A Springtime Exploration of Essex County's Coastal Islands, with Notes on Their Historical Use by Colonially Nesting Birds

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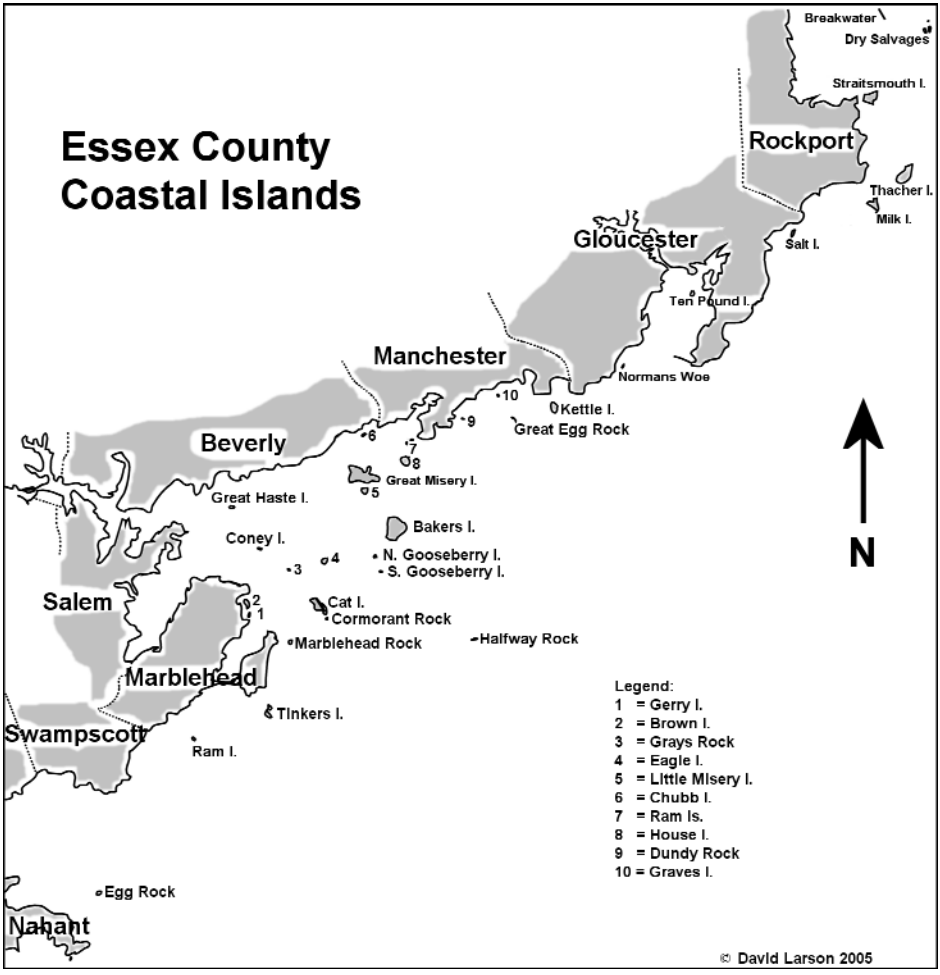
For over thirty years I have lived on the North Shore of Massachusetts without a boat and have long wondered what colonially nesting birds, in what numbers, have nested on the many islands along the Essex County coast. All I knew was that large gulls and cormorants nest on some of them, that terns used to nest on them, and that herons have used at least three of them, but beyond that I didn't know many details.

In 2004 I got a chance to learn more when I found out that my friends Mary Capkanis and Dave Peterson had acquired a boat, and that Mary had obtained a pilot's license. Both are longtime birders, and both have experience surveying waterbird colonies in various parts of the U.S. Finally, I had the means to do some island-hopping with friends who were serious about surveying for nesting birds.

We made three outings, on May 12, May 14, and May 31. Linda Pivacek accompanied us on the third trip. We were unable to get out in June and of course needed more trips, later in the nesting season, to complete even a preliminary census. But in those three days we visited (with very few landings) most of the 30+ islands between Rockport and Nahant that are large enough to support nesting birds. I had three goals for these trips: (1) to see where gulls and cormorants are nesting and in roughly what numbers, and whether terns still nest on any of the islands; (2) to find out whether herons are currently nesting on any islands other than Kettle, off Manchester; and (3) to look for evidence of nesting by other species, such as Common Eiders (*Somateria mollissima*), which have increased dramatically as nesters in Boston Harbor, and Great Cormorants (*Phalacrocorax carbo*), Black Guillemots (*Cepphus grylle*), and American Oystercatchers (*Haematopus palliatus*), for which there are no documented nesting records in Essex County. Surveying nesting songbirds was *not* one of my goals, because I knew we would not be landing on many islands. In addition, we did not see or hear any but the most common songbird species on the islands that are vegetated (generally the larger islands).

Before a discussion of the results of our informal survey, some background is in order on the ornithological history of the Essex County islands, particularly the three large ones off Rockport — Straitsmouth, Thacher, and Milk, each sixteen to eighteen acres in extent. (Only Bakers and Great Misery Islands off Beverly are larger, at twenty-nine and thirty acres, respectively). As I delved into the subject, I discovered that the mix of nesting birds on the various islands has changed a great deal over the decades. It may come as a surprise to some readers to learn that Herring Gulls (*Larus argentatus*), Great Black-backed Gulls (*L. marinus*), and Double-crested Cormorants (*Phalacrocorax auritus*) did not nest along the Massachusetts North Shore until well into the twentieth century, though it is likely the cormorants did before they were



persecuted by the European settlers (Forbush 1925; Hatch 1982). Today those three species dominate the county's islands, as they do much of the New England coast. But in the years before the big gulls began nesting, and before the senseless millinery trade wreaked havoc on so many avian species, these islands were the province of the terns.

Terns: Charles Wendell Townsend, author of *The Birds of Essex County, Massachusetts* (1905) and the *Supplement* thereto (1920), is a good source of information on the pre-twentieth-century nesting history of the local terns, primarily the **Common Tern** (*Sterna hirundo*). It is sobering to read his words a century after they were written. "The Common Tern once bred on all the rocky islands and back of all the sandy beaches on the Essex County coast," he wrote in 1905, but he named only four islands and did not cite numbers of birds. "The latter breeding places have long since been abandoned. The rocky islands were less subject to the invasion of

man, and the birds have continued longer to breed there…The Common Tern still breeds at Milk Island, off the end of Cape Ann, to the number of about fifty pairs of late years." In 1920 he wrote that he found nine aggressive territorial pairs and one nest on the same island in 1919, and added that to his knowledge it was the only place in the county where Common Terns still nested. But by 1925, though Milk Island had come under state protection (along with Egg Rock off Nahant), the terns had been "driven off by an infestation of rats and snakes" (Fletcher 1925; the snakes may have been apocryphal). And, as we shall see, that is about when the large gulls moved in, making further offshore nesting by terns problematic, whether or not a given island had rats.

NESTING COMMON TERN BY DAVID LARSON

There have been sporadic nesting attempts on various Essex County islands since then, summarized through 1972 by Nisbet (1973). Maximum numbers of birds were 250 on Ram Island, Marblehead, in 1947 and 320 on Thacher Island in 1954. Other islands occasionally supporting nesting Common Terns were Dundy Rock off Manchester, Chubb Island off Beverly Farms, and Coney Island off Salem. Since 1974 there have been annual tern surveys of the Massachusetts coast under the aegis of the Massachusetts Division of Fisheries and Wildlife (MDFW 1974-2003). These surveys have shown rather consistent nesting of Common Terns on Tinkers Island off Marblehead at least through 2001, despite the presence of summer human habitation on that island. Maxima were 125 pairs in 1977, 1982, and 1983; 160 pairs in 1989; and 195 pairs in 1990. No other coastal island in the county has been documented with nesting terns of any species during this period, though it is unlikely that many others have been checked on a regular basis.

In recent years, in a happy reversal of the situation Townsend lamented (abandonment of the breeding places "back of all the sandy beaches"), Common Terns have resumed—or commenced, depending on what Townsend meant by the quoted phrase—nesting on various saltmarsh islands, where they are less susceptible to gull

predation but have to contend with wipeouts from high tides and storms. The largest of these colonies has consistently been Woodbridge Island in Newburyport, with a maximum of 275 pairs in 1989. Small numbers have also occasionally nested on Plum Island and Ipswich (Crane) Beach, the former location approaching 100 pairs once or twice in the 1970s (MDFW; data sketchy). In Boston Harbor they also nest on deserted pilings where they are safe from rats, if not from other perils. That phenomenon just reaches Essex County, where they have used the old wooden bridge abutments below the General Edwards Bridge between Lynn and Revere since about 1981, with a maximum of sixty-four pairs in 1996 (Hatch 2001) and again in 2003 (MDFW).

Townsend (1905, 1920) described Arctic (*Sterna paradisaea*) and Roseate (*Sterna dougallii*) Terns as "formerly summer resident[s]." Neither was ever as numerous on the North Shore (or elsewhere in Massachusetts) as the Common Tern, and their nesting days were essentially over by the 1880s due to the wanton shooting of terns for the millinery trade and other senseless purposes (Townsend 1921). **Arctic Terns** came back on occasion in small numbers, as on Milk Island in 1932 ("several pairs apparently breeding") and 1938 ("fifteen pair…, some with nests and eggs") (from the annotated lists of birds observed in the annual *Bulletins* of the Essex County Ornithological Club; hereafter, *BECOC*). At least several pairs nested with Commons on Dundy Rock off Manchester in 1945 (*Records of New England Birds*; hereafter, *RNEB*); ten birds were on Coney Island, Salem, in 1947 (*RNEB*); and John Kieran reported a "few" on Thacher Island in mid-July 1955 (*RNEB*). Nisbet (1973) summarizes these records and adds that a few probably nested on Tinkers Island, Marblehead, in 1967. I am not aware of any nesting attempts in the county since. Andrews (1990) listed seven pairs of nesting Arctics on Tinkers in a 1977 coastal inventory, but the survey method in this case was an estimate of adult birds from the air. The report may be true, but separating Arctic from Common Terns from a passing airplane strains credibility. (I hasten to add that Andrews was the compiler, not the observer.)

Roseate Terns were even scarcer as historical breeders in Essex County than Arctics, with only a single old confirmed record of breeding "on the islands of Beverly Harbor" in 1846 (Townsend 1921). They held on in southeastern Massachusetts through the lean years at the end of the nineteenth century and made a gradual (though uneven) comeback there in the twentieth (Nisbet 1973; Veit and Petersen 1993). There have been many published nesting-season reports of Roseate Terns in Essex County in the twentieth century, but unfortunately almost all have lacked any indication of whether the birds were nesting. The only exception I have found is the notation in Griscom and Snyder (1955) that forty pairs bred on Thacher Island in 1954, *fide* John Kieran. In essence, then, the county has apparently been without either Roseate or Arctic Terns as nesting birds for five and three-to-four decades, respectively. (In the case of Arctic Terns, it should be remembered that they are at the southern extreme of their nesting range in Massachusetts.)

On our own excursions in 2004 we found no terns whatsoever. On none of the three trips did we so much as *see* a tern near any of the islands, including Tinkers and

the other islands where nesting has taken place in the past, though our forays were all in May, and terns often move around before settling on a nesting site. The large **Least Tern** (*Sterna antillarum*) colony on Ipswich Beach and the various salt-marsh Common Tern nesting sites north of Cape Ann remain the only significant ones in the county. (The Crane Beach Least Tern colony was begun in 1946, when two nests were discovered, "providing [the] first nesting record for [the] area since the 1860s" [*RNEB*]. This colony reached a peak of 328 nesting pairs in 2003; Franz Ingelfinger, pers. comm.) On the bright side, a successful tern colony has been reestablished just since 1997 on Seavey Island in the New Hampshire section of the Isles of Shoals under the auspices of the Audubon Society of New Hampshire (ASNH). The colony has been growing each year and in 2004 contained about 2700 nesting pairs, including almost 2600 pairs of Common Terns, seven pairs of Arctics, and 112 pairs of Roseates (data from ASNH). Perhaps the success of this carefully managed colony will result in birds recolonizing formerly used islands in Essex County, though the gulls will, of course, have something to say about that.

Gulls: Only the two large species, Herring and Great Black-backed, breed in Essex County. The **Herring Gull** was one of Townsend's favorite birds, judging by the amount of time he spent studying them. He devoted no fewer than eight pages to their behavior in his 1905 book — the most space he gave to any species. This despite the fact that they did not then breed in Massachusetts; their nearest nesting colony at the time was in Penobscot Bay, "111 miles to the northeast of Ipswich Light."

Herring Gulls extended their breeding range southwest from Maine in conjunction with a huge population increase in New England, estimated at ninefold in the first three quarters of the twentieth century (Drury 1973). The expansion stemmed partly from deliberate protection, then later unintended assistance via refuse dumps, sewage treatment plants, and the like. These changes are well documented and do not need exhaustive treatment here. Suffice it to say that the first state nest record was on the Weepecket Islands in Buzzards Bay in 1888, followed by nesting on Martha's Vineyard in 1912 and on various sandbars around the Vineyard, Muskeget Island, and Monomoy Island from 1919 on (Forbush 1925). It is not clear whether these were indeed the first nestings in the state or whether, as Forbush surmised, Herring Gulls "probably once nested on small islands all along the coast of New England" before being driven off by human persecution.

Other history aside, the first nesting record in Essex County was in July 1926, when a boating party landed on North Gooseberry Island, Salem, and discovered "quite a lot of young Herring Gulls that were unable to fly" and "at least twenty nests" (Lawson 1926). In 1928 twenty nests were found on Great Egg Rock, Manchester. In 1929 a hundred nests were found there, along with thriving colonies on both North and South Gooseberry Islands, where about 200 young were banded in 1930 and about 300 in 1931 (Means and Eaton 1931). The numbers kept increasing over the next few decades, albeit not consistently, as did the number of islands colonized (*RNEB*). By 1984, a U.S. Fish and Wildlife census found 35,421 pairs of Herring Gulls nesting along the Massachusetts coast (Veit and Petersen 1993). This was apparently their peak; more on this below.

The **Great Black-backed Gull** has undergone a similar expansion. In this case the first modern nest record was established on North Gooseberry Island on July 7, 1931, when Means and Eaton were banding young Herring Gulls. They were distracted by a pair of excited Black-backs, and within minutes had captured a juvenile Black-back. They did not collect it, pending an investigation of the status of the species as a breeding bird. The result is worth quoting:

> The status of the Great Black-backed Gull in Atlantic North America was promptly investigated at the Museum of Comparative Zoology, Cambridge. No breeding record south of Nova Scotia was discovered. According to Messrs. [James] Peters and [Ludlow] Griscom we had reported the first known breeding occurrence of this gull in the United States. Obviously, such an important range extension should be supported by an authentic specimen. Accordingly, Means collected the bird on July 9, a male, probably about five weeks old (Means and Eaton 1931).

Further correspondence revealed the discovery of thirteen breeding pairs in ten locations scattered along the Maine coast that same summer, all on islands from Machias Bay west to Boothbay, and almost all in conjunction with nesting Herring Gulls (Norton and Allen 1931). That many nests indicated that Black-backs could have been nesting in Maine for several years prior to 1931, and the authors provided evidence that that was indeed possible, as far back as 1916. It was thus clear that a southwesterly range extension was well underway in 1931, and their increase as breeders in Massachusetts after that time is well known. The same USFWS survey mentioned above found 10,577 nesting pairs along the Massachusetts coast in 1984 (Veit and Petersen 1993).

In our brief 2004 survey we were focused more on counting cormorant nests than gull nests, and on searching for nesting evidence of the target species listed earlier. There were so many nesting gulls on so many islands that counting them from a moving boat, with many of the nests not visible to us, was virtually impossible. I can thus offer only a rough guess at their numbers, which were easily in the low thousands for each species. I am not in a position to state which gull was the more numerous. My impression was that it was the Herring Gull, but Blodget and Livingston (1996), in summarizing the results of their 1994-1995 census of coastal waterbird colonies, discovered that breeding Herring Gulls had declined almost 51 percent statewide, to 17,583 pairs, since the 1984 census, while Great Black-backs had increased “40 percent” (actually over 42 percent) to 15,078 pairs in the same period. At that rate, a comprehensive statewide survey today might find that Great Black-backs have overtaken Herring Gulls as nesting birds, and that could of course be true in Essex County. On-the-ground nest counts would be necessary to establish the real numbers in any given year.

A further clue to the present-day large-gull populations on the North Shore is contained in Blodget and Livingston’s 1996 report, which gives the numbers of nesting pairs of each species for all colonies and highlights those where they were most numerous. Thacher Island in Rockport had the third-largest number of Herring

Gull pairs in the state in 1994 (1185, increasing to 1359 in 1995), while nearby Milk Island had the third-largest number of Great Black-backed Gull pairs in 1994 (1070). The Essex County totals for that survey were 3475 pairs of Herring Gulls and 2670 pairs of Great Black-backs. If the 2004 large-gull numbers were even close to the 1994-1995 numbers, my estimate of "low thousands" for the county as a whole certainly holds true.

Cormorants: The **Double-crested Cormorant** is another species that did not extend its breeding range south into Massachusetts until well into the twentieth century, though there is evidence from bone remains on Calf Island in Boston Harbor that the birds probably nested there about 1500 A.D. (Hatch 1982), and presumably into colonial times, when the birds were apparently still common (Townsend 1905). A good summary of the species' nesting history in the northeast is given by Drury (1973). The cormorant was always considered a pest (read rival) by fishermen, and was "killed off the New England coast in the early 19th century." A few abortive nest attempts were made in Maine in the 1890s, but the birds were not recorded nesting in Maine again until 1925. Over the next two decades the Maine population exploded, with over 10,000 nesting pairs by 1944 (Palmer 1949). This aroused the inevitable complaints from fishermen, resulting in control measures — spraying the eggs with oil — being taken between 1944 and 1953. The Maine population leveled off for the next twenty years (Drury 1973).

Meanwhile, the species had begun to colonize the Massachusetts coast, starting with fifty-three nests on Shag Rocks in Boston Harbor in 1940 and almost certain nesting there as early as 1937 (Hagar 1941). Soon thereafter, nests were found on various islands in Essex County, thanks to the diligent work of Frances Burnett of Manchester, a Ph.D. in zoology from Cornell and a giant in land conservation, who rowed herself to these islands on a regular basis. She found the first two nests on Great Egg Rock off Manchester in June 1942, four nests there in 1943, and two in 1944. Also in 1944 she found forty-four nests on South Gooseberry Island in Salem (*Bulletin of New England Bird Life*; hereafter, *BNEBL*). The latter colony grew to 124 nests by 1946 and to 200 nests by 1949 (*RNEB*).

Jeremy Hatch (1982) documented the subsequent increase of Double-crested Cormorants as nesting birds in southern New England and Long Island, New York. He described this expansion in the 1970s as "phenomenal," as demonstrated by an increase in Massachusetts Bay from six to thirteen nesting sites and an increase in nesting pairs from about 300 to over 2000 between 1972 and 1981, not counting the northeastern-most nesting sites off Rockport. Surveys of the entire Massachusetts coastline found 4957 pairs statewide in 1984 and 7833 pairs in 1994-1995 — a 58 percent increase in just a decade (Blodget and Livingston 1996). The corresponding increase on the Essex County islands was from 1645 pairs at eight sites in 1984 to 2509 pairs at twelve sites in 1994, a 53 percent increase (MDFW 1995).

Though we did not survey all the Essex County islands in May 2004, we did visit the vast majority, and tried to count the cormorant nests from the boat in all cases but one, South Gooseberry Island, where we landed, counted the nests quickly, and

retreated. Following are the *minimum numbers of active nests* (a good indication of the minimum numbers of nesting pairs!) on the various islands. The name of the island is followed by its size in acres and its substrate (data taken from Andrews 1990). If an island is not listed, either cormorants weren't nesting there or we didn't visit it (see below).

ISLAND	SIZE, SUBSTRATE	ACTIVE NESTS
Dry Salvages, Rockport	<2, rock	6
Milk I., Rockport	16, rock, grass	200+
Great Egg Rock, Manchester	<2, rock	50+
Graves I., Manchester	2, rock	40+
Dundy Rock, Manchester	<2, rock	7
S. Gooseberry I., Salem	<2, rock	49
N. Gooseberry I., Salem	<2, rock	90+
Coney I., Salem	<2, rock	100+
Gray's Rock, Marblehead	<2, rock	20+
Cormorant Rock, Marblehead*	<2, rock	200+
Marblehead Rock, Marblehead	<2, rock	11
Ram I., Marblehead	<2, rock	135+
Egg Rock, Nahant	<2, rock	320+

* The name "Cormorant Rock" is given on the navigation charts to a large rock immediately south of Cat Island, Marblehead. This rock is not named on the USGS topographical maps and was consequently labeled in the various coastal waterbird inventories as "island south of Cat Island."

That's a minimum of 1228 nests, surely well under the actual total, since we could count only the nests we could see from a moving boat. Later, on a July 14 outing, my friends Mary and Dave counted about 900 cormorants on Milk Island, mostly adults, which means there could have been far more than the 200+ nests we estimated earlier. In addition, Milk had 1081 nesting pairs of cormorants in the 1994 survey, making it the second-largest colony in the state (Blodget and Livingston 1996). Given that not all of Milk Island is visible from a small boat, and that the 1994 number was from an actual on-the-ground nest count, it is likely that our estimate there on May 14 was way too low.

We did not visit Ten Pound Island or Norman's Woe Rock in Gloucester or Kettle Island in Manchester. Chris Leahy (pers. comm.) confirmed that cormorants have long nested on Norman's Woe, and a visit there would almost certainly have added to the number of nests, since 199 pairs were there in 1994 (MDFW). Other islands with nesting cormorants in previous years but not in 2004 were Cat in Marblehead (thirty-four pairs in 1994) and Great Haste in Salem (seven pairs). On the other hand, we found nesting cormorants on Graves Island. and Dundy Rock in Manchester, where colonies were not found on previous surveys. Any other Essex County islands not listed above *were* visited but did not appear to have any nesting cormorants. In future years we will try to conduct more thorough surveys, or, preferably, assist in any state-

level surveys that may be organized. Meanwhile, it is clear that Double-crested Cormorants continue to do very well as breeding birds on the county's coastal islands.

We also observed **Great Cormorants** on all three trips. Most of these were immatures, which is not surprising. The biggest group was of six on the largest of the Dry Salvages on May 14, but this group included two adults in breeding plumage. I must confess that my heart quickened on seeing these birds, but while half a dozen Double-crested Cormorants were sitting on obvious nests, the two Greats were not. I suppose they could have been paired, but if they were going to nest it presumably would have happened at roughly the same time as the other cormorants, and so far as we could tell they had not even started a nest. There are at least three nest records for the species in Massachusetts, in the Weepecket Islands in Buzzards Bay, where a single pair nested each year 1984-86 (Jeremy Hatch, pers. comm.; Andrews 1990, and Veit and Petersen 1993, mention only the 1984 nesting), but Essex County remains without a confirmed nest record. This one seems just a matter of time and effort.

Herons: We did not survey Kettle Island off Manchester because the heron nests on this island are normally counted each year by the Massachusetts Audubon staff (MAS owns the island), and landing there is prohibited without that organization's permission. That survey could not be organized in 2004, though the various herons and ibises were obviously nesting there as usual (pers. obs.). Herring and Great Black-backed gulls also nest there; we did not see nesting cormorants when we passed the island. The most interesting discovery (for me) was of a second heron colony on Eagle Island, Salem. It is known that Cattle Egrets (*Bubulcus ibis*) have been nesting there at least since 1982 (Chris Leahy, pers. comm.), but I had not realized that this island, a little smaller than Kettle but with the same hilly topography and thick shrubby vegetation, was also used by Great Egrets (*Ardea alba*), Snowy Egrets (*Egretta thula*), Little Blue Herons (*Egretta caerulea*), Black-crowned Night Herons (*Nycticorax nycticorax*), and Glossy Ibises (*Plegadis falcinellus*). The numbers appeared much smaller than on Kettle Island, but of course there could have been many more herons than we observed, since their nests, normally in thick vegetation, are seldom visible from a boat. Black-crowned Night Herons, in particular, have used this island extensively, with forty-two nesting pairs in 1984 and eighty-six pairs in 1994 (MDFW). (The third heronry island I alluded to earlier is House Island, also off Manchester, which was used in the 1970s and was replaced by Kettle in the 1980s.)

Other species: We did see **Common Eiders** on our boat trips, up to two hundred near the Rockport islands, with lesser numbers around the islands farther south. In no case did we see young birds or nests, despite much recent evidence of nesting in Essex County (see Berry 2000 and 2002 for the history of eider nesting in Massachusetts; Drury [1974] gives further insight into the relationship between nesting eiders and large gulls). Most likely we were too early for ducklings, and finding nests from a boat would not be easy in any case if they were in vegetation. Yet the species continues to do well in Boston Harbor. On May 24, 2004, Bob Stymeist joined naturalists from the National Park Service to do a breeding-bird survey of Calf Island in the outer harbor. They found forty-nine eider nests, 183 eggs, and six ducklings swimming. Bob stated that 90 percent of the nests were in tall grass, which

means they would indeed be hard to find without landing (Bob Stymeist, *massbird* and pers. comm.). Notably, on July 11, Mary and Dave observed six half-grown Common Eider ducklings at Ten Pound Island in Gloucester Harbor with twenty adults, and six more ducklings with twenty-five adults off Milk Island in Rockport. Reports of eider ducklings have now become annual in the county; it remains only to find some nests to see which islands they are using.

We were also on the lookout for **Black Guillemots**, and our first trip on May 12 was promising indeed. We counted thirty-nine of them that day, all in or close to breeding plumage. The majority were concentrated off South Gooseberry Island, but others were seemingly paired off in other locations south of Manchester. Two days later we found three birds off Rockport, but on our return trip to the more southern islands (including the Gooseberrys) on May 31 we found none. It is likely that these birds returned to breeding grounds farther north, but there was one subsequent development of interest. A birder kayaking near Straitsmouth Island in Rockport reported to *massbird* that he saw a breeding-plumaged guillemot resting on the granite of the island on July 31, and two days later saw one feeding in the same area. My efforts to contact this birder were unsuccessful, and when I went to the area soon after I could not locate any guillemots from the shore nearby.

Similarly, John Cushing of Essex (pers. comm.) had a good view of a guillemot in breeding plumage as it flew out of the cliffs of Little Misery Island off Beverly on September 7, 1997, an indication of possible nesting despite the late date. On September 4, 2000, Wayne Petersen (pers. comm.) and Dave Larson saw a guillemot in juvenile plumage along the shore of Plum Island, another indication of possible nesting nearby. The birds are known to nest as close as the Isles of Shoals off Rye, New Hampshire, and there are other summer records of breeding-plumaged birds in the county, but Massachusetts' first confirmed nesting still eludes us.

American Oystercatchers have been approaching Essex County from the south rather than the north, but the situation here is similar to that of the cormorants. These birds are in the process of recolonizing former breeding grounds in New England and the Maritime Provinces, where they had been shot out by the nineteenth century (Forbush 1925). They have been nesting in Boston Harbor, as far north as Snake Island in Winthrop, Suffolk County, for several years. They have also hopscotched up the coast and in recent years have nested at Stratton Island and Biddeford Pool in southern Maine, as well as in southern Nova Scotia (*North American Birds* and its predecessors). We did not find any oystercatchers on our expeditions, but I have since gotten a tip from Joe McLaughlin of Marblehead that they may have nested on one of the islands off that town in 2004, based on his observations of as many as five birds there, on multiple dates, from his kayak. A family of four, with two grown young, has shown up on Marblehead Neck each of the last two summers, indicating nearby breeding. A county nest record for this species too seems just a matter of time.

A few random species fill out this account. Scores of Canada Geese (newly renamed *Anser canadensis*) were nesting on various islands, as were occasional pairs of Mallards (*Anas platyrhynchos*). To my delight, we saw real Rock Pigeons

(*Columba livia*) evidently nesting in crevices on several of the islands and living up to their time-honored name. Apparently no cliff-nesting pigeons were found during the field work for the Massachusetts Breeding Bird Atlas in the1970s, for the atlas account mentions cliff nests only as "ancestral" (Petersen and Meservey 2003).

A final thought is that a lack of frequent and regular survey data from the Essex County islands on colonially nesting birds should be evident from this article. The two exceptions are terns, as discussed, and herons, for which Massachusetts Audubon has been collecting data almost annually since the 1970s. The statewide cooperative surveys of the other colonially nesting species have, unfortunately, been much less frequent. Consequently, the research for this article was not easy, and there are many gaps in the chronological history. If anything is to be recommended from this research, it is for the state and federal wildlife agencies, in conjunction with each other and in cooperation with interested nonprofits, to increase the frequency of such island surveys, preferably by means of on-the-ground nest counts, as is done for the beach- and marsh-nesting terns. These agencies often bewail the lack of funds for such work, but they do not seem to be tapping enough of the nongovernmental and volunteer sources that could be made available. The task is not beyond our reach.

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***Jim Berry** is publishing a series of articles on significant Essex County nesting records in* Bird Observer *as he works to complete an annotated checklist of the county's birds and how their populations and nesting status have changed over the last century. He is grateful to Mary Capkanis and David Peterson for joining so enthusiastically in the search for coastal nesting birds; to Jeremy Hatch, Chris Leahy, Wayne Petersen, and David Weaver for critically reviewing earlier drafts of this article; and to Jim MacDougall for creating the map. Carolyn Mostello of MDFW, Diane Pence of USFWS, and Wayne Petersen kindly provided copies of critical sources needed for the research for this article.*

Start studying Voyage of Exploration. Learn vocabulary, terms and more with flashcards, games and other study tools.Â to claim territory along the coast. During the Age of Discovery, the purpose of most European explorations was to search for resources and trade routes and to. claim territory outside of Europe. During the Age of Discovery, interactions between Asia and Europe led to competition for land and resources and. were accompanied by an increase in trade. In Portugal, the ability and motivation to explore was aided by. strong leadership from Prince Henry. Cartography is. the science of mapmaking. the process of transporting explorers. an advanced type of sailing ship. a device used for navigation. A. A springtime exploration of essex countyâ€™s coastal. Islands, with notes on their historical use by colonially. Nesting birds. Jim Berry. SUBTLE THRILLS: REWARDS FOR THE BIRDING ATLASER Rosalind Renfrew. J. a. allen: the shy and retiring giant. William E. Davis, Jr. Alexander skutch remembered. Elissa Landre. ABOUT BOOKS Some Natural History History. Mark Lynch. BIRD SIGHTINGS September/October 2004. ABOUT THE COVER: Gray Jay. William E. Davis, Jr. ABOUT THE COVER ARTIST: Paul Donahue. At a glance. Wayne R. Petersen. 5. They used the islands for victualling and refitting, using as payment the lethal combination of firearms and liquor. The only protective influence came from missionaries â€“ but their presence, too, had a profound effect on the islandsâ€™ traditional societies. This â€˜fatal impactâ€™ thesis has remained compelling, but in recent decades its conclusions have been challenged by scholars â€“ anthropologists as well as historians â€“ working with local rather than European sources.Â Julia McClure: â€œThe idea of the â€˜Age of Explorationâ€™ whitewashes history, giving a more noble and scholarly appearance to an age of imperialismâ€. This is a trick question. The island, the islands , the water The definite article â€œtheâ€ is used; When there is only one of the thing mentioned: (Unique objects) The sun is shining. The moon is full tonight. The sky is blue.Â The bird sat on my desk. 4. Before superlative adjectives: The biggest island is Greenland. The most beautiful coral island is very small. Coastal erosion due to hurricanes and high winds can disturb sea turtle nests, causing the embryos to die. But sea turtles make multiple nests in different locations each season to increase the chances that some eggs will hatch. Photography by Monica Reusche, University of Central Florida, Permitted research under MTP-186.Â A surge in storms. Beyond human interaction, the Atlantic hurricane season (June through November) can affect nesting scenarios. During this record-breaking year that has produced 25 named storms by mid-October, the flooding and higher-than-usual tides that come with hurricanes have left a mark. â€œEven though Hurricane Teddy didnâ€™t come close to Florida, there was significant wave action that caused quite a bit of erosion,â€ says Perrault.