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 is the third under the new committee with Jenni Maguire and her team and 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. 2015 was the only year that catch and effort data were not able to be collected.

Cover Photos:
Top – Collecting fishing trip details at the live weigh-in station
Bottom – tagged Mangrove Jack and Barred Javelin in the Gladstone Sportfishing Club display tank prior to release

Photos below are scenes from the 2017 BTHU at Bray Park.
BOYNE TANNUM HOOKUP 2008-2017

REPORT

This report has been prepared by Infofish Australia for the Boyne Tannum HookUp Committee – June 2017.

SCOPE

This report examines the data collected during the 2017 HookUp and data collected over the past decade from 2008-2017:

+ Estuary catch rates in 2017 and change in catch rates from 2008-2017
+ Species composition of the catch
+ Home town of fishers
+ Tagged fish and recapture rates
+ Dispersal of tagged fish released from the live weigh-in
+ Size composition of fish weighed and tagged at the live weigh-in

DATA SOURCES

Data collected at the Boyne Tannum Hook Up:

+ Catch and effort boat ramp surveys for fishing trips by Infofish Australia from 2008-2017
+ Tagging data from live weigh-in by Gladstone Sportfishing Club from 2008-2017
+ Data are stored in the Infofish Australia database at http://qld.info-fish.net.

BACKGROUND

The Boyne Tannum HookUp celebrated its 22nd birthday in 2017. 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 2016-2017 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:

- Number of trailers at boat ramps
- 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 and through the live weigh-in

Data from boat ramp surveys were analysis to determine the catch rate for estuary trips each year. Catch details were collected as fish caught/trip time and fish kept/trip time for each year’s event. Catch rates were then calculated based on a standard fishing trip so that a comparison could be made between catch and effort for each year.

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

For 2016-2017 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 2017 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 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 could 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 2017*
SOME OBSERVATIONS

Based on the data collected in the BTHU in 2017 (28-30/4/2017) and from 2008-2017:

- There were details of 296 trips (272 estuary and 24 offshore trips) collected through boat ramp surveys and at the live-weigh-in station in 2017
- Analysis was limited to estuary trips as offshore trips were severely limited by weather conditions and there were insufficient trips to provide reliable estimates
- Catch rates for fish caught and for Bream caught have trended upwards over time while the catch rate for kept fish has trended downwards
- For the past 10 years, the overall catch rate ranged from a low of 5.1 fish/std trip in 2010 to a high of 10.4 fish/std trip in 2016 (9.7 fish/std trip in 2017)
- Catch rates in 2016 and 2017 declined over the 3 days of the competition
- Yellowfin Bream comprised 38.3% of the catch followed by Sand Whiting at 13.4% and Barred Javelin at 9.7%
- Fishers from Gladstone and surrounds from Boyne Island to Mount Larcom accounted for 69.6% of trips and 60.1% of trips were to the Boyne River and South Trees Inlet
- Live weigh-in of fish and tagging has occurred from 2000-2017
- The average recapture rate from 2008-2017 was 5.0% and ranged from a low of 3.6% in 2010 to a high of 6.3% in 2014
- For recaptures 76.7% were made within 6 months, 97.9% were recaptured were within 20km and 57.9% were within 2km
- For fish tagged 25.9% of Yellowfin Bream were in the size range 280:299mm, 31.0% of Pikey Bream were 260:279mm and 34.0% of Dusky Flathead were 450:499mm

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.

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ESTUARY CATCH RATES 2008-2017

To ensure 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 fish/standard trip. The standard fish trip adopted was:

Standard fishing trip = 2.5 fishers X 5 fishing hours = 12.5 fishing hours

Figure 2 shows the catch rates each year from 2008-2017. The lowest catch rate was 5.1 fish/std trip in 2010 to 10.4 fish/std trip in 2016. This shows an overall upward trend in the catch rate over the past 10 years with the highest catch rate in 2016. The catch rate in 2017 was 9.7 fish/std trip.

Figure 2: BTHU estuary catch rates from 2008-2017 (bars 95% confidence)

Figure 3: BTHU estuary catch rates for kept fish from 2008-2017 (bars 95% confidence)
Figure 3 shows the catch rates for kept fish each year from 2008-2017. The lowest rate for kept fish was 0.4 fish/std trip in 2011 to a high of 1.8 fish/std trip in 2008. In 2017 the catch rate for kept fish was 0.8 fish/std trip. Overall 14.1% of fish caught in all BTHUs were kept while in 2017 there were 8.9% 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 2017 it was reported that many fishers released fish that were over legal size.

With Bream now being 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 2008-2017. Bream catch rates ranged from a low of 1.6 fish/std trip in 2010 to a high of 4.1 fish/std trip in 2016 and 2017. Overall 35.1% of fish caught in all BTHUs were Bream while in 2017 they were 44.1% of the catch.

![BOYNE TANNUM HOOKUP BREAM CATCH RATE](image)

**Figure 4: BTHU Bream catch rates from 2008-2017 (bars 95% confidence)**

**CATCH RATES 2017**

Catch rates for 2017 were assessed for each day to determine changes in catch rates over the event. Figure 5 shows the daily catch rates for 2017. The highest catch rate was recorded on day 1 with 11.1 fish/std trip and 9.1 fish/std trip on day 2. Day 3 focused on collecting data from offshore trips resulting in a limited number of estuary trips. The average catch rate over 3 days was 9.7 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 was 4.5 fish/std trip on day 1 and 4.1 fish/std fish on day 2. Bream were caught on 73.9% of trips and were 44.1% of the catch.

For Flathead the daily catch rate was 0.8 fish/std trip on day 1 and 0.4 on day 2. Flathead were caught on 17.3% of trips and were 9.3% of the catch. For Whiting the daily catch rate was 1.5 fish/std trip on day 1 and 1.1 fish/std trip on day 2. Whiting were caught on 18.0% of trips and were 13.2% of the catch.
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 for the live weigh-in. 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 (Suntag map BRG) compared with other locations in 2017. The catch rate for the Boyne River and South Trees Inlet was 9.9 fish/std trip while for all other locations combined was 10.4 fish/std trip. This suggests there was little difference in the overall estuary catch rate.
FISHING EFFORT 2017

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 926.4 +/- 20%. The total number of surveys was 296 which was 32.0% of the estimated total number of trips.
SPECIES COMPOSITION 2017

From the boat ramp surveys, there were a total of 44 species recorded in estuary trips. Figure 9 shows the top 10 species caught with Yellowfin Bream comprising 38.3% of the catch followed by Sand Whiting at 13.4% and Barred Javelin at 9.7%.

Of the Yellowfin Bream caught 6.7% were kept, 26.1% of Sand Whiting caught were kept and 5.6% of Barred Javelin were kept. For other species 43.2% of Blue Threadfin caught were kept.

![Figure 9: Top 10 species recorded in 2017 boat ramp surveys](image)

LOCATIONS FISHED 2017

![Figure 10: Locations where trips were recorded in 2017](image)
Figure 10 shows the locations where fishers fished in 2017 ranging from the Narrows in the north to Rodds Harbour in the south. As the BTHU is centred around Bray Park 43.9% of trips were to the Boyne River and a further 16.2% were to South Trees Inlet.

HOME TOWN OF FISHERS 2017

For the 2017 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 40.9% of trips. For Gladstone and surrounds from Boyne Island to Benaraby to Calliope to Mount Larcom the percentage of trips was 69.6%. Fishers came from as far afield as Townsville in the north to NSW in the south and Dysart to the west.

Figure 11: Home town of fishers fishing in 2017

FISH TAGGED AND RECAPTURED 2008-2017

Figure 12: Fish tagged and recapture rates 2008-2017
Since 2000 there has been a live weigh-in section managed by the Gladstone Sportfishing Club. From 2008-2017 the number of fish tagged ranged from a low of 235 in 2009 to a high of 672 in 2017. Figure 12 shows the number of fish tagged each year and the recapture rate for fish tagged in each year. The average recapture rate to 2016 was 5.0% and ranged from a low of 3.6% in 2010 to a high of 6.3% in 2014. The recapture rates for the last few years will continue to increase as more recaptures are made.

Figure 12: Number of fish tagged each year and the recapture rate for fish tagged in each year

Figure 13: Species tagged and recapture rates 2008-2017

Figure 13 shows the number of fish tagged from 2008-2017 for each key species and the recapture rate. The most tagged species was Yellowfin Bream at 1,937 fish with a recapture rate of 2.6%. The highest recapture rate was for Pikey Bream at 7.3%. These rates will change as more fish are recaptured from recent year’s fish.

Figure 14: Yellowfin Bream tagged and recapture rates 2008-2017
Figure 14 shows the number of Yellowfin Bream tagged each year and the recapture rate. The most fish were tagged in 2017 at 452. The highest recapture rate was in 2016 at 4.9% while it was lowest in 2013 at 1.1%. Rates from tagging in recent years will continue to rise.

DISTANCE MOVED AND DAYS OUT

Since 2000 all tagged fish were released at the Bray Park boat ramp at Suntag map grid BRG M24. Since 2008 there were a total of 157 recaptures where there was sufficient data to determine distance moved. Figure 15 shows the distance moved compared to days out. Of the recaptures 97.9% were recaptured within 20km of the release point while 57.9% were recaptured within 2km.

The greater distance moved was by a Pikey Bream tagged in 2015. The fish moved 32km in 109 days and was recaptured in the Calliope River. A Barred Javelin tagged in 2017 was recaptured in the Calliope River 13 days later having moved 23km.

Of the recaptures 76.7% were made in less than 6 months (183 days). The longest time out was a Golden Snapper tagged in 2013 and recaptured 571 days later (1.6 years) in Gladstone Harbour.

![Figure 15: Distance moved compared with days out](image)

BREAM SIZES FROM TAGGING 2017

Only legal size Bream could be live weighed and tagged. There were 452 Yellowfin Bream and 87 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 (25.9%) of fish were in the size range 280:299mm while for Pikey Bream the greatest percentage (31.0%) of fish were in the size range 260:279mm. The longest Yellowfin Bream was 390mm while the longest Pikey Bream tagged was 360mm.
**DUSKY FLATHEAD SIZES FROM TAGGING 2017**

Only legal Dusky Flathead were able to be live weighed and tagged. There were 50 fish that were tagged and measured. *Figure 17* shows the percentage of fish in each 50mm size range (total length) from 400:449 – 700:749mm.

For Dusky Flathead the greatest percentage (34.0%) of fish were in the size range 450:499mm and the largest fish was 730mm and was below the maximum legal size.
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 539 legal Bream brought to the live weigh-in this year while just 5.8% (58 of 999) of Bream caught were kept from the trip surveys.

There has been an increase in the numbers of fish brought to the live weigh-in and tagged in the past 3 years, with a large increase in Yellowfin Bream in 2015 and 2017. 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 40.9% of trips and from Gladstone and surrounds was 69.6%. The Boyne River and South Trees Inlet were the most fished locations at 60.1%. This suggests that most fishers were local and concentrated their efforts on the local waterways in close proximity to the Bray Park headquarters.