

## AGNES WATERS REVIEW 2024

### INFORMATION RATING



Key species: Mangrove Jack, Dusky Flathead, Barred Javelin

Fish timeframe: 2015-2024

Fisher timeframe: 2020-2024

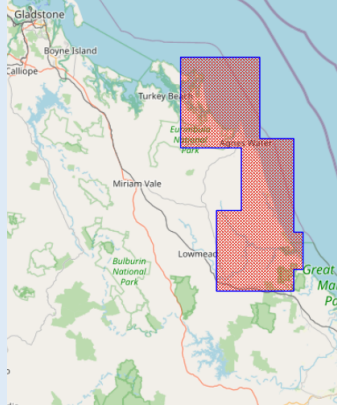

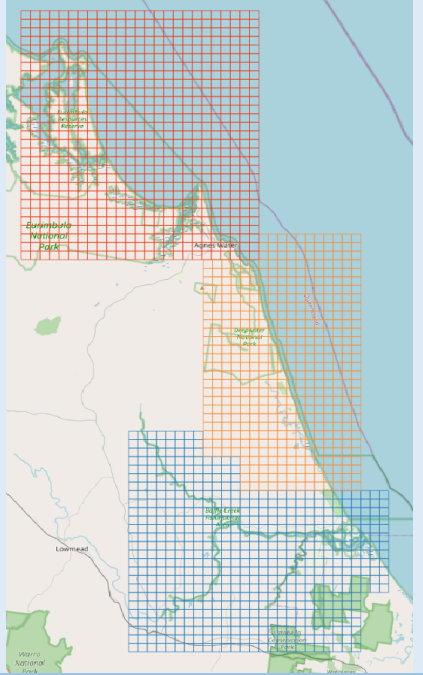
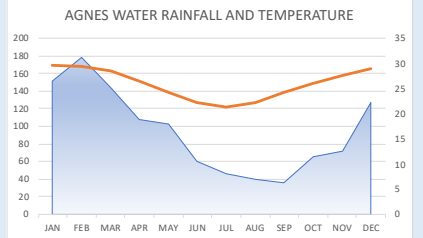
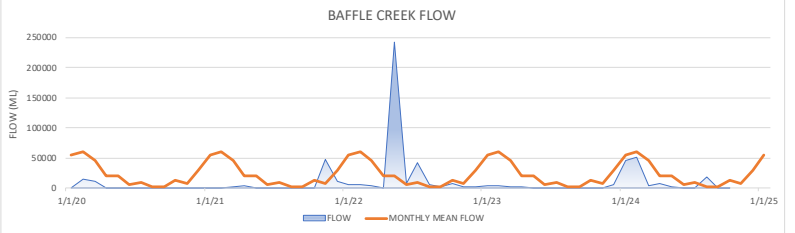
While data for the area is limited it provides basic information that is indicative of the fishing in the area. Creeks in this area are mostly fished by locals and fishers from Bundaberg and Gladstone however visiting fishers come from as far away as Brisbane, Gold Coast, and from interstate.

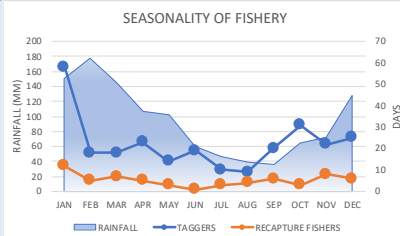
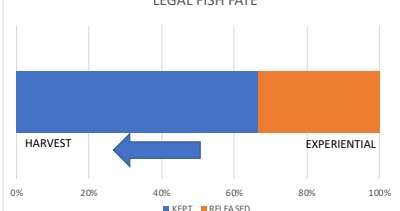
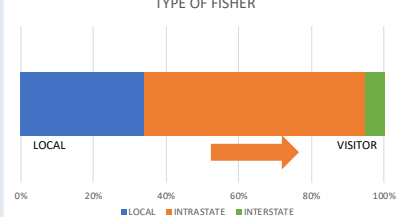
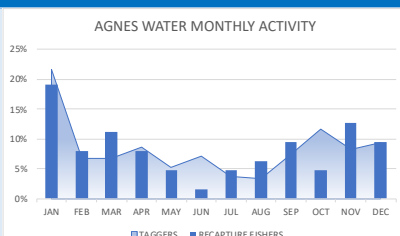
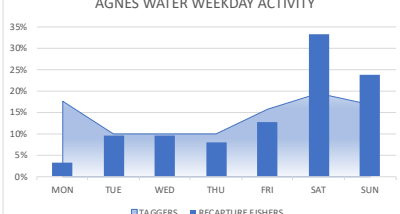
The area is known as a Mangrove Jack hotspot, particularly Baffle Creek, which is reflected in it being the key target for taggers which accounted for 67% of all fish tagged. Flathead were also a target species accounting for 14% of fish tagged.

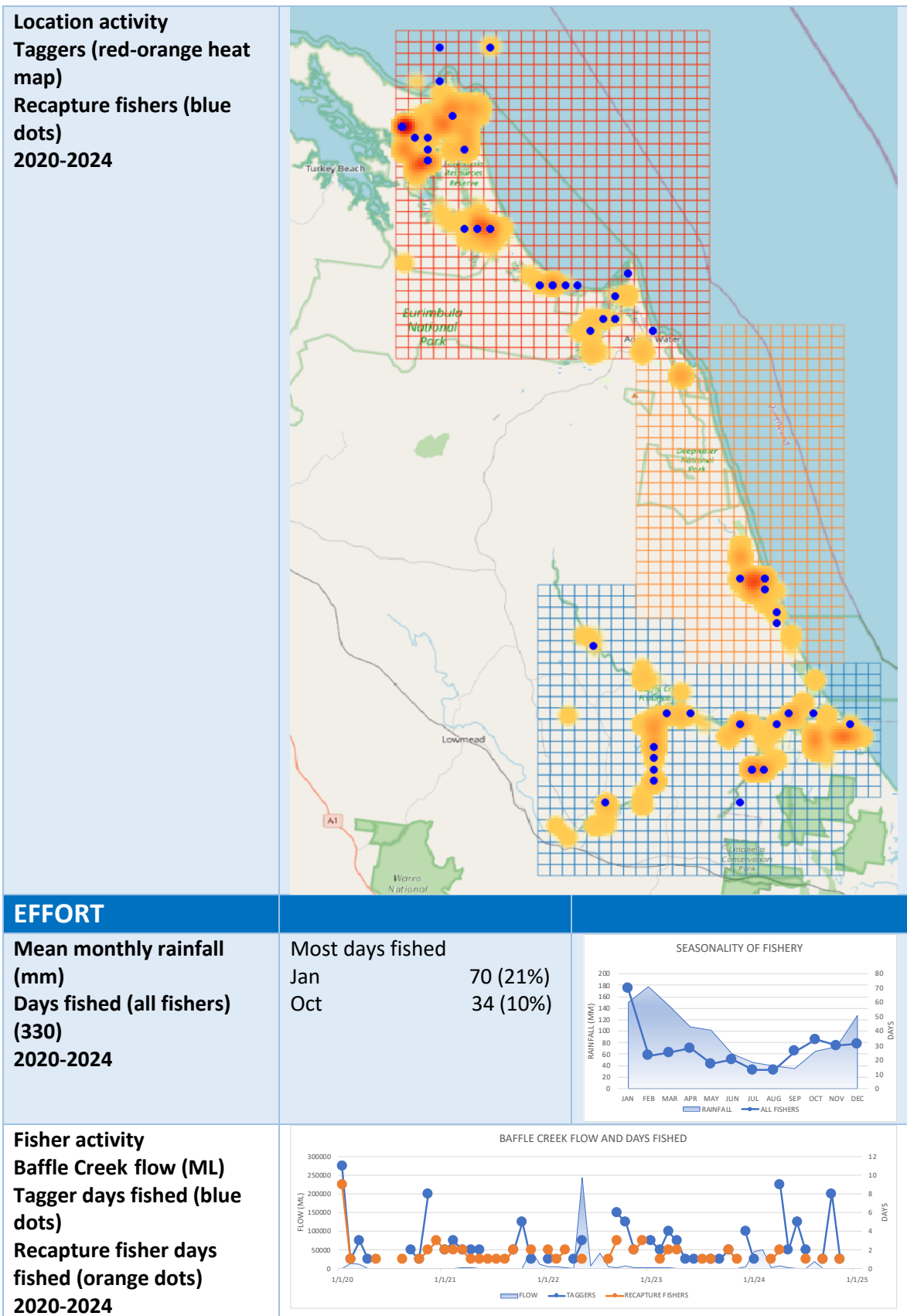
The area is primarily a harvest fishery which is reflected in 65% of legal Mangrove Jack and 78% of legal Flathead recaptured being kept by fishers (other than taggers). Javelin tagged in the creeks are mostly juvenile fish below the legal limit which is similar to other adjacent systems however it is likely that most legal Javelin are harvested contributing to the size structure.

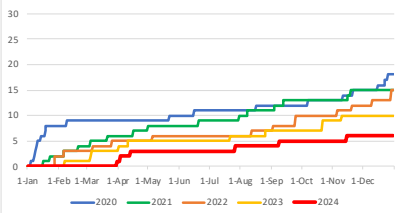
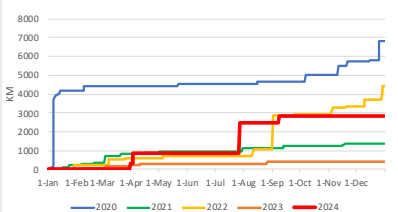
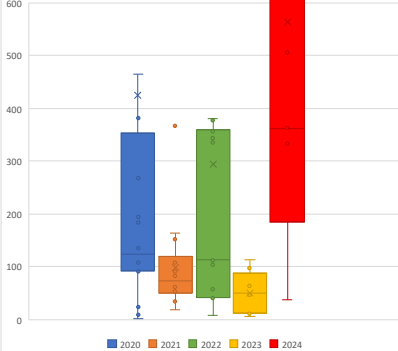
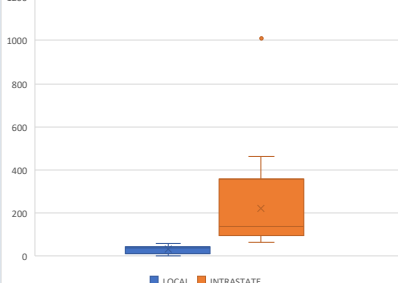
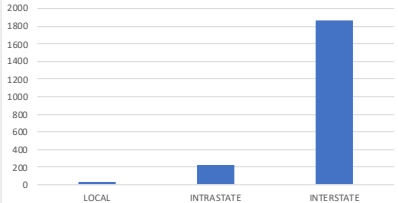
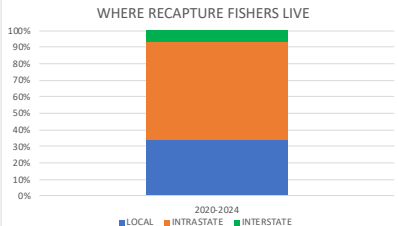
Flows in Baffle Creek in the early months of 2022 made fishing conditions in the creek difficult for much of the year resulting in a drop in the numbers of fish tagged and recaptured. This was likely to be similar in the other creeks. Conditions in 2023 and 2024 were better however tagging effort has remained low.

Movement of the key species is mostly within the system they were tagged in however there were 3 Mangrove Jack recaptured offshore with 1 fish tagged in Baffle Creek recaptured at the top end of K'gari (Fraser) Island.

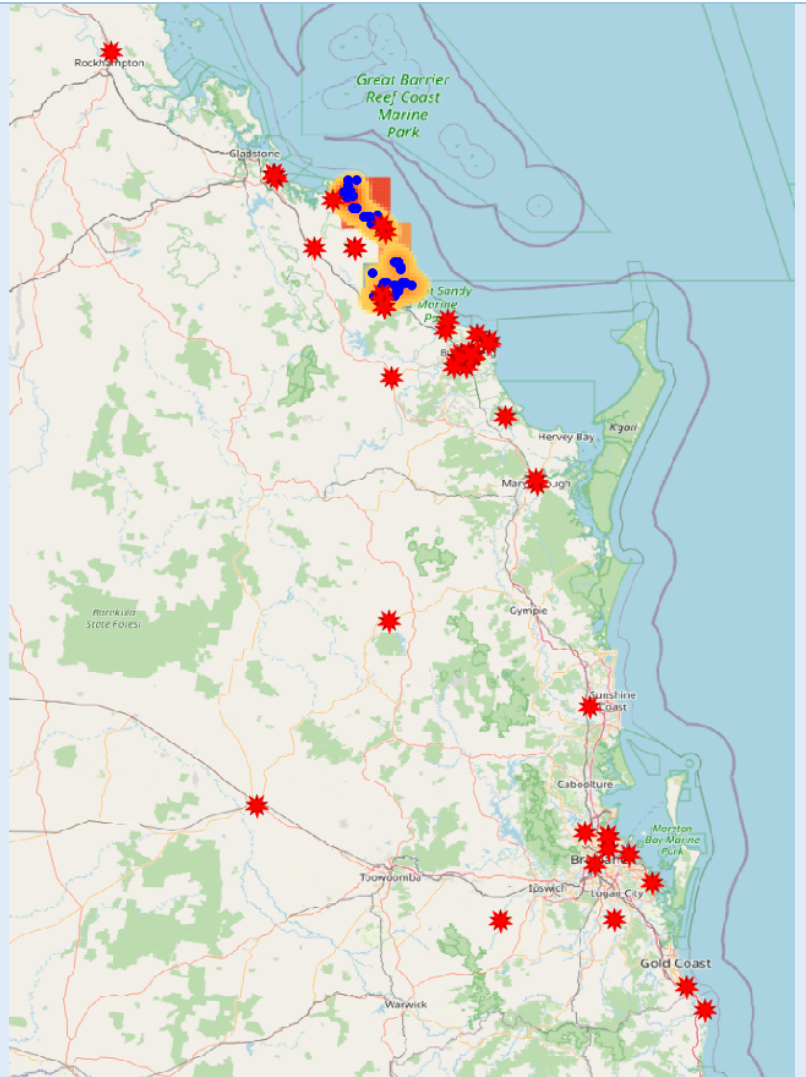
AGNES WATERS		LOCATION
	Agnes Water 24.2°S 151.9°E	
WATERWAYS	ACTUAL	GRAPH or MAP
Baffle Creek Deepwater Creek Round Hill Creek Eurimbula Creek Middle Creek Jenny Lind Creek Pancake Creek	Maps Baffle Creek (BFF) Deepwater Creek (DWC) Bustard Bay (BBY)	
ENVIRONMENTAL	ACTUAL	GRAPH or MAP
Agnes Water Mean monthly rainfall (mm) Mean monthly air temperature (oC)	Rainfall Feb Temperature Jan Feb Max (mm) 160 Max (oC) 32 31	<div>AGNES WATER RAINFALL AND TEMPERATURE</div> 
Baffle Creek flows and monthly mean flow (ML) 2020-2024	<div>BAFFLE CREEK FLOW</div> 	




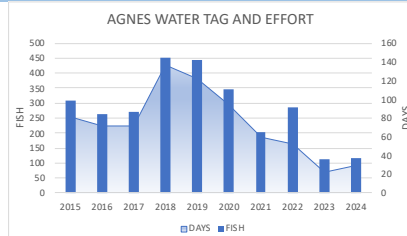
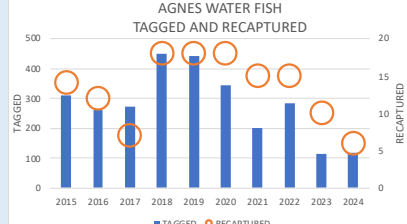
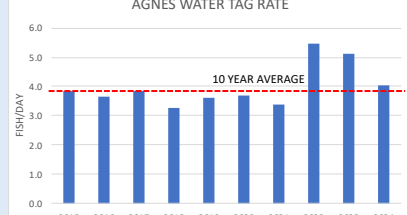
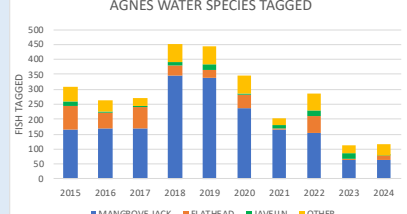
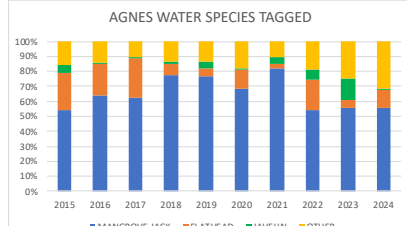
FISHERS	ACTUAL		GRAPH or MAP	
DATA RELIABILITY				
Sample size (days fished)				
Recaptures (blue arrow)				
Tag days (orange arrow)				
Confidence %				
Error %				
2020-2024				
TYPE OF FISHERY				
Seasonality	Months most effort		SEASONALITY OF FISHERY	
Mean monthly rainfall (mm)	Taggers	Jan		
Days fished		Oct		
Taggers	Recapture fishers	Jan		
Recapture fishers		Nov		
2020-2024				
Harvest or experiential fishery	Legal fish kept rate		LEGAL FISH FATE	
Release rate of recaptured legal fish (ex-taggers)	Mangrove Jack			
2015-2024	Flathead			
	Legal fish	66		
	Kept	44 (67%)		
	Released	22 (33%)		
Local or visitor fishery	Recapture fishers		TYPE OF FISHER	
Where recapture fishers live	Local	20 (34%)		
2020-2024	Visitor	39 (66%)		
ACTIVITY				
Monthly activity	Month %		AGNES WATER MONTHLY ACTIVITY	
Days fished)	Taggers	Jan 22%		
Taggers (267)		Oct 12%		
Recapture fishers (63)	Recaps	Jan 19%		
2020-2024		Nov 13%		
Weekday activity	Day %		AGNES WATER WEEKDAY ACTIVITY	
Days fished)	Taggers	Weekend 36%		
Taggers (267)		Weekdays 64%		
Recapture fishers (63)	Recaps	Weekend 57%		
2020-2024		Weekdays 43%		



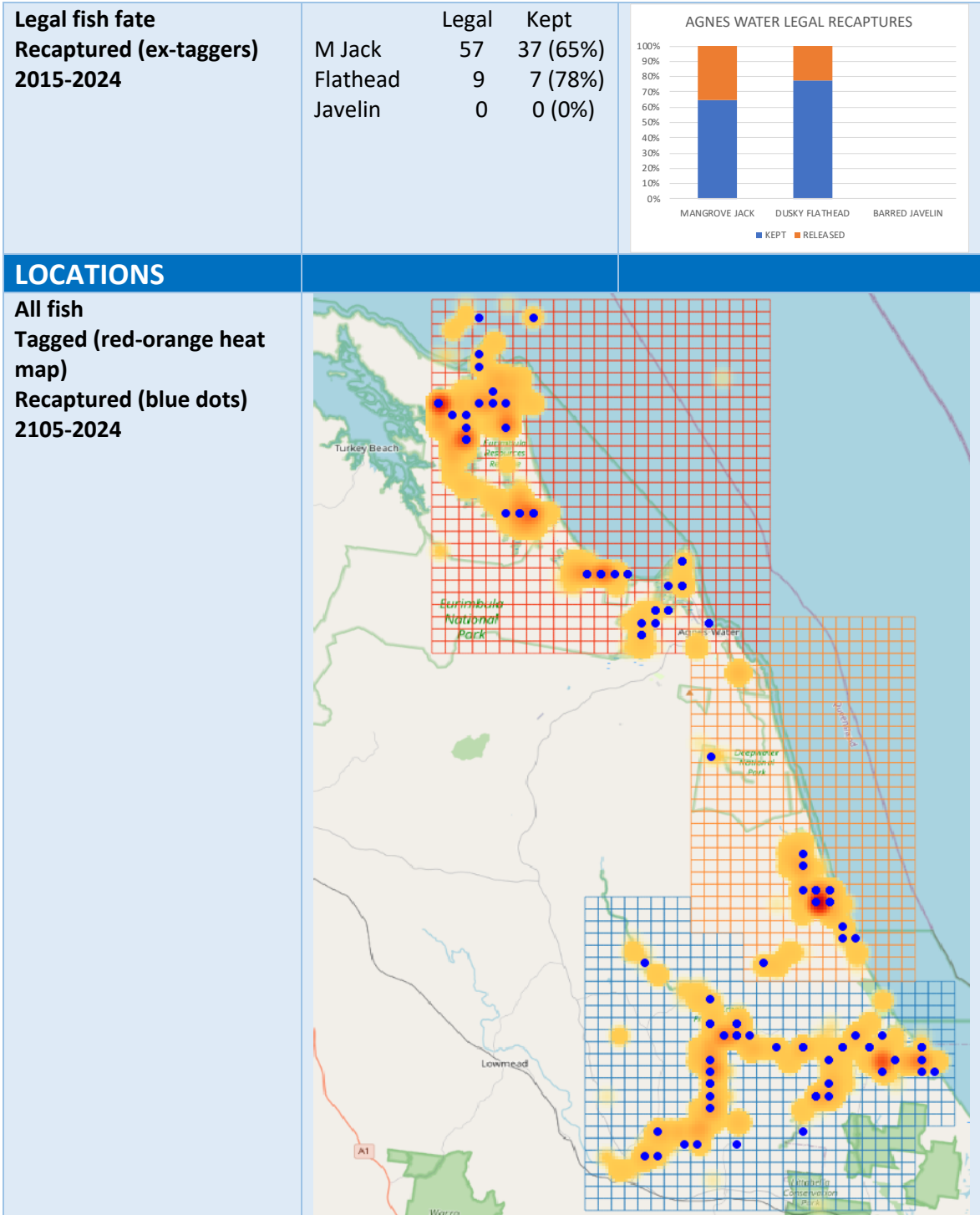
Cumulative recaptures 2020-2024	Year	Recaps	
	2020	18	
	2021	15	
	2022	15	
	2023	10	
	2024	6	
TRAVEL			
Cumulative distance (km) address to recapture location 2020-2024	Year	Km	
	2020	6795	
	2021	1388	
	2022	4416	
	2023	404	
	2024	2814	
Cumulative distance (km) address to recapture location by year 2020-2024			
Proxy travel distance (km) home to recapture location Bars show distance range Dots show outliers Local Intrastate 2020-2024		Range (km)	
	Local	1-57	
	Intrastate	62-1012	
	Interstate	505-3620	
	(not shown)		
Average distance (km) from home to recapture location 2020-2024		Av distance (km)	
	Local	31	
	Intrastate	222	
	Interstate	2690	
DEMOGRAPHICS			
Where recapture fishers live 2020-2024	Recaptures	59	
	Local	25 (34%)	
	Intrastate	35 (59%)	
	Interstate	4 (7%)	

**Where fishers recapturing  
fish live (red stars)**  
**Not shown**  
**Cairns (1)**  
**Adelaide (1)**  
**Bendigo Vic (1)**  
**Perth (1)**  
**2020-2024**




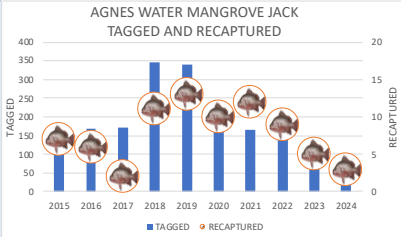
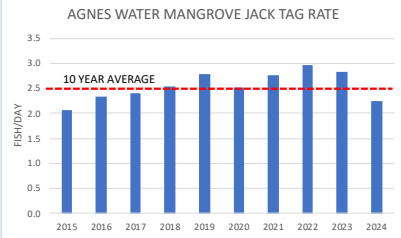
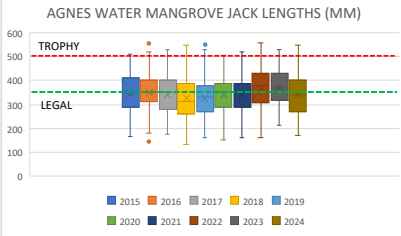
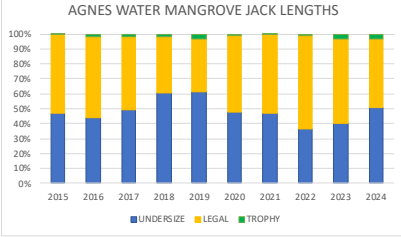


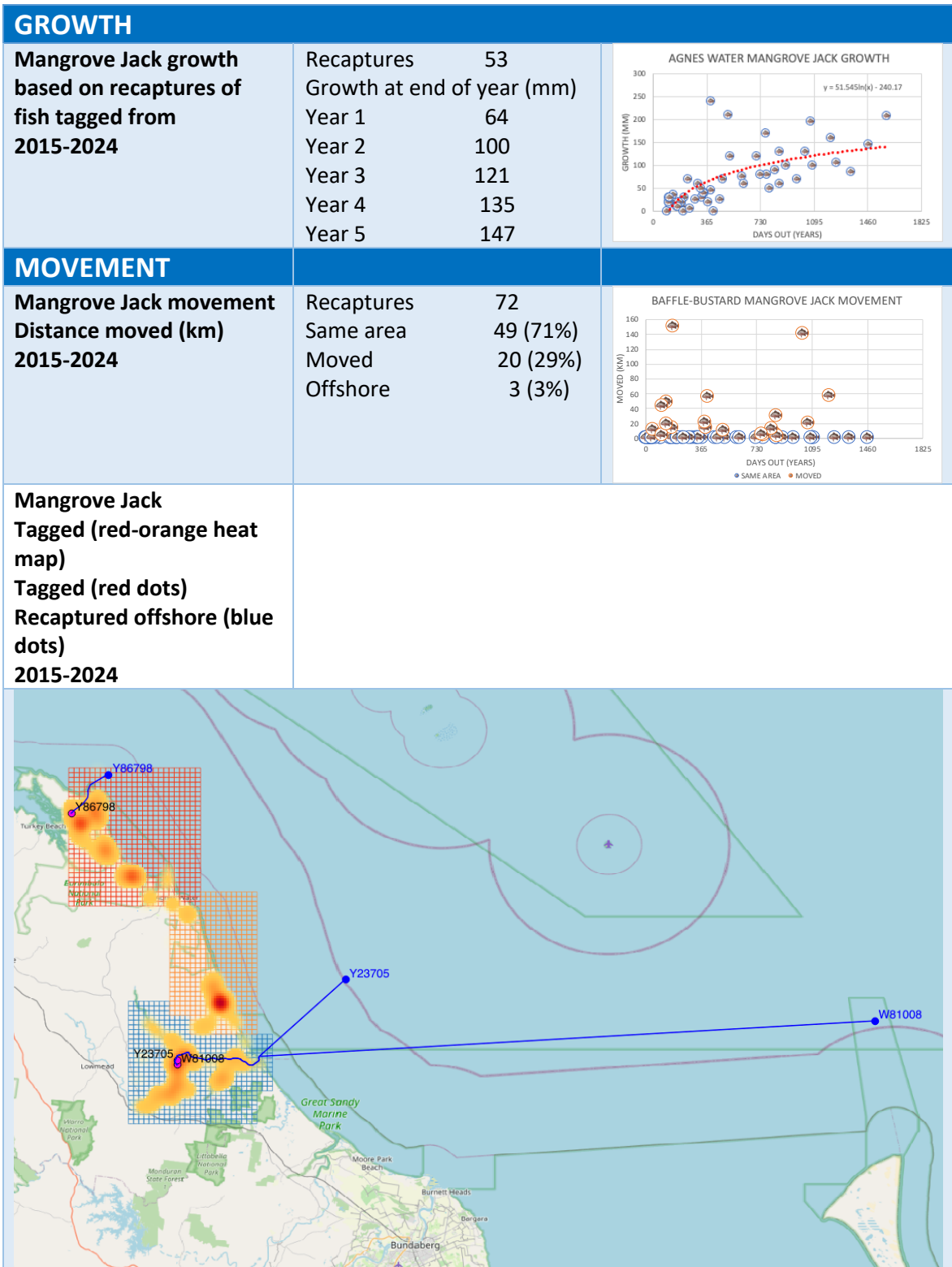
FISH	ACTUAL	GRAPH OR MAP																					
MANGROVE JACK	DUSKY FLATHEAD	BARRED JAVELIN																					
																							
EFFORT																							
<b>Catch and effort taggers</b> <b>Tagged fish (2797)</b> <b>Days fished (740)</b> <b>2015-2024</b>	<table><tr><td>High</td><td>Low</td><td>Now</td></tr><tr><td>Tagged fish</td><td></td><td></td></tr><tr><td>2018</td><td>2023</td><td>2024</td></tr><tr><td>450</td><td>113</td><td>117</td></tr><tr><td>Days</td><td></td><td></td></tr><tr><td>2018</td><td>2023</td><td>2024</td></tr><tr><td>137</td><td>22</td><td>29</td></tr></table>	High	Low	Now	Tagged fish			2018	2023	2024	450	113	117	Days			2018	2023	2024	137	22	29	
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<b>Fish tagged and recaptured</b> <b>2015-2024</b>	<table><tr><td>Tagged</td><td>Recaptured</td></tr><tr><td>2797</td><td>133</td></tr><tr><td>Recapture rate</td><td></td></tr><tr><td>4.8%</td><td></td></tr></table>	Tagged	Recaptured	2797	133	Recapture rate		4.8%															
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SPECIES																							
<b>Species composition</b> <b>Numbers tagged</b> <b>2015-2024</b>	<table><tr><td>Mangrove Jack</td><td>1876</td></tr><tr><td>Dusky Flathead</td><td>390</td></tr><tr><td>Barred Javelin</td><td>97</td></tr><tr><td>Other species</td><td>434</td></tr></table>	Mangrove Jack	1876	Dusky Flathead	390	Barred Javelin	97	Other species	434														
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Other species	434																						
<b>Species composition</b> <b>Percentage tagged</b> <b>2015-2024</b>	<table><tr><td>Mangrove Jack</td><td>67%</td></tr><tr><td>Dusky Flathead</td><td>14%</td></tr><tr><td>Barred Javelin</td><td>3%</td></tr><tr><td>Other species</td><td>16%</td></tr></table>	Mangrove Jack	67%	Dusky Flathead	14%	Barred Javelin	3%	Other species	16%														
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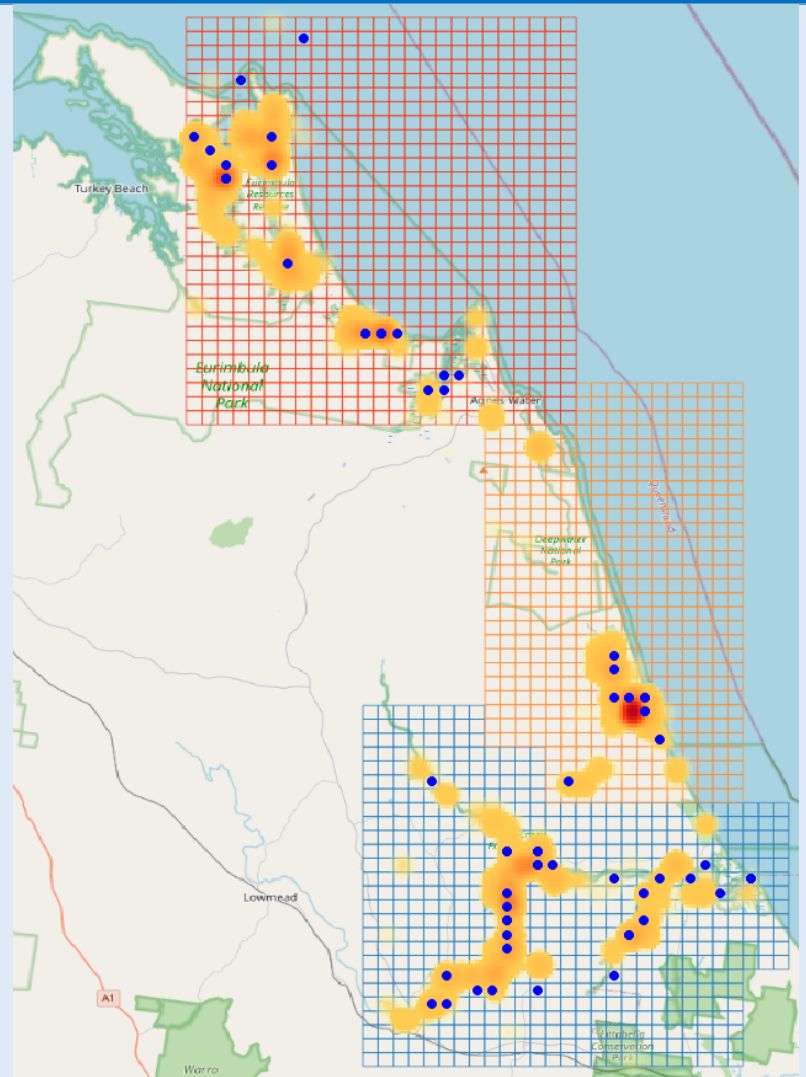





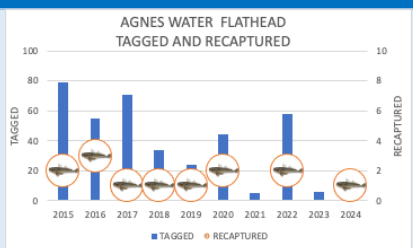
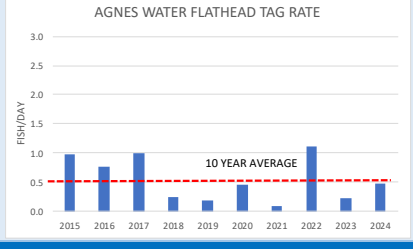
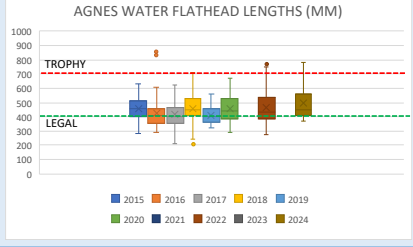
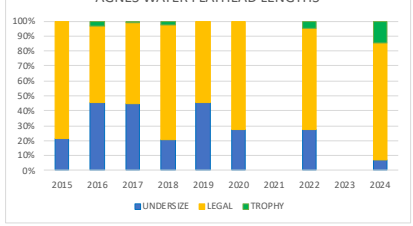
MANGROVE JACK	ACTUAL			GRAPH or MAP																				
																								
DATA RELIABILITY																								
<b>Sample size (av fish/year)</b> <b>Tagged (blue arrow)</b> <b>Recaptures (orange arrow)</b> <b>Confidence %</b> <b>Error %</b> <b>2020-2024</b>	<table border="1"> <thead> <tr> <th>Reliability level</th><th>LOW</th><th>MODERATE</th><th>MODERATE</th><th>HIGH</th></tr> </thead> <tbody> <tr> <td>Samples</td><td>10</td><td>41</td><td>68</td><td>271</td></tr> <tr> <td>Confidence</td><td>80%</td><td>80%</td><td>90%</td><td>90%</td></tr> <tr> <td>Error</td><td>20%</td><td>10%</td><td>10%</td><td>5%</td></tr> </tbody> </table> <div>   </div>			Reliability level	LOW	MODERATE	MODERATE	HIGH	Samples	10	41	68	271	Confidence	80%	80%	90%	90%	Error	20%	10%	10%	5%	
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	Tagged																							
	2018	2023	2024																					
	347	63	65																					
	Recapture rate																							
	4.2%																							
TAG RATE																								
<b>Tag rate</b> <b>Mangrove Jack</b> <b>Fish/day</b> <b>2015-2024</b>	High	Low	Now																					
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	2022	2015	2024																					
	3.0	2.1	2.2																					
	10 year average			2.5																				
LENGTHS																								
<b>Average length (mm)</b> <b>Bars show length range</b> <b>Dots show outliers</b> <b>2015-2024</b>	High	Low	Now																					
	Average length																							
	2022	2018	2024																					
	367	325	342																					
	Max																							
	2022	2020	2024																					
	560	505	550																					
<b>Fish lengths percentage</b> <b>Undersize &lt;350mm</b> <b>Legal 350-500mm</b> <b>Trophy 500+mm</b> <b>2015-2024</b>	High	Low	Now																					
	Legal-trophy																							
	2022	2019	2024																					
	62%	36%	46%																					
	Trophy																							
	2023	2021	2024																					
	3%	1%	3%																					



## LOCATIONS

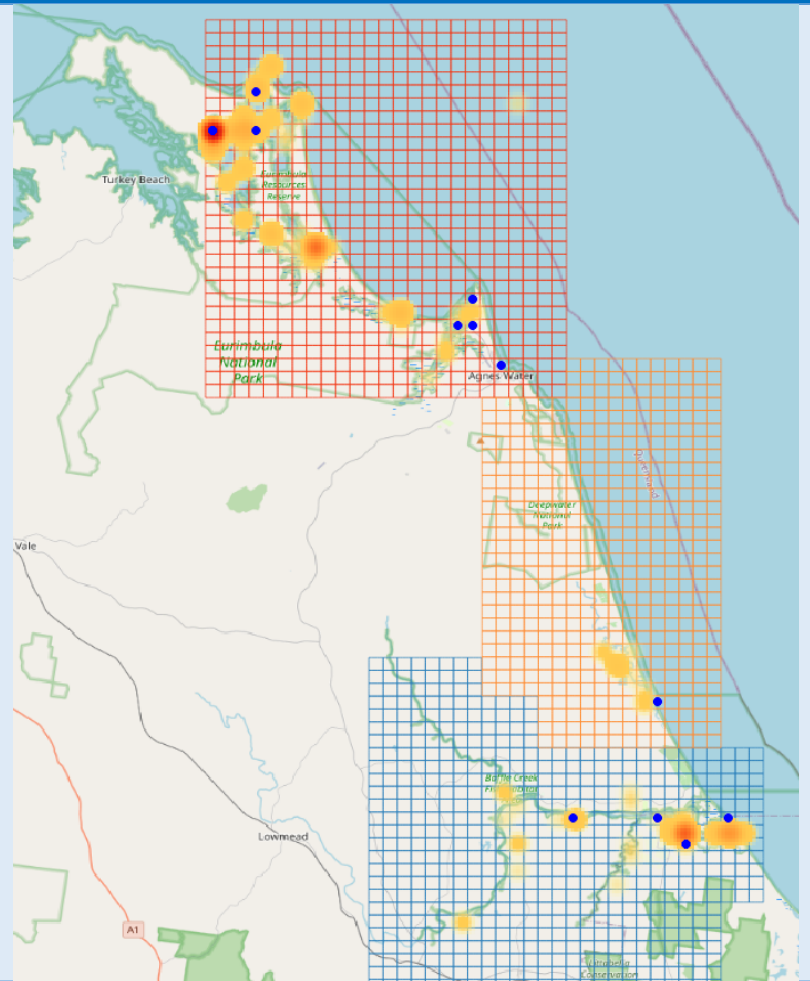
Mangrove Jack  
Tagged (1876)  
(red-orange heat map)  
Recaptured (78)  
(blue dots)  
(ex-offshore)  
2015-2024




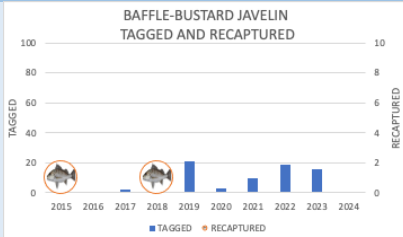
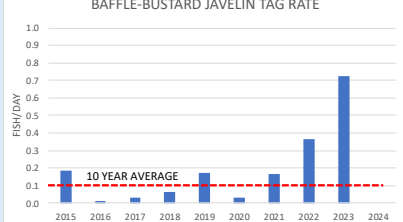
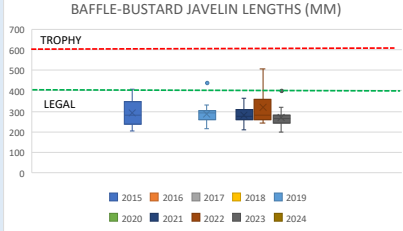
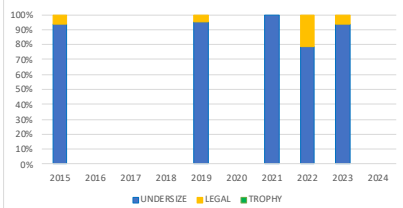


FLATHEAD	ACTUAL			GRAPH or MAP																				
																								
DATA RELIABILITY																								
Sample size (av fish/year) Tagged (blue arrow) Recaptures (orange arrow) Confidence % Error % 2020-2024	<table border="1"> <thead> <tr> <th>Reliability level</th><th>LOW</th><th>MODERATE</th><th>MODERATE</th><th>HIGH</th></tr> </thead> <tbody> <tr> <td>Samples</td><td>10</td><td>41</td><td>68</td><td>271</td></tr> <tr> <td>Confidence</td><td>80%</td><td>80%</td><td>90%</td><td>90%</td></tr> <tr> <td>Error</td><td>20%</td><td>10%</td><td>10%</td><td>5%</td></tr> </tbody> </table> <div>   </div>	Reliability level	LOW	MODERATE	MODERATE	HIGH	Samples	10	41	68	271	Confidence	80%	80%	90%	90%	Error	20%	10%	10%	5%			
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TAG RATE																								
Tag rate Flathead Fish/day 2015-2024	High Tag rate 2022 1.1 10 year average	Low 2021 0.1	Now 2024 0.5																					
LENGTHS																								
Average length (mm) Bars show length range Dots show outliers 2015-2024	High Average length 2022 468 Max 2016 860	Low 2019 413 2019 560	Now 2024 494 2024 780																					
Fish lengths percentage Undersize <400mm Legal 400-700mm Trophy 700+mm 2015-2024	High Legal 2015 78% Trophy 2016 4%	Low 2016 51% 2020 0%	Now 2024 79% 2024 14%																					

## LOCATIONS

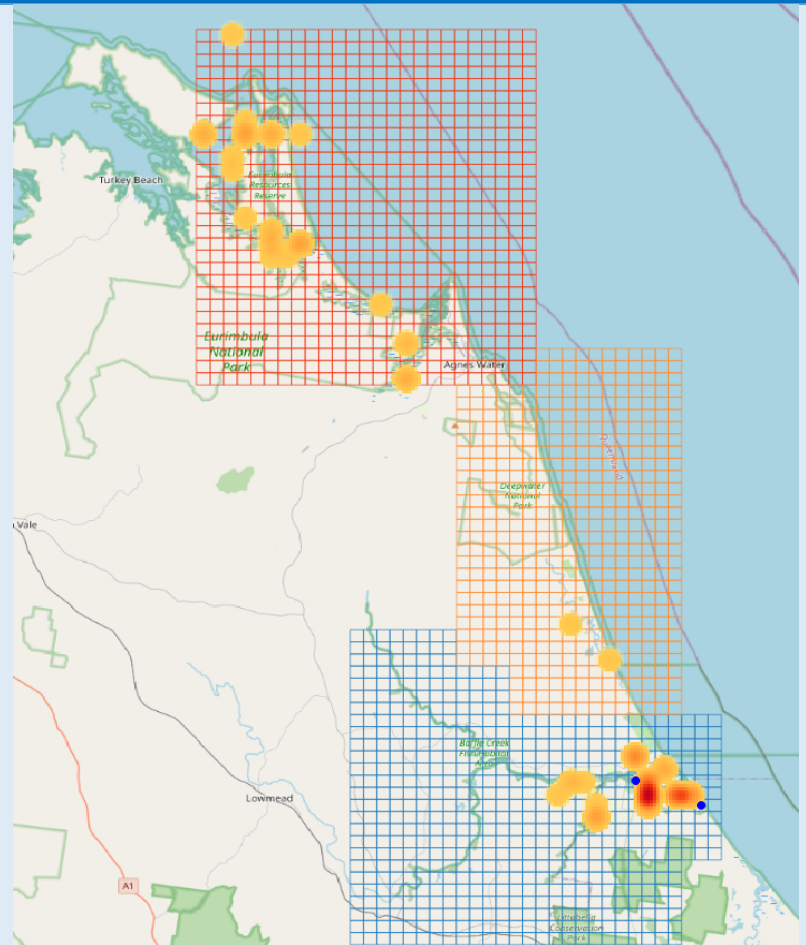
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TAGGED																							
Javelin Tagged (97) Recaptured (2) 2015-2024	<table><tr><td>High</td><td>Low</td><td>Now</td></tr><tr><td>Tagged</td><td></td><td></td></tr><tr><td>2014</td><td>2016</td><td>2024</td></tr><tr><td>30</td><td>1</td><td>1</td></tr><tr><td colspan="3">Recapture rate</td></tr><tr><td colspan="3">2.1%</td></tr></table>	High	Low	Now	Tagged			2014	2016	2024	30	1	1	Recapture rate			2.1%						
High	Low	Now																					
Tagged																							
2014	2016	2024																					
30	1	1																					
Recapture rate																							
2.1%																							
TAG RATE																							
Tag rate Javelin Fish/day 2015-2024	<table><tr><td>High</td><td>Low</td><td>Now</td></tr><tr><td>Tag rate</td><td></td><td></td></tr><tr><td>2023</td><td>2020</td><td>2024</td></tr><tr><td>0.7</td><td>0.0</td><td>NA</td></tr><tr><td colspan="2">10 year average</td><td>0.1</td></tr></table>	High	Low	Now	Tag rate			2023	2020	2024	0.7	0.0	NA	10 year average		0.1							
High	Low	Now																					
Tag rate																							
2023	2020	2024																					
0.7	0.0	NA																					
10 year average		0.1																					
LENGTHS																							
Average length (mm) Bars show length range Dots show outliers 2015-2024	<table><tr><td>High</td><td>Low</td><td>Now</td></tr><tr><td>Average length</td><td></td><td></td></tr><tr><td>2019</td><td>2023</td><td>2024</td></tr><tr><td>288</td><td>267</td><td>NA</td></tr><tr><td>Max</td><td></td><td></td></tr><tr><td>2022</td><td>2021</td><td>2024</td></tr><tr><td>510</td><td>365</td><td>NA</td></tr></table>	High	Low	Now	Average length			2019	2023	2024	288	267	NA	Max			2022	2021	2024	510	365	NA	
High	Low	Now																					
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Fish lengths percentage Undersize <400mm Legal 400-600mm Trophy 600+mm 2015-2024	<table><tr><td>High</td><td>Low</td><td>Now</td></tr><tr><td>Legal</td><td></td><td></td></tr><tr><td>2022</td><td>2021</td><td>2024</td></tr><tr><td>21%</td><td>0%</td><td>NA</td></tr></table>	High	Low	Now	Legal			2022	2021	2024	21%	0%	NA										
High	Low	Now																					
Legal																							
2022	2021	2024																					
21%	0%	NA																					

## LOCATIONS

Javelin  
Tagged (97)  
(red-orange heat map)  
Recaptured (2)  
(blue dots)  
2015-2024





## Data sources

Data used in the Agnes Water Crystal Bowl are:

- Tag records and recapture records for the river at <http://crystalbowl.infofishaustralia.com.au/>.
- Flow records for Baffle Creek at Mimdale Station 134001B from <https://water-monitoring.information.qld.gov.au/>.
- Rainfall and temperature records from Station 039314 Seventeen Seventy from <http://www.bom.gov.au/climate/data/>.

## 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/day for taggers with a minimum of 12 days (at least 1 per month) to provide an acceptable catch rate.
- For Mangrove Jack undersized fish are <350mm, legal fish are ≥350mm and <500mm and trophy fish are ≥500mm.
- For Dusky Flathead undersized fish are <400mm, legal fish are ≥400 and <700mm and trophy fish are ≥700mm.
- For Barred Javelin undersized fish are >400mm, legal fish are ≥400mm and <600 and trophy fish are ≥600mm.
- Locations based on Infofish grid maps BFF, DWC and BBY and other grid maps where fish were recaptured outside the area.
- Movement distance calculated as the shortest distance by water from the tag to the recapture location calculated 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 <60km, Intrastate ≥60km and Qld postcodes, Interstate postcodes other than Qld.