

**NOMINAL POWERBOAT CPUE FOR THE THREE OUTER ISLANDS OF
THE TRISTAN DA CUNHA GROUP OF ISLANDS FOR THE 1997-2008
PERIOD**

S.J. Johnston

MARAM
Department of Mathematics and Applied Mathematics
University of Cape Town
Rondebosch, 7701

September 2010

INTRODUCTION

GLM analyses have been applied to the longline CPUE database for the three outer islands of the Tristan da Cunha group to produce a standardised CPUE series for use in population assessments (Johnston *et al.* 2010). Although longlines are used to harvest the bulk of the catches at these islands, powerboats are also used to harvest lobsters closer inshore.

The powerboat CPUE database for the outer three islands (Inaccessible, Nightingale and Gough) contains information at a trip level regarding the following:

- Year
- Month
- Number of traps (not available for all trip records)
- Hours fished
- Total catch (in kgs)

It is proposed that a nominal CPUE trend be calculated from the powerboat data using the hours fished as the unit of effort. Incorporating the number of traps deployed as well in calculating effort would require a substantial number of records from the database to be excluded.

The nominal powerboat CPUE for each season-year is thus taken as equal to:

$$CPUE = \frac{\text{catch}}{\text{hours fished}} \text{ kg/hour}$$

RESULTS

Table 1 provides the powerboat nominal CPUE values for each of the three outer islands. The number of trip records available for each Season-Year is also indicated. Figures 1-3 compare the nominal powerboat CPUE with the standardised longline CPUE series for each island, where both series have been renormalised for comparative purposes.

DISCUSSION

The nominal powerboat CPUE series compare favourably (in terms of similar trends) with the respective longline CPUE series obtained from GLM standardisation. It is suggested that the powerboat nominal CPUE series be used for comparative purposes in the population assessments.

REFERENCES

Johnston, S.J., Brandao, A. and D.S. Butterworth. 2010. GLMM- and GLM-standardised lobster CPUE from the Tristan da Cunha group of islands for the 1997-2008 period. MARAM/Tristan/2010/May/04.

Table 1: Nominal powerboat CPUE series for Nightingale, Inaccessible and Gough Islands The number of data records for each Season-Year (N) is provided, along with the nominal CPUE series for each island. The number of records for Nightingale in 2005 is so low as to suggest possible lack of representativity; this result is included here for completeness, but would better be omitted if these data are used in any quantitative analysis.

Season-Year	Nightingale		Inaccessible		Gough	
	N	CPUE (kg/hour)	N	CPUE (kg/hour)	N	CPUE (kg/hour)
1997	178	7.26	297	6.90	362	6.12
1998	96	7.00	253	8.43	393	6.11
1999	149	10.38	100	13.83	400	10.95
2000	128	16.72	178	14.12	414	6.84
2001	204	7.91	219	7.90	578	4.98
2002	188	14.72	153	11.16	491	4.49
2003	88	15.09	208	17.45	560	5.45
2004			41	12.77	218	4.34
2005	6	33.69			133	9.22
2006						
2007	69	30.52	124	13.10	108	11.83
2008	93	23.56	139	14.49	74	17.68

Figure 1: Comparative plot of the nominal powerboat and GLM standardised longline CPUE series for **Nightingale** Island. Both series have been renormalised to a mean of 1 for easier comparison of trends. The number of records for Nightingale in 2005 is so low as to suggest possible lack of representativity; this result is included here for completeness, but would better be omitted if these data are used in any quantitative analysis.

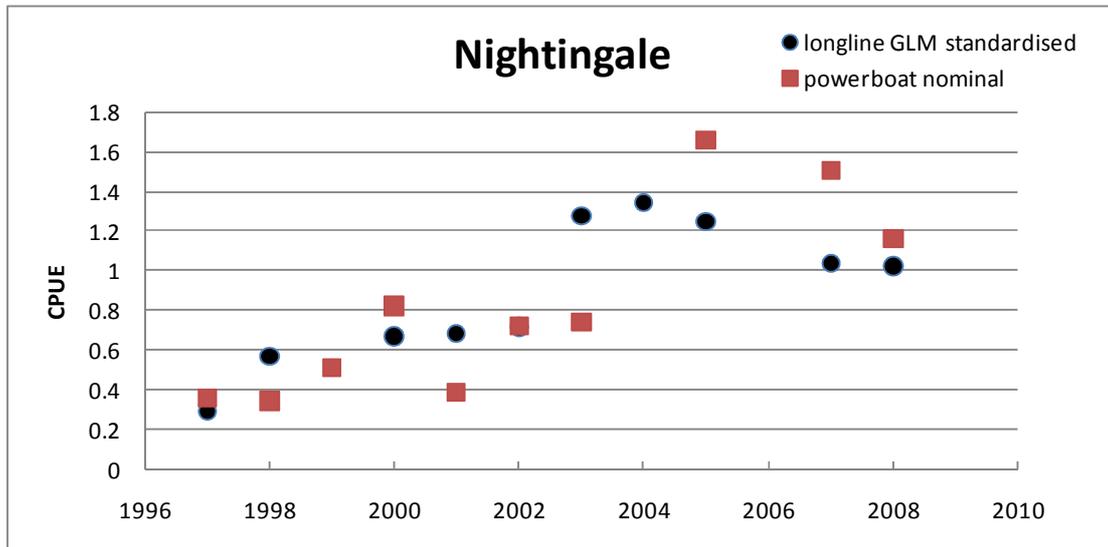


Figure 2: Comparative plot of the nominal powerboat and GLM standardised longline CPUE series for **Inaccessible** Island. Both series have been renormalised to a mean of 1 for the 1997-2004 period for easier comparison of trends.

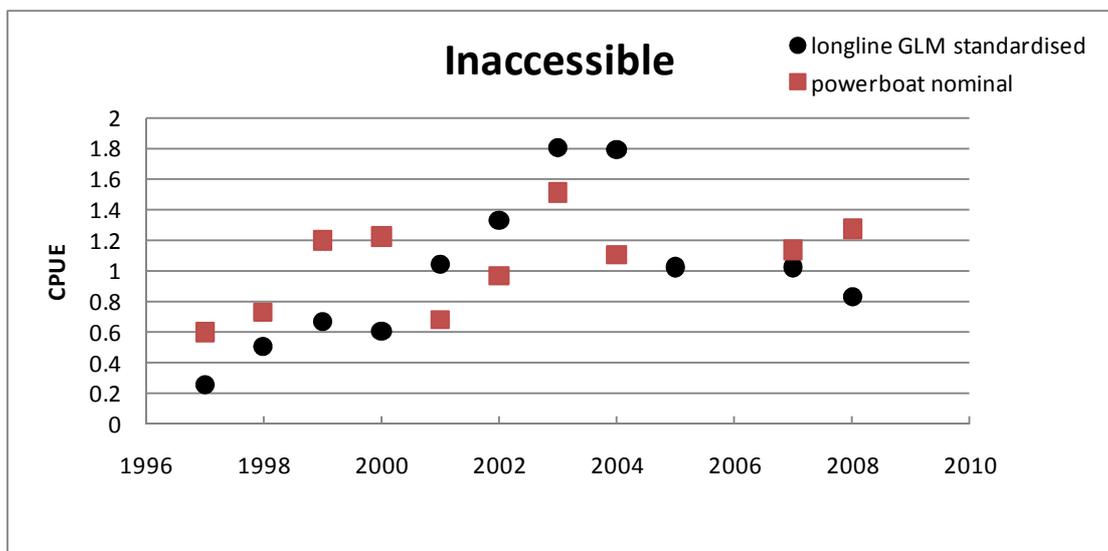


Figure 3: Comparative plot of the nominal powerboat and GLM standardised longline CPUE series for **Gough** Island. Both series have been renormalised to a mean of 1 for easier comparison of trends.

