Marine Birds off the Coast of North Carolina: a Critique

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A recently published paper by Lee (1995) summarized the status of seabirds along and off the North Carolina coast. The paper combined a fifteen-year pelagic survey (1975-1989) by Lee with select additional records by other observers both prior to and after 1989. Unfortunately, the paper has many serious problems:

- (1) Lee inadequately reviewed the ornithological literature and omitted numerous well-documented observations and important papers.
- (2) Lee entirely disregarded the work and decisions of the Carolina Bird Club's North Carolina Bird Records Committee (hereafter, NCBRC). The NCBRC is nationally recognized as *the* official committee for North Carolina and is sanctioned by the Carolina Bird Club. It maintains the official North Carolina bird list which is updated annually in *The Chat*. Rather than defend his position on records the NCBRC judged to be incorrect, he proceeded as if those efforts never occurred.
- (3) Many of Lee's species accounts and conclusions are inconsistent with our collective observations and research, based on over 400 trips since 1970.
- (4) Lee used one standard for his own records and another for others. For example, he complained that reports of regularly occurring species (e.g., Parasitic Jaeger, White-tailed Tropicbird, etc.) have been included in the literature without published details, the implication being that because these records are unsubstantiated, they are unreliable. In doing so, he ignored the fact that these species are seen too frequently to warrant publication of details. Conversely, he then cited his own sight records of the same species without ever publishing details. Even worse, when extraordinarily rare species were

involved, Lee merely discussed the status or implications of the sighting without providing any description for documentation (e.g., Cape Petrel).

- (5) Lee referred to species as being "common," "uncommon," or "rare" without consistency in his use of such terms. In some cases, species he listed as "rare" were described as being more numerous than some he listed as "uncommon." While such terms are already imprecise, Lee's inconsistency is even more confusing.
- (6) Lee employed misleading statistical methods. His bar graphs, representing the occurrences of 18 species by simple means ("Mean Number Birds Sighted/Trip") is a poor statistical measure given the very small number of sample days. Under these circumstances, great biases can result from one particularly good or bad day. For example, on a hypothetical 9 trips, 9 to 11 individuals of a given species are seen each trip (average 10 per trip) and then, on one trip, a remarkable 910 birds are counted. The mean of these 10 trips would be 100, ten times the typical count and a clear misrepresentation of the norm. This sort of statistical misrepresentation occurred in nearly half of the species he graphed. Lee would have been better served by selecting a method that minimized the effect of extreme data points.

The following is a species-by-species account of the major errors in the Lee (1995) paper. We refer to the following terms which seem to have confused definitions by Lee: A report is a claim by an observer of what, where and when and is not necessarily considered correct. A record is report that has been reviewed and accepted as reliable. Traditionally, this review is by a recognized, official records committee such as the NCBRC. Finally, to avoid repetition of the principal literature citation (Lee 1995), hereafter, only page numbers are cited.

Yellow-nosed Albatross (Diomedea chlororhynchos)

Lee (p. 119) listed two reports that "were probably Yellow-nosed Albatrosses." The NCBRC (1990, p. 53) gave an Unaccepted Sighting verdict to both of these reports. In fact, the NCBRC was uncertain that either of the two birds were albatrosses of any kind. No other reports have been received by the NCBRC, and there are no accepted records of this species from North Carolina.

Black-browed Albatross (Diomedea melanophris)

Lee (p. 119-120) correctly cited one record of this species but then stated that the "North Carolina sightings [of albatrosses] are not adequate for specific identification, and records for neither species [Yellow-nosed and Black-

browed] have been accepted by the state's bird record committee." Not only does this latter statement contradict his earlier comments on "Yellow-nosed Albatross," it is incorrect. The NCBRC (1990, p. 53) accepted the single sight record of two birds off Morehead City on 19 August 1972 (Dumont 1973). The species is on the Provisional List, as no photographs or specimens exist.

Northern Fulmar (Fulmarus glacialis)

Lee (p. 120) correctly stated that "the species is often common in April and late October." His graph, however, shows means of perhaps only three to five birds per trip at these times, and he failed to explain the discrepancy.

Cape Petrel (Daption capense)

Lee (p. 121) referred to his own second-hand report (Lee 1986b), which the NCBRC considered an Unaccepted Sighting (NCBRC, 1990). Not only did Lee (1986b) provide no description of the bird, none was written by the observer, a fisherman who was unskilled in such identifications. We interviewed the fisherman about the sighting and are convinced that the bird in question was a shearwater, either partially albinistic or in heavy molt. Lee cited the report of the American Ornithologists' Union (1983), as supporting the occurrence of Cape Petrel but ignored the fact that the same citation stated that *none* of the various reports of this species from the Northern Hemisphere were acceptable. At the time Lee wrote his paper (and currently), this opinion had not been revised (American Ornithologists' Union 1995).

Black-capped Petrel (Pterodroma hasitata)

Lee's bar graph (p. 122) showed maximum average daily counts of fewer than 10 during June, fewer than 20 during July and August, and fewer than 5 during September. Since at least 1987, we have routinely seen 50 to 150 birds from late May through September. Lee's tabulation of maximum counts also overlooked many high counts, including: 212 on 31 July 1993, 177 on 5 June 1993, 165 on 20 August 1994, and others that Brinkley has provided to Lee. Moreover, Lee's statement that the species was "undocumented in the state prior to 1976" (p. 121) is inaccurate. *American Birds* mentions at least four North Carolina sightings from 1972 to 1975 (27:41-42; 28:37; 29:958; 30:51).

Bermuda Petrel (Pterodroma cahow)

At the time of Lee's paper, the NCBRC had not accepted any sight record of this species from North Carolina. Indeed, it was not even documented from North America (see Wingate et al. 1998). The NCBRC earlier (NCBRC, 1990,

p. 53) gave an Unaccepted Sighting vote to a 1983 report by Lee (1984, p. 159), largely due to lack of substantiation and convincing details. A multiple observer sighting of a bird off Hatteras on 26 May 1996, which was photographed by Patteson (Wingate *et al.* 1998) is the only confirmed North American record to date. At least some of several other unconfirmed sightings (see Wingate *et al.*, 1998), however, may correct.

Soft-plumaged Petrel (Pterodroma mollis)

In spite of the fact that Lee (p. 123) places quotes around the name "mollis," the account still mistakenly refers to the Southern Hemisphere species Soft-plumaged Petrel (P. mollis) rather than the generic species complex. In his original article, Lee (1984) refused to speculate as to which species he saw. Since the soft-plumaged petrel complex was split into three species (Bourne 1983), however, the error is misleading. The species name (with or without quotes) used by Lee refers specifically to the nominate species, which has never been documented in the Northern Hemisphere. The two remaining species, Fea's Petrel (P. feae) and Zino's Petrel (P. madeira), breed in the North Atlantic. Lee's own description of a bold pale rump eliminated the species Soft-plumaged Petrel as a possibility (see Enticott, 1991, Tove 1997a), and Tove (1997b) felt that the details provided were strongly suggestive of Fea's Petrel. Moreover, Lee's statement (p. 125):

the criteria under which [the members of the species complex] are evaluated do not lend themselves to identification through the general methodologies of birdwatchers

is untrue and ignores a body of literature on the field identification of these species (e.g., Carter 1989, Fisher 1989, Madge 1990, Enticott 1991). More recently, Tove (1997a) summarized the taxonomy, distribution, and identification of the members of the complex, and (Tove 1997b) documented 16 different individual Fea's Petrels from North Carolina between 1991 and 1996. Neither Zino's nor Soft-plumaged Petrel has ever been reported from North America, much less North Carolina. Finally, Lee's lengthy admonition against collecting members of this group was particularly odd since the only active collecting of seabirds from North Carolina in the past 20+ years has been by Lee himself.

Herald Petrel (Pterodroma arminjoniana)

Lee (p. 125) incorrectly stated that "all sightings have been of single birds." There were two records of multiple individuals prior to publication of his paper: On 22 May 1991, two birds were seen off Hatteras, one of which was photographed (Am. Birds 45:433, 511; Mullarney, McGeehan, Constantine, pers. comm.), and on 29 May 1994, three were seen and photographed off Hatteras (Chat 59:71).

Bulwer's Petrel (Bulweria bulwerii)

Lee (p. 125) cited Haney and Wainwright (1985, p. 869) who wrote that "Lee . . . briefly observed a bird fitting the description of this species [Bulwer's Petrel] off North Carolina." Not only have details of this 1979 sighting never been published, but Lee never even mentioned this sighting in his previous summary papers which included other unconfirmed reports of pelagic birds (Lee 1984, 1986a). If this sighting was so uncertain as to be unworthy of mention along with other speculative observations, it should not be introduced here. The only accepted record of this species from North Carolina was a single bird seen on 1 July 1992 by Todd Hass (NCBRC 1994, p. 85).

Cory's Shearwater (Calonectris diomedea)

Lee's (p. 126) bar graph showed Cory's Shearwater reaching its peak abundance in late July. We consistently find the species at its greatest abundance during August and September when, typically, hundreds and sometimes thousands are seen daily.

Greater Shearwater (Puffinus gravis)

Lee (p. 127) omitted from his bar graph the latter half of May and the first half of June, when the species is regularly present. Even though the peak of occurrence may well occur in late July, the peak is not nearly as skewed as he portrayed. The species is often just as numerous in August as in July. This species does, however, exhibit substantial fluctuation in abundance from one year to the next. Thus in some years it might be "common to abundant," as Lee stated, while in other years, only "uncommon to fairly common." On average, it is probably best considered to be "fairly common to common."

Sooty Shearwater (Puffinus griseus)

Lee (p. 127-128) failed to mention several massive northbound counts reported along North Carolina beaches in late May. These include an estimated 8000 seen on 27 May 1972 (Am. Birds 26:748), 1800+ on 31 May 1970

(Buckley 1973), and 700+ on 1 June 1970 (Buckley 1973). He has also omitted an inland report from Twin Oaks, Allegheny County, in August 1939 (Ball 1948).

Manx Shearwater (Puffinus puffinus)

The graph (p. 129) for late March is artificially skewed by the results of a single trip, when Lee reported an unprecedented 42 birds on 16 March 1984.

Little Shearwater (Puffinus assimilis)

Lee (p. 130) correctly stated, "This species has not been confirmed as occurring in North Carolina," but he then contradicted himself by listing five sight reports for the state which he treated as factual. None of these was accepted by the NCBRC, and the species is not even on the state's Provisional List. The NCBRC (1990, p. 54) gave an "Unresolved Status" to a December 1984 report by Lee because it was insufficiently documented to be judged and no further details have been provided. This report, however, is widely regarded as incorrect.

Moreover, we find it curious that four of these five reports were made by Lee himself, yet none of the thousands of observers who have taken hundreds of organized pelagic trips into North Carolina waters during the past 20 years have seen even one. The only report not made by Lee was of 15 Little Shearwaters (and apparently *no* Audubon's Shearwaters), in August 1987 about 37 miles east of Diamond Shoals Light in the Gulf Stream. This report is certainly incorrect.

Audubon's Shearwater (Puffinus lherminieri)

Lee was incorrect when he stated (p. 130-131) that the latest winter record is 22 January and the earliest spring record is 7 April. There are several published records from February and March, thus extending the species' occurrence year-round.

Wilson's Storm-Petrel (Oceanites oceanicus)

Lee's statement (p. 131-132) that the species is "seen in shallow water but [is] most common in the 40-800 fathom area" is vague and misleading. We find that Wilson's is more common in shallow water during spring and more common in deep water during summer and fall. Also, Wilson's is a common migrant (not occasional as Lee stated) in the littoral zone during spring. It is regularly seen from shore in substantial numbers, and these counts are published regularly in *The Chat*.

White-faced Storm-Petrel (Pelagodroma marina)

Lee's (p. 132) description of this species as "uncommon" is very generous, considering that over the past 15 years there has been, on average, not more than one report per year from North Carolina waters. In fact, it is one of the rarest species occurring in North Carolina waters. Its status is, and has always been, a "very rare late summer and fall visitor."

Lee was also incorrect when he stated that the species was "Not known from the state prior to 1979" (p. 132). Two were seen following Hurricane *Ginger* at Oregon Inlet on 2 October 1971 (Amer. Birds 26:45).

Leach's Storm-Petrel (Oceanodroma leucorhoa)

Lee's (p. 133) bar graph is heavily skewed by using mean counts, providing unnatural and inaccurate peaks in the last half of August and in late June. Except for late spring, we have found that the species is missed on pelagic trips more often than not.

White-tailed Tropicbird (Phaethon lepturus)

Lee (p. 134) gave a maximum count of three birds, but Patteson reported four birds, on 18 June 1994 (Chat 59:72). Moreover, Lee himself reported four birds off Oregon Inlet on 6 August 1985 (Amer. Birds 40:97).

Red-billed Tropicbird (Phaethon aethereus)

We strongly disagree with Lee when he labels this species and White-tailed Tropicbird both as "uncommon visitor." Red-billed is certainly not nearly as common as White-tailed. Before 1994, the NCBRC was aware of only five reports from North Carolina waters, which would give a status of "very rare" or "casual." We are aware of only nine sightings from 1994 through 1995, and those years stand out as exceptionally good for the species in our waters.

Lee's support for this equal abundance hypothesis was largely derived by casting wholesale doubt on the many White-tailed sightings not made by him. While misidentification of tropicbirds is possible (especially of immatures), they are not nearly as difficult to identify as Lee implied. Because tropicbirds apparently have a fondness for investigating boats, observers are routinely afforded prolonged and close views. Moreover, the black upperwing carpal bars of the White-tailed are visible at considerable distance and can even be seen from below. Our data suggest that at least 85% of the tropicbirds seen off North Carolina are White-taileds.

Red-billed Tropicbird is a "rare visitor" from May to September.

Masked Booby (Sula dactylatra)

Lee's (p. 135) statement that the species is "usually found in deep Gulf Stream waters" is misleading. There are many records from shallow Gulf Stream waters, including two reports of live birds seen from shore.

Brown Booby (Sula leucogaster)

The second-hand report of a Brown Booby for December 1987, cited by Lee, is incorrect. None of the observers, save one, felt the bird was identifiable as anything. It was seen at very great distance, in poor light and in the presence of thousands of Northern Gannets (*Morus bassanus*). The NCBRC placed Brown Booby on the Official List, based on one accepted sight record from 25 April 1983 (NCBRC 1990, p. 54) and one photographic record from 9 July 1994 (NCBRC 1995, p. 86). There are at least four other reports from 1994 and 1995 currently under consideration by the NCBRC.

Magnificent Frigatebird (Fregata magnificens)

Lee (p. 137) listed this species as "uncommon and irregular." Yet, on average, there are fewer than two sight reports a year from North Carolina, and most are from the immediate coast. Thus, its status is "rare" or "very rare."

Red Phalarope (Phalaropus fulicaria)

We agree with Lee (p. 140) that "From mid-October to the start of the spring migration, Red Phalaropes can be abundant off the coast of North Carolina." Unfortunately, his graph included no records for October or November and showed an obvious, unnatural dip in abundance during February. These discrepancies warrant explanation.

Pomarine (Stercorarius pomarinus) and Parasitic (S. parasiticus) jaegers

Lee stated that the "validity of some identifications may be questionable because none had supporting details" (p. 141). While on principle we agree that some jaeger identifications should be treated as "species unknown," Lee's statement unrealistically assumes that every sighting should be documented, ignoring the fact that literally scores of these two species are seen each year by multiple, competent observers. We are additionally disturbed that Lee made these criticisms when he has never provided written documentation of any of the jaegers he has seen.

Lee's data further suffer from a sampling bias because he conducted few or no nearshore and onshore surveys. While Pomarine is far more common offshore than Parasitic, the two species occur in similar numbers coastally. Parasitic Jaeger is an inshore migrant, and a considerable movement of this species occurs along the coastline during the latter half of May and again during October and November.

Long-tailed Jaeger (Stercorarius longicaudus)

Lee's description of this species as a "regular and common migrant" (p. 142) is inconsistent with his own data. His bar graph shows peak counts of birds per trip of 0.5 to 0.7, with an offshore peak count of four. Such totals would give the species a "rare" status. Curiously, Lee overlooked higher counts from onshore at Cape Hatteras Point, especially the record of 12 seen on 28 May 1987 (Chat 52:46). We consider its status as "uncommon." We do agree with Lee that Long-tailed is more numerous than the Parasitic well offshore and is probably more common than popularly believed.

Great Skua (Catharacta skua)

We agree with Lee that Great Skua is an uncommon winter visitor from shelf waters.

South Polar Skua (Catharacta maccormicki)

When Lee (p. 144) asserted that "Verified records are [only] from deep Gulf Stream waters," he ignored the annual (including photographic) records from inshore Gulf Stream waters and from shore at Cape Hatteras Point.

Sabine's Gull (Xema sabini)

The "Earliest Fall Record: 15 July 1992" cited by Lee (p. 145) was a bird seen along the immediate coast and more likely represented a non-breeding summer bird rather than a southbound (fall) migrant. This record is certainly atypical, as the majority of fall records are from September or early October.

California Gull (Larus californicus)

Although this is not a pelagic species, Lee did include a number of gull and tern species not typically seen at sea. Given the great breadth of scope in Lee's paper, this species should have been included. California Gull is on the Official List based on one photographed on 29 January 1993 (NCBRC 1994, p. 86). Two more records were accepted in 1994 (NCBRC 1995, p. 86). Subsequently, one or two individuals of this species have been seen annually in large, mixed gull flocks, particularly at Cape Point.

Thayer's Gull (Larus thayeri)

Lee was wrong to place this species in quotation marks, stating that Thayer's Gull is "now regarded as a race of *L. glaucoides* [Iceland Gull]" (p. 148). The American Ornithologists' Union (1983) considered the Thayer's Gull to be a valid species. At the time of his writing (and to date), the A.O.U. has not changed its opinion (American Ornithologists' Union 1995).

Ivory Gull (Pagophila eburnea)

We are very concerned about Lee's inclusion of this species based on his own single observation that he, himself considered an "unconfirmed report" (p. 149). Lee's initial descriptions of the bird to Tove and John Fussell (pers. comm.), on separate occasions, were inconsistent with Ivory Gull, instead sounding very much like an albino Bonaparte's Gull (*Larus philadelphia*) that Tove saw at the same location a few days before Lee's sighting. We are also disturbed that Lee's (1980) published report included a different and seemingly "more accurate" description than the one he gave Fussell and later Tove shortly after the actual sighting. Tove (1989) presented an argument showing specific inaccuracies in Lee's description of the gull. These points were also ignored by Lee in the present paper.

The NCBRC listed this report as an Unaccepted Sighting (NCBRC 1990, p. 56). There are no accepted records for the state.

Arctic Tern (Sterna paradisaea)

Lee's statements that "most reports are typically of single birds" (p. 149) and "there are few records of the species" (p. 149) are false. There are numerous reports of the species since 1989. Most of these sightings occurred during the second half of May, including two separate daily counts of 27+ made during late May 1992 (Chat 57:55). Thus, the spring migration period extends to the end of May, if not early June, and not to mid-May, as Lee stated. In fact, the peak seems to be around 20-25 May. Brinkley (1994) provided additional information about the spring migration of this species.

Bridled Tern (Sterna anaethetus)

Lee (p. 149-150) listed the species as a "common summer resident." His bar graphs, however, indicate daily average counts in the 3-9 range, which is better considered "uncommon to fairly common." Additionally, the peak offshore counts are much greater than the 45 birds Lee (p. 150) reported. 65 were counted on 1 September 1990 (Chat 54:98), and Brinkley, Robert Ake, and others observed 85 on 20 August 1978. Finally, over 120 were observed

from shore following Hurricane *David* on 5 and 6 September 1979 in the Wrightsville Beach area (Fussell and Allen-Grimes 1980).

Sooty Tern (Sterna fuscata)

Lee's description of this species as an "irregular visitor" (p. 150) ignored the fact that it occurs annually from late May through late September, including annual breeding attempts at Cape Hatteras Point and other coastal sites in the 1980's and 1990's. It is rare to uncommon offshore during May and June, becoming more common as the summer progresses. Peak counts are associated with hurricanes and other major storms. The status of this species may be changing as the number of sightings has increased since the late 1980s.

Lee's (p. 151) bar graph is also misleading. The bizarre late April peak seems to be caused by a single report of 44 birds. This sighting, averaged with the remaining dozen trips on which no individuals were seen, gave an unrealistic late April mean of 3.5-4.0 birds per trip.

Dovekie (Alle alle)

Lee (p. 154) overlooked several recent records, most notably an impressive 257 individuals seen off Currituck Banks on 13 February 1994 (Chat 59:35; Nat. Aud. Soc. Field Notes 48:198).

Razorbill (Alca torda)

Lee was completely wrong when he stated, "With the exception of one sighting 12 miles off Pea Island, all reports of Razorbills in North Carolina have been of birds seen from shore" (p. 154), and "All North Carolina records are of single birds" (p. 154). There are many sightings of multiple birds in the literature. Lee further ignored several reports of this species from pelagic trips, particularly during early 1994, when a tremendous influx of Razorbills occurred in North Carolina waters (see Chat 59:35; Nat. Aud. Soc. Field Notes 48:198). The peak count for the state is now 1184, tallied from shore on 14 February 1994, and the peak offshore count is 516, made on 15 February 1994. This does not include the "between two and three thousand birds" noted offshore by local fishermen on 13 February 1994 east of Hatteras Village to Avon (fide Brinkley, Patteson, and Tove).

Black Guillemot (Cepphus grylle)

Lee overlooked a record of one Black Guillemot seen at Wrightsville Beach from 24 April to about 3 May 1993 (Am. Birds 47:405). This bird was seen by numerous observers, and a written description was accepted by the NCBRC, which added the species to the Provisional List (NCBRC 1994, p. 86).

Discussion

Several of Lee's remarks in the Discussion section also merit comments. Although he acknowledged (p. 155) the contributions of at least eight people to the pelagic data from waters off southeastern states other than North Carolina, he omitted due acknowledgment to several individuals. Most glaring was his failure to recognize the pioneering contributions of Paul DuMont and Robert Ake, who first began organized pelagic trips into North Carolina waters in 1970 and continued to run annual trips through the early 1990's. In his section "Recent Studies and Studies in Progress," he cited only himself and ignored the doctoral research of Todd Hass (Distribution of pelagic birds in relation to water temperature, depth, and food availability), a project conducted in partial cooperation with Lee and the N.C. Museum of Natural Sciences. He also ignored the data generated by the hundreds of trips organized and conducted by ourselves and others over the past 20+ years.

Lee's comments on "local foraging zones" (p. 158-159) were confused. His category "Inshore Waters (15-100 fathoms)" mostly overlapped his category "Shelf-edge (50-100 fathoms)" without explanation. There was no mention of the waters from 100 to 300 fathoms. Additionally, his statement that "No birds typically inhabit" the Inshore Waters zone was unfounded. We regularly find moderate to occasionally large numbers of Cory's Shearwaters, Wilson's Storm-Petrels, and some other species in this zone.

In conclusion, given the frequency and seriousness of errors and omissions in Lee's paper, we consider it an unreliable accounting of the pelagic birds of North Carolina. Additionally, we question the need for this paper at all, as it rehashed his pre-1989 data that have been published elsewhere (Lee 1986a), often in summary form. The lack of new data, inadequate literature review, poor statistical manipulations, and broad inaccuracies should have rendered Lee's paper unworthy for publication.

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