

WATERBIRD COLONIES OF LONG ISLAND, NEW YORK

I. — Introduction

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Long Island has become increasingly a part of urban New York City, and as more and more commercial enterprises move from urban to suburban quarters, the urbanization of the remaining parts of the Island will continue at the present or even at an accelerated pace. It is perhaps remarkable that a number of species of waterbird continue to breed and even thrive on Long Island. A periodic review of the status and population changes of all avian, or for that matter of other vertebrate, species would be desirable. It is, however, now feasible to provide such information for the colonial birds, since these lend themselves readily to surveys. Once a colony is located the population can be estimated, and subsequent observations can be made in following years. Changes in populations of colonial birds are easier to detect than for solitary ones, although care must be taken not to confuse short-termed fluctuations with long-term trends. Moreover, colonial birds are in particular jeopardy since a relatively localized, small-scale project involving draining, ditching, clearing or construction, could eliminate a large number of birds.

There is considerable reason to voice concern over the status of waterbirds of New York. Common and Roseate Terns (*Sterna hirundo* and *S. dougalli*) have shown an increased incidence of certain developmental abnormalities in the past few years (Gochfeld 1971, Hays and Risebrough 1972). These abnormalities are apparently due to one or more environmental contaminants. The New York estuarine system receives industrial and residential effluent from probably 11 million people of New York, New Jersey and Connecticut, and Hays and Risebrough (1972) considered Long Island Sound among the most polluted salt water areas of the world. Use of insecticides in agricultural and residential areas, although recently reduced, has placed a long-lived burden of chlorinated hydrocarbon compounds on the various ecosystems of Long Island. Moreover, the New York metropolitan area is heavily industrial, and high concentrations of mercury and polychlorinated biphenyl compounds, and no doubt many other yet unidentified compounds, are present in local waters.

Chlorinated hydrocarbon compounds have been implicated in reproductive failure, particularly through egg-shell thinning, in a variety of raptorial and fish-eating species (Anderson et al 1969, Hickey 1968, Hickey and Anderson 1968, Blus et al. 1971, Ratcliffe 1970, Cooke 1973). In California, severe eggshell thinning has been associated recently with reproductive failure in Common Egrets *Egretta alba* (Faber et al.

1972) and despite generally increasing populations of egrets and some herons in the Ntw York area, it is important to pay close attention to the productivity of these species. The dramatic population explosion of Glossy Ibis (*Plegadis falcinellus*) and range extension of Cattle Egret (*Bubulcus ibis*), Snowy Egret (*Egretta thula*), Little Blue Heron (*Florida caerulea*) and Louisiana Heron (*Hydranassa tricolor* (Post 1961), may tend to overshadow the marked decline in Black-crowned Night Herons (*Nycticorax nycticorax*) (see Allen 1937).

The reproductive success of Ospreys (*Pandion haliaetus*) has been a matter of considerable concern. The Gardiner's Island colony, formerly probably the largest in the world, declined from 300+ pairs to fewer than 40 (Finch 1970), a decline linked to pesticides by Ames (1966.) In recent years I have found thin-shelled and shell-less eggs in two Common Tern colonies, and the productivity of this species will have to be monitored carefully in the future.

In addition to the hazards posed by chemical contamination, the loss of suitable nesting grounds to various forms of human activities is proceeding rather rapidly on Long Island. Although many nesting grounds of terns, gulls, and herons, are now on reserves or park lands, and free from industrial or residential development, the recreational use of such lands is growing at an alarming rate. New parking lots and beach facilities, have eliminated tern colonies at Jones Beach and Fire Island, while picnics and beach parties have resulted in the failure of other colonies.

The current series of reports will document the present status and recent history of colonies of waterbirds on Long Island. Although much information has appeared irregularly in *The Kingbird* or in *Audubon Field Notes* and *American Birds*, the present reports will attempt to correct some inaccuracies and to demonstrate trends rather than emphasizing the yearly fluctuations. Hopefully such reports will encourage people to monitor the reproductive success of existing colonies and to be alert to new colonies. Although there is already abundant evidence demonstrating the need for environmental protection measures, there is adequate justification for continued monitoring. Not only is it crucial to recognize downward trends, but it is helpful to recognize upward trends, particularly when these follow the enforcement of conservation measures.

The main colonial species nesting on Long Island are the Gulls, Terns and Skimmers (Larilae, Rynchopidae), the Herons, Egrets and Ibis (Ardeidae, Threshkiornithidae) and the Osprey (Pandionidae). The Skimmer and several species of Herons have colonized or re-colonized Long Island in the past 30 years (e.g. Post 1961), and were mainly southern in their distribution. Terns were abundant breeders in the last century, but were nearly exterminated near the turn of the

century for the millinery trade. Their populations have recovered, and seem to be stable in the last decade. However, since Nisbet (1973) has shown that the Massachusetts colonies of Common Terns have declined markedly in the past 30 years, we cannot afford to be complacent about the future of Long Island terns. One Larid species, the Laughing Gull (*Larus atrisilla*) which nested on Long Island until 1890 (Bull 1964) has not been known to breed since, although it is a common migrant. Moreover, its New England breeding population is also declining (Nisbet 1971), and the species no longer nests on its traditional site, Muskeget Island (Finch 1972).

Two northerly species, the Herring Gull (*L. argentatus*) and more recently the Great Black-backed Gull (*L. marinus*) have colonized Long Island, and their populations are continuing to grow as part of what seems to be a world-wide population explosion involving several Gull species. The population expansion of Herring Gulls has been described in detail by Kadlec and Drury (1968). Gulls do prey on nestlings of other species (and on their own as well) (Hatch 1970, Bent 1921, Parsons 1971), but in my experience this is not a major problem on Long Island. They do, however, pre-empt the breeding grounds of terns and smaller gulls (Nisbet 1971). One species, the Least Tern (*Sterna albifrons*) seems to be declining rather rapidly on Long Island (Gochfeld 1973), as it has done elsewhere. One major colony was covered by a parking lot, but another significant factor seems to be interference by beach buggies. It is apparent that the populations of many of our colonial species are in a state of flux, and it is these changes that the present series of reports should document.

Since 1964 I have studied terns in colonies in the Jones Beach State Park area of Nassau County and adjacent Suffolk County. I have examined various aspects of the life history of several species, and in addition I have banded large numbers of young to study their survival rates and factors causing and influencing mortality (Gochfeld 1966, 1971, 1973, in press). More extensive work has been conducted by the Gull Island Committee of the Linnaean Society of New York on Great Gull Island off Orient Point, and much of this work has been discussed by Neilbrun (1970), Pessino (1970), Cooper et al 1970, and Hays (1970.) Many other field workers have conducted studies at other colonies: Ospreys (D. Puleston), herons and ibis (H. Hays, T. H. Davis), Common and Roseate Terns (H. Hays, M. LeCroy, J. Greenlaw, J. Grafton, R. Kremer), Herring and Great Black-backed Gulls (D. B. Ford), Least Terns (D. Duffy), and this is only a partial list of the most recent investigations. Perhaps the most extensive current studies of tern biology are being conducted by Dr. I.C.T. Nisbet in colonies in Massachusetts.

During my field work I have seen the rise and decline of a number

of colonies. Even within a single season there is considerable inter-colony movement of breeding terns, particularly after a first nesting attempt has been thwarted. Thus measuring the overall population of breeding terns, requires work at several colonies during a single season.

Hopefully other persons who have worked in waterbird colonies will be able to contribute similar reports to this series. These reports can be updated by annual accounts. Not only are our fish-eating birds closely depend on the preservation of the estuarine ecosystem, but most commercially-sought fish are either directly or remotely estuarine-dependent. Thus data contributing to the preservation of this ecosystem has far-reaching implications.

My first reports, which will start with the May, 1974, *Kingbird*, will concern colonies in the Jones Beach area.

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