



Tracking Barramundi in the Roper River

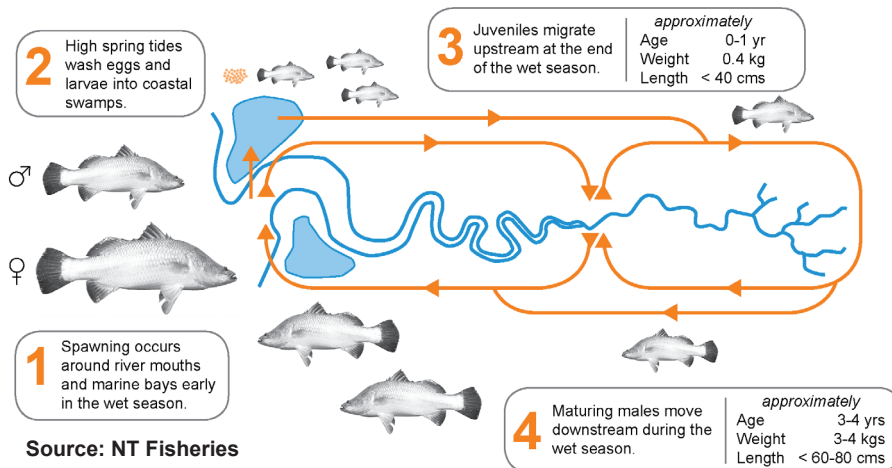
Factsheet 1 - August 2016

This project aims to reveal the secrets of barramundi migration in our large coastal rivers. Barramundi undertake extensive journeys between discrete parts of coastal river systems throughout their life cycle.

Spawning occurs in saline estuary mouths early in the wet season; spring tides wash eggs and larvae into adjacent coastal swamps; most juveniles undertake an upstream migration to occupy habitats in freshwater river channels; several years later, mature fish undertake a return migration to spawning habitat.

However, the connections between these migration movements and patterns of river flow are yet to be understood. Changes in river flow may affect the productivity of both estuarine and freshwater habitats, and the timing and duration of opportunities for migration.

Increased understanding of the connections between river flow and fundamental processes such as migration will provide a strong foundation to manage our rivers.



This project is a collaborative partnership between the NT Department of Environment and Natural Resources, the Research Institute for the Environment and Livelihoods at Charles Darwin University, NT Fisheries and the NLC managed Yugul Mangi Rangers.



Contacts:

Dr Peter Dostine

Dept of Environment and Natural Resources
peter.dostine@nt.gov.au

Dr David Crook

Charles Darwin University
david.crook@cdu.edu.au

Dr Thor Saunders

Dept of Primary Industry and Resources
thor.saunders@nt.gov.au

The project has tagged 80 barramundi and 20 fork-tailed catfish and is tracking their movement patterns along over 300 kilometres of the river using acoustic telemetry. This fact sheet presents key results from the first year of the study. We found that:

1. The majority of tagged fish did not move substantial distances during the wet season, with many fish undertaking only minor movements either upstream or downstream before returning to the reach in which they were tagged the previous dry season. Fork-tailed catfish were almost entirely sedentary.
2. Four, mostly large, fish undertook a downstream migration to the mouth of the Roper estuary during the wet season. These movements are described in Figure 1. In each case the migration coincides with a major flow event. However, there was much individual variability in the timing and pattern of movements.
3. One fish, tag # 59843, made repeated visits to Roper Bar, including a return journey to the tagging reach, before finally migrating downstream. A second fish, tag # 59891, migrated to the mouth in the late wet season, and almost immediately made a substantial return journey upstream.
4. Four smaller fish made significant upstream movements which appeared to be triggered by the peak of the first wet season flood. Juvenile fish appeared to 'leap-frog' upstream using high flow events.
5. Large-scale movement had largely ceased by late April, although more data from this dry season will reveal the extent of dry season movements.
6. The flow conditions under which juvenile barramundi transition from the estuary into freshwater needs further detailed study. Recessionary flows in the late wet season may provide a narrow window of opportunity for recruitment to freshwater habitats.

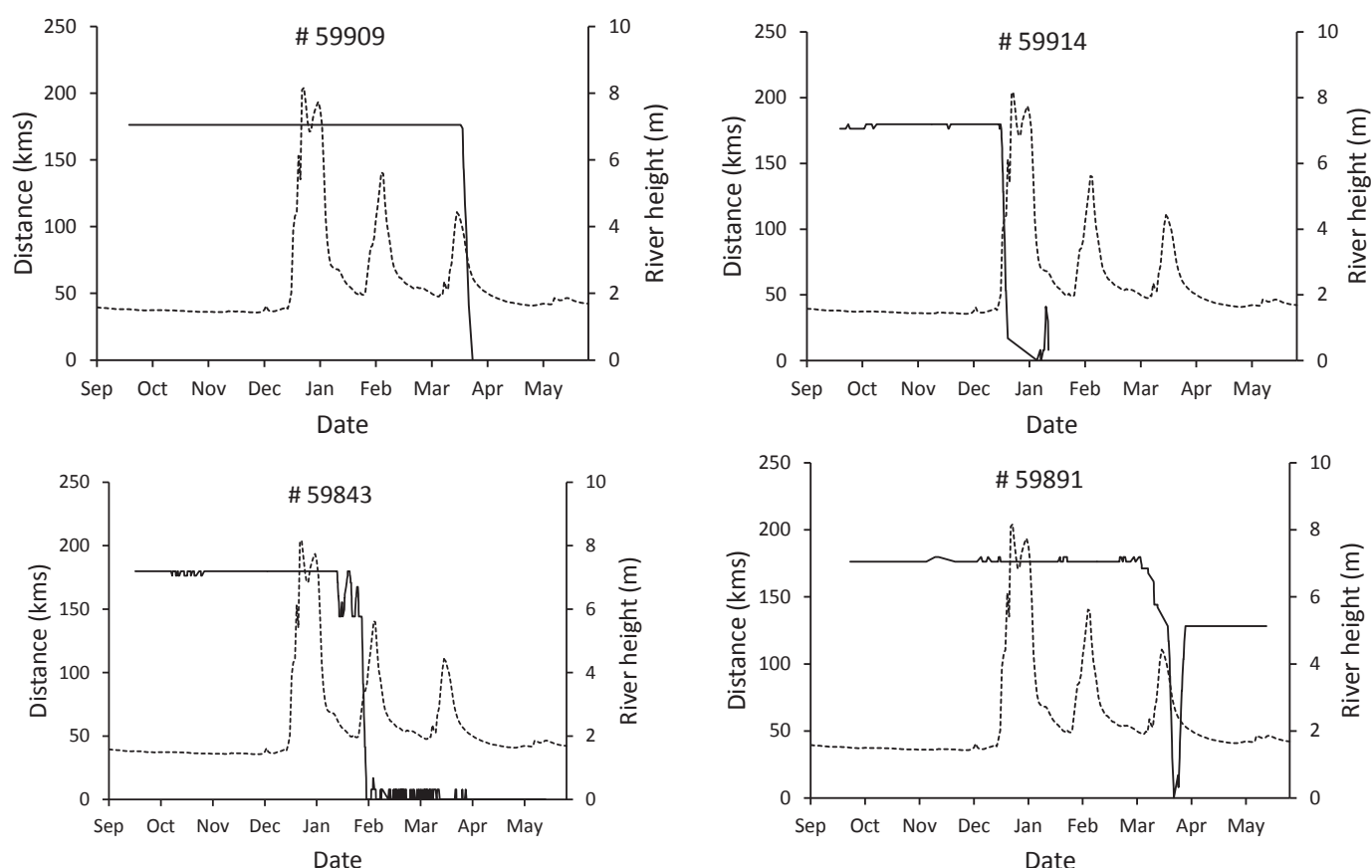


Figure 1. Movement histories of four tagged barramundi in the Roper River. Graphs show distance moved from tagging site (solid line), and river height at Red Rock gauge station from September 2015 to May 2016 (dashed line).