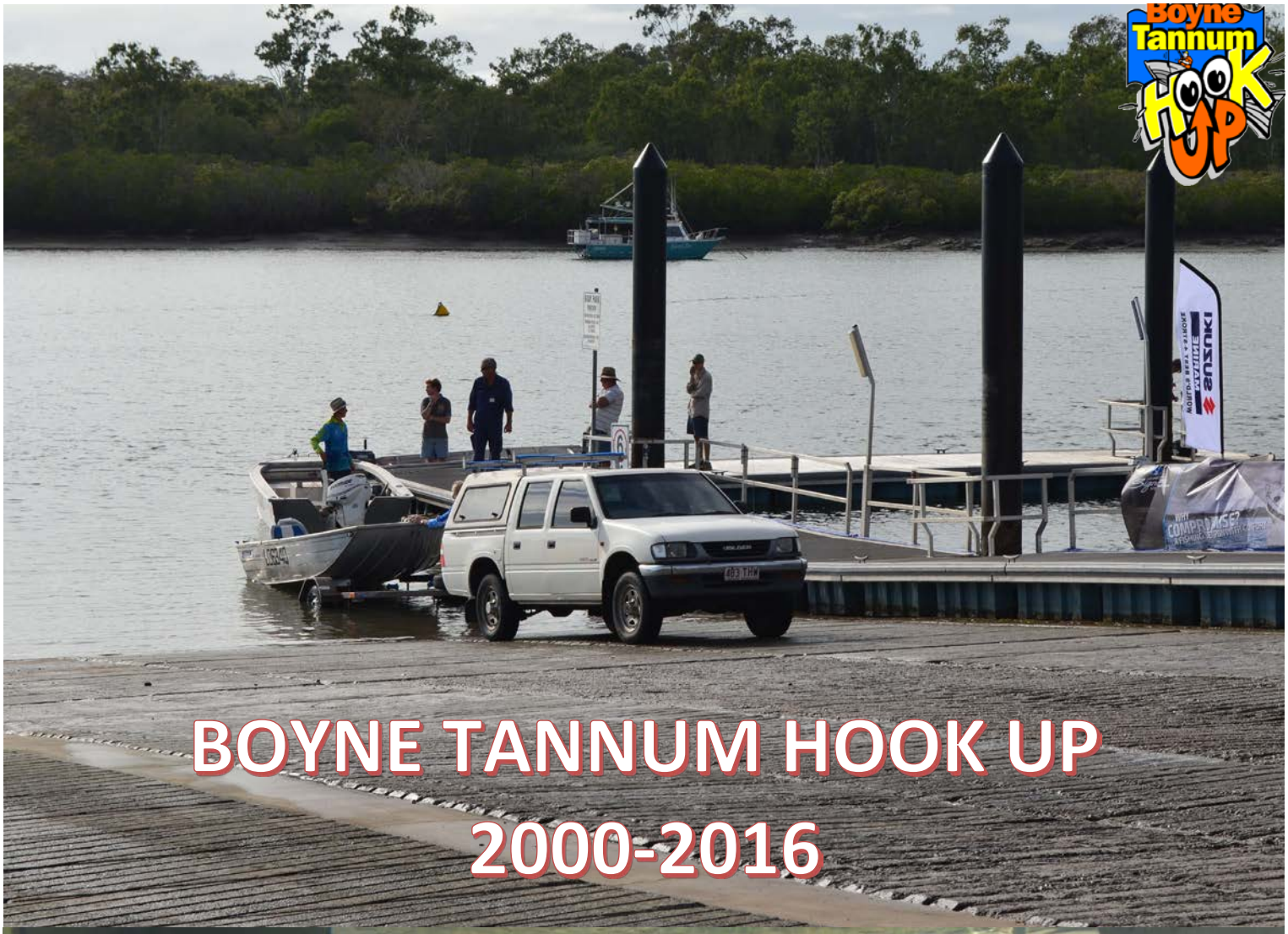

BOYNE TANNUM HOOK UP
2000-2016

ACKNOWLEDGEMENTS

The Boyne Tannum Hook Up (BTHU) is the largest family fishing competition in Australia with around 3,000 adult entrants and many more juniors. The event is managed by the Boyne Tannum Hook Up Management Committee and is a huge undertaking. This year a new committee took over the management of the event under Jenni Maguire and her and her team are congratulated on a great event again this year.

The committee has placed a particular emphasis on the sustainability of the event and the fish stocks on which the event relies. To that end the committee provided a donation to Infofish Australia to continue its data collection at the BTHU. Infofish has collected tag data since 2000 in conjunction with the Gladstone Sportfishing Club and catch and effort data since 2004 through a number of projects. Last year was the only year that catch and effort data were not able to be collected.

Cover Photos:
Top – launching at the Bray Park boat ramp during the 2016 BTHU
Bottom – tagged Golden Snapper in the Gladstone Sportfishing Club display tank prior to release

Photos below are scenes from the 2016 BTHU at Bray Park.

BOYNE TANNUM HOOK UP 2000-2016

REPORT

This report has been prepared by Infofish Australia for the Boyne Tannum Hook Up Committee – May 2016.

SCOPE

This report examines:

- Change in estuary catch rates from 2007-2016
- Species composition in the catch
- Dispersal of tagged fish released from 2000-2016
- Size composition of fish weighed live and tagged

DATA SOURCES

Data collected at the Boyne Tannum Hook Up:

- Catch and effort boat ramp surveys for estuary trips by Infofish Australia from 2007-2016
- Tagging data from live weigh-in by Gladstone Sportfishing Club from 2000-2016
- Data are stored in the Infofish Australia database at http://qld.info-fish.net.

BACKGROUND

The Boyne Tannum Hook Up celebrated its 21st birthday in 2016. It has grown to be the largest fishing competition in Australia with a current cap of 3,000 adult entrants. The event has its headquarters at Bray Park near the mouth of the Boyne River. While there are no fishing boundaries most of the estuary fishing occurs from the Narrows in the north to Rodds Harbour (Turkey Beach) in the south.

There are a number of fishing categories including a live weigh-in section that is managed by the Gladstone Sportfishing Club which commenced in 2000.

Infofish Australia has also collected catch and effort data through boat ramp surveys since 2004. From 2004-2006 the focus was collecting data on offshore trips through the CapReef project. From 2007-2014 the focus shifted to estuary trips through CapReef and later the Gladfish project. No boat ramp surveys were conducted in 2015.

In 2016 the focus remained on estuary trips with an emphasis on Bream as Yellowfin Bream and Pikey Bream recruitment were selected as the fish indicator for the Gladstone Healthy Harbour Partnership.

METHODS

Boat ramp surveys were undertaken at the Bray Park ramp and other key boat ramps in the Gladstone area to obtain details of catch and effort. Surveys were also conducted at the live weigh-in station as this provided data from all over the fishing area.

Boat ramp surveys collected the following details:

- Date of trip
- Start and finish times of the trip (time leaving boat ramp and return)
- For landbased trips the fishing time was recorded
- Species by number kept and number released
- Lengths were recorded where provided

Data from boat ramp surveys were analysis to determine the catch rate for estuary trips each year. Catch rates were calculated as fish caught/hour and fish kept/hour (total trip time) for each year's event. Catch rates were then converted to a standard fishing trip so that a valid comparison could be made between catch and effort for each year.

Standard fishing trip = Average number of fishers x average fishing time

For 2016 an additional analysis was undertaken to compare results over the 3 days, overall and for key species Bream, Flathead and Whiting. Species in the catch were aggregated at the group level as there was likely to be some misidentification of actual species.

The aggregated Bream data included Yellowfin Bream, Pikey Bream and Tarwhine. The aggregated data for Flathead included Dusky Flathead, Bartail Flathead. Rock Flathead and other Flathead (not specified). The aggregated data for Whiting included Sand Whiting, Goldenline Whiting, Northern Whiting, Winter Whiting and Whiting (not specified).

As Bream recruitment has been adopted for the Gladstone Healthy Harbor Partnership for the Report Card on the health of Gladstone Harbour and surrounds catch rates for Bream over the data collection period were also calculated.

An additional analysis was undertaken of catch rates by location. Catch rates for the Boyne River and South Trees inlet (Suntag grid map BRG) were compared with catch rates for all other locations.

Total estuary trips were estimated to determine the overall fishing effort. Trailer counts were undertaken at key boat ramps each day and then corrected to total trips per day using a correction factor calculated during the Gladfish project. For other ramps from Ramsay Crossing at the Narrow in the north to Turkey Beach in the south the number of trips recorded from those ramps during boat ramp surveys were used.

An estimate was then made of the percentage of those trips that were associated with BTHU estuary trips based on the weather (wind speed) and percentage of larger trailers (used for offshore fishing). Landbased trips were also estimated and corrected to total trips per day using a correction factor calculated during the Gladfish project.

The species composition of the catch from boat ramp surveys in 2016 was assessed to determine the most caught and kept species. Locations were recorded based on river, creek or harbour so that an assessment of locations fished could be made.

Data collected at boat ramps surveys included the home town of fishers undertaking fishing trips. Where fishers came from different home towns the home town of the boat owner/skipper was recorded. It was noted that in many instances the boat owner/skipper was a local with family members or friends from other centres. As trips were recorded over 3 days many fishers were surveyed more than once so that the home town for trips reflects the number of trips by fishers from those centres.

The live weigh-in section involves legal size being brought in live to the headquarters at Bray Park where they are measured, weighed and tagged. They were then placed in display tanks where their recovery can be monitored. They were then released at the Bray Park boat ramp. Recaptures of these fish are then recorded to determine dispersal of fish from the release site.

Fish lengths were obtained from tag records and an analysis of size range of fish was undertaken for Bream and Flathead.

KEY FISHING AREA

There are no fishing boundaries for fishing in the BTHU however much of the fishing is carried out from the Narrows in north to Rodds Harbour in the south. *Figure 1* shows the key fishing areas around Gladstone where most estuary fishers fished in the BTHU.

Figure 1: Main estuary fishing area fished in the BTHU in 2016

SOME OBSERVATIONS

Based on the data collected in the BTHU in 2016 and from 2000-2016:

- Catch and effort has been obtained through boat ramp surveys each year over a 10 year time span from 2007-2016 (except 2015).
- From boat ramp surveys the numbers of fish caught ranged from 572 (169 surveys) in 2011 to 3,316 (459 surveys) in 2013.
- Catch rates for fish caught and for Bream caught have trended upwards over time while the catch rate for kept fish has trended downwards.
- Catch rates in 2016 for fish caught and for Bream caught were the highest in the past 10 years (no data in 2015).
- Catch rates in 2016 declined over the 3 days of the competition.
- Yellowfin Bream comprised 35.5% of the catch followed by Goldspotted Rockcod at 14.9% and Barred Javelin at 7.9%.
- Fishers from Gladstone and surrounds from Boyne Island to Benaraby to Calliope to Yarwun accounted for 73.1% of trips and 63.0% of trips were to the Boyne River and South Trees Inlet.
- Live weigh-in of fish and tagging has occurred from 2000-2016.
- The average recapture rate from 2000-2016 was 5.0% and ranged from a low of 3.1% in 2004 to a high of 8.3% in 2001.
- For recaptures 77.2% were made within 6 months, 95.1% were recaptured were within 20km and 54.4% were within 2km.
- For fish tagged 26.4% of Yellowfin Bream were in the size range 260:279mm, 29.0% of Pikey Bream were 280:299mm and 26.7% of Dusky Flathead were 500:549mm.

SUMMARY OF BOAT RAMP SURVEYS

Table 1 is a summary of the data collected each year in the BTHU. The number of surveys ranged from 108 in 2008 to 459 in 2013. Fish caught ranged from 572 in 2011 to 3,316 in 2013.

Table 1: Summary of data from boat ramp surveys from 2007-2016

YEAR	2007	2008	2009	2010	2011
SURVEYS	211	108	182	215	169
FISHERS	567	304	484	605	404
HOURS FISHED	3114.8	1682.3	2577.5	2978.1	1937.5
FISH CAUGHT	1184	850	1153	990	572
FISH KEPT	358	261	232	189	67
BREAM CAUGHT	145	223	219	202	251
YEAR	2012	2013	2014	2015	2016
SURVEYS	342	459	439		316
FISHERS	856	1123	1084		806
HOURS FISHED	3758.3	5875.9	5679.0		4103.5
FISH CAUGHT	2436	3316	2973		2994
FISH KEPT	410	395	434		168
BREAM CAUGHT	831	1659	756		1235

CATCH RATES 2007-2016

To ensure that a valid comparison could be made between catch rates from year to year a standard fishing trip was determined based on the average fishing trip and catch rates were adjusted to the standard trip. The standard fish trip adopted was:

Standard fishing trip = 2.5 fishers X 5 fishing hours

Figure 2 shows the catch rates each year from 2007-2016. The lowest catch rate was 2.4 fish/std trip in 2010 to 5.3 fish/std trip in 2016. This shows an upward trend in the catch rate over the past 10 years with the highest catch rate in 2016.

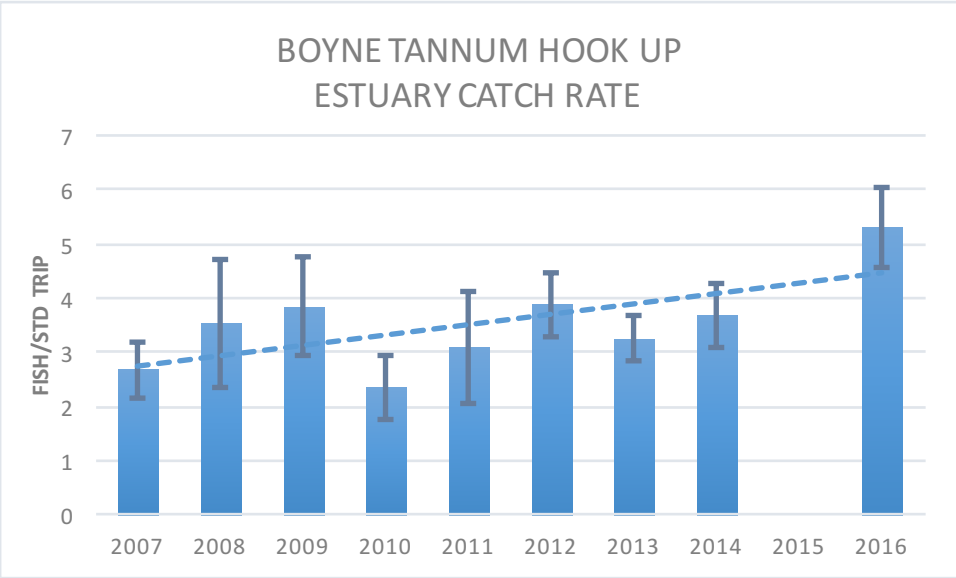

Figure 2: BTHU estuary catch rates from 2007-2016 (error bars 95% confidence)

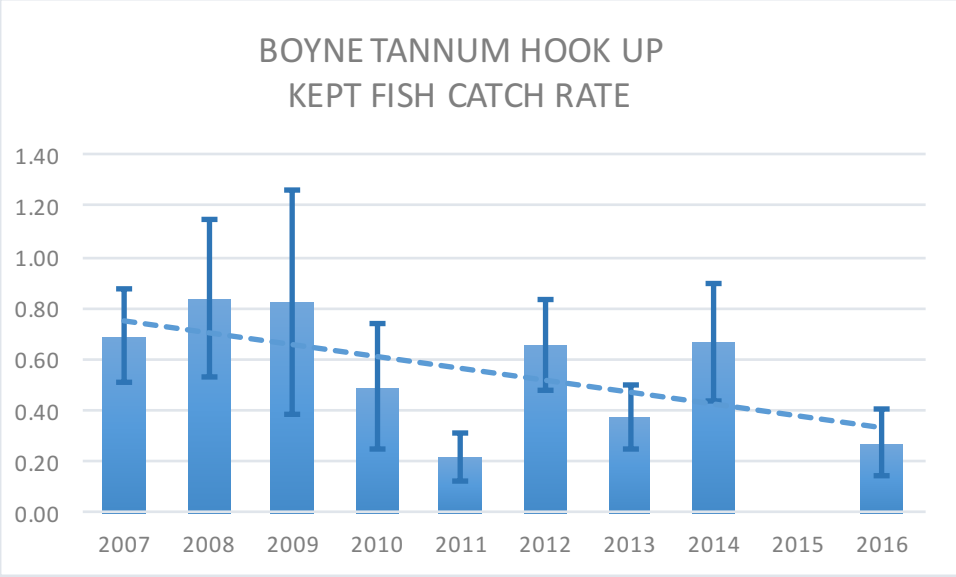

Figure 3: BTHU estuary catch rates for kept fish from 2007-2016 (error bars 95% confidence)

Figure 3 shows the catch rates for kept fish each year from 2007-2016. The lowest rate for kept fish was 0.2 fish/std trip in 2011 to a high of 0.8 fish/std trip in 2008. In 2016 the catch rate for kept fish was 0.3 fish/std trip. Overall 15.3% of fish caught in all BTHUs were kept.

It should be noted that 2011 was the height of the fish health issues in Gladstone and fishers were discouraged from keeping fish. There has been a steady decline in the catch rate of fish kept. This has been mainly due to the increased popularity of the live weigh-in over time. In 2016 it was reported that many fishers released fish that were over legal size.

With Bream now becoming the species monitored for the report card on the health of Gladstone Harbour the data for Bream were examined in more detail. *Figure 4* shows the catch rate for Bream (all species combined) from 2007-2016. Bream catch rates ranged from a low of 0.5 fish/std trip in 2007 to a high of 2.2 fish/std/trip in 2016. Overall 33.5% of fish caught in all BTHUs were Bream so the trend in the catch rate for Bream is similar to the overall catch rate.

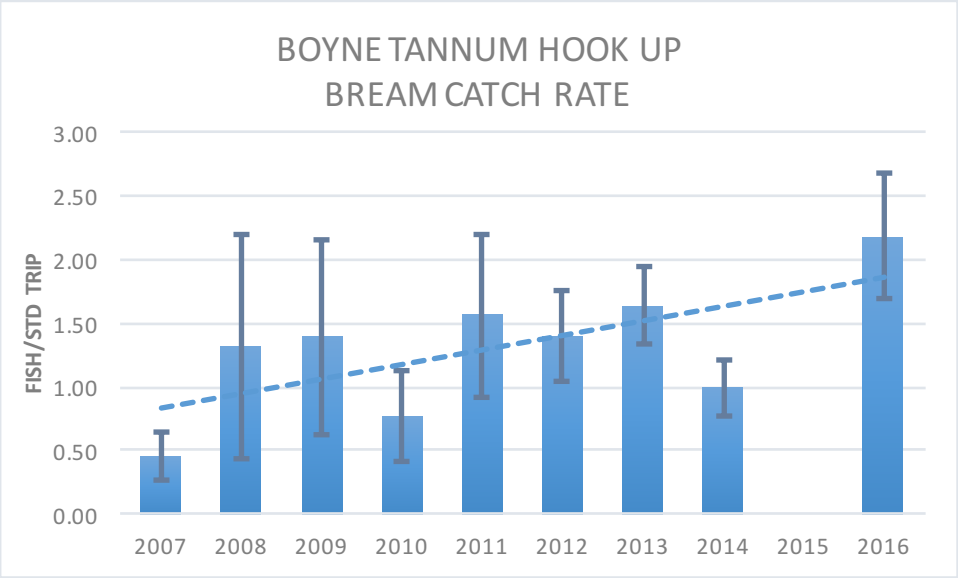

Figure 4: BTHU Bream catch rates from 2007-2016 (error bars 95% confidence)

CATCH RATES 2016

The 2016 BTHU was held from 29/4-1/5/2016. Catch rates for 2016 were assessed for each day of the competition to determine changes in catch rates over the event. *Figure 5* shows the daily catch rates for 2016. The highest catch rate was recorded on day 1 with 6.9 fish/std trip falling to 4.3 fish/std trip on day 3. This decline in catch rate is likely to be the result of continual fishing effort over the 3 days. The average catch rate was 5.3 fish/std trip.

The daily catch rates were also assessed for the key species Bream, Flathead and Whiting for each day. *Figure 6* show the daily catch rates for the key species. For Bream the daily catch rate ranged from a high of 3.3fish/std trip on day 1 to a low of 1.2 fish/std trip on day 3. Bream were caught on 69.4% of trips and were 41.2% of the catch.

For Flathead it ranged from a high of 0.6 fish/std trip on day 1 to a low of 0.4 fish/std trip on day 3. Flathead were caught on 32.0% of trips and were 7.6% of the catch. For Whiting it ranged from a high of 0.5 fish/std trip on day 1 to a low of 0.4 fish/std trip on day 3. Whiting were caught on 17.4% of trips and were 7.6% of the catch.

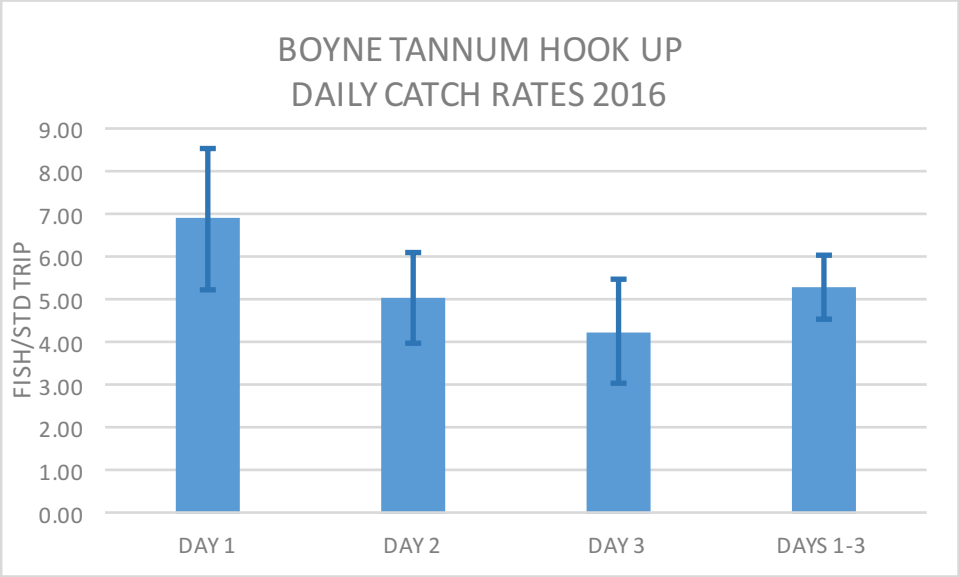

Figure 5: BTHU daily catch rates for 2016 (error bars 95% confidence)

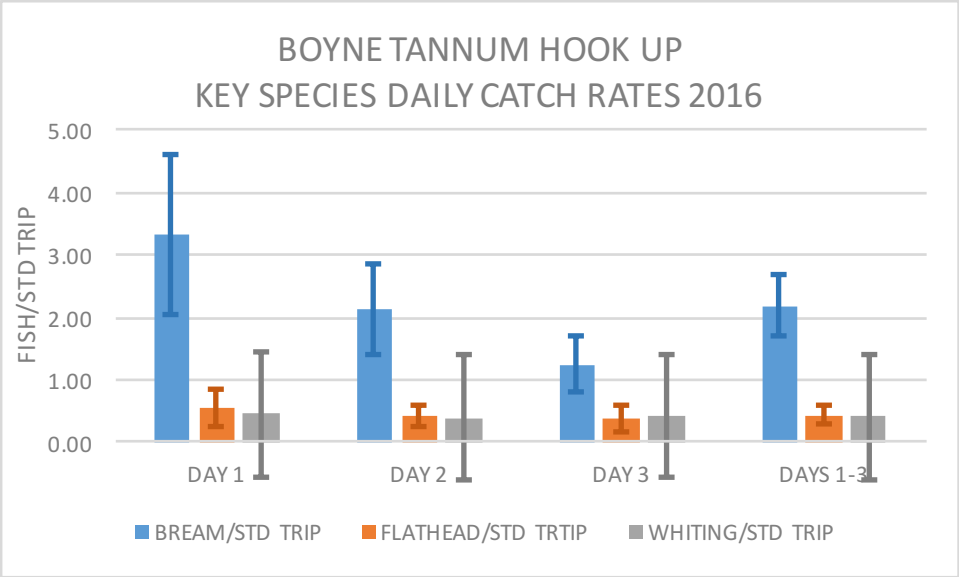

Figure 6: BTHU key species daily catch rates for 2016 (error bars 95% confidence)

As the headquarters for the BTHU are at Bray Park much of the fishing effort was concentrated in the Boyne River and South Trees Inlet, especially for those taking part in the live weigh-in as this meant a shorter time for keeping fish alive. This could result in a different catch rate compared with other locations.

Figure 7 shows the catch rates for the Boyne River and South Trees inlet (Sunt5ag map BRG) compared with other locations in 2016. The catch rate for the Boyne River and South Trees Inlet was 5.9 fish/std trip while for all other locations combined was 4.3 fish/std trip.

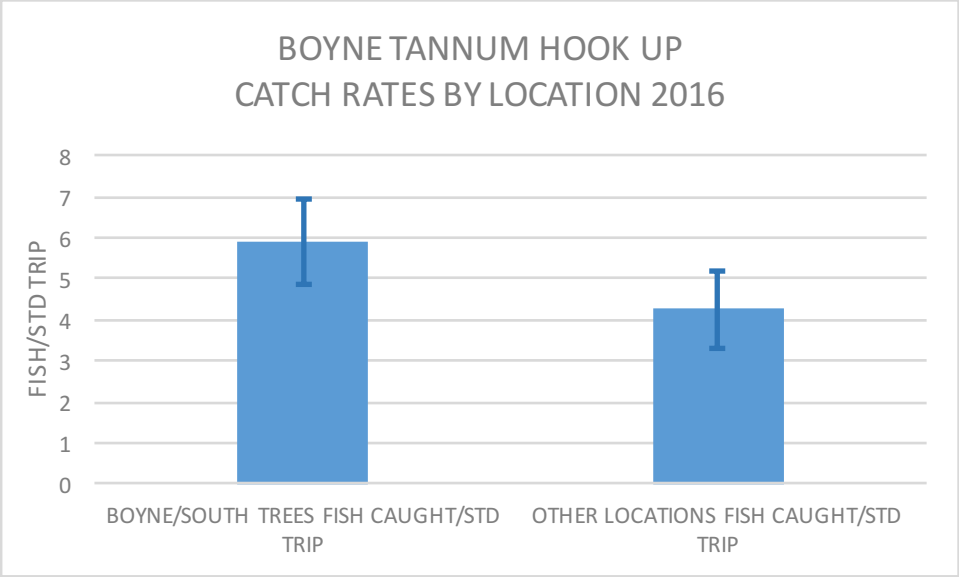

Figure 7: Catch rates by location in 2016 (error bars 95% confidence)

FISHING EFFORT 2016

There were 17 boat ramps from Ramsay Crossing at the Narrows in the north to Turkey Beach in the south that were primarily used during the BTHU. For each day the total number of fishing trips, both boat and landbased, were estimated. *Figure 8* shows the estimated number of estuary trips each day and overall. The estimated number of trips for the 3 days was 719.1 +/- 10%. The total number of surveys was 316 which was 43.9% of the estimated total number of trips.

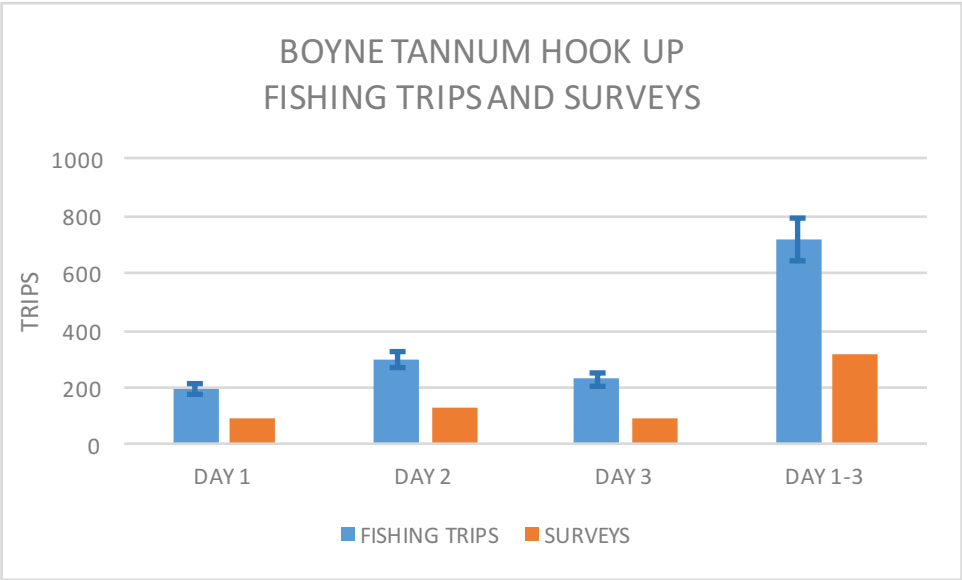

Figure 8: Estimated number of estuary trips in 2016 (error bars 10% of estimate)

SPECIES COMPOSITION 2016

From the boat ramp surveys there were a total of 59 species recorded. *Figure 9* shows the top 10 species caught with Yellowfin Bream comprising 35.5% of the catch followed by Goldspotted Rockcod at 14.9% and Barred Javelin at 7.9%.

Of the kept fish Sand Whiting were 27.4% of the kept catch followed by King Threadfin at 12.5% and Yellowfin Bream at 11.9%. For species the most kept were King Threadfin at 91.3% followed by Blue Threadfin at 60.7% and Black Jewfish at 55.6%. Just 1.9% of the Yellowfin Bream caught were kept.

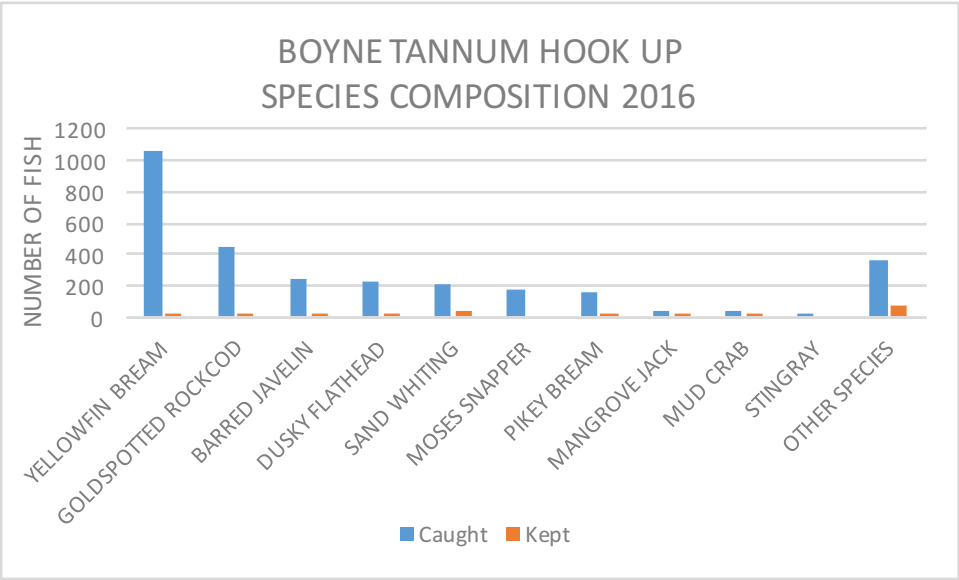

Figure 9: Top 10 species recorded in 2016 boat ramp surveys

LOCATIONS FISHED 2016

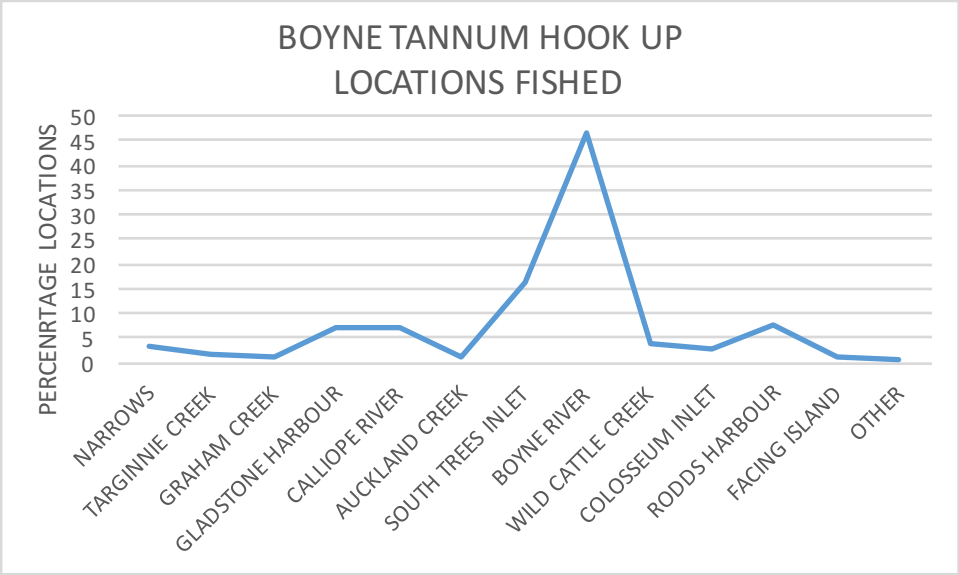

Figure 10: Locations where trips were recorded in 2016

Figure 10 shows the locations where fishers fished in 2016 ranging from the Narrows in the north to Rodds Harbour in the south. As the BTHU is centred around Bray Park 46.5% of trips were to the Boyne River and a further 16.5% were to South Trees Inlet.

HOME TOWN OF FISHERS 2016

For the 2016 trips the home town of the boat owner/skipper was recorded. *Figure 11* shows the breakdown of home towns of fishers. The highest number of trips were undertaken by those from Boyne Island/Tannum Sands with 37.7% of trips. For Gladstone and surrounds from Boyne Island to Benaraby to Calliope to Yarwun the percentage of trips was 73.1%. Fishers came from as far afield as Mount Isa in the north to Victoria in the south and Blackwater to the west.

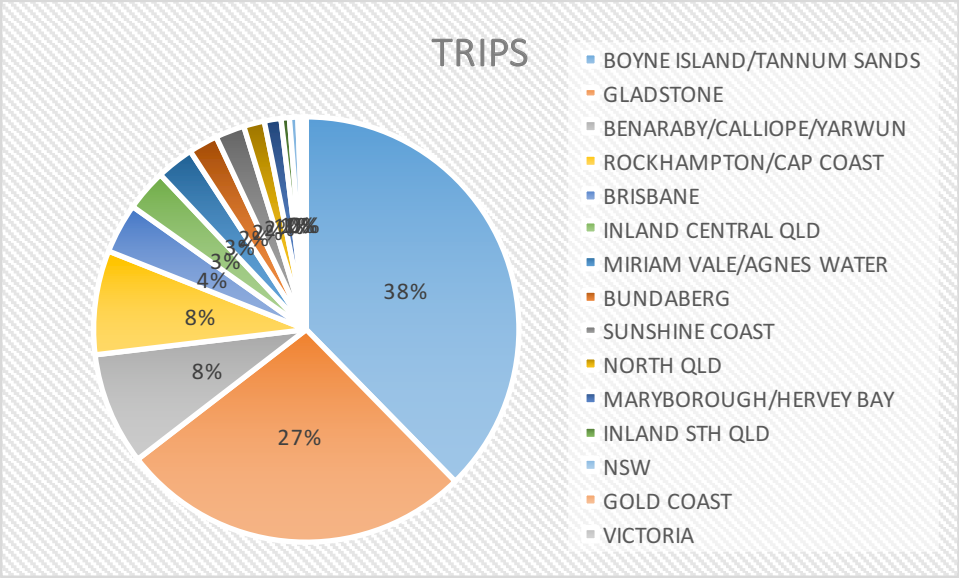

Figure 11: Home town of fishers fishing in 2016

FISH TAGGED AND RECAPTURED 2000-2016

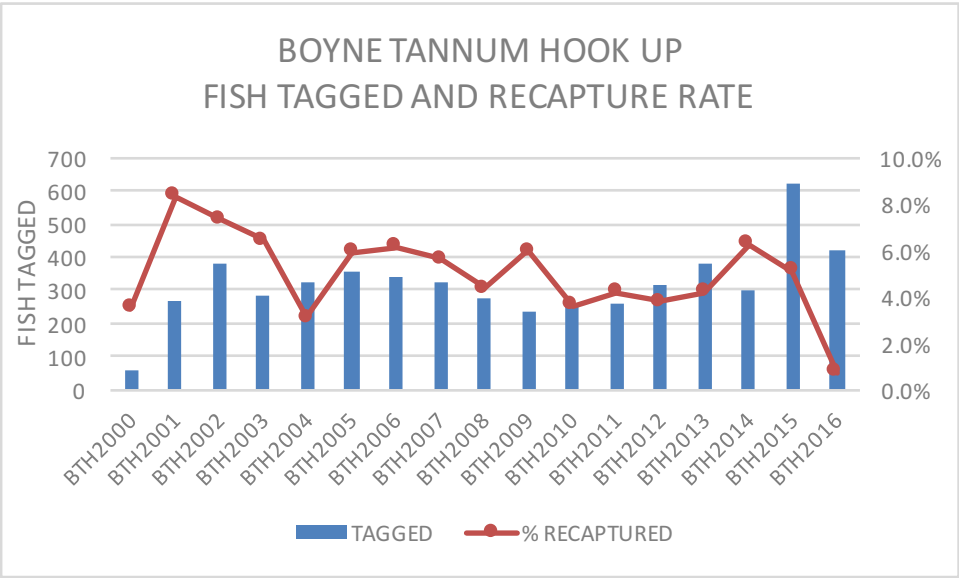

Figure 12: Fish tagged and recapture rates 2000-2016

Since 2000 there has been a live weigh-in section managed by the Gladstone Sportfishing Club. Numbers of fish tagged ranged from a low of 57 in 2000 to a high of 625 in 2015. *Figure 12* shows the number of fish tagged each year and the recapture rate for fish tagged in each year. The average recapture rate was 5.0% and ranged from a low of 3.1% in 2004 to a high of 8.3% in 2001. The recapture rates for the last few years will continue to increase as more recaptures are made.

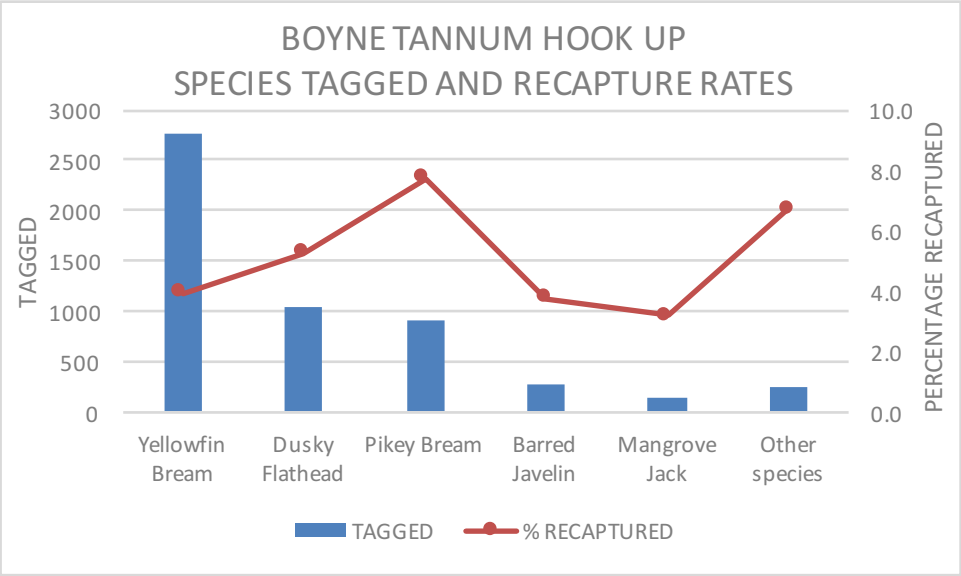

Figure 13: Species tagged and recapture rates 2000-2016

Figure 13 shows the number of fish tagged for each key species and the recapture rate. The most tagged species was Yellowfin Bream at 2,761 fish with a recapture rate of 3.9%. The highest recapture rate was for Pikey Bream at 7.7%.

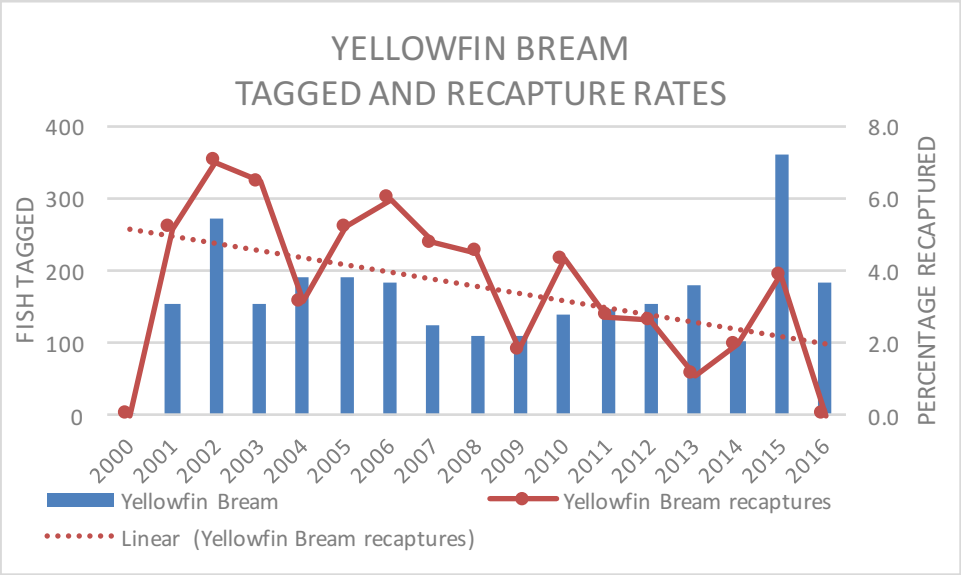

Figure 14: Yellowfin Bream tagged and recapture rates 2000-2016

Figure 14 shows the number of Yellowfin Bream tagged each year and the recapture rate. The most fish were tagged in 2015 at 361. The highest recapture rate was in 2002 at 7.0% while it was lowest in 2013 at 1.1%. has been a decline in the capture rate over time.

DISTANCE MOVED AND DAYS OUT

Since 2000 all tagged fish were released at the Bray Park boat ramp at Suntag map grid BRG M24. There were a total of 263 recaptures where there was sufficient data to determine distance moved. *Figure 15* shows the distance moved compared to days out. Of the recaptures 95.1% were recaptured within 20km of the release point while 54.4% were recaptured within 2km.

The greater distance moved was by a Dusky Flathead tagged in 2005. The fish was recaptured in the Elliott River south of Bundaberg 175km south of where released. It also covered that distance in 129 days so had to average travelling 1.4km/day.

Of the recaptures 77.2% were made in less than 6 months (183 days). The longest times out were 2 Rock Flathead that were out for 2 years (735 and 730 days).

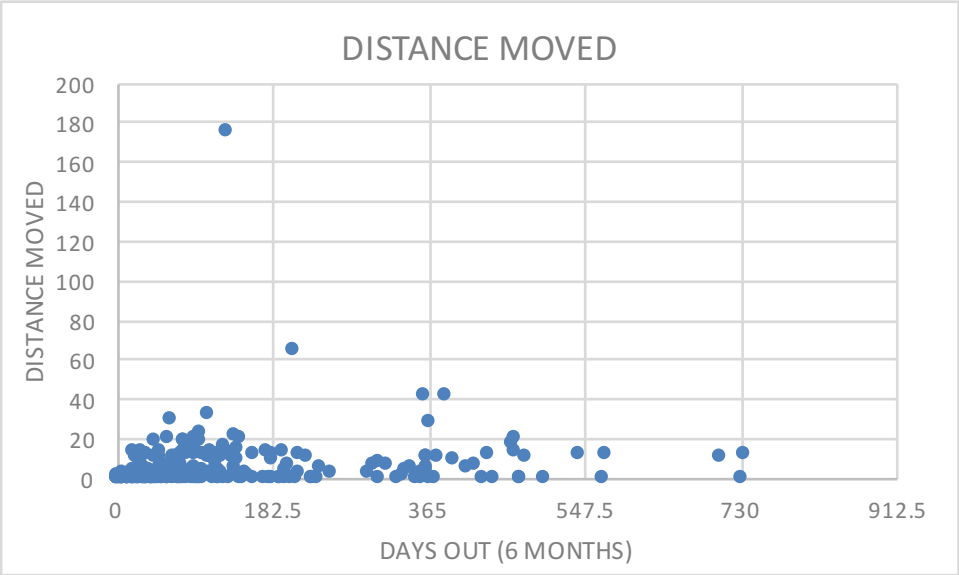

Figure 15: Distance moved compared with days out

BREAM SIZES FROM TAGGING 2016

Only legal size Bream were able to be live weighed and tagged. There were 182 Yellowfin Bream and 62 Pikey Bream that were tagged and measured. *Figure 16* shows the percentage of fish in each 20mm size range (total length) from 240:259 – 380:399mm.

For Yellowfin Bream the greatest percentage (26.4%) of fish were in the size range 260:279mm while for Pikey Bream the greatest percentage (29.0%) of fish were in the size range 280:299mm. The longest Yellowfin Bream was 390mm while the longest Pikey Bream tagged was 371mm.

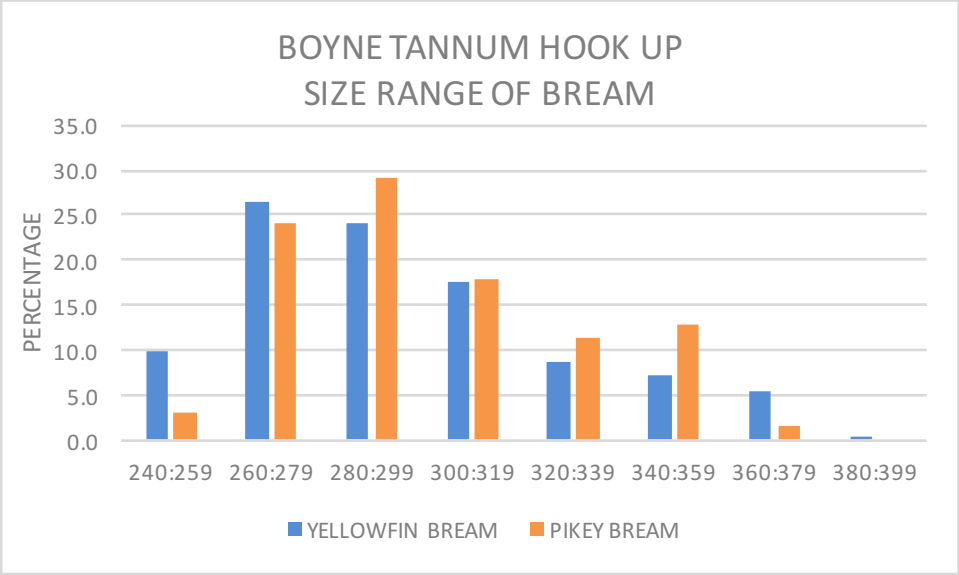

Figure 16: Size range of Bream in the BTHU 2016

DUSKY FLATHEAD SIZES FROM TAGGING 2016

Only legal Dusky Flathead were able to be live weighed and tagged. There were 101 fish that were tagged and measured. *Figure 17* shows the percentage of fish in each 50mm size range (total length) from 400:449 – 750:799mm.

For Dusky Flathead the greatest percentage (26.7%) of fish were in the size range 500:549mm and the largest fish was 750mm which was the maximum legal size.

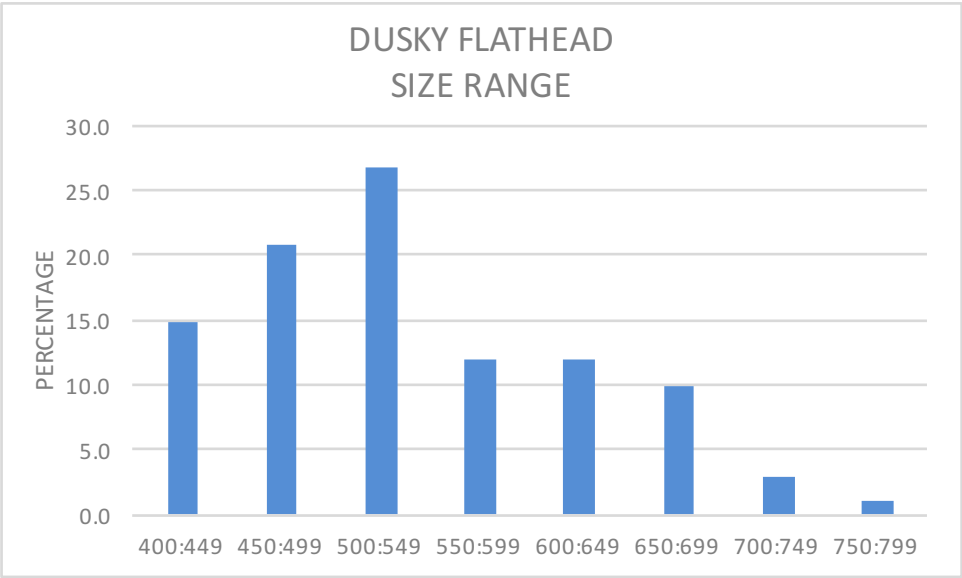

Figure 17: Size range of Dusky Flathead in the BTHU 2016

DISCUSSION

As there is no longer any regular monitoring of recreational fishing in the Gladstone area the BTHU provides an important annual snapshot of the recreational fishery in the Gladstone area. The catch and effort data over the past 10 years allows an assessment of trends in catch rates. Catch rates for fish caught and for Bream caught are both trending upwards over that time while the catch rate for fish kept has trended downwards. This suggests that fishers in the BTHU are keeping fewer fish.

This may be a reflection of fewer legal fish but based on conversations with fishers during boat ramp surveys it suggests that more fishers are releasing legal sized fish. This is supported by having 244 legal Bream brought to the live weigh-in while just 1.9% (231 of 1,235) of Bream caught were kept.

There has been an increase in the numbers of fish brought to the live weigh-in and tagged in the past 2 years, with a large increase in Yellowfin Bream in 2015. Along with the downward trend in fish kept it suggests a shift in fisher behavior in the BTHU away from keeping fish to live weigh-in.

Most of the fishers that undertook estuary fishing trips were from Boyne Island and Tannum Sands with 37.7% of trips and from Gladstone and surrounds was 73.1%. The Boyne River and South Trees Inlet were the most fished locations at 58.0%. This suggests that most fishers were local and concentrated their efforts on the local waterways in close proximity to the Bray Park headquarters.