This supplementary material accompanies the article:

Feminization of a mixed-stock foraging aggregation of immature green turtles (*Chelonia mydas*), 1975–2018

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Table S1 Estimated annual sex ratios for immature green turtles (*Chelonia mydas*) captured on developmental fe
estimated year of arrival see Methods. Unshaded data were not used in analyses because of small sample size

	Data set A. Captures with Associated Plasma Testosterone Titer taken that year						Data set B. Captures with Associated Plasma Testosterone Titer taken that year or in other years					
Year	F	M	Total	% F	95% CI	Sex Ratio (F:M)	F	M	Total	% F	95% CI	Sex Ratio (F:M)
1970												
1971												
1972												
1973												
1974												
1975												
1976							1	0	1			
1977							0	0	0			
1978							0	0	0			
1979							0	0	0			
1980							0	0	0			
1981							0	0	0			
1982							1	2	3			
1983							0	1	1			
1984							4	1	5			
1985							2	0	2			
1986							1	0	1			
1987							4	3	7			
1988							9	7	16			
1989							15	11	26			
1990	30	22	52	57.7%	0.44 - 0.7	1.36:1	38	35	73	52.1%	0.41 - 0.63	1.09:1
1991	34	35	69	49.3%	0.38 - 0.61	0.97:1	37	39	76	48.7%	0.38 - 0.6	0.95:1
1992	78	60	138	56.5%	0.48 - 0.65	1.3:1	101	68	169	59.8%	0.52 - 0.67	1.49:1
1993	115	93	208	55.3%	0.48 - 0.62	1.24:1	124	100	224	55.4%	0.49 - 0.62	1.24:1
1994	103	67	170	60.6%	0.53 - 0.68	1.54:1	109	69	178	61.2%	0.54 - 0.68	1.58:1
1995	25	14	39	64.1%	0.48 - 0.77	1.79:1	28	15	43	65.1%	0.5 - 0.78	1.87:1
1996	126	79	205	61.5%	0.55 - 0.68	1.59:1	134	86	220	60.9%	0.54 - 0.67	1.56:1
1997	95	46	141	67.4%	0.59 - 0.75	2.07:1	106	52	158	67.1%	0.59 - 0.74	2.04:1
1998	65	37	102	63.7%	0.54 - 0.72	1.76:1	75	42	117	64.1%	0.55 - 0.72	1.79:1
1999	78	62	140	55.7%	0.47 - 0.64	1.26:1	91	69	160	56.9%	0.49 - 0.64	1.32:1
2000	34	24	58	58.6%	0.46 - 0.7	1.42:1	37	27	64	57.8%	0.46 - 0.69	1.37:1
2001	53	36	89	59.6%	0.49 - 0.69	1.47:1	60	39	99	60.6%	0.51 - 0.7	1.54:1
2002	71	45	116	61.2%	0.52 - 0.7	1.58:1	84	47	131	64.1%	0.56 - 0.72	1.79:1
2003	63	21	84	75.0%	0.65 - 0.83	3:1	68	22	90	75.6%	0.66 - 0.83	3.09:1
2004	104	38	142	73.2%	0.65 - 0.8	2.74:1	113	38	151	74.8%	0.67 - 0.81	2.97:1
2005	89	36	125	71.2%	0.63 - 0.78	2.47:1	103	40	143	72.0%	0.64 - 0.79	2.58:1
2006	99	39	138	71.7%	0.64 - 0.79	2.54:1	110	42	152	72.4%	0.65 - 0.79	2.62:1
2007	123	39	162	75.9%	0.69 - 0.82	3.15:1	139	44	183	76.0%	0.69 - 0.82	3.16:1

2008	92	41	133	69.2%	0.61 - 0.76	2.24:1	98	43	141	69.5%	0.61 - 0.77	2.28:1
2009	98	44	142	69.0%	0.61 - 0.76	2.23:1	110	50	160	68.8%	0.61 - 0.75	2.20:1
2010	79	39	118	66.9%	0.58 - 0.75	2.03:1	85	41	126	67.5%	0.59 - 0.75	2.07:1
2011	31	19	50	62.0%	0.48 - 0.74	1.63:1	68	38	106	64.2%	0.55 - 0.73	1.79:1
2012	1	0	1	100.0%	0.05 - 1		31	16	47	66.0%	0.52 - 0.78	1.94:1
2013	111	47	158	70.3%	0.63 - 0.77	2.36:1	119	48	167	71.3%	0.64 - 0.78	2.48:1
2014	83	36	119	69.7%	0.61 - 0.77	2.31:1	108	48	156	69.2%	0.62 - 0.76	2.25:1
2015	83	49	132	62.9%	0.54 - 0.71	1.69:1	128	74	202	63.4%	0.57 - 0.7	1.73:1
2016	84	48	132	63.6%	0.55 - 0.71	1.75:1	110	70	180	61.1%	0.54 - 0.68	1.57:1
2017							30	19	49	61.2%	0.47 - 0.74	1.58:1
2018							35	17	52	67.3%	0.54 - 0.78	2.06:1
all yrs	2047	1116	3163	64.7%	0.63 - 0.66	1.83:1	2516	1363	3879	64.9%	0.63 - 0.66	1.85:1
1990-2018							2479	1338	3817	64.9%	0.63 - 0.66	1.85:1
1975-2015												
most recent 4 yrs	361	180	541	66.7%	0.63 - 0.71	2.0:1	303	180	483	62.7%	0.58 - 0.67	1.68:1

ɔraging grounds in Bermuda, based on plasma testosterone titers. For calculation of

Data set C. Captures with Associated Plasma Testosterone Titer taken that year, Water Temperature 26-30° C						Data set D. Captures with Associated Plasma Testosterone Titer taken that year or in other years, by Estimated Year of Arrival in Bermuda					
F	M	Total	% F	95% CI	Sex Ratio (F:M)	F	M	Total	% F	95% CI	Sex Ratio (F:M)
						1	1	2			
						0	1	1			
						2	3	5			
						6	4	10			
						7	6	13			
						15	21	36	41.7%	0.27 - 0.58	0.71:1
						14	16	30	46.7%	0.3 - 0.64	0.88:1
						17	19	36	47.2%	0.32 - 0.63	0.89:1
						27	17	44	61.4%	0.47 - 0.74	1.59:1
						22	16	38	57.9%	0.42 - 0.72	1.38:1
						34	27	61	55.7%	0.43 - 0.67	1.26:1
						41	23	64	64.1%	0.52 - 0.75	1.78:1
						52	36	88	59.1%	0.49 - 0.69	1.44:1
						31	33	64	48.4%	0.37 - 0.6	0.94:1
						45	34	79	57.0%	0.46 - 0.67	1.32:1
						42	34	76	55.3%	0.44 - 0.66	1.24:1
						40	47	87	46.0%	0.36 - 0.56	0.85:1
						41	30	71	57.7%	0.46 - 0.69	1.37:1
						43	27	70	61.4%	0.5 - 0.72	1.59:1
						39	26	65	60.0%	0.48 - 0.71	1.5:1
30	22	52	57.7%	0.44 - 0.7	1.36:1	43	26	69	62.3%	0.51 - 0.73	1.65:1
34	35	69	49.3%	0.38 - 0.61	0.97:1	39	17	56	69.6%	0.57 - 0.8	2.29:1
73	60	133	54.9%	0.45 - 0.61	1.22:1	60	27	87	69.0%	0.59 - 0.78	2.22:1
14	15	29	48.3%	0.04 - 0.11	0.93:1	55	22	77	71.4%	0.61 - 0.8	2.5:1
63	38	101	62.4%	0.3 - 0.45	1.66:1	54	20	74	73.0%	0.62 - 0.82	2.7:1
3	0	3	100.0%	0.03 - 0.2		54	26	80	67.5%	0.57 - 0.77	2.08:1
109	71	180	60.6%	0.46 - 0.6	1.54:1	49	18	67	73.1%	0.61 - 0.82	2.72:1
74	32	106	69.8%	0.44 - 0.61	2.31:1	53	22	75	70.7%	0.6 - 0.8	2.41:1
49	30	79	62.0%	0.39 - 0.58	1.63:1	55	26	81	67.9%	0.57 - 0.77	2.12:1
46	45	91	50.5%	0.26 - 0.41	1.02:1	49	28	77	63.6%	0.52 - 0.73	1.75:1
34	24	58	58.6%	0.46 - 0.7	1.42:1	67	29	96	69.8%	0.6 - 0.78	2.31:1
41	32	73	56.2%	0.36 - 0.56	1.28:1	73	25	98	74.5%	0.65 - 0.82	2.92:1
38	29	67	56.7%	0.25 - 0.42	1.31:1	35	21	56	62.5%	0.49 - 0.74	1.67:1
43	13	56	76.8%	0.41 - 0.62	3.31:1	45	23	68	66.2%	0.54 - 0.76	1.96:1
56	21	77	72.7%	0.32 - 0.48	2.67:1	45	15	60	75.0%	0.63 - 0.84	3.0:1
58	30	88	65.9%	0.38 - 0.55	1.93:1	38	23	61	62.3%	0.5 - 0.73	1.65:1
97	37	134	72.4%	0.62 - 0.77	2.62:1	63	20	83	75.9%	0.66 - 0.84	3.15:1
123	39	162	75.9%	0.69 - 0.82	3.15:1	61	31	92	66.3%	0.56 - 0.75	1.97:1

91	41	132	68.9%	0.6 - 0.76	2.22:1	61	31	92	66.3%	0.56 - 0.75	1.97:1
70	36	106	66.0%	0.41 - 0.57	1.94:1	46	14	60	76.7%	0.65 - 0.86	3.29:1
79	39	118	66.9%	0.58 - 0.75	2.03:1	38	17	55	69.1%	0.56 - 0.8	2.24:1
31	19	50	62.0%	0.48 - 0.74	1.63:1	27	16	43	62.8%	0.48 - 0.76	1.69:1
1	0	1	100.0%			23	9	32	71.9%	0.55 - 0.84	2.56:1
111	46	157	70.7%	0.63 - 0.77	2.41:1	25	7	32	78.1%	0.61 - 0.89	3.57:1
83	36	119	69.7%	0.61 - 0.77	2.31	27	16	43	62.8%	0.48 - 0.76	1.69:1
77	49	126	61.1%	0.5 - 0.66	1.57	19	12	31	61.3%	0.44 - 0.76	1.58:1
84	48	132	63.6%	0.55 - 0.71	1.75	4	1	5			
						1	0	1			
1612	887	2499	64.5%	0.62 - 0.66	1.82	1728	963	2691	64.2%	0.62 - 0.66	1.79:1
						1707	947	2654	64.30%	0.62 - 0.66	1.80:1
355	179	534	66.5%	0.62 - 0.70	1.98:1	94	44	138	68.1%	0.60 - 0.75	2.1:1

Table S2 Estimated sex composition and 95% confidence intervals, and rate of increase in sex ratio (F/M) for four data sets representing the developmental foraging aggregation of green turtles (*Chelonia mydas*) in Bermuda. See Table S1 for annual data

Data set	***n***	**Percent female over all years**	**Increase in sex ratio (F/M) yr-1 over all years**	**Percent female over last four years**
A. Captures with testosterone titer taken that year (1990–2016) Fig. S4a	3,163	64.7 0.63–0.66	3.8* p = 0.006	66.7 0.63–0.71 (2013–2016)
B. Captures with testosterone titer taken any year (1990–2018) Figs. 4a & S4b	3,817	64.9 0.63–0.66	2.8* p = 0.024	62.7 0.58–0.67 (2015–2018)
C. Captures with testosterone titer taken that year and water T 26–30°C (1990–2016) Fig. S4c	2,499	64.5 0.62–0.66	4.0* p = 0.024	66.5 0.62–0.70 (2013–2016)
D. Captures with testosterone titer taken any year, by estimated year of arrival (1975–2015) Fig. 4b	2,654	64.3 0.62–0.66	3.8* p < 0.001	68.1 0.60–0.75 (2012–2015)

* Indicates significant change

Table S3 Mitochondrial control region haplotypes for immature green turtles (*Chelonia mydas*) from the Bermuda developmental foraging aggregation. Data for short (~500-bp) and long runs (~840 bp) are provided (n=602)

Haplotype	short	long	sum for analyses
CM-A1	12		161
CM-A1.1		126	
CM-A1.2		17	
CM-A1.3		1	
CM-A1.4		5	
CM-A2			6
CM-A2.1		5	
CM-A2.2		1	
CM-A3	47		287
CM-A3.1		236	
CM-A3.3		1	
CM-A3.4		3	
CM-A5	6		56
CM-A5.1		47	
CM-A5.2		3	
CM-A8	2		12
CM-A8.1		10	
CM-A13			5
CM-A13.1		5	
CM-A15			1
CM-A15.1		1	
CM-A16	1		16
CM-A16.1		15	
CM-A17			8
CM-A17.1		8	
CM-A18			10
CM-A18.1		2	
CM-A18.2		8	
CM-A20			1
CM-A20.1		1	
CM-A21			3
CM-A21.1		3	
CM-A22			5
CM-A22.1		5	
CM-A26			5
CM-A26.1		5	
CM-A27	1		15
CM-A27.1		14	
CM-A28			4
CM-A28.1		4	
CM-A29			2
CM-A29.1		2	
CM-A48			5
CM-A48.2		1	
CM-A48.3		4	
Totals	69	533	602

Table S4 Mitochondrial control region haplotypes for Atlantic green turtle (*Chelonia mydas*) rookeries and the Bermuda developmental foraging aggregation. Data in t
filled are from Shamblin et al. (2018), green-filled are from van der Zee et al. (2019), gray-filled are from Shamblin et al. (2020). [1]Data for Quintana Roo, Mexico, inclu
from Pérez-Ríos (2008). [2]Estimate for number of nesting females for Dry Tortugas calculated from Florida Fish and Wildlife Conservation Commission data for 2015-2
foraging ground data are given for all years combined and by estimated decade of arrival to the Bermuda Platform (see Methods)

	Rookeries																					
Haplotype	**East Central Florida, USA**	**South East Florida, USA**	**Dry Tortugas, Florida, USA**	**Quintana Roo, Mexico[1]**	**West Bay Campeche, Mexico**	**East Bay Campeche, Mexico**	**Cayo Arcas, Mexico**	**Scorpion Reef, Mexico**	**Tortuguero, Costa Rica**	**Cuba**	**Cayman Islands**	**Buck Island, USA**	**Guadaloupe**	**Aves Island, Venezuela**	**Galibi and Matapica, Suriname**	**French Guiana**	**Rocas Atoll, Brazil**	**Fernando de Noronha, Brazil**	**Trindade, Brazil**	**Ascension Island, UK**	**Guinea Bissau**	**Bioko**
CM-A1	335	35	8	35	100	2		4		3	3											
CM-A2	8	4		16																		
CM-A3	170	115	39	63	19	147	9	11	395	16	37		1	5	1							
CM-A4									1													
CM-A5	2		17	1			1	3	32		4	45	35	62	73	43						
CM-A6															2					11		5
CM-A7															1							
CM-A8	1														1	2	36	14	67	204	240	45
CM-A9																	7		19	9		
CM-A10																	2			5		
CM-A11																	1		1			
CM-A12																	5					
CM-A13	10	2									2											
CM-A14																						
CM-A15				1																		
CM-A16	3	1		41							1	4										
CM-A17		2		11							2											
CM-A18	1	1	1	16	2	24					1											
CM-A20									2													
CM-A21									3													
CM-A22				20							2					1						
CM-A23																			6	1		

CM-A24																			1	7			
CM-A25																	1	2		1			
CM-A26			1	20																			
CM-A27								5		1	3												
CM-A28	3	2	1	9						1													
CM-A29																							
CM-A32																	1		4	1			
CM-A33																			1				
CM-A34											1												
CM-A35																							
CM-A36																							
CM-A37																							
CM-A38																							
CM-A39																				1			
CM-A42																					1		
CM-A44																				1			
CM-A45																				1			
CM-A46																				2			
CM-A47							4																
CM-A48										5													
CM-A50																				1			
CM-A53		3																					
CM-A56										1													
CM-A57										1													
CM-A58					2																		
CM-A61																							
CM-A62																							
CM-A63																							
CM-A78											1												
Total	533	165	67	233	123	173	14	23	433	28	57	49	36	67	78	46	53	16	99	245	241	50	
PRIORS																							
Rookery size #females	4990	3314	327[2]	18257	7610	4318	250	828	131751	2226	72	63	50	2833	13067	6000	275	70	2016	13417	29016	850	

uncolored cells are from Naro-Maciel et al. (2017), blue-
ıdes 20 haplotypes from Enclada et al. (1996) and 213
2019 using method of Shamblin et al. (2018:S-3). Bermuda

		Bermuda foraging aggregation					
			By decade of arrival				
Sao Tome e Principe	**Mediterranean**	**All years**	**1970-1979**	**1980-1989**	**1990-1999**	**2000-2009**	**2010-2019**
		161	0	10	50	62	39
		6	0	1	2	2	1
		287	32	63	69	83	40
1		56	4	15	17	18	2
1							
17		12	2	3	4	1	2
	241	5	0	0	3	1	1
	3						
		1	0	0	1	0	0
		16	0	0	6	9	1
		8	0	1	3	2	2
		10	0	0	2	4	4
		1	0	1	0	0	0
		3	0	1	0	1	1
		5	0	1	4	0	0

		5	0	0	2	1	2
	1	15	0	2	2	7	4
		4	1	0	1	1	1
		2	0	0	0	2	0
1							
3							
1							
2							
		5	0	1	1	3	0
	1						
	1						
	1						
26	248	602	39	99	167	197	100

376	515

Table S5 Pairwise comparisons of genetic differentiation among decadal samples (based on estimated year of arrival) of immature green turtles (*Chelonia mydas*) in the Bermuda developmental foraging aggregation. Above diagonal, population pairwise fixation values (Fst), below diagonal, Fst P values. Significant differences indicated by **

	1970-1979	**1980-1989**	**1990-1999**	**2000-2009**	**2010-2019**
1970-1979		0.01045	0.04605	0.06178	0.10944
1980-1989	0.18444±0.0033		0.01841	0.03031	0.06955
1990-1999	0.02079±0.0014**	0.03544±0.0018**		-0.00347	0.01085
2000-2009	0.00812±0.0009**	0.00782±0.0009**	0.78953±0.0043		0.00488
2010-2019	0.00079±0.0003**	0.00040±0.0002**	0.07178±0.0026	0.16939±0.0037	

Table S6 Results of many-to-one mixed stock analyses (Bolker, 2007) for rookery contributions to the green turtle (Chelonia mydas) developmental foraging aggregation in Bermuda, with and without a prior of rookery size, for all samples collected 1990–2018, n = 600 turtles. Distinct population segments from Seminoff et al. (2015)

Rookery	Distinct population segment	Without priors				With priors		
		Estimated contribution	Upper 95% CI	Lower 95% CI		Estimated contribution	Upper 95% CI	Lower 95% CI
East Central Florida	North Atlantic	0.2680	0.418	0.000		0.3070	0.420	0.000
Tortuguero, Costa Rica	North Atlantic	0.2540	0.376	0.117		0.2700	0.374	0.162
Scorpion (Alacranes) Reef, Mexico	North Atlantic	0.1670	0.481	0.000		0.1650	0.416	0.000
Quintana Roo, Mexico	North Atlantic	0.1400	0.195	0.086		0.1440	0.196	0.096
Western Bay of Campeche, Mexico	North Atlantic	0.0400	0.289	0.000		0.0180	0.268	0.000
Guanahacabibes, Cuba	North Atlantic	0.0340	0.094	0.000		0.0390	0.161	0.000
Dry Tortugas, Florida	North Atlantic	0.0140	0.190	0.000		0.0000	0.000	0.000
Cayman Islands	North Atlantic	0.0140	0.185	0.000		0.0000	0.000	0.000
French Guiana	South Atlantic	0.0110	0.075	0.000		0.0170	0.091	0.000
Aves Island, Venezuela	South Atlantic	0.0100	0.072	0.000		0.0070	0.077	0.000
Buck Island, USVI	South Atlantic	0.0090	0.070	0.000		0.0000	0.000	0.000
Guadeloupe	South Atlantic	0.0080	0.067	0.000		0.0000	0.000	0.000
Guinea-Bissau	South Atlantic	0.0060	0.025	0.000		0.0120	0.028	0.000
Southeast Florida	North Atlantic	0.0060	0.087	0.000		0.0020	0.014	0.000
Eastern Bay of Campeche, Mexico	North Atlantic	0.0050	0.056	0.000		0.0030	0.041	0.000
Galibi and Matapica Surinam	South Atlantic	0.0040	0.050	0.000		0.0130	0.074	0.000
Fernando de Noronha, Brazil	South Atlantic	0.0030	0.021	0.000		0.0000	0.000	0.000
Bioko	South Atlantic	0.0020	0.020	0.000		0.0000	0.000	0.000
Ascension Island, UK	South Atlantic	0.0010	0.016	0.000		0.0010	0.017	0.000
Mediterranean	Mediterranean	0.0010	0.011	0.000		0.0000	0.000	0.000
Trindade, Brazil	South Atlantic	0.0000	0.006	0.000		0.0000	0.000	0.000
São Tomé and Príncipe	South Atlantic	0.0000	0.005	0.000		0.0000	0.000	0.000
Rocas Atoll, Brazil	South Atlantic	0.0000	0.005	0.000		0.0000	0.000	0.000
Cayos Arcas, Mexico	North Atlantic	0.0000	0.003	0.000		0.0000	0.000	0.000

Table S7 Results of many-to-one mixed stock analyses for rookery contributions to the green turtle (*Chelonia mydas*) developmental foraging aggregation in Bermuda by estimated decade of arrival (no priors)

			1970-1979 (n = 39)				1980-1989 (n = 99)				1990-1999 (n = 166)				2000-2009 (n = 195)				2010-2019 (n = 100)			
largest contributors over 5 decades	**rookery**	**abbrev**		**est. contrib-ution**	**upper 95CI**	**lower 95CI**		**est. contrib-ution**	**upper 95CI**	**lower 95CI**		**est. contrib-ution**	**upper 95CI**	**lower 95CI**		**est. contrib-ution**	**upper 95CI**	**lower 95CI**		**est. contrib-ution**	**upper 95CI**	**lower 95CI**
1	East Central Florida, USA	ECFL		0.0034	0.048	0.000	5	0.0644	0.232	0.000	1	0.3607	0.563	0.000	1	0.3048	0.517	0.000	1	0.3797	0.673	0.000
2	Tortuguero, Costa Rica	TOCR	1	0.6895	0.946	0.000	1	0.4681	0.691	0.178	8	0.0249	0.202	0.000	4	0.1342	0.301	0.002	3	0.1159	0.310	0.000
3	Scorpion Reef, Mexico	SRMX		0.0048	0.047	0.000	4	0.0645	0.390	0.000	5	0.0494	0.392	0.000	2	0.1845	0.509	0.000	5	0.1145	0.319	0.000
4	Quintana Roo, Mexico	QRMX		0.0060	0.053	0.000		0.0126	0.090	0.000	2	0.1758	0.283	0.078	3	0.1412	0.244	0.050	2	0.1436	0.281	0.032
5	West Bay, Campeche, Mexico	WCMX		0.0011	0.012	0.000		0.0086	0.096	0.000	7	0.0282	0.307	0.000	6	0.0594	0.357	0.000	4	0.1146	0.509	0.000
6	Cuba	CUBA	3	0.0198	0.169	0.000	6	0.0517	0.197	0.000	6	0.0370	0.180	0.000	5	0.0729	0.241	0.000		0.0030	0.024	0.000
7	Dry Tortugas, Florida, USA	DTFL	2	0.1268	0.915	0.000	8	0.0266	0.374	0.000	4	0.0495	0.368	0.000	8	0.0149	0.218	0.000	9	0.0054	0.073	0.000
8	Cayman Islands	CAY		0.0060	0.060	0.000	3	0.0892	0.337	0.000	3	0.1543	0.451	0.000	7	0.0196	0.251	0.000	6	0.0611	0.365	0.000
9	French Guiana	FRGU	10	0.0087	0.091	0.000	7	0.0416	0.183	0.000	10	0.0196	0.116	0.000		0.0063	0.070	0.000		0.0011	0.012	0.000
10	Aves Island, Venezuela	AVES		0.0081	0.099	0.000	10	0.0140	0.134	0.000		0.0143	0.104	0.000		0.0086	0.076	0.000		0.0009	0.012	0.000
	East Bay, Campeche, Mexico	ECMX	6	0.0143	0.160	0.000		0.0027	0.029	0.000		0.0069	0.094	0.000	10	0.0099	0.104	0.000	7	0.0256	0.198	0.000
	Southeast Florida, USA.	SEFL	4	0.0176	0.176	0.000	2	0.0904	0.432	0.000	9	0.0219	0.320	0.000		0.0086	0.132	0.000	8	0.0116	0.132	0.000
	Guinea Bissau	GUBI	7	0.0099	0.077	0.000		0.0047	0.042	0.000		0.0041	0.031	0.000		0.0005	0.007	0.000	10	0.0035	0.030	0.000
	Bioko	BIOKO	8	0.0099	0.095	0.000		0.0044	0.042	0.000		0.0037	0.032	0.000		0.0006	0.007	0.000		0.0029	0.031	0.000
	Cayo Arcas, Mexico	CAMX	5	0.0172	0.177	0.000		0.0018	0.018	0.000		0.0018	0.018	0.000		0.0009	0.007	0.000		0.0016	0.016	0.000
	Fernando de Noronha, Brazil	FDNB	9	0.0095	0.081	0.000		0.0041	0.041	0.000		0.0034	0.031	0.000		0.0005	0.006	0.000		0.0025	0.026	0.000
	Guadaloupe	GUAD		0.0082	0.091	0.000	9	0.0164	0.134	0.000		0.0134	0.098	0.000		0.0091	0.080	0.000		0.0010	0.012	0.000
	Buck Island, USA	BIUS		0.0058	0.074	0.000		0.0091	0.110	0.000		0.0126	0.103	0.000	9	0.0148	0.103	0.000		0.0008	0.010	0.000
	Ascension Island, UK	AIUK		0.0072	0.068	0.000		0.0040	0.037	0.000		0.0023	0.021	0.000		0.0005	0.006	0.000		0.0027	0.028	0.000
	Trindade, Brazil	TRBR		0.0051	0.055	0.000		0.0019	0.023	0.000		0.0017	0.021	0.000		0.0004	0.005	0.000		0.0020	0.026	0.000
	Rocas Atoll, Brazil	RABR		0.0062	0.068	0.000		0.0025	0.030	0.000		0.0019	0.020	0.000		0.0004	0.005	0.000		0.0019	0.023	0.000
	Sao Tome e Principe	STP		0.0064	0.077	0.000		0.0028	0.032	0.000		0.0019	0.024	0.000		0.0004	0.005	0.000		0.0019	0.026	0.000
	Mediterranean	MED		0.0014	0.016	0.000		0.0005	0.005	0.000		0.0013	0.016	0.000		0.0006	0.007	0.000		0.0014	0.017	0.000
	Galibi and Matapica, Surinam	SURN		0.0073	0.088	0.000		0.0134	0.120	0.000		0.0094	0.094	0.000		0.0062	0.068	0.000		0.0008	0.010	0.000

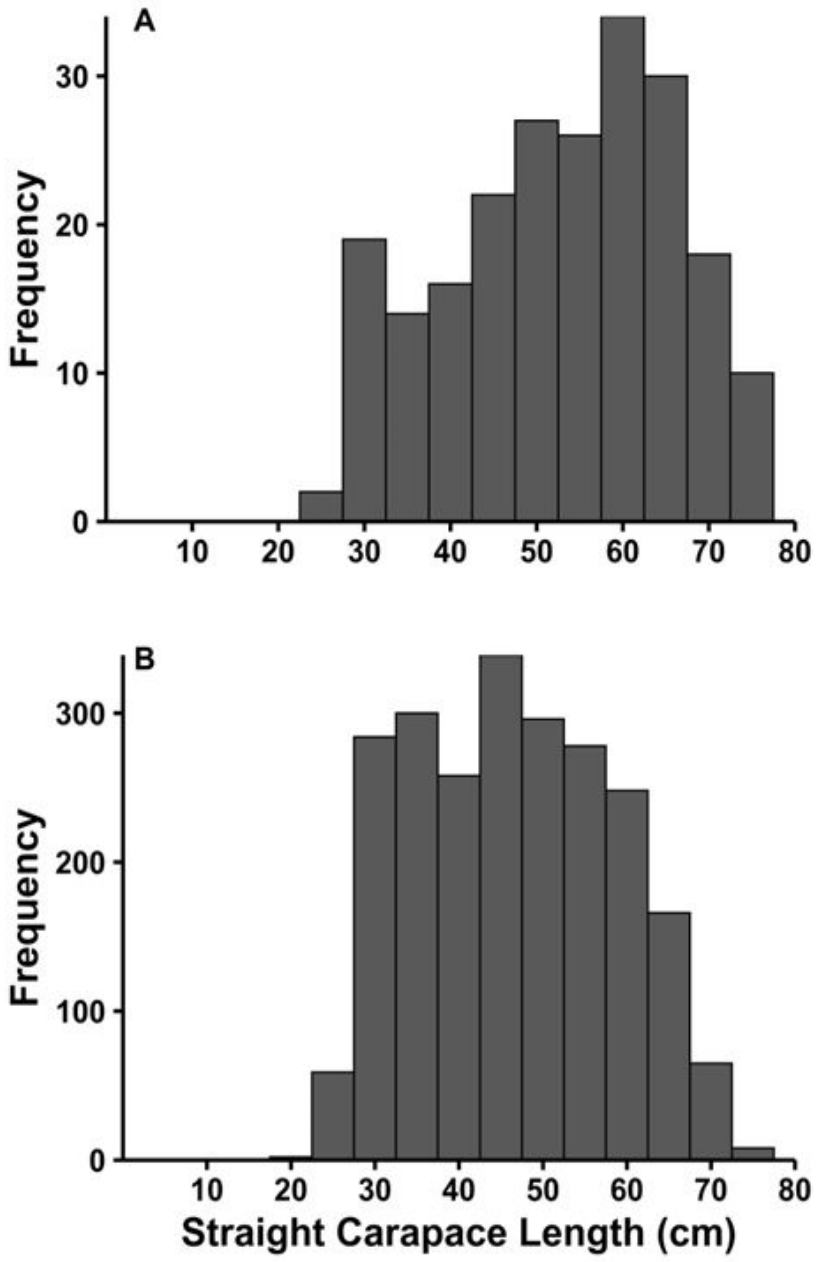

Fig. S1 Straight carapace length (SCLmin) of all immature green turtle (*Chelonia mydas*) captures for which plasma testosterone titer was assessed, Bermuda, 1990–2016. a) Turtles that were laparoscoped to determine sex and calibrate plasma testosterone titers (n = 190 turtles, 218 captures); b) turtles that were not laparoscoped and whose sex was predicted by plasma testosterone titer calibrated by laparoscopy (n = 2,487 turtles, 2,918 captures)

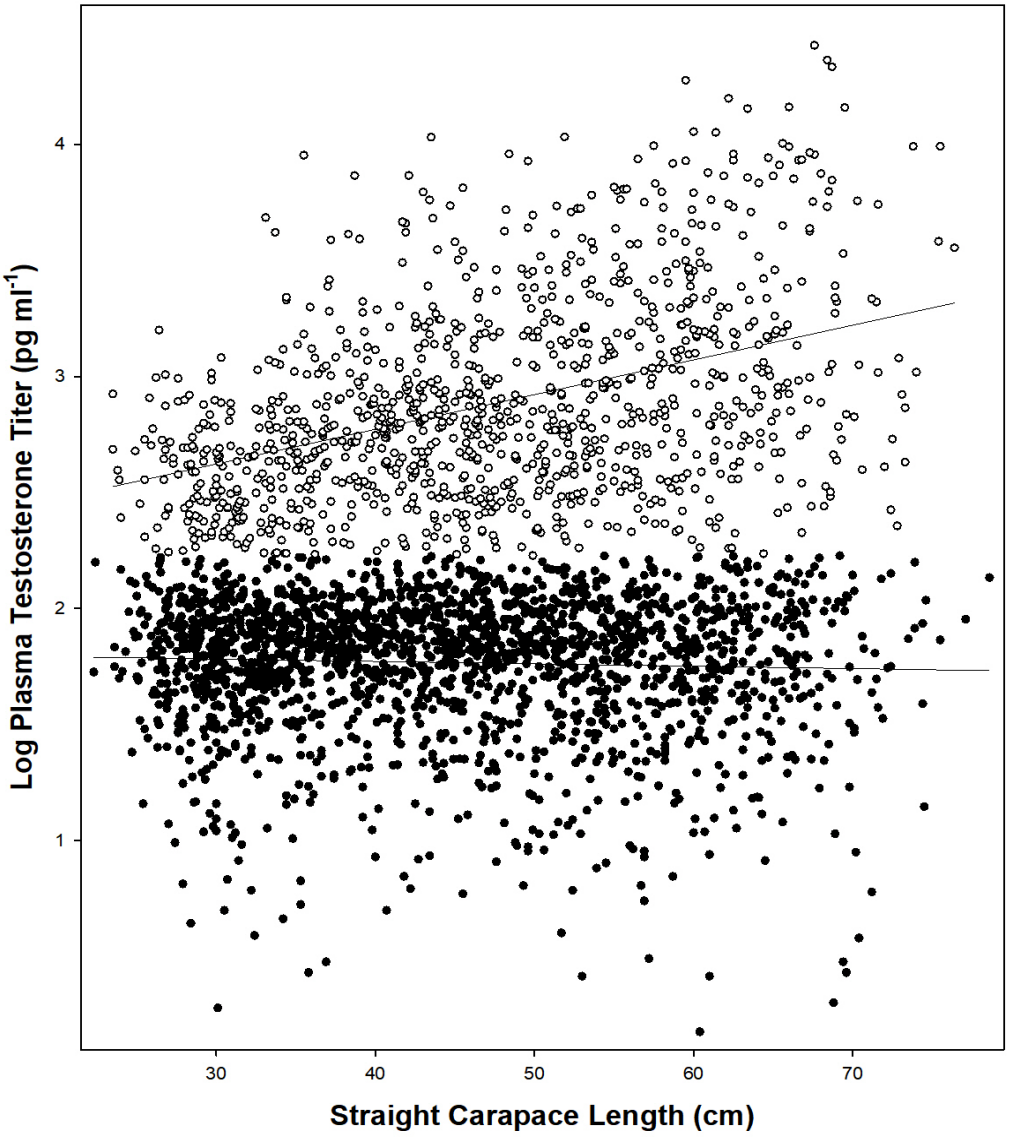

Fig. S2 Relationship between plasma testosterone titer and turtle size for immature green turtles (*Chelonia mydas*) captured in Bermuda, by sex. Male titers (open circles, n = 1,104) increased significantly (linear regression, adjusted $r^2 = 0.1727$, $F_{1,1103} = 23.15$, $p < 0.0001$); female titers (filled circles, n = 2,029) decreased but not significantly (linear regression, adjusted $r^2 = 0.001283$, $F_{1,2026} = 3.605$, $p = 0.08$)

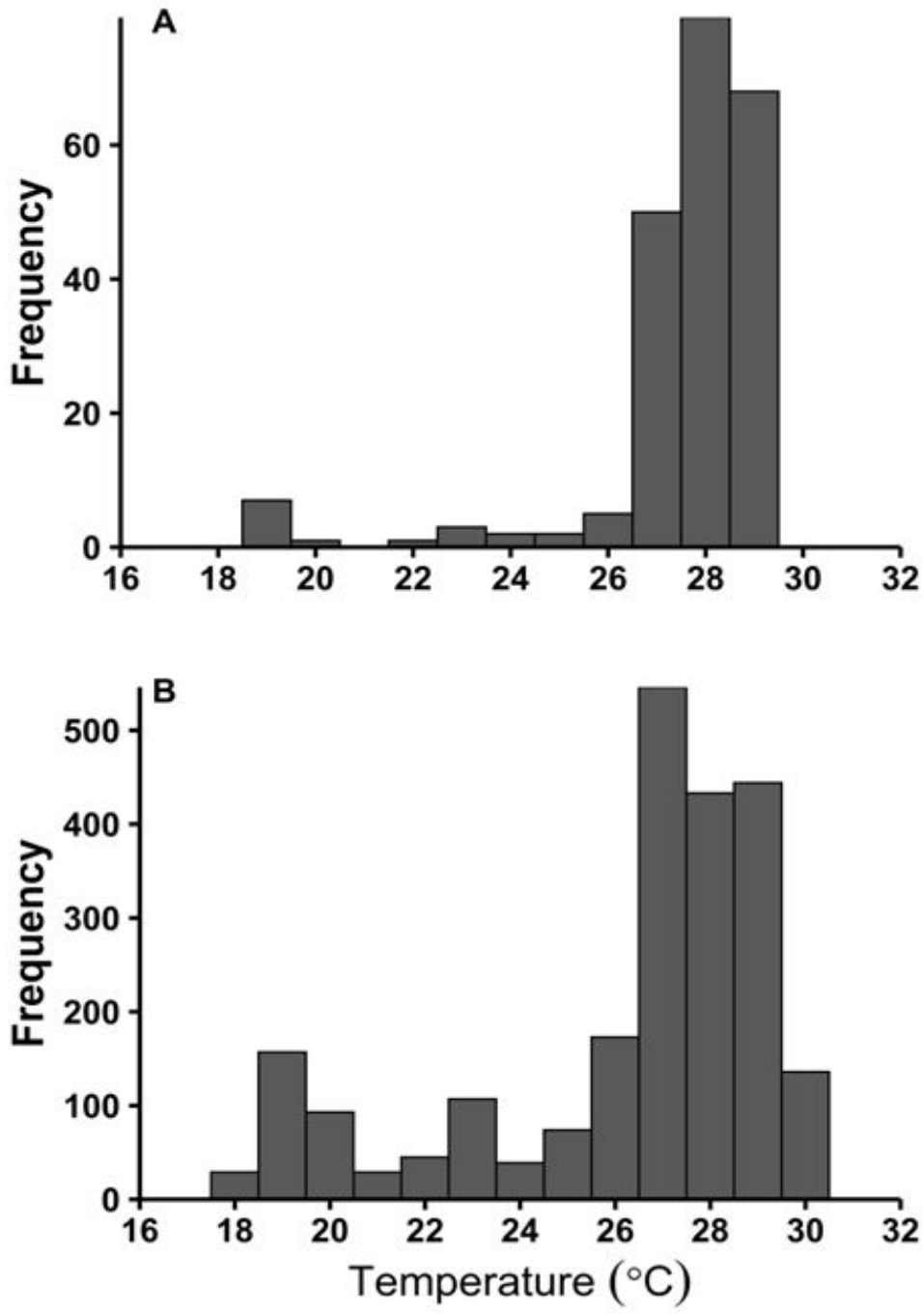

Fig. S3 Water temperature (°C) for captures of immature green turtles (*Chelonia mydas*) in Bermuda, 1990–2016, with an associated plasma testosterone titer. a) Captures of turtles that were laparoscoped to determine sex, n = 218; b) captures of turtles that were not laparoscoped; sex was predicted by plasma testosterone calibrated by laparoscopy, n = 2,920

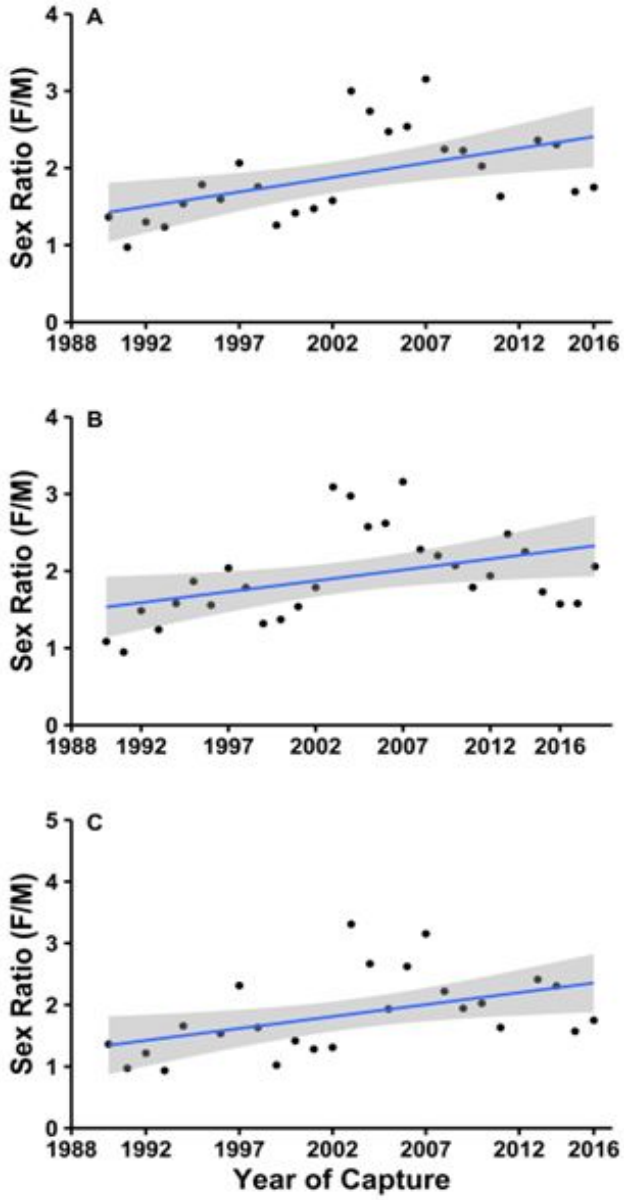

Fig. S4 Trend in annual sex ratio (with 95% confidence interval) of immature green turtles (*Chelonia mydas*) by year of capture in Bermuda. a) Sex determination based on laparoscopy and/or plasma testosterone titer at capture that year, 1990–2016, n = 3,163 captures. Annual sample size averaged 117 (SD = 49.1, range 1–208) captures (Table S1: Data set A); b) sex determination based on laparoscopy and/or plasma testosterone titer at any capture(s) of an individual turtle, 1990–2018, n = 3,817 captures. Annual sample size averaged 132 (SD = 52.8, range 43–224) captures (Table S1: Data set B); c) annual sex ratio for captures made at water temperatures of 26–30°C, 1990–2016, n = 2,499 captures. Sex determination based on laparoscopy and/or plasma testosterone titer at capture that year; annual sample size averaged 92.6 (SD = 45.8, range = 1–180) captures (Table S1: Data set C)

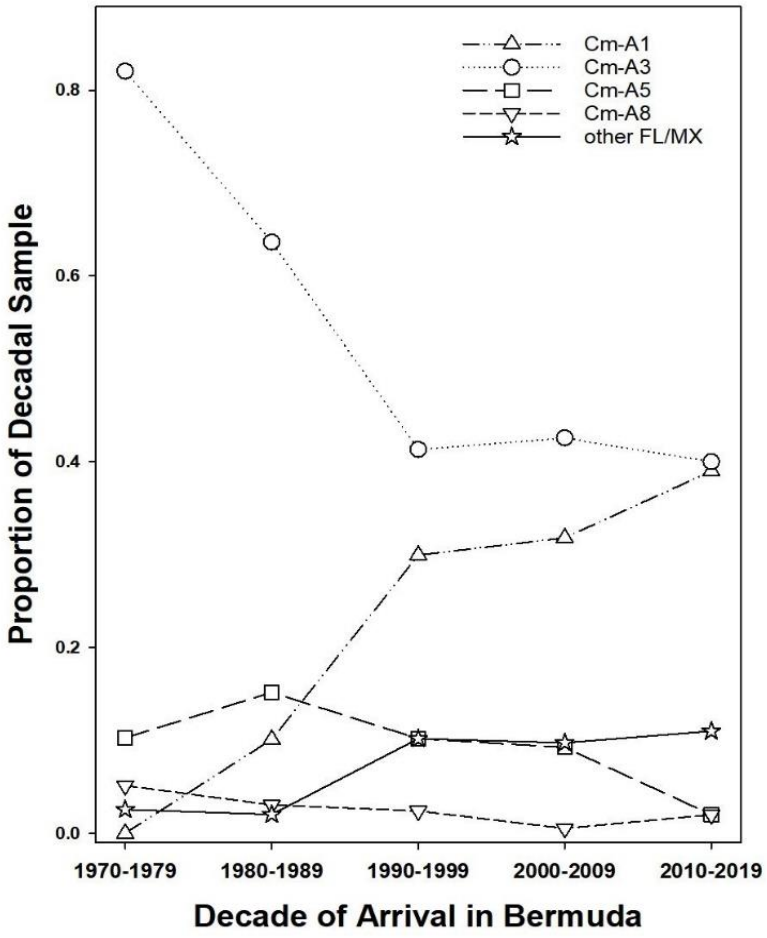

Fig. S5 Temporal variation in haplotypes observed in the Bermuda green turtle (*Chelonia mydas*) developmental foraging aggregation over five decades. Proportion of decadal samples (by estimated year of arrival) are shown for the four most common Atlantic haplotypes and for pooled contributions for seven other haplotypes known only from Florida and/or Mexico (Cm-A2, Cm-A15, Cm-A16, Cm-A17, Cm-A18, Cm-A26, Cm-A28)

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