

## **Input data for the 2013 rock lobster assessments of the Tristan da Cunha group of islands**

Susan Johnston and Doug Butterworth

MARAM

Department of Mathematics and Applied Mathematics

University of Cape Town

Rondebosch, 7701

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The following data are used as model inputs to the 2013 updated assessments (Johnston and Butterworth 2013) of the Tristan da Cunha rock lobsters. Note the convention that, for example, the 2007 season refers to the period Sept 2007 to Aug 2008.

### **Catch**

Table 1 reports the total commercial catches for each island. Note these values exclude the small amounts taken for the biomass surveys. Data provided by James Glass (pers. commn).

### **CPUE**

Standardised longline CPUE data for Inaccessible, Nightingale and Gough, and standardised powerboat data for Tristan are reported in Table 2a. Johnston *et al.* (2013) provide further details of these data.

Nominal powerboat CPUE data for the three outer islands are reported in Table 2b. These data are not used in fitting the model, but are used for comparative purposes only.

### **Biomass survey index**

A biomass survey index is calculated for each island, for both Leg1 and Leg2 for seasons 2006-2012. Note that Leg2 2006 thus refers to the biomass survey done in February 2007. These values represent the full size range of lobsters found in the survey traps. Further detail can be found in Johnston (2013). The mean index values and the associated CVs are reported in Table 2c.

## **Catch-at-Length data**

### *Commercial catch samples*

The catch-at-length data are obtained from the onboard observers who sample the catch onboard before the undersized lobsters are returned to the sea. Males and females are recorded separately. These data are reported in Tables 3-6 and cover seasons 1997-2011.

### *Biomass surveys*

These data are discussed in detail in Johnston (2013). Data are collected for two surveys each season – Leg1 (around September) and Leg2 (around Feb). Males and females are recorded separately. These data are reported in Tables 7-10 and cover seasons 2006-2012.

## **Discard % data**

The longline catch and effort database for Inaccessible, Nightingale and Gough is used to calculate the percentage (by weight) of the discarded lobsters relative to the total catch hauled. These data are reported in Table 11.

## **References**

Johnston, S.J. 2013. A summary of the Tristan biomass survey results to data. MARAM/TRISTAN/2013/MAR/04.

Johnston, S.J. and Butterworth, D.S. 2013. Updated 2013 rock lobster assessments for the Tristan da Cunha island. MARAM/Tristan/2013/MAR/08.

Johnston, S.J., Brandao, A. and Butterworth, D.S. 2013. GLMM- and GLM-standardised lobster CPUE from the Tristan da Cunha group of islands for the 1997-2011 period. MARAM/Tristan/2013/MAR/05.

Table 1: Total catches (MT) taken from each island since 1990.

HISTORIC FISHING SEASON	TRISTAN TOTAL CATCH KGS	GOUGH TOTAL CATCH KGS	NIGHTINGALE TOTAL CATCH KGS	INACCESSIBLE TOTAL CATCH KGS
1990/91	161,431	134,000	56,000	77,000
1991/92	165,347	86,020	61,390	53,000
1992/93	137,987	96,909	59,310	70,000
1993/94	112,060	82,043	50,860	58,000
1994/95	125,342	95,972	51,180	60,190
1995/96	112,540	103,508	56,660	60,080
1996/97	119,028	91,570	62,050	72,760
1997/98	125,765	66,994	51,288	61,108
1998/99	117,172	94,652	50,444	60,102
1999/00	122,019	89,678	51,433	62,725
2000/2001	124,391	71,127	51,348	65,131
2001/2002	127,274	88,666	55,748	68,918
2002/2003	132,550	74,540	55,334	69,175
2003/2004	137,698	91,665	56,173	75,536
2004/2005	157,824	63,978	59,981	82,574
2005/2006	160,555	55,780	60,868	90,844
2006/2007	179,594	55,361	62,071	103,073
2007/2008	186,755	60,659	64,104	111,985
2008/2009	181,703	66,011	70,627	111,888
2009/2010	186,830	77,090	72,631	109,947
2010/2011	180,751	86,849	62,745	52,642
2011/2012	168,066	95,814	0	53,697
2012/2013	171,027	95,646	39.352	70.439

Table 2a: Standardised longline CPUE for Inaccessible, Nightingale and Gough islands (kg/trap), and the standardised powerboat CPUE for Tristan (kg/hour/gear). [See MARAM/TRISTAN/2013/MAR/05 for details.]

	<b>Inaccessible</b>	<b>Nightingale</b>	<b>Gough</b>	<b>Tristan</b>
1994				0.323
1995				0.286
1996				0.312
1997	2.929	2.150	2.267	0.481
1998	2.466	2.488	2.184	0.569
1999	2.540	2.667	1.519	0.755
2000	3.222	4.145	1.368	0.953
2001	3.101	3.401	1.495	0.971
2002	4.133	3.414	1.266	1.338
2003	6.187	6.183	1.595	1.526
2004	9.704	5.958	1.625	1.705
2005	7.055	6.632	2.975	2.214
2006	6.354	5.170	4.128	2.554
2007	5.078	5.206	5.536	2.100
2008	4.919	3.930	5.765	1.271
2009	3.231	3.941	7.627	1.746
2010	2.802	3.663	4.984	1.247
2011	3.903	-	6.466	1.199
2012				1.043

Table 2b: Nominal powerboat CPUE (kg/trap) for the three outer islands.

	<b>Inaccessible</b>	<b>Nightingale</b>	<b>Gough</b>
1997	2.75	1.91	
1998	2.14	1.61	
1999	3.20	2.15	1.99
2000	3.81	3.25	1.82
2001	1.99	2.33	1.16
2002	2.92	2.25	1.13
2003	4.25	2.82	1.22
2004	2.18		1.44
2005			1.76
2006			
2007	4.68	7.57	2.35
2008	2.29	1.80	
2009	1.75	3.23	2.87
2010	1.17	2.71	3.26

Table 2c: Biomass survey indices for the four islands. Mean values reported with CVs in parentheses.

<b>LEG1</b>	<b>Inaccessible</b>	<b>Nightingale</b>	<b>Gough</b>	<b>Tristan</b>
2006	17.80 (0.23)	13.86 (0.15)	8.03 (0.31)	31.60 (0.21)
2007	16.33 (0.21)	20.31 (0.19)	11.15 (0.28)	40.23 (0.13)
2008	-	-	-	-
2009	14.98 (0.36)	16.31 (0.05)	26.47 (0.26)	26.64 (0.13)
2010	10.98 (0.55)	14.00 (0.26)	11.15 (0.32)	25.49 (0.14)
2011	16.60 (0.19)	4.63 (0.51)	16.39 (0.26)	28.36 (0.14)
2012	9.51 (0.22)	18.10 (0.19)	9.11 (0.27)	17.96 (0.14)
<b>LEG2</b>	<b>Inaccessible</b>	<b>Nightingale</b>	<b>Gough</b>	<b>Tristan</b>
2006	10.63 (0.32)	9.94 (0.23)	4.11 (0.31)	27.63 (0.10)
2007	8.87 (0.34)	6.67 (0.28)	5.46 (0.42)	16.90 (0.19)
2008	9.11 (0.44)	8.17 (0.15)	4.51 (0.40)	20.56 (0.10)
2009	9.67 (0.77)	20.28 (0.20)	5.29 (0.28)	23.92 (0.14)
2010	14.38 (0.35)	5.11 (0.17)	4.86 (0.35)	20.74 (0.14)
2011	6.67 (0.26)	8.60 (0.33)	6.75 (0.36)	14.69 (0.19)
2012	5.88 (0.26)	14.47 (0.29)	5.64 (0.30)	11.86 (0.11)

Table 3a: Inaccessible male commercial catch-at-length percentage of total (m+f) catch. Note that, e.g., 50 refers to carapace length 50 to 54mm.

	1997	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
50	0.15	0.38	0.21	0.16	0.11	0.07	0.13	0.10	0.08	0.47	0.44	1.69	0.28	1.19
55	0.55	1.07	1.52	1.47	0.62	0.48	0.79	0.86	1.18	2.18	2.43	3.65	3.38	3.96
60	3.88	5.49	5.74	9.89	3.90	3.71	6.27	4.65	7.59	8.28	10.99	12.50	14.00	13.53
65	13.33	18.21	14.55	19.86	8.14	11.45	14.20	11.79	15.08	13.84	20.25	16.24	19.40	23.73
70	11.97	19.48	16.72	14.03	13.37	17.49	15.99	16.88	15.03	15.58	16.15	11.15	13.31	14.14
75	7.45	14.50	14.04	9.22	16.48	14.55	13.49	16.64	12.79	11.33	10.12	6.77	6.77	4.31
80	5.31	8.64	8.36	6.79	17.05	11.35	11.67	12.92	10.32	8.98	7.03	4.09	3.98	1.86
85	3.35	5.89	4.55	4.32	9.98	9.28	7.73	8.43	7.91	6.31	4.65	3.15	2.05	1.09
90	2.58	3.36	2.98	3.55	3.65	5.45	5.34	5.57	3.81	3.90	3.03	1.95	1.20	0.49
95	1.58	2.41	2.29	2.45	1.95	3.13	3.88	3.94	2.18	2.58	1.87	1.15	0.49	0.33
100	1.39	1.79	1.31	1.90	1.98	2.15	1.88	2.32	1.20	1.48	0.96	0.98	0.28	0.12
105	1.00	1.09	1.16	1.02	1.06	1.45	0.94	1.36	0.93	0.99	0.53	0.45	0.10	0.05
110	0.75	0.99	1.04	0.39	0.62	1.30	0.63	0.62	0.76	0.44	0.51	0.32	0.07	0.09
115	0.43	0.34	0.57	0.39	0.60	0.60	0.38	0.48	0.27	0.38	0.40	0.24	0.03	0.02
120	0.51	0.62	0.83	0.43	0.49	0.74	0.67	0.66	0.53	0.40	0.38	0.22	0.03	0.02

Table 3b: Inaccessible female commercial catch-at-length percentage of total (m+f) catch.

	1997	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
50	0.21	0.08	0.33	0.14	0.32	0.17	0.06	0.08	0.17	0.54	0.11	0.50	0.56	1.16
55	1.51	0.56	1.40	1.47	1.65	1.18	0.81	0.48	1.86	2.88	2.11	4.73	5.03	5.73
60	10.96	3.98	6.46	7.28	4.95	4.96	3.96	3.36	7.02	6.83	7.61	13.33	12.97	13.79
65	20.93	5.75	8.66	10.17	6.79	4.92	5.02	5.39	7.34	6.85	6.74	11.58	11.61	11.02
70	8.78	3.06	4.28	3.63	3.52	2.94	2.84	2.32	2.66	3.33	2.87	3.51	3.26	2.79
75	2.37	1.49	1.49	1.04	1.87	1.69	1.54	0.74	0.91	1.50	0.53	1.11	0.93	0.40
80	0.61	0.52	0.92	0.22	0.51	0.60	0.94	0.22	0.17	0.59	0.24	0.41	0.18	0.14
85	0.29	0.20	0.39	0.06	0.22	0.19	0.46	0.14	0.15	0.23	0.02	0.18	0.03	0.05
90	0.12	0.10	0.21	0.10	0.19	0.15	0.40	0.06	0.08	0.10	0.02	0.11	0.05	0.00



Table 4a: Nightingale male commercial catch-at-length percentage of total (m+f) catch.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
55	0.06	0.07	0.08	0.00	0.05	0.06	0.08	0.04	0.02	0.18	0.24	0.06	0.59	0.37	0.18
60	2.20	1.66	1.16	0.00	2.17	0.98	0.36	1.17	0.24	1.16	2.66	2.17	3.50	3.97	1.56
65	7.84	6.27	6.85	0.00	8.61	2.46	1.64	4.87	1.88	3.33	6.70	7.61	9.00	9.67	4.83
70	13.07	11.13	10.10	0.00	15.70	7.05	5.10	7.78	5.49	6.28	8.66	11.86	13.33	11.82	9.34
75	11.47	11.58	10.34	0.00	15.12	10.09	11.33	7.91	8.80	8.41	8.00	10.90	11.79	9.62	13.47
80	9.74	9.08	7.03	0.00	12.08	20.00	15.46	9.13	10.81	9.39	7.36	8.98	8.78	8.20	15.44
85	4.99	5.17	5.14	0.00	8.30	12.85	12.92	6.30	9.18	8.30	5.50	5.83	5.78	5.32	12.97
90	3.15	2.83	3.07	0.00	5.72	3.60	12.87	4.83	7.40	6.46	6.28	4.44	3.91	2.57	7.51
95	1.37	1.35	1.57	0.00	3.40	2.00	7.26	3.39	5.25	6.12	5.28	3.50	2.90	1.37	4.15
100	1.01	0.77	1.16	0.00	2.34	1.08	3.51	2.13	3.23	4.51	5.38	2.67	1.94	0.82	1.90
105	1.13	0.58	0.54	0.00	1.25	0.60	2.62	2.22	2.33	2.67	4.26	1.56	1.55	0.52	0.99
110	0.30	0.23	0.28	0.00	0.43	0.38	1.77	1.61	1.14	1.69	3.36	0.81	1.28	0.27	0.40
115	0.18	0.16	0.04	0.00	0.22	0.16	0.92	0.96	0.54	0.78	2.34	0.56	0.92	0.10	0.20
120	0.18	0.04	0.06	0.00	0.02	0.06	0.74	0.78	0.46	0.32	1.20	0.21	0.32	0.05	0.13
125	0.18	0.02	0.14	0.00	0.07	0.04	0.38	0.48	0.30	0.26	0.86	0.17	0.28	0.05	0.13

Table 4b: Nightingale female commercial catch-at-length percentage of total (m+f) catch.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
55	0.59	0.05	0.24	0.00	0.02	0.00	0.67	0.13	0.06	0.16	0.34	0.40	0.60	0.60	0.29
60	6.12	3.03	3.92	0.00	2.19	4.60	3.26	2.91	1.00	1.67	2.24	3.29	3.75	5.05	1.93
65	15.45	11.92	16.93	0.00	6.71	9.87	7.08	14.78	9.04	9.43	6.32	7.81	9.32	10.95	6.09
70	11.29	16.16	15.04	0.00	7.62	9.95	5.85	12.70	13.99	13.56	8.32	9.61	8.07	11.92	6.91
75	6.42	10.97	10.10	0.00	4.87	8.67	3.77	9.65	12.33	10.41	7.26	8.77	6.08	8.75	5.08
80	2.38	4.52	4.08	0.00	1.93	3.38	1.51	4.13	4.43	3.85	3.96	5.23	3.43	5.40	3.83
85	0.42	1.26	1.33	0.00	0.70	1.80	0.54	1.30	1.66	0.90	1.96	2.13	1.78	1.85	1.65
90	0.48	1.15	0.80	0.00	0.46	0.32	0.36	0.78	0.44	0.16	1.50	1.44	1.10	0.72	1.02

Table 5a: Gough male commercial catch-at-length percentage of total (m+f) catch.

		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
	60	0.26	0.28	0.35	0.58	0.34	0.02	0.27	0.67	1.38	1.06	0.64	0.14	0.09	0.15	0.06
	65	0.09	1.04	1.86	2.45	1.53	0.20	1.32	1.73	3.90	2.72	2.24	0.65	0.79	1.15	0.42
	70	0.69	2.35	7.93	5.41	4.13	0.98	3.15	4.60	9.66	6.23	6.32	1.92	5.42	3.86	3.40
	75	1.97	3.50	10.49	9.04	8.30	2.26	6.48	8.07	11.28	6.79	8.72	5.35	9.66	4.61	7.12
	80	5.62	3.87	13.99	12.07	11.31	9.33	11.05	7.07	14.44	7.89	8.53	8.63	8.80	7.11	8.42
	85	8.63	4.60	11.01	11.92	12.08	19.58	12.20	5.80	13.96	6.87	7.44	10.94	7.15	7.36	7.71
	90	11.12	4.36	8.51	9.59	11.32	17.08	11.68	6.07	10.88	6.07	5.89	11.80	6.57	6.74	6.43
	95	11.07	4.03	6.93	5.88	9.43	10.81	8.88	5.60	5.74	6.57	5.70	7.70	5.30	5.63	5.38
	100	14.68	3.78	5.19	4.06	7.14	8.15	6.73	5.00	3.40	4.87	6.34	5.37	5.21	4.82	4.36
	105	10.94	3.00	3.90	2.82	4.49	5.51	4.45	3.54	1.36	4.21	6.10	3.78	3.99	3.99	3.69
	110	9.36	2.09	2.04	2.25	2.45	4.67	2.19	2.74	0.52	2.74	4.59	2.67	3.61	4.91	2.54
	115	6.65	1.70	1.40	1.15	1.24	3.08	1.35	2.13	0.30	1.86	2.77	2.59	2.44	3.73	2.20
	120	5.32	1.14	1.34	1.07	0.80	3.10	0.71	1.40	0.22	1.10	1.46	1.27	1.74	3.12	2.02
	125	6.05	1.93	1.52	1.64	1.91	5.41	0.88	0.67	0.26	1.72	1.28	1.25	3.70	5.25	3.27

Table 5b: Gough female commercial catch-at-length percentage of total (m+f) catch.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
60	0.04	0.58	0.35	0.66	0.19	0.24	2.57	0.67	0.38	0.54	0.10	0.20	0.14	0.28	0.10
65	0.09	2.47	1.98	2.07	1.78	0.80	3.59	2.60	1.62	3.17	1.65	1.57	2.01	1.79	1.85
70	0.90	7.33	5.19	6.45	4.41	1.24	5.25	10.94	4.74	8.72	6.19	8.53	8.15	8.62	9.99
75	1.89	15.63	5.36	8.78	6.49	2.28	7.50	12.74	5.74	11.10	7.89	11.88	11.08	13.17	13.52
80	1.80	16.81	5.54	6.13	4.94	2.30	5.17	9.94	5.26	8.13	7.52	7.00	6.91	7.19	9.93
85	1.16	10.20	2.21	3.20	3.03	1.48	2.80	4.60	2.36	4.61	4.51	3.86	4.29	3.63	4.31
90	0.77	4.90	1.46	1.61	1.45	0.64	1.21	1.47	1.62	1.90	2.05	1.76	1.65	1.71	2.02
95	0.43	2.21	1.05	0.63	0.66	0.40	0.37	0.87	0.62	0.62	0.94	0.71	0.88	0.68	0.85
100	0.34	0.80	0.29	0.20	0.28	0.28	0.13	0.40	0.22	0.32	0.51	0.20	0.32	0.19	0.29
105	0.04	0.57	0.06	0.23	0.19	0.12	0.05	0.20	0.08	0.14	0.29	0.14	0.05	0.15	0.10
110	0.09	0.82	0.06	0.09	0.12	0.06	0.03	0.47	0.08	0.08	0.30	0.08	0.07	0.15	0.03

Table 6a: Tristan male commercial catch-at-length percentage of total (m+f) catch.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
55	0.19	0.24	-	0.17	0.42	0.00	0.19	0.14	0.43	0.36	0.05	0.08	0.23	0.15	0.54
60	1.27	1.39	-	1.14	1.10	0.00	0.67	0.61	1.24	1.34	0.05	0.58	1.89	1.40	3.66
65	5.00	3.55	-	3.42	4.42	0.00	3.71	3.06	2.83	3.34	0.84	3.08	5.99	5.66	11.24
70	11.40	8.03	-	6.10	8.30	0.00	8.70	7.15	6.22	5.96	2.13	7.67	8.89	9.70	12.35
75	15.64	8.92	-	8.95	11.16	0.00	13.65	11.16	8.45	8.29	4.76	11.79	9.77	15.36	11.07
80	12.03	10.31	-	9.52	12.89	0.00	14.55	12.18	10.37	10.75	7.19	14.09	9.49	13.96	9.52
85	9.12	7.58	-	6.56	12.77	0.00	15.26	12.48	9.80	11.25	10.22	13.04	8.85	7.05	7.68
90	4.88	6.72	-	6.78	13.82	0.00	14.03	10.56	8.27	12.73	12.60	13.12	9.06	6.54	5.00
95	2.66	2.61	-	4.96	10.99	0.00	12.55	8.25	5.52	12.45	14.34	10.53	8.64	5.73	2.69
100	1.27	2.00	-	3.36	9.06	0.00	8.51	6.19	4.07	11.39	14.93	7.59	8.02	4.04	1.59
105	0.38	0.53	-	1.94	4.30	0.00	4.99	3.21	2.21	8.08	14.53	3.62	5.88	2.35	0.79
110	0.19	0.12	-	1.25	2.10	0.00	3.14	2.19	1.97	6.64	5.75	2.00	3.29	1.03	0.21

Table 6b: Tristan female commercial catch-at-length percentage of total (m+f) catch.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
60	2.72	2.57	-	3.93	0.57	0.00	0.05	1.00	2.50	0.94	0.40	0.48	1.82	1.32	4.03
65	8.87	11.37	-	12.66	1.78	0.00	0.00	4.07	7.19	1.61	0.74	1.80	3.16	3.16	7.39
70	10.96	16.34	-	15.11	3.31	0.00	0.00	6.33	10.02	1.62	0.99	3.60	5.07	7.20	7.95
75	6.78	10.43	-	9.46	1.78	0.00	0.00	6.52	10.15	1.55	0.55	3.88	4.70	8.23	6.82
80	3.74	4.89	-	3.02	0.76	0.00	0.00	3.19	6.46	1.08	0.20	2.00	3.13	4.34	4.89
85	2.28	1.83	-	1.14	0.34	0.00	0.00	1.16	1.59	0.43	0.10	0.78	1.31	1.69	1.74
90	0.63	0.57	-	0.51	0.11	0.00	0.00	0.57	0.73	0.19	0.05	0.26	0.81	1.10	0.81

Table 7a: Inaccessible male and female biomass survey catch-at-length proportions (m+f = 1.0) for Leg1.

MALE	2006	2007	2008	2009	2010	2011	2012
55	0.054	0.041	0.000	0.061	0.264	0.089	0.079
60	0.095	0.114	0.000	0.114	0.246	0.158	0.145
65	0.128	0.151	0.000	0.166	0.139	0.198	0.185
70	0.143	0.133	0.000	0.148	0.090	0.167	0.185
75	0.138	0.102	0.000	0.117	0.052	0.087	0.133
80	0.116	0.090	0.000	0.081	0.026	0.064	0.084
85	0.081	0.061	0.000	0.051	0.008	0.030	0.046
90	0.049	0.057	0.000	0.033	0.008	0.016	0.022
95	0.035	0.037	0.000	0.022	0.004	0.013	0.018
100	0.025	0.033	0.000	0.015	0.004	0.007	0.008
105	0.013	0.021	0.000	0.011	0.003	0.003	0.002
110	0.024	0.027	0.000	0.012	0.003	0.004	0.003
FEMALE	2006	2007	2008	2009	2010	2011	2012
55	0.019	0.016	0.000	0.039	0.099	0.039	0.035
60	0.023	0.040	0.000	0.045	0.027	0.042	0.042
65	0.026	0.032	0.000	0.044	0.016	0.036	0.036
70	0.016	0.023	0.000	0.022	0.008	0.028	0.028
75	0.009	0.012	0.000	0.011	0.001	0.012	0.012
80	0.005	0.009	0.000	0.006	0.002	0.006	0.002

Table 7b: Inaccessible male and female biomass survey catch-at-length proportions (m+f = 1.0) for Leg2.

MALE	2006	2007	2008	2009	2010	2011	2012
55	0.035	0.080	0.070	0.087	0.065	0.013	0.037
60	0.092	0.102	0.165	0.090	0.144	0.070	0.136
65	0.120	0.105	0.171	0.079	0.187	0.138	0.170
70	0.103	0.075	0.128	0.066	0.113	0.184	0.152
75	0.079	0.057	0.082	0.027	0.072	0.129	0.096
80	0.060	0.046	0.043	0.022	0.049	0.078	0.075
85	0.059	0.029	0.035	0.007	0.022	0.044	0.050
90	0.047	0.025	0.016	0.006	0.016	0.031	0.036
95	0.033	0.014	0.013	0.002	0.011	0.016	0.021
100	0.030	0.012	0.007	0.003	0.007	0.014	0.013
105	0.042	0.010	0.007	0.002	0.006	0.005	0.007
110	0.045	0.015	0.019	0.003	0.008	0.012	0.008
FEMALE	2006	2007	2008	2009	2010	2011	2012
65	0.153	0.347	0.168	0.428	0.187	0.138	0.158
70	0.051	0.055	0.038	0.092	0.063	0.055	0.025
75	0.024	0.017	0.026	0.041	0.032	0.039	0.008
80	0.020	0.008	0.007	0.025	0.012	0.022	0.005
85	0.007	0.002	0.003	0.015	0.006	0.014	0.002



Table 8a: Nightingale male and female biomass survey catch-at-length proportions (m+f = 1.0) for Leg1.

MALE	2006	2007	2009	2010	2011	2012
55	0.001	0.001	0.025	0.022	0.010	0.001
60	0.015	0.006	0.050	0.086	0.024	0.002
65	0.044	0.026	0.124	0.160	0.044	0.010
70	0.114	0.056	0.134	0.176	0.080	0.039
75	0.134	0.076	0.136	0.158	0.172	0.071
80	0.179	0.114	0.132	0.129	0.183	0.134
85	0.148	0.124	0.097	0.067	0.115	0.171
90	0.117	0.130	0.068	0.040	0.086	0.212
95	0.079	0.098	0.036	0.014	0.036	0.171
100	0.057	0.076	0.018	0.012	0.019	0.103
105	0.028	0.067	0.011	0.007	0.016	0.043
110	0.039	0.138	0.017	0.007	0.008	0.037
FEMALE	2006	2007	2009	2010	2011	2012
65	0.013	0.014	0.070	0.053	0.013	0.001
70	0.007	0.025	0.027	0.023	0.010	0.001
75	0.013	0.019	0.029	0.019	0.013	0.001
80	0.005	0.013	0.012	0.013	0.016	0.001
85	0.006	0.014	0.012	0.013	0.045	0.002

Table 8b: Nightingale male and female biomass survey catch-at-length proportions (m+f = 1.0) for Leg2.

MALE	2006	2007	2008	2009	2010	2011	2012
55	0.002	0.012	0.010	0.033	0.002	0.002	0.000
60	0.009	0.031	0.063	0.130	0.011	0.005	0.001
65	0.039	0.074	0.134	0.145	0.045	0.014	0.017
70	0.065	0.084	0.122	0.139	0.118	0.030	0.049
75	0.099	0.070	0.121	0.081	0.142	0.062	0.107
80	0.094	0.065	0.087	0.077	0.141	0.118	0.141
85	0.079	0.034	0.045	0.040	0.101	0.176	0.124
90	0.076	0.035	0.041	0.028	0.058	0.156	0.170
95	0.073	0.016	0.023	0.014	0.027	0.132	0.149
100	0.059	0.019	0.019	0.011	0.019	0.096	0.111
105	0.057	0.023	0.010	0.006	0.008	0.047	0.048
110	0.128	0.042	0.030	0.013	0.029	0.086	0.042
FEMALE	2006	2007	2008	2009	2010	2011	2012
65	0.030	0.125	0.113	0.115	0.046	0.000	0.002
70	0.066	0.091	0.068	0.052	0.051	0.002	0.002
75	0.047	0.131	0.052	0.032	0.077	0.003	0.003
80	0.035	0.089	0.041	0.034	0.054	0.005	0.006
85	0.039	0.060	0.020	0.033	0.069	0.018	0.008

Table 9a: Gough male and female biomass survey catch-at-length proportions (m+f = 1.0) for Leg1.

MALE	2006	2007	2008	2009	2010	2011	2012
55	0.001	0.000	0.000	0.000	0.000	0.000	0.000
60	0.005	0.000	0.000	0.000	0.001	0.000	0.000
65	0.018	0.000	0.000	0.004	0.008	0.002	0.003
70	0.031	0.008	0.000	0.028	0.042	0.018	0.024
75	0.049	0.044	0.000	0.072	0.068	0.061	0.049
80	0.086	0.090	0.000	0.096	0.124	0.102	0.057
85	0.086	0.132	0.000	0.088	0.147	0.113	0.107
90	0.091	0.104	0.000	0.094	0.135	0.102	0.156
95	0.083	0.068	0.000	0.078	0.080	0.095	0.131
100	0.078	0.057	0.000	0.063	0.062	0.066	0.085
105	0.063	0.044	0.000	0.036	0.034	0.043	0.067
110	0.053	0.032	0.000	0.024	0.025	0.061	0.092
115	0.023	0.034	0.000	0.013	0.021	0.000	0.000
120	0.012	0.017	0.000	0.010	0.007	0.000	0.000
125	0.017	0.032	0.000	0.010	0.006	0.000	0.000
FEMALE	2006	2007	2008	2009	2010	2011	2012
65	0.020	0.002	0.000	0.010	0.011	0.005	0.003
70	0.064	0.018	0.000	0.058	0.044	0.028	0.027
75	0.088	0.075	0.000	0.114	0.076	0.086	0.057
80	0.066	0.102	0.000	0.095	0.056	0.085	0.067
85	0.037	0.074	0.000	0.053	0.027	0.052	0.041
90	0.030	0.070	0.000	0.053	0.025	0.082	0.034

Table 9b: Gough male and female biomass survey catch-at-length proportions (m+f = 1.0) for Leg2.

MALE	2006	2007	2008	2009	2010	2011	2012
65	0.005	0.002	0.002	0.004	0.001	0.000	0.000
70	0.017	0.002	0.018	0.016	0.023	0.004	0.006
75	0.050	0.011	0.029	0.045	0.044	0.021	0.033
80	0.086	0.022	0.063	0.087	0.073	0.047	0.079
85	0.103	0.060	0.067	0.094	0.078	0.084	0.074
90	0.129	0.171	0.143	0.108	0.079	0.118	0.103
95	0.117	0.141	0.090	0.095	0.064	0.110	0.109
100	0.142	0.111	0.116	0.104	0.074	0.109	0.102
105	0.099	0.141	0.106	0.069	0.051	0.097	0.057
110	0.074	0.109	0.098	0.059	0.035	0.365	0.122
115	0.041	0.111	0.100	0.032	0.010	0.000	0.077
120	0.017	0.069	0.065	0.025	0.012	0.000	0.047
125	0.027	0.028	0.057	0.021	0.016	0.000	0.105
FEMALE	2006	2007	2008	2009	2010	2011	2012
65	0.029	0.000	0.004	0.005	0.008	0.001	0.001
70	0.015	0.002	0.014	0.032	0.040	0.006	0.013
75	0.022	0.002	0.016	0.039	0.132	0.013	0.023
80	0.009	0.009	0.012	0.059	0.124	0.014	0.020
85	0.012	0.008	0.000	0.033	0.074	0.006	0.020
90	0.021	0.005	0.000	0.073	0.061	0.005	0.009

Table 10a: Tristan male and female biomass survey catch-at-length proportions (m+f = 1.0) for Leg1.

MALE	2006	2007	2008	2009	2010	2011	2012
55	0.006	0.002	0.000	0.009	0.014	0.018	0.035
60	0.020	0.008	0.000	0.039	0.057	0.057	0.094
65	0.040	0.036	0.000	0.092	0.133	0.112	0.164
70	0.068	0.071	0.000	0.116	0.155	0.160	0.164
75	0.091	0.100	0.000	0.126	0.155	0.148	0.138
80	0.115	0.115	0.000	0.141	0.124	0.138	0.107
85	0.121	0.127	0.000	0.118	0.079	0.093	0.076
90	0.121	0.116	0.000	0.100	0.061	0.065	0.051
95	0.112	0.108	0.000	0.078	0.040	0.038	0.025
100	0.095	0.079	0.000	0.057	0.026	0.022	0.013
105	0.065	0.064	0.000	0.029	0.012	0.008	0.005
110	0.049	0.048	0.000	0.016	0.007	0.006	0.002
FEMALE	2006	2007	2008	2009	2010	2011	2012
60	0.013	0.008	0.000	0.021	0.032	0.031	0.053
65	0.018	0.021	0.000	0.014	0.027	0.025	0.022
70	0.020	0.028	0.000	0.017	0.029	0.026	0.019
75	0.020	0.026	0.000	0.015	0.028	0.022	0.017
80	0.016	0.022	0.000	0.006	0.012	0.017	0.008
85	0.006	0.013	0.000	0.004	0.005	0.008	0.005
90	0.003	0.006	0.000	0.001	0.002	0.004	0.002

Table 10b: Tristan male and female biomass survey catch-at-length proportions (m+f = 1.0) for Leg2.

MALE	2006	2007	2008	2009	2010	2011	2012
55	0.002	0.003	0.001	0.002	0.003	0.012	0.011
60	0.006	0.011	0.011	0.022	0.015	0.047	0.056
65	0.026	0.035	0.037	0.051	0.069	0.099	0.121
70	0.051	0.073	0.073	0.098	0.113	0.141	0.162
75	0.074	0.093	0.115	0.096	0.155	0.158	0.127
80	0.099	0.099	0.145	0.118	0.128	0.150	0.088
85	0.104	0.094	0.125	0.093	0.087	0.098	0.052
90	0.134	0.093	0.112	0.103	0.064	0.074	0.033
95	0.138	0.078	0.100	0.086	0.042	0.054	0.019
100	0.134	0.078	0.081	0.086	0.030	0.029	0.011
105	0.098	0.060	0.049	0.055	0.030	0.011	0.005
110	0.085	0.060	0.040	0.055	0.023	0.012	0.002
FEMALE	2006	2007	2008	2009	2010	2011	2012
60	0.005	0.025	0.007	0.011	0.021	0.028	0.058
65	0.013	0.043	0.021	0.020	0.045	0.030	0.054
70	0.012	0.070	0.038	0.048	0.048	0.027	0.069
75	0.010	0.053	0.024	0.031	0.064	0.018	0.061
80	0.005	0.025	0.013	0.019	0.043	0.010	0.034
85	0.002	0.004	0.006	0.006	0.016	0.002	0.014
90	0.001	0.003	0.002	0.002	0.004	0.002	0.023

Table 11: Discard % data for Inaccessible, Nightingale and Gough.

Season	Inaccessible	Nightingale	Gough
1997	27.22	23.85	12.76
1998	42.99	26.35	20.24
1999	49.05	25.88	16.96
2000	44.20	28.03	10.10
2001	44.16	30.41	15.78
2002	36.85	30.30	10.64
2003	15.63	17.93	8.97
2004	21.73	20.71	18.65
2005	28.74	10.48	20.01
2006	32.50	16.81	16.70
2007	33.29	16.82	12.63
2008	39.32	18.99	14.37
2009	47.82	28.72	16.61
2010	54.25	30.15	13.58
2011	46.03		12.45

Figure 1: plot of discard % data.

