



CAIRNS ESTUARIES REVIEW 2025

INFORMATION RATING



Stocking group: Cairns Area Fish Stocking Group

Species stocked: Barramundi

Stocking timeframe: 2016-2025

Fish timeframe: 2016-2025

Fisher timeframe: 2021-2025

CAFSG Facebook link: <https://www.facebook.com/p/Cairns-Area-Fish-Stocking-Group-100065020501212/>

CAIRNS ESTUARIES OVERVIEW

CAIRNS ESTUARIES LOCATION

ENVIRONMENTAL CONDITIONS

TYPE OF FISHERY

FISHER ACTIVITY

FISHER EFFORT

FISHER TRAVEL

WHERE RECAPTURE FISHERS LIVE

STOCKED BARRAMUNDI

KEY SPECIES

BARRAMUNDI

MANGROVE JACK



Product of Infofish Australia



Supported by Suntag
Department of Agriculture and Fisheries
Cairns Area Fish Stocking Group



CAIRNS ESTUARIES OVERVIEW

Cairns estuaries cover the Russell and Mulgrave Rivers in the south, Trinity Inlet, Barron River, Moon River and includes the Cairns Net Free Zone. The estuarine parts of the waterways are short and confined to the coastal lowland and have been heavily modified in parts.

Cairns estuaries are mostly fished by local fishers who account for 91% of recaptures and the intrastate fishers are from nearby areas. While data are limited there appears to be a peak in fishing activity in Feb and Nov at the start and end of the Barramundi open season. The wet season from Dec-Mar can deliver significant amounts of rain but appears to only have a slight effect on activity. This is possibly due to the short nature of the rivers in the area where flooding effects are generally short lived. Weekends are slightly more favoured over weekdays.

Like many locations on the tropical east coast Barramundi is a key target species however only accounts for 33% of fish tagged. The other key species tagged is Mangrove Jack which account for 25% of the fish tagged.

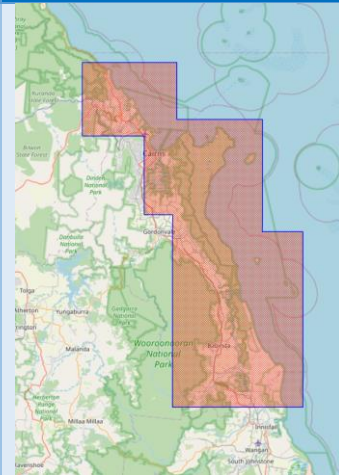
Cairns estuaries are also stocked with Barramundi by the Cairns Area Fish Stocking Group and stocking has been ongoing for over 2 decades. In the last 10 years stocking has been based around the release of tagged Barramundi in the size range of 200-350mm. Recaptures of these fish provides useful information on future stocking decisions.

The recapture rate of stocked Barramundi was 1.4% compared with the recapture rate of wild caught and tagged fish of 10.8%, which is a significant difference. This could be partly due to wild fish being tagged at larger sizes but could also be due to stocking practices. Fish stocked close to winter had a low recapture rate 0.1% compared to those tagged at other times with a recapture rate of 2.8%, which is still low.

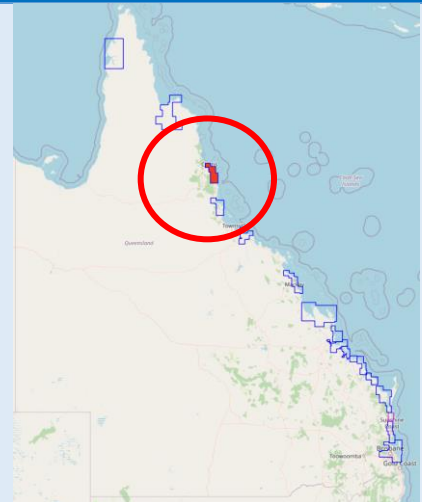
The recapture rate for fish stocked in large numbers at a site is also lower than when smaller numbers of fish are released at a site. The highest recapture rate was 22% for 11 fish recaptured from a release of 50 at Trinity Beach which is well above the rate for releases at other sites. This suggests that releases of 100-200 fish at a site, particularly smaller sites, may result in a higher survival rate.

Recapture rates for fish released from 2023-2025 are likely to rise as it is expected that fish will continue to be recaptured, at least for the next few years.

CAIRNS ESTUARIES LOCATION



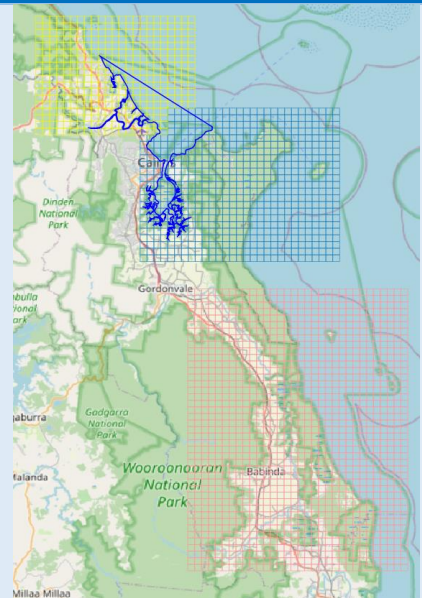
Cairns
16.93°S
145.77°E



WATERWAYS

Grid maps
Barron River BRC
Trinity Inlet CNT
Mulgrave RMR

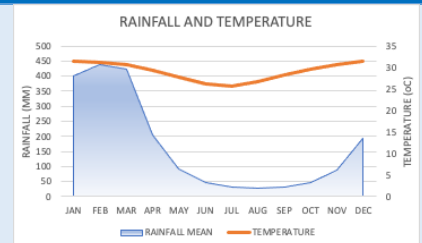
Moon River
Barron River
Trinity Inlet
Russell River
Mulgrave River
Cairns Net Free Zone (blue outline)



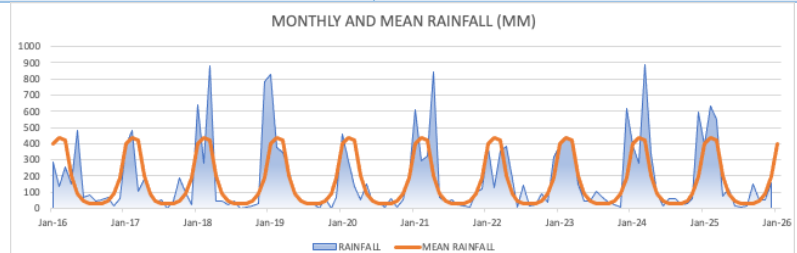
ENVIRONMENTAL CONDITIONS

Cairns Aero
Mean monthly rainfall (mm)
Mean monthly temperature (oC)

Max monthly rainfall (mm)
Feb 435
Mar 421
Jan 402
Max monthly temperature
Nov-Mar 31



Cairns Aero
Monthly rainfall
Mean monthly rainfall (mm)
2016-2025



TYPE OF FISHERY

DATA RELIABILITY

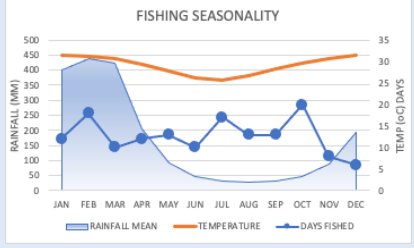
Sample size (days fished)
Tag days (blue arrow)
Recaptures (orange arrow)
Confidence %
Error %
2021-2025

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%		



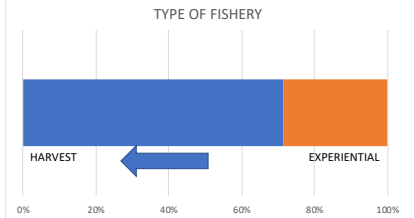
Seasonality
Mean monthly rainfall (mm)
Days fished
Taggers
Recapture fishers
2021-2025

Months most effort
Taggers and recapture fishers combined
Days 104
Feb (Barramundi season start)
Oct (Barramundi season end)



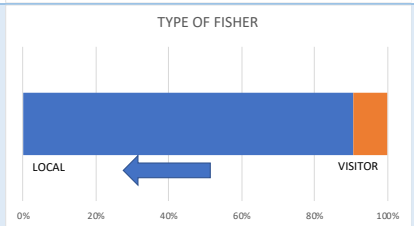
Harvest or experiential fishery
Release rate of recaptured legal Barramundi (ex-taggers)
2021-2025

Legal fish kept rate
Legal fish 28
Kept 20 (71%)
Released 8 (29%)



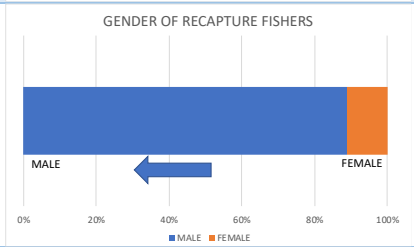
Local or visitor fishery
Where recapture fishers live
2021-2025

Recapture fishers 54
Local 49 (91%)
Visitor 5 (9%)



Gender of recapture fishers (ex-taggers)
2021-2025

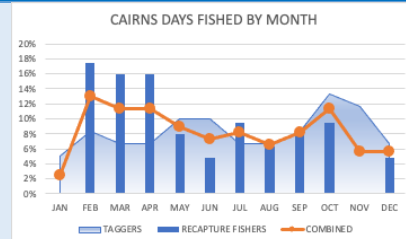
Fishers 52
Female 7 (11%)
Male 55 (89%)



FISHER ACTIVITY

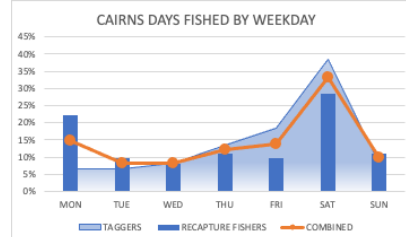
Monthly activity
Days fished combined
Taggers (60)
Recapture fishers (63)
2021-2025

	Month	%
Most fished	Feb	13%
	Oct	11%
Months at start and end of Barramundi season		

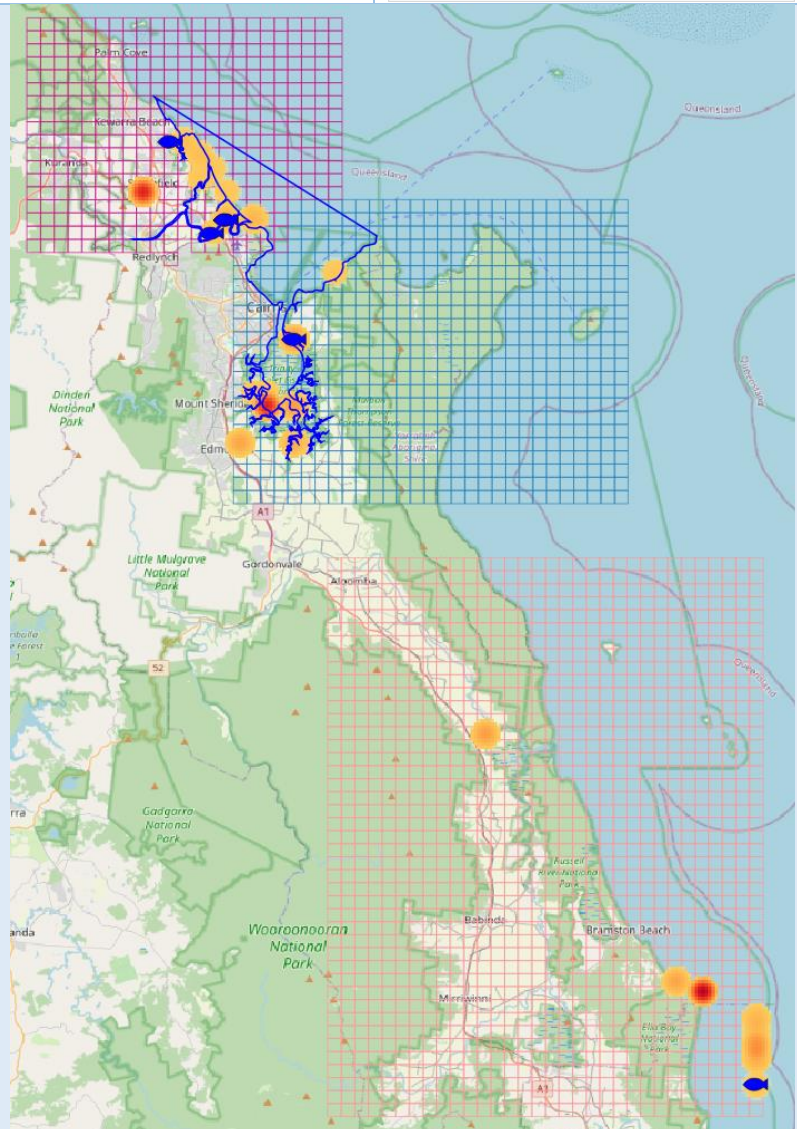


Weekday activity
Days fished combined
Taggers (60)
Recapture fishers (63)
2021-2025

	Day	%
Combined	Weekend	43%
	Weekdays	57%



Location activity
Taggers ex-stocked 142
(red-orange heat map)
Recapture fishers ex-stocked
10
(blue fish)
2021-2025



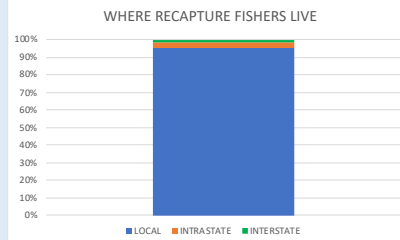
FISHER EFFORT			
Cumulative recaptures 2021-2025	Year	Recaps	
	2020	11	
	2021	7	
	2022	16	
	2023	7	
2024	19		
Recaptures last 3 years 2023-2025			
Mean monthly rainfall Days fish Taggers Recapture fishers 2021-2025			

FISHER TRAVEL			
Cumulative distance (km) address to recapture location 2021-2025	Year	Dist	
	2021	49	
	2022	270	
	2023	689	
	2024	183	
2025	1868		
Average distance (km) from home to recapture location 2021-2025		Av distance (km)	
	Local	10	
	Intrastate	345	
2021-2025	Interstate	1868	
Distance (km) address to recapture location Bars show distance range Dots show outliers 2021-2025		Range (km)	
	Local	1-76	
	Intrastate	94-596	
2021-2025	Interstate	1774	

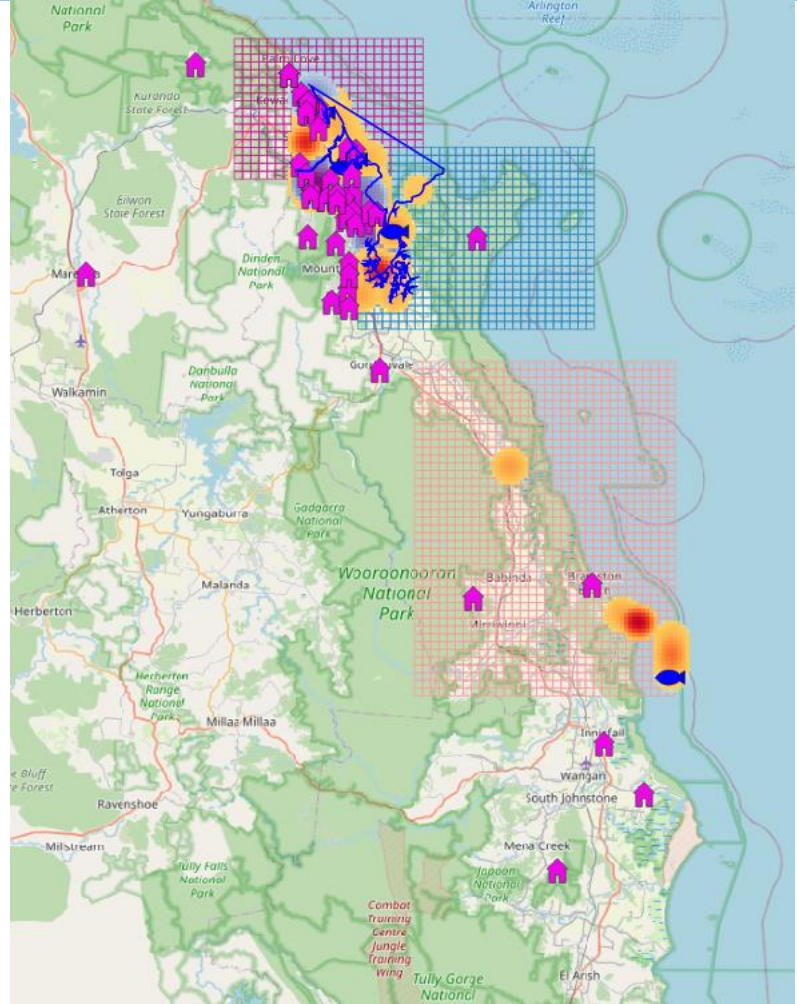
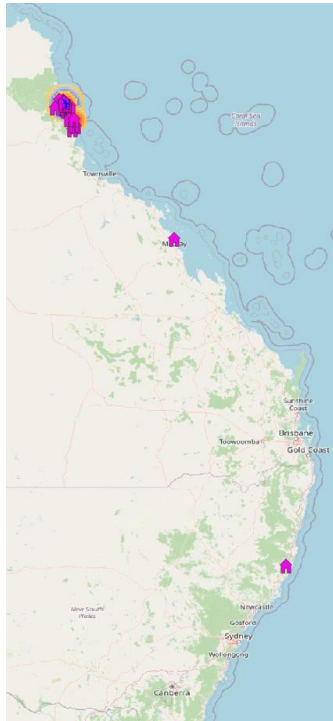
WHERE RECAPTURE FISHERS LIVE

Where recapture fishers live 2021-2025

Recapture fishers **65**
 Local **62 (95%)**
 Intrastate **2 (3%)**
 Interstate **1 (2%)**



Where recapture fishers live all (pink houses) 66
 Local
 Intrastate
 Interstate
 2021-2025



STOCKED BARRAMUNDI

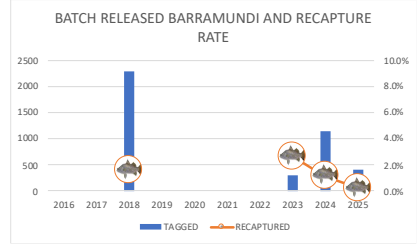


Cairns Area Fish Stocking Group

STOCKED

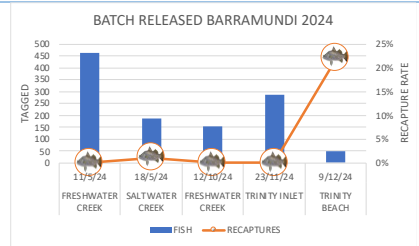
Batch releases of tagged Barramundi 2016-2025
Note: More tagged Barramundi were released in 2023 but no records were maintained

Year	Released	Recaps
2018	2284	36 (1.6%)
2023	303	8 (2.6%)
2024	1135	13 (1.1%)
2025	412	1 (0.2%)
Total	4134	58 (1.4%)



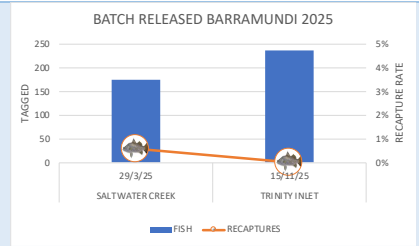
Batch releases Freshwater Creek (FC) Saltwater Creek (SC) Trinity Inlet (TI) Trinity Beach (TB) 2024

Location	Tagged	Recaps
FC1	460	0 (0%)
SC	186	2 (1.1%)
FC2	152	0 (0%)
SMC	287	0 (0%)
TB	50	11 (22%)



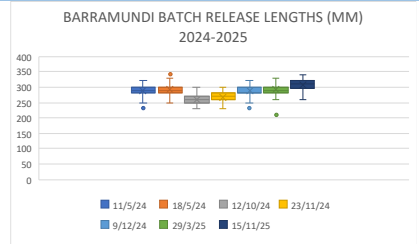
Batch releases Freshwater Creek (FC) Trinity Inlet (TI) 2025

Location	Tagged	Recaps
FC1	175	1 (0.6%)
TI	237	0 (0%)



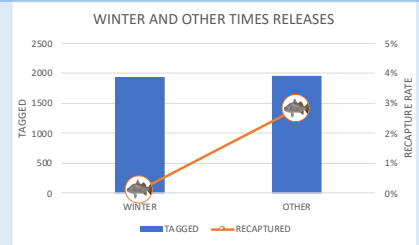
Batch releases Lengths 2024-2025

Location	Date	Av TL
FC1	11/5/24	289
SC	18/5/24	293
FC2	12/10/24	260
SMC	23/11/24	267
TB	9/12/24	278
SC	29/3/25	292
TI	15/11/25	305



Winter releases (May/June) Other release (Mar/Oct-Dec) 2016-2025

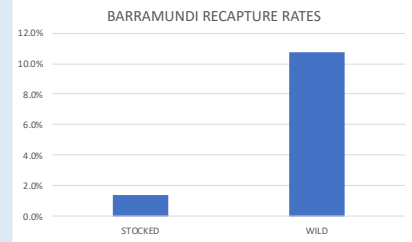
Months	Tagged	Recap
Winter	1940	2 (0.1%)
Other	1857	55 (2.8%)



STOCKED VERSUS WILD

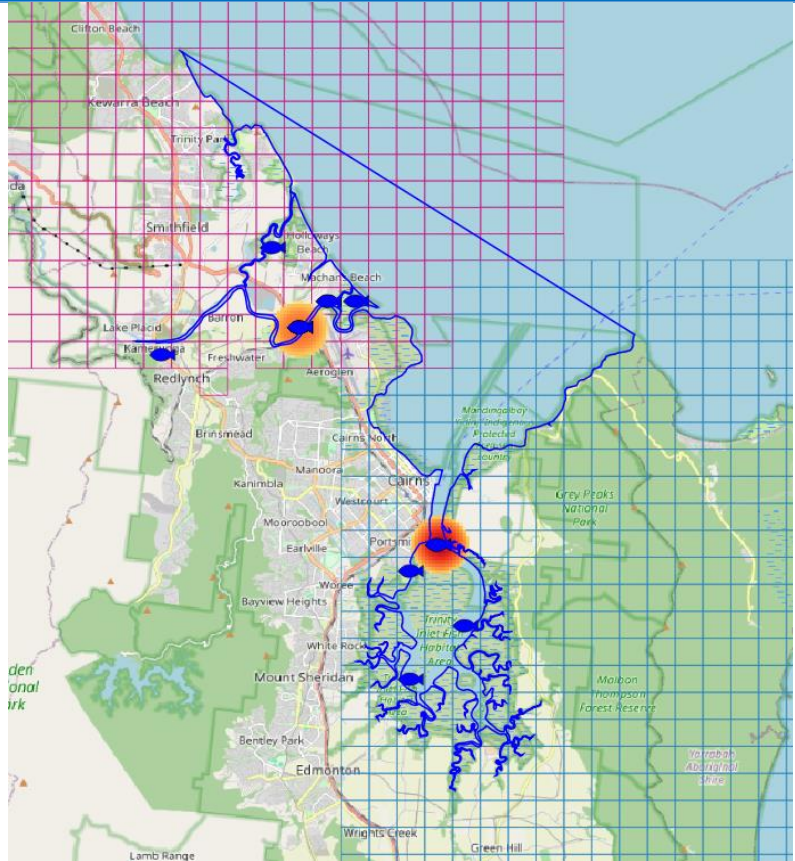
Barramundi recapture rates
Wild
Stocked
2016-2025

Wild	
Tagged	167
Recaptured	18
Recapture rate	10.8%
Stocked	
Tagged	4134
Recaptured	61
Recapture rate	1.4%

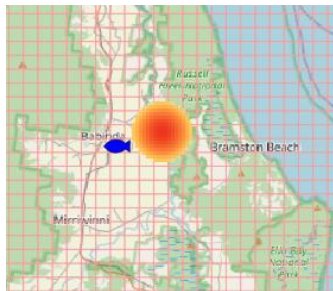
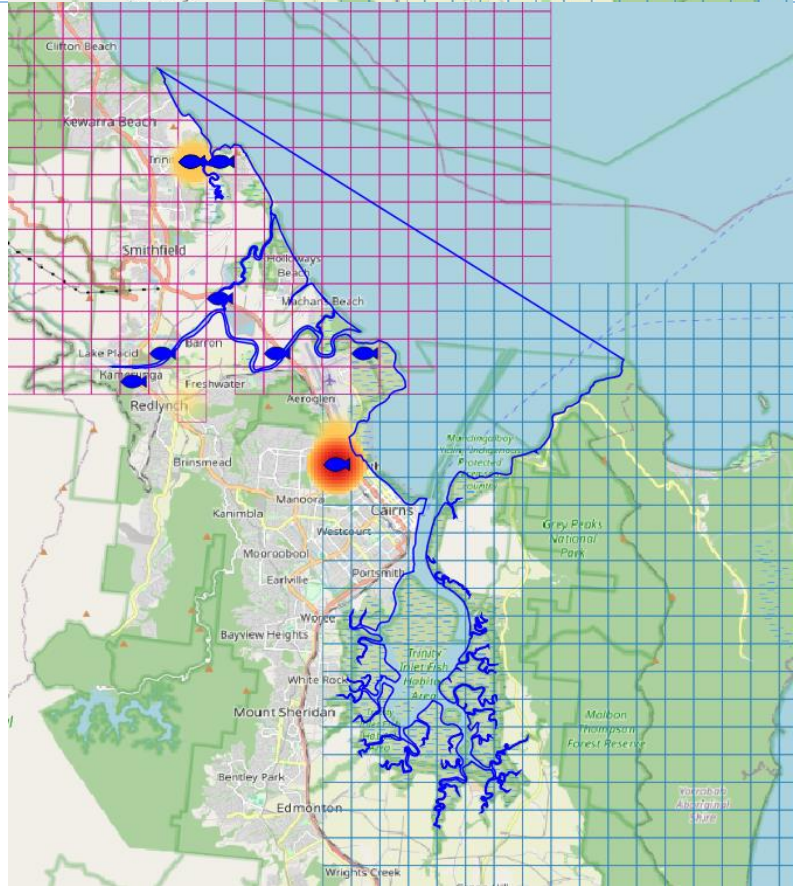


BATCH RELEASE LOCATIONS

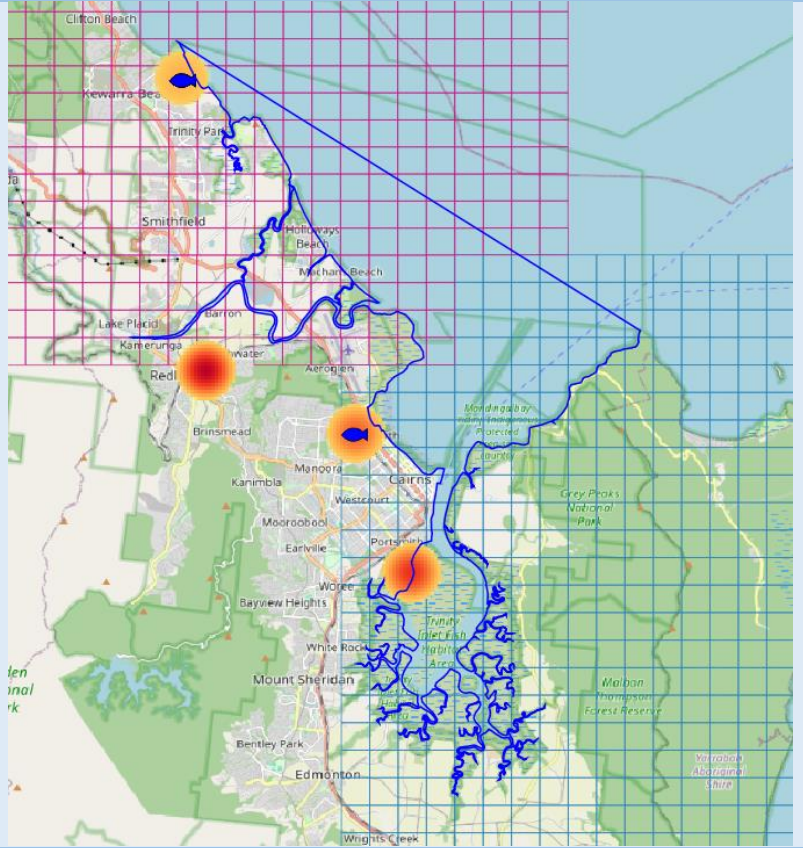
Release locations (red-orange heat map)
 Recaptures (blue fish)
 Released **2284**
 Recaptured **36**
 Recapture rate **1.6%**
 2018



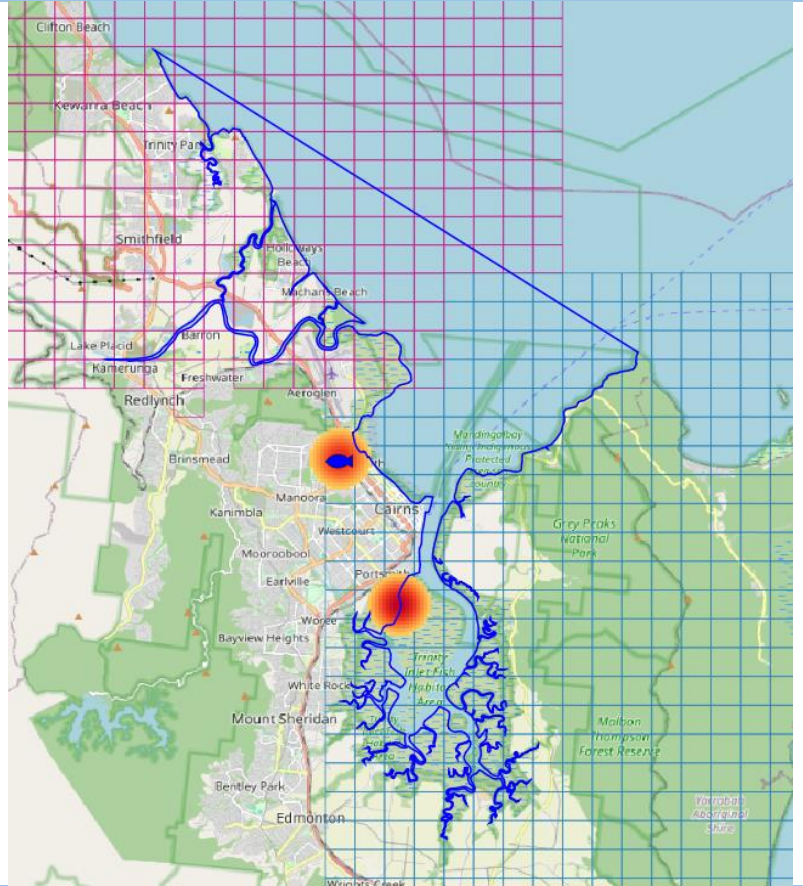
Release locations (red-orange heat map)
 Recaptures (blue fish)
 Released* **303**
 Recaptured **7**
 Recapture rate **2.6%**
 2023
 * In 2023 there were 2 releases of fish where no details are available. These were at Freshwater Creek and Bluewater boat ramp with 9 recaptures recorded.





Release locations (red-orange heat map)
Recaptured (blue fish)
Released 1135
Recaptured 13
Recapture rate 1.1%
2024



Release locations (red-orange heat map)
Recaptured (blue fish)
Released 412
Recaptured 1
Recapture rate 0.2%
2025

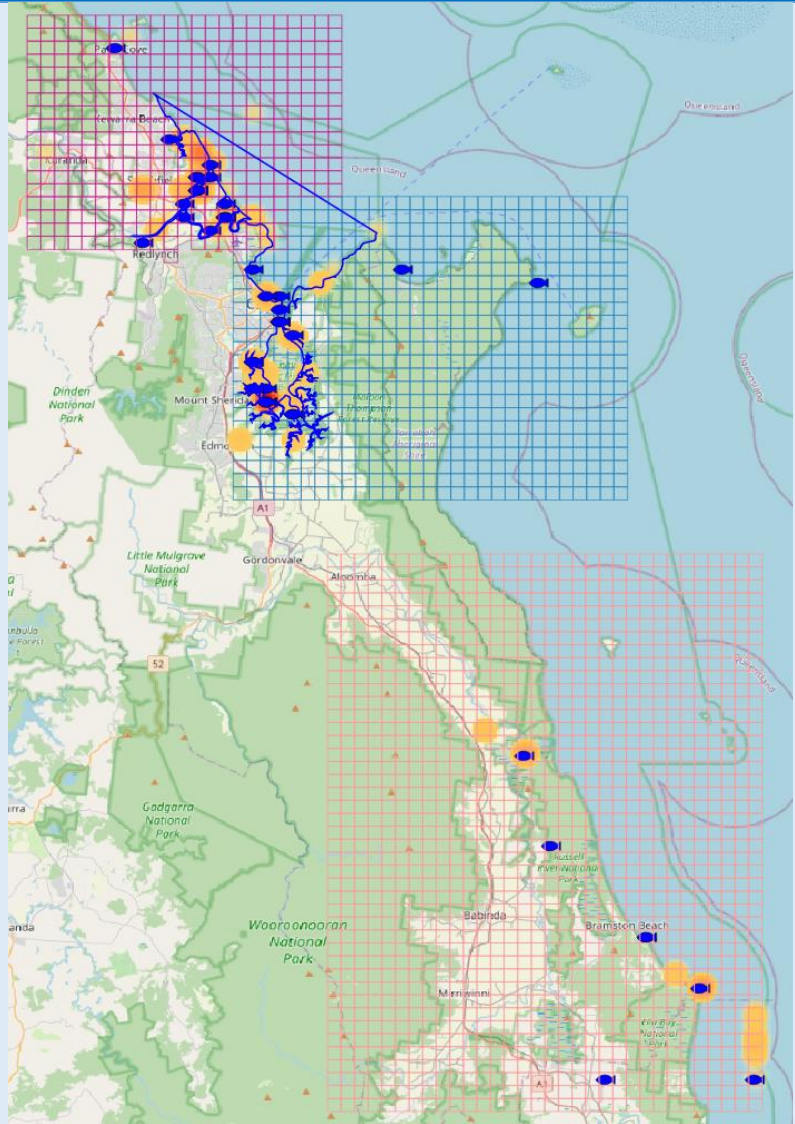


KEY SPECIES			
BARRAMUNDI	MANGROVE JACK		
			
Wild fish only – excluded batch releases of tagged Barramundi			
TAGGED AND TAG RATE			
Tagging effort	High	Low	Now
Days fished (210)	Fish tagged		
Fish tagged (501)	2016	2023	2025
(ex-stocked)	161	11	41
2016-2025	Days fished		
	2014	2023	2024
	96	6	8
Fish tagged (ex-stocked)	Tagged		
Recaptured	Recaptured		
2016-2025	Recapture rate		
	Tagged 2025		
	501		
	43		
	8.6%		
	41		
Tag rate	High	Low	Now
Fish tagged/day	Tag rate		
2016-2025	2019	2016	2025
	3.2	1.9	5.1
	10 year average		
	2.4		

SPECIES		
Species tagged	Fish	Tagged
2016-2025	All fish	501
	Barramundi	167
	Mangrove Jack	126
	Other species	208
Percentage species tagged	Fish	Percent
2016-2025	Barramundi	33%
	Mangrove Jack	25%
	Other species	42%

TAG LOCATIONS

All fish (ex-stocked)
Tagged (red-orange heat map) 501
Recaptured (blue fish) 43
2016-2025



BARRAMUNDI



DATA RELIABILITY

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

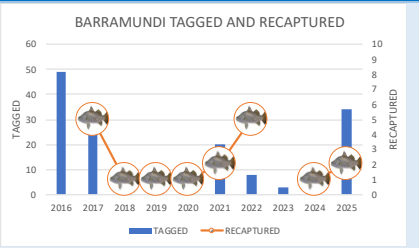
Reliability level	LOW		MODERATE		MODERATE		HIGH	
Samples	10	41	68	271	384	664	99%	5%
Confidence	80%		80%		90%		95%	
Error	20%		10%		5%		5%	



TAGGED

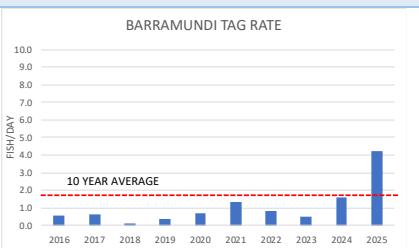
Barramundi tagged and recaptured (ex-stocked)
 2016-2025

Tagged	167
Recaptured	18
Recapture rate	10.8%
Tagged 2025	34



Tag rate
 Barramundi
 Fish/day
 2016-2025

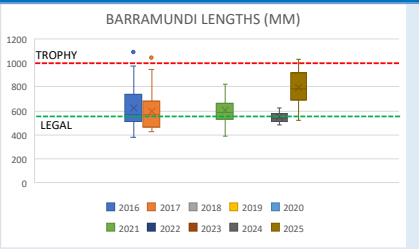
	High	Low	Now
Tag rate			
2021	2018	2025	
	1.3	0.1	4.3
10 year average			0.8



LENGTHS

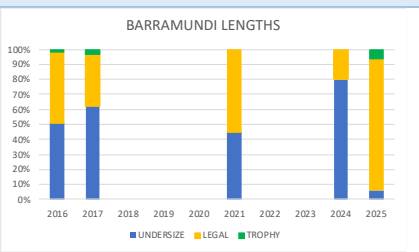
Average length (mm)
 Bars show length range
 Dots show outliers
 2016-2025

	High	Low	Now
Average length			
2016	2024	2025	
	624	544	797
Largest			
2016	2024	2025	
	1095	620	1030



Fish lengths percentage
 Undersize <580mm
 Legal 580-1000mm
 Trophy 1000+mm
 2016-2025

	High	Low	Now
Legal-trophy			
2021	2024	2025	
	55%	20%	88%
Trophy			
2017	2024	2025	
	3%	0%	6%

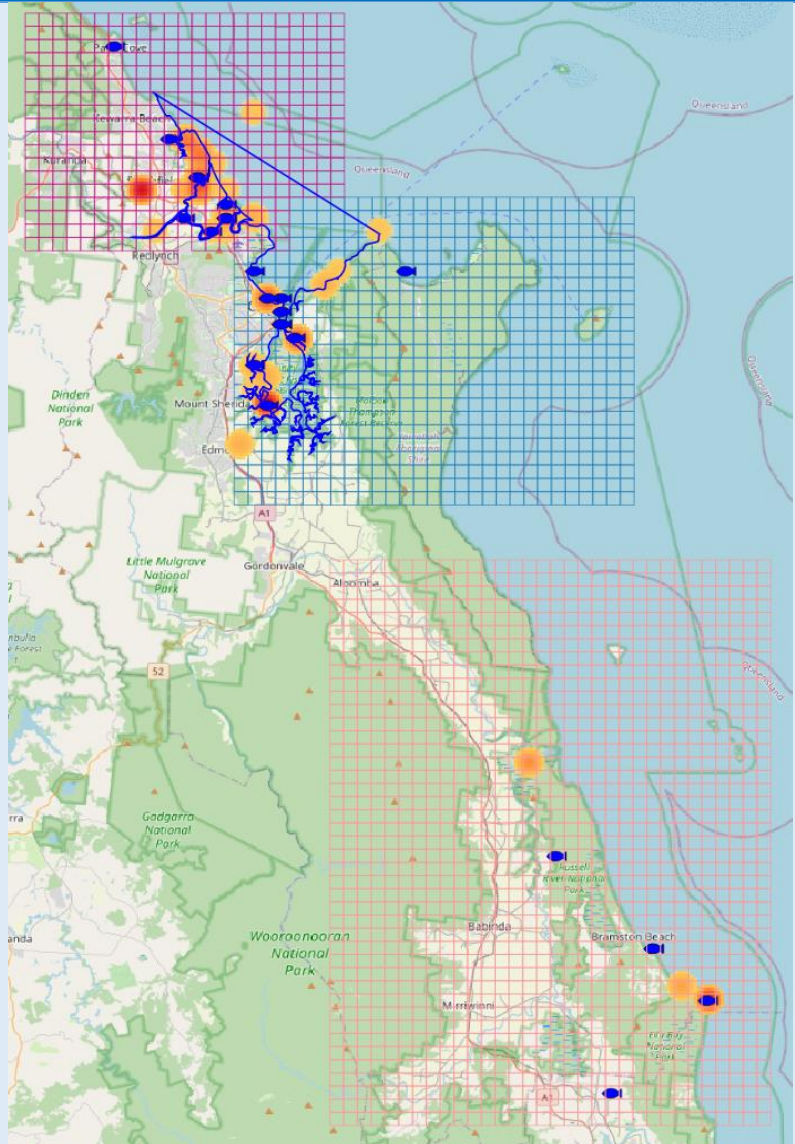


TAG LOCATIONS

Barramundi (ex-stocked)

Tagged 167
(red-orange heat map)

Recaptured 18
(blue dots)
2016-2025



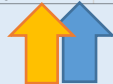
MANGROVE JACK



DATA RELIABILITY

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

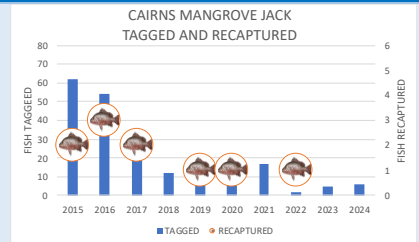
Reliability level	LOW	MODERATE	MODERATE	HIGH
Samples	10	41	68	664
Confidence	80%	80%	90%	95%
Error	20%	10%	10%	5%



TAGGED AND TAG RATE

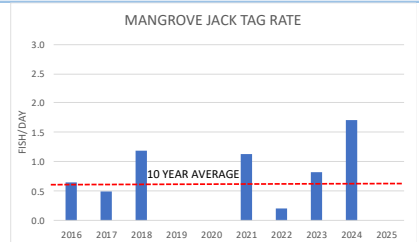
Mangrove jack
 Tagged
 Recaptured
 2016-2025

Tagged	145
Recaptured	7
Recapture rate	4.8%
Tagged 2025	0



Tag rate
 Mangrove Jack
 Fish/day
 2016-2025

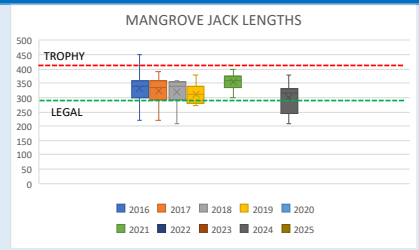
High	Low	Now
2018	2022	2025
1.2	0.2	NA
10 year average		0.6



LENGTHS

Average length (mm)
 Bars show length range
 Dots show outliers
 2016-2025

High	Low	Now
2021	2024	2025
356	300	NA
Largest		
2017	2018	2025
450	360	NA



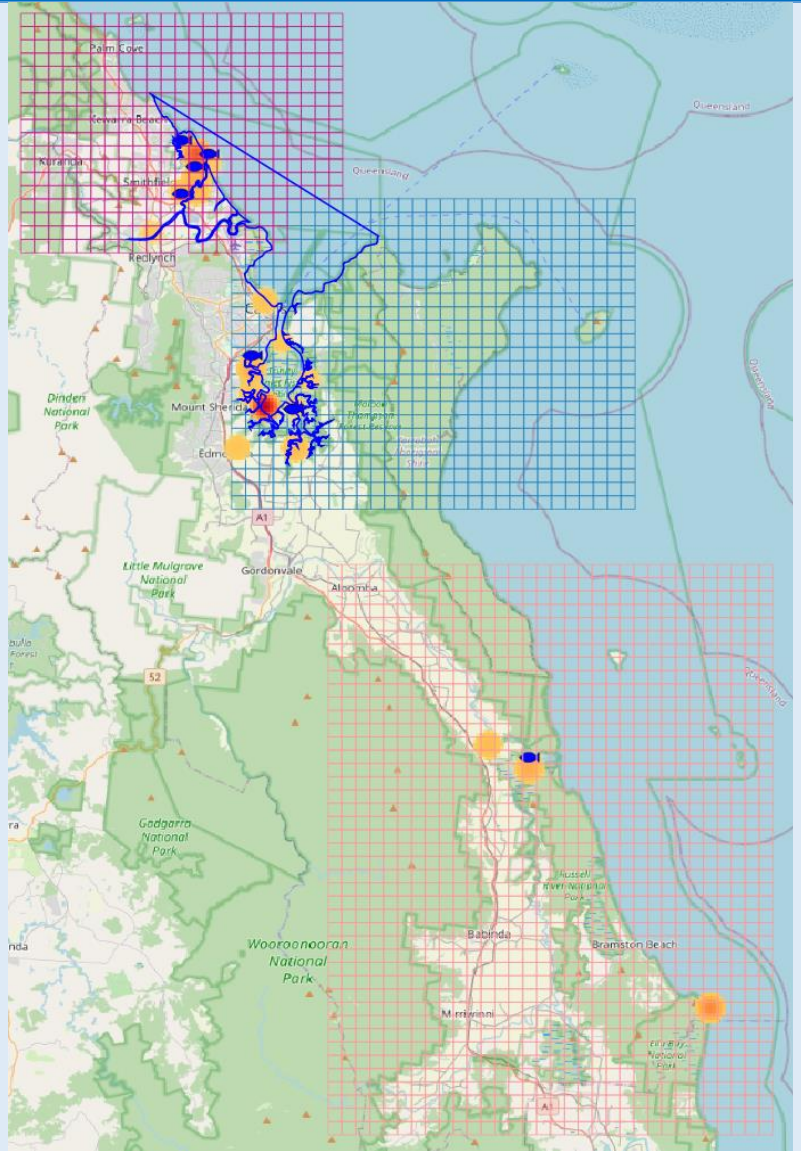
Fish lengths percentage
 Undersize <350mm
 Legal 350-500mm
 Trophy 500+mm
 2016-2025

High	Low	Now
2021	2024	2025
59%	17%	NA
Trophy		
No trophy length fish in any year		



TAG LOCATIONS

Mangrove Jack
Tagged 145
(red-orange heat map)
Recaptured 7
(blue fish)
2016-2025



Data sources

Data used in the Cairns Crystal Bowl are:

- Stocked fish records from Cairns Area Fish Stocking Group.
- Tag records and recapture records for the area at <http://crystalbowl.infofishaustralia.com.au/>.
- Cairns rainfall and temperatures from Cairns Aero station 031011 at <http://www.bom.gov.au/>.

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/days fished.
- Recapture rates relate to fish tagged in a particular year.
- Undersized Barramundi are <580mm, legal-trophy fish are ≥ 580 and <1000mm and trophy fish are ≥ 1000 mm. Legal fish are 580-1200mm.
- Undersized Mangrove Jack are <350mm, legal-trophy are ≥ 350 and <500mm and trophy fish are >500mm.
- Locations based on Infofish grid map BRC, CNT and RMR and other grid maps where fish were recaptured outside the area.
- Travel proxy distance is the distance between where the fisher lives (address, suburb, town or postcode) and the recapture location. Local <80km, intrastate Qld elsewhere, interstate other than Qld.