

Supplementary Table 1: Results of a Pearson's correlation coefficient test on the effect of trip distance on Fréchet distance. Both unstandardized Fréchet distances and Distance – standardized Fréchet distance were tested.

Fréchet Distance	Pearson's Correlation Coefficient	P-value
Unstandardized	0.49	< 0 .0001
Distance-Standardized	-0.04	< 0 .0001

Supplementary Table 2: Sample sizes by year of GPS tracked herring and great black-backed gulls used in analyses. Only birds that were tracked for 6 or more trips were used in analyses.

Colony and species	Year	Number of birds	Number of trips
Herring gulls Young's Island Jamaica Bay Tuckernuck Muskeget	2017	8	59
	2018	3	32
	2019	4	55
	2020	13	194
	2021	8	103
	2022	2	48
	2016:	4	67
	2017:	6	69
	2018:	10	111
	2016	1	6
	2017	5	47
	2018	1	12
	2021	3	19
	2022	11	109

Great Black-backed gulls			
Young's Island	2019	7	57
	2020	3	34
	2021	7	123
	2022	6	103
Muskeget	2021	6	48
	2022	8	92

Supplementary Table 3. Sample size and trip metrics of GPS tracked herring and great blackbacked gulls used in analyses. Only birds that were tracked for 6 or more trips were used in analyses. Trip distance describes the total distance traveled during a foraging trip. Values for trip metrics are shown as mean +/- SE.

Colony and species	No. individual birds	Total No. trips	Average trip distance (km)	Average trip duration (minutes)	Average trips/day
Herring gulls					
Young's Island	38	491	22.91+/- 9.64	128.67+/- 58.64	1.68 +/-0.79
Jamaica Bay	20	242	29.97+/- 15.43	138.82+/- 47.56	1.84 +/- 0.91
Tuckernuck	7	65	29.54+/- 11.88	220.81 +/- 126.15	1.76 +/-0.77
Muskeget	14	128	32.95+/- 19.17	269.86+/- 107.58	1.67 +/-0.72
Great black-backed gulls					
Young's Island	23	317	23.79+/- 10.45	112.25+/- 54.95	1.63 +/- 0.76
Muskeget	14	140	28.26 +/- 12.19	143.19+/- 76.29	1.68 +/-0.71

Supplementary Table 4: Proportion of foraging trips (expressed as percentages) classified by habitat type across colonies for herring gulls and great black-backed gulls, respectively. Urban, coastal, and offshore trips represent trips where birds foraged only in those habitat types, while birds who foraged in multiple habitat types (e.g., both urban and coastal) during trips are classified as mixed.

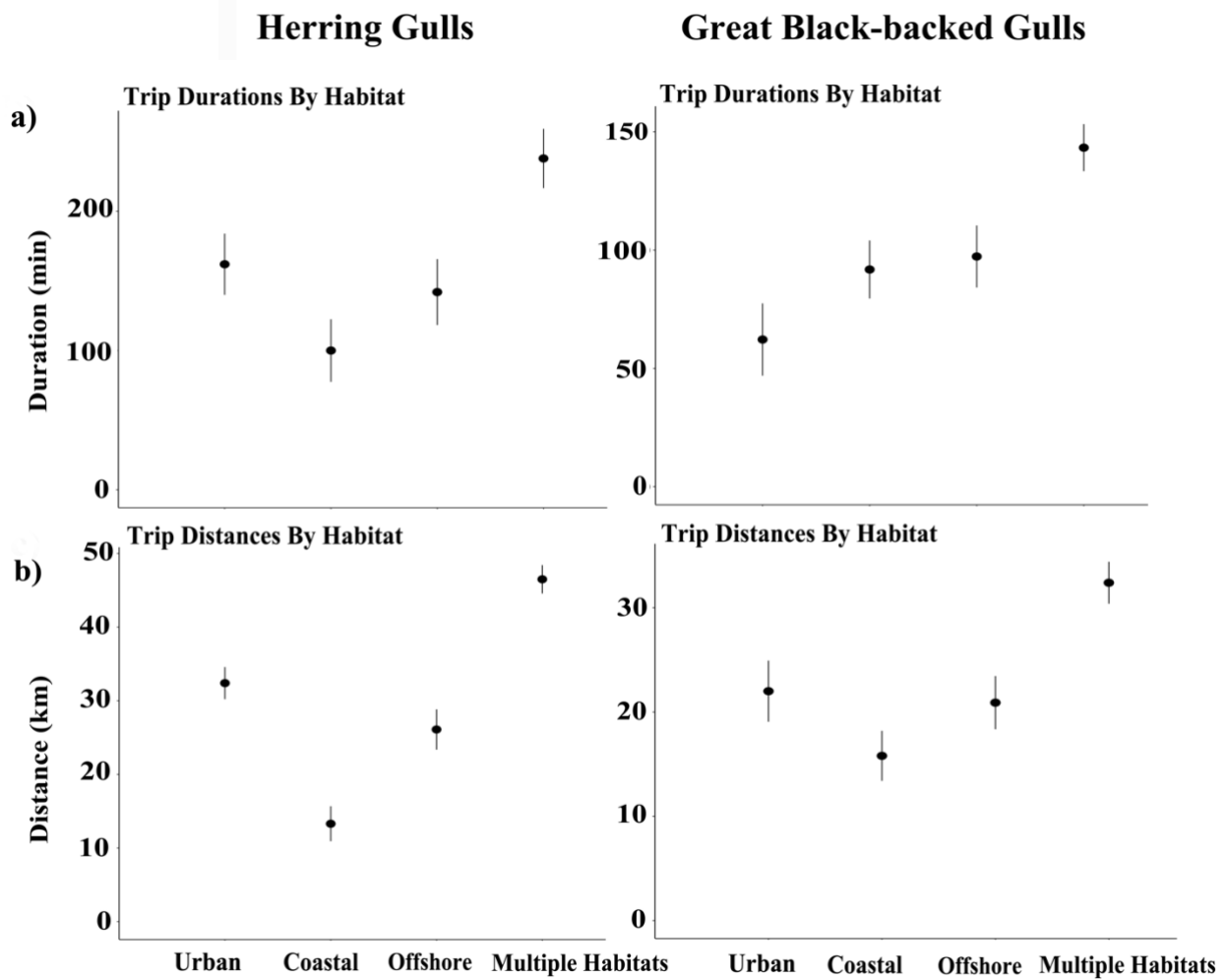
Colony	Urban	Coastal	Offshore	Multiple habitats

Herring gulls				
All colonies	33.78 %	13.67 %	12.00 %	40.56 %
Young's Island	43.47 %	18.37 %	4.49 %	33.67 %
Jamaica Bay	36.86 %	13.14 %	1.27 %	48.73 %
Tuckernuck	3.03 %	1.52 %	48.48 %	46.97 %
Muskeget	1.85%	0.93 %	47.22 %	50.00 %
Great black-backed gulls				
All colonies	7.62 %	12.93 %	38.34 %	41.11 %
Young's Island	10.48 %	17.78 %	19.37 %	52.38 %
Muskeget	0.00 %	0.00 %	88.98 %	11.02 %

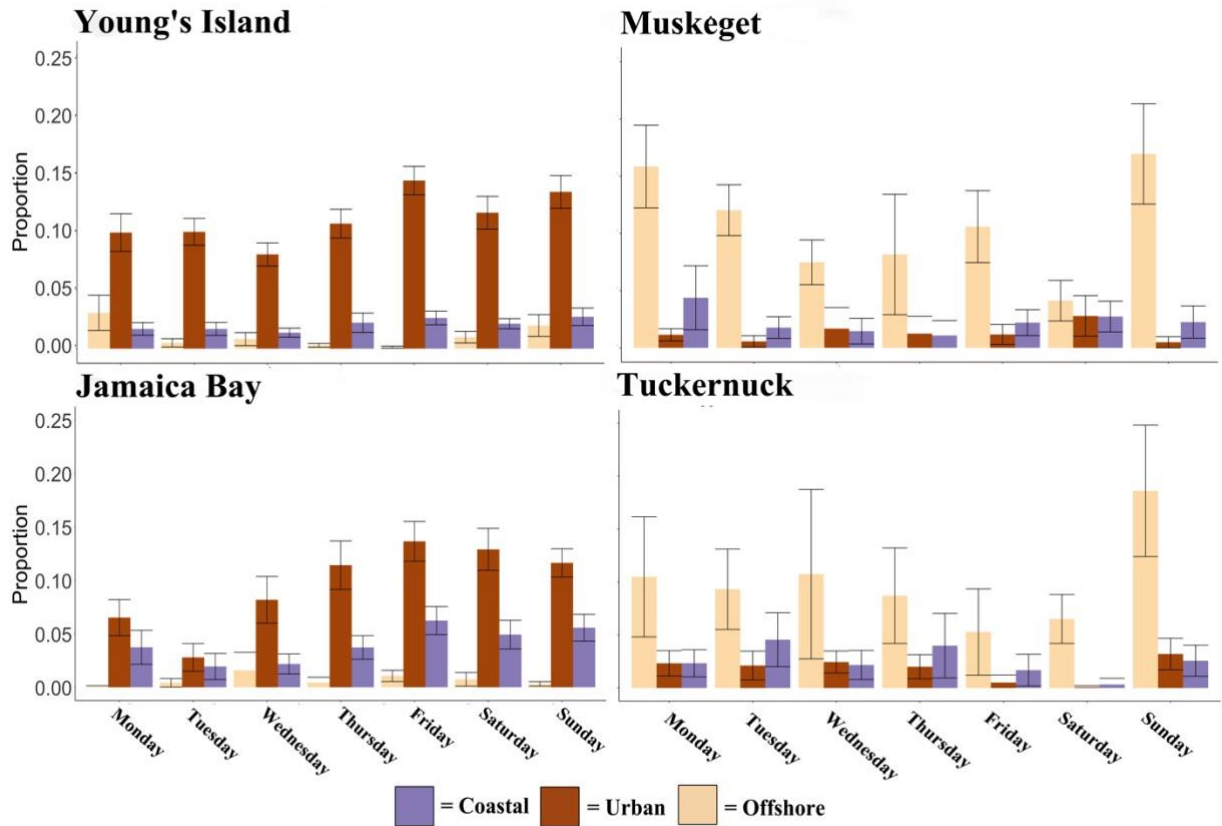
Supplementary Table 5: Summary of results of the Pearson's Chi-Square testing observed versus expected number of foraging trips in each habitat type (Coastal, Urban, Offshore) by day of week. Values shown in bold were significant at $p < 0.05$.

Colony	Degrees Freedom	Chi-Square Value	P-value
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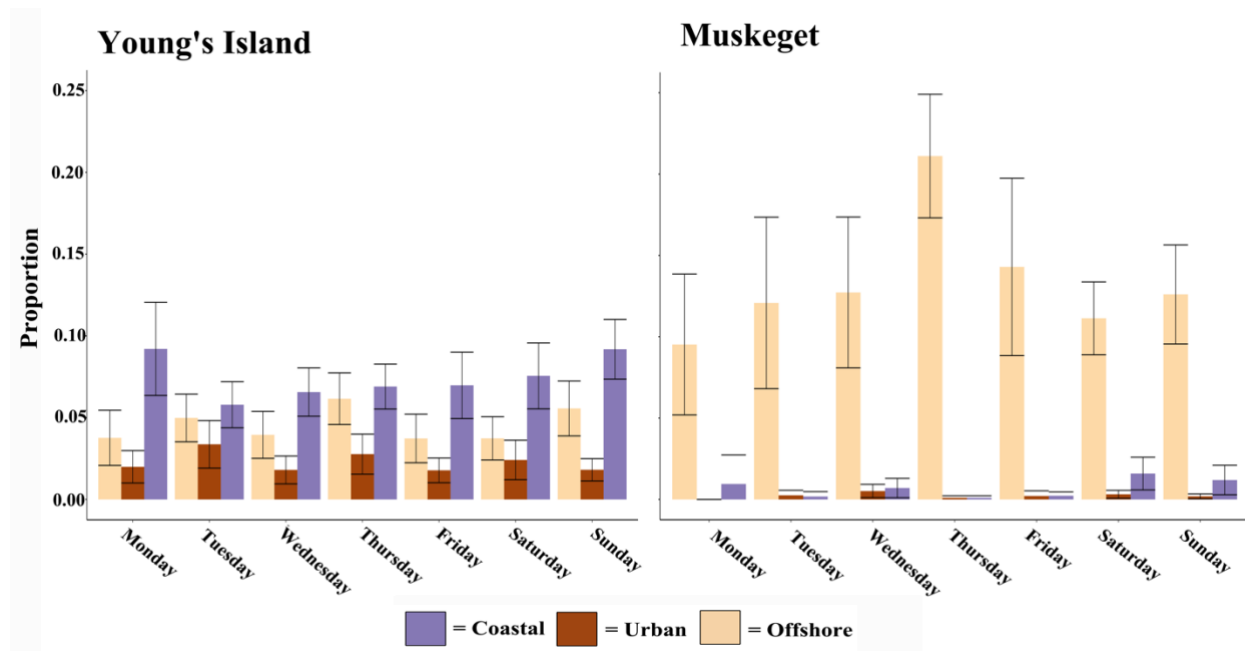
Herring gulls			
Young's Island	6	33.37	< 0.001
Coastal	6	73.33	< 0.001
Urban	6	217.05	< 0.001
Offshore			
Jamaica Bay	6	33.12	< 0.001
Coastal	6	85.09	< 0.001
Urban	6	177.63	< 0.001
Offshore			
Tuckernuck	6	10.29	0.11
Coastal	6	12.22	0.05
Urban	6	56.29	< 0.001
Offshore			
Muskeget	6	11.07	0.08 <
Coastal	6	61.23	0.001
Urban	6	108.01	< 0.001
Offshore			
Great black-backed gulls			
Young's Island	6	35.31	< 0.001
Coastal	6	28.53	< 0.001
Urban	6	65.37	< 0.001
Offshore			
Muskeget	6	37.72	< 0.001
Coastal	6	7.42	0.28
Urban	6	58.60	< 0.001
Offshore			



Supplementary Figure 1: Trip durations and distances for herring gulls (left) and great blackbacked gulls (right) foraging in different habitats from AOVs accounting for colony effects. Values reflect means $\pm$ standard error. Urban (coastal/offshore) habitats reflect foraging trips in which birds were exclusively foraging in urban (coastal/offshore) habitats, while multiple habitats reflect foraging trips in which birds used multiple habitats.



Supplementary Figure 2: Bar plots showing the average proportion of herring gull foraging points ($\square$ SE for bar plots) across individuals in each habitat type and day of week, and frequency of occurrence of foraging points in each two-hour tidal period within urban, coastal and offshore habitats across all individuals at Young's Island, Jamaica Bay, Muskeget and Tuckernuck, respectively.



Supplementary Figure 3: Bar plots showing the average proportion of great black-backed gull foraging points ($\square$ SE for bar plots) across individuals in each habitat type and day of week, and frequency of occurrence of foraging points in each two-hour tidal period within urban, coastal and offshore habitats across all individuals at Young's Island, Jamaica Bay, Muskeget and Tuckernuck, respectively.