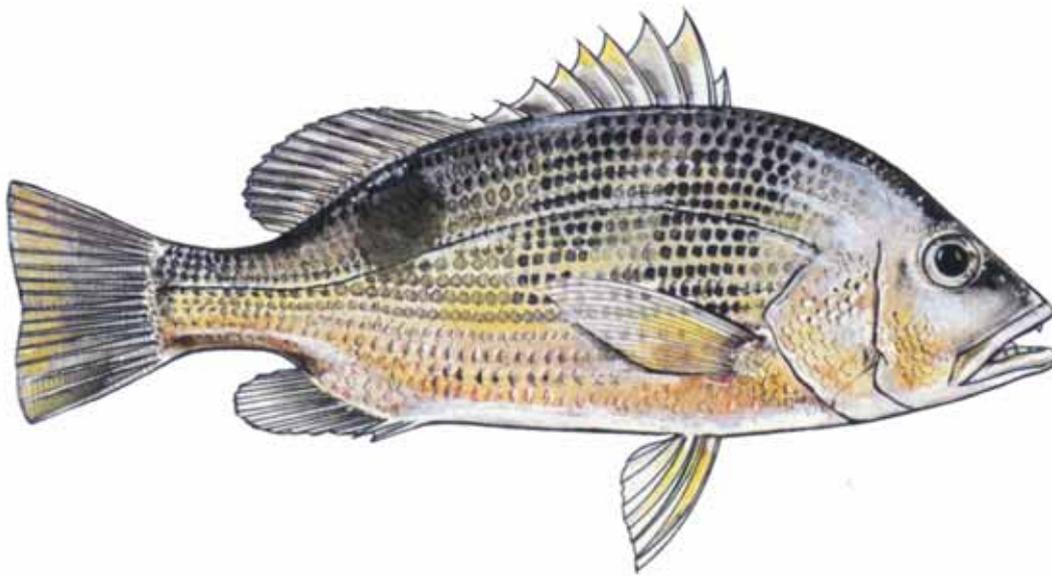


## NT Coastal Reef Fish Population and Biology of the Golden Snapper

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### INTRODUCTION

Golden snapper (*Lutjanus johnii*) a member of the Lutjanid family, is widely distributed throughout the Indo-West Pacific, inhabiting tropical inshore waters from East Africa to Fiji and northern Australia to just south of Japan. It is a coral reef/turbid water associated species that occurs in large schools at depths to 80 m. This species is known by a number of common names such as fingermark, John's snapper or spotted-scale sea perch. Here in the Territory it is most commonly called 'goldy', which is explained by its golden/bronze and occasionally silvery-green body colouration. A dark spot is found on each scale and often a large dark blotch is located approximately two-thirds along and above the lateral (mid-body) line. Fish caught in river mouths and muddy waters may be a deeper bronze-red colour.

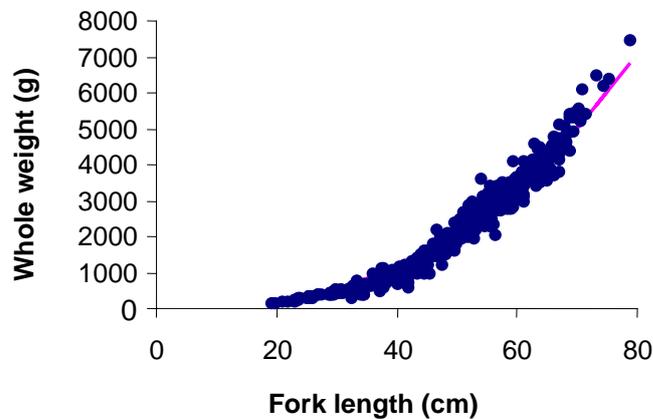
Goldies are a hard fighting and highly prized table fish making them a favourite with both recreational and commercial fishermen. They can be targeted in creeks, rivers and estuaries as well as on offshore reefs using handlines and boat rods. The juveniles are more regularly encountered in creek systems, whereas the larger adult fish are encountered on coastal and offshore reefs. Goldies can be caught using a basic patanoster reef fishing rig using fresh squid, pilchards or oily fish baits. Goldies will also readily take a lure when fishing is around structure in creek and river estaurine systems as well as around rocky outcrops or reefs. There is no size limit for golden snapper, but a personal possession limit of five per person exists in the Northern Territory.

## RESEARCH

Lutjanids are highly valued and therefore heavily fished worldwide. The tendency of golden snapper to congregate in large schools in relatively shallow water around snags and pinnacles, coupled with advances in sounder and GPS technologies, have raised concerns for the potential for overfishing of this species. Very little is known of the biology of this particular species. However, DPIFM Fisheries has conducted some basic biological studies on this species.

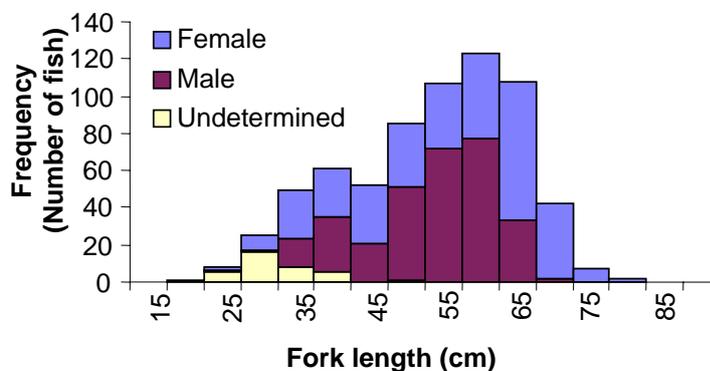
Information on the length, weight, age, sex, stage of maturation and otoliths (earbones) of *L. johnii* was collected from research trips around Darwin and by sampling the catches of commercial fishermen from around the NT coast.

To date, a total of 709 fish have been examined. Fork length (FL) ranged between 19 and 78 cm and whole weight between 0.1 and 8 kg (Figure 1). Fish of over 80 cm have been reported (up to 100 cm in southern Queensland).



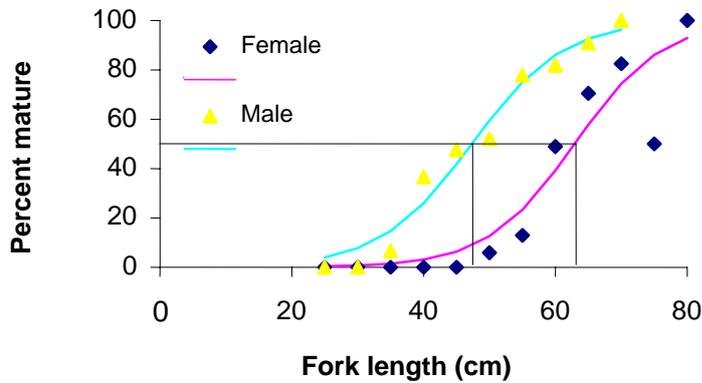
**Figure 1.** Length-weight relationship of *L. johnii*

The length frequency of male and female *L. johnii* (Figure 2) shows that larger fish are more likely to be females.



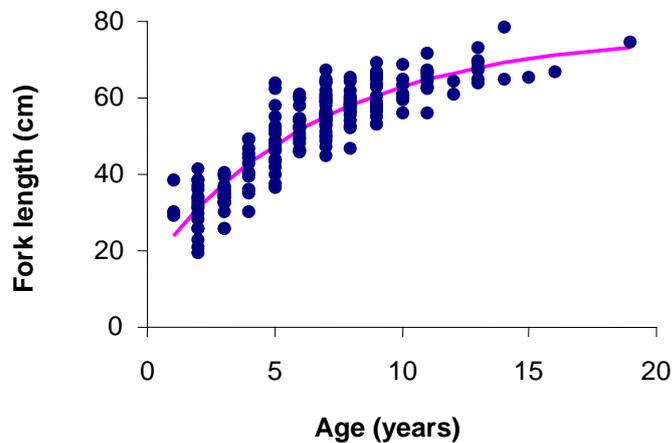
**Figure 2.** Length frequency of male and female *L. johnii*

Initial observations of the stage of the gonads of female and male *L. johnii* indicate that this species undergoes a prolonged spawning period from early September to late April. Preliminary indications are that 50% of females are mature at 63 cm and 50% of males are mature at 47cm (Figure 3).



**Figure 3.** Size at 50% maturity female and male *L. johnii*

A small number of fish have been aged by counting the yearly rings on their otoliths (ear bones), similar to counting the rings on the trunk of a tree. Before we can be confident of ageing results however, more fish need to be sampled, especially those in smaller size classes. Furthermore, we need to conduct validation procedures to ensure that the rings are indeed annual. Our preliminary results indicate *L.johnii* may live for over 20 years and reach sizes around 80 cm FL (Figure 4).



**Figure 4.** Preliminary age-length key for *L. johnii*

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 golden snapper 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

This research could not have taken place without the assistance and patience of the NT coastal line fishermen. Thank you to all and in particular Tony and Paul Franklin.

## RECOMMENDED READING

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