

SUPPLEMENTARY DATA

Table S1. Table of all the primary source data used in the trend analysis of the 30 Australian sea lion breeding sites with three or more comparable surveys. Details on site name, location by State (SA South Australia, WA Western Australia), the number of comparable surveys, and decimal year of each survey, pup abundance and primary data source are provided.

Site	State	No. comparable surveys	Year	Pup abundance	Reference/source
The Pages	SA	15	1990.1	522	(Gales et al. 1994, Dennis 2005, Shaughnessy et al. 2013)
The Pages	SA	15	1991.4	431	(Dennis 2005, Shaughnessy et al. 2013)
The Pages	SA	15	1993.0	448	(Dennis 2005, Shaughnessy et al. 2013)
The Pages	SA	15	1996.0	439	(Dennis 2005, Shaughnessy et al. 2013)
The Pages	SA	15	1997.4	381	(Dennis 2005, Shaughnessy et al. 2013)
The Pages	SA	15	1998.6	445	(Shaughnessy et al. 2013)
The Pages	SA	15	2000.0	491	(Shaughnessy & Dennis 2000, Shaughnessy et al. 2013)
The Pages	SA	15	2001.5	461	(Shaughnessy & Dennis 2000, Shaughnessy et al. 2013)
The Pages	SA	15	2002.8	607	(Shaughnessy & Dennis 2000, Shaughnessy et al. 2013)
The Pages	SA	15	2004.3	485	(Shaughnessy 2004, Shaughnessy et al. 2013)
The Pages	SA	15	2005.8	543	(Shaughnessy 2005a, Shaughnessy et al. 2013) (Shaughnessy & Goldsworthy 2007, Shaughnessy et al. 2013)
The Pages	SA	15	2007.1	403	(Shaughnessy 2007, Shaughnessy et al. 2013)
The Pages	SA	15	2008.5	478	(Shaughnessy 2008a, Shaughnessy et al. 2013)
The Pages	SA	15	2010.0	478	(Shaughnessy 2010, Shaughnessy et al. 2013)
The Pages	SA	15	2014.5	313	(Goldsworthy et al. 2015b)
Seal Bay	SA	12	2003.4	185	(McIntosh et al. 2012)
Seal Bay	SA	12	2004.8	208	(McIntosh et al. 2012)
Seal Bay	SA	12	2006.2	197	(McIntosh et al. 2012)
Seal Bay	SA	12	2007.8	198	(Goldsworthy et al. 2008a, McIntosh et al. 2012)
Seal Bay	SA	12	2009.4	197	(Goldsworthy et al. 2010b, McIntosh et al. 2012)
Seal Bay	SA	12	2010.9	189	(Goldsworthy et al. 2011)
Seal Bay	SA	12	2012.3	166	(Goldsworthy et al. 2013a)
Seal Bay	SA	12	2013.7	126	(Goldsworthy et al. 2014a)
Seal Bay	SA	12	2015.6	170	(Goldsworthy et al. 2015a)
Seal Bay	SA	12	2016.9	192	(Goldsworthy et al. 2017)
Seal Bay	SA	12	2018.4	178	(Goldsworthy et al. 2019)
Seal Bay	SA	12	2019.6	178	SARDI unpublished
Dangerous Reef	SA	11	1999.5	383	(Shaughnessy & Dennis 1999)
Dangerous Reef	SA	11	2001.2	393	(Shaughnessy & Dennis 2001)
Dangerous Reef	SA	11	2002.7	426	(Shaughnessy & Dennis 2003)
Dangerous Reef	SA	11	2004.1	499	(Shaughnessy 2004)
Dangerous Reef	SA	11	2005.5	585	(Shaughnessy 2005b)
Dangerous Reef	SA	11	2007.0	575	(Goldsworthy et al. 2007a)
Dangerous Reef	SA	11	2008.7	441	(Goldsworthy et al. 2009b)
Dangerous Reef	SA	11	2009.9	435	(Goldsworthy et al. 2010b)
Dangerous Reef	SA	11	2011.5	329	(Goldsworthy et al. 2012)
Dangerous Reef	SA	11	2014.4	294	(Goldsworthy et al. 2014b)
Dangerous Reef	SA	11	2019.0	382	DEW unpublished data
Olive Is.	SA	11	2003.5	121	(Shaughnessy et al. 2005)
Olive Is.	SA	11	2005.0	131	(Shaughnessy 2005b)
Olive Is.	SA	11	2006.3	150	(Goldsworthy et al. 2007b)
Olive Is.	SA	11	2007.7	124	(Goldsworthy et al. 2008b)

Olive Is.	SA	11	2009.2	134	(Goldsworthy et al. 2010b)
Olive Is.	SA	11	2010.6	116	(Goldsworthy et al. 2012)
Olive Is.	SA	11	2012.1	109	(Goldsworthy et al. 2013b)
Olive Is.	SA	11	2013.6	98	(Goldsworthy et al. 2014b)
Olive Is.	SA	11	2014.9	103	(Goldsworthy et al. 2015b)
Olive Is.	SA	11	2016.5	104	SARDI unpublished data
Olive Is.	SA	11	2019.3	86	(Goldsworthy et al. 2020)
Seal Slide	SA	11	2003.4	9	(Shaughnessy et al. 2009)
Seal Slide	SA	11	2004.7	11	(Shaughnessy et al. 2009)
Seal Slide	SA	11	2006.4	10	(Goldsworthy et al. 2007b)
Seal Slide	SA	11	2007.8	14	(Goldsworthy et al. 2008a)
Seal Slide	SA	11	2009.6	10	(Goldsworthy et al. 2010a)
Seal Slide	SA	11	2010.9	9	(Goldsworthy et al. 2011)
Seal Slide	SA	11	2012.1	9	(Goldsworthy et al. 2013a)
Seal Slide	SA	11	2014.0	9	(Goldsworthy et al. 2014a)
Seal Slide	SA	11	2015.1	8	(Goldsworthy et al. 2015a)
Seal Slide	SA	11	2016.7	15	(Goldsworthy et al. 2017)
Seal Slide	SA	11	2018.4	14	(Goldsworthy et al. 2019)
Bunda Cliffs	SA	10	1991.6	62	(Dennis 2005)
Bunda Cliffs	SA	10	1995.7	75	(Dennis & Shaughnessy 1996)
Bunda Cliffs	SA	10	1997.5	39	GABMP Management Authority
Bunda Cliffs	SA	10	2001.6	27	GABMP Management Authority
Bunda Cliffs	SA	10	2007.3	24	GABMP Management Authority
Bunda Cliffs	SA	10	2008.7	25	(Dennis 2008)
Bunda Cliffs	SA	10	2010.2	16	GABMP Management Authority unpublished data
Bunda Cliffs	SA	10	2013.2	18	(Mackay et al. 2013)
Bunda Cliffs	SA	10	2014.5	23	DEW unpublished data
Bunda Cliffs	SA	10	2016.1	14	DEW unpublished data
Blefuscus Is.	SA	7	2005.2	84	(Goldsworthy et al. 2009d)
Blefuscus Is.	SA	7	2008.1	68	(Goldsworthy et al. 2009c)
Blefuscus Is.	SA	7	2010.9	80	(Goldsworthy et al. 2012)
Blefuscus Is.	SA	7	2012.5	52	(Goldsworthy et al. 2013b)
Blefuscus Is.	SA	7	2013.8	81	(Goldsworthy et al. 2014b)
Blefuscus Is.	SA	7	2015.3	51	(Goldsworthy et al. 2015b)
Blefuscus Is.	SA	7	2019.6	50	SARDI unpublished data
Jones Is.	SA	6	2005.0	15	(Shaughnessy 2005b)
Jones Is.	SA	6	2007.8	15	(Goldsworthy et al. 2008b)
Jones Is.	SA	6	2009.2	11	(Goldsworthy et al. 2010b)
Jones Is.	SA	6	2012.2	12	(Goldsworthy et al. 2013b)
Jones Is.	SA	6	2013.5	16	(Goldsworthy et al. 2014b)
Jones Is.	SA	6	2014.8	19	(Goldsworthy et al. 2015b)
Lilliput Is.	SA	6	2005.2	67	(Goldsworthy et al. 2009c)
Lilliput Is.	SA	6	2008.2	55	(Goldsworthy et al. 2009d)
Lilliput Is.	SA	6	2010.8	48	(Goldsworthy et al. 2012)
Lilliput Is.	SA	6	2013.8	73	(Goldsworthy et al. 2014b)
Lilliput Is.	SA	6	2015.3	61	(Goldsworthy et al. 2015b)
Lilliput Is.	SA	6	2019.6	63	SARDI unpublished data
Pearson Is.	SA	5	2003.7	29	SARDI unpublished data
Pearson Is.	SA	5	2005.6	35	(Goldsworthy et al. 2009a)
Pearson Is.	SA	5	2013.6	28	(Goldsworthy et al. 2014b)
Pearson Is.	SA	5	2015.3	30	(Goldsworthy et al. 2015b)

Pearson Is.	SA	5	2019.7	32	SARDI unpublished data
Breakwater/Gliddon	SA	4	2005.4	24	(Goldsworthy et al. 2009c, Goldsworthy et al. 2009d)
Breakwater/Gliddon	SA	4	2008.2	22	(Goldsworthy et al. 2009c)
Breakwater/Gliddon	SA	4	2015.1	27	(Goldsworthy et al. 2015b)
Breakwater/Gliddon	SA	4	2018.2	27	Unpublished data
Lounds Is.	SA	4	2008.3	34	(Goldsworthy et al. 2009c)
Lounds Is.	SA	4	2015.3	20	(Goldsworthy et al. 2015b)
Lounds Is.	SA	4	2018.2	27	SARDI unpublished
Lounds Is.	SA	4	2019.6	30	SARDI unpublished
Nicolas Baudin Is.	SA	4	2006.4	98	(Shaughnessy 2008b)
Nicolas Baudin Is.	SA	4	2007.9	92	(Shaughnessy 2008b)
Nicolas Baudin Is.	SA	4	2014.9	63	(Goldsworthy et al. 2015b)
Nicolas Baudin Is.	SA	4	2019.2	70	SARDI unpublished
Purdie Is.	SA	4	2005.4	132	(Goldsworthy et al. 2009d)
Purdie Is.	SA	4	2008.3	95	(Goldsworthy et al. 2009c)
Purdie Is.	SA	4	2015.3	67	(Goldsworthy et al. 2015b)
Purdie Is.	SA	4	2019.6	74	SARDI unpublished
West Is.	SA	4	2005.4	56	(Goldsworthy et al. 2009d)
West Is.	SA	4	2008.3	39	(Goldsworthy et al. 2009c)
West Is.	SA	4	2015.4	20	(Goldsworthy et al. 2015b)
West Is.	SA	4	2019.6	36	SARDI unpublished
Ward Is.	SA	4	2006.4	45	(Robinson et al. 2008)
Ward Is.	SA	4	2013.6	46	(Goldsworthy et al. 2014b)
Ward Is.	SA	4	2015.3	44	(Goldsworthy et al. 2015b)
Ward Is.	SA	4	2019.7	42	SARDI unpublished
Four Hummocks Is.	SA	3	2011.9	20	(Goldsworthy et al. 2013b)
Four Hummocks Is.	SA	3	2014.9	10	(Goldsworthy et al. 2015b)
Four Hummocks Is.	SA	3	2019.2	10	(Goldsworthy et al. 2020)
Lewis Is.	SA	3	2005.9	78	(Goldsworthy et al. 2009d)
Lewis Is.	SA	3	2013.2	79	(Goldsworthy et al. 2014b)
Lewis Is.	SA	3	2014.7	83	(Goldsworthy et al. 2015b)
Liguanea Is.	SA	3	2004.9	41	(Goldsworthy et al. 2009d)
Liguanea Is.	SA	3	2015.4	25	(Goldsworthy et al. 2015b)
Liguanea Is.	SA	3	2019.8	27	SARDI unpublished data
Rocky (North) Is.	SA	3	2011.9	44	(Goldsworthy et al. 2013b)
Rocky (North) Is.	SA	3	2013.2	47	(Goldsworthy et al. 2013b)
Rocky (North) Is.	SA	3	2014.7	36	(Goldsworthy et al. 2015b)
Rocky (South) Is.	SA	3	2011.9	12	(Goldsworthy et al. 2013b)
Rocky (South) Is.	SA	3	2014.7	11	(Goldsworthy et al. 2015b)
Rocky (South) Is.	SA	3	2019.2	6	SARDI unpublished
South Neptune Is.	SA	3	1970.0	10	(I Stirling in litt., Shaughnessy et al. 2011)
South Neptune Is.	SA	3	2008.1	6	(Shaughnessy et al. 2011)
South Neptune Is.	SA	3	2014.5	4	(Goldsworthy et al. 2015b)
West Waldegrave Is.	SA	3	2003.5	157	(Shaughnessy et al. 2005)
West Waldegrave Is.	SA	3	2013.6	91	(Goldsworthy et al. 2014b)
West Waldegrave Is.	SA	3	2015.3	89	(Goldsworthy et al. 2015b)
Fisherman Is.	WA	13	1988.4	43	DPAW database
Fisherman Is.	WA	13	1991.2	42	DPAW database
Fisherman Is.	WA	13	1998.6	66	DPAW database
Fisherman Is.	WA	13	2000.1	43	DPAW database
Fisherman Is.	WA	13	2001.7	44	DPAW database

Fisherman Is.	WA	13	2004.5	47	DPAW database
Fisherman Is.	WA	13	2005.9	39	DPAW database
Fisherman Is.	WA	13	2007.6	66	DPAW database
Fisherman Is.	WA	13	2008.9	50	DPAW database
Fisherman Is.	WA	13	2011.9	36	DPAW database
Fisherman Is.	WA	13	2014.9	48	DPAW database
Fisherman Is.	WA	13	2016.3	37	DPAW database
Fisherman Is.	WA	13	2019.4	40	DPAW database
Beagle Is.	WA	12	1988.4	63	DPAW database
Beagle Is.	WA	12	1991.2	69	DPAW database
Beagle Is.	WA	12	1998.6	73	DPAW database
Beagle Is.	WA	12	2000.1	70	DPAW database
Beagle Is.	WA	12	2003.0	46	DPAW database
Beagle Is.	WA	12	2004.5	57	DPAW database
Beagle Is.	WA	12	2007.4	54	DPAW database
Beagle Is.	WA	12	2008.9	62	DPAW database
Beagle Is.	WA	12	2011.8	83	DPAW database
Beagle Is.	WA	12	2014.9	100	DPAW database
Beagle Is.	WA	12	2016.5	71	DPAW database
Beagle Is.	WA	12	2019.4	57	DPAW database
Buller Is.	WA	12	1989.8	39	(Gales et al. 1994)
Buller Is.	WA	12	1998.6	49	DPAW database
Buller Is.	WA	12	2001.7	46	DPAW database
Buller Is.	WA	12	2004.6	49	DPAW database
Buller Is.	WA	12	2007.6	43	DPAW database
Buller Is.	WA	12	2009.0	39	DPAW database
Buller Is.	WA	12	2010.7	61	DPAW database
Buller Is.	WA	12	2012.0	39	DPAW database
Buller Is.	WA	12	2012.1	39	DPAW database
Buller Is.	WA	12	2015.2	41	DPAW database
Buller Is.	WA	12	2016.6	51	DPAW database
Buller Is.	WA	12	2019.5	44	DPAW database
Haul Off Rock	WA	4	1989.7	29	(Gales et al. 1994)
Haul Off Rock	WA	4	2012.9	22	DPAW database
Haul Off Rock	WA	4	2014.0	22	DPAW database
Haul Off Rock	WA	4	2016.9	24	DPAW database
Kimberley Is.	WA	3	1992.1	42	(Gales et al. 1994)
Kimberley Is.	WA	3	2008.4	33	DPAW database
Kimberley Is.	WA	3	2014.2	32	DPAW database
Red Islet	WA	3	1989.7	27	(Gales et al. 1994)
Red Islet	WA	3	2008.4	27	DPAW database
Red Islet	WA	3	2017.0	25	DPAW database
Six Mile Is.	WA	3	1991.3	43	(Gales et al. 1994)
Six Mile Is.	WA	3	2000.2	40	DPAW database
Six Mile Is.	WA	3	2017.9	45	DPAW database

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