



LAKEFIELD NATIONAL PARK REVIEW 2025

INFORMATION RATING



Key species: Barramundi

Fish timeframe: 2016-2025

Fisher timeframe: 2021-2025

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LAKEFIELD OVERVIEW

Lakefield National Park is a fishery dominated by visitors as there is no local population centre. Visiting fishers are mostly from North Qld from Cairns and the Atherton Tableland area with a small number from further south and interstate.

Tagging and recapture effort is mostly confined to the “dry” season from May-Oct as “wet” season conditions make access very difficult or impossible due to access closures. The park is again closed from Dec-May next year over the wet season. Reopening in 2026 will be dependent on conditions. This year fishing and tagging activity commenced early in Mar and continued through to Oct.

Lakefield is predominantly a harvest fishery although the release rate of recaptured legal Barramundi by other taggers suggest it may be tending towards being experiential. Releasing legal tagged fish is influenced by trips being over several days or longer in duration and with a possession limit of 5 fish there is a greater tendency to release tagged fish. There has been an increasing trend to release legal tagged fish in the last 5 years compared with the previous 5 years.

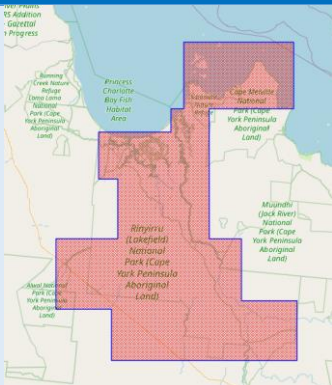
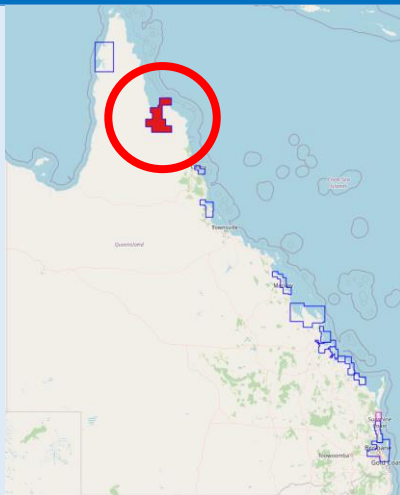
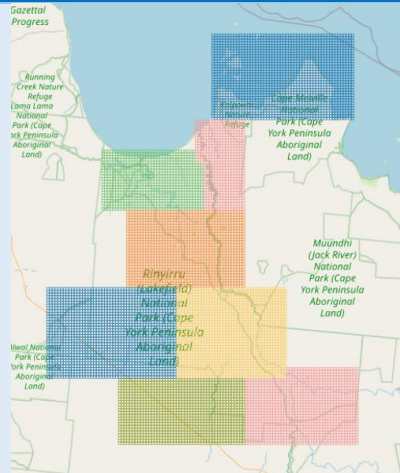
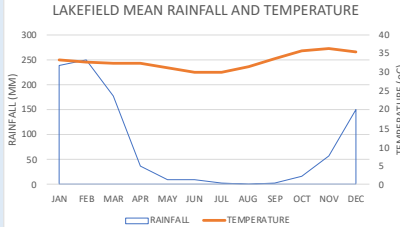
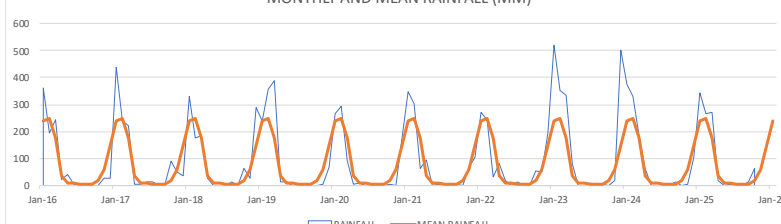
Also, the low tag rate of legal fish suggests that this is predominantly a harvest fishery. The average length of Barramundi tagged was below the legal limit in all years as legal fish were often kept by taggers, so the range of sizes is not reflective of the overall Barramundi population.

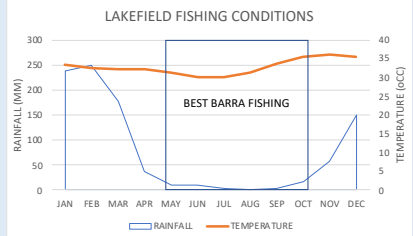
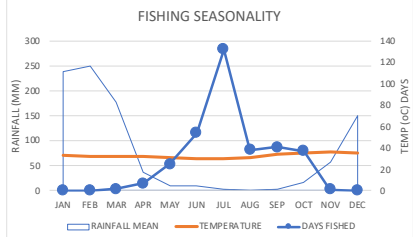
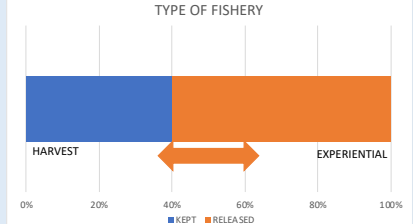
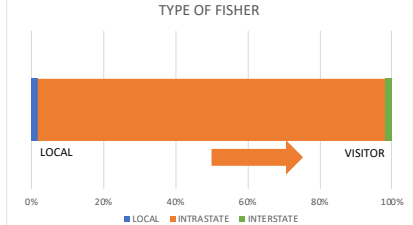
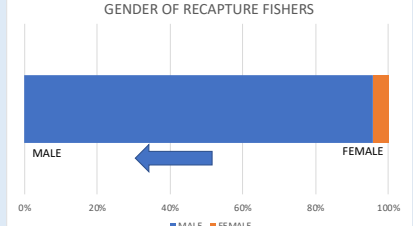
Tagging of Barramundi in the Lakefield National Park has been ongoing since the 1980's providing a long timeline of data that helps understand the dynamics of both fish and fishers.

In 2020 when Covid hit and there were travel restrictions in place in many parts of Qld. In Lakefield this had an effect with lower numbers of fish tagged and recaptured. Fisher activity has increased since then.

Following a big 2023 wet season there were 2 recaptures of fish tagged around the Hann crossing area. One was recaptured in the Kennedy River (130m upriver) while the other was caught in Bullhead Creek near Lakeland (200km upriver). This year there have been recaptures of fish along the coastline of Princess Charlotte Bay, with some recaptures reported by commercial fishers. There have been 8 fish recaptured there having moved over 100km with most movements occurring during the wet season.

Survival of Barramundi after tagging is like that in other river systems (11-12 years) with the longest time out just short of 13 years. The average annual survival rate is 0.65 (65%) which is similar to that in other river systems for Barramundi.

LAKEFIELD LOCATION										
	Lakefield 14.925°S 144.2°E									
WATERWAYS										
<p>Lakefield National Park</p> <p>Grid maps</p> <table><tr><td>BHY</td><td>LKP</td></tr><tr><td>LNR</td><td>LFD</td></tr><tr><td>LKR</td><td>LFL</td></tr><tr><td>LKB</td><td>LMR</td></tr></table>	BHY	LKP	LNR	LFD	LKR	LFL	LKB	LMR	<p>Princess Charlotte Bay</p> <p>Bathurst Bay</p> <p>Normanby River</p> <p>North Kennedy River</p> <p>Bizant River</p> <p>Hann River</p> <p>Morehead River</p> <p>Annie River</p>	
BHY	LKP									
LNR	LFD									
LKR	LFL									
LKB	LMR									
ENVIRONMENTAL CONDITIONS										
<p>Lakefield National Park (Laura)</p> <p>Mean monthly rainfall (mm) and temperature (°C)</p>	<p>Wet season</p> <p>Dry season</p> <p>Dec-Apr</p> <p>May-Oct</p>	<p>LAKEFIELD MEAN RAINFALL AND TEMPERATURE</p> 								
<p>Lakefield (Laura)</p> <p>Monthly and mean monthly rainfall (mm) 2016-2025</p>	<p>MONTHLY AND MEAN RAINFALL (MM)</p> 									

TYPE OF FISHERY		
DATA RELIABILITY		
Sample size (days fished) Tag days (blue arrow) Recaptures (orange arrow) Confidence % Error % 2021-2025	Reliability level	LOWMODERATEMODERATEHIGH
	Samples	104168271384664
	Confidence	80%80%90%90%95%99%
	Error	20%10%10%5%5%5%
Seasonality Mean monthly rainfall (mm) Mean monthly temperature (°C)	Best Barramundi fishing	
Seasonality Days fished (combined) Taggers Recapture fishers 2021-2025	Peak days	
	Months	
	Jun-Oct	
Harvest or experiential fishery Release rate of recaptured legal fish (ex-taggers) 2021-2025	Barramundi legal fish kept rate	
	Legal fish	40
	Kept	16 (40%)
Released	24 (60%)	
Local or visitor fishery Where recapture fishers live 2021-2025	Recapture fishers	
	Local	1 (2%)
	Visitor	54 (98%)
Gender of recapture fishers (ex-taggers) 2021-2025	Recapture fishers	
	Female	2 (4%)
	Male	44 (96%)

FISHER ACTIVITY

Monthly activity

Days fished

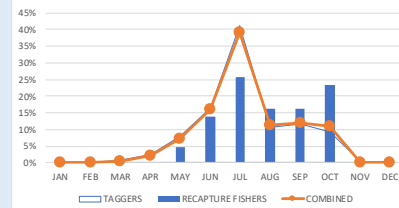
Taggers (294)

Recapture fishers (53)

2021-2025

	Month	Days
Taggers	Jul	121 (41%)
	Jun	48 (16%)
Recaps	Jul	11 (26%)
	Oct	10 (23%)

DAYS FISHED BY MONTH



Weekday activity

Days fished

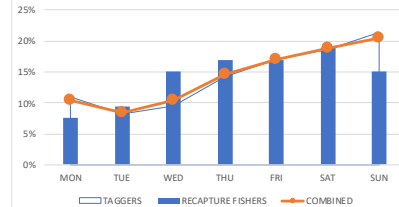
Taggers (294)

Recapture fishers (53)

2021-2025

	Weekend	Days
Taggers	Weekend	40%
	Weekdays	60%
Recaps	Weekend	34%
	Weekdays	66%

DAYS FISHED BY WEEKDAY

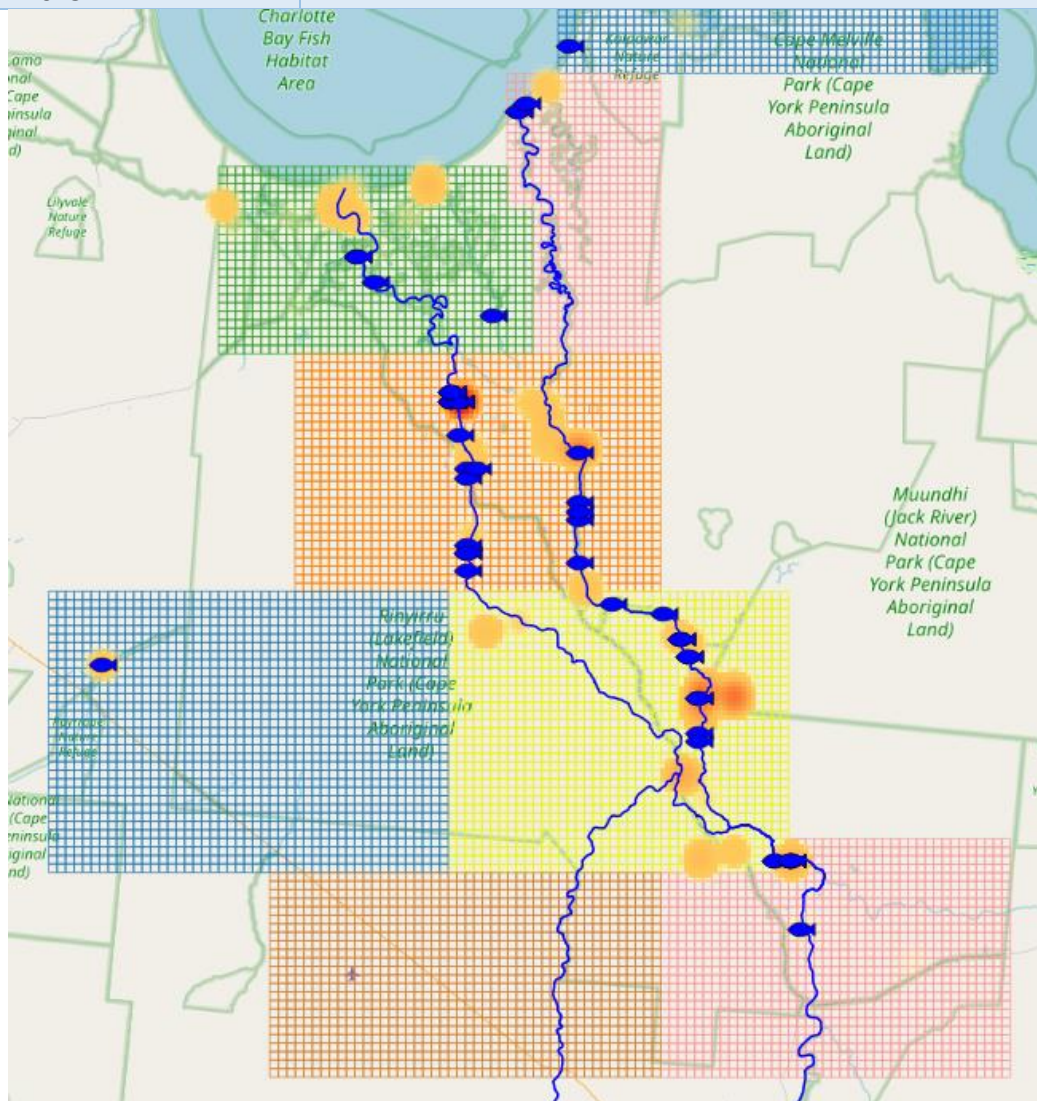


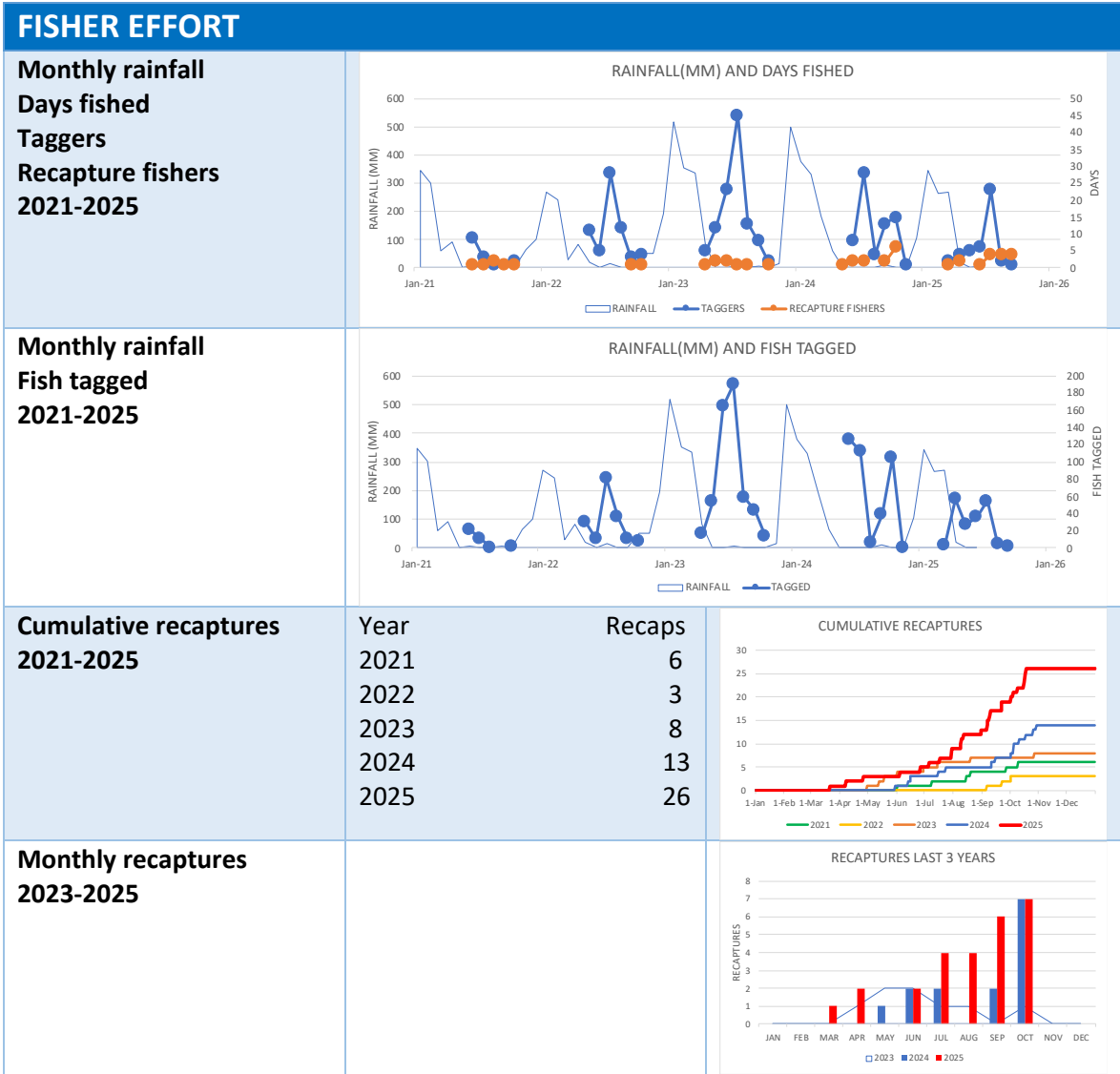
Location activity

Taggers (red-orange heat map)

Recapture fishers (blue fish)

2021-2025



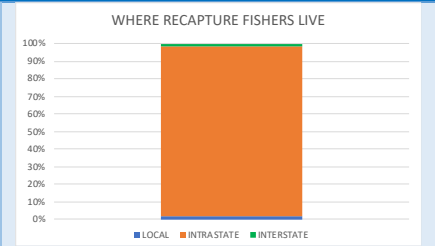


FISHER TRAVEL			
Cumulative distance (km) home to recapture location 2021-2025	Year	Km	CUMULATIVE PROXY TRAVEL DISTANCE (KM)
	2021	2803	
	2022	861	
	2023	1434	
	2024	6516	
	2025	8479	
Distance (km) home to recapture location by year 2021-2025			RECAPTURE FISHERS PROXY TRAVEL
Distance (km) home to recapture location Bars show distance range Dots show outliers 2021-2025			RECAPTURE FISHERS PROXY TRAVEL
	Local	Range (km) 55	
	Intrastate	107-1685	
	Interstate	2765	
Average distance (km) from home to recapture location 2021-2025			RECAPTURE FISHER'S PROXY AVERAGE TRAVEL
	Local	Av distance (km) 55	
	Intrastate	328	
	Interstate	2765	

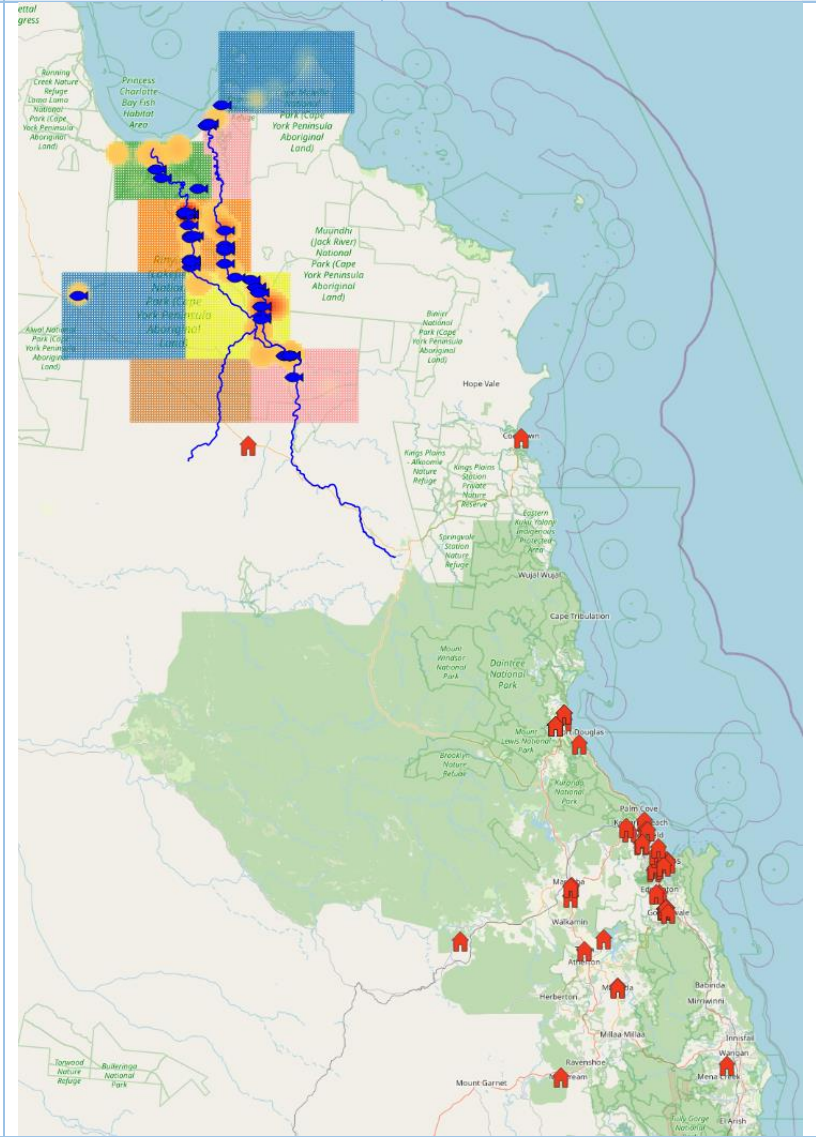
WHERE RECAPTURE FISHERS LIVE

Where recapture fishers live
2021-2025

Recapture fishers	
Local	1 (2%)
Intrastate	53 (96%)
Interstate	1 (2%)

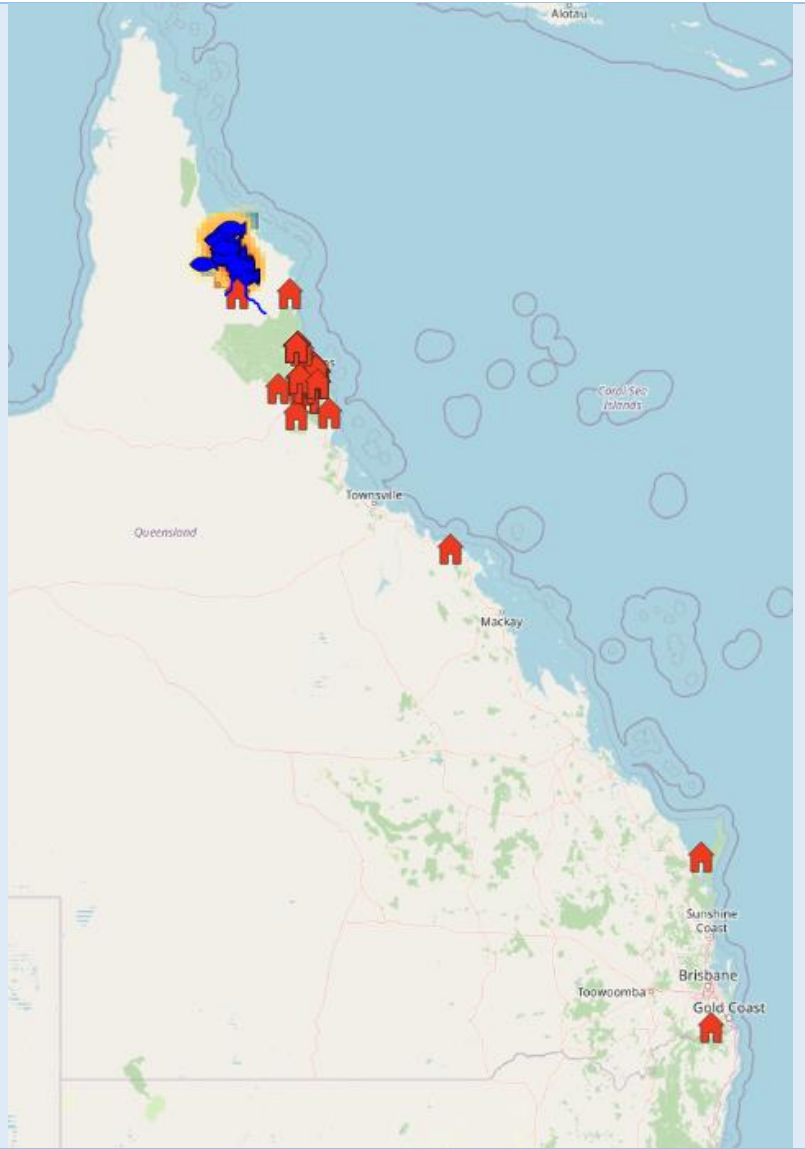


Where North Qld fishers recapturing fish live (red houses)
2021-2025



**Where all recapture
fishers live (red houses)
2021-2025**

Port Hedland WA (1)



BARRAMUNDI



DATA RELIABILITY

Sample size (fish/year)
Tagged (blue arrow)
Recaptures (orange arrow)
Confidence %
Error %
2021-2025

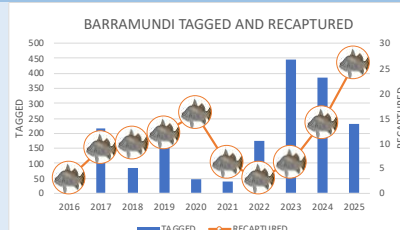
Reliability level	LOW			MODERATE			MODERATE			HIGH		
Samples	10	41	68	271	384	664						
Confidence		80%	80%	90%	90%	95%	99%					
Error		20%	10%	10%	5%	5%	5%					



TAGGED AND TAG RATE

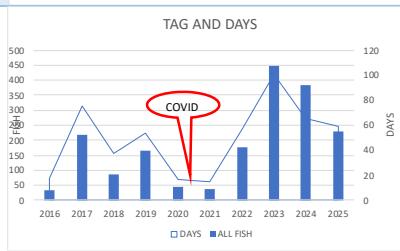
Fish tagged
Recaptured
2016-2025

Tagged 1821
Recaptured 105
Recapture rate 5.8%
Tagged 2025 231



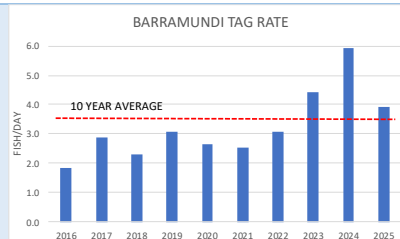
Tag and effort taggers
Fish tagged (1821)
Days fished (498)
2016-2025

High Low Now
Tagged fish
2023 2016 2025
447 33 231
Days
2023 2021 2025
101 15 59



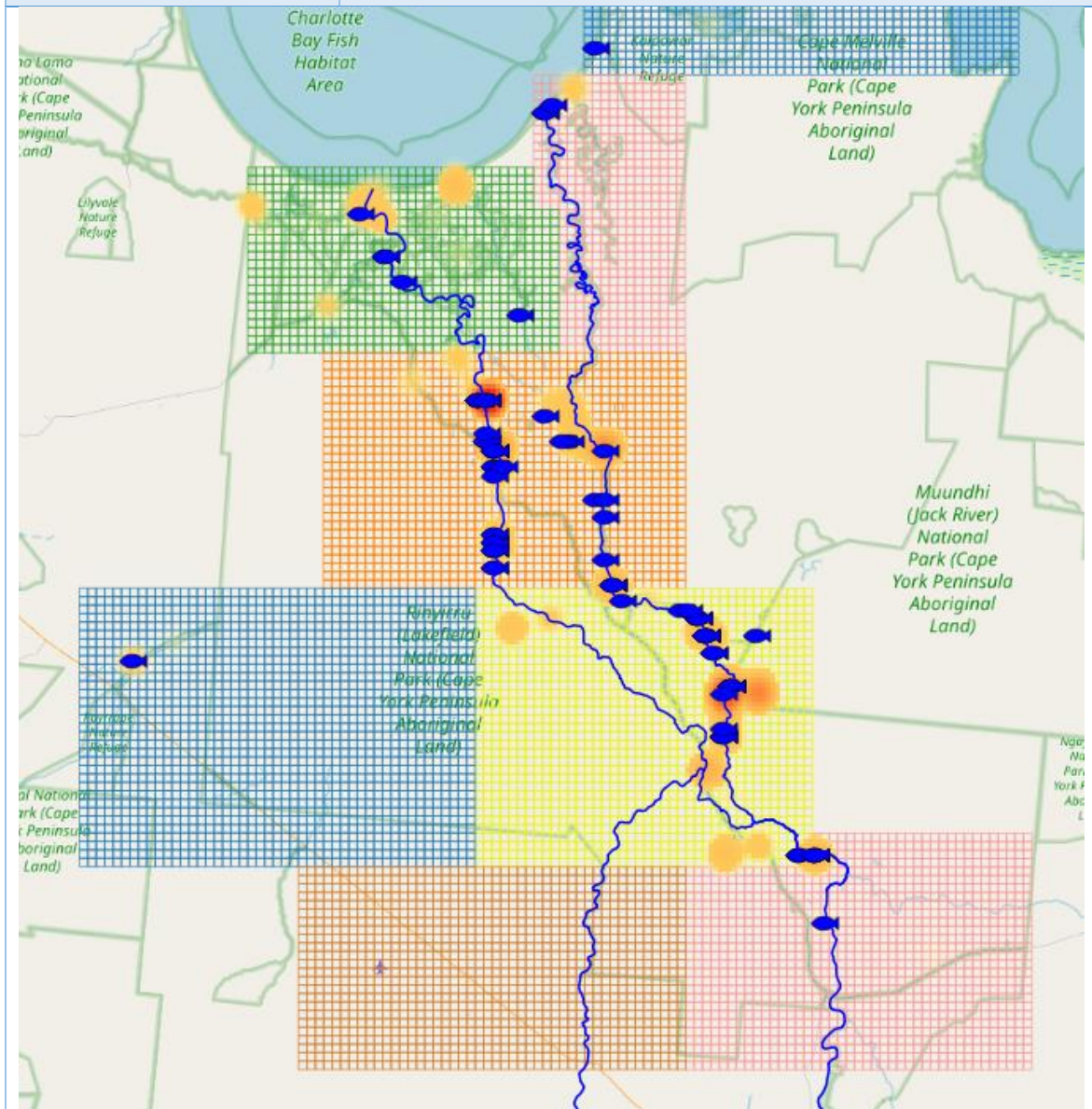
Tag rate
Fish tagged/day
2016-2025

High Low Now
Tag rate
2024 2016 2025
5.9 1.8 3.9
10 year average 3.7



LOCATIONS

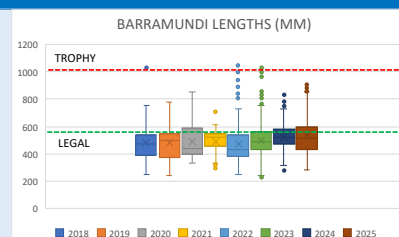
Location of tagged and recaptured fish
Tagged (red-orange heat map)
Recaptures (blue fish)
2016-2025



LENGTHS

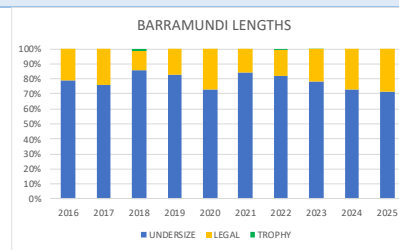
Average length (mm)
Bars show smallest and largest fish
Dots show outliers
2016-2025

High	Low	Now
Average length		
2024	2022	2025
525	474	536
Largest		
2022	2016	2025
1050	710	910



Fish length percentage (%)
Undersize <580mm
Legal 580-999mm
Trophy 1000+mm
2016-2025

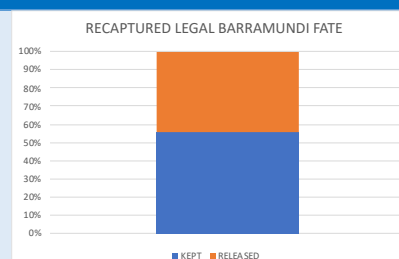
High	Low	Now
Legal-Trophy		
2024	2018	2025
27%	13%	29%
Trophy		
2022	2024	2025
1%	0%	0%



FATE

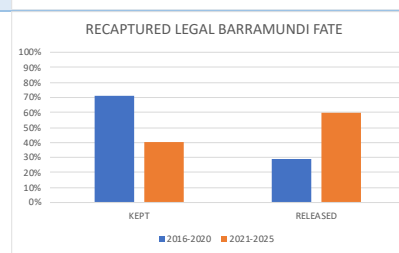
Legal Barramundi recaptures kept and released by recfishers (ex-taggers)
Legal length 580-1200mm
2016-2025

Recaptures	81
Kept	45 (56%)
Released	36 (44%)



Legal Barramundi recaptures kept and released by recfishers (ex-taggers)
Legal length 580-1200mm
2016-2020
2021-2025

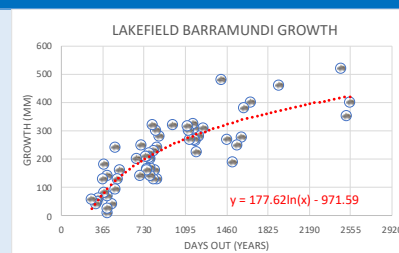
Recaptures	81
Kept	
2016-2020	29 (71%)
2021-2025	16 (40%)
Released	
2016-2020	12 (29%)
2021-2025	24 (60%)

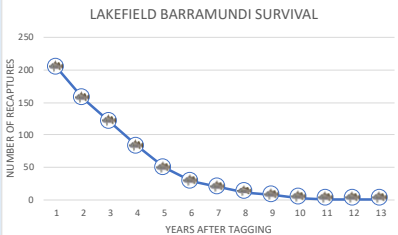
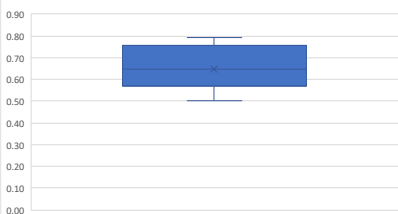


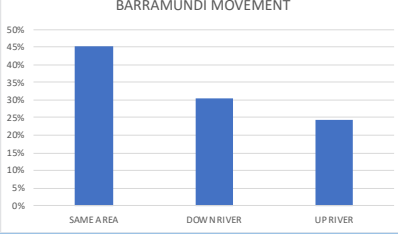
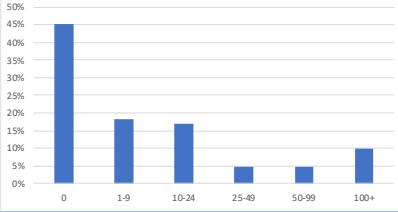
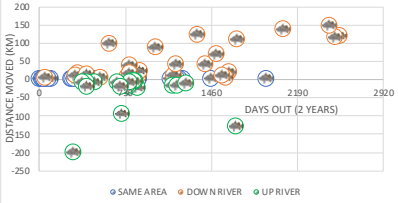
GROWTH

Barramundi growth based on recaptures of fish from 2016-2025

Recaptures	58
Growth at end of year (mm)	
Year 1	76
Year 2	199
Year 3	271
Year 4	323
Year 5	363



SURVIVAL		
Barramundi survival Recaptures by years out after tagging All Years	Year	Recaptures
	1	255
	5	60
	10	3
	12	1
	Longest time (years)	12.8
		
Barramundi survival Annual survival rate	Average annual survival rate	
	0.65 (65%)	
	Range	0.50-0.80
		

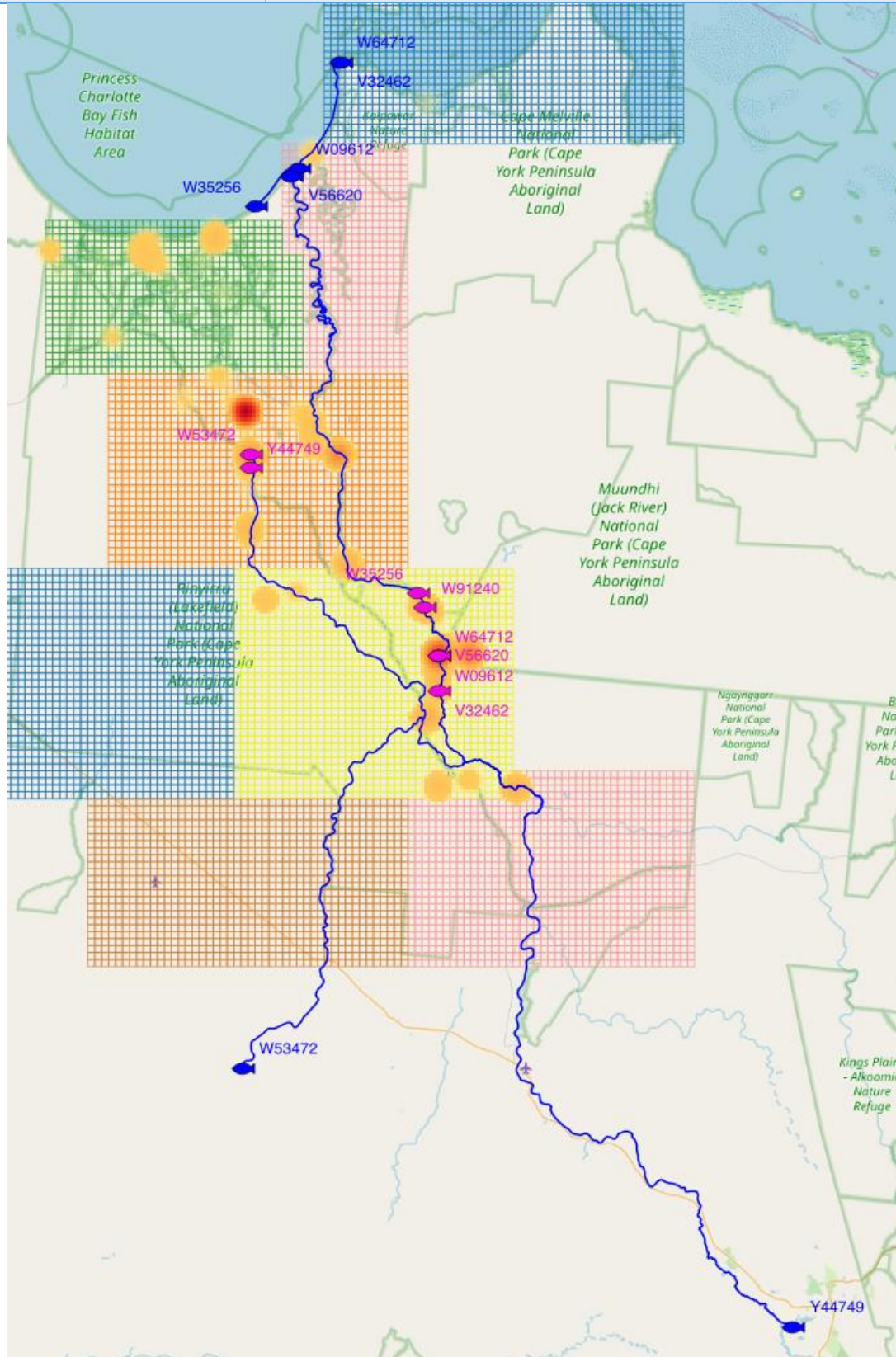
MOVEMENT		
Barramundi movement 2016-2025	Recaptures	82
	Same area	37 (45%)
	Down river	25 (30%)
	Up river	20 (24%)
		
Barramundi movement Distance moved 2016-2025	Over 100km	Fish
	Max distance	8 (10%)
		200km
		
Barramundi movement over time 2016-2025		
		

MOVEMENT

Barramundi movements
Tagged (pink fish)
Recaptured (blue fish)
2023-2025

W91240 moved 108km
W53472 moved 130km
Y44749 moved 200km
W09612 moved 118km

V32462 moved 145km
W64712 moved 137km
V56620 moved 120km
W35256 moved 114km



Data sources

Data used in the Lakefield Crystal Bowl are:

- Tag records and recapture records at <http://crystalbowl.infofishaustralia.com.au/>.
- Mean rainfall data for Lakefield National Park station 028000 (Laura Post Office) from all years at <http://www.bom.gov.au/climate/data/index.shtml>.
- Mean temperature data for Palmerville station 28004 from all years at <http://www.bom.gov.au/climate/data/index.shtml>.
- Locations based on Infofish grid maps Bathurst (BHY), Normanby River (LNR), Kennedy (LKR), Kalpower (LKP), Lakefield (LFD), Morehead (LMR), Koolburra (LKB) and Laura (LFL).

Basis for analysis

- Data reliability for fishers based on the sample size over the past 5 years for days fished by taggers and by fishers recapturing fish.
- Data reliability for fish based on average number of fish tagged and recaptured per year over the past 5 years.
- Catch rates calculated as number of fish tagged/fisher day for taggers with a minimum of 12 fisher days (at least 1 per month) to provide a reliable catch rate.
- Undersized Barramundi are <580mm, legal fish are ≥580 and <1000mm and trophy fish are ≥1000mm.
- Growth calculated using a logarithmic curve from recaptures where fish were out for 90 days or more and had positive growth.
- Survival rate based on the number of recaptures each year after tagging.
- Movement distance calculated as the shortest distance by water from the tag to the recapture location using Google Earth.
- Distance from fisher's address to recapture location is the straight-line distance between locations based on Google Earth coordinates with Local <80km, Intrastate ≥80km and Qld postcodes, Interstate postcodes other than Qld.