

Updated calculations related to the additional closed season

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Summary

The length of the additional closed season which would need to be applied to the squid jig commercial sector to keep effort within the TAE has been re-calculated taking into account that the TAE recommendation for the 2019/20 fishing season by the Squid Scientific Working Group is 295 000 person-days, and further information about effort levels applied in the fishery over recent years. These calculations suggest that the additional closed season should remain of three months duration.

Background

The Squid Scientific Working Group has recently recommended a TAE of 295 000 person-days for the 2019/20 fishing season. This has implications for the maximum number of days (on average over vessels) per 12-month period which the fleet can fish so as to ensure that the TAE is not exceeded.

Additional Closed Season Calculations

The statistics reported in Table 1 and Table 2 are pertinent to the calculations applied below. Table 1 reports the average effort exerted (expressed as days fished) by the fleet per annum for the period 2010-2017. Table 2 reports the average effort exerted (days fished) by the fleet per month and year over the period 2010-2017. Both Tables 1 and 2 are separated into pre- and post-additional closed season periods.

The 2017/18 season Total Allowable Effort (TAE) was set at 270 000 person-days and the fishery comprised a crew complement of 2443 fishers upon the finalization of the 2013 Fishing Rights Allocation Process and subsequent appeals (S. Mayalo, DAFF Resource Management, *pers. commn*). In order to avoid the TAE being exceeded, fishing needed to be limited to an average of 111 fishing days per vessel (270 000 person-days divided by 2443 fishers). Table 1 indicates, however, that the average fishing time expended in the calendar years 2016 and 2017 had climbed to 118 fishing days, suggesting that the additional closed season should have perhaps been two weeks longer than the three months that applied.

Subsequently though, an updated assessment of the resource, undertaken in 2019, has provided a more optimistic view of resource's average productivity; this has resulted in the revised determination of a TAE of 295 000 person-days for the 2019/20 and following seasons. Division of this new TAE of 295 000 person-days by the number of existing

commercial fishers (2443) indicates that the fishing should be limited to an average of 121 fishing days per vessel so as not to exceed this TAE.

It is further evident from Table 1 that the average number of fishing days over the years for which the additional closed season has been introduced has been less (114 fishing days) than for those years to which no additional closed season applied (143 fishing days). This reduction is as was the intent; it shows that in broad terms the additional season mechanism is working to ensure effort closer to the TAE, particularly given little indication of effort previously in the months now closed moving to the other months still remaining open.

In summary, it is evident that:

- a) the actual average fishing days of the fleet in 2016 and 2017 (**118** fishing days) exceeded the level desired to prevent the TAE being exceeded (111 fishing days);
and
- b) the increase in TAE for the 2019/20 fishing season to 295 000 person-days increases the desired average number to avoid exceeding the TAE to **121** fishing days.

Given that the current and the desired average number of fishing days are so close (118 vs 121), it is considered that an additional closed season of three months duration remains an appropriate measure to restrict fishing effort to the TAE at this time.

Table 1: Average days fished per annum by the jig fleet over the period 2010-2017. These are further separated into pre- and post-additional closed season components (2010-2013 and 2014-2017 respectively).

Year	Average days fished
2010	165.1
2011	169.8
2012	136.5
2013	101.8
2014	107.2
2015	112.7
2016	118.3
2017	118.3
2010-2013	143.7
2014-2017	114.4

Table 2: Average days fished per month by the jig fleet over the period 2010-2017. These are further separated into pre- and post-additional closed season components (2010-2013 and 2014-2017 respectively). The shaded area indicates the additional closed season that applied in the years concerned.

	2010	2011	2012	2013	2014	2015	2016	2017		2010-2013	2014-2017
Jan	17.8	18.8	19.4	11.9	15.9	17.3	18.7	17.0		17.4	17.2
Feb	14.3	15.6	16.2	11.0	6.0	15.8	11.9	16.4		14.9	13.4
Mar	17.0	18.3	14.1	12.5	6.0		11.9	14.3		16.1	6.0
Apr	15.3	12.3	10.0	12.7						12.7	
May	12.2	17.2	5.8	14.9						13.3	
Jun	13.8	11.0	11.9	11.6		12.5				12.1	
July	18.2	11.7	9.6	15.1	20.9	15.0	13.8	18.2		14.0	17.0
Aug	12.9	15.1	14.8	12.9	17.6	11.7	15.4	5.2		13.9	12.7
Sept	15.6	11.5	17.7	7.9	14.4	8.2	18.5	12.5		13.5	13.7
Oct	14.2	14.8	12.0	13.3	14.1	14.6	15.8	14.3		13.6	14.7
Nov	7.6	6.9	7.7	6.7	7.6	7.6	7.2	7.8		7.2	7.6
Dec	21.7	24.3	18.1	21.5	20.8	21.3	18.1	22.8		21.4	20.8