

Table S1. Relative position of variable nucleotides defining 19 mtDNA CR haplotypes in humpback whales (*Megaptera novaeangliae*) from the Chesterfield-Bellona archipelago. The name of haplotypes is defined from (Olavarria et al. 2007). Dots (.) indicate matches with reference sequence (Consensus identity), dashes ( \_ ) indicate insertion or deletion.

Haplotype	Polymorphic site																																				N								
	55	62	68	75	84	97	99	101	116	117	121	126	134	135	146	161	162	167	183	196	240	246	247	248	253	257	261	263	264	265	266	268	269	273	284	285		286	306	317	347	380	437	447	448
Consensus Identity	G	T	C	T	T	T	C	A	G	-	-	T	A	G	C	T	T	C	T	T	T	C	C	C	A	T	A	G	T	T	T	T	T	G	T	C	T	A	T	T	C	G	T	T	
SP78	.	.	.	.	.	.	.	.	.	.	.	.	.	.	T	.	C	.	.	.	.	T	.	.	.	.	.	.	.	.	.	C	.	.	.	.	.	.	.	.	.	T	.	.	.
SP64	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	C	.	T	T	.	.	.	.	A	.	.	C	.	.	.	.	.	.	.	.	.	.	T	A	.	.	
SP99	.	.	.	.	C	.	A	.	.	.	.	.	.	A	.	.	.	.	.	.	.	T	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SP96	.	.	.	.	C	.	A	.	A	.	.	.	.	A	.	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	A	.	.	.	.	.	.	.	.	.	.	.	.	.
SP85	.	.	.	.	.	.	A	.	.	.	.	.	.	A	.	C	.	.	.	.	T	.	.	.	.	.	.	.	.	.	C	.	.	.	.	C	.	C	C	.	.	.	.	.	
SP89	.	.	.	.	C	.	A	G	.	.	.	.	.	.	.	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SP88	.	.	.	.	C	.	A	.	.	.	.	.	.	.	.	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SP87	.	.	.	.	.	.	A	.	.	.	.	.	.	.	.	C	.	.	.	.	.	.	.	.	.	C	.	.	.	.	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SP94	.	.	.	C	.	.	A	.	.	.	.	.	.	.	.	C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SP73	.	.	.	.	.	.	.	.	.	.	.	.	.	.	T	.	C	.	.	.	.	.	.	.	.	C	.	.	C	C	C	.	C	.	.	.	.	.	.	.	.	.	.	.	.
SP71	.	.	.	.	.	.	.	.	.	.	.	.	.	.	T	.	C	.	C	.	.	.	.	.	.	.	.	.	C	.	C	.	C	.	.	.	.	.	.	.	.	.	.	.	.
SP57	.	.	.	.	C	.	.	.	.	T	.	.	.	.	T	.	.	.	.	.	.	C	T	.	.	.	.	.	.	C	.	.	.	.	.	.	.	C	.	C	.	.	.	C	.
SP52	.	.	.	.	.	.	.	.	.	.	.	.	.	A	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	C	.	.	.	.	.	.	C	G	.	.	.	.	C	.	
SP14	.	C	.	.	.	C	.	.	.	T	C	.	.	.	.	.	T	.	.	.	.	.	.	.	.	.	.	.	.	.	.	A	C	.	.	.	.	.	.	.	.	.	.	.	.
SP13	.	C	.	.	.	C	.	.	.	T	C	.	.	.	.	.	T	.	.	.	.	T	.	.	.	.	.	.	.	.	.	A	C	.	.	.	.	.	.	.	.	.	.	.	.
SP10	.	C	.	.	.	C	.	.	.	T	C	.	.	.	.	.	T	.	.	.	.	T	.	.	.	.	.	.	.	.	.	A	.	.	.	.	.	.	.	.	.	.	.	.	.
SP27	.	C	.	.	.	.	.	.	.	.	C	.	.	.	C	.	T	.	.	.	.	.	T	.	G	.	.	.	.	.	.	A	C	T	.	.	.	.	.	.	.	.	.	.	
SP36	.	C	.	.	.	.	.	.	.	.	C	G	.	T	.	.	T	.	.	.	.	T	.	.	.	.	.	.	.	C	C	.	A	.	.	.	.	.	.	.	.	.	.	.	.
SP3	A	.	T	.	.	.	.	.	.	.	C	.	.	T	.	.	.	.	.	.	.	T	.	.	G	.	.	.	C	.	C	.	A	.	.	.	.	.	.	.	T	.	.	C	

Table S2. Summary of satellite tracking for six tags deployed on humpback whales (*Megaptera novaeangliae*) in 2017 in the Chesterfield-Bellona archipelago. Abbreviations: unk = unknown sex, F = Female, P = Pair, F/c = Female with calf, S = Singleton.

PTT	Start	End	Sex	Social group type	Duration of emissions (days)	Raw locations	Filtered locations	Track length (km)
34221	12/08/2017	19/08/2017	F	P	5.8	6	6	496
34222	22/08/2017	25/09/2017	F	F/c	33.8	204	187	1,907
34223	17/08/2017	23/08/2017	unk	P	6	43	35	390
34226	22/08/2017	08/10/2017	F	S	46.7	333	261	5,034
34227	18/08/2017	28/10/2017	F	F/c	70.5	451	386	4,858
34228	20/08/2017	25/08/2017	F	F/c	4.8	26	24	279

Table S3. Pairwise test of differentiation for mitochondrial DNA Control Region (mtDNA CR) for humpback whales (*Megaptera novaeangliae*) at haplotype level (conventional  $F_{ST}$ ) at Oceania spatial scale between the Chesterfield-Bellona archipelago and Oceania breeding grounds (Steel et al. 2018). \* Significant at  $<0.05$ , \*\* significant at  $<0.01$ , \*\*\* significant at  $<0.001$ , unadjusted for multiple comparison. Bold values were significant after adjustment for the false discovery rate,  $F_{ST}$  indices and significance of pair-wise differences (10,000 permutations) were calculated in Arlequin (Excoffier & Lischer 2010).

Region (collection years)	CH	AS	CI	FP	NC	TG
Chesterfield-Bellona (CH: 2016-2017)	-					
American Samoa/Samoa (AS: 2001-2009)	<b>0.023</b> **	-				
Cook Islands (CI : 1996-2005)	<b>0.034</b> ***	0.003	-			
French Polynesia (FP : 1997-2007)	<b>0.038</b> ***	0.004	0.000	-		
New Caledonia (NC : 1995-2005)	0.001	<b>0.013</b> ***	<b>0.027</b> ***	<b>0.032</b> ***	-	
Tonga (TG : 1991-2005)	<b>0.011</b> *	0.002	<b>0.011</b> ***	<b>0.020</b> ***	<b>0.008</b> ***	-

Table S4. Number of groups, count of distinct individuals, number of humpback whales (*Megaptera novaeangliae*) photo-identified by fluke or, by dorsal fin only, number of whales genotyped, number of whales identified by genotype and photo-ID in the Chesterfield-Bellona archipelago, number of whales re-sighted by photo-ID or genotype in the breeding ground of New Caledonia (NC).

	2016	2017	2016 & 2017
# groups	13	44	57
# distinct individuals	18	62	*
# whales photo-identified by fluke	7	28	35
# whales identified by dorsal fin only	11	34	*
# whales identified by genotype	7	31	38
# whales identified by genotype and photo-ID	6	16	22
# whales re-sighted in NC by photo-identification	4	8	12
# whales re-sighted in NC known by genotype	2	8	10

Table S5. Summary on the regional matches of humpback whales (*Megaptera novaeangliae*), with details including for each region: date of sample, type of sample collected (B = Biopsy, P = Photograph), sex (M = male, F = female, unk = unknown), and social category (S = Singleton, P = Pair, 3 = group of 3, F/c = Female with calf, F/c+E = Female with calf and a solitary escort, F/c+CG = Female with calf in competitive group, SE-CG = Secondary escort in competitive group). The Unique whale ID in bold correspond to the individuals observed on the east Australian corridor.

Unique whale ID	Sex	Chesterfield-Bellona			Matched By	New Caledonia		
		Sample collected	Date	Social category		Date	Social category	Sample collected
<b>HNC319</b>	M	P + G	25/08/2016	P	P + G	28/07/2005 29/07/2005 30/08/2012	P S P	P + G  G
<b>HNC668</b>	F	P + G	25/08/2016	P	P + G	25/07/2010	S	P + G
HNC699	F	P + G	29/08/2016	F/c+E	P	18/08/2010 19/08/2010	3 S	P P
HNC1251	F	P	01/09/2016	F/c	P	31/07/2017	S	P + G
HNC123	F	G	19/08/2017 22/08/2017	F/c F/c	G	19/08/1997 26/08/1997 29/07/2000 17/07/2002 20/08/2002 07/09/2002 09/09/2005	P P S S P S F/c	P P + G P P + G P P + G P + G
HNC147	F	P P + G	20/08/2017 23/08/2017	F/c F/c+E/ F/C+GC	P + G	24/07/1998	P	P + G P + G
HNC279	F	P + G	13/08/2017	S	P + G	15/08/2003	F/c	P + G
HNC424	M	P	12/08/2017	P	P	09/09/2006	S	P + G
<b>HNC428</b>	F	P + G	18/08/2017	P	P + G	12/09/2006	F/c+CG	P + G
HNC563	F	P + G	22/08/2017	F/c	P + G	27/07/2009	P	P + G
HNC908	F	P + G	12/08/2017	F/c	P + G	07/08/2012	P	P + G
HNC1104	unk	P	18/08/2017	P	P	05/08/2015	SE-CG	P
HNC1145	F	P + G	18/08/2017	S	P + G	17/08/2015	F/c	P + G
NI9918	F	G	19/08/2017	F/c	G	29/08/2009	F/c	G
<b>HNC1386</b>	M	P + G	15/08/2017	P				