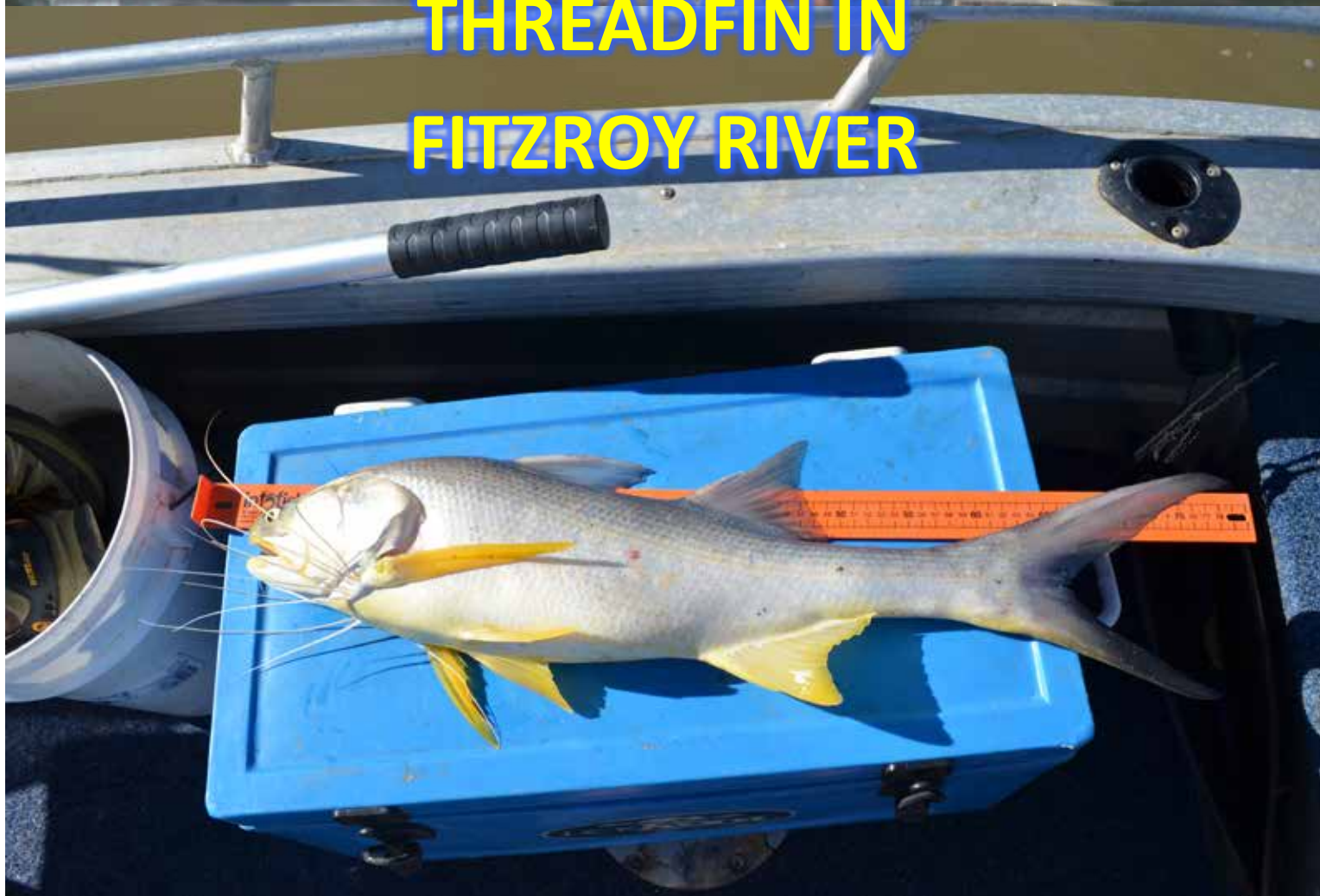




# KING AND BLUE THREADFIN IN FITZROY RIVER



## KING AND BLUE THREADFIN IN THE FITZROY RIVER

### REPORT

This report has been prepared by Infofish Australia for Captag.  
January 2014

### SCOPE

This report examines data available for King and Blue Threadfin in the Fitzroy River area:

- ✦ Tagging and recaptures of King and Blue Threadfin 1985-2013
- ✦ Commercial catch data of King and Blue Threadfin 1990-2013

### DATA SOURCE

King and Blue Threadfin tagging and recapture records from 1985-2013 maintained in the Suntag database at <http://qld.info-fish/Infofish>. Access to the database is limited to authorised users. Commercial catch data obtained from <http://qfish.daff.qld.gov.au>.

### AREA MONITORED

Locations in the Fitzroy area where fish were tagging and recaptured are shown using grids on Suntag grid maps as shown in *figure 1*:

- ✦ Fitzroy River FRR
- ✦ Curtis Island CIS
- ✦ Raglan Creek RAG

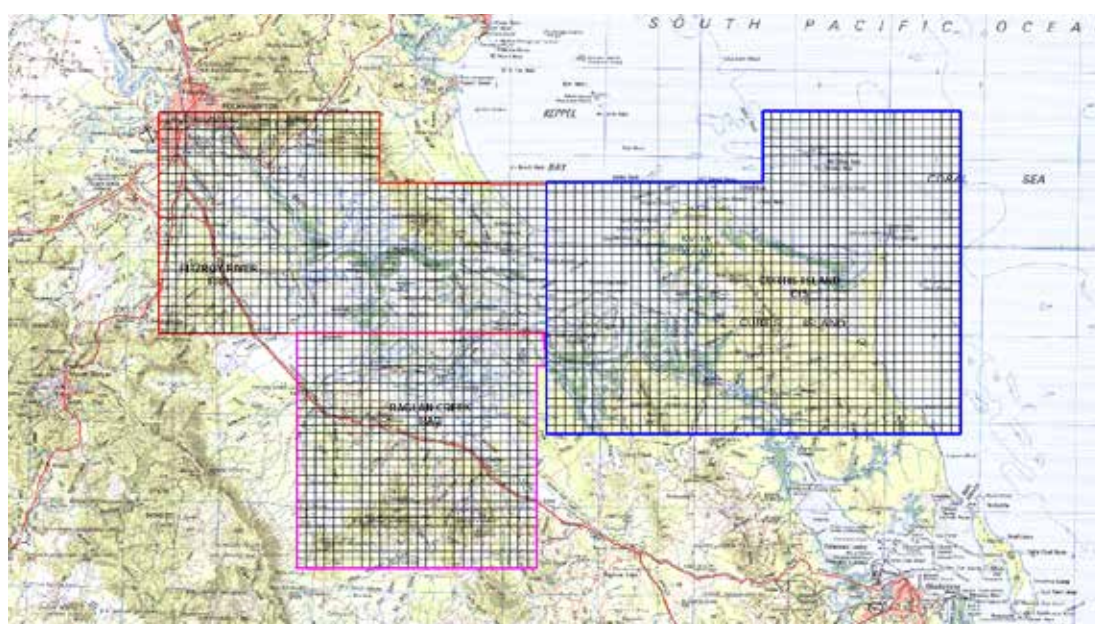


Figure 1: Suntag grid maps covering Fitzroy River and delta



## LIFE HISTORY OF THREADFINS

Some information on the life history and stock structure from “Defining the stock structure of Northern Australia’s Threadfin Salmon Species” by DJ Welch et al. The data here relates to the Fitzroy River stocks.

- ✦ Both species change sex maturing as males and then changing to females. Blue Threadfin change from male to female at ~450-550mm at age 2-3 years while King threadfin change from male to female at ~1200-1500mm at 8-11 years.
- ✦ Blue Threadfin live to around 6 years while King Threadfin live to around 22 years.
- ✦ Blue Threadfin reach the minimum legal length of 400mm at age 2-3 years while King Threadfin reach the minimum length of 600mm at 3-4 years.

## SOME OBSERVATIONS

Based on the data collected in the Fitzroy area the following observations are made:

- ✦ Blue Threadfin aggregate and spawn around the Fitzroy mouth in Sep-Oct while King Threadfin spawn in the same area from Oct-Dec.
- ✦ Blue Threadfin show a greater level of mobility with fish ranging from Corio Bay in the north to the Kolan River in the south while King Threadfin mostly range within the Fitzroy area.
- ✦ It is likely that Blue Threadfin from the river, Corio Bay and Gladstone aggregate at the Fitzroy River mouth to take part in spawning in Sep-Oct, with no data available on other possible spawning locations.
- ✦ King Threadfin recruitment is strongly correlated to river flows and follows a similar pattern to Barramundi, however King Threadfin recruits remain in the estuary areas while Barramundi recruit to wetlands and freshwater.
- ✦ Blue Threadfin recruitment is not strongly correlated with river flow, possibly as they spawn earlier in Sep-Oct.
- ✦ There appears to be a reasonable correlation between the commercial catch and the number of tags in the area each year although there is a lag of 1 year for Blue Threadfin and 1-2 years lag for King Threadfin.
- ✦ The commercial catch and catch rate for both Blue and King Threadfin have trended upwards from 1990-2013.
- ✦ King Threadfin stocks currently appear to be higher than at any time since 1990 with Blue Threadfin stocks at a high point in what may be a more cyclic pattern.

## KING THREADFIN

### Fish tagged and recaptured

From 1985-2013 there were 2,778 King Threadfin tagged in the Fitzroy area with 181 (6.5%) recaptures. There were 6 fish recaptured twice and 1 recaptured 3 times. *Figure 2* shows the numbers tagged and recaptured each year from 1990-2013. *Figure 3* shows the size of fish recorded on a timeline from 1988-2013 and river flows in the Fitzroy River. This shows recruitment of fish after years of significant river flows and the growth of those fish over time.

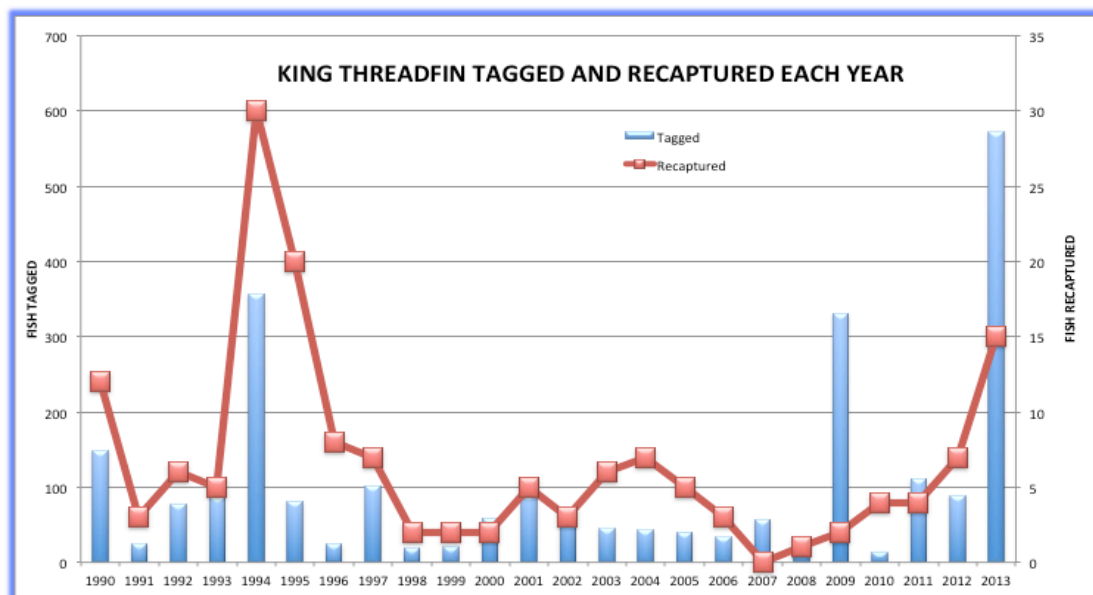


Figure 2: Number of King Threadfin tagged and recaptured each year 1990-2013

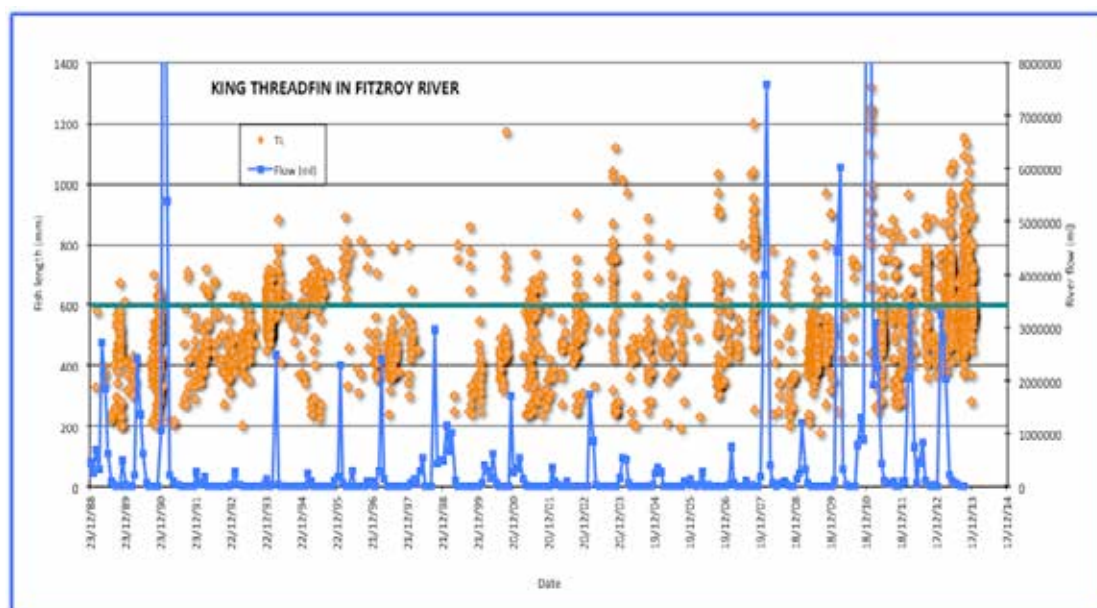


Figure 3: Timeline of King Threadfin sizes from 1988-2013

## Commercial catch

Figure 4 shows the commercial catch and catch rate for King Threadfin from 1990-2013 (data for 2013 incomplete). Catches ranged from a low of 12.28t in 2001 to a high of 64.43t in 2011. Figure 5 shows the commercial catch compared with the estimated number of tagged fish in the river each year. As most of the King Threadfin tagged are below legal size there is a 1-2 year lag before they can be taken commercially.

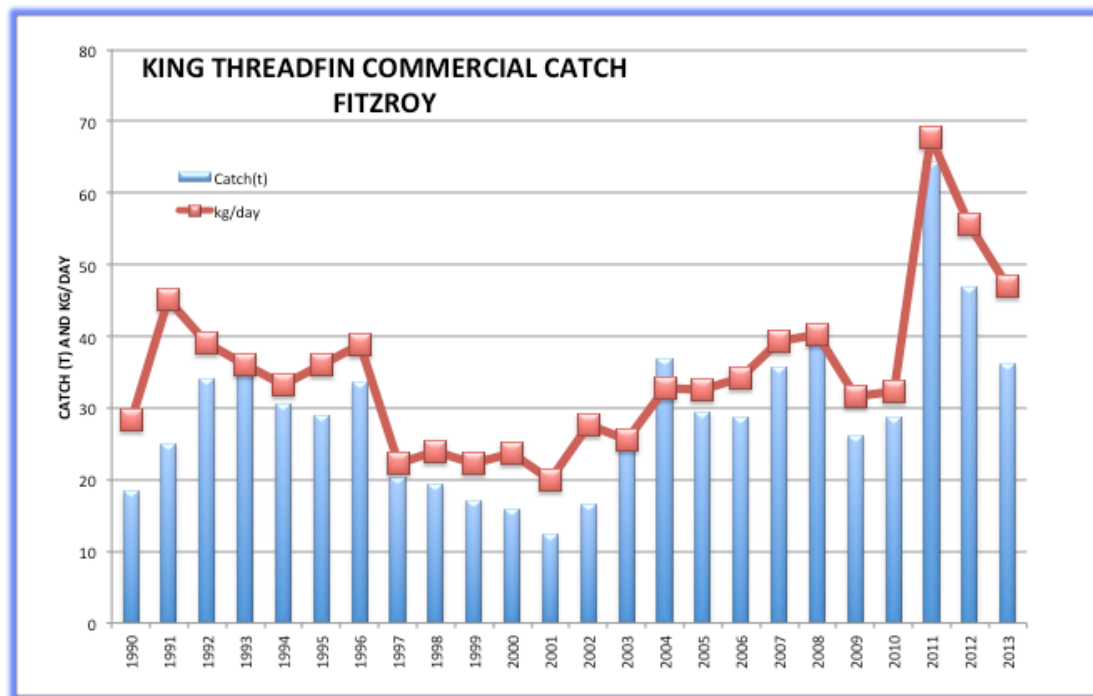


Figure 4: Commercial catch and catch rate 1990-2013 (data for 2013 incomplete)

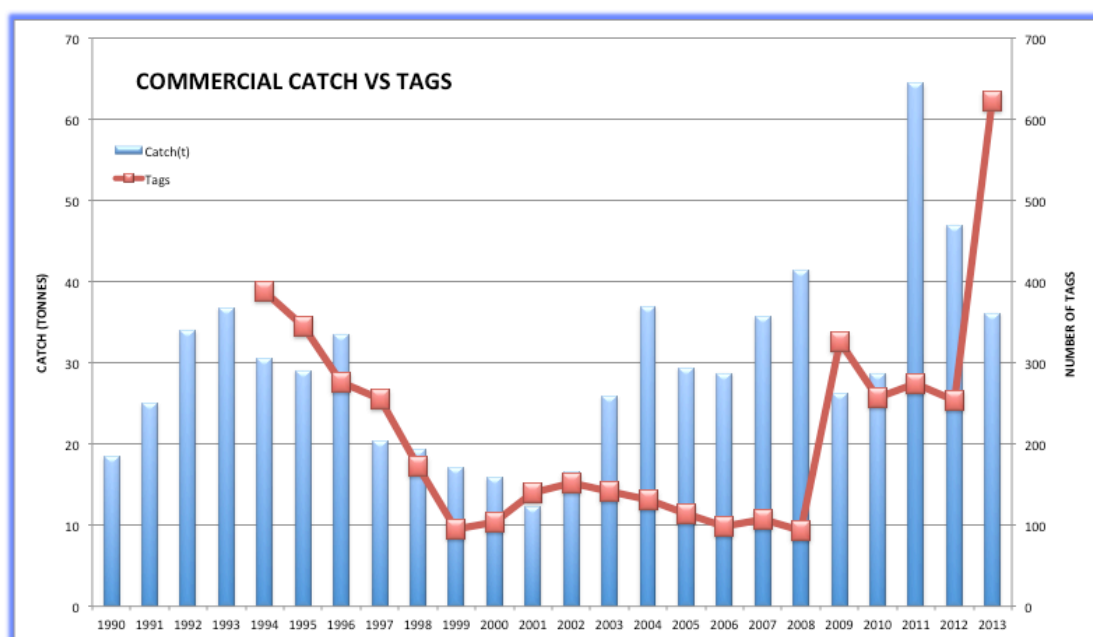


Figure 5: Commercial catch compared with tags in river 1990-2013

## Growth and Movement

There were 89 recaptures where the fish were out for 90 days or more and had positive growth. *Figure 6* shows the growth of fish over time.

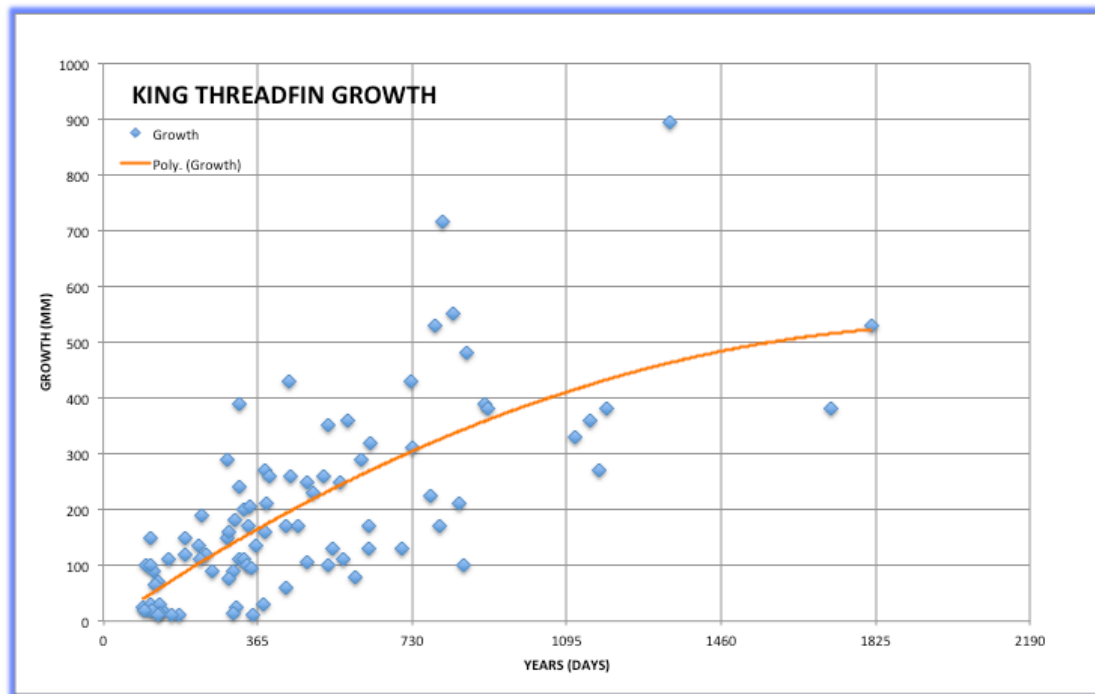


Figure 6: Growth of King Threadfin over time

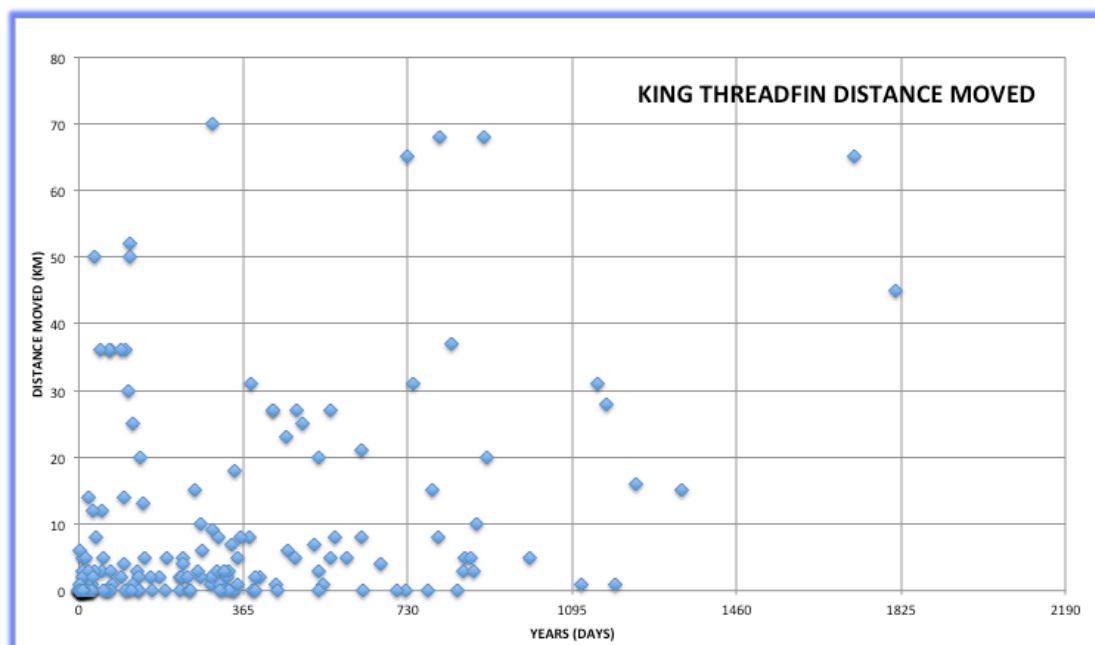


Figure 7: Movement of King Threadfin

There were 179 recaptures where the movement of fish was calculated. *Figure 7* shows distance moved compared with the days between tagging and recapture. Movement of 177 fish (98.9%) fish was within the river and delta area. One fish was recaptured to the north at

### Locations where King Threadfin tagged

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## BLUE THREADFIN

### Fish tagged and recaptured

From 1985-2013 there were 1,363 Blue Threadfin tagged in the Fitzroy area with 58 (4.3%) recaptures. There was 1 fish recaptured twice. *Figure 10* shows the numbers tagged and recaptured each year from 1990-2013. *Figure 11* shows the size of fish recorded on a timeline from 1988-2013 and river flows in the Fitzroy River. There does not appear to be a strong correlation between recruitment and river flows.

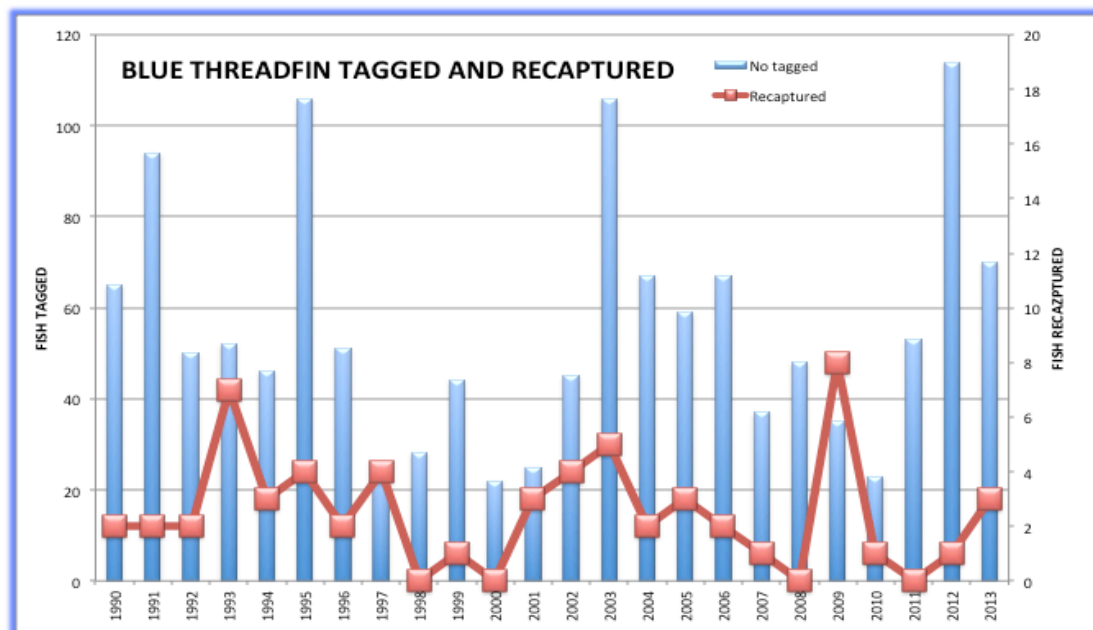


Figure 10: Number of Blue Threadfin tagged and recaptured each year 1990-2013

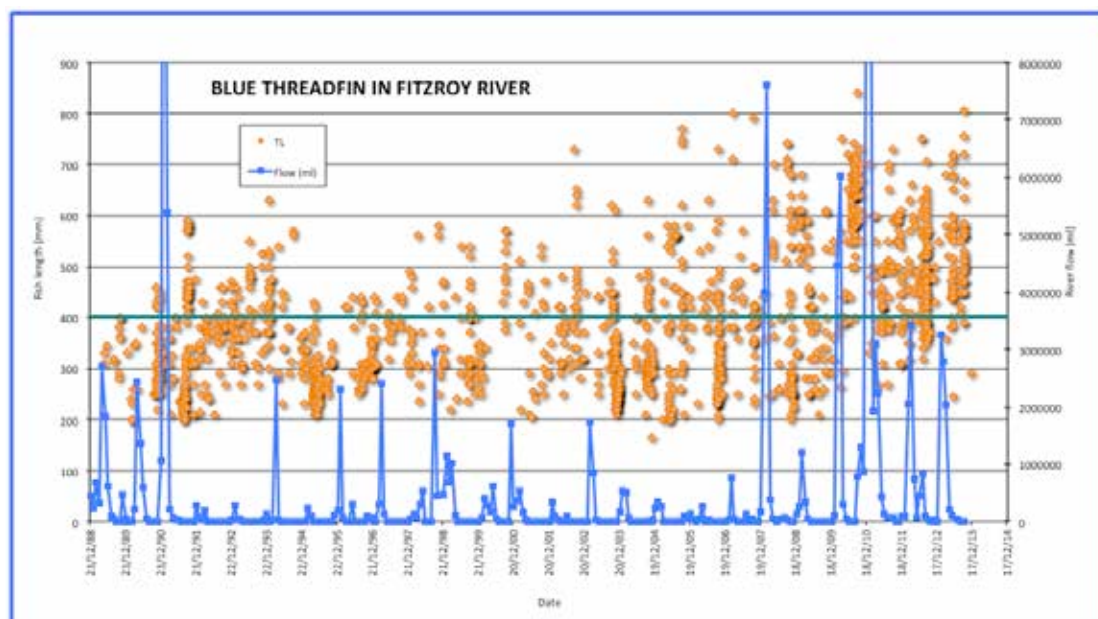


Figure 11: Timeline of Blue Threadfin sizes from 1988-2013



## Commercial catch

Figure 12 shows the commercial catch and catch rate for Blue Threadfin from 1990-2013 (data for 2013 incomplete). Catches ranged from a low of 6.36t in 1990 to a high of 40.66t in 2006. Figure 5 shows the commercial catch compared with the estimated number of tagged fish in the river each year. Most Blue Threadfin tagged are below or near legal size so there is a 1 year lag before they can be taken commercially.

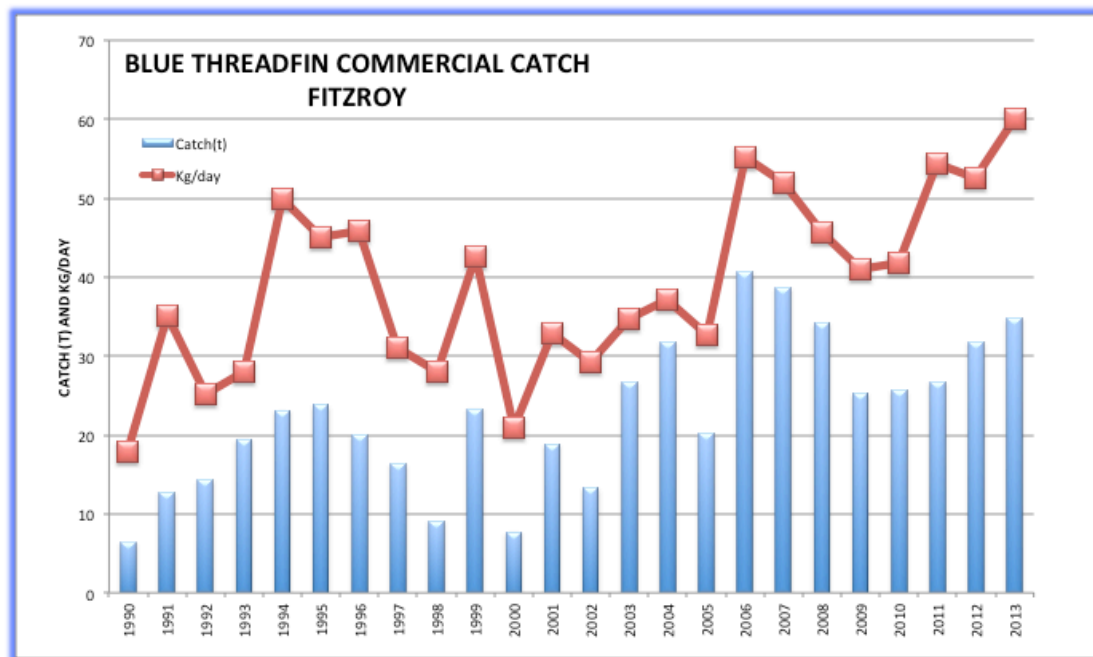


Figure 12: Commercial catch and catch rate 1990-2013 (data for 2013 incomplete)

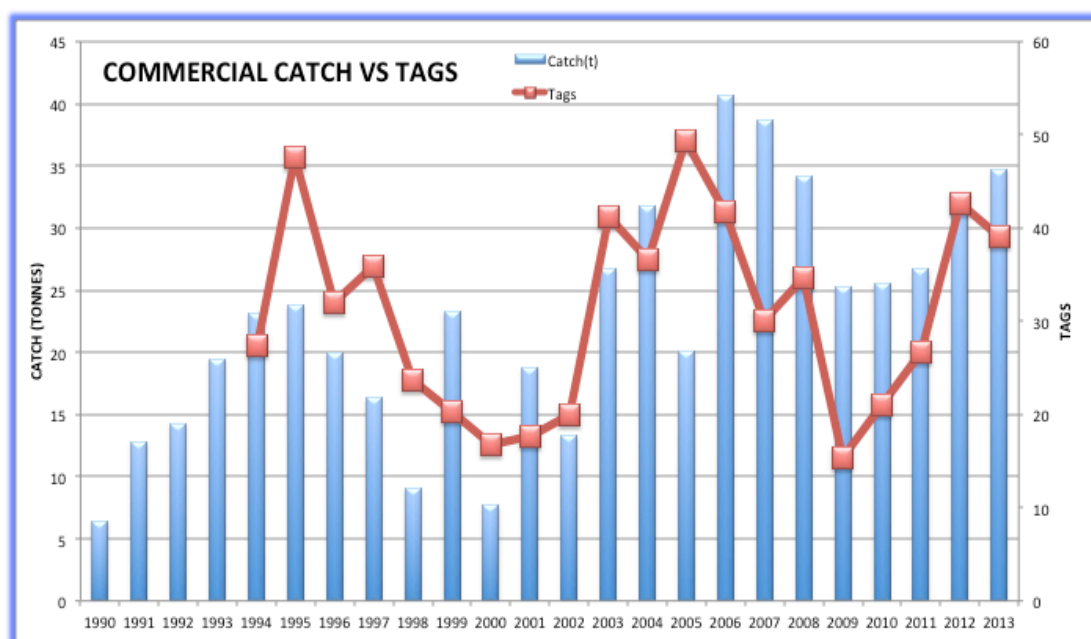


Figure 13: Commercial catch compared with tags in river 1990-2013

## Growth and Movement

There were 17 recaptures where the fish were out for 90 days or more and had positive growth. The average annual growth rate based on those recaptures was 167mm/year.

There were 56 recaptures where the movement of fish was calculated. *Figure 14* shows distance moved compared with the days between tagging and recapture.

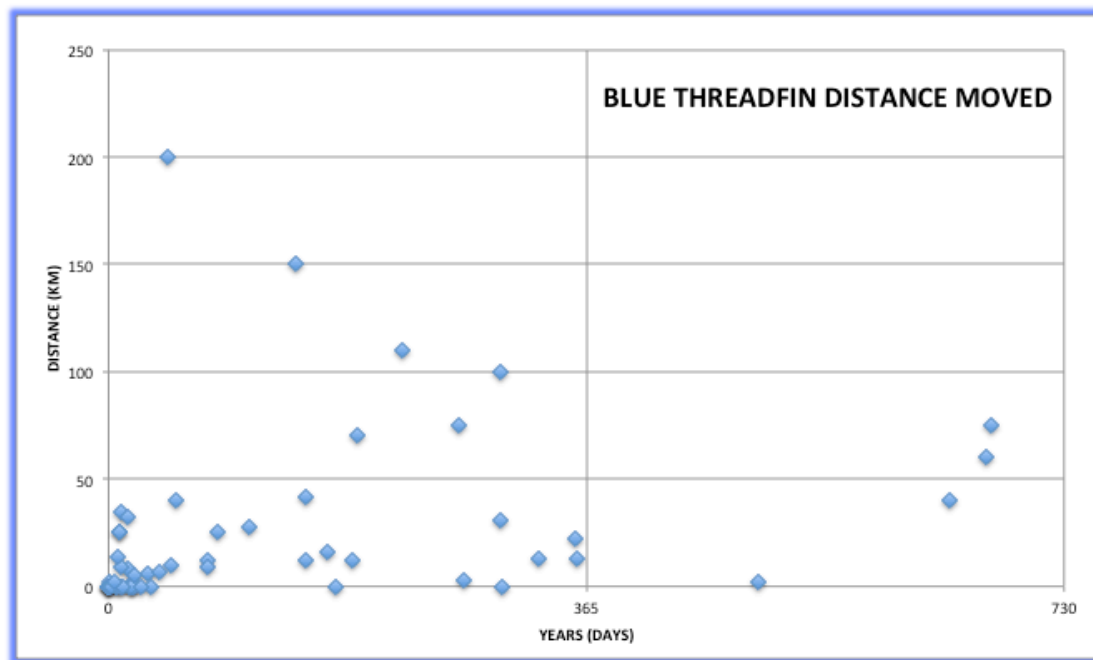


Figure 14: Movement of Blue Threadfin

Movement of 50 fish (87.7%) was within the river and delta area. There were 7 fish recaptured outside the area from Cooee Bay (75km north) to the Kolan River (200km south) as shown in *figure15*. There were 12 fish recaptured in the area that were tagged outside the area as shown in *figure 16*.

Of the fish recaptured in the area around the mouth of the river all were recaptured in Sep-Oct. A further 2 fish tagged in the upper reaches of the river were also recaptured in the same area in Sep. Blue Threadfin are known to form a spawning aggregation in the area of the river mouth in Sep. The movement data suggests that fish from both the north and south move to the mouth of the river to take part in spawning.

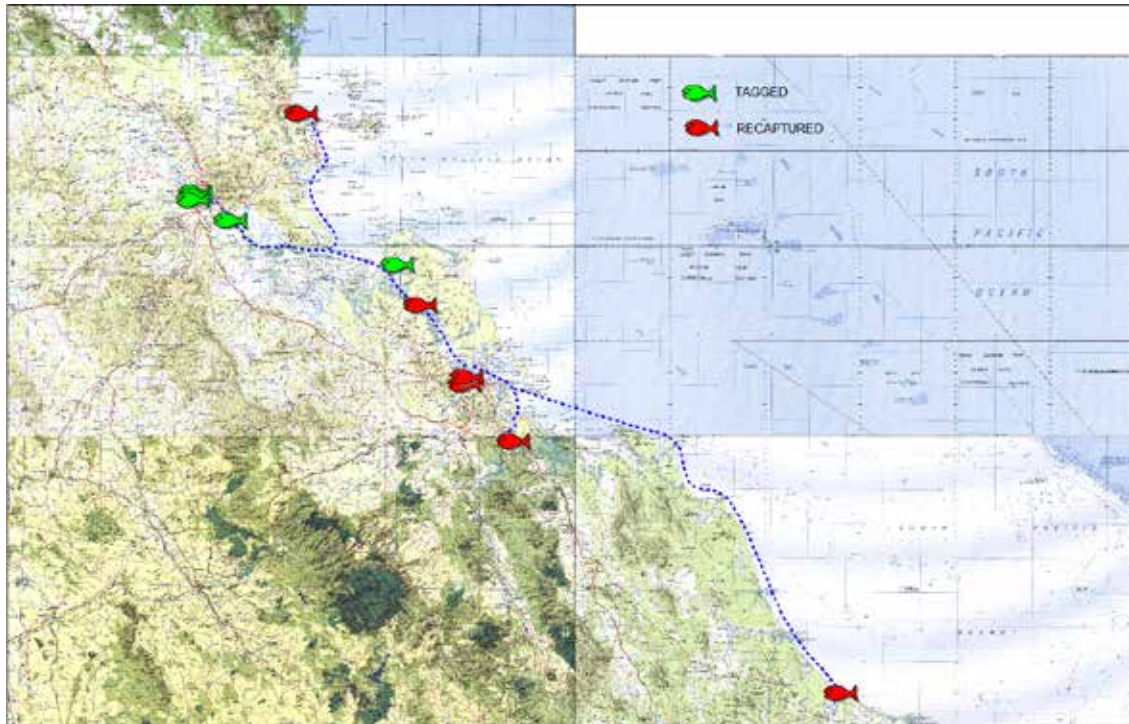


Figure 15: Movement of Blue Threadfin tagged in the Fitzroy area

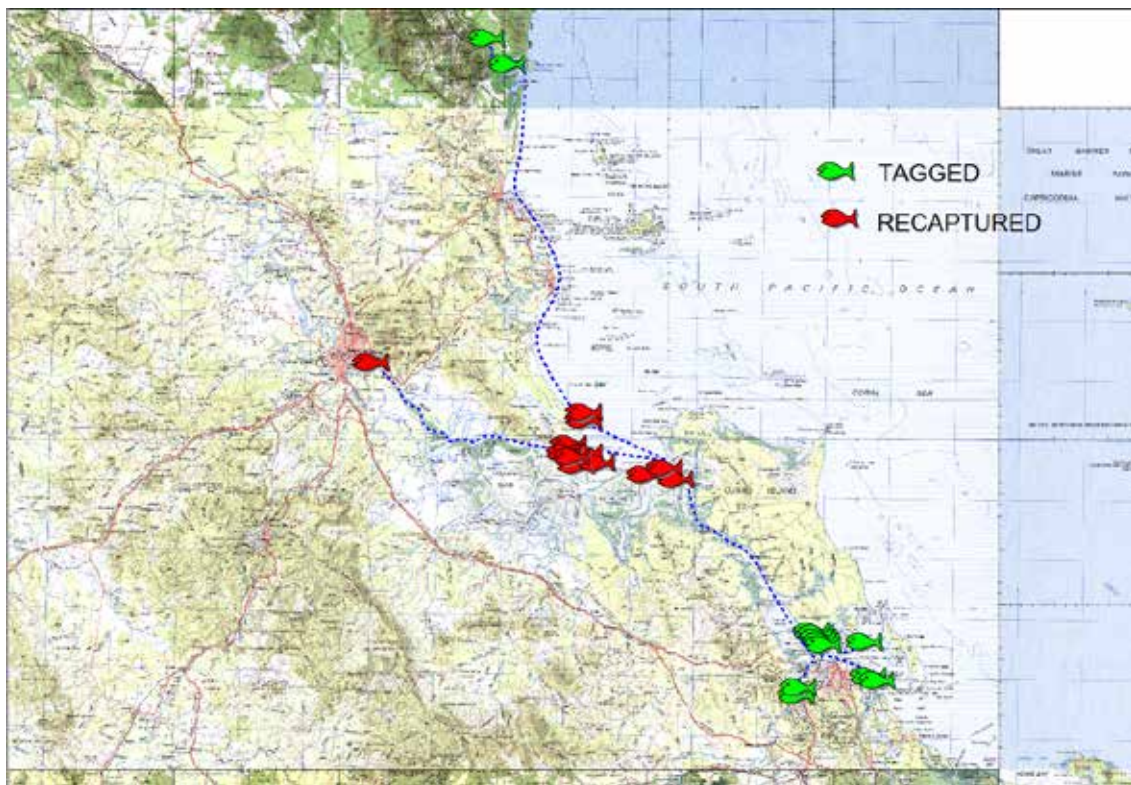


Figure 16: Recaptures of Blue Threadfin in the Fitzroy area that were tagged elsewhere



## Locations where Blue Threadfin tagged

Figure 17 shows where fish were tagged from 1990-2013.



Figure 17: Locations where Blue Threadfin were tagged 1990-2013