Supplementary materials

Table S1. Final dataset for the 107 samples included in the analyses. The table reports in the following order from left to right: sample ID (ID_tube), location of catch (Location), region (Region, CRS = Coral Sea, GCA = Gulf of Carpentaria, TAS = Tasman Sea), estimated year of birth (Birth Year) and temporal period to which they were assigned (Decade Birth), approximate year of catch (Catch Year) and consequent temporal period assigned(Decade Catch), estimated age of sample (Age) and assigned cluster after DAPC analysis (Cluster). The symbol "-" refers to samples that were not included in the analysis because of low sample size.

ID_tube	Location	Region	Birth Year	Decade Birth	Catch Year	Decade Catch	Group	Age	Cluster
5_101P	Mackay	CRS	1977	1970-1980	2011	2000-2010	CRS_1970-1980	34	-
5_c5P	Cairns	CRS	1986	1970-1980	2015	2000-2010	CRS_1970-1980	29	-
5_93P	Mackay	CRS	1999	1990	2011	2000-2010	CRS_1990	12	-
5_c6P	Cairns	CRS	1994	1990	2015	2000-2010	CRS_1990	21	-
5_c7P	Cairns	CRS	1997	1990	2015	2000-2010	CRS_1990	18	-
5_c8P	Cairns	CRS	1993	1990	2015	2000-2010	CRS_1990	22	-
5_102P	Mackay	CRS	2005	2000	2011	2000-2010	CRS_2000	6	1
5_10P	Mackay	CRS	2003	2000	2011	2000-2010	CRS_2000	8	1
5_442P	North Queensland	CRS	2000	2000	2008	2000-2010	CRS_2000	8	1
5_443P	North Queensland	CRS	2000	2000	2008	2000-2010	CRS_2000	8	1
5_587P	North Queensland	CRS	2005	2000	2005	2000-2010	CRS_2000	0	2
5_87P	Mackay	CRS	2005	2000	2011	2000-2010	CRS_2000	6	1
5_88P	Mackay	CRS	2011	2000	2011	2000-2010	CRS_2000	0	1
5_89P	Mackay	CRS	2007	2000	2011	2000-2010	CRS_2000	4	1
5_90P	Mackay	CRS	2000	2000	2011	2000-2010	CRS_2000	11	1
5_91P	Mackay	CRS	2004	2000	2011	2000-2010	CRS_2000	7	1
5_92P	Mackay	CRS	2003	2000	2011	2000-2010	CRS_2000	8	1
5_96P	Mackay	CRS	2006	2000	2011	2000-2010	CRS_2000	5	2
5_98P	Mackay	CRS	2002	2000	2011	2000-2010	CRS_2000	9	1
5_99P	Mackay	CRS	2005	2000	2011	2000-2010	CRS_2000	6	1

5_c4P	Cairns	CRS	2004	2000	2015	2000-2010	CRS_2000	11	1
5_c9P	Cairns	CRS	2003	2000	2015	2000-2010	CRS_2000	12	1
5_421P	Northern Territory	GCA	1989	1970-1980	2008	2000-2010	GCA_1970-1980	19	1
5_422P	Northern Territory	GCA	1987	1970-1980	2008	2000-2010	GCA_1970-1980	21	1
5_425P	Northern Territory	GCA	1981	1970-1980	2008	2000-2010	GCA_1970-1980	27	1
5_426P	Northern Territory	GCA	1987	1970-1980	2008	2000-2010	GCA_1970-1980	21	1
5_433P	Northern Territory	GCA	1986	1970-1980	2008	2000-2010	GCA_1970-1980	22	1
5_445P	Northern Territory	GCA	1988	1970-1980	2012	2000-2010	GCA_1970-1980	24	1
5_417P	Northern Territory	GCA	1994	1990	2008	2000-2010	GCA_1990	14	1
5_418P	Northern Territory	GCA	1994	1990	2008	2000-2010	GCA_1990	14	1
5_419P	Northern Territory	GCA	1991	1990	2008	2000-2010	GCA_1990	17	1
5_423P	Northern Territory	GCA	1992	1990	2008	2000-2010	GCA_1990	16	1
5_424P	Northern Territory	GCA	1995	1990	2008	2000-2010	GCA_1990	13	1
5_427P	Northern Territory	GCA	1993	1990	2008	2000-2010	GCA_1990	15	1
5_429P	Northern Territory	GCA	1991	1990	2008	2000-2010	GCA_1990	17	2
5_430P	Northern Territory	GCA	1994	1990	2008	2000-2010	GCA_1990	14	1
5_431P	Northern Territory	GCA	1990	1990	2008	2000-2010	GCA_1990	18	1
5_432P	Northern Territory	GCA	1995	1990	2008	2000-2010	GCA_1990	13	1
5_434P	Northern Territory	GCA	1992	1990	2008	2000-2010	GCA_1990	16	1
5_435P	Northern Territory	GCA	1991	1990	2008	2000-2010	GCA_1990	17	1
5_436P	Northern Territory	GCA	1993	1990	2008	2000-2010	GCA_1990	15	1
5_444P	Northern Territory	GCA	1993	1990	2009	2000-2010	GCA_1990	16	1
5_446P	Northern Territory	GCA	1994	1990	2012	2000-2010	GCA_1990	18	1
5_449P	Northern Territory	GCA	1997	1990	2012	2000-2010	GCA_1990	15	1
5_451P	Northern Territory	GCA	1992	1990	2008	2000-2010	GCA_1990	16	1
5_452P	Northern Territory	GCA	1994	1990	2008	2000-2010	GCA_1990	14	1
5_448P	Northern Territory	GCA	2000	2000	2012	2000-2010	GCA_2000	12	-
5_450P	Northern Territory	GCA	2012	2000	2012	2000-2010	GCA_2000	0	-
6_OTS14P	Seal Rocks (PS)	TAS	1967	1910-1960	1988	1970-1990	TAS_1910-1960	21	2
6_OTS20P	Lake MacQuarie	TAS	1947	1910-1960	1979	1970-1990	TAS_1910-1960	32	2
6_OTS21P	Lake MacQuarie	TAS	1949	1910-1960	1981	1970-1990	TAS_1910-1960	32	2
6_OTS22P	Lake MacQuarie	TAS	1961	1910-1960	1985	1970-1990	TAS_1910-1960	24	2
6_OTS23P	Lake MacQuarie	TAS	1951	1910-1960	1985	1970-1990	TAS_1910-1960	34	1

6_OTS24P_CTG	Port Stephens	TAS	1951	1910-1960	1985	1970-1990	TAS_1910-1960	34	2
6_OTS25P	Lake MacQuarie	TAS	1940-50s	1910-1960	1970-80s	1970-1990	TAS_1910-1960	25	2
6_OTS26P_CGG	Lake MacQuarie	TAS	1945	1910-1960	1978	1970-1990	TAS_1910-1960	33	2
6_OTS28P	Broken Bay	TAS	1950	1910-1960	1985	1970-1990	TAS_1910-1960	35	2
6_OTS29P	Broken Bay	TAS	1961	1910-1960	1997	1970-1990	TAS_1910-1960	36	1
6_OTS30P	Broken Bay	TAS	1961	1910-1960	1996	1970-1990	TAS_1910-1960	35	1
6_OTS31P	Lake MacQuarie	TAS	1951	1910-1960	1986	1970-1990	TAS_1910-1960	35	1
6_OTS32P	Sydney	TAS	~1941	1910-1960	~1966	1910-1960	TAS_1910-1960	25	1
6_OTS33P	Bondi Beach	TAS	~1924	1910-1960	late 1930	1910-1960	TAS_1910-1960	15	2
6_OTS34P_GAG	Bermagui	TAS	1917	1910-1960	1952	1910-1960	TAS_1910-1960	35	1
6_OTS38P	Botany Bay	TAS	1966	1910-1960	1989	1970-1990	TAS_1910-1960	23	2
6_OTS3P	Southport	TAS	1947	1910-1960	1962	1910-1960	TAS_1910-1960	15	2
6_OTS42P	Botany Bay	TAS	1965	1910-1960	1980	1970-1990	TAS_1910-1960	15	2
6_OTS43P	Botany Bay	TAS	1969	1910-1960	1980	1970-1990	TAS_1910-1960	11	2
6_OTS44P	Botany Bay	TAS	1965	1910-1960	1980	1970-1990	TAS_1910-1960	15	1
6_OTS9P	Malacoote	TAS	1969	1910-1960	1984	1970-1990	TAS_1910-1960	15	1
5_323P	Port Stephens	TAS	1989	1970-1980	2009	2000-2010	TAS_1970-1980	20	1
5_326P	Port Stephens	TAS	1988	1970-1980	2009	2000-2010	TAS_1970-1980	21	1
6_OTS10P	Bermagui	TAS	1970	1970-1980	1985	1970-1990	TAS_1970-1980	15	2
6_OTS11P	Bermagui	TAS	1981	1970-1980	1996	1970-1990	TAS_1970-1980	15	2
6_OTS12P	Bermagui	TAS	1978	1970-1980	1993	1970-1990	TAS_1970-1980	15	1
6_OTS41P	Botany Bay	TAS	1972	1970-1980	1980	1970-1990	TAS_1970-1980	8	2
6_OTS45P	Botany Bay	TAS	1976	1970-1980	1980	1970-1990	TAS_1970-1980	4	2
6_OTS46P	Botany Bay	TAS	1972	1970-1980	1980	1970-1990	TAS_1970-1980	8	2
6_OTS47P	Botany Bay	TAS	1971	1970-1980	1980	1970-1990	TAS_1970-1980	9	2
6_OTS5P	Bermagui	TAS	~1973	1970-1980	late 1980	1970-1990	TAS_1970-1980	15	1
6_OTS6P	Bermagui	TAS	~1973	1970-1980	late 1980	1970-1990	TAS_1970-1980	15	1
6_OTS7P	Bermagui	TAS	~1973	1970-1980	late 1980	1970-1990	TAS_1970-1980	15	1
6_OTS8P	Bermagui	TAS	1975	1970-1980	1990	1970-1990	TAS_1970-1980	15	1
5_223P	Port Macquarie	TAS	1995	1990	2007	2000-2010	TAS_1990	12	1
5_225P	Coffs Harbour	TAS	1999	1990	2008	2000-2010	TAS_1990	9	1
5_231P	Tweed Heads	TAS	1998	1990	2009	2000-2010	TAS_1990	11	2
5_232P	Tweed Heads	TAS	1997	1990	2009	2000-2010	TAS_1990	12	1

5_233P	Port Macquarie	TAS	1998	1990	2009	2000-2010	TAS_1990	11	1
5_236P	Port Macquarie	TAS	1996	1990	2009	2000-2010	TAS_1990	13	1
5_237P	Port Macquarie	TAS	1997	1990	2009	2000-2010	TAS_1990	12	1
5_238P	Tweed Heads	TAS	1998	1990	2009	2000-2010	TAS_1990	11	1
5_239P	Tweed Heads	TAS	1998	1990	2009	2000-2010	TAS_1990	11	1
5_241P	Coffs Harbour	TAS	1998	1990	2009	2000-2010	TAS_1990	11	1
5_242P	Coffs Harbour	TAS	1994	1990	2009	2000-2010	TAS_1990	15	1
5_245P	Evans Head	TAS	1999	1990	2009	2000-2010	TAS_1990	10	1
5_253P	Evans Head	TAS	1997	1990	2009	2000-2010	TAS_1990	12	1
5_311P	Port Stephens	TAS	1990	1990	2007	2000-2010	TAS_1990	17	1
5_327P	Port Stephens	TAS	1991	1990	2009	2000-2010	TAS_1990	18	1
6_234P_P	Port Macquarie	TAS	1998	1990	2009	2000-2010	TAS_1990	11	1
6_240P_P	Tweed Heads	TAS	1999	1990	2009	2000-2010	TAS_1990	10	1
6_254P_P	Evans Head	TAS	1997	1990	2009	2000-2010	TAS_1990	12	1
5_235P	Port Macquarie	TAS	2000	2000	2009	2000-2010	TAS_2000	9	1
5_251P	Coffs Harbour	TAS	2000	2000	2009	2000-2010	TAS_2000	9	1
5_252P	Evans Head	TAS	2000	2000	2009	2000-2010	TAS_2000	9	1
5_255P	Tweed Heads	TAS	2000	2000	2009	2000-2010	TAS_2000	9	1
5_331P	Port Stephens	TAS	2000	2000	2010	2000-2010	TAS_2000	10	1
5_339P	Port Stephens	TAS	2000	2000	2011	2000-2010	TAS_2000	11	1
5_343P	Port Stephens	TAS	2001	2000	2011	2000-2010	TAS_2000	10	1

Table S2. Sample sizes for the spatiotemporal age back-calculated samples. Sample sizes below six were not included in estimates of temporal differentiation (F_{ST}). Region codes as per Table S1.

Year of birth/Location	GCA	CRS	TAS
1910-1960	0	0	21
1970-1980	6	2	13
1990	18	4	18
2000	2	16	7
Total per location	26	22	59

Table S3. **Pairwise F_{ST} estimates among all collection.** Pairwise F_{ST} estimates (lower diagonal) and p-values (upper diagonal) between all collection. Sample size per collection: GCA_1970-1980 (6), GCA_1990 (18), CRS_2000 (16), TAS_1910-1960 (2), TAS_1970-1980 (13), TAS_1990 (18), TAS_2000 (7). *significant comparisons (p-values < 0.05).

	GCA_1970–1980	**GCA_1990**	**CRS_2000**	**TAS_1910–1960**	**TAS_1970–1980**	**TAS_1990**	**TAS_2000**
GCA_1970–1980	-	0.5319	0.5561	0.0027*	0.1613	0.6130	0.2538
GCA_1990	0.0000	-	0.0755	0.0000*	0.0184*	0.1996	0.4832
CRS_2000	0.0000	0.0013	-	0.0000*	0.0065*	0.0196*	0.6152
TAS_1910–1960	0.0048*	0.0043*	0.0056*	-	0.8522	0.0000*	0.0022*
TAS_1970–1980	0.0019	0.0021*	0.0028*	0.0000	-	0.0008*	0.1128
TAS_1990	0.0000	0.0007	0.0018*	0.0047*	0.0031*	-	0.5411
TAS_2000	0.0015	0.0001	0.0000	0.0044*	0.0019	0.0000	-

Figure Legends

Fig. S1. Distribution of F_{ST} as a function of heterozygosity. Distribution of F_{ST} (y-axis) across 1,840 SNP loci between the two clusters (cluster '1' and '2') as a function of heterozygosity, reported on the x-axis. Each dot represent a single SNP

