Fishnote

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Barramundi - Your Questions Answered

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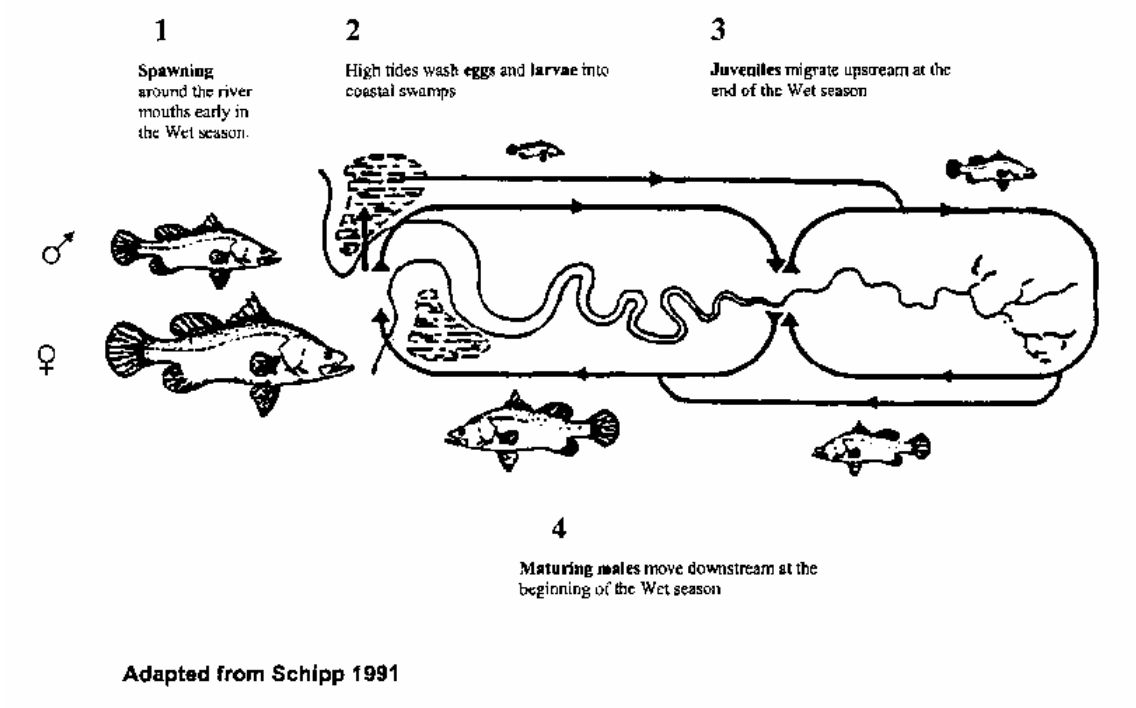
Barramundi, the fishing icon of the Top End, draws local, interstate and international anglers to the Northern Territory (NT) in droves every year. Barramundi is the most targeted fish by recreational anglers in the NT (Coleman, 1998). Although many of us know how to catch barramundi, what do we actually know about the fish? Many questions are fielded by fisheries staff every year, including some common ones such as, how old or what sex is my barra, when do barra migrate to fresh water and what do they eat? This Fishnote aims to give you a better understanding of the biology and ecology of the barramundi and should answer some of the most often asked questions.

WHAT IS THE BARRAMUNDI LIFE CYCLE?



Adapted from Schipp 1991

Barramundi spawn (produce eggs) between September and March, with the build-up period from October to December, being the most important. Barramundi eggs and larvae require salt water and spawning is in marine bays and river mouths. Juvenile barramundi (5-50 mm) move with the high spring tides into mangrove and wetland habitats, which offer both protection and a wide variety of foods. As the wet season comes to an end and the flood plains begin to dry, the juvenile barramundi (now 200-300 mm) migrate up the rivers into the freshwater billabongs. If fish do not have access to fresh water, they will probably remain in coastal and estuarine areas. After three to five years, most of the freshwater barramundi migrate back to the ocean to spawn.

HOW OLD IS MY BARRA?

We determine the age of barramundi by counting growth rings on their scales or their ear-bones (otoliths), much like counting the growth rings found on a tree. There are many factors that can affect the growth of a fish. For example, fish from an early spawning have a head start on those fish that are spawned late and will generally be larger by the end of their first year. Food availability and water conditions also affect the rate of growth.

Examples of length to age relationships are as follows:

One year-old barra are 30-40 cm long.
Two year-olds are 50-60 cm long.
Three year-olds are 60-80 cm long.
Around eight year-olds are 100 cm long.

IS IT MALE OR FEMALE?

Barramundi change sex from male to female, but did you know that the size of the barramundi you catch maybe a good indicator of the sex of the fish? Studies by Davis (1982) show that there is a relationship between size and sex. Most barra mature as males, at about 50-60 cm and start changing sex at around 90 cm, but only if they are living in salt water. Of course there are exceptions; some over 100 cm barramundi are male and a very small number under 70 cm are female.

This can be due to stunted growth because of insufficient food, or it may be that a barra has been in fresh water for an extended period and has remained male. This is the case with freshwater impoundments such as Manton Dam here in the NT and Tinaroo Dam in Queensland, which are stocked with barramundi. Barra that weigh over 20 kg and are over 100 cm long, which are regularly caught at Tinaroo, are all males. Restocking therefore, is the only way to replenish barramundi populations in freshwater impoundments. Barra probably have to be sexually active as a male before changing to a female and can only do this in salt water.

Figure 1 shows, for example, that there is a 60% chance that a 100 cm long barramundi is female. Next time you catch a barra measure it and see if it is a male or a female.

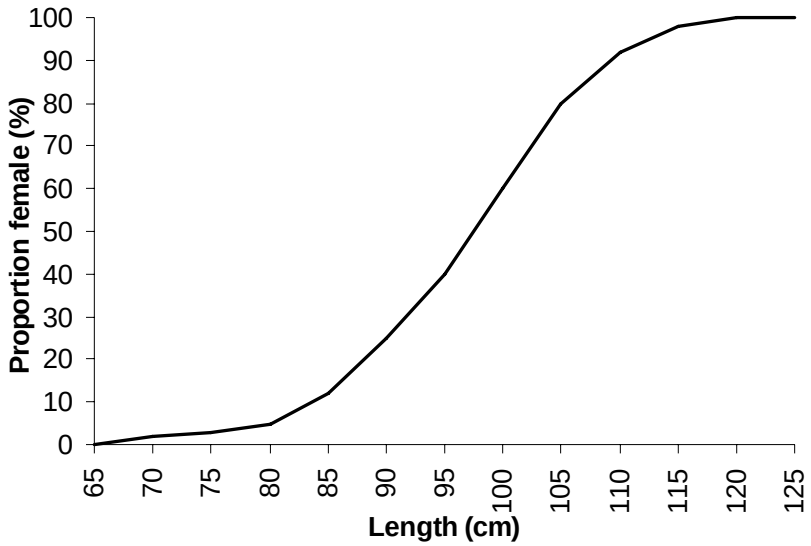


Figure 1. The proportion of barramundi females in a population 65 cm to 125 cm long (based on Davis 1982)

WHAT DO BARRA EAT?

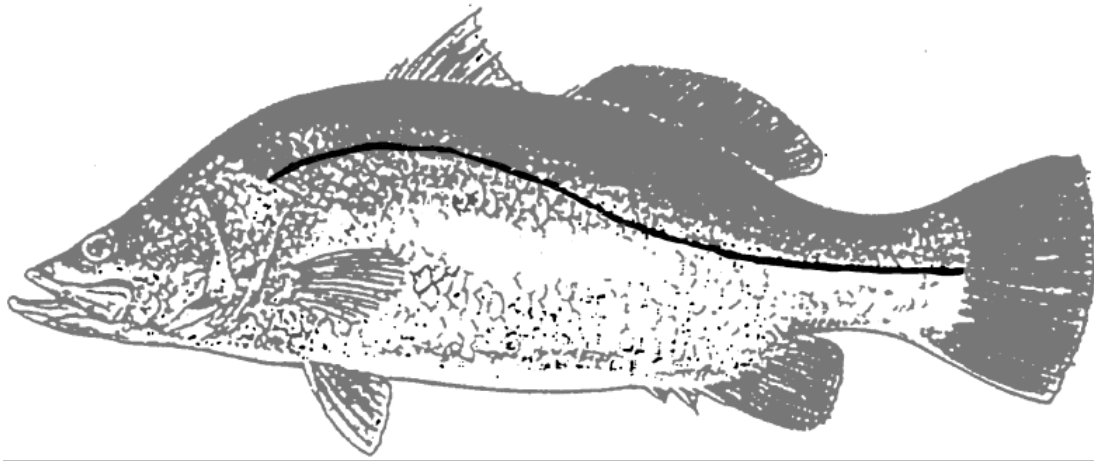
Barra are voracious opportunistic predators. They eat just about anything that lives in or around water, including insects, spiders, crocodiles, prawns, fish and each other (Davis 1984). The size of the prey is largely determined by the size of the barra. The diet of a larger barramundi consists of 60% fish and 40% crustaceans, (mainly prawns) while smaller barra eat mostly small or large prawns. This will vary according to where the fish live. One fish that stands out in barramundi diet is catfish. It has been found in the stomachs of barra with the spines protruding through the stomach and into the body cavity! Tough fish! Barra can take prey that is up to 60% their own total length.

As water temperatures cool during the dry season (May – August), barramundi slow down and eat less frequently. Catch rates are usually very low at this time of year. During the build-up and wet season (September – April) water temperatures can be up to 10°C higher than during the dry season. Barramundi activity increases with the warmer temperatures and catch rates are generally higher.

HOW MUCH CAN BARRA SEE IN DIRTY WATER?

Vision is probably limited in dirty water. Barramundi, like other fish, utilise what is called a lateral line. This is a sensory organ, which runs down both sides of the body. The lateral line enables fish to detect vibrations in the water which assists them to locate prey and avoid predators. A barra fisherman once caught a barramundi with no eyes, possibly the result of an old injury. On inspection, staff found the fish in excellent condition and was at least three years old. This shows that even without eyes, a barra can survive.

A question often asked is: what attracts a fish to a lure, its colour or its action? It is probably a combination of both. Brightly coloured lures with a tight action and a rattle have become very popular over the last few years.



Barramundi showing the approximate location of the lateral line

WHAT IS THAT RED SPOT ON THAT BARRAMUNDI?

If you have ever fished at Corroboree Billabong, a popular waterway about an hour's drive from Darwin, you may have caught a barra with a few red spots or even sores on the body. This is probably epizootic ulcerative syndrome, better known as red spot disease. On barramundi, it is found mainly in fresh water. Similar conditions occur in other species of fish in fresh and salt water. The cause is still not completely understood but it is believed that as water temperature falls and food becomes scarce the condition of the fish and resistance to disease drop and it becomes more susceptible to infection. Research showed

that a fungus was responsible for the primary infection (Roberts 1997). Open sores, caused by the fungus are then infected by other pathogens such as bacteria and viruses.

It is not advisable to eat fish affected by red spots as micro-organisms found in such lesions have the potential to cause disease in humans (Pearce 1990).

I THOUGHT ALL SMALL BARRA SWIM UPSTREAM AFTER THE WET?

Not quite. Large numbers of small barra do swim upstream after the wet season. However, some barramundi do not have a freshwater phase in their life cycle and spend their entire lives in an estuarine habitat. (Pender and Griffin 1995). This is one reason why we can catch small barra all year round in areas like Darwin Harbour and some of the Gulf rivers, such as the McArthur near Borroloola.

HOW HEAVY IS MY BARRAMUNDI?

Most barra anglers talk in length instead of weight these days, but there are still some of us who like to know how heavy that barra was. If you intend to release a large fish after capture, weighing it is generally not a good idea because of the injury it may suffer. Measuring your barra is the better option. Over the years researchers have collected a huge amount of data on barramundi including weights and lengths. The length/weight relationship of barramundi varies between individual fish due to habitat differences and time of year. Table 1 shows an approximate relationship between the length and weight of barramundi. So next time you catch a prize barramundi but want to release it with the least amount of stress, measure it carefully and use the table to work out the approximate weight.

Table 1. The approximate length to weight relationship of barramundi

Length (cm)	Weight (kg)	Length (cm)	Weight (kg)	Length (cm)	Weight (kg)	Length (cm)	Weight (kg)
50	1.4	***68***	3.6	***86***	7.4	***104***	13.1
51	1.5	***69***	3.8	***87***	7.6	***105***	13.5
52	1.6	***70***	4.0	***88***	7.9	***106***	13.9
53	1.7	***71***	4.1	***89***	8.2	***107***	14.3
54	1.8	***72***	4.3	***90***	8.5	***108***	14.7
55	1.9	***73***	4.5	***91***	8.7	***109***	15.1
56	2.0	***74***	4.7	***92***	9.0	***110***	15.5
57	2.1	***75***	4.9	***93***	9.3	***111***	15.9
58	2.2	***76***	5.1	***94***	9.6	***112***	16.4
59	2.4	***77***	5.3	***95***	10.0	***113***	16.8
60	2.5	***78***	5.5	***96***	10.3	***114***	17.3
61	2.6	***79***	5.7	***97***	10.6	***115***	17.7
62	2.7	***80***	5.9	***98***	10.9	***116***	18.2
63	2.9	***81***	6.2	***99***	11.3	***117***	18.7
64	3.0	***82***	6.4	***100***	11.6	***118***	19.2
65	3.2	***83***	6.6	***101***	12.0	***119***	19.7
66	3.3	***84***	6.9	***102***	12.3	***120***	20.2
67	3.5	***85***	7.1	***103***	12.7	***121***	20.7

FISHBITS – DID YOU KNOW?

- Barramundi have been recorded up to 150 cm long and weighing more than 40 kg, but larger fish have been reported!
- Barramundi are thought to live for around 20 years.
- Large female barramundi can produce 32 million eggs a season; that's almost twice the human population of Australia!
- Barramundi change sex; they generally mature as males in their third to fifth year and then change to females between four to eight years of age, but only in salt water.
- Barramundi inhabit areas where the water temperature ranges between 23°C to 35°C, from the Ashburton River in the west to the Mary River in Queensland.
- Barramundi can travel great distances in their life; one fish that was tagged and released had travelled 622 km when it was recaptured. Most fish however, are recaptured close to where they were tagged. There is generally not much movement of barra between river systems.

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