

## RODDS HARBOUR REVIEW 2024

### INFORMATION RATING



Key species: Dusky Flathead, Mangrove Jack, Barred Javelin

Fish timeframe: 2015-2024

Fisher timeframe: 2020-2024

There are no rivers that flow into Rodds Harbour. It includes Wild Cattle Creek (part), Colosseum Inlet, Boyne Creek, 7 Mile Creek and Worthington Creek. It also includes Hummock Hill Island and Rodds Peninsula. Turkey Beach is a small town in the area with sparse population elsewhere.

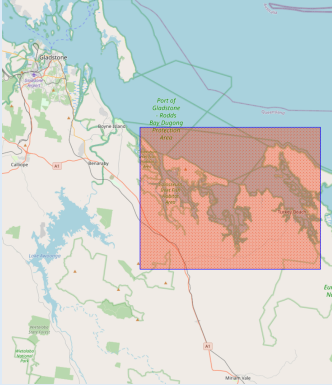
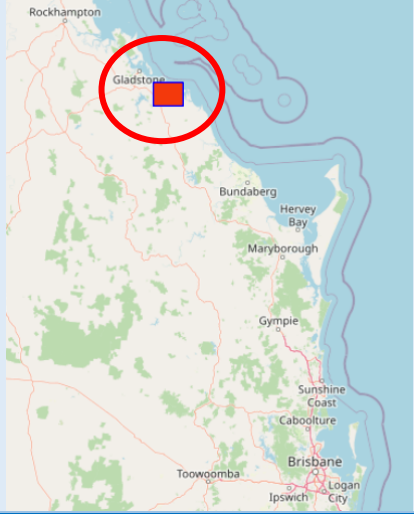
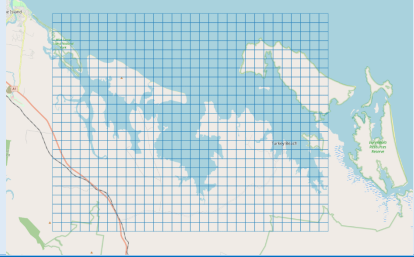
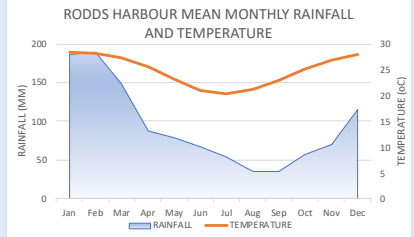
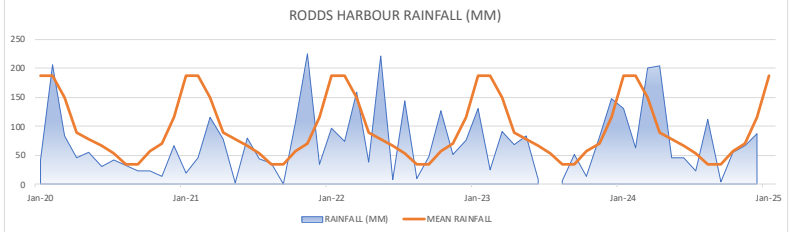
Rodds Harbour is mostly fished by locals around Rodds Harbour and from the Gladstone area with a smaller group coming from other centres in Central Qld. It also attracts a small number of fishers from further afield in Qld but very limited from interstate.

Key target species for taggers are Dusky Flathead, Mangrove Jack and Barred Javelin accounting for 74% of fish tagged and these would be the main species caught by recreational fishers along with Bream. Tagging effort has shifted from Flathead to Javelin in the last few years, mainly due to a change in the taggers fishing the area having different species preferences.

A very wet year in 2022 resulted in a fall in both tagging effort and recaptures and that reduction in the effort has continued in 2023 and 2024.

The retention of tagged fish by recreational fishers (other than taggers) suggests there is a high level of harvest of legal fish, particularly for Javelin while for Flathead and Mangrove Jack there is harvest of around 60% of recaptured legal fish.

Few tagged fish have been recaptured outside the harbour area except for Mangrove Jack where a number have been recaptured offshore as they mature and move to offshore reef habitats.

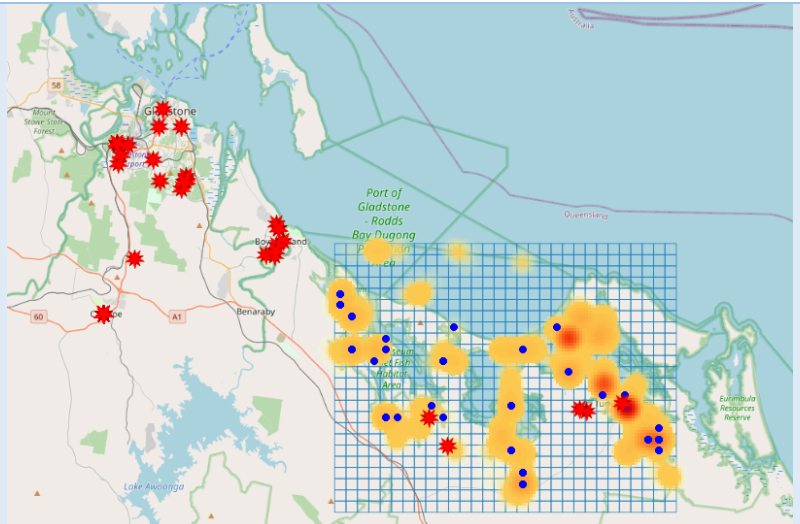
RODDS HARBOUR		LOCATION															
	Turkey Beach 24.1°S 151.65°E																
WATERWAYS																	
Map Rodds Harbour RBT	Wild Cattle Creek Colosseum Inlet Boyne Creek 7 Mile Creek Turkey Beach Worthington Creek																
ENVIRONMENTAL	ACTUAL	GRAPH or MAP															
Rodds Harbour Mean monthly rainfall (mm) Mean monthly max temperature (oC)	<table> <tr> <td>Rainfall</td><td>Month</td><td>mm</td></tr> <tr> <td>Highest</td><td>Feb</td><td>188</td></tr> <tr> <td></td><td>Jan</td><td>186</td></tr> <tr> <td>Temp</td><td>Month</td><td>oC</td></tr> <tr> <td></td><td>Dec-Feb</td><td>28</td></tr> </table>	Rainfall	Month	mm	Highest	Feb	188		Jan	186	Temp	Month	oC		Dec-Feb	28	
Rainfall	Month	mm															
Highest	Feb	188															
	Jan	186															
Temp	Month	oC															
	Dec-Feb	28															
Rodds Harbour rainfall and mean monthly rainfall (mm) 2020-2024																	

FISHERS		ACTUAL		GRAPH or MAP	
DATA RELIABILITY					
Sample size (days fished)		Reliability level		MODERATE	
Tag days (blue arrow)		Samples		MODERATE	
Recaptures (orange arrow)		Confidence		HIGH	
Confidence %		Error			
Error %					
2020-2024					
TYPE OF FISHERY					
Fishing conditions		Best fishing key species		RODD'S HARBOUR FISHING CONDITIONS	
Average rainfall (mm)		Jan-May		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec	
Mean maximum day temperature (oC)		Sep-Dec		RAINFALL (MM) TEMPERATURE (oC)	
Monthly effort		Most days fished		RODD'S HARBOUR FISHING SEASONALITY	
Mean monthly rainfall		Combined		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec	
Days fished combined		Jan		RAINFALL (MM) TEMP (oC) DAYS	
Taggers		Dec			
Recapture fishers		Sep			
2020-2024					
Harvest or experiential fishery		Key species legal fish kept rate		TYPE OF FISHERY	
Release rate of recaptured legal fish of key species (ex-taggers)		Legal fish 60		HARVEST EXPERIENTIAL	
2015-2024		Kept 39 (65%)		0% 20% 40% 60% 80% 100%	
		Released 21 (35%)		■ KEPT ■ RELEASED	
Local or visitor fishery		Recapture fishers 85		TYPE OF FISHER	
Where recapture fishers live		Local 64 (75%)		LOCAL VISITOR	
2020-2024		Visitors 21 (24%)		0% 20% 40% 60% 80% 100%	
				■ LOCAL ■ INTRASTATE ■ INTERSTATE	
ACTIVITY					
Monthly activity		Month %		RODD'S HARBOUR MONTHLY ACTIVITY	
Days fished		Taggers Jan 19%		JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC	
Taggers (547)		Dec 16%		TAGGERS RECAPTURE FISHERS COMBINED	
Recapture fishers (78)		Jan 29%			
2020-2024		Feb 15%			

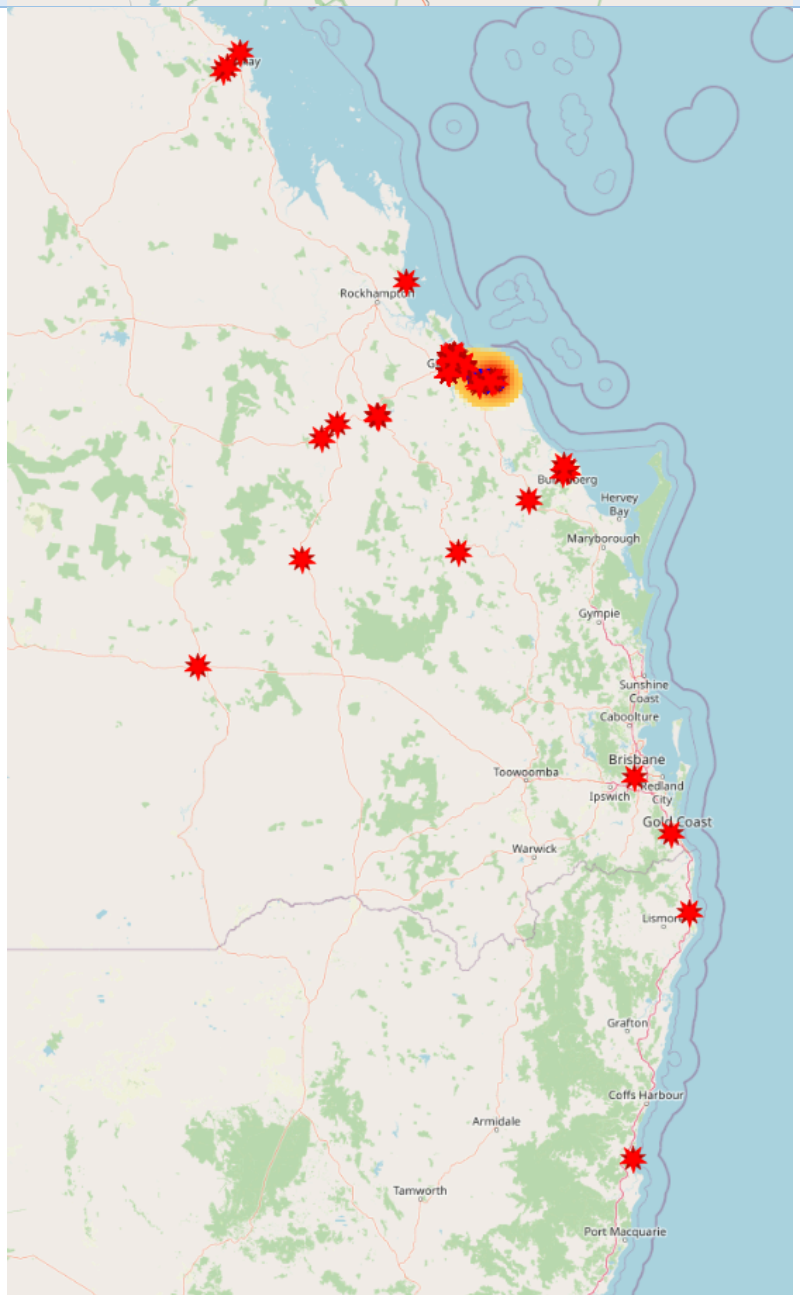
<div>Weekday activity</div> <div>Days fished</div> <div>Taggers (547)</div> <div>Recapture fishers (78)</div> <div>2020-2024</div>	<div><div>Taggers</div><div>Recaps</div></div> <div><div>Day</div><div>Weekend</div><div>Weekdays</div><div>Weekend</div><div>Weekdays</div></div> <div><div>%</div><div>50%</div><div>50%</div><div>45%</div><div>55%</div></div>	<div>RODD'S HARBOUR WEEKDAY ACTIVITY</div> <div></div>
<div>Location activity</div> <div>Taggers (red-orange heat map)</div> <div>Recapture fishers (blue dots)</div> <div>2020-2024</div>	<div></div>	
<div>EFFORT</div>		
<div>Cumulative recaptures</div> <div>2020-2024</div>	<div><div>Year</div><div>2020</div><div>2021</div><div>2022</div><div>2023</div><div>2024</div></div> <div><div>Recaps</div><div>27</div><div>29</div><div>11</div><div>10</div><div>11</div></div>	<div>RODD'S HARBOUR CUMULATIVE RECAPTURES</div> <div></div>
<div>Rainfall</div> <div>Tag days</div> <div>Recaptures</div> <div>2020-2024</div>	<div>RODD'S HARBOUR RAINFALL AND DAYS FISHED</div> <div></div>	
<div>TRAVEL</div>		
<div>Cumulative distance (km) home to recapture location</div> <div>2020-2024</div>	<div><div>Year</div><div>2020</div><div>2021</div><div>2022</div><div>2023</div><div>2024</div></div> <div><div>Km</div><div>1928</div><div>2060</div><div>1702</div><div>472</div><div>1888</div></div>	<div>RODD'S HARBOUR CUMULATIVE DISTANCE</div> <div></div>




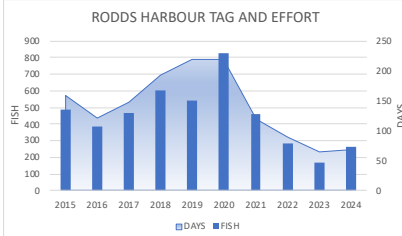
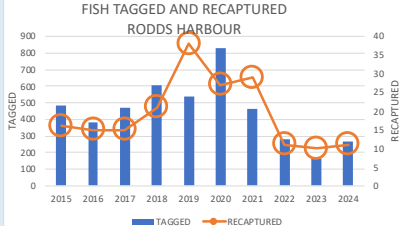
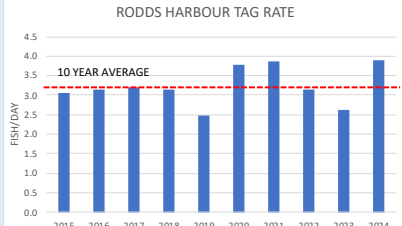
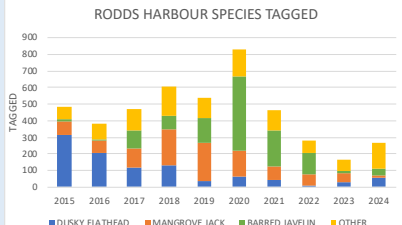
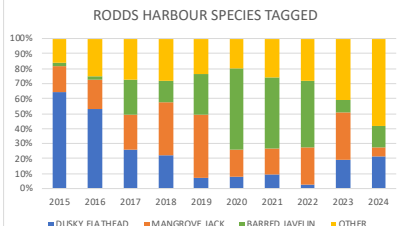
<b>Distance (km) home to recapture location</b> <b>Bars show distance range</b> <b>Dots show outliers</b> <b>2020-2024</b>			
<b>Distance (km) home to recapture location</b> <b>Bars show distance range</b> <b>Dots show outliers</b> <b>2020-2024</b>	Local Intrastate Interstate	<b>Range (km)</b> 1-53 108-465 540-748	
<b>Average distance (km) From home to recapture location</b> <b>2020-2024</b>	Local Intrastate Interstate	<b>Av distance (km)</b> 37 228 644	
<b>DEMOGRAPHICS</b>			
<b>Recapture fisher's gender (ex-taggers)</b> <b>2020-2024</b>	Recapture fishers Male Female	40 39 (91%) 4 (9%)	
<b>Where fishers recapturing fish live</b> <b>2020-2024</b>	Local Intrastate Interstate	<b>Recapture fishers</b> 64 (75%) 19 (22%) 2 (2%)	

Where fishers recapturing  
fish live (red stars)  
Local  
2020-2024

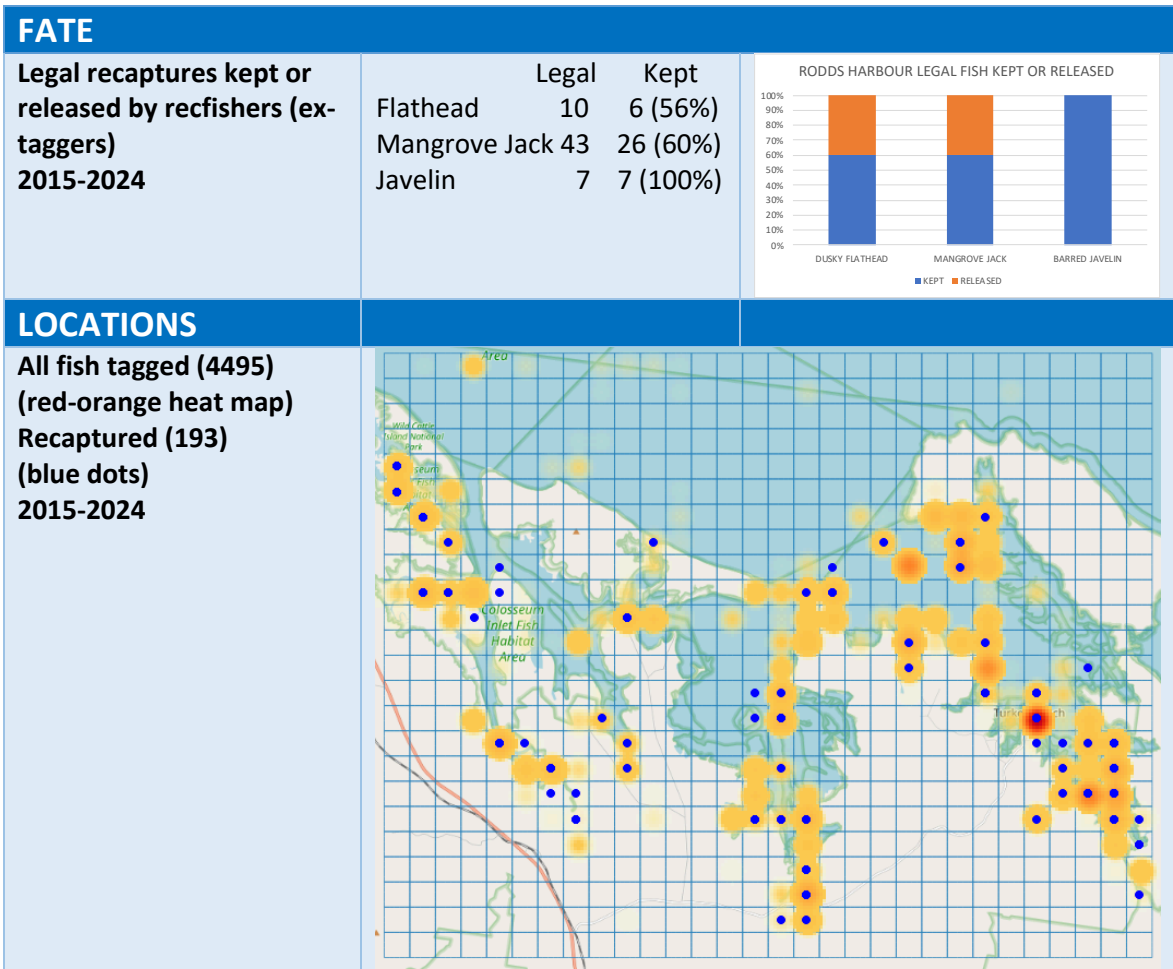


Where fishers recapturing  
live (red stars)  
Local  
Intrastate  
Interstate  
2020-2024


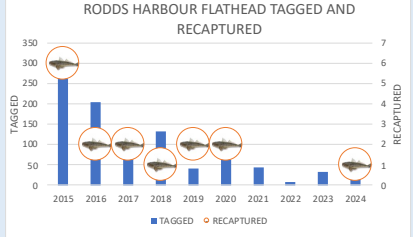
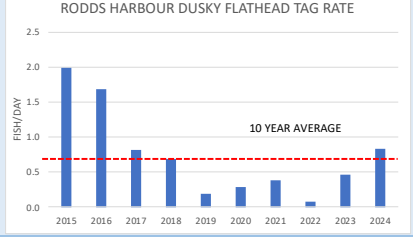
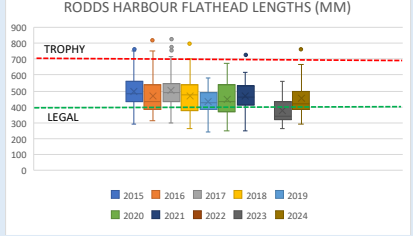
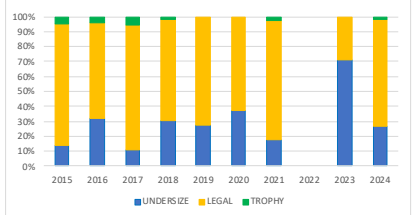


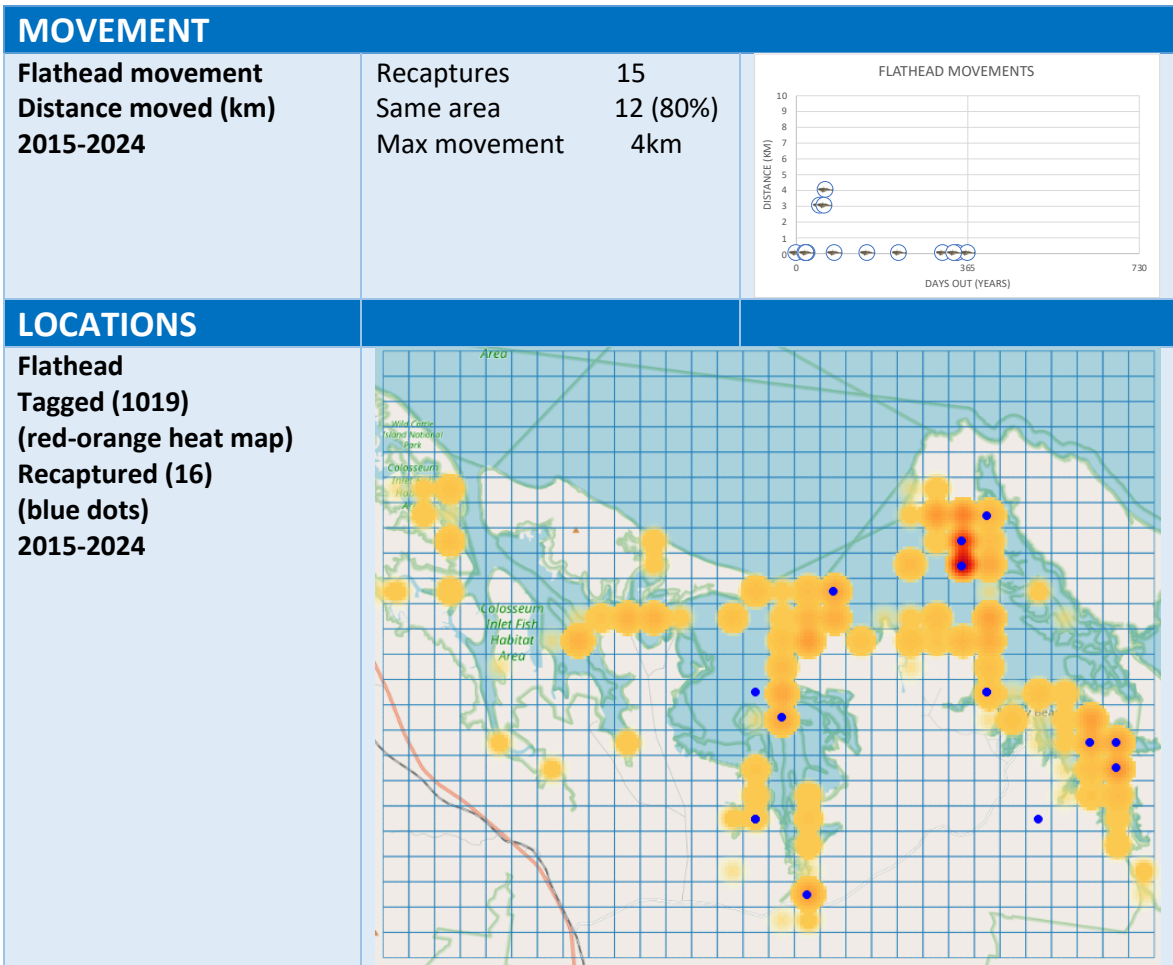
FISH	ACTUAL	GRAPH or MAP																					
DUSKY FLATHEAD	MANGROVE JACK	BARRED JAVELIN																					
																							
EFFORT																							
<b>Taggers catch and effort</b> <b>Tagged fish (4494)</b> <b>Tag days (1401)</b> <b>2015-2024</b>	<table><tr><td>High</td><td>Low</td><td>Now</td></tr><tr><td>Tagged fish</td><td></td><td></td></tr><tr><td>2020</td><td>2023</td><td>2024</td></tr><tr><td>829</td><td>168</td><td>264</td></tr><tr><td>Days</td><td></td><td></td></tr><tr><td>2020</td><td>2023</td><td>2024</td></tr><tr><td>220</td><td>64</td><td>68</td></tr></table>	High	Low	Now	Tagged fish			2020	2023	2024	829	168	264	Days			2020	2023	2024	220	64	68	
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<b>Fish tagged</b> <b>Recaptured</b> <b>2015-2024</b>	<table><tr><td>Tagged</td><td>Recaptured</td></tr><tr><td>4494</td><td>193</td></tr><tr><td>Recapture rate</td><td></td></tr><tr><td>4.3%</td><td></td></tr></table>	Tagged	Recaptured	4494	193	Recapture rate		4.3%															
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TAG RATE																							
<b>Tag rate</b> <b>All tagged fish</b> <b>Fish/day</b> <b>2015-2024</b>	<table><tr><td>High</td><td>Low</td><td>Now</td></tr><tr><td>Tag rate</td><td></td><td></td></tr><tr><td>2021</td><td>2019</td><td>2024</td></tr><tr><td>3.9</td><td>2.5</td><td>3.9</td></tr><tr><td>10 year average</td><td></td><td>3.2</td></tr></table>	High	Low	Now	Tag rate			2021	2019	2024	3.9	2.5	3.9	10 year average		3.2							
High	Low	Now																					
Tag rate																							
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SPECIES																							
<b>Species composition</b> <b>Numbers tagged</b> <b>2015-2024</b>	<table><tr><td>Dusky Flathead</td><td>1019</td></tr><tr><td>Mangrove Jack</td><td>1078</td></tr><tr><td>Barred Javelin</td><td>1208</td></tr><tr><td>Other</td><td>1189</td></tr></table>	Dusky Flathead	1019	Mangrove Jack	1078	Barred Javelin	1208	Other	1189														
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<b>Species composition</b> <b>Percentage tagged</b> <b>2015-2024</b>	<table><tr><td>Dusky Flathead</td><td>23%</td></tr><tr><td>Mangrove Jack</td><td>24%</td></tr><tr><td>Barred Javelin</td><td>27%</td></tr><tr><td>Other</td><td>26%</td></tr></table>	Dusky Flathead	23%	Mangrove Jack	24%	Barred Javelin	27%	Other	26%														
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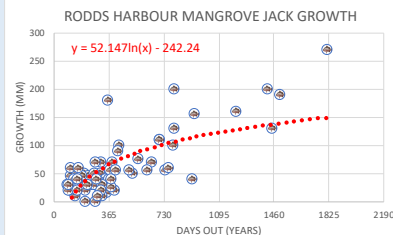
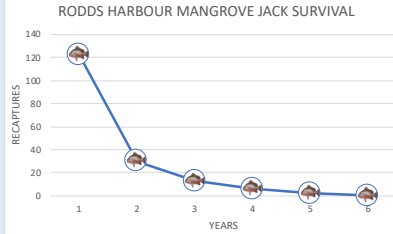
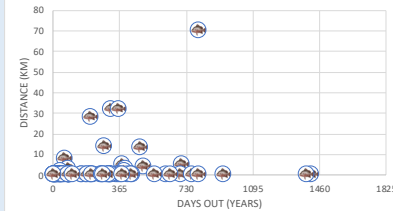
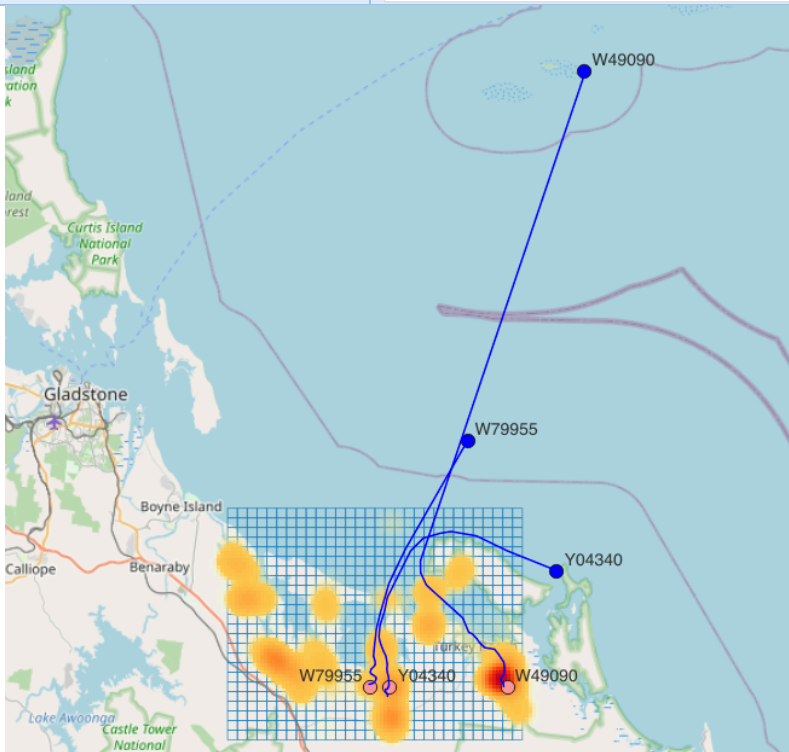




DUSKY FLATHEAD	ACTUAL			GRAPH or MAP
				
DATA RELIABILITY				
Sample size (av fish/year)	Reliability level	LOW	MODERATE	MODERATE
Tagged (blue arrow)	Samples	10	41	68
Recaptures (orange arrow)	Confidence	80%	80%	90%
Confidence %	Error	20%	10%	10%
Error %				5%
2020-2024				5%
TAGGED				
Flathead	High	Low	Now	
Tagged (1019)	Tagged			
Recaptured (16)	2015	2022	2024	
2015-2024	315	8	57	
	Recapture rate			
	1.6%			
TAG RATE				
Tag rate	High	Low	Now	
Flathead	Tag rate			
Fish/day	2015	2022	2024	
2015-2024	2.0	0.1	0.8	
	10 year average			
			0.7	
LENGTHS				
Average length (mm)	High	Low	Now	
Bars show length range	Average length			
Dots show outliers	2017	2023	2024	
2015-2024	501	373	439	
	Largest			
	2017	2023	2024	
	825	560	760	
Fish lengths percentage	High	Low	Now	
Undersize <400mm	Legal-trophy			
Legal 400-700mm	2017	2023	2024	
Trophy 700+mm	83%	29%	72%	
2015-2024	Trophy			
	2017	2023	2024	
	6%	0%	2%	

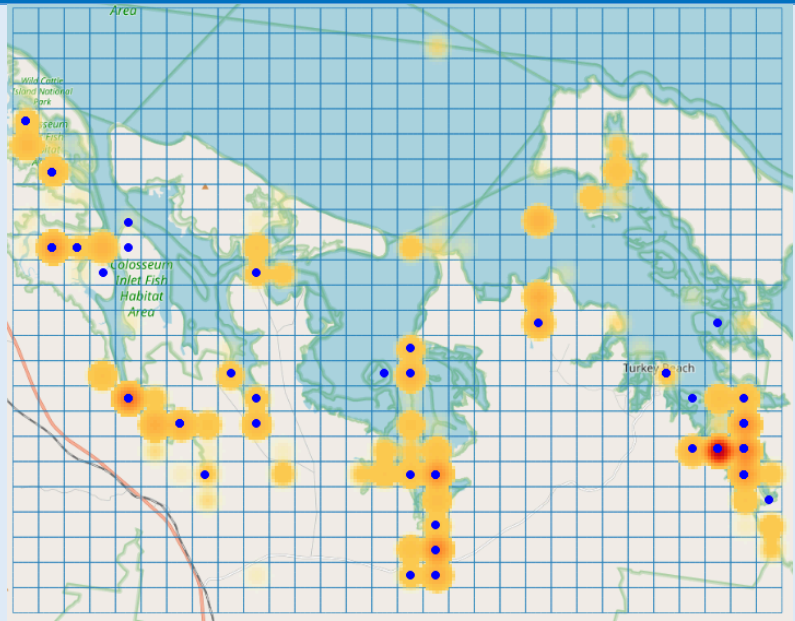





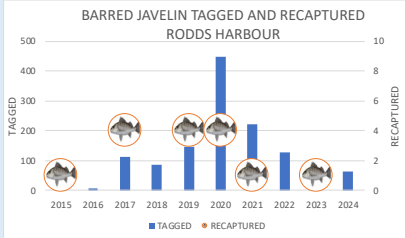
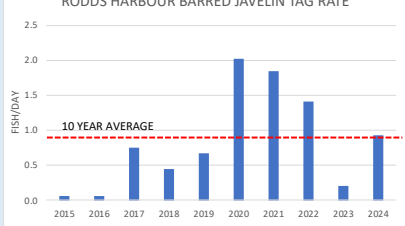
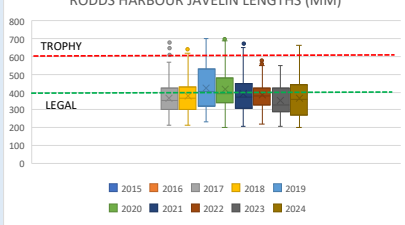
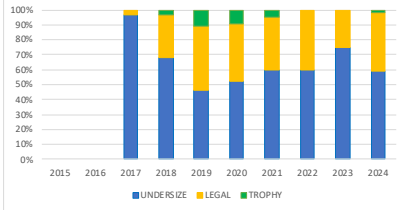
MANGROVE JACK	ACTUAL		GRAPH or MAP																				
																							
DATA RELIABILITY																							
Sample size (av fish/year)	<table><tr><td>Reliability level</td><td>LOW</td><td>MODERATE</td><td>MODERATE</td><td>HIGH</td></tr><tr><td>Samples</td><td>10</td><td>41</td><td>68</td><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></table>			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																							
Mangrove Jack	High	Low	Now																				
Tagged (1078)	Tagged																						
Recaptured (89)	2019	2023	2024																				
2015-2024	226	53	16																				
	Recapture rate																						
	8.3%																						
TAG RATE																							
Tag rate	High	Low	Now																				
Mangrove Jack	Tag rate																						
Fish/day	2018	2021	2024																				
2015-2024	1.1	0.6	0.2																				
	10 year average		0.8																				
LENGTHS																							
Average length (mm)	High	Low	Now																				
Bars show length range	Average length																						
Dots show outliers	2021	2023	2024																				
2015-2024	385	307	266																				
	Largest																						
	2018	2023	2024																				
	570	440	460																				
Fish lengths percentage	High	Low	Now																				
Undersize <350mm	Legal-trophy																						
Legal 350-500mm	2021	2023	2024																				
Trophy 500+mm	75%	33%	25%																				
2015-2024	Trophy																						
	2015	2023	2024																				
	5%	0%	0%																				

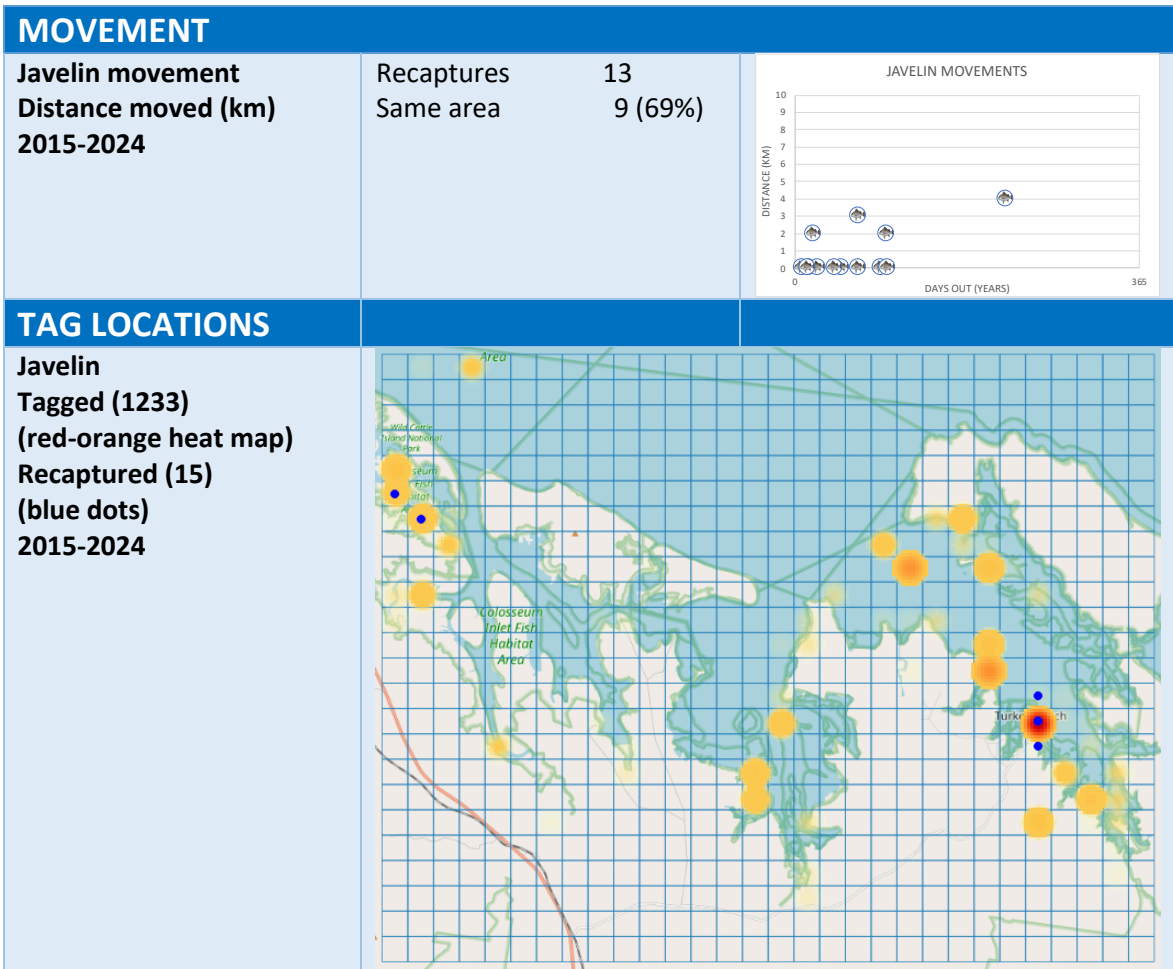
GROWTH		
Mangrove Jack growth at the end of each year based on all recaptures	Recaptures	70
	Growth	mm
	Year 1	65
	Year 2	102
	Year 3	123
	Year 4	138
	Year 5	149
		
SURVIVAL		
Mangrove Jack survival after tagging based on recaptures from all years	Year	Recaptures
	1	122
	3	13
	5	2
	Longest time out (years) 5.0 years	
		
MOVEMENT		
Mangrove Jack movement in harbour Distance moved (km) 2015-2024	Recaptures	88
	Same area	73 (83%)
	In harbour	12 (14%)
	Outside harbour	3 (3%)
		
Mangrove Jack outside harbour Tagged (pink dots) Recaptured (blue dots) 2015-2024		
Masthead Reef (70km) Gladstone offshore (28Km) Pancake Creek (32km)		

## LOCATIONS

**Mangrove Jack**  
**Tagged (1078)**  
**(red-orange heat map)**  
**Recaptured (89)**  
**(blue dots)**  
**2015-2024**



BARRED JAVELIN		ACTUAL		GRAPH or MAP																																		
																																						
DATA RELIABILITY																																						
Sample size (days fished)		<table><tr><th>Reliability level</th><th colspan="2">LOW</th><th colspan="2">MODERATE</th><th colspan="2">MODERATE</th><th colspan="2">HIGH</th></tr><tr><td>Samples</td><td>10</td><td>41</td><td>68</td><td>271</td><td>384</td><td>664</td><td></td></tr><tr><td>Confidence</td><td></td><td>80%</td><td>80%</td><td>90%</td><td>90%</td><td>95%</td><td>99%</td></tr><tr><td>Error</td><td></td><td>20%</td><td>10%</td><td>10%</td><td>5%</td><td>5%</td><td>5%</td></tr></table>		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%		
Reliability level	LOW		MODERATE		MODERATE		HIGH																															
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Javelin	High	Low	Now																																			
Tagged (1208)	Tagged																																					
Recaptured (15)	2020	2023	2024																																			
2015-2024	446	14	63																																			
	Recapture rate 1.2%																																					
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Fish/day	2020	2016	2024																																			
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	10 year average																																					
	0.9																																					
LENGTHS																																						
Average length (mm)	High	Low	Now																																			
Bars show smallest to largest fish	Average length																																					
2015-2024	2019	2023	2024																																			
	425	353	365																																			
	Largest																																					
	2020	2023	2024																																			
	710	550	660																																			
Fish lengths percentage	High	Low	Now																																			
Undersize <400mm	Legal-trophy																																					
Legal 400-600mm	2019	2017	2024																																			
Trophy 600+mm	43%	4%	63%																																			
2015-2024	Trophy																																					
	2019	2023	2024																																			
	11%	0%	0%																																			





## Data sources

Data used in the Rodds Harbour Crystal Bowl are:

- Tag records and recapture records for Rodds Harbour at <http://crystalbowl.infofishaustralia.com.au/>.
- Rainfall records from Station 39018 Bustard Head Lighthouse and from Station 39261 Turkey Station from <http://www.bom.gov.au/climate/data/index.shtml>.

## 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 fisher days (at least 1 per month) to provide an acceptable catch rate.
- For Dusky Flathead undersized fish are <400mm, legal fish are ≥400 and <700mm and trophy fish are ≥700mm.
- For Mangrove Jack undersized fish are <350mm, legal fish are ≥350mm and <500mm and trophy fish are ≥500mm.
- For Barred Javelin undersized fish are <400mm, legal fish are ≥400mm and <600 and trophy fish are ≥600mm.
- Growth calculated using logarithmic curve from recaptures where fish were out for 90 days or more and had positive growth.
- Locations based on Infofish grid map RBT and other grid maps where fish were recaptured outside the harbour.
- Movement distance calculated as the shortest distance by water from the tag to the recapture location using Google Earth.
- Distance from where recapture fishers live to recapture location is the straight-line distance between locations based on Google Earth coordinates with Local <60km, Intrastate ≥60km and Qld postcode, Interstate postcodes other than Qld.