DOC REF F2019/0166

18 April 2019

Dear Torres Strait Finfish Fishery Licence Holder,

Fishery licence catch limits for 2019-20 season

I am writing to advise you of the agreed Total Allowable Catch (TAC) limits for commercial fishing in the Torres Strait Finfish Fishery (the Fishery) for the 2019-20 season.

At its 1 April 2019 meeting the Protected Zone Joint Authority (PZJA) agreed that the Torres Strait Finfish Fishery Spanish mackerel TAC will be 82 tonnes and the coral trout TAC will be 134.9 tonnes for the 2019-20 fishing season, which commences on 1 July 2019.

In making its decision the PZJA considered advice from both the Finfish Resource Assessment Group (FRAG) and Finfish Working Group (FWG) advice (Attachment A).

The Spanish mackerel TAC is a reduction from the present 2018-19 season TAC of 115 tonnes. The reduction is intended to allow the stock to build in size following recent stock assessments showing the stock has likely declined. The response is precautionary and seeks to minimise potential economic impacts on the Fishery.

Spanish mackerel is subject to joint management arrangements under the Treaty with Papua New Guinea. At the 7 March 2019 Torres Strait Treaty Joint Advisory Council meeting, Papua New Guinea and Australia declined to enter into catch sharing arrangements. This means Australia does not need to set aside catches for PNG fishers for the 2019-20 fishing season.

Access to the Fishery is reserved for Traditional Inhabitants who hold a Traditional Inhabitant Boat (TIB) licence and fishers that lease annual sunset licences from the Torres Strait Regional Authority (TSRA). Sunset licences may be held by non-traditional inhabitants and allow for a certain amount of catch to be taken. TSRA lease sunset licences and catch allowances on behalf of Traditional Inhabitants. The leasing process for 2019-20 is expected to be completed before the start of the 2019-20 fishing season. AFMA will further advise licence holders on the outcomes of this leasing process including the number of sunset licences issued and total catch leased to these licences.

AFMA will provide catch watch reports throughout the season to advise licence holders on reported catches against the TACs.

Please note that all catch taken in the Torres Strait Finfish Fishery must be weighed and recorded by a licenced fish receiver at the first point of landing. A list of licenced fish receivers who can receive your catch is available on the public register of concession holders available here: http://www.afma.gov.au/fisheries-services/concession-holders-conditions/. The public register also contains details of all commercially licenced fishers in Torres Strait including sunset licence holders.

If you would like further information about the recommended commercial catch limits or any other matter relating to the Finfish Fishery please do not hesitate to contact the AFMA Office on Thursday Island on (07) 4069 1990.

Yours sincerely,

Andrew Trappett
Senior Fisheries Management Officer
Torres Strait Fisheries

LIST OF ATTACHMENTS

Attachment A – Finfish RAG (13-14 March 2019) and Finfish Working Group (15 March 2019) Meeting Record excerpts

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ATTACHMENT A

Excerpt from Finfish Resource Assessment Group Meeting Record, 13-14 May 2019

Agenda Item 3 – Stock assessments for coral trout and Spanish mackerel

3.1 Coral trout assessment and Recommended Biological Catch advice for the 2019-20 season

The PZJA Torres Strait Finfish Resource Assessment Group **RECOMMEND** maintaining the **134.9 tonne** Total Allowable Catch for coral trout for the 2019-20 fishing season.

1. In making this recommendation the RAG noted that the current notional Total Allowable Catch of 134.9 t has been in place since 2008 and is based on average catches (TIB and TVH) between 2001 and 2005.

2. The RAG noted a presentation of the first formal stock assessment for Torres Strait coral trout from Dr George Leigh (QDAF) and Dr Matthew Holden (UQ) and welcomed the efforts made by the team in performing the assessment. The RAG accepted the assessment as preliminary noting the stage of development of the assessment and the range of uncertainties within the assessment. Further peer review and development is recommended. The RAG strongly recommended that ongoing work be undertaken to ensure the assessment can be developed and made available for future management decisions.

3. The RAG accepted the methodology of the assessment of using biomass estimates from known Great Barrier Reef (GBR) habitats and inferring and scaling these values to Torres Strait habitats based on satellite mapping data to model the population and create an estimate of abundance.

4. The RAG noted that GBR values were an input to the model together with a catch per unit effort data series from the sunset licence sector daily fishing logbooks.

5. The RAG noted that although the values used as inputs to the assessment were estimates from an adjacent fishery and had some uncertainty associated with them, the outputs of the model were still useful in scaling the present level of effort, risk and catches in the Torres Strait Fishery.

6. Through the preliminary assessment, the RAG noted that the outputs suggest that the Torres Strait coral trout stock is presently healthy with around 80 per cent of virgin biomass available and that this outcome was validated by advice from industry members that the stock appears healthy. The RAG noted that all of the model estimates of current spawning biomass were above 65 per cent estimated virgin biomass.

7. In considering the available information and likely risks to the stock from recent catch levels the RAG recommended maintaining the current 134.9 t Total Allowable Catch. The RAG noted that

the stock assessment once developed, together with an agreed harvest strategy would provide an effective basis to reconsider the current TAC.

Model methods, inputs and data

8. The RAG noted that the key inputs for the Torres Strait model are from either the Great Barrier Reef (GBR) model or Torres Strait catch data and are:
    - defined habitat areas (GBR values)
    - underwater visual survey data providing a fish density per habitat area (GBR values)
    - virgin fish density estimate (GBR estimate)
    - Catch Per Unit Effort (CPUE) series (from Torres Strait daily fishing logbook data).

9. Harvest data used in the model shows that in recent seasons catches have been low with generally less than 50 t fished.

10. Two bio-regions defined in the Torres Strait model represent most of the Torres Strait harvests with reefs in Region 5 being morphologically similar to the Cairns region in GBR model and reefs in Region 3 being morphologically similar to the northern GBR region.

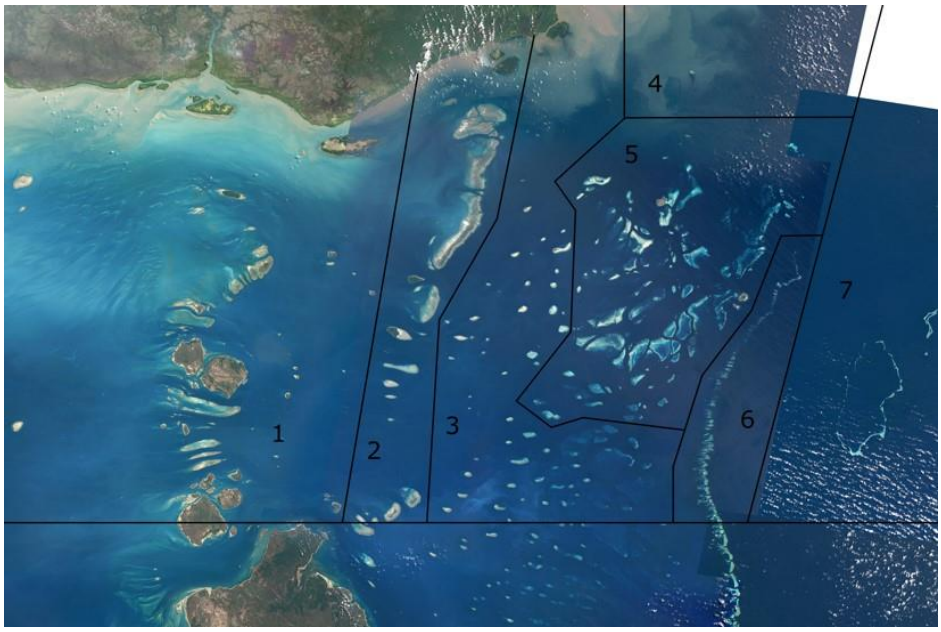

Figure 1. Map showing bioregions used in Torres Strait stock assessment.

11. The RAG noted:

- The model is using only sunset licence logbook data for the CPUE standardisation time series. The RAG noted that Region 3 has a smaller proportion of catch and different pattern of CPUE to Region 5.
- Industry advised that Region 3 may have higher carrying capacity then Region 5 but is not fished as frequently as it is harder to access due to winds, currents and poorer anchorages. Consequently, Region 5 can normally only be fished in calmer weather.
- The biggest uncertainty in the model is TIB sector catches with little available data for assessment.

- Industry members confirmed that the peak reported TIB catches around the year 2004-05 coincides with the period when a non-traditional inhabitant fisher was operating in the Fishery and supporting local TIB fishers (with fishing gear, processing and buying of product).
- The RAG agreed with the methodology to use either Islander freezer data or 4.2 times docket book catch for the TIB sector catch size for each year (whichever is higher) in the assessment for years where catches were unavailable.
- An industry member suggested that certain years did have low catches of coral trout due to fishers switching to bech de mer fishing and lack of supporting infrastructure due to freezer closures. Industry members confirmed that:
    - Masig (Yorke Island) freezer was in operation until around 2009.
    - Mer (Murray Island) freezer closed operations in 2010.
    - 2010 was the last year representative freezer data is available for the assessment team with the Erub (Darnley Island) freezer operating inconsistently in recent seasons with fewer TIB fishers targeting trout.

Coral trout model outputs

12. The RAG agreed that the methods of the assessment are appropriate noting that the values are being used to inform the assessment are assumptions at this stage of development.
13. The RAG noted that the stock status appears to be healthy with most model runs showing the stock biomass to be above 65 per cent of virgin biomass.
14. Scientific members advised that estimates generated by the model may be over or under estiamtes depending on the influence of tidal current flows within Torres Strait. The RAG noted that Torres Strait is shallower than GBR reefs with strong current flow. Industry members advised that coral trout generally go off the bite with strong current flow and murky water.
15. The model appears to have some areas where it is not able to fit to available catch data. The RAG suggested that the period following the November 2001 and February 2002 pre-buyout investment warning did see an increase in catch records returned to AFMA. Industry members and observers present supported this ‘paper-fish’ effect in the catch series and confirmed that industry were over-reporting catches to build up catch history through this period.
16. The RAG considered that an issue with assessing coral trout was that a pattern of short-term, localised depletion (or localised overfishing), followed by movement to a new reef, may act to maintain an illusion of high catch rates over time until catch rates suddenly decline. RAG noted that area-based catch limits can be developed to take account of local depletion issues. For example, if a particular zone of the fishery is known to be more easily accessible and will likely represent where the majority of catch will be taken, the likely effort from this zone can be compared to likely effort from the rest of the fishery. This can then be used to scale a Total Allowable Catch from the whole fishery with the correct proportion set to be fully harvested from the key zone.

Future work and research needs

17. The RAG noted:

- a number of suggestions to increase precision in future coral trout stock assessment work. These will be detailed in the final project report;
- that future assessment should analyse species split issues. The draft harvest strategy is likely to recommend the species split to be monitored;
- based on industry advice on the distribution of catches of common coral trout, it was recommended that the southern boundary of the region 5 be moved north to the Cumberland reefs. As currently demarcated, Region 5 splits key fishing grounds for common coral trout; and
- an upcoming FRDC project on the health of the Great Barrier Reef might result in a rescaling of habitat areas due to carrying capacities changing due to reef degradation. It was noted that the outcomes of this project may have flow on effects for east coast quota and the Torres Strait model.

18. The RAG suggested that the most immediate priority to improve data collection and assessment for the fishery would come from improved catch reporting.

3.2 Spanish mackerel assessment and Recommended Biological Catch for the 2019-20 season

The PZJA Torres Strait Finfish Resource Assessment Group **RECOMMEND** a **94 tonne** Recommended Biological Catch for Spanish mackerel for the 2019-20 season noting a decline in the stock and a need for precaution.

19. The FRAG noted from the harvest strategy work in 2018–2019, results from an updated stock assessment had been undertaken by Dr Michael O'Neil. The Spanish mackerel stock assessment used an annual age-structured model. The assessment uses all available catch-effort data and fish age-frequency data. The stock assessment update included an additional three years of catch data (fishing years 2015–2016, 2016–2017 and 2017–2018).

20. The RAG noted that the updated assessment accounted for FRAG advice at its meeting on 19-20 November 2018 and intersessional advice from a FRAG data sub-group meeting held 20-21 December. The data sub-group comprised all RAG Scientific members, QDAF, AFMA and CSIRO.

21. The RAG noted the results of the updated stock assessment show:

    a) Biomass is on a down cycle (decline). The standardised catch rate of legal sized Spanish mackerel (the abundance index), using logbook data from sunset fishing operations, had declined since 2010-11. Standardised catch rates have reached near historic low levels in 2017-18.

    b) The estimated 2017–2018 biomass was between 15% and 45% (B_{15} and B_{45}) of original unfished biomass (B_0) measured in 1940–1941. Four of 39 model scenarios, estimated biomass in the 2017-2018 fishing season to be below B_{20}. B_{20} is the Commonwealth Fisheries Harvest Strategy Policy limit reference point. The RAG considered this situation (4 of 39 scenarios) to be equivalent to the Harvest Strategy Policy guideline for harvest

strategies to ensure stocks remain above the limit reference point approximately 90 per cent of the time.

c) Recent fishing pressures are unlikely to be exceeding F_{MSY}. This means overfishing is unlikely to be occurring. The biomass decline may be associated with factors other than fishing. The RAG noted advice from scientific members that similar unexplained declines over the last four to five years were reported for other Spanish mackerel stocks in Western Australia, Northern Territory and Queensland suggesting that broader environmental factors could be driving trends in these fisheries.

22. To guide advice on an 2019–2020 RBC, the RAG recommended:

a) Applying a Maximum Sustainable Yield (MSY) fishing reference point on current 2017–2018 exploitable biomass. This interim management guide recognised that at the status of the stock, that B_{60} is not quickly achievable, and the fishery economic/data needs. A time to build the stock to this target reference point still needs to be evaluated with stakeholders as part of developing a harvest strategy. The RAG noted that the new Harvest Strategy Policy does not specify rates for building stocks that are above B_{LIM} and below $B_{TARG.}$

b) The equilibrium yield approach is no longer used. Equilibrium yields were previously used to calculate RBCs. The equilibrium yield approach is only useful if stock is at an equilibrium reference point or above. Consistent with the Harvest Strategy Policy the recommended approach is to advise on yields for current estimates of spawning biomass.

23. Based on outcomes of the stock assessment and applying an interim reference point of FMSY, the FFRAG recommended an RBC of 94 t for the 2019-2020 season. This setting notes a decline in the stock and need for some precaution. The 94 t represents the average over all 39 model-scenarios.

24. Noting there is no agreed harvest strategy in place for the Finfish Fishery, the FRAG considered fish-population projections for a range of RBCs to evaluate risks (**Figure 2** and **Table 1**). Risk was interpreted as the proportion of scenarios below B20 in 2029 (as a percentage of all scenarios). The year 2029 was 2017 plus three times the average age of mature female fish (4 years) – a standard and accepted approach for assessing the timeframe to guide fishery stock status.

25. The FRAG provided advice on best estimates for catches taken outside of the commercial fishery and supported the use of the values shown in **Table 2**.

Other points discussed on the Spanish mackerel assessment

26. The RAG noted that based on advice from FRAG 3 (19-20 November 2018) and the Finfish Data Sub-group Meeting 1 (20-21 December 2018) the updated assessment included analysis of past catch from Taiwanese pelagic drift-net vessels known to be in operation across northern Australian during the late 1970s and early 1980s and guided by investigations by NT Fisheries (Northern Territory) on apparent uncertainties about missing older size class fishes. To account for the potential take from the Torres Strait Spanish mackerel stock, scenarios in the model examined inflated harvests of 100 t of Spanish mackerel for the years 1979 to 1986. The RAG agreed with the inclusion of these scenarios noting that although the true amounts of

these catches was not known, 100 t was deemed an appropriate order of catches for investigation. The RAG noted that the inclusion of these catches did act to depress the estimates of stock biomass right through to the present day and that these catches resulted in a number of scenario runs which estimated the present stock biomass as being below the limit reference point (BLIM = B20).

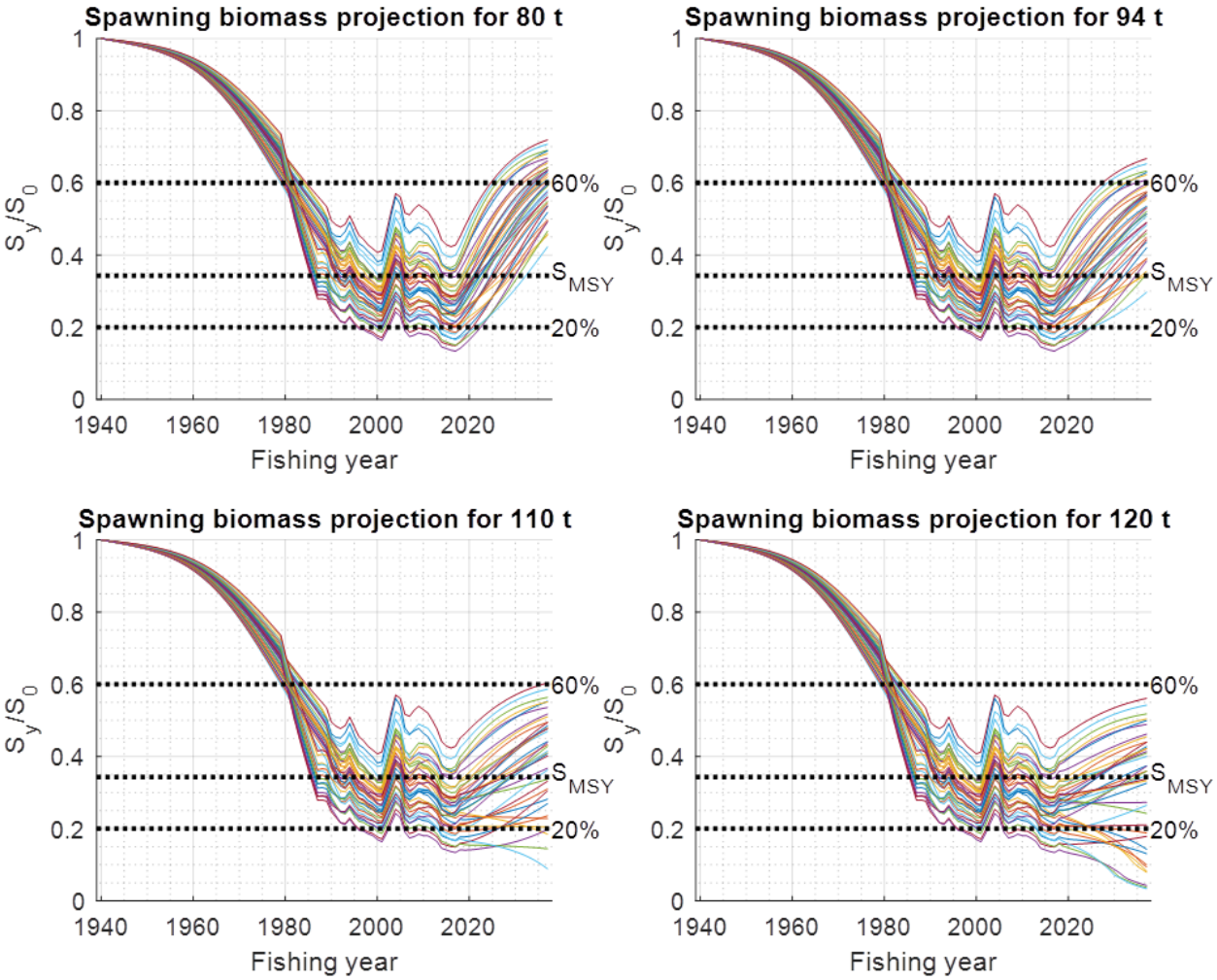

Figure 2 Spawning biomass projections under four different RBC levels.

Table 1 FRAG analyse of risk profiles based on model scenarios outputs for four RBC levels

Risk profile	RBC (t)	Number (and per cent) of runs out of 39 below limit reference point (B_{20}) in 2029*.	Interpretation
"Low" risk	80	0	Precautionary but some implications for economics
Precautionary risk	94	0	Balancing for sustainability and risk
"Moderate" risk	110	3 (~8 %)	Moderate risk
"High" risk	120	10 (~26 %)	Unacceptable risk

*(B20 agreed interim, 20 per cent of virgin biomass) in 2029 (which is 2017 plus three times the average age of mature female fish (4 years). Last estimate in 2017 + 12 years (3 x 4 years).

Table 2 FRAG recommended estimates of Spanish mackerel catches taken outside the Finfish Fishery

Source of catches	Expected catch (t)	Comments
Subsistence catch (kai kai) by Traditional Inhabitants	10	Based on data from *Busilacchi 2013* this value includes total of catch estimates for Mer, Masig and Erub Islands. The FWG agreed in July 2016 that the catch figures from the *Busilacchi 2008* research are the best estimates of traditional take of finfish. While originally reported to AFMA by CSIRO as 12 t this was later corrected to 5.155 t. The RAG recommended that an estimate of 10 t be used for decision making noting data was only from three islands, the number of TIB fishing endorsements has increased and effort creep may be occurring. Noting that anecdotal information presented at the FRAG by some TIB commercial reps infers this number generally may have decreased.
Recreational	2	RAG advised that based on the available evidence from QDAF recreational survey results with a limited number of Torres Strait households surveyed in 2013, recreational catches are likely to be minimal but not a 'zero' value. Two tonnes was used in the assessment noting the confidence intervals associated with estimate varied up to a total of five tonnes.
Charter	Likely to be minimal	Available QLD logbook records show Charter boat line catches are low. Logbook records for the period between 1995 and 2014 report a total of 19.58 tonnes of mixed species taken from Torres Strait waters. RAG has advised based on the available evidence from QDAF logbook data from charter catches are likely to be minimal.
PNG catch sharing	0	PNG-NFA declined to enter into catch sharing arrangements for 2019-20.

Excerpt from Final Finfish Working Group Meeting Record, 15 March 2019.

Agenda Item 3 – Advice on Total Allowable Catches for Spanish mackerel and coral trout

Spanish mackerel total allowable catch advice

2. The Finfish Working Group met on 15 March 2019. Having regard for the FRAG advice the FWG agreed to recommend a Spanish mackerel TAC of 82 tonnes (RBC of 94 tonnes minus total estimated catch outside the Fishery – 12 tonne (10t for traditional (subsistence) fishing and 2 t for recreational fishing, **Table 2**). The FWG noted:

   a) That the recommended TAC balances the need for stock rebuilding recognising the apparent biomass decline and both modelled and observed CPUE reductions in recent years, with the need to minimise potential economic impacts on the Fishery. The FWG noted that any TAC reduction was most likely to be given effect through reducing the amount of Spanish Mackerel catch leased to sunset fishers;

   b) Industry members at the WG (all being Traditional Inhabitants) strongly supported the proposed RBC and TAC reduction in order to be precautionary and recognising the importance of the fishery to Traditional Inhabitant livelihoods now and in the future; and

   c) Concern that the proposed TAC reduction may reduce available catch information to support future stock assessments at a time when stock is declining and in need of accurate assessments (catch per unit effort provides an index of stock abundance and is used in modelling stock biomass). It was noted that the proposed TAC reduction could reduce the number of dedicated Spanish mackerel sunset licence operators from three to two. This will depend on the allocation process of TAC to fishing operations. The FWG noted that future data needs is an important consideration in setting the RBC and TAC. The stock assessment scientist advised that a reduction to two vessel operations could still be analysed in the catch rate standardisation (identification of dory and skipper data, with VMS would mitigate the risk). However, irrespective of the number of fishing operations (2–5), the fishery dependency of the catch rate data (i.e. the amount of fishing by each fishing operation, locations and times) can influence results. Encouragingly, FRAG and FWG traditional commercial operators discussed how to improve and supply their catch-effort data to support the stock assessment process.

Catches outside the fishery

3. FWG considered available estimates of mortality on the Spanish mackerel stock outside of the commercial fishery and supported the use of 10 t for subsistence take and 2 t for recreational harvest. The FWG noted that although there was uncertainty associated with these estimates they were the best available figures to support decision making and there was no rationale to depart from using these figures.

Coral trout total allowable catch advice

4. Having regard for FRAG advice the FWG agreed to recommend maintaining the 134.9 t TAC for coral trout for the 2019-20 season noting likely stock status and that recent catches have been substantially below the TAC. Assuming current catch levels remain unchanged, the FWG supported maintaining this TAC until it can be reconsidered in light of an agreed harvest

strategy and stock assessment. The FWG noted FRAG advice that the current stock assessment is preliminary.

5. In making this recommendation the FWG noted:

   - the current notional TAC of 134.9 t has been in place since 2008 and is based on average catches between 2001 to 2005;

   - an initial stock assessment for Torres Strait coral trout was presented to the FRAG and was welcomed and deemed preliminary by the RAG due to its present stage of development and the range of uncertainties associated with the assessment;

   - the approach of the preliminary assessment was accepted by the RAG. The approach uses biomass estimates from known Great Barrier Reef (GBR) habitats using underwater visual survey data and infers and scales these values to Torres Strait habitats using satellite mapping data to model the population and infer abundance;

   - though deemed an preliminary assessment the outputs do suggest that the trout stock has a healthy level of biomass which is reinforced by industry advice from industry members. The FWG noted the preliminary stock assessment indicates the spawning biomass is around 80 per cent of virgin biomass with the lowest model estimate of biomass being around 65 per cent of virgin biomass.