

Rock Lobster Scientific Working Group agreed recreational catch estimates

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In 2009, Anchor (the service provider responsible for the telephone survey for 2008/09) reported that there was an error in the method used for drawing the random numbers to be used to select permit holders to call for the telephone surveys which are conducted every two weeks (see Johnston and Butterworth 2009 for details). The correct method would be to draw the random numbers from **all** currently registered permit holders, i.e. those that had bought permits from the start of the season to the then current date. What had occurred (incorrectly) however, was that random telephone numbers were being drawn only from permit holders who had bought permits in the previous two weeks.

It was subsequently confirmed that this error had occurred since 2003/04. Note that the service provider Enviro was responsible for surveys for the period 2003/04-2007/08. The 2003/04-2007/08 total catch estimates were thus produced using these “error” lists, instead of a correct fully “random” list. The error results in an appreciable negative bias in the estimates of total recreational catch for the season, as typically persons who purchased permits only towards the end of the season caught fewer lobster during the season as a whole than those who purchased their permits earlier.

A Task Group was appointed by the RLWG in order to examine all past telephone survey estimates and to provide a recommendation on how to correct for the error made in the 2003/04 – 2007/08 estimates. Johnston and Butterworth (2009) present the results of this task group’s deliberations, along with corrected recreational catch estimates for the 2003/04-2007/08 period.

The Task Group identified two methods that could be used to scale the incorrect 2003/03-2007/08 catch estimates. Although both methods produced similar corrected results, the SWG agreed that “method 2” was the preferred method to use. This method uses the Anchor 2001/02 and the Anchor 2008/09 catch estimates which were both estimated using correct “random” telephone lists. This provides an estimate of the average number of rock lobster caught by a permit holder for the season (6.274 for 2001/02 and 6.093 for 2008/09), with the average over the two seasons being 6.184. The assumption then made is that this average applies also to the intermediate seasons, for which an estimate of the total recreational catch is then obtained by multiplying this average (6.184) by the number of permits issued for the season concerned.

Table 1 reports the best estimates of the recreational catch from the telephone surveys as agreed by the SWG in August 2009. The 2009/2010 recreational catch estimate is provided by Enviro-Fish Africa (MCM/2010/AUG/SWG-WCRL/12). Figure 1 shows a plot of recreational catch estimates over time, and Figure 2 shows a plot of the permit sales over time. Figure 3 plots the catch per permit holder per season. From Figure 3 it is evident that there is not much variation in the catch per permit holder per season over time (some 6-7 kgs per permit holder per season or

around 18 lobsters per permit holder per season). The accuracy of the total recreational catch each season is thus likely to be as reliable only as the permit count.

Figure 4 shows the relationship between season length (in days) and the recreational catch estimate (in MT).

References

Johnston, S.J. and D.S. Butterworth. 2009. Summary of deliberations by a task group on west coast rock lobster recreational telephone survey catch estimates, and implication of those results. MCM/2009/AUG/SWG/WCRL/13.

Table 1: Summary of recreational catch estimates (in kgs) as contained in telephone survey reports, and corrected where necessary. Recreational season length in days is also reported.

Season	Analyst	Total Catch estimate (kgs)	Total number of permits sold	Season Length in days
1991/92	DSI	159 229	44 469	150
1992/93	DSI	469 257	59 202	240
1993/94	DSI	391 137	57 590	195
1994/95	DSI	336 017	54 160	195
1996/97	DSI	495 617	65 617	165
1997/98	DSI	339 560	44 383	165
1998/99	DSI	258 264	39 982	165
2000/01	DSI	314 169	47 063	146
2001/02	Anchor	336 964	53 704	91
2003/04	Enviro	340 596 (135 053 [#])	55 077*	78
2004/05	Enviro	178 730 (156 408 [#])	28 902	107
2005/06	Enviro	292 657 (275 063 [#])	47 325	99
2006/07	Enviro	211 771 (162 092 [#])	34 245	108
2007/08	Enviro	260 823 (170 676 [#])	42 177	80
2008/09	Anchor	243 775	40 011	79
2009/10	Enviro	215 611	30 416	81

*: Estimate is said to be based on previous three years – this value seems unlikely however, as it is bigger than all three previous seasons total number of permits sold

#: These original estimates were erroneous as they were made at the season end from a fortnight “error list” provided by MCM that were selected only from permits sold during the preceding two weeks (as opposed to entire season) – applies to the 2003/04 to 2007/08 surveys.

Figure 1: Recreational telephone survey estimates of total catch taken (in kgs) over time.

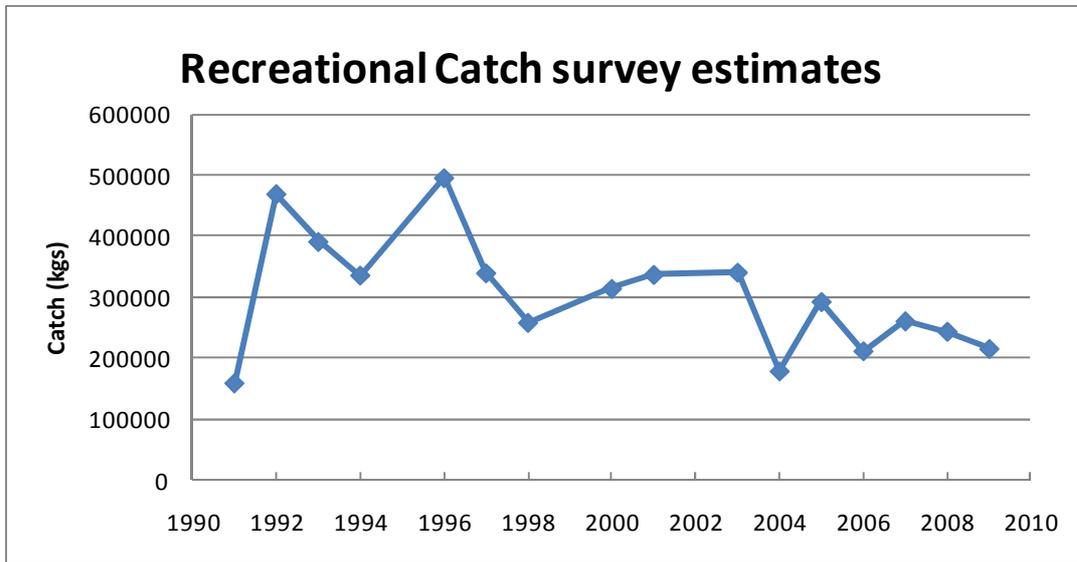


Figure 2: Permit sales over time.

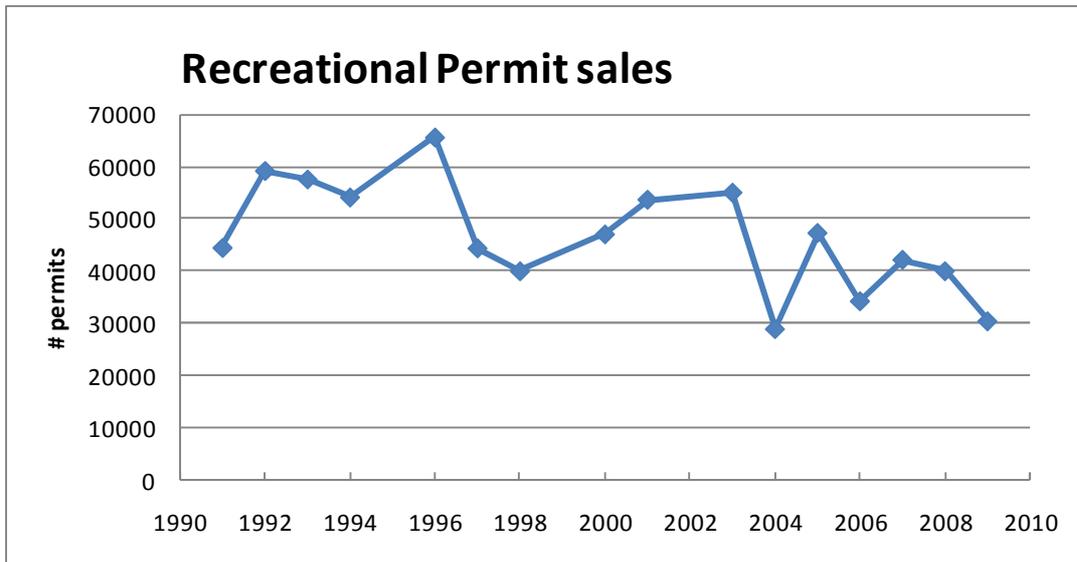


Figure 3: The catch in kgs (top plot) and number of lobsters (bottom plot) per permit holder per season.

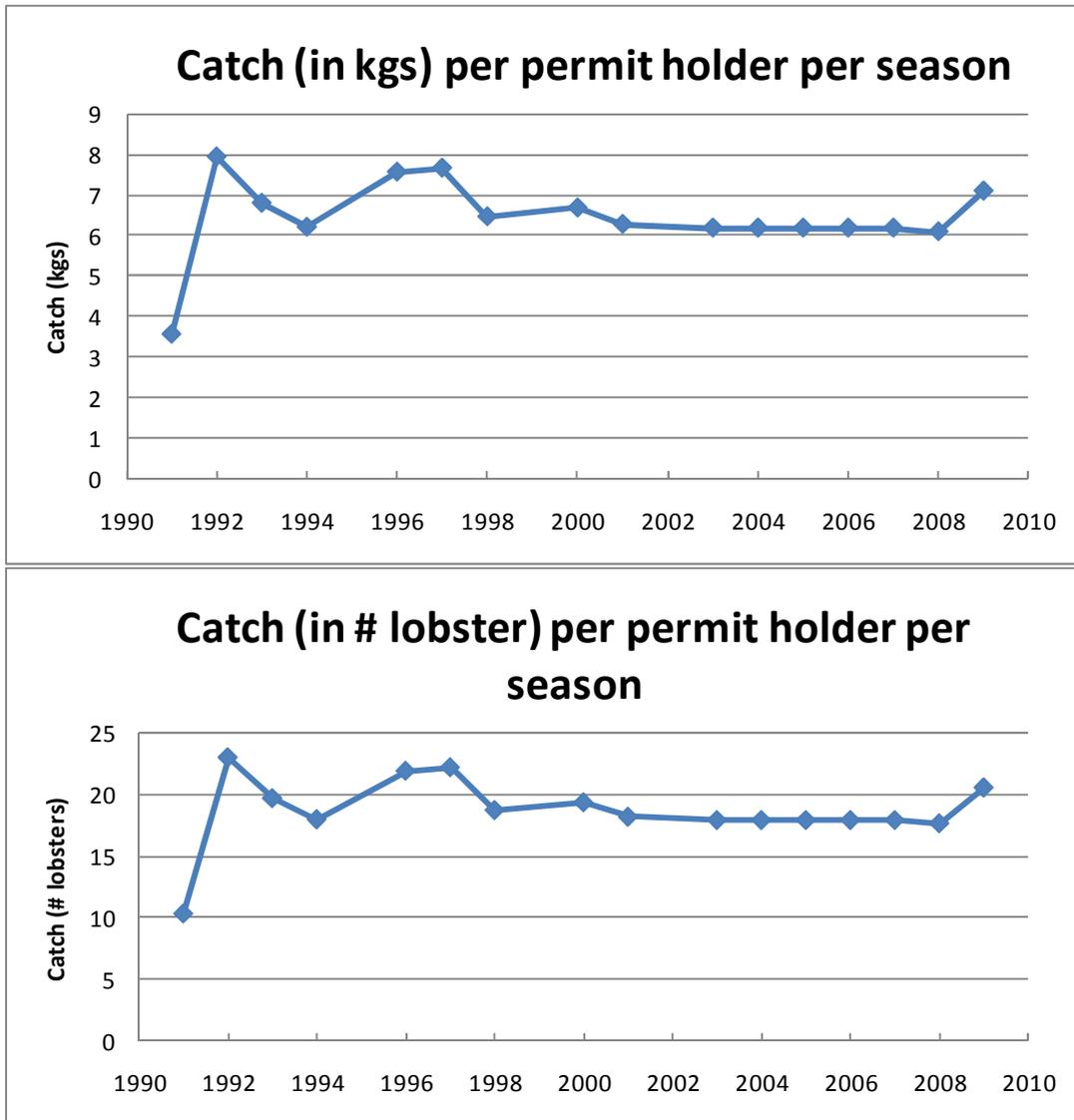


Figure 4: Catch (in MT) versus recreational season length (in days). The top plot is for all seasons from 1991/92 and the bottom is for seasons 2003/04+ only.

