

<b>TORRES STRAIT PRAWN MANAGEMENT ADVISORY COMMITTEE</b>	<b>Meeting No. 17</b>  <b>20 April 2016</b>
<b>REPORTS</b> <b>Data Report - catch and effort trends for 2015 and a preliminary assessment of the 2016 early opening.</b>	<b>Agenda Item No. 3.4</b>  <b>For Discussion</b>

## RECOMMENDATION

That the Torres Strait Prawn Management Advisory Committee (TSPMAC)

### DISCUSSES

- 3.4.1 the catch and effort trends for 2015 that were presented in the “Torres Strait Prawn Fishery Data Summary 2015”,
- 3.4.2 a preliminary assessment of the 2016 early opening and
- 3.4.3 an analysis of prawn size data from trawl surveys conducted during February of 1998 to 2008.

## BACKGROUND

This year the analysis of trends in catch and effort were presented in the “Torres Strait Prawn Fishery Data Summary 2015”, which, along with the handbook, was sent to TSPF operators in January 2015. This report was based on a download of logbook and VMS data in December 2015. There is still a small amount of data outstanding from 2015 but this does not impact the analysis significantly.

Lisa Cocking provided summarised 2016 logbook data for February and March that she extracted from the logbook database via the “OBIEE” interface. This data in conjunction with the VMS data for 2016 were analysed for a preliminary assessment of the 2016 early opening.

Data from fishery independent trawl surveys conducted during February of 1998 to 2008 as part of Queensland Fisheries, Long Term Fisheries Monitoring Program (LTMP) were analysed for this meeting because the results are of relevance to an assessment of this year’s early opening.

## DISCUSSION

### 1 Catch and Effort

Following a general downward trend from 2001 fishing effort stabilised at around 2,000 nights after 2011 (Figure 1). The 2011 fishing season was the year of lowest fishing effort and catches since 1989. The 2014 tiger and endeavour prawn catches were lower than the two preceding years (2012-13) due to lower catch rates. The final 2015 tiger and endeavour prawn catches could be the highest since 2008 as a result of the highest effort since 2008 (Figure 1, Table 1) and higher catch rates (Figure 3). The monthly 2015 fishing effort lines for logbook data and VMS (Figure 2) indicate good coverage up to August of 2015.

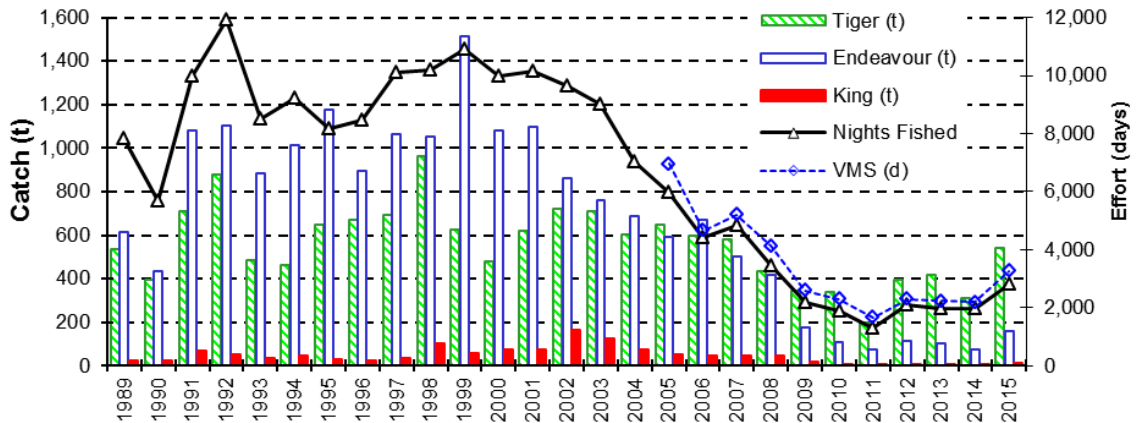


Figure 1 Prawn catches by species (columns) and effort (line). Note that the 2015 logbook data was incomplete at the time of analysis.

Table 1 Yearly totals since the 2005 effort reduction (*t* = tonnes and *d* = boat days).

Year	Hours Trawled	Nights Fished	VMS (d)	All prawn (t)	Tiger (t)	Endeavour (t)	King (t)
2005	63,300	5,966	6,957	1,311	651	594	51
2006	47,273	4,407	4,654	1,331	602	672	45
2007	51,398	4,832	5,218	1,137	582	503	47
2008	37,023	3,453	4,127	907	439	418	48
2009	19,435	2,165	2,599	547	348	178	17
2010	20,480	1,879	2,309	465	344	110	9
2011	14,613	1,309	1,663	283	204	74	4
2012	23,337	2,081	2,310	517	398	115	3
2013	22,061	1,993	2,240	528	420	103	4
2014	21,983	1,954	2,203	393	315	76	3
2015	31,361	2,832	3,263	716	542	161	11
Average (2010-2014)	20,495	1,843	2,145	437	336	96	5
Average (1991-2001)	103,678	9,781		1,806	659	1,087	56
	Emsy	9,197		MSY	676	1,044	

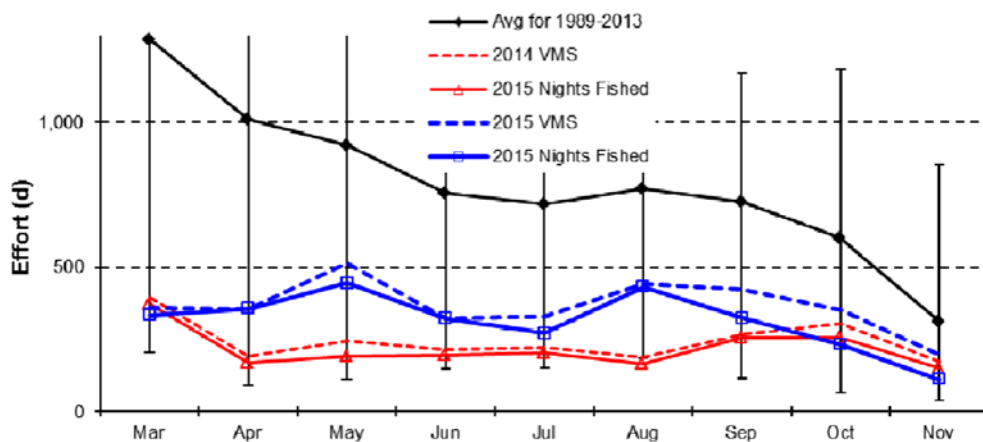
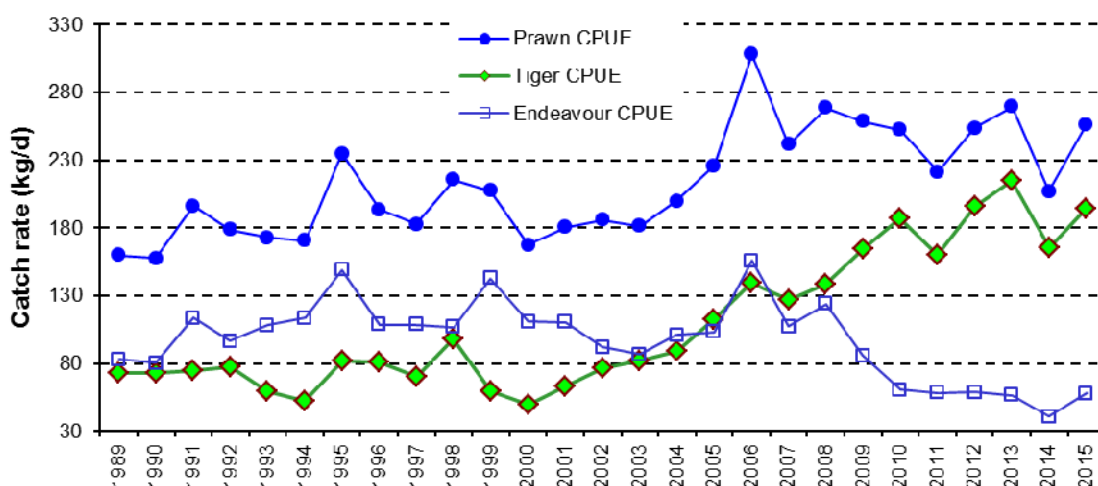


Figure 2 Monthly fishing effort in days. The blue solid and dotted lines show the 2015 VMS and logbook measures of monthly effort and the red lines show the 2014 fishing effort.

The 2015 CPUE of all prawn species combined was above the previous five year average. The 2014 prawn CPUE was the lowest since 2004 due to the drop in both tiger and endeavour CPUEs but was still above the average for the years of high effort (1991-2001). The highest prawn CPUE was in 2006 as a result of higher than average catch rates for both tiger and endeavour prawn.

During the 2015 fishing season the annual tiger prawn CPUE was above the previous five year average but slightly lower than the 2012 and 2013 CPUEs. Although the 2014 tiger prawn CPUE was lower than in 2010, 2012 and 2013 it was still more than double the 72 kg/d average tiger prawn catch rate for the 1990's (Figure 3 and Table 2). The lower tiger prawn CPUE in 2014 is most likely a result of the natural variability in recruitment of tiger prawn stocks.



**Figure 3** Yearly CPUE indices for tiger, endeavour and the total prawn catch. Note that the scaling of the Y-axis is not set to zero, i.e. the base of the graph (X-axis) is set at 30 kg/d.

**Table 2** Summary of catch rates (CPUE) since 2010.

Year	All (CPUE kg/d)	Prawn (CPUE kg/d)	Tiger (CPUE kg/d)	Prawn (CPUE kg/d)	Endeavour Prawn (CPUE kg/d)
2010	252		187		61
2011	221		160		58
2012	254		195		59
2013	269		215		56
2014	207		165		41
2015	256		194		58
Average (2010-2014)	241		185		55
Average (1991-2001)	191		70		115

The 2015 endeavour prawn CPUE was slightly higher than the previous five year average. In contrast, the 2014 endeavour prawn CPUE was the lowest since 1989. Since 2010 the annual endeavour prawn CPUE has been approximately half of the CPUE for 1991-2001; during those years fishing effort was 3-4 times higher.

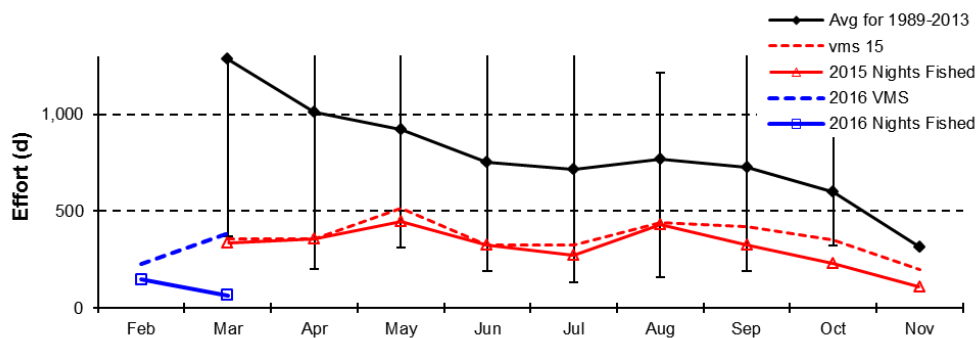
## 2 Preliminary assessment of the 2016 early opening

Fishing effort and catch for the start of 2016 are summarised in Table 3, Figure 4 and Figure 5. The results indicate that the available logbook data for February provides good coverage (65%) of the total fishing effort, whereas for March the coverage

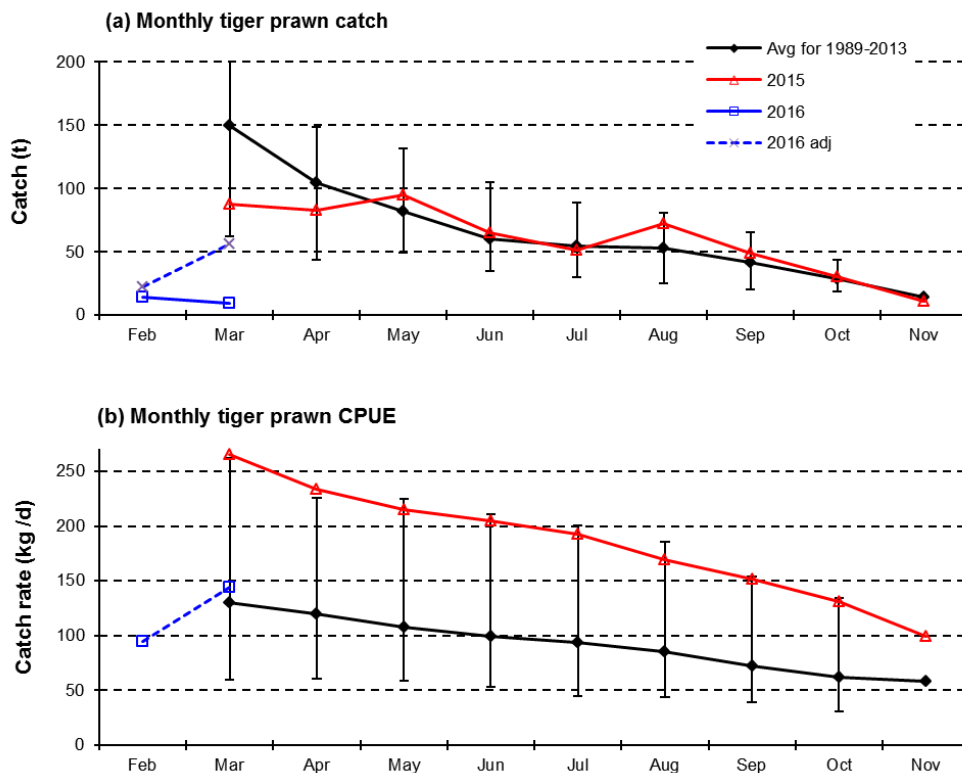
(17%) is quite low. The adjusted tiger prawn catch (2016 adj in Figure 5(a)) is an estimate of the total catch for February based on the difference between the VMS and logbook estimates of fishing effort.

**Table 3 Fishing effort in 2016**

Data Source	Month	February	March
VMS	Number of vessels	8	13
	Quota used - VMS	228	386
Logbooks	number of vessels	6	6
	boat/days	148	65
	Tiger prawn (t)	14.1	9.4
	Endeavour prawn (t)	1.1	1.2
	King prawn (t)	0.4	0.1



**Figure 4 Fishing Effort for the start of the 2016 season**

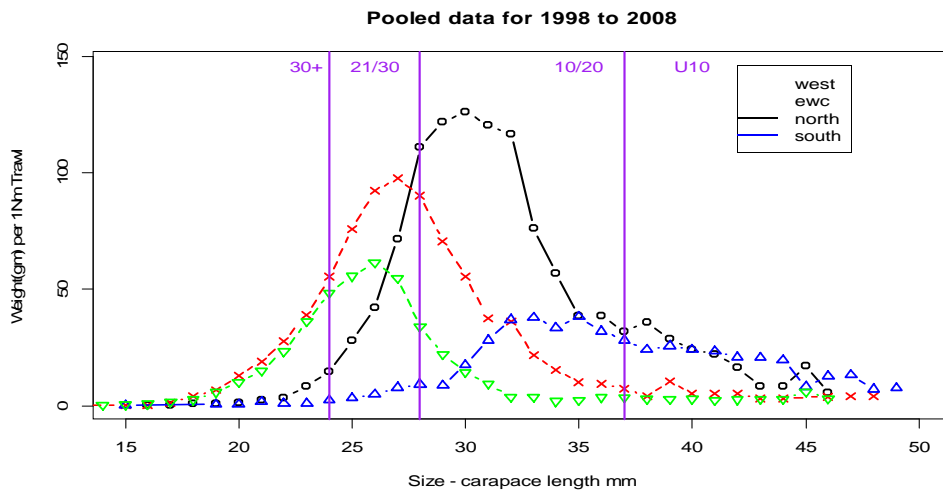


**Figure 5 Tiger prawn catch (a) and catch rates (b) for the start of 2016.**

The average tiger prawn catch rate (CPUE) for February 2016 (95 kg/d) was low compared with the monthly CPUE range of 99-265 kg/d for 2014-15, (Figure 5(b)). Additional plots of the February 2016 catch rates compared with catch rates from LTMP trawl surveys will be presented during the meeting as part of the PowerPoint presentation for this agenda item.

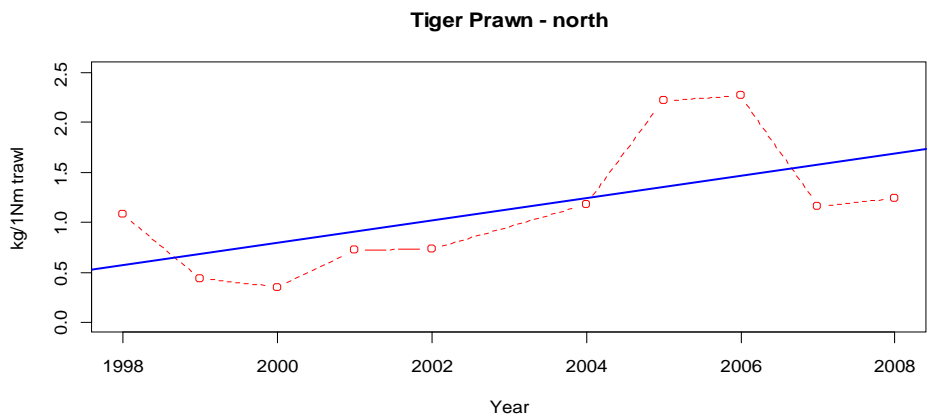
**3 February prawn size data for the years 1998 to 2008**

The LTMP trawl survey data indicates that 70% of the tiger prawns present in the area of the fishery north of 10 degrees latitude were of 10/20 size grade and 15% were U10 grade (Figure 6). In the area of the fishery south of 10 degrees latitude 56% were 10/20 and 41% were U10 grade. The individual year plots will be presented during the meeting.



**Figure 6 February size distribution of tiger prawn by weight in the closed areas west and east of Warrior Reef (ewc) and the areas of the fishery north and south of 10 degrees latitude.**

Because the same trawl sites, nets and vessel were used for each survey the results provide a relative index of the tiger prawn stock size in February for the years 1998 to 2008. Although there was variability between years (Figure 7), a linear trend line fitted to the catch rate data indicates a small upward trend in the average February tiger prawn stock size during 1998 to 2008.



**Figure 7 February tiger prawn trawl survey CPUE for 1998 to 2008**