the yearly rings on their otoliths. Before we can be confident of ageing results however, more fish need to be sampled, especially those in smaller size classes. Furthermore, we have yet to conduct any validation procedures to ensure that the rings are indeed annual. Our preliminary results indicate *P. diacanthus* grow fast and may live for more than 12 years and reach sizes over 120 cm TL (Figure 3).

It is important to remember that the information summarised in this Fishnote is of a preliminary nature and was derived from fish collected from a relatively small area over a limited time period. Consequently, use of this data for wider temporal and spatial scales warrants caution.

The Coastal Research Unit will continue to collect relevant information on black jewfish and other common coastal reef species, so we can better understand and manage the impact of fishing on their population dynamics and long-term sustainability. Please help us by practising responsible fishing. In this way, we can ensure that this important NT resource can be enjoyed by future generations of Territorians.

ACKNOWLEDGEMENTS

None of this research could have taken place without the assistance and patience of the NT coastal line fishermen.

RECOMMENDED READING

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