THE EFFECT OF CHANGED MARKET CONDITIONS IN CHINA ON ROCK LOBSTER CATCH AND PRICE

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Executive Summary

This brief note considers the effect of the changed market conditions in China (CMCIC) on rock lobster catches in November and December 2010. The analysis is based on a simple 'rule of thumb' which was supported by the CFAC in late 2010. The unprecedented low catch rates complicate this analysis, as the TACC for 2010/11 was predicted to have been undercaught by an estimated 160t if Chinese market problems had not arisen.

Based on an assessment of current catch rates, November and December catches of 127 and 242t, respectively, were anticipated. In November, 125t were landed (well within the uncertainty of the estimate), in December, 214t were landed – a shortfall of 28 t. If January and February catches are reduced by the same proportion as those in December, it is expected that the TACC for 2010/11, would be undercaught by 249 t – 89 t of which are attributable to the CMCIC. Anecdotal evidence suggests that unless the situation in China is resolved, the effect on catches in January and February may be more severe than indicated here, due to reduced local demand post-Christmas and reduced overseas demand post-Chinese New Year.

In 2010, beach prices prior to December were at a record high, which in part has enabled the rock lobster fishery to remain profitable during the current periods of low catch rates. There is a yearly decline in beach price from November to December; recently this has been in the order of 10-20%. In 2010 the beach price fell 50% from \$79 in November (the highest recorded beach price) to \$40 in December (the third highest December beach price on record).

Table 1: Commercial rock lobster catches in November, December and for the entire season. Anticipated and actual catches with and without the impact of Chinese market conditions are shown along with reduction in catch that the market conditions has appeared to have produced. Numbers in italics are predictions, numbers in bold are actual catch figures. All figures are in tonnes.

	November	December	Total Season	TACC
09/10	**147**	**280**	**1345**	1470
10/11 without CMCIC	*127*	*242*	*1163*	1323
10/11 with CMCIC	**125**	**214**	*1074*	1323
Effect of CMCIC	*2*	*28*	*89*	

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1. Catches

Prior to the changed market conditions in China (CMCIC) the catch in the 2010/2011 season was at a record low for the time of year, even when viewed as a proportion of the TACC (Figure 1). The effect of the CMCIC was first observed in catch data in the second half of December.

Detailed catch figures for November and December 2010 are provided in Table 1, along with the catches anticipated prior to the CMCIC. This shows that there was no noticeable effect on catches in November (the 2 t difference is well within the uncertainty of the estimate), however in December there was a 28 t reduction in catches.

The total catch for the 2010/2011 season was estimated at 1163t prior to the CMCIC (see "Calculating expected catches"). If commercial catches in January and February are reduced by the same proportion as they were in December, the total catch is estimated at 1074t, an 89t deficit from the previous estimate.

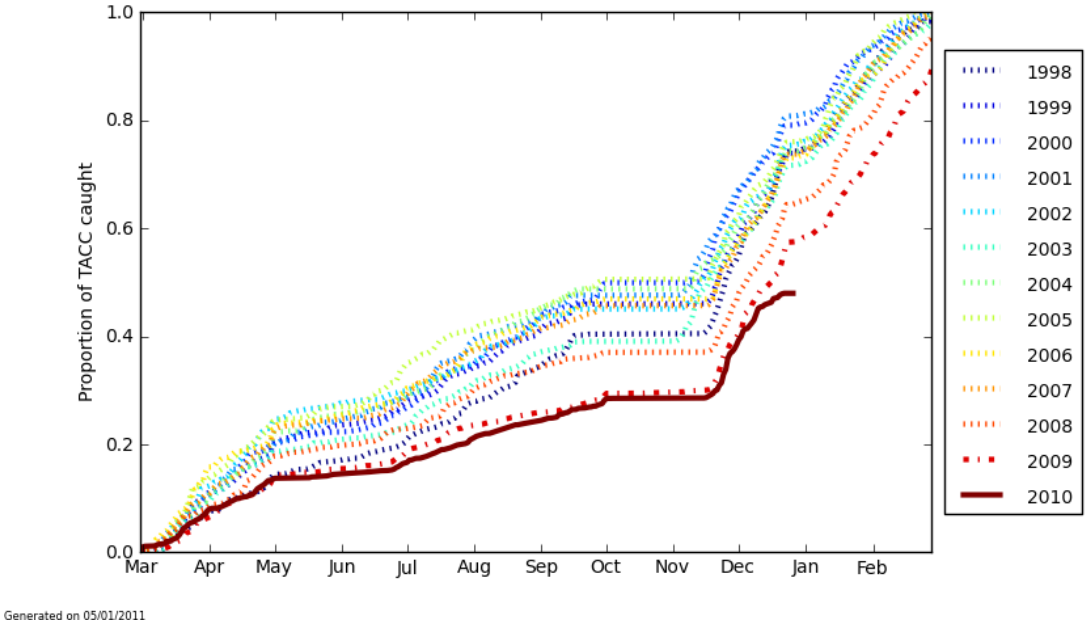

Figure 1: The cumulative proportion of the TACC caught in each quota year. In recent years a greater proportion of the TACC has been caught in later months (in 2009/2010, 50% of the TACC was taken in Dec-Feb). The flattening at the end of the dark red 2010/2011 line is attributable to theCMCIC. Note that this graph ends in mid December due to unavailability of the detailed QMS data at the time of writing.

1.1 Direct Sales

Anecdotal evidence has suggested that many fishers are dealing with the CMCIC by selling rock lobsters directly to the public. The incentive for this is that the price for direct sales is/was well above the price obtainable from processors. Figure 1 shows the direct sales for the last five quota years. The effect of the CMCIC is obvious with a record number of direct sales having been made.

In mid-December the total direct of direct sales was 4.3 t, of 3.2t had occurred since the start of November. The low proportion of the catch being sold in this manner indicates that direct sales are only an effective mechanism for a small proportion of the fleet. A pre-requisite for fishers conducting direct sales is to have a suitable wharf from which to conduct these with an appropriate catchment of local residents or tourists – Margate is a prime example.

Note that direct sales must not be confused with sales to the local market through processors.

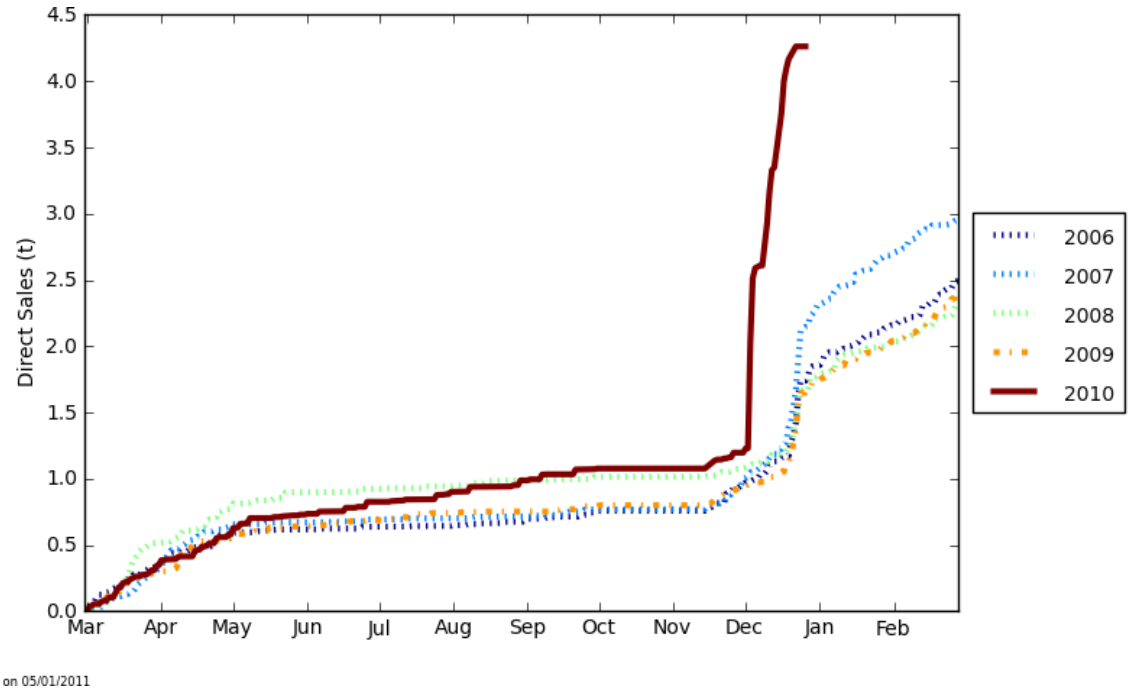

Figure 2: Cumulative direct sales of rock lobster by quota year. The effect of the CMCIC is readily apparent.

1.2 Calculating expected catches

The following method was applied in September 2010 (prior to the CMCIC) to produce an estimate of the total catch for the 2010/2011 quota year. This estimate remained virtually unchanged through to the beginning of the CMCIC. To calculate the effect of the CMCIC, the estimated catch for January and February 2011 was further reduced by the same proportion as observed in December 2010.

Accurately predicting the actual catch of a partially completed quota year is a complicated task, since this will depend strongly on the economic conditions and catch-rates at the end of the quota year and this dynamic is poorly quantified. The prediction is further complicated by the fact that 40-60% of the catch in a quota year is caught in the final three months (see Figure 1) and this proportion tends to be highest in years where catch rates are poor.

More rigorous methods for estimating the final catch in a given year could be developed, however there will still be significant uncertainty due to the unpredictable external factors. Such methods have the further downside that they are difficult to communicate, essentially being a ‘black box’ to most stakeholders in a contentious aspect of the fishery. Two simple rules of thumb are presented here that are easier to explain but are not statistically rigorous.

Method A: Note that the 2010 cumulative catch trajectory is trending slightly below that of 2009. An optimistic prediction is therefore that the final catch will be under the 2010 TACC by the same proportion as the 2009 catch was under the 2009 TACC.

$$\begin{aligned} \text{Expected Catch} &= \text{TACC} \times \%\ \text{caught in 2009} \\ &= 1360\text{t} \times .893 \\ &= 1214 \end{aligned}$$

Method B: Consider the most recent date for which catch data is available in the QMS database. A more pessimistic prediction would project the difference between the 2009 and 2010 cumulative catch on this date forward to the end of the 2010 quota year. At the time of analysis the quota monitoring system had completed data entry to the 3rd of September and 23.6% of the TACC had been caught. In the 2009/2010 quota year 25.8% of the TACC had been caught by this date and 89.3% of the TACC was ultimately caught. Assuming the same catch curve as in 2009/2010 the expected catch can be determined as follows:

$$\begin{aligned} \text{Expected Catch} &= \text{TACC} \times \%\ \text{caught in 2009} \times \frac{\%\ \text{caught by 3rd September 2010}}{\%\ \text{caught by 3rd September 2009}} \\ &= 1360\text{t} \times .893 \times \frac{.236}{.258} \\ &= 1113 \end{aligned}$$

Final estimate: The 2010 catch is estimated to be between 1113 and 1214t. Here we have used the average – 1163t.

2. Beach Price

The beach price in 2010 was at a record, or near record, high in all months except December (see Figures 3 and 4). The recent high beach prices have helped the industry remain profitable despite the dramatic reduction in catch rates.

The beach price normally drops in December, in recent years the drop from November to December has been less pronounced than previously, at between 10 and 20%. In 2010 the beach price fell from a all-time record high of $79/kg in November to $40/kg in December (for which data is only available to mid December). Despite the magnitude of this 50% drop to the lowest price for the year, it is still the third highest December price on record.

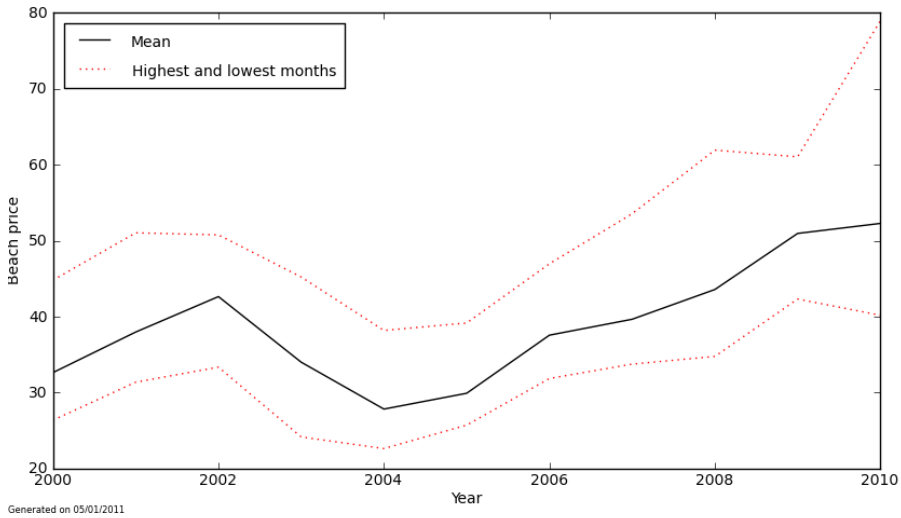

Figure 3: Mean annual beach price (black line) along with the mean price for the highest and lowest months (red dotted line).

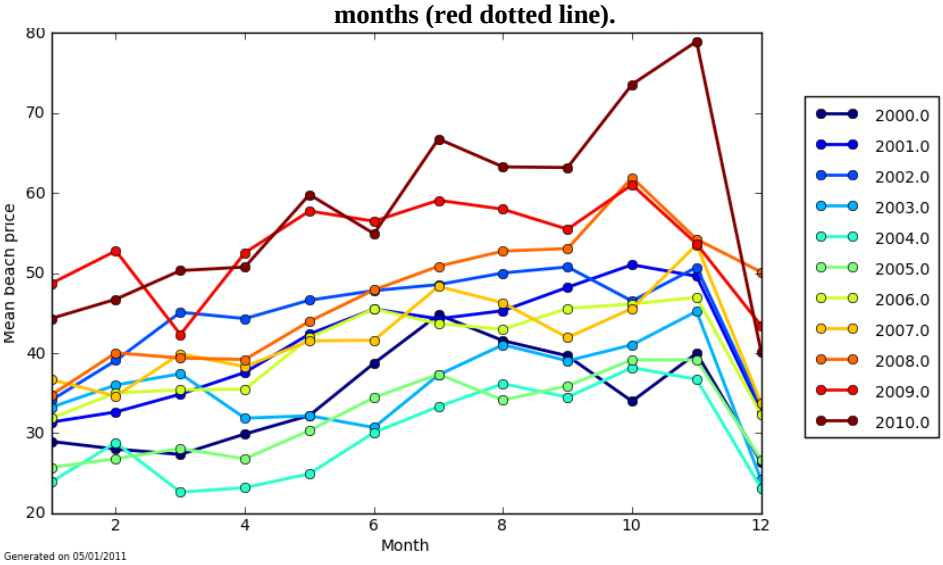

Figure 4: Mean monthly beach price by year.