



**SCIENTIFIC COMMITTEE
SIXTH REGULAR SESSION**

10-19 August 2010
Nuku'alofa, Tonga

**CHARACTERIZATION OF PURSE SEINE FISHING ACTIVITIES DURING THE 2009 FAD
CLOSURE**

WCPFC-SC6-2010/MI-WP-03

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SUMMARY

The seasonal restriction (two months in 2009, and 3 months during 2010-11) on the use of FADs is one of the key measures within the WCPFC conservation and management measure for bigeye and yellowfin tunas (CMM2008-01). Predicting the impact of this restriction on the catches and stock status of bigeye, yellowfin, and skipjack tunas is difficult as the way in which vessels choose to comply with the measure could differ by fleet and depend on the prevailing fishing conditions at the time of the restriction. In this paper, we compare fishing activities during the 2009 two month FAD closure (1 August – 30 September) to the fishing activities that have taken place during the same period in previous years (2001-08).

The key findings were that:

- Overall effort in terms of sets and days fished was the highest on record (2001-09) during the 2009 FAD closure
- Almost all effort from associated sets was transferred to unassociated sets, but there was some evidence of non-compliance.
- Total catches of skipjack, yellowfin, and bigeye tuna combined were comparable to previous years, though bigeye tuna catches were the lowest on record.

This analysis was based on logsheet data as not all relevant observer data were available for the time of the closure and therefore it is critical that the conclusions made in the paper be verified. For example, logsheet-reported positional data need to be verified with VMS data and logsheet-reported positional, set type and species composition data need to be verified with observer data, when available.

METHODS

We compared purse seine fishing activities during the 2009 closure with activities for the same time of the year for the period 2001-08. We compared the spatial distributions of fishing activities, absolute levels of catch and effort, and catch rates. This analysis was based on logsheet data. Activities in archipelagic waters of Papua New Guinea and the Solomon Islands were excluded from this analysis. Data for Japanese flagged vessels were included, but it is important to recognize that this fleet was exempted from the high seas component of the FAD closure.

RESULTS AND DISCUSSION

Total effort during the 2009 FAD closure, in terms of both sets made and days fished, was at the highest level observed for the period 2001-09 indicating that there is no evidence to suggest that the FAD closure discouraged vessels from fishing (Figure 1). The spatial distribution of effort by set-type for 2008 and 2009 is provided in Figure 2. Effort that was previously directed on associated schools was almost entirely transferred to unassociated schools in 2009 and the number of unassociated sets was over 50% higher than the previous observed peak of 2008. There were 504 FAD sets documented in the data during the 2009 FAD closure, but 217 of these were legitimate sets made in International Waters by Japanese vessels. This means that there were an additional 287 FAD sets in contravention with the closure. This suggests that some level of non-compliance should be considered in projections evaluating the benefits of FAD closures. Total catches of skipjack, yellowfin, and bigeye combined were comparable to previous years indicating no impact of the FAD closure on total levels of catch (Figure 3). Bigeye tuna catches were the lowest for that period and significantly lower than the previous four years (Figure 4).

Unassociated set catches rates for the three species are provided in Figure 5. Levels observed in 2009 are generally in the range of those observed recently in the fishery. In 2008 there was increased availability of free schools of yellowfin tuna and subsequently yellowfin tuna CPUE was higher then and skipjack CPUE lower.

When total catches and effort are considered together it is apparent that overall CPUE in terms of catch per day fished was lower during 2009 than in previous years – this is because CPUE is generally higher on associated sets than unassociated sets. However, the sizes of fish of all three species are generally larger in unassociated sets than associated sets. It is not yet known if this was also the case in 2009, but if larger fish attracted higher prices, then some of the loss in CPUE could have been offset.

None of the information for 2009 has yet been verified. It will be important to confirm the findings here once the logsheet data can be verified. Observer grab and spill samples will be important for obtaining accurate estimates of bigeye tuna catches and. Observer data will also be important for verifying the logsheet reported school associations and it might also be important to consider time of day for sets (after Harley et al. (2009)) as part of the verification process.

REFERENCES

Harley, S. J., Williams, P., and Hampton, J. 2009. Analysis of purse seine set times for different school associations: a further tool to assist in compliance with FAD closures? WCPFC-SC5-2009/ST-WP-07, Port Vila, Vanuatu, 10-21 August 2009.

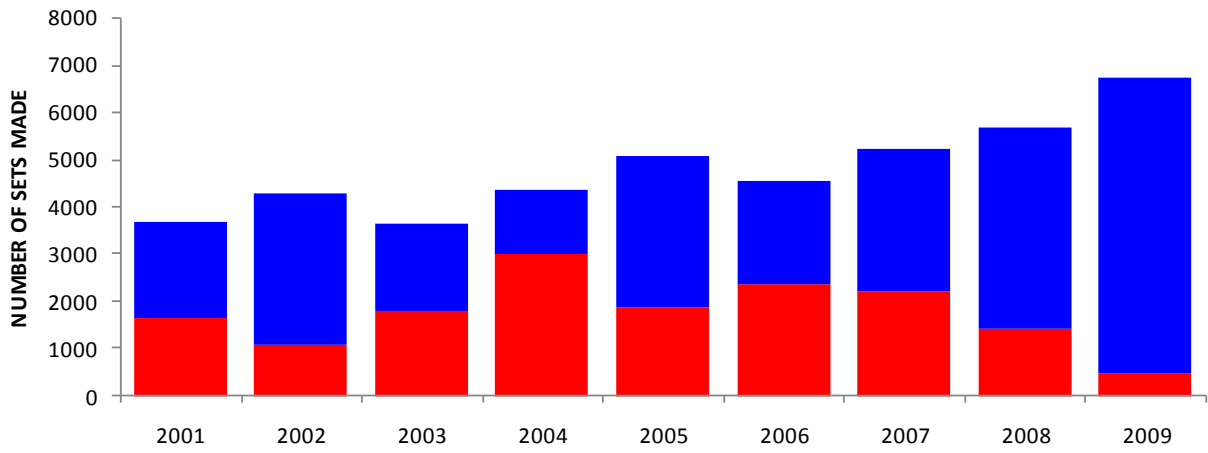
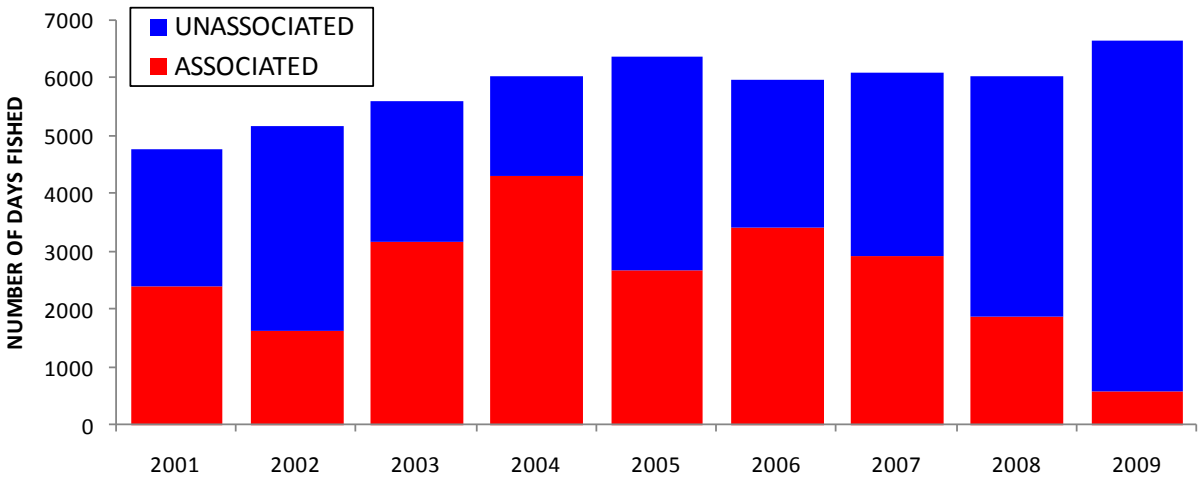
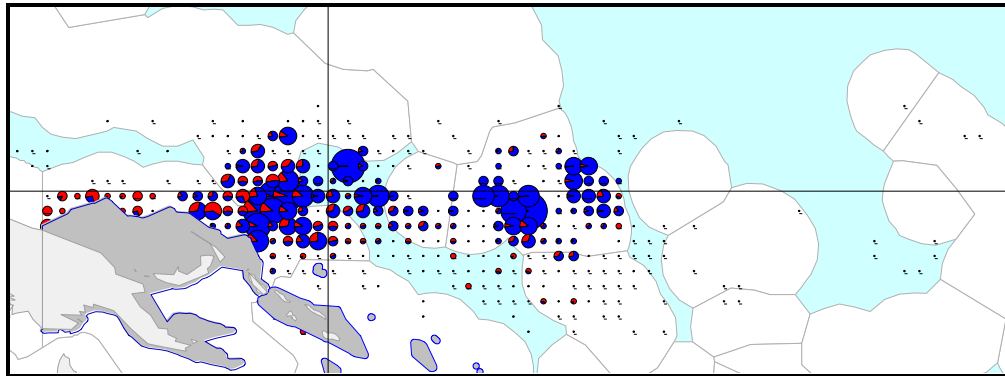


Figure 1: Total number of days fished (top) and sets (bottom) by school association for August and September by year for the period 2001-09.

2008



2009

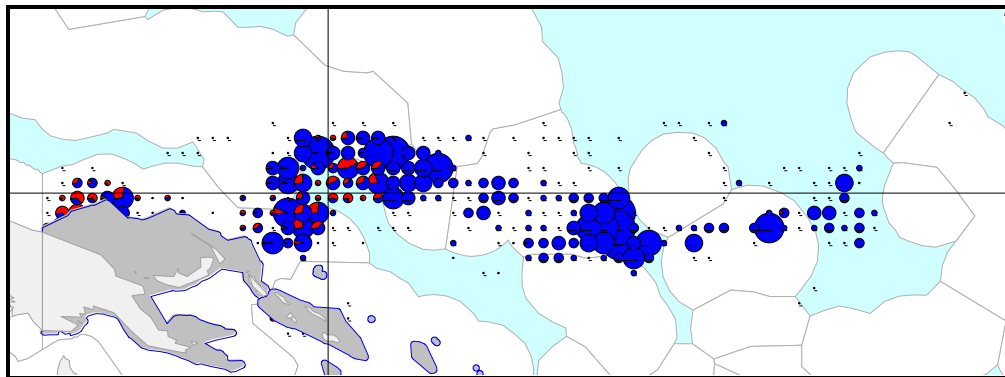


Figure 2: Distribution of Purse seine effort by set type during Aug-Sept, 2008 (top) and 2009 (bottom). (Blue-Unassociated; Red-Associated. Effort in archipelagic waters of Papua New Guinea and Solomon Islands, which is excluded from the FAD closure, is not shown.

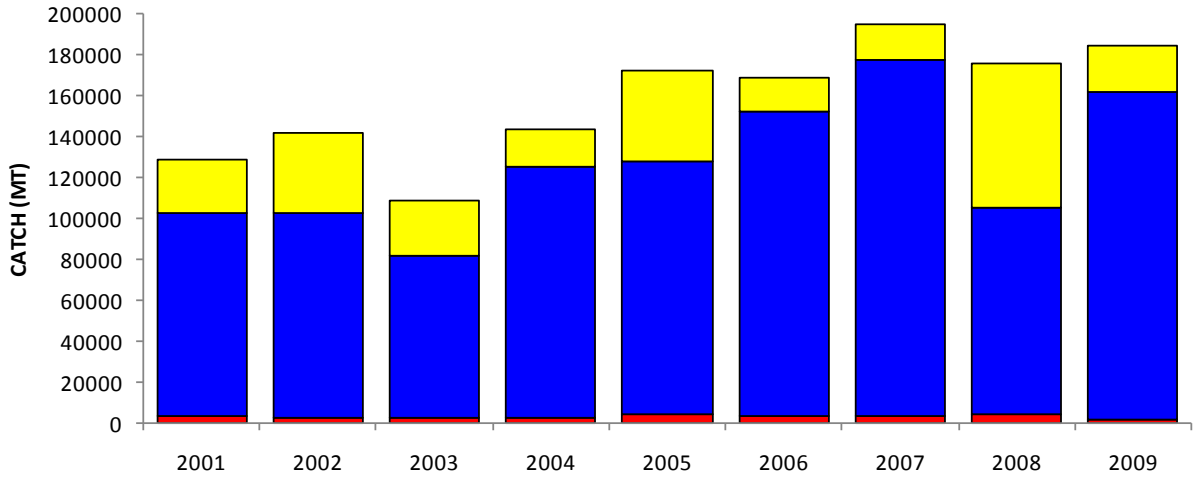


Figure 3: Purse seine catch by species for all set types for August and September by year for the period 2001-09.

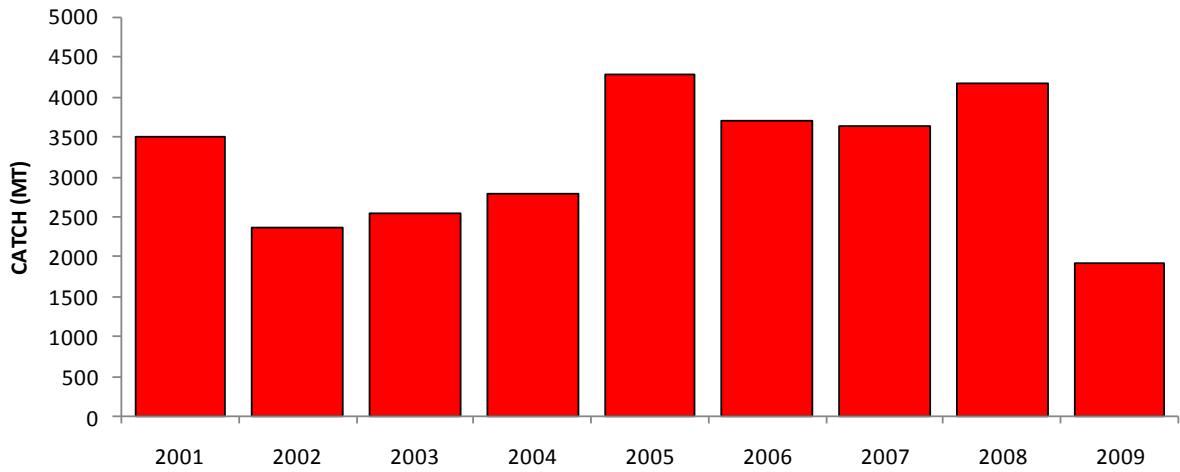


Figure 4: Purse seine catch by bigeye tuna for all set types for August and September by year for the period 2001-09.

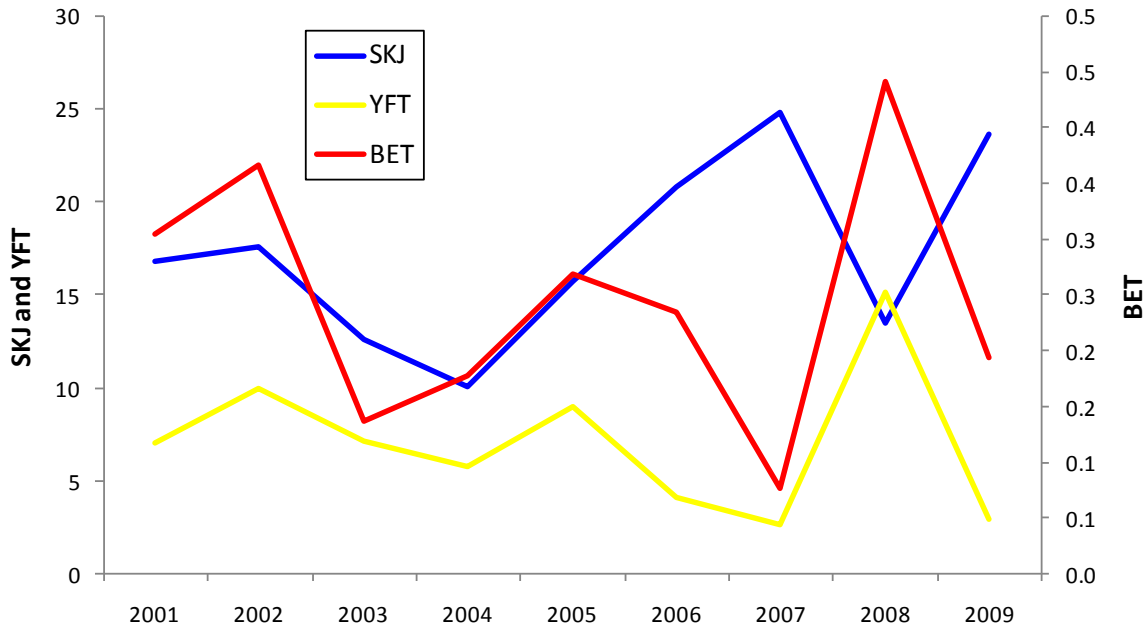


Figure 5: Catch per day (MT per day) from unassociated sets for bigeye, skipjack, and yellowfin tuna during August and September by year for the period 2001-09. NOTE: the values for skipjack and yellowfin are based on the primary y-axis and the values for bigeye are based on the secondary y-axis.