

TABLES

Table S1. Data associated with samples included in the study. For tissue source, “H” denotes a sample collected from a harvested seal as part of the biomonitoring program and “S” denotes a sampled salvaged from a polar bear kill. MtDNA haplotype IDs reference the Genbank Accession numbers associated with each control region sequence.

Labid	Used mtDNA	Used DArTseq	Included DArTseq final dset	Tissue Source	Year	Month	Day	Locality	Sex	Management Scheme	MtDNA haplotype ID
32087	Y	N	N	H	2002	3		USA, AK, Diomede	F	N. Bering Sea	MW238550
32088	N ²	N	N	H	2002	3		USA, AK, Diomede	M	N. Bering Sea	MW238579
32089	Y	N	N	H	2001	5		USA, AK, Diomede	M	N. Bering Sea	MW238735
32090	Y	N	N	H	2002	3		USA, AK, Diomede	M	N. Bering Sea	MW238579
32093	Y	N	N	H	2002	5		USA, AK, Diomede	M	N. Bering Sea	MW238590
32094	Y	N	N	H	2002	5		USA, AK, Diomede	F	N. Bering Sea	MW238591
32095	Y	N	N	H	2002	5		USA, AK, Diomede	F	N. Bering Sea	MW238643
32098	Y	N	N	H	2001	4		USA, AK, Diomede	M	N. Bering Sea	MW238612
32099	Y	N	N	H	2002	5		USA, AK, Diomede	M	N. Bering Sea	MW238559
32100	Y	N	N	H	2002	5		USA, AK, Diomede	M	N. Bering Sea	MW238747
32101	Y	N	N	H	2002	5		USA, AK, Diomede	F	N. Bering Sea	MW238644
32102	Y	N	N	H	2002	5		USA, AK, Diomede	M	N. Bering Sea	MW238666
32103	Y	N	N	H	2002	5		USA, AK, Diomede	M	N. Bering Sea	MW238608
32104	Y	N	N	H	2002	5		USA, AK, Diomede	F	N. Bering Sea	MW238651
32105	Y	N	N	H	2002	5		USA, AK, Diomede	M	N. Bering Sea	MW238698
32106	Y	N	N	H	2002	5		USA, AK, Diomede	F	N. Bering Sea	MW238745
32107	Y	N	N	H	2002	5		USA, AK, Diomede	M	N. Bering Sea	MW238734
32112	Y	N	N	H	2002	3		USA, AK, Diomede	F	N. Bering Sea	MW238630
32113	Y	N	N	H	2002	3		USA, AK, Diomede	M	N. Bering Sea	MW238663
32114	Y	N	N	H	2002	3		USA, AK, Diomede	M	N. Bering Sea	MW238689
32117	Y	N	N	H	2002	3		USA, AK, Diomede	M	N. Bering Sea	MW238748
32118	Y	N	N	H	2002	3		USA, AK, Diomede	F	N. Bering Sea	MW238637
32119	Y	N	N	H	2002	3		USA, AK, Diomede	M	N. Bering Sea	MW238555
32120	Y	N	N	H	2002	3		USA, AK, Diomede	M	N. Bering Sea	MW238721
32130	Y	N	N	H	2002	5		USA, AK, Gambell	M	N. Bering Sea	MW238561
44128	Y	N	N	B	2004	5	25	USA, AK, Nome	F	N. Bering Sea	MW238715
52212	Y	Y	Y	H	2004	4		USA, AK, Barrow	M	NE Chukchi Sea-Beaufort Sea	MW238684
52227	Y	N	N	H	2002	3		USA, AK, Diomede	M	N. Bering Sea	MW238685
52234	Y	N	N	H	2003	5		USA, AK, Diomede	M	N. Bering Sea	MW238655
52334	Y	Y	Y	H	2003	3		USA, AK, Hooper Bay	M	E. Bering Sea	MW238551
52336	Y	Y	N ⁴	H	2003	4		USA, AK, Hooper Bay	M	E. Bering Sea	MW238562
52338	Y	Y	N ⁴	H	2003	4		USA, AK, Hooper Bay	M	E. Bering Sea	MW238568

52339	Y	Y	Y	H	2003	4		USA, AK, Hooper Bay	M	E. Bering Sea	MW238702
52341	Y	Y	Y	H	2003	4		USA, AK, Hooper Bay	F	E. Bering Sea	MW238762
52347	Y	N	N	H	2004	3		USA, AK, Hooper Bay	F	E. Bering Sea	MW238749
52348	Y	N	N	H	2004	3		USA, AK, Hooper Bay	M	E. Bering Sea	MW238603
52378	Y	N	N	H	2005	5		USA, AK, Nome	M	N. Bering Sea	MW238665
52393	Y	Y	Y	H	2003	5		USA, AK, Savoonga	M	N. Bering Sea	MW238743
52394	Y	N	N	H	2003	5		USA, AK, Savoonga	M	N. Bering Sea	MW238722
52395	Y	N	N	H	2003	5		USA, AK, Savoonga	M	N. Bering Sea	MW238584
52426	Y	N	N	H	2003	5		USA, AK, Savoonga	F	N. Bering Sea	MW238667
52427	Y	N	N	H	2003	5		USA, AK, Savoonga	F	N. Bering Sea	MW238662
52429	Y	Y	Y	H	2003	5		USA, AK, Savoonga	F	N. Bering Sea	MW238606
52433	Y	N	N	H	2005	5		USA, AK, Nome	M	N. Bering Sea	MW238563
74985	Y	N	N	H	2004	5		USA, AK, Diomedede	M	N. Bering Sea	MW238627
74987	Y	N	N	H	2004	5		USA, AK, Diomedede	M	N. Bering Sea	MW238726
74989	Y	N	N	H	2004	5		USA, AK, Diomedede	M	N. Bering Sea	MW238656
74992	Y	N	N	H	2003	5		USA, AK, Diomedede	F	N. Bering Sea	MW238613
75002	Y	N	N	H	2004	5		USA, AK, Diomedede	F	N. Bering Sea	MW238632
75015	Y	N	N	H	2004	5		USA, AK, Diomedede	M	N. Bering Sea	MW238616
75024	Y	N	N	H	2003	4		USA, AK, Diomedede	M	N. Bering Sea	MW238741
75029	Y	N	N	H	2004	5		USA, AK, Diomedede	M	N. Bering Sea	MW238677
75035	Y	N	N	H	2003	5		USA, AK, Diomedede	M	N. Bering Sea	MW238565
75038	Y	N	N	H	2004	5		USA, AK, Diomedede	M	N. Bering Sea	MW238664
75042	Y	N	N	H	2003	5		USA, AK, Diomedede	M	N. Bering Sea	MW238601
75050	Y	N	N	H	2004	5		USA, AK, Diomedede	M	N. Bering Sea	MW238690
75051	Y	N	N	H	2004	5		USA, AK, Diomedede	F	N. Bering Sea	MW238716
75052	Y	N	N	H	2004	3		USA, AK, Diomedede	M	N. Bering Sea	MW238676
75053	Y	N	N	H	2005	3		USA, AK, Diomedede	M	N. Bering Sea	MW238647
75054	Y	N	N	H	2004	3		USA, AK, Diomedede	M	N. Bering Sea	MW238657
75055	Y	N	N	H	2005	3		USA, AK, Diomedede	U	N. Bering Sea	MW238682
75059	Y	N	N	H	2004	4		USA, AK, Diomedede	F	N. Bering Sea	MW238581
75060	Y	N	N	H	2005	3		USA, AK, Diomedede	F	N. Bering Sea	MW238642
75065	Y	N	N	H	2005	5		USA, AK, Diomedede	M	N. Bering Sea	MW238618
75068	Y	N	N	H	2004	4		USA, AK, Diomedede	F	N. Bering Sea	MW238653
75077	Y	N	N	H	2004	3		USA, AK, Diomedede	M	N. Bering Sea	MW238604
75078	Y	N	N	H	2005	3		USA, AK, Diomedede	F	N. Bering Sea	MW238736
75082	Y	N	N	H	2005	3		USA, AK, Diomedede	U	N. Bering Sea	MW238760
75084	Y	N	N	H	2005	5		USA, AK, Diomedede	M	N. Bering Sea	MW238599
75087	Y	N	N	H	2005	5		USA, AK, Diomedede	F	N. Bering Sea	MW238753
75136	Y	N	N	H	2003	3		USA, AK, Diomedede	F	N. Bering Sea	MW238609
75137	Y	N	N	H	2003	3		USA, AK, Diomedede	F	N. Bering Sea	MW238757
75139	Y	N	N	H	2003	4		USA, AK, Diomedede	M	N. Bering Sea	MW238661
75140	Y	N	N	H	2003	4		USA, AK, Diomedede	M	N. Bering Sea	MW238683
75141	Y	N	N	H	2003	3		USA, AK, Diomedede	F	N. Bering Sea	MW238754
75144	Y	N	N	H	2003	3		USA, AK, Diomedede	F	N. Bering Sea	MW238678
75147	Y	N	N	H	2003	5		USA, AK, Diomedede	M	N. Bering Sea	MW238596
75148	Y	N	N	H	2003	3		USA, AK, Diomedede	M	N. Bering Sea	MW238589
75151	Y	N	N	H	2003	4		USA, AK, Diomedede	F	N. Bering Sea	MW238723

75154	Y	N	N	H	2003	4		USA, AK, Diomede	F	N. Bering Sea	MW238738
75458	Y	N	N	H	2005	5		USA, AK, Shishmaref	M	SE Chukchi Sea	MW238580
75740	Y	N	N	H	2006	5	1	USA, AK, Diomede	M	N. Bering Sea	MW238558
75824	Y	Y	Y	H	2007	4	1	USA, AK, Hooper Bay	F	E. Bering Sea	MW238713
75825	Y	Y	Y	H	2007	3	1	USA, AK, Hooper Bay	F	E. Bering Sea	MW238701
75831	Y	Y	N ⁴	H	2007	4	1	USA, AK, Hooper Bay	F	E. Bering Sea	MW238688
75832	Y	Y	Y	H	2007	4	1	USA, AK, Hooper Bay	F	E. Bering Sea	MW238668
75833	Y	Y	N ⁴	H	2007	4	1	USA, AK, Hooper Bay	F	E. Bering Sea	MW238731
75834	N ¹	Y	Y	H	2007	4	1	USA, AK, Hooper Bay	M	E. Bering Sea	NA
75835	Y	Y	Y	H	2007	4	1	USA, AK, Hooper Bay	M	E. Bering Sea	MW238620
75836	Y	Y	Y	H	2007	4	1	USA, AK, Hooper Bay	M	E. Bering Sea	MW238588
75837	Y	N	N	H	2007	4	1	USA, AK, Hooper Bay	U	E. Bering Sea	MW238732
75838	Y	N	N	H	2007	4	1	USA, AK, Hooper Bay	U	E. Bering Sea	MW238717
75839	Y	N	N	H	2007	4	1	USA, AK, Hooper Bay	M	E. Bering Sea	MW238761
75841	Y	Y	N ⁵	H	2007	4	1	USA, AK, Hooper Bay	M	E. Bering Sea	MW238583
75882	Y	N	N	H	2008	3	10	USA, AK, Gambell	M	N. Bering Sea	MW238692
75883	Y	Y	Y	H	2008	3	26	USA, AK, Gambell	M	N. Bering Sea	MW238658
75884	Y	Y	Y	H	2008	3	26	USA, AK, Gambell	M	N. Bering Sea	MW238556
75888	Y	Y	Y	H	2008	3	29	USA, AK, Hooper Bay	F	E. Bering Sea	MW238615
75889	Y	Y	Y	H	2008	5	6	USA, AK, Hooper Bay	M	E. Bering Sea	MW238724
75890	Y	Y	Y	H	2008	4	22	USA, AK, Hooper Bay	M	E. Bering Sea	MW238703
75891	Y	Y	Y	H	2008	5	6	USA, AK, Hooper Bay	M	E. Bering Sea	MW238552
75892	Y	Y	Y	H	2008	5	7	USA, AK, Hooper Bay	M	E. Bering Sea	MW238597
75893	Y	Y	Y	H	2008	5	6	USA, AK, Hooper Bay	M	E. Bering Sea	MW238592
75894	Y	Y	Y	H	2008	5	11	USA, AK, Hooper Bay	M	E. Bering Sea	MW238709
75895	Y	Y	Y	H	2008	5	11	USA, AK, Hooper Bay	M	E. Bering Sea	MW238571
75896	Y	Y	Y	H	2008	5	11	USA, AK, Hooper Bay	M	E. Bering Sea	MW238737
75947	Y	Y	Y	H	2007	3	1	USA, AK, Savoonga	M	N. Bering Sea	MW238600
75949	Y	N	N	H	2007	3	1	USA, AK, Savoonga	U	N. Bering Sea	MW238573
87895	Y	N	N	H	2009	5	30	USA, AK, Diomede	M	N. Bering Sea	MW238649
87897	Y	N	N	H	2009	5	30	USA, AK, Diomede	F	N. Bering Sea	MW238569
87898	Y	N	N	H	2009	5	31	USA, AK, Diomede	F	N. Bering Sea	MW238750
87899	Y	N	N	H	2009	5	24	USA, AK, Diomede	M	N. Bering Sea	MW238699
87906	Y	N	N	H	2009	5	1	USA, AK, Hooper Bay	M	E. Bering Sea	MW238628
87907	Y	Y	Y	H	2009	5	2	USA, AK, Hooper Bay	M	E. Bering Sea	MW238686
87908	Y	Y	Y	H	2009	5	2	USA, AK, Hooper Bay	F	E. Bering Sea	MW238712
87909	Y	Y	Y	H	2009	5	2	USA, AK, Hooper Bay	M	E. Bering Sea	MW238593
87910	N ¹	Y	Y	H	2009	5	2	USA, AK, Hooper Bay	M	E. Bering Sea	NA
87911	Y	Y	Y	H	2009	5	1	USA, AK, Hooper Bay	M	E. Bering Sea	MW238595
87913	Y	Y	Y	H	2009	5	1	USA, AK, Hooper Bay	M	E. Bering Sea	MW238711
87914	Y	Y	Y	H	2009	5	1	USA, AK, Hooper Bay	M	E. Bering Sea	MW238623
87915	Y	N	N	H	2009	5	1	USA, AK, Hooper Bay	M	E. Bering Sea	MW238588
88251	Y	N	N	H	2009	4	7	USA, AK, Diomede	M	N. Bering Sea	MW238629
106045	Y	N	N	H	2011	3	20	USA, AK, Diomede	M	N. Bering Sea	MW238585
106056	Y	Y	Y	H	2011	3	20	USA, AK, Gambell	F	N. Bering Sea	MW238671
106058	Y	Y	Y	H	2011	3	1	USA, AK, Gambell	F	N. Bering Sea	MW238708
106060	Y	Y	Y	H	2011	3	7	USA, AK, Gambell	M	N. Bering Sea	MW238576

106061	Y	Y	Y	H	2011	3	3	USA, AK, Gambell	F	N. Bering Sea	MW238742
106070	Y	Y	Y	H	2011	3	2	USA, AK, Gambell	F	N. Bering Sea	MW238755
106074	Y	Y	Y	H	2011	3	3	USA, AK, Gambell	F	N. Bering Sea	MW238740
106075	Y	Y	Y	H	2011	3	5	USA, AK, Gambell	F	N. Bering Sea	MW238638
106076	Y	Y	Y	H	2011	3	2	USA, AK, Gambell	M	N. Bering Sea	MW238557
106077	Y	Y	Y	H	2011	3	5	USA, AK, Gambell	M	N. Bering Sea	MW238669
106138	Y	N	N	H	2011	3	20	USA, AK, Gambell	F	N. Bering Sea	MW238554
106619	Y	N	N	H	2011	3	13	USA, AK, Gambell	F	N. Bering Sea	MW238614
123694	Y	N	N	H	2006	5	26	USA, AK, Diomede	M	N. Bering Sea	MW238687
123700	Y	N	N	H	2008	4	24	USA, AK, Diomede	M	N. Bering Sea	MW238652
123701	Y	N	N	H	2008	5	29	USA, AK, Diomede	M	N. Bering Sea	MW238700
123703	Y	N	N	H	2008	5	28	USA, AK, Diomede	M	N. Bering Sea	MW238706
123704	Y	N	N	H	2008	5	27	USA, AK, Diomede	F	N. Bering Sea	MW238598
123705	Y	N	N	H	2008	5	22	USA, AK, Diomede	M	N. Bering Sea	MW238611
123725	Y	Y	N ⁵	H	2009	4	27	USA, AK, Hooper Bay	M	E. Bering Sea	MW238746
123726	Y	N	N	H	2009	4	27	USA, AK, Hooper Bay	M	E. Bering Sea	MW238669
123727	Y	Y	Y	H	2009	4	27	USA, AK, Hooper Bay	M	E. Bering Sea	MW238586
123728	Y	Y	Y	H	2009	4	27	USA, AK, Hooper Bay	M	E. Bering Sea	MW238646
123729	Y	Y	Y	H	2009	5	1	USA, AK, Hooper Bay	F	E. Bering Sea	MW238710
123802	Y	N	N	H	2008	4	14	USA, AK, Gambell	M	N. Bering Sea	MW238648
124291	Y	N	N	H	2010	5	30	USA, AK, Diomede	M	N. Bering Sea	MW238752
124293	Y	N	N	H	2010	5	26	USA, AK, Diomede	M	N. Bering Sea	MW238592
124294	Y	N	N	H	2010	5	30	USA, AK, Diomede	F	N. Bering Sea	MW238619
174716	Y	N	N	S	2004	3	30	USA, AK, southern Beaufort ⁶	U	NE Chukchi Sea-Beaufort Sea	MW238633
174718	Y	Y	Y	S	2010	4	26	USA, AK, near Prudhoe Bay	M	NE Chukchi Sea-Beaufort Sea	MW238674
174720	Y	N	N	S	2010	4	11	USA, AK, near Kaktovik	U	NE Chukchi Sea-Beaufort Sea	MW238635
174721	Y	Y	Y	S	2009	5	3	USA, AK, near Prudhoe Bay	M	NE Chukchi Sea-Beaufort Sea	MW238575
174722	Y	Y	Y	S	2009	5	3	USA, AK, near Prudhoe Bay	F	NE Chukchi Sea-Beaufort Sea	MW238645
174723	N ³	Y	N ³	S	2009	5	3	USA, AK, near Prudhoe Bay	F	NE Chukchi Sea-Beaufort Sea	MW238645
174724	Y	N	N	S	2006	5	3	USA, AK, near Prudhoe Bay	F	NE Chukchi Sea-Beaufort Sea	MW238575
174726	Y	Y	Y	S	2015	3	29	USA, AK, Chukchi Sea ⁷	M	SE Chukchi Sea	MW238756
174727	Y	Y	Y	S	2015	3	31	USA, AK, Chukchi Sea ⁷	M	SE Chukchi Sea	MW238763
174728	Y	N	N	S	2015	3	31	USA, AK, Chukchi Sea ⁷	U	SE Chukchi Sea	MW238705
174729	Y	Y	Y	S	2015	4	2	USA, AK, Chukchi Sea ⁷	F	SE Chukchi Sea	MW238679
174732	Y	Y	Y	S	2015	4	15	USA, AK, Chukchi Sea ⁷	M	SE Chukchi Sea	MW238739
174733	Y	N	N	S	2015	4	25	USA, AK, Chukchi Sea ⁷	F	SE Chukchi Sea	MW238714
174735	Y	Y	Y	S	2015	4	29	USA, AK, Chukchi Sea ⁷	F	SE Chukchi Sea	MW238610
174737	Y	N	N	S	2015	4	20	USA, AK, Chukchi Sea ⁷	F	SE Chukchi Sea	MW238751
174738	Y	N	N	S	2015	4	24	USA, AK, Chukchi Sea ⁷	F	SE Chukchi Sea	MW238691
174739	Y	N	N	S	2015	4	25	USA, AK, Chukchi Sea ⁷	U	SE Chukchi Sea	MW238672
174740	Y	Y	Y	S	2015	4	27	USA, AK, Chukchi Sea ⁷	M	SE Chukchi Sea	MW238733
174741	Y	Y	Y	S	2015	4	27	USA, AK, Chukchi Sea ⁷	F	SE Chukchi Sea	MW238624
174742	Y	N	N	S	2015	4	28	USA, AK, Chukchi Sea ⁷	F	SE Chukchi Sea	MW238636
174744	Y	Y	Y	S	2015	4	13	USA, AK, Chukchi Sea ⁷	M	SE Chukchi Sea	MW238631
174745	Y	N	N	S	2012	5	1	USA, AK, near Utqiagvik	U	NE Chukchi Sea-Beaufort Sea	MW238577
174746	Y	Y	Y	S	2012	4	22	USA, AK, near Prudhoe Bay	F	NE Chukchi Sea-Beaufort Sea	MW238578
174747	Y	Y	Y	S	2010	4	22	USA, AK, near Kaktovik	M	NE Chukchi Sea-Beaufort Sea	MW238730

174749	Y	Y	Y	S	2010	4	25	USA, AK, near Prudhoe Bay	F	NE Chukchi Sea-Beaufort Sea	MW238681
174750	Y	Y	Y	S	2010	4	17	USA, AK, near Kaktovik	F	NE Chukchi Sea-Beaufort Sea	MW238567
174751	Y	Y	Y	S	2011	4	17	USA, AK, near Utqiagvik	F	NE Chukchi Sea-Beaufort Sea	MW238669
174752	Y	Y	Y	S	2010	4	25	USA, AK, near Prudhoe Bay	F	NE Chukchi Sea-Beaufort Sea	MW238564
174753	Y	Y	Y	S	2011	3	29	USA, AK, near Utqiagvik	F	NE Chukchi Sea-Beaufort Sea	MW238758
174754	Y	Y	Y	S	2011	3	26	USA, AK, near Utqiagvik	M	NE Chukchi Sea-Beaufort Sea	MW238639
174755	Y	Y	Y	S	2011	4	15	USA, AK, near Prudhoe Bay	M	NE Chukchi Sea-Beaufort Sea	MW238695
174757	Y	Y	Y	S	2009	5	19	USA, AK, near Prudhoe Bay	M	NE Chukchi Sea-Beaufort Sea	MW238759
174758	Y	Y	Y	S	2009	5	10	USA, AK, near Prudhoe Bay	F	NE Chukchi Sea-Beaufort Sea	MW238566
174759	Y	Y	Y	S	2009	5	10	USA, AK, near Prudhoe Bay	F	NE Chukchi Sea-Beaufort Sea	MW238659
174760	Y	Y	Y	S	2009	5	3	USA, AK, near Prudhoe Bay	M	NE Chukchi Sea-Beaufort Sea	MW238607
174761	Y	Y	Y	S	2009	5	6	USA, AK, near Prudhoe Bay	M	NE Chukchi Sea-Beaufort Sea	MW238605
174762	Y	N	N	S	2009	4	28	USA, AK, near Prudhoe Bay	U	NE Chukchi Sea-Beaufort Sea	MW238704
174763	Y	Y	Y	S	2009	4	26	USA, AK, near Prudhoe Bay	M	NE Chukchi Sea-Beaufort Sea	MW238727
174764	Y	Y	Y	S	2009	4	26	USA, AK, near Prudhoe Bay	M	NE Chukchi Sea-Beaufort Sea	MW238570
174765	Y	Y	Y	S	2009	4	27	USA, AK, near Prudhoe Bay	M	NE Chukchi Sea-Beaufort Sea	MW238602
174766	Y	Y	Y	S	2009	4	28	USA, AK, near Prudhoe Bay	M	NE Chukchi Sea-Beaufort Sea	MW238707
174767	Y	N	N	S	2009	4	25	USA, AK, near Prudhoe Bay	U	NE Chukchi Sea-Beaufort Sea	MW238641
174769	Y	Y	Y	S	2009	5	17	USA, AK, near Kaktovik	F	NE Chukchi Sea-Beaufort Sea	MW238650
174770	Y	N	N	S	2009	5	3	USA, AK, near Prudhoe Bay	U	NE Chukchi Sea-Beaufort Sea	MW238617
174771	Y	Y	Y	S	2011	4	8	USA, AK, near Kaktovik	M	NE Chukchi Sea-Beaufort Sea	MW238572
174772	N ³	Y	Y	S	2011	4	14	USA, AK, near Prudhoe Bay	M	NE Chukchi Sea-Beaufort Sea	MW238719
174773	Y	Y	N ³	S	2011	4	14	USA, AK, near Prudhoe Bay	M	NE Chukchi Sea-Beaufort Sea	MW238720
174774	Y	N	N	S	2011	3	25	USA, AK, near Utqiagvik	U	NE Chukchi Sea-Beaufort Sea	MW238696
174775	Y	Y	Y	S	2011	3	22	USA, AK, near Utqiagvik	M	NE Chukchi Sea-Beaufort Sea	MW238670
174776	Y	Y	Y	S	2012	4	26	USA, AK, near Prudhoe Bay	F	NE Chukchi Sea-Beaufort Sea	MW238693
174779	Y	Y	Y	S	2014	4	7	USA, AK, near Prudhoe Bay	M	NE Chukchi Sea-Beaufort Sea	MW238553
174780	Y	Y	Y	S	2014	4	10	USA, AK, near Prudhoe Bay	M	NE Chukchi Sea-Beaufort Sea	MW238587
174781	Y	N	N	S	2014	4	14	USA, AK, near Prudhoe Bay	U	NE Chukchi Sea-Beaufort Sea	MW238594
174782	Y	N	N	S	2014	4	20	USA, AK, near Kaktovik	U	NE Chukchi Sea-Beaufort Sea	MW238725
174783	Y	N	N	S	2014	4	22	USA, AK, near Kaktovik	U	NE Chukchi Sea-Beaufort Sea	MW238675
174784	Y	N	N	S	2014	4	23	USA, AK, near Kaktovik	U	NE Chukchi Sea-Beaufort Sea	MW238660
174785	Y	N	N	S	2014	4	28	USA, AK, near Kaktovik	U	NE Chukchi Sea-Beaufort Sea	MW238680
190753	Y	N	N	S	2016	3	27	USA, AK, Chukchi Sea ⁷	M	SE Chukchi Sea	MW238697
190755	Y	N	N	S	2016	4	5	USA, AK, Chukchi Sea ⁷	F	SE Chukchi Sea	MW238654
190756	Y	N	N	S	2016	4	5	USA, AK, Chukchi Sea ⁷	M	SE Chukchi Sea	MW238621
190757	N ²	N	N	S	2016	4	5	USA, AK, Chukchi Sea ⁷	M	SE Chukchi Sea	MW238622
190759	Y	N	N	S	2016	4	9	USA, AK, Chukchi Sea ⁷	M	SE Chukchi Sea	MW238574
190760	Y	N	N	S	2016	4	14	USA, AK, Chukchi Sea ⁷	F	SE Chukchi Sea	MW238626
190761	Y	N	N	S	2016	4	14	USA, AK, Chukchi Sea ⁷	M	SE Chukchi Sea	MW238634
190762	N ²	N	N	S	2016	4	14	USA, AK, Chukchi Sea ⁷	F	SE Chukchi Sea	MW238626
190763	Y	N	N	S	2016	4	15	USA, AK, Chukchi Sea ⁷	M	SE Chukchi Sea	MW238728
190764	N ²	N	N	S	2016	4	15	USA, AK, Chukchi Sea ⁷	M	SE Chukchi Sea	MW238729
190765	Y	N	N	S	2016	4	16	USA, AK, Chukchi Sea ⁷	F	SE Chukchi Sea	MW238625
190766	N ²	N	N	S	2016	4	16	USA, AK, Chukchi Sea ⁷	F	SE Chukchi Sea	MW238625
190767	N ²	N	N	S	2016	4	20	USA, AK, Chukchi Sea ⁷	U	SE Chukchi Sea	MW238640
190768	Y	N	N	S	2016	4	20	USA, AK, Chukchi Sea ⁷	M	SE Chukchi Sea	MW238640

190771	Y	N	N	S	2016	4	21	USA, AK, Chukchi Sea ⁷	F	SE Chukchi Sea	MW238718
190772	Y	N	N	S	2016	4	21	USA, AK, Chukchi Sea ⁷	F	SE Chukchi Sea	MW238673
190773	N ²	N	N	S	2016	4	21	USA, AK, Chukchi Sea ⁷	F	SE Chukchi Sea	MW238718
190774	Y	N	N	S	2016	4	22	USA, AK, Chukchi Sea ⁷	M	SE Chukchi Sea	MW238582
190776	Y	N	N	S	2017	4	2	USA, AK, Chukchi Sea ⁷	M	SE Chukchi Sea	MW238744
190777	Y	N	N	S	2017	4	15	USA, AK, Chukchi Sea ⁷	M	SE Chukchi Sea	MW238560
190778	Y	N	N	S	2017	4	18	USA, AK, Chukchi Sea ⁷	F	SE Chukchi Sea	MW238694

¹ Sample failed to sequence

² Sample considered a potential duplicate (i.e., possibly collected from same animal as another sample in the study) based on collection date and locality and shared haplotype; no genotype data available to confirm

³ Sample determined to be a likely duplicate sample based on genotype data

⁴ Sample failed the initial DArTseq quality control filter

⁵ Sample removed from study due to a high proportion (>20%) of missing data

⁶ Precise latitude and longitude of sampling not available, but sample was collected within the southern Beaufort polar bear study area, which extends along the continental shelf from just west of Barrow to the Canadian border

⁷ Precise latitude and longitude of sampling not available, but sample was collected within the Chukchi Sea polar bear study area, which extends from Shishmaref, AK north to Point Hope, AK and out as far as 80 miles west of the Red Dog port site

⁸ Based on mtDNA control region sequence data, this sample was determined to have been derived from a bearded seal and was removed from the study.

Table S2. Summary of the results of the pairwise comparisons of the eastern Bering Sea and the Beaufort Sea strata after individuals have been subsampled for various sample sizes, showing the median F_{ST} value, median p-values for F_{ST} , and the proportion of tests that were significant at $p \leq 0.05$ for 20 replicates at each sample size.

Number of individuals	Median F_{ST}	Median F_{ST} p-value	Proportion of significant tests
8	0.001	0.272	0.1
14	0.001	0.114	0.2
20	0.001	0.026	0.7
25	0.001	0.013	0.95

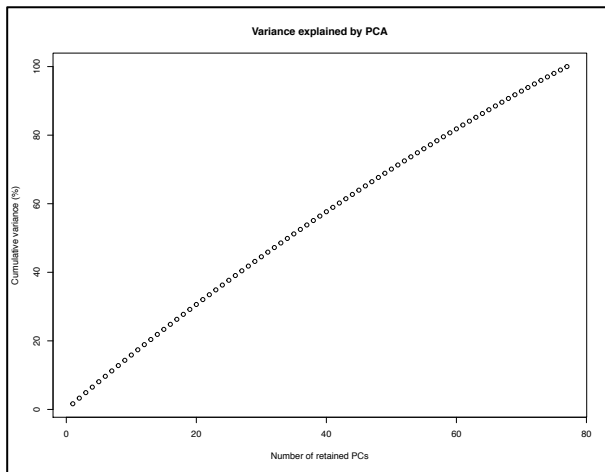
Table S3. Results of the pairwise comparisons of the eastern Bering Sea stratum versus the other management strata after removing one of the samples representing the putative paternal half-sib pair. Sample sizes are provided in parentheses. Comparisons that are statistically significant at $p < 0.05$ are in bold.

Comparison of the E. Bering Sea (n=39/27) with:	SNPs	
	F_{ST}	F_{ST} pval
N. Bering Sea (n=14)	0.000	0.547
SE Chukchi Sea (n=8)	0.001	0.146
Beaufort Sea (n=29)	0.001	0.004

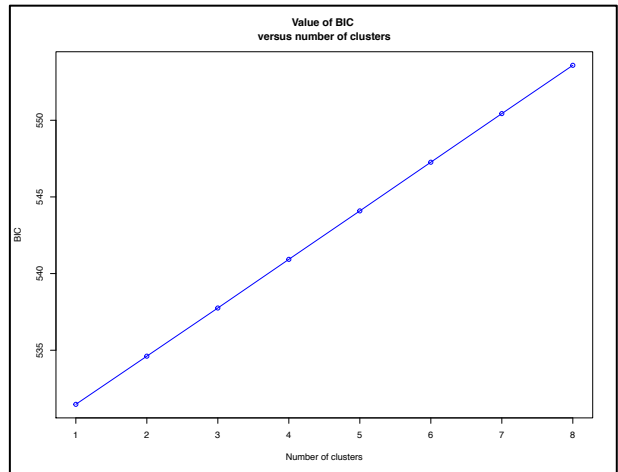
FIGURES

Figure S1. Results of K-means clustering and optimization of the alpha score for the DAPC analysis: a) the cumulative variance explained by increasing the number of retained principal components (PC); b) Results of using the K-means clustering method ('find.clusters' in *adegenet*) for the SNP data, showing the Bayesian Information Criterion values for increasing numbers of clusters; and c) estimation of the a-score, which is a measure of the proportion of assignments to the a priori defined groups versus to random clusters and is generated by running the function 'optim.a.score' in *adegenet*, for different numbers of clusters in the SNP data.

a)



b)



c)

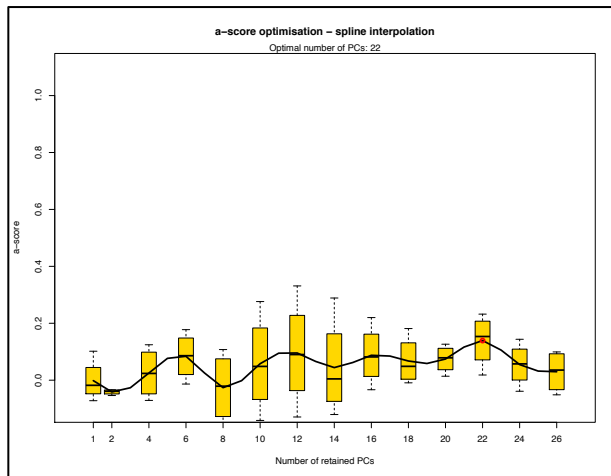


Figure S2. Distribution of relatedness values estimated from the empirical data (red) and that estimated from dyads of individuals simulated using the allele frequencies of a subset of the empirical SNP data ($n = 500$ randomly chosen loci) and representing four categories of known relatedness (unrelated, half-sibling, full-sibling, and parent-offspring). The vertical red dotted line represents the relatedness value estimated for the two individuals that likely represent a half-sibling pair.

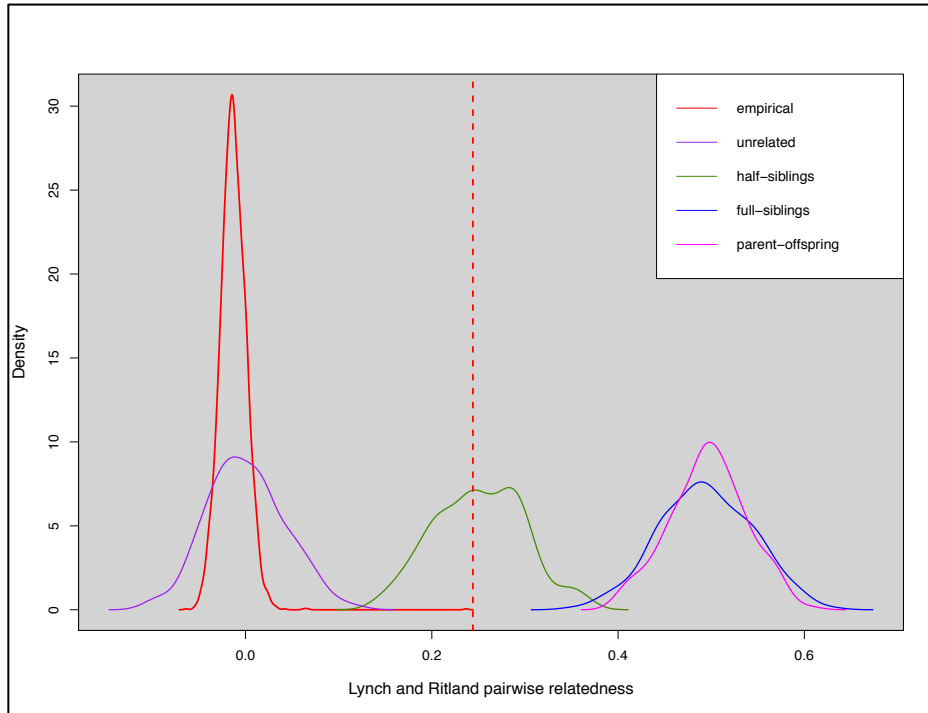
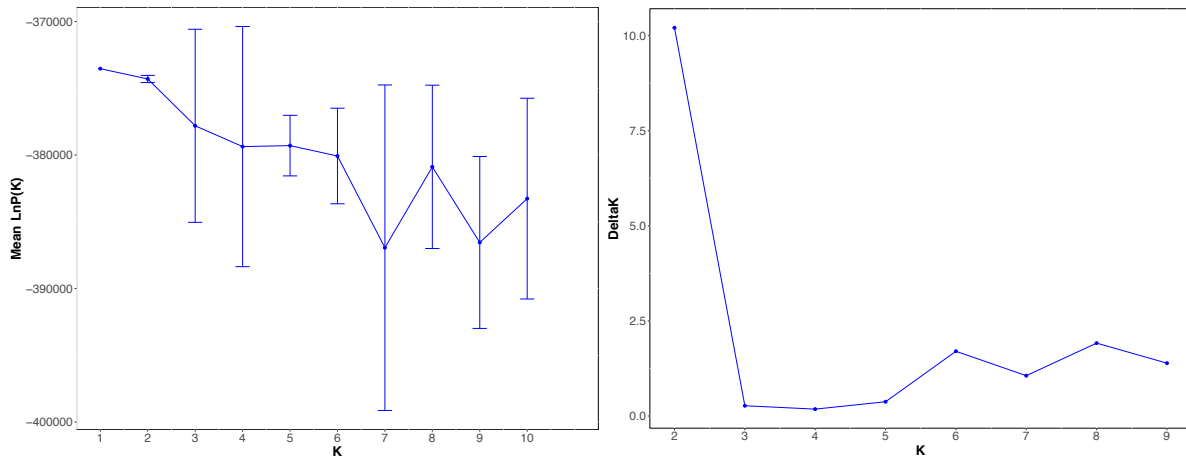


Figure S3. The results of model-based clustering analysis in STRUCTURE to determine the most likely number of genetic clusters in the dataset of 5699 SNPs. Plots shown include the mean $\text{LnP}(K)$ (\pm SD) for each value of K averaged over three iterations (left) and the *ad hoc* quantity referred to as ΔK , which is related to the second order rate of change of the log probability of data with respect to the number of clusters (right).

- a) Results based on analysis of individuals from all four strata, after removal of one of the pair of putative half-siblings.



- b) Results based on the analysis of individuals included in the eastern Bering Sea and the Beaufort Sea strata, after removal of one of the pair of putative half-siblings from the eastern Bering Sea stratum.

