

INVENTORY OF TERNS, LAUGHING GULLS, AND BLACK SKIMMERS NESTING IN MASSACHUSETTS IN 2017



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ABSTRACT

Cooperators in Massachusetts surveyed approximately 215 coastal sites in 2017 for the presence of breeding Roseate Terns (*Sterna dougallii*), Common Terns (*Sterna hirundo*), Arctic Terns (*Sterna paradisaea*), Least Terns (*Sternula antillarum*), Laughing Gulls (*Larus atricilla*), and Black Skimmers (*Rhynchops niger*). Of approximately 177 sites with a history of nesting by these species, 87 sites were occupied by nesting birds, plus two new nesting sites. Compared to 2016 numbers, total nesting pairs of Roseate Terns (2,264 pairs) increased 10%, Least Terns (2,940 pairs) decreased 9%, and Common Terns (18,059) increased 5%. Laughing Gulls (2,745 pairs) and Arctic Terns were roughly stable. Black Skimmers (8 pairs) appear to be slowly increasing. Earliest and median first egg dates across sites were 6 May/23 May for Common Terns, 7 May/28 May for Least Terns, 9 May/23 May for Roseate Terns, 26 May/26 May for Laughing Gull, and 26 May/12 June for Black Skimmer.

INTRODUCTION

Coastal waterbirds are a vulnerable group of species. Of Massachusetts' four nesting tern species, the Common Tern, the Least Tern, and the Arctic Tern are listed as "Special Concern" pursuant to the Massachusetts Endangered Species Act. The Roseate Tern is listed as "Endangered" pursuant to both the Massachusetts and U.S. Endangered Species Acts.

Terns, Laughing Gulls, and Black Skimmers in Massachusetts are protected and monitored by an extensive network of cooperators throughout the state. These cooperators provide census data and other reproductive information to the Massachusetts Division of Fisheries & Wildlife (MassWildlife). This allows wildlife managers to determine abundance and status of, and threats to, these species.

This report summarizes data on distribution, abundance, and productivity of terns, Laughing Gulls, and Black Skimmers in Massachusetts during the 2016 nesting season.

METHODS

Sites Surveyed: Cooperators are asked to survey all sites at which terns, Laughing Gulls, and Black Skimmers have been known to nest. Some cooperators also survey additional sites with no history of nesting by these species. Any new nesting sites are reported.

Timing of Census: Depending upon the species, either one or two censuses are conducted. The "A-period count" (or "peak season" count) is conducted between 5 and 20 June. Laughing Gulls, Black Skimmers, and all tern species are censused during the A-period. For Roseate and Common Terns, the count is ideally conducted as closely as possible to the first hatch. Laughing Gull and Black Skimmer counts are timed to be coincident with Common Tern counts, and Arctic Tern counts with counts of any sympatric nesting seabird species. Least Tern colonies ideally are visited multiple times during the A-period window, and maximum estimates are reported. The "B-period count" (or "post-peak" count) is conducted after 20 June. For Roseate Terns, the B-count is timed 25 days after the A-count. For Arctic Terns and Black Skimmers, which nest in very low numbers in the state, any additional pairs that appear after 20 June are reported. A B-count for Least Terns is not necessary unless there is a significant change in numbers from the A-count, or a site that was not used during the A-period window was used after 20 June. Because Least Terns frequently shift among sites in response to disturbance, B-counts do not contribute to the overall census numbers (to avoid double-counting the same birds); however, the B-count does document use of the site. B-counts are not required for Common Terns or Laughing Gulls.

Survey Method: Observers are asked to classify their survey method as one of the following: Nest Count, Partial/Extrapolated Nest Count, Incubation Count, or Adult Count. All counts are expressed as “number of pairs”. Nests must contain at least one egg to be counted, unless it is obvious that chicks have already hatched. Empty scrapes and abandoned nests are not counted, unless they are known to have been active during the census window. Adults are only counted if it appears that they are nesting at a site; birds that are not suspected to be nesting at a site (e.g., resting or feeding birds) are not counted as nesting pairs. The number of breeding adults present (i.e., in the nesting area, not loafing on the shoreline) is multiplied by a correction factor of 0.8 to arrive at the number of pairs.

Survey Quality and Productivity Estimate: Observers are asked to rate the quality of their survey as Low Confidence, Reasonable Confidence, or High Confidence. Observers also provide a qualitative assessment of productivity: none, poor, fair, good, or excellent. In a few cases, typically for Roseate and Common Terns at large colonies where detailed monitoring occurs, quantitative estimates of productivity (e.g., fledglings/nest) are provided. In Appendix A, productivity assessments expressed as ranges indicate uncertainty; multiple estimates separated by commas represent values for different subcolonies within a site.

Data Reporting and Quality Control: A majority of observers enter data into the Tern Online Data Entry System (TERNODES); others complete a standard “Massachusetts Tern Census Form”. Data requested includes: monitoring effort; management and research actions/needs; dates of pre-A-, A-, and B-counts; number of pairs observed during counts; survey method; quality of survey; qualitative and quantitative productivity estimates; number of fledglings; method of determining productivity; dates of first adults observed, first eggs laid, first eggs hatched, first young fledged, and last young observed; comments; and other site uses. Maps delineating the nesting areas are submitted. All data are reviewed by MassWildlife. If necessary, observers are contacted to obtain missing data and clarify ambiguities. When the needed information could not be obtained, best professional judgment was used to assign final values or data were noted as preliminary in Appendix A.

Notes on Chronology: “Date first adults observed” is not synonymous with date adults arrive on site, because adults may not be observed when they first arrived: frequency of site visits prior to egg-laying is relatively low and attendance of birds at colony sites early in the nesting season is sporadic. Similarly, “Last date young observed” is not synonymous with last fledgling departure date: the date the last fledgling departs may be missed (e.g., due to low frequency of monitoring late in the season); fledglings at the site may not have hatched there (e.g., some may just be staging); and, in some colonies, no young survive to fledge (i.e., the date could refer to the last date that live, unfledged chicks were seen). Clarification of terminology in TERNODES in the future will help to reduce ambiguities.

When dates were reported as a range, the median of the date range was used in calculations if the range spanned five days or fewer. Ranges spanning greater than 5 days were excluded from analyses. Median dates refer to the among-site values (i.e., the median of the “first” or “last” dates reported by different sites), not the within-site median dates for individual birds or nests.

RESULTS AND DISCUSSION

In 2017, 177 sites with a history of nesting terns, Laughing Gulls, or Black Skimmers were surveyed. Eighty-nine sites were occupied by nesting birds of one or more of these species. Results for each site are summarized in Appendix A. Thirty-eight additional sites with no record of nesting terns, Laughing Gulls, or Black Skimmers were surveyed (**Appendix B**); no nesting birds were recorded at these sites in 2017.

Nesting Chronology

For Roseate Terns and Least Terns, median dates of first eggs laid and first chicks hatched were slightly later (1 – 4 d) than in 2016. For Common Terns, median date of first eggs laid was later (23 May vs. 18 May in 2016), but median date of first chicks hatched was earlier (10 June vs. 12 June in 2016). Laughing Gulls also laid first eggs later (26 May vs. 20 May in 2016) but hatched first chicks earlier (16 June vs. 25 June). Black Skimmers nested much later than in 2016, with a median first lay date of 12 June (vs. 26 May in 2016) and a median first hatch date of 5 July (vs. 25 June in 2016). Timing of nesting season events is summarized in **Table 1**.

Table 1. Nesting chronology for terns, Black Skimmers, and Laughing Gulls in Massachusetts in 2017.

2017		Roseate Tern	Common Tern	Arctic Tern ^c	Least Tern	Black Skimmer	Laughing Gull
Date first adults observed	Earliest date (<i>site</i>)	20-Apr (Bird I., Marion)	20-Apr (Bird I., Marion)	16-May (Penikese I., Gosnold)	28-Apr (S. Monomoy I., Chatham)	10-Jun (Norton Point Beach, Edgartown & Cape Pogue Elbow/The Narrows, Edgartown)	14-Apr (S. Monomoy I., Chatham)
	Median ^a (<i>n</i>) ^b	20-May (8)	21-May (21)	28-May (2)	18-May (83)	10-Jun (4)	30-May (2)
Date first eggs laid	Earliest date (<i>site</i>)	9-May (Bird I., Marion)	6-May (Ram I., Mattapoissett)	10-Jun (Ram I., Mattapoissett)	7-May (South Shore Marshes, Fairhaven)	26-May (Norton Point Beach, Edgartown)	26-May (S. Monomoy I., Chatham)
	Median (<i>n</i>)	23-May (6)	23-May (10)	10-Jun (1)	28-May (64)	12-Jun (4)	26-May (1)
Date first chicks hatched	Earliest date (<i>site</i>)	3-Jun (Bird I., Marion)	30-May (Ram I., Mattapoissett)	n/a ^d	16-Jun (S. Monomoy I., Chatham & Winthrop Beach, Winthrop)	4-Jul (Cape Pogue Elbow/The Narrows, Edgartown)	16-Jun (S. Monomoy I., Chatham)
	Median (<i>n</i>)	13-Jun (5)	10-Jun (6)	n/a	26-Jun (40)	5-Jul (3)	16-Jun (1)
Last date young observed	Latest date (<i>site</i>)	26-Jul (S. Monomoy I., Chatham)	24-Aug (S. Monomoy I., Chatham)	n/a	6-Sep (North Spit, Orleans)	24-Aug (S. Monomoy I., Chatham)	Nd ^e
	Median (<i>n</i>)	26-Jun (1)	13-Aug (4)	n/a	3-Aug (32)	24-Aug (1)	nd

^a Median dates refer to the among-site values (i.e., the median of the “first” or “last” dates reported by different sites), not the within-site median dates for individual birds or nests.

^b n – number of sites

^c Arctic Tern values are for a mixed Arctic Tern/Common Tern pair.

^d n/a – not applicable

^e nd – no data

Abundance and Distribution

Roseate Tern: Roseate Terns increased 9.6% to **2,264 pairs** (vs. 2,066 pairs in 2016), the highest number recorded in recent history. The Northeast U.S. population (Maine through New York) increased 10.6% to 4,446 pairs (vs. 4,021 pairs) (Roseate Tern Recovery Team, unpubl. data).

Roseates nested at at least six sites (possibly seven) in 2017. The largest colony was at Ram I., Mattapoissett (1,555 vs. 886); productivity was 1.16 fledglings/nest. Bird I., Marion was the second-largest site at 595 pairs (vs. 1,153); productivity was 0.60 fledglings/nest. Penikese I., Gosnold supported 90 pairs (vs. 11); productivity was 1.29 fledglings/nest. While Bird I. is usually the largest Roseate Tern colony in the state, some pairs likely shifted to nearby Ram and Penikese following restoration work on

Bird. Twelve pairs (vs. 0) nested at Cape Pogue Elbow/The Narrows, Edgartown; productivity was excellent. South Monomoy I., Chatham supported 11 pairs (vs. 12); productivity was 0.81 fledglings/pair. Seven pairs (vs. four) nested at Norton Point Beach, Edgartown prior to the A-period but did not produce any fledglings. Although one pair of Roseate Terns was present at Arruda’s Point/The Jetties, Edgartown throughout the summer, no nest was ever found.

The two largest A-period colonies supported 95% of the state’s Roseate Tern pairs.

Since 1985, Roseate numbers in the state have fluctuated between 1,269 and 2,264 pairs, averaging 1,623 pairs during this time period (**Fig. 1**).

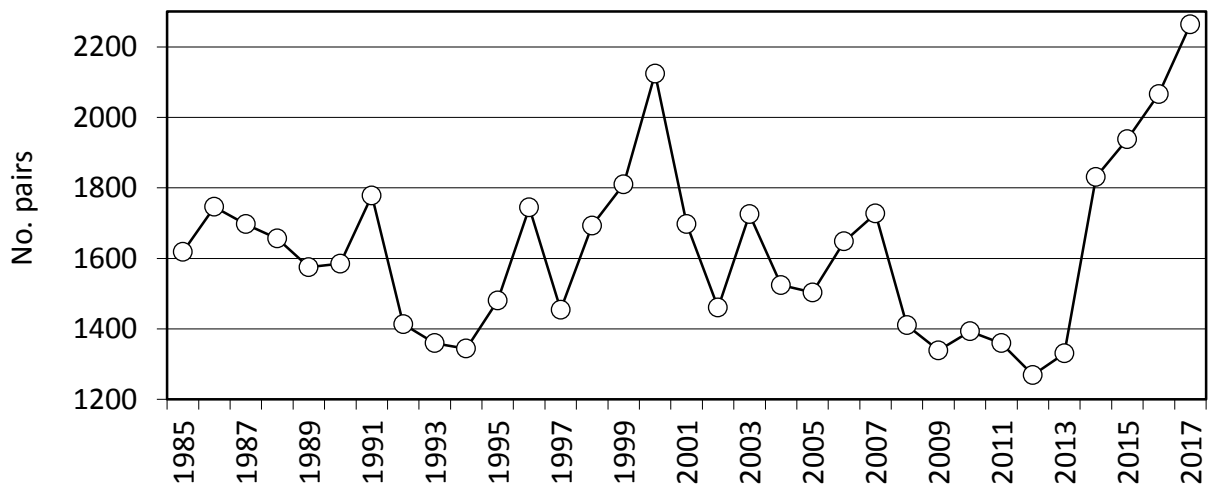


Figure 1. Number of nesting Roseate Tern pairs in Massachusetts, 1985- 2017.

Common Tern: Massachusetts’ Common Tern population increased 5.1% to the highest number recorded in recent history, **18,059 pairs** (vs. 17,175 pairs in 2016) distributed across 29 sites.

The South Monomoy I. Common Tern colony grew to 11,723 pairs (vs. 10,505) and had very good productivity (1.53 fledglings/pair). Numbers increased slightly at Ram I. (3,545 vs. 3,527; 1.21 fledglings/nest), the second largest colony. Bird I. supported 1,652 pairs (vs. 2,193; 0.81 fledglings/nest). Numbers increased at Penikese I. (784 vs. 531); productivity was excellent (1.85-2.16 fledglings/nest). No other sites numbered more than 100 pairs of Common Terns.

The ten largest A-period colonies supported more than 99% of the state’s Common Tern pairs; 94% of the state’s pairs were concentrated in the three largest colonies.

From 1985 to 2003, Common Tern numbers rose rapidly in Massachusetts. Although the rate of population growth has slowed since then, numbers have continued to inch upwards. Since 1985, population size has ranged from 6,483 to 18,059 pairs (mean 13,208 pairs) (**Fig. 2**).

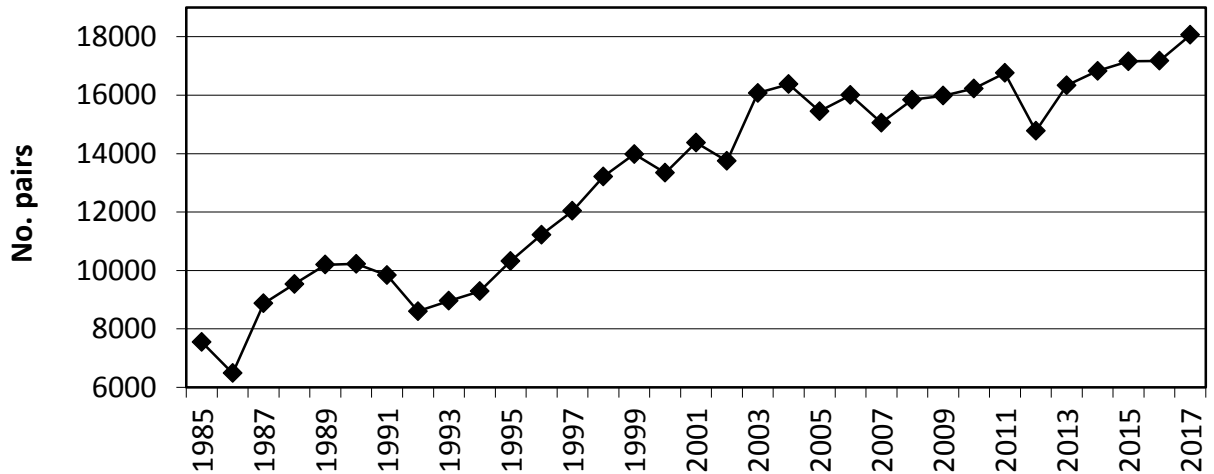


Figure 2. Number of nesting Common Tern pairs in Massachusetts, 1985-2017.

Arctic Tern: In 2017, one Arctic Tern nested with a Common Tern on Ram I., but the nest overwashed prior to hatch. No Arctic Terns nested in Massachusetts in 2016, but an Arctic Tern (likely the same individual) nested with a Common Tern on Penikese I. from 2007 to 2014. The banded Common Tern in 2017 was retrapped on the nest at Ram I. before it was overwashed, so its identity could be confirmed. . An Arctic Tern was also seen on Penikese I. in 2017, but no nest was detected.

Since 1985, numbers of this range-edge species have ranged from 0 to 29 pairs (mean 7 pairs), with an overall downward trend (**Fig. 3**).

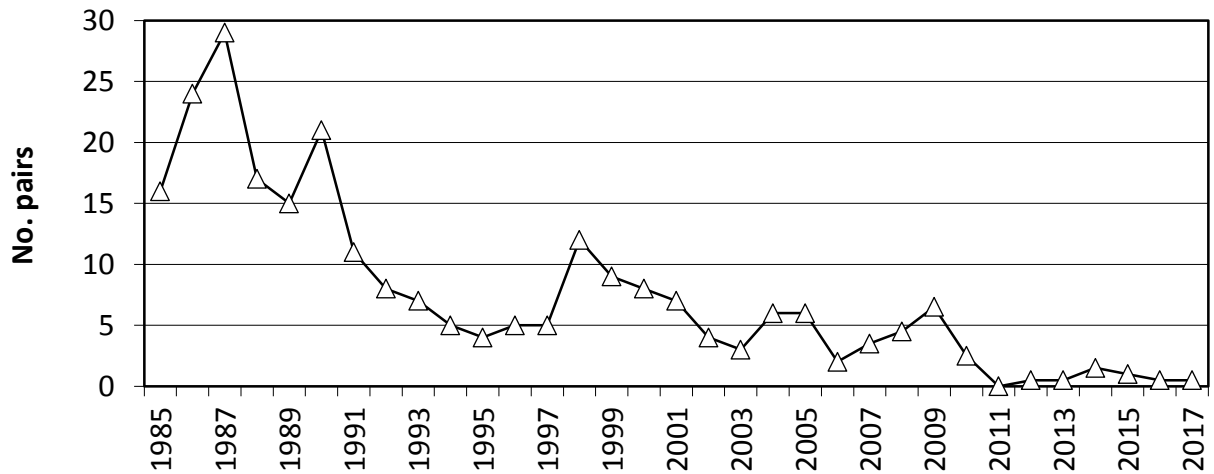


Figure 3. Number of nesting Arctic Tern pairs in Massachusetts, 1985-2017.

Least Tern: Least Terns nested at 70 sites in Massachusetts in 2017 and numbered **2,940 pairs** (vs. 3,230 in 2016; -9.0%).

South Monomoy I. had the largest Least Tern colony at 770 pairs (vs. 839); productivity varied with subcolony (zero to good). Other sites with at least 100 pairs were Cape Pogue Elbow/The Narrows (233 vs. 10; poor to excellent depending on subcolony), Crane Beach, Ipswich (172 vs. 115; poor), Gray’s Beach, Yarmouth (152 vs. 57; zero), and Spring Hill, Sandwich (137 vs. 46; poor).

The ten largest A-period Least Tern sites supported 64% of the pairs. The three largest A-period sites supported 36% of the pairs. Since 1985, numbers of Least Terns have ranged from 2,109 to 4,309 pairs with a mean of 2,960 pairs (Fig. 4). The overall trend is positive, but there has been considerable volatility in the numbers. It is unknown how much of this is due to the difficulties inherent in estimating Least Tern population sizes versus true changes in abundance.

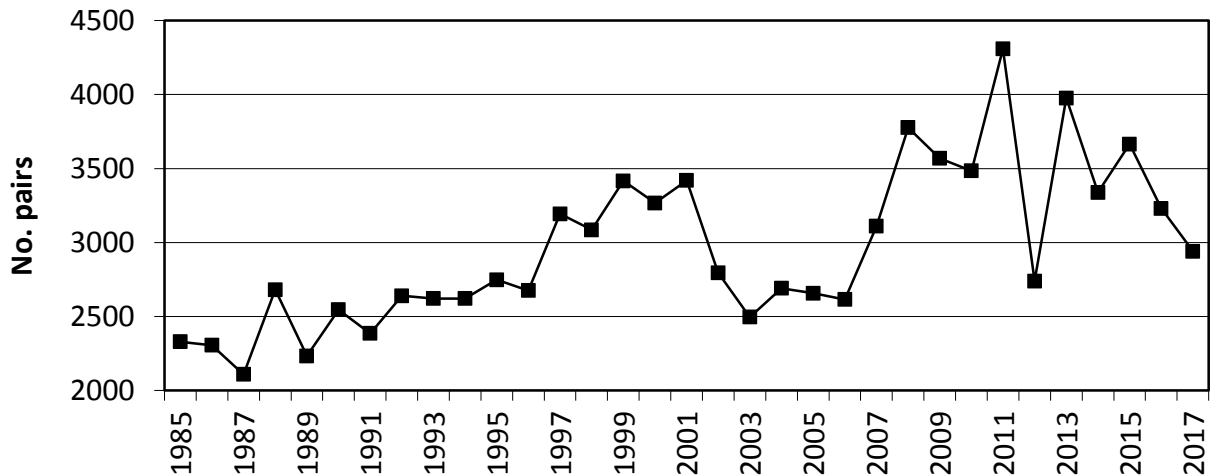


Figure 4. Number of nesting Least Tern pairs in Massachusetts, 1985-2017.

Black Skimmer: In 2017, **eight pairs** of Black Skimmers nested during the A-period (vs. 6 in 2016). Three sites were occupied. During the A-period, seven pairs nested at Cape Pogue Elbow/The Narrows (vs. zero in 2016), and one nested at South Monomoy I. (vs. zero in 2016). During the B-period, two additional pairs nested at Cape Pogue Elbow/The Narrows, and one pair nested at Norton Point (vs. six A-period in 2016).

Black Skimmers, which are at the northern end of their breeding range in Massachusetts, have ranged from 0 to 8 pairs (mean 4 pairs) since 1985, and appear to have increased since 2014 (Fig. 5).

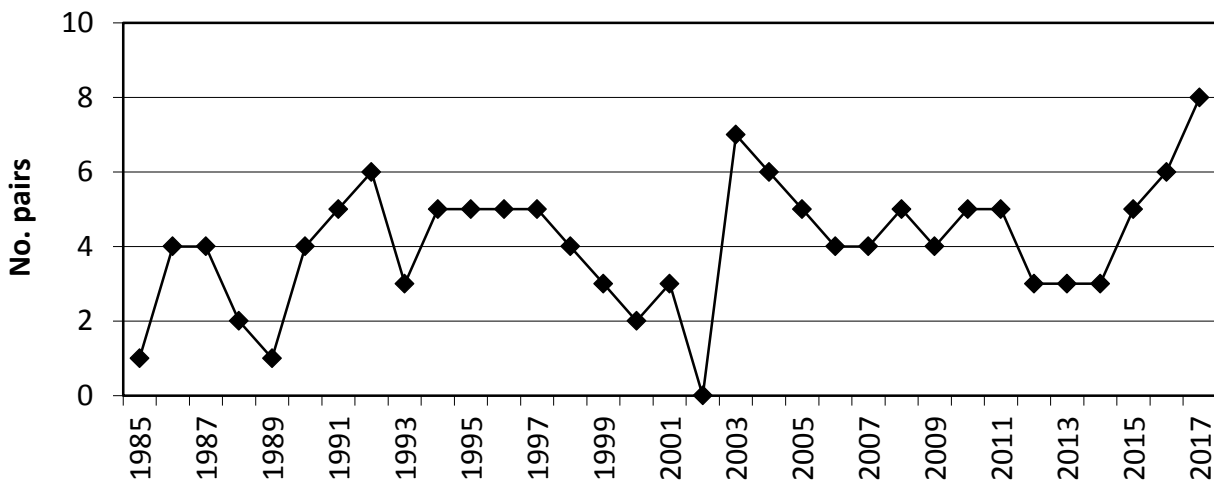


Figure 5. Number of nesting Black Skimmer pairs in Massachusetts, 1985-2017.

Laughing Gull: Laughing Gull numbers were stable at **2,745 pairs** (vs. 2,751 in 2016). They nested at the usual two sites: South Monomoy I. (2,714 vs. 2,738; poor) and Plymouth Long Beach (31 vs. 13; zero).

From 1985 to present, Laughing Gulls have averaged 1,310 pairs, ranging between 542 and 2,751 pairs (**Fig. 6**). The overall trend since 1998 has been strongly upward; the population has nearly quadrupled since then. Because Laughing Gulls compete with Common and Roseate Terns for space and resources and are predators of terns, documenting their distribution, numbers, and interactions with our terns is important.

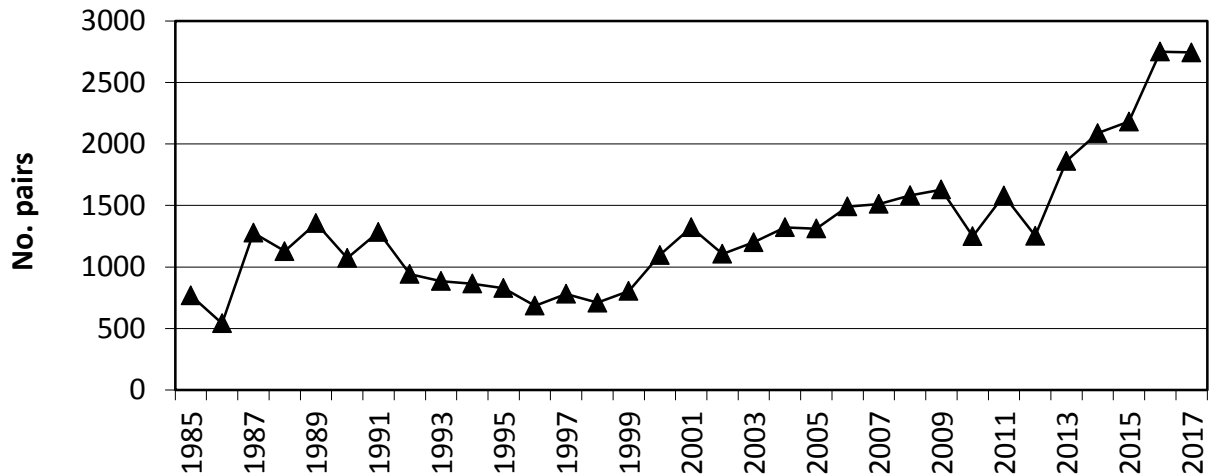


Figure 6. Number of nesting Laughing Gull pairs in Massachusetts, 1985-2017.

ACKNOWLEDGEMENTS

We thank dozens of cooperators who worked at these sites and collected and submitted data for this report.

Appendix A. Numbers of pairs and productivity of terns, Laughing Gulls, and Black Skimmers nesting in Massachusetts in 2017. All sites were censused unless noted as “nd” (no data). Data in parentheses refer to B-period (post-peak) counts. Data in brackets were collected prior to the A-period census window.

Site Name, Town	Roseate Tern			Common Tern			Arctic Tern			Least Tern			Black Skimmer			Laughing Gull			Source ^c	Notes
	No pairs	M ^a	P ^b	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P		
NORTH SHORE																				
Bagwell Island, Ipswich	0			0			0			0			0			0			ECGA	
Blackwater River Group, Salisbury	0			0			0			0			0			0			ECGA	
Central Square, East Boston	0			51	A		0			0			0			0			Zendah	
Chaces Island, Newbury	0			0			0			0			0			0			USFWS	
Chelsea Creek, East Boston- Chelsea	0			6	A		0			0			0			0			Zendah	
Clubhead Creek, Rowley	0			1	N		0			0			0			0			ECGA	
Crane Beach, Ipswich	0 (0)			0 (0)			0 (0)			172 (119)	N (N)	P	0 (0)			0 (0)			TTOR	
General Edwards Bridge, Rte 1A, Revere- Lynn	0			30	A		0			0			0			0			Zendah	
Ipswich Salt Marshes, Ipswich	0			0			0			0			0			0			ECGA	
Jeffrey's Point, East Boston	0			5	A		0			0			0			0			Zendah	
Lords Island, Ipswich	0 (nd)			3 (nd)	A		0 (nd)			0 (nd)			0 (nd)			0 (nd)			ECGA	
Lovell's Beach, Boston	0 (0)			0 (0)			0 (0)			[21] 26 (47)	[A] A (A)	G	0 (0)			0 (0)			MAS	
Mystic River Bridge, Sommerville- Everett	0			52	A		0			0			0			0			Zendah	
Newburyport Town Beach , Newburyport	0 (0)			0 (0)			0 (0)			0 (9)	(A)	G	0 (0)			0 (0)			MAS	New nesting site

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Site Name, Town	Roseate Tern			Common Tern			Arctic Tern			Least Tern			Black Skimmer			Laughing Gull			Source ^c	Notes
	No pairs	M ^a	P ^b	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P		
Parker River NWR, Newbury/Rowley	0			0			0			36	N	P	0			0			USFWS	
Plum Island River Group, Newbury	0			6	A, N		0			0			0			0			USFWS	
Rainsford Island, Boston	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			NPS	
Roger Island, Ipswich	0 (nd)			0 (nd)			0 (nd)			0 (nd)			0 (nd)			0 (nd)			ECGA	
Sandy Point State Reservation Beach, Ipswich	0 (0)			0 (0)			0 (0)			0 (6)	(A)	0	0 (0)			0 (0)			MAS	
Snake Island, Winthrop	0			0			0			0			0			0			NPS	
Winthrop Beach, Winthrop	0 (0)			0 (0)			0 (0)			90 (35)	I (A, I)	P	0 (0)			0 (0)			DCR	
Woodbridge Island, Newburyport	0			0			0			0			0			0			USFWS	
Yirrell Beach, Winthrop	0			0			0			0			0			0			Winthrop	
SOUTH SHORE																				
Duxbury Beach, Duxbury, Plymouth	0 (0)			0 (0)			0 (0)			[77] 75 (44)	[A] A (A)	0	0 (0)			0 (0)			MAS	
Ellisville Harbor State Park, Plymouth	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Ellisville Shifting Lots Preserve, Plymouth	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Fourth Cliff, Scituate	0 (0)			0 (0)			0 (0)			8 (13)	A (A)	G	0 (0)			0 (0)			MAS	
Plymouth Long Beach, Plymouth	0			40 (2)	N (N)	0	0			98 (97)	N (N)	F	0			31 (6)	N (N)	0	Plymouth	

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Site Name, Town	Roseate Tern			Common Tern			Arctic Tern			Least Tern			Black Skimmer			Laughing Gull			Source ^c	Notes
	No pairs	M ^a	P ^b	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P		
Sagamore Beach - Sandwich, Sandwich	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Scusset Beach State Reservation, Sandwich	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Spinnaker Island, Hull	0			0			0			0			0			0			NPS	
The Glades, Scituate	0			[11] 2	[A] A		0			0			0			0			MAS	
Third Cliff, Scituate	0 (0)			0 (0)			0 (0)			36 (7)	A (A)	0	0 (0)			0 (0)			MAS	
UPPER CAPE																				
Black Beach, Falmouth	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Craigville Beach, Barnstable	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Dead Neck Sampsons Island, Barnstable				2	A	0				27 (76)	A (A)	F							MAS	
Dowses Beach, Barnstable	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			Barnstable	
East Sandwich, Sandwich	0 (0)			0 (0)			0 (0)			[1] 0 (0)	[N]	0	0 (0)			0 (0)			MAS	
Grays Beach, Yarmouth	0 (0)			52 (31)	A (A)	P	0 (0)			[45] 152 (1)	[N] A (I)	0	0 (0)			0 (0)			MAS	
Great Island Causeway, Yarmouth	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Great Island Beach Club - Smith Point, Yarmouth	0 (0)			0 (0)			0 (0)			[20] 0 (1)	[A] A (A)	0	0 (0)			0 (0)			MAS	
Kalmus Beach, Barnstable	0 (0)			0 (0)			0 (0)			[30] 15 (0)	[A] A	0	0 (0)			0 (0)			Barnstable	
Long Beach, Barnstable	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	

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Site Name, Town	Roseate Tern			Common Tern			Arctic Tern			Least Tern			Black Skimmer			Laughing Gull			Source ^c	Notes
	No pairs	M ^a	P ^b	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P		
Miramar Beach (Swan River), Dennis	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Popponeset Spit, Mashpee	0 (0)			0 (0)			0 (0)			[16] 0 (16)	[A] (A)	0	0 (0)			0 (0)			MAS	
Sandy Neck Beach Park, Barnstable	0 (0)			0 (0)			0 (0)			73 (49)	A (A)	F, G, P	0 (0)			0 (0)			Barnstable	
Scorton Neck (Torrey), Sandwich	0 (0)			0 (0)			0 (0)			4 (40)	A (A)	F	0 (0)			0 (0)			MAS	
Scorton Shores, Sandwich	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Seagull Beach, Yarmouth	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
South Cape Beach, Mashpee	0 (0)			0 (0)			0 (0)			21 (48)	A (A)	F	0 (0)			0 (0)			MAS	
Spring Hill, Sandwich	0 (0)			0 (0)			0 (0)			137 (68)	A (A)	P	0 (0)			0 (0)			MAS	
Squaw Island, Barnstable	0 (0)			0 (0)			0 (0)			[13] 1	[A] I	0	0 (0)			0 (0)			MAS	
Town Neck Beach, Sandwich	0 (0)			0 (0)			0 (0)			3 (25)	A (A)	P	0 (0)			0			MAS	
Trunk River, Falmouth	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Washburn Island, Falmouth	0 (0)			0 (0)			0 (0)			24	A	F	0 (0)			0 (0)			MAS	
West Dennis Beach, Dennis	0			0			0			0			0			0			Dennis	
Wychmere-Merkel-Bank St, Harwich	0 (0)			0 (0)			0 (0)			[21] 12 (0)	[A] A (A)	0	0 (0)			0 (0)			MAS	New nesting site; Least Terns were courting and scraping during the census window but did not appear to have laid eggs.
LOWER CAPE																				

INVENTORY OF TERNS, LAUGHING GULLS, AND BLACK SKIMMERS NESTING IN MASSACHUSETTS IN 2017

Site Name, Town	Roseate Tern			Common Tern			Arctic Tern			Least Tern			Black Skimmer			Laughing Gull			Source ^c	Notes
	No pairs	M ^a	P ^b	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P		
Ballston Beach, Truro	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Ballston, Truro	0 (0)			0 (0)			0 (0)			0 (3)	(I, N)	0	0 (0)			0 (0)			NPS	
Beach Point, Truro	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Cahoon Hollow, Wellfleet	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			NPS	
Coast Guard Beach, Eastham	0 (0)			0 (0)			0 (0)			[4] 15 (15)	(I, N) I, N (I, N)	P	0 (0)			0 (0)			NPS	
Corn Hill Beach, Truro	0 (0)			0 (0)			0 (0)			25	A	P	0 (0)			0 (0)			MAS	
Forest Beach, Chatham	0 (0)			0 (0)			0 (0)			[10] 28	[A] A		0 (0)			0 (0)			MAS	
Harding Beach, Chatham	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Harding Shores, Chatham	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Jeremy Point, Wellfleet	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			NPS	
Lieutenant Island - NW, Wellfleet	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Minimoy Island, Chatham	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			USFWS	
North (Nauset) Beach, Chatham	0			0			0			65	A	G	0			0			Chatham	
North Beach Island, Chatham	0 (0)			0 (0)			0 (0)			[2] 0 (0)	[N]	0	0 (0)			0 (0)			Chatham	
North Monomoy Island, Chatham	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			USFWS	
North Spit, Orleans	0			0			0			62	N	F	0			0			Orleans	
Race Point North, Provincetown	0 (0)			0 (0)			0 (0)			[8] 36 (42)	[I] I, N (I, N)	G	0 (0)			0 (0)			NPS	
Race Point South (Armstrong Beach), Provincetown	0 (0)			0 (0)			0 (0)			[11] 20 (33)	[I] I, N (I, N)	G	0 (0)			0 (0)			NPS	

INVENTORY OF TERNS, LAUGHING GULLS, AND BLACK SKIMMERS NESTING IN MASSACHUSETTS IN 2017

Site Name, Town	Roseate Tern			Common Tern			Arctic Tern			Least Tern			Black Skimmer			Laughing Gull			Source ^c	Notes
	No pairs	M ^a	P ^b	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P		
Race Point South (Race Point Beach), Provincetown	0 (0)			0 (0)			0 (0)			[4] 19 (22)	[N] I, N (I, N)	G	0 (0)			0 (0)			NPS	
Race Point South, Provincetown	0 (0)			0 (0)			0 (0)			0 (7)	(I, N)	F	0 (0)			0 (0)			NPS	
Ridgevale Beach, Chatham	0			0			0			10	A	0	0			0			MAS	
South Beach - Middle Island, Chatham	0 (0)			0 (0)			0 (0)			0 (8)	(I)	F	0 (0)			0 (0)			MAS	
South Beach (Nauset), Orleans	0			0			0			17	N	F	0			0			Orleans	
South Beach (North of Break), Chatham	0			0			0			0			0			0			MAS	
South Beach (South of Break), Chatham	0 (0)			0 (1)		0	0 (0)			33		E, P	0 (0)			0 (0)			MAS	
South Monomoy Island, Chatham	11 (7)	N (N)	G	11,723	N	G	0 (0)			770 (3)	I (N)	0, G	1 (1)	N (N)	F	2,714	N	P	USFWS	
South Sunken Meadow, Eastham	0 (0)			0 (0)			0 (0)			3 (0)	A	0	0 (0)			0 (0)			MAS	
Tern Island, Chatham	0 (0)			0 (0)			0 (0)			[24] 0 (0)	[A]	0	0 (0)			0 (0)			MAS	
BUZZARDS BAY																				
Acoaxet, Westport	0 (0)			1 (0)	A		0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Barney's Joy/Little Beach, Dartmouth	0 (0)			0 (0)			0 (0)			26	A	P	0 (0)			0 (0)			MAS	
Bird Island, Marion	595	N	1.00 fl/n	1,652	N	0.80 fl/pr	0			0			0			0			DFW	
Demarest Lloyd State Park, Dartmouth	0			0			0			[5] 6 (13)	[N] A (I, N)	P	0			0			LCE	
Fishing Rock, Westport	0			1	N		0			0			0			0			MAS	

INVENTORY OF TERNS, LAUGHING GULLS, AND BLACK SKIMMERS NESTING IN MASSACHUSETTS IN 2017

Site Name, Town	Roseate Tern			Common Tern			Arctic Tern			Least Tern			Black Skimmer			Laughing Gull			Source ^c	Notes
	No pairs	M ^a	P ^b	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P		
Gooseberry Neck, Westport	0			0			0			0			0			0			LCE	
Horseneck Beach State Reservation, Westport	0 (0)			0 (0)			0 (0)			[24] 87 (33)	[N] I, N (I, N)	G, P	0 (0)			0 (0)			LCE	
Long Island, Fairhaven	0			0			0			0			0			0			DFW	
Nonquitt, Dartmouth	0			3	A		0			0			0			0			MAS	
Pine Island (Angelica Point and Strawberry Point), Mattapoissett	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			DFW	
Ram Is., Mattapoissett, Mattapoissett	1555	N	1.16 fl/n	3,545	N	1.21 fl/n	0.5	N	0	0			0			0			DFW	
Richmond Pond, Westport	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			TNCRI	
Round Hill Beach, Dartmouth	0			0			0			0			0			0			MAS	
Salters Pond, Dartmouth	0 (0)			1 (0)			0 (0)			[1] 0 (0)	[A]	0	0 (0)			0 (0)			MAS	
South Shore Marshes, Fairhaven	0			0			0			[5] 14 (2)	[A] A (A)	0	0			0			DFW	
Speaking Rock, Westport	0			6	A		0			0			0			0			MAS	
Timmy's Rock, Dartmouth	0 (0)			2	A, N		0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Winsegansett Heights, Fairhaven	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			LCE	
ELIZABETH ISLANDS																				
Cuttyhunk, Gosnold	0 (0)			0 (0)			0 (0)			75 (8)	A (A)	P	0 (0)			0 (0)			MAS	
Penikese Island, Gosnold	90 (5)	N (N)	1.29 fl/n	784 (330)	N (N)	1.85 - 2.16 fl/n	0 (0)			0 (0)			0 (0)			0 (0)			DFW	
MARTHA'S VINEYARD																				

INVENTORY OF TERNS, LAUGHING GULLS, AND BLACK SKIMMERS NESTING IN MASSACHUSETTS IN 2017

Site Name, Town	Roseate Tern			Common Tern			Arctic Tern			Least Tern			Black Skimmer			Laughing Gull			Source ^c	Notes
	No pairs	M ^a	P ^b	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P		
Arruda's Point / The Jetties , Edgartown	1 (1)	A (A)	0	0 (0)			0 (0)			42 (40)	A (A)	G	0 (0)			0 (0)			TTOR	One pair of Roseate Terns was present during the A- and B- periods; no nest was encountered
Bend-in-the- Road Beach, Edgartown	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Big Gravel Island, Oak Bluffs	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Black Point Pond, Chilmark	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			BW	
Cape Pogue Elbow / The Narrows, Edgartown	[1] 12 (16)	[A] A, N (A, N)	0, E (~2 fl/n)	[10] 16 (16)		E, P	0 (0)			[188] 233 (266)	[N] A, N (A, N)	E, P	7 (9)	A (A, N)	1.9 fl/pr	0 (0)			TTOR	
Cedar Tree Neck, West Tisbury	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			BW	
Chilmark Pond Preserve, Chilmark	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MVLBC	
Chilmark Pond, Chilmark	0 (0)			0 (0)			0 (0)			0 (44)	A	P	0 (0)			0 (0)			BW	
Cow Bay, Edgartown	0 (0)			0 (0)			0 (0)			8 (0)	A	0	0 (0)			0 (0)			MAS	
Dogfish Bar, Aquinnah	0 (0)			1 (0)	I	0	0 (0)			38 (4)	A (I)	0	0 (0)			0 (0)			BW	
East Tashmoo, Tisbury	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Eastville Beach, Oak Bluffs	0 (0)			0 (0)			0 (0)			14	A	F	0 (0)			0 (0)			MAS	
Edgartown Great Pond (Job's Neck), Edgartown	0 (0)			0 (0)			0 (0)			40 (0)	A	0	0 (0)			0 (0)			BW	

INVENTORY OF TERNS, LAUGHING GULLS, AND BLACK SKIMMERS NESTING IN MASSACHUSETTS IN 2017

Site Name, Town	Roseate Tern			Common Tern			Arctic Tern			Least Tern			Black Skimmer			Laughing Gull			Source ^c	Notes
	No pairs	M ^a	P ^b	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P		
Edgartown Great Pond, Edgartown	0			0			0			2	A	0	0			0			MVLBC	
Edys Island, Chilmark	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Harthaven, Oak Bluffs	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Haystack Island, Edgartown	0 (0)			45	A	P	0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Lamberts Cove, West Tisbury	0			0			0			0			0			0			BW	
Leland / East Beach, Edgartown	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			TTOR	
Little Beach / Eel Pd., Edgartown	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			BW	
Little Gravel Island, Oak Bluffs	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Little Neck, Edgartown	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			TTOR	
Lobsterville Beach, Aquinnah	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Mink Meadows /West Chop, Tisbury	0 (0)			0 (0)			0 (0)			15	A	0	0 (0)			0 (0)			MAS	
Nomans Land Island NWR, Chilmark	0			4	N		0			0			0			0			USFWS	

INVENTORY OF TERNS, LAUGHING GULLS, AND BLACK SKIMMERS NESTING IN MASSACHUSETTS IN 2017

Site Name, Town	Roseate Tern			Common Tern			Arctic Tern			Least Tern			Black Skimmer			Laughing Gull			Source ^c	Notes
	No pairs	M ^a	P ^b	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P		
Norton Point Beach, Edgartown	[7] 0 (0)	[N]	0	[>9] 0 (7)	[N] (N)		0 (0)			[>118]] 3 (29)	[N] N (N)		[2] 0 (1)	[N] (N)	0	0 (0)			TTOR	An undetermined number of Common Tern and Least Tern nests were lost to overwash and predation before the 5/28 pre-A count date.
Oyster Pond, Edgartown	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			BW	
Paqua Pond, Edgartown	nd (nd)			nd (nd)			nd (nd)			nd (nd)			nd (nd)			nd (nd)			BW	
Paul's Point, West Tisbury	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			BW	
Pease's Pond, Edgartown	0			0			0			0			0			0			BW	
Quansoo, Chilmark	0 (0)			0 (0)			0 (0)			40 (20)	A (A)	0	0 (0)			0 (0)			MAS	
Sarsons Island, Oak Bluffs	0 (0)			25	A	F	0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Seven Gates, West Tisbury	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			BW	
South Beach, Edgartown	0			0			0			0			0			0			BW	
Squibnocket Beach/Long Beach, Chilmark	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			BW	
Stonewall Beach, Chilmark	0			0			0			8	A	0	0			0			BW	
Sylvia State Beach Edgartown , Edgartown	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
Sylvia State Beach Oak Bluffs, Oak Bluffs	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	

INVENTORY OF TERNS, LAUGHING GULLS, AND BLACK SKIMMERS NESTING IN MASSACHUSETTS IN 2017

Site Name, Town	Roseate Tern			Common Tern			Arctic Tern			Least Tern			Black Skimmer			Laughing Gull			Source ^c	Notes
	No pairs	M ^a	P ^b	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P		
Tisbury Great Pond, West Tisbury	[0] 0 (0)			[0] 0 (0)			[0] 0 (0)			[15] 25 (6)	[A] A (A)		[0] 0 (0)			[0] 0 (0)			MVLBC, MAS	
Wasque, Edgartown	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			TTOR	
Watcha Pond, West Tisbury	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			BW	
West Tashmoo, Tisbury	0 (0)			0 (0)			0 (0)			[24] 0 (0)	[A, N]	0	0 (0)			0 (0)			BW	
Yorke - Allen Point, Edgartown	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
NANTUCKET																				
Capaum Pond, Nantucket	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			NCF	
Coatue, Nantucket	0 (0)			0 (0)			0 (0)			35	N	P	0 (0)			0 (0)			NCF	
Coskata-East Beach, Nantucket	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			TTOR	
Coskata-West Beach, Nantucket	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			TTOR	
Eel Point, Nantucket	0 (0)			0 (0)			0 (0)			[50] 3 (5)	[A] N (N)	0, E	0 (0)			0 (0)			NCF	
Great Point, Nantucket	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			TTOR	
Hummock and West Hummock Ponds, Nantucket	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			NCF	
Little Neck, Nantucket	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			NCF	
Monomoy Creeks, Nantucket	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			NCF	
Muskeget Is., Nantucket	0			0			0			0			0			0			MAS	
Muskeget Shoals, Nantucket	0			0			0			6	A	0	0			0			MAS	

INVENTORY OF TERNS, LAUGHING GULLS, AND BLACK SKIMMERS NESTING IN MASSACHUSETTS IN 2017

Site Name, Town	Roseate Tern			Common Tern			Arctic Tern			Least Tern			Black Skimmer			Laughing Gull			Source ^c	Notes
	No pairs	M ^a	P ^b	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P		
Nantucket NWR (Great Point), Nantucket	0			0			0			5 (15)	N (N)	P	0			0			USFWS	
Polpis Harbor (Medouie Creek and Pocomo Meadows), Nantucket	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			NCF	
Quidnet/Sesach acha Pond/Greenhills , Nantucket	0 (0)			0 (0)			0 (0)			0 (1)	(I)	0	0 (0)			0 (0)			MAS	
Sheep Pond, Nantucket	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			NCF	
Smith's Point, Nantucket	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			MAS	
South Pastures (Madequecham Valley to Tom Nevers), Nantucket	0			0			0			0			0			0			NCF	
Squam Pond, Nantucket	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			NCF	
The Galls, Nantucket	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			TTOR	
The Glades, Nantucket	0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			0 (0)			TTOR	
The Haulover , Nantucket	0			0			0			0			0			0			NCF	
Tom Nevers/ Wanoma, Nantucket	0 (0)			0 (0)			0 (0)			64	A	F	0 (0)			0 (0)			MAS	
Tuckernuck Is. - Whale Point, Nantucket	0			0			0			[30] 0	[N]	0	0			0			TLT	
UMass Field Station, Nantucket	0			0			0			0			0			0			NCF	
Wauwinet, Nantucket	0 (0)			0 (0)			0 (0)			28	A	F	0 (0)			0 (0)			MAS	
Western Ave, Nantucket	0 (0)			0 (0)			0 (0)			[184] 10 (0)	[A] A	0	0 (0)			0 (0)			MAS	

INVENTORY OF TERNS, LAUGHING GULLS, AND BLACK SKIMMERS NESTING IN MASSACHUSETTS IN 2017

Site Name, Town	Roseate Tern			Common Tern			Arctic Tern			Least Tern			Black Skimmer			Laughing Gull			Source ^c	Notes
	No pairs	M ^a	P ^b	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P	No pairs	M	P		
TOTAL 2017 NESTING PAIRS	2,264			18,059			0.5			2,940			8			2,745				
TOTAL 2016 NESTING PAIRS	2,066			17,175			0.5			3,230			6			2,751				
PERCENT CHANGE FROM 2016	9.6			5.1			0			-9.0			33.3			-0.2				

^a Method: A = adult count; E = partial/extrapolated count; N = nest count. See text of "Methods" for more details.

^b Productivity: 0 = none; P = poor; F = fair; G = good; E = excellent. Quantitative estimates are given as fledglings/nest or fledglings/pair.

^c In addition to the names of towns, counties, and individuals, the following abbreviations are used: BW=BiodiversityWorks; DCR=Massachusetts Department of Conservation and Recreation; DFW=Massachusetts Division of Fisheries & Wildlife; ECGA=Essex County Greenbelt Association; LCE=Lloyd Center for the Environmental; MAS=Massachusetts Audubon Society-Coastal Waterbird Program; MVLBC=Martha's Vineyard Land Bank Commission; NCF=Nantucket Conservation Foundation; NPS=National Park Service; TLT=Tuckernuck Land Trust; TNCRI=The Nature Conservancy - Rhode Island; TTOR=The Trustees of Reservations; USFWS=U.S. Fish & Wildlife Service.

Appendix B. Sites not included in Appendix A that were surveyed for nesting terns, Black Skimmers, and Laughing Gulls in 2017. These sites had no record of nesting birds of these species in 2017 or, to our knowledge, in any previous year.

Site Name, Town	Source
NORTH SHORE	
Salisbury Beach State Reservation-North, Salisbury	MAS
Salisbury Beach State Reservation-South, Salisbury	MAS
SOUTH SHORE	
Saquish, Plymouth	MAS
UPPER CAPE	
Allens Harbor, Harwich	MAS
Bone Hill Road, Barnstable	MAS
Crosby Landing Beach, Brewster	MAS
Grey Neck Road Beach, Harwich	MAS
New Seabury, Mashpee	MAS
Radio City Beach, Yarmouth	MAS
Red River Beach, Harwich	MAS
Saquatucket Beach, Harwich	MAS
Wings Island, Brewster	MAS
Woodneck Beach, Falmouth	MAS
LOWER CAPE	
Hatches Harbor, Provincetown	MAS
Morris Island Dredge Spoil, Chatham	MAS
Pleasant St. Beach, Chatham	MAS
BUZZARDS BAY	
Cromeset, Wareham	MAS
Little Harbor Beach, Wareham	MAS
Long Beach Point, Wareham	MAS
ELIZABETH ISLANDS	
Naushon Is. - Crescent Beach, Gosnold	DFW
Naushon Is. - Kettle Cove, Gosnold	DFW
Naushon Is. - Tarpaulin Cove, Gosnold	DFW
Naushon Is. - West Beach, Gosnold	DFW
MARTHA'S VINEYARD	
Beach Road Causeway, Tisbury	MAS
Caleb's Pond, Edgartown	BW
Cape Higgon, Chilmark	BW
Cracktuxet Trust Beach, Edgartown	BW
Lagoon Pond-Maciel Marine/Ferry Boat Island, Tisbury	MAS
Lighthouse Beach, Edgartown	BW
Lucy Vincent Beach, Chilmark	BW
Philbin Beach, Aquinnah	BW
Spring Point, Chilmark	BW
NANTUCKET	
Capaum Pond, Nantucket	NCF
Little Neck, Nantucket	NCF
Monomoy Creeks, Nantucket	NCF
Sheep Pond, Nantucket	NCF
South Pastures (Madequecham Valley to Tom Nevers), Nantucket	NCF
UMass Field Station, Nantucket	NCF

^a See **Appendix A** for full names of Sources