

OBSERVATIONS ON THE GULLS OF THE CAPITAL DISTRICT OF NEW YORK

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The Ring-billed Gull (*Larus delawarensis*), the Herring Gull (*L. argentatus*), and the Great Black-backed Gull (*L. marinus*) are nearly perennial avian features of the Tri-City Region of New York. All depend to some degree on the dozen or so landfills of the region, the annual migrations of the Blue-backed Herring (*Alosa aestivalis*), and open waters maintained by hydropower dams and water falls in deep winter. But changes are underway: the landfills are closing; the Mohawk Barge Canal is shifting from commercial to recreational use, potentially impacting the movement of herring; greenhouse gases are increasing, with possible influence on climate; the Zebra Mussel (*Dreissena polymorpha*) appeared in the Hudson and Mohawk Rivers during 1990-1991; the construction of a major coal-burning power facility is planned for the region; and gulls are assuming the more sensitive role as disease vectors (Benton *et al.*, 1983; Butterfield *et al.*, 1983; Fenlon, 1983; Girdwood *et al.*, 1985). Coupled with the fascination inherent to the Laridae and the paucity of published accounts of this group in the Tri-City Region, this two-year study is both a comparative baseline and a contribution to the more general ornithology of the three species involved.

MATERIALS AND METHODS

Nineteen sites along the lower reaches of the Mohawk River and at its confluence with the Hudson River were surveyed (usually weekdays) fortnightly from January 1991 to January 1993: Rexford Bridge, Mohawk River Overview, Vischer Ferry Dam/Lock 7, the river view from Ferry Drive, Vischer Ferry Nature and Historic Preserve, Wager's Bay, the bays at Clam Steam Marina, Crescent Boat Club, Mohawk River Reach west of the Route 9 bridge north of Long Island, Colonie Landfill, Crescent Pool, Crescent Dam-School Street Power Station Pool, Cohoes Falls, Cohoes Commons, 'The Waterfield' below the dam at Route 32, Waterford Flight, Champlain Barge Canal Locks 1 and 2, and the north end of Tomhannock Reservoir as viewed from the Troy Water Works. Tomhannock Reservoir serves more than one hundred thousand people of Troy and vicinity. These sites cover about sixty percent of the total surface of the the Mohawk River from Schenectady to the confluence with the Hudson River at Cohoes and Waterford, providing a reasonable sample of the daytime gull populations present in the lower Mohawk

River Valley. Surveys of Tomhannock Reservoir, as will be seen, allows estimation of Ring-billed Gull and Herring Gull numbers present overnight during the ice-free months.

At each site a standard form was used to list species, numbers, movements, interactions, and other behavior. Air and water temperature, percent cloud cover, visibility, wind direction and speed, precipitation, river levels, day length, time of sunset, and water surface action were also recorded. Binoculars (both 8x40 and 10x50), and spotting scopes (Bushnell Spacemaster 15-45x50 mm and Kowa 20-60x60 mm) were routinely used. The formal beginning of the survey followed a one year preliminary period during which we established the sites and methods.

With practice, the observers developed skill in counting by fives, greatly expediting estimation of large flocks. Regardless, an error of about ten percent was evident for larger numbers as based on a comparison of counts made independently by different members of the team. Counts at Tomhannock Reservoir were a composite of a flock estimate on arrival and direct counting of birds which mostly flew over the observation site. Arrival at Tomhannock Reservoir occurred from one half hour before to one half hour after sunset. Observation was concluded at last light as marked by the appearance of Jupiter and Venus. On cloudy evenings the corresponding time was estimated. Most arrivals were complete at these times.

Small numbers of Glaucous (*Larus hyperboreus*), Iceland (*L. glaucooides*), Lesser Black-backed (*L. fuscus*), Laughing (*L. atricilla*), and Bonaparte's gulls (*L. philadelphia*) were also found during the study period. They are not reported in this study.

This survey was done in conjunction with an ongoing daily survey of Collins Lake, Scotia, New York, located west of the study area.

RESULTS

Two complete years of data are presented. Site totals for all gulls, exclusive of Tomhannock Reservoir, provide a pattern for seasonal use of the rivers by gulls (Fig. 1A). Counts of gulls arriving at Tomhannock Reservoir for each survey date measure the size of populations present overnight during the warmer months (Fig. 1B). The two data sets complement each other and illustrate the same trends: There are few birds in January and early February (A), followed by a peak of more than nine thousand birds in late February and early March on the river sites (B). April through July are marked by a sharp decline (C) and then there is a steady buildup of birds to a peak in October for the river sites (D). Data for Tomhannock Reservoir corresponds but with smaller numbers overall, and gulls are absent during periods of ice cover and from mid May through early June.

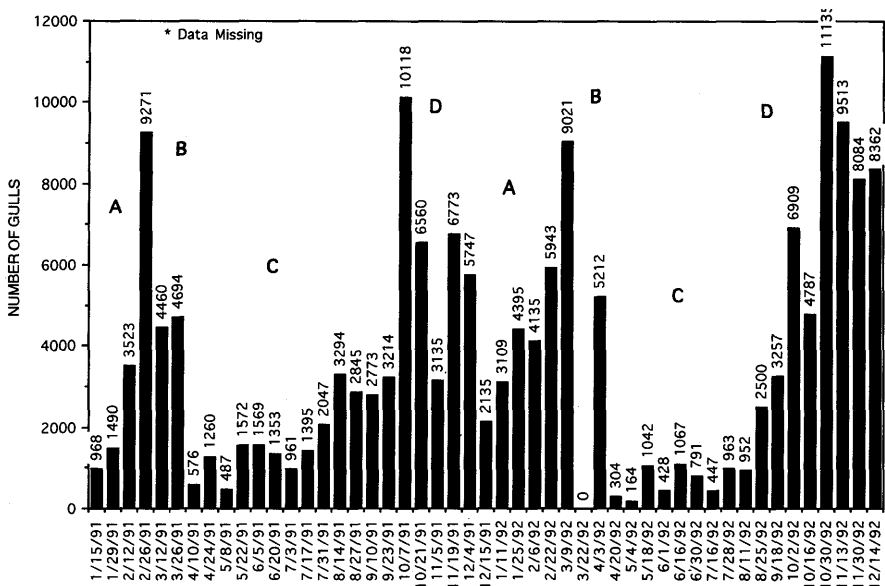


Figure 1A. Total number of gulls surveyed on the lower Mohawk River, Capital Region, New York, 1991-1992.

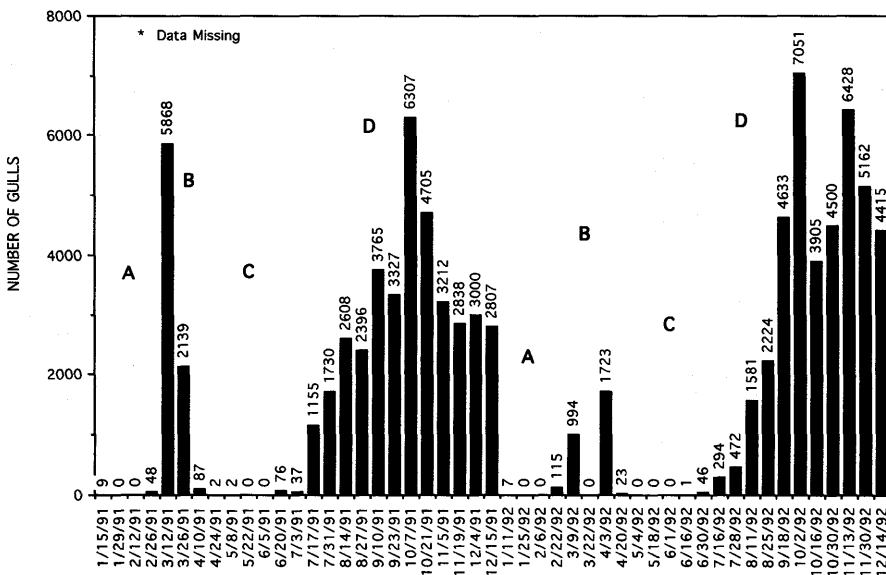


Figure 1B. Total number of gulls surveyed at Tomhannock Reservoir, Rensselaer Co., New York, 1991-1992.

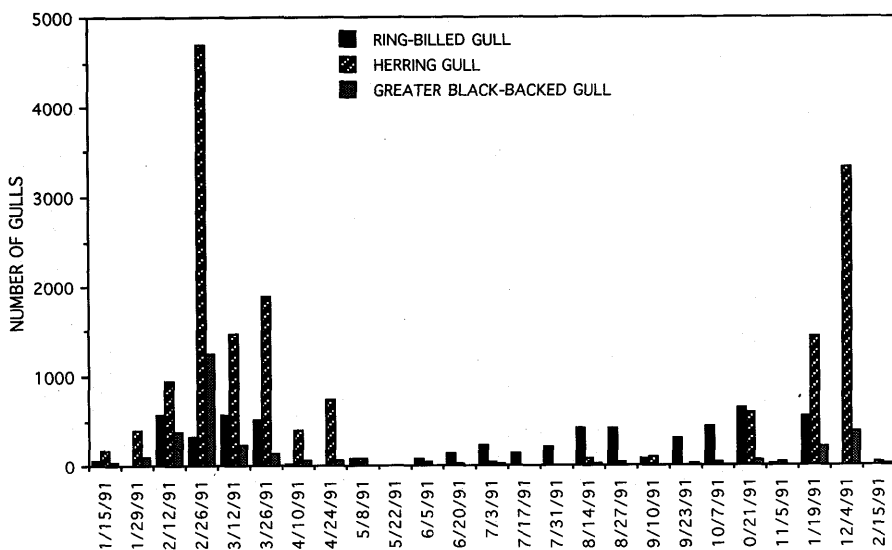


Figure 2A. Incidence of gulls at Crescent Pool-Colonie Landfill, Albany and Saratoga Cos., New York, during 1991.

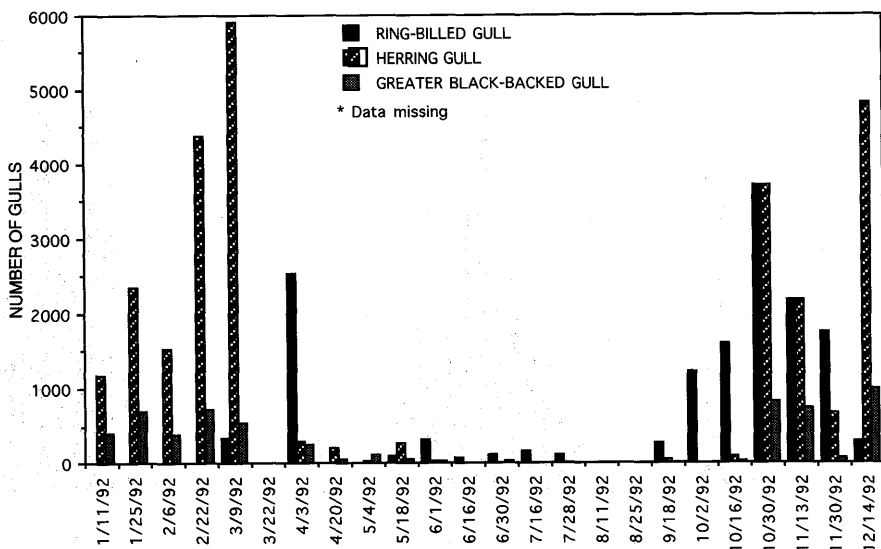


Figure 2B. Incidence of gulls at Crescent Pool-Colonie Landfill, Albany and Saratoga Cos., New York, during 1992.

Of the nineteen survey sites, we chose three to best describe seasonal trends. These have a large number of gulls and varied greatly over the year. Colonie Landfill and Crescent Pool, are combined to constitute a single data set because of their proximity and the continual movement of gulls between them. The third site, the 'Waterfield,' lies at the base of a power dam and often has many exposed perches. The two data sets differ greatly.

There are a large number of Herring Gulls at the Crescent Pool-Colonie Landfill from late January through early April with a peak occurring in late February. This is followed by a long summer hiatus. In early October there is a great influx, which persists until December. Most of the birds are Ring-billed (including juvenile birds) and Herring Gulls (Fig. 2A, 2B).

From January to early May there are relatively fewer gulls at the 'Waterfield.' During May and June there is a marked increase in the number of Great Black-backed Gull, followed by a large influx of Ring-billed and Herring Gulls from mid July until mid October. Herring Gull persists through November and December, while there is a sharp decline in the number of Ring-billed Gull (Fig. 3A, 3B).

In early May adult Blue-backed Herring begin to move up the Hudson and into the Mohawk River by lockage through the Waterford Flight and other locks. By the end of July juvenile herring, along with returning adults, begin their migration back to the Atlantic Ocean. The downriver movements continue into early October. The locks are closed for the winter in early December. As the Blue-backed Herring move down river, many of them pass through turbines of power dams where they are stunned and killed, providing the gulls with an easy meal.

Consistently, gulls of all three species depart eastwards from Collins Lake and other staging areas in the upper Mohawk Valley in the late afternoon to reassemble in staging areas in the lower reaches of the river. At sunset most gulls depart these sites northeastward towards Tomhannock Reservoir, where they arrive at the north end from the southwest and west. Inspection of our survey sites on the rivers at night using binoculars and spotting scopes usually reveal no gulls. The exceptions consist of Great Black-backed Gull perched on gravel piles and areas of base rock emerging from the water at 'The Waterfield' and the docks at the marina southeast of the Rt. 9 bridge. Very few Great Black-backed Gull spend the night at Tomhannock Reservoir.

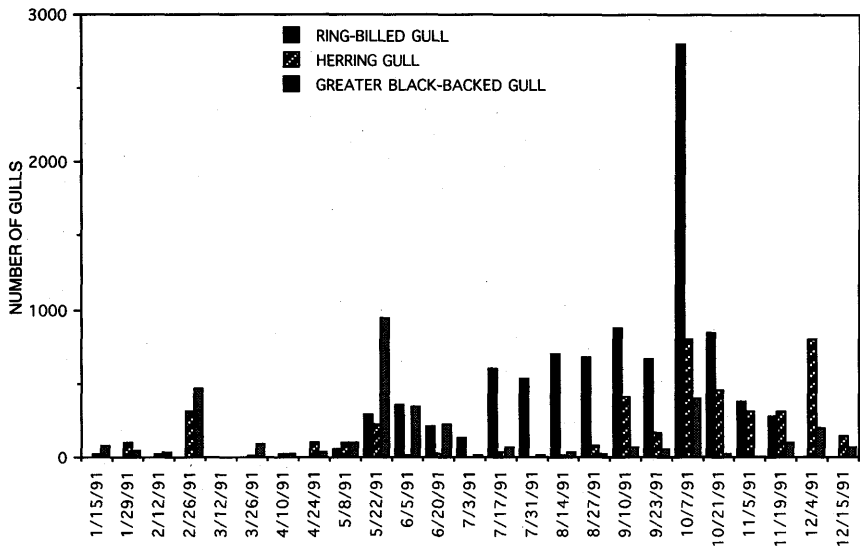


Figure 3A. Incidence of gulls at 'The Waterfield,' Albany and Saratoga Cos., New York, during 1991.

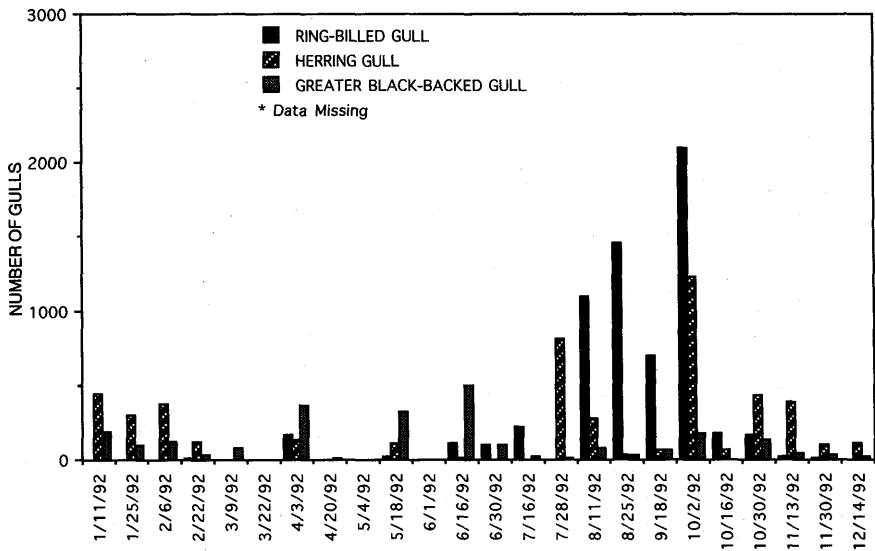


Figure 3B. Incidence of gulls at 'The Waterfield,' Albany and Saratoga Cos., New York, during 1992.

Gulls use the same flight corridor to arrive at the northwest end of the reservoir on an easterly bearing. In 1992 we noticed that there was also a loose column of gulls arriving low over the water from the northwest, and on two occasions we observed a third group of birds which drifted in from the northwest to join the primary group of birds. In any event, the gulls arriving from the west usually comprise at least ninety per cent of the gulls present.

Gulls arrive using either flapping or gliding flight. On days with little to no wind (except on very cold days) the gulls arrive in a high glide, apparently taking advantage of thermals at various staging areas in order to attain a height allowing them to glide to the reservoir. At 'The Waterfield', in particular, we observed the gulls thermalling upwards to several thousand feet and departing west-northwest, taking them directly to the reservoir; on windy days and cold days, regardless of direction, gulls arrive at the reservoir in a low flapping flight.

As the gulls arrive many flip and roll or make a series of quick, sharp banking turns, called *whiffling*, resulting in a dramatic flashing of the white undersides and a loss of altitude, and often followed by a return to their previous altitude. On windy days gulls at the downwind end of the raft lift and stream to windward, maintaining the position of the raft; *caterpillaring* is a descriptive term. *Snowflaking* occurs when the birds become tightly packed within the raft and explode upwards, at times to several thousand feet, swirling and wheeling, to resettle more loosely. Snowflaking is more frequent during warmer days early in their residency, when the gull raft is being reestablished (as if the birds are imprinting on the site).

DISCUSSION

There is an annual cycle of gull activity in the eastern Mohawk and northern Hudson valleys of New York State. Several factors contribute to the seasonal transitions of populations of the three numerically dominant species: passage to and from nesting areas, food, and weather, including ice cover.

January and February are marked by a near absence of gulls at Tomhannock Reservoir, yet there are 1,000 to 9,000 gulls in the region during this period. The rivers are ice-bound, except for a few places in the vicinity of power dams (e.g., Vischer Ferry, Crescent, School Street and Adirondack) which provide fairly large areas of open water. Tomhannock Reservoir is frozen except for one small opening maintained by waterfowl, and the gulls concentrate at the landfills and the open waters of the adjacent river: Niskayuna landfill-Vischer Ferry dam and Colonie landfill-Crescent Pool

The Colonie Landfill is near Crescent Pool and there normally is a great number of gulls moving between them. The landfill is an important feeding area for the Great Black-backed and Herring Gulls during the winter months. The smaller Ring-billed Gull apparently are unable to withstand the harsh winter conditions and to compete with their larger congeners, and they move to milder coastal areas along the seaboard.

During March and April there is a dramatic increase in the number of gulls at Tomhannock Reservoir, the result of two important factors: the reservoir thaws providing open water for overnight roosting, and Ring-billed Gull begins its spring migration from coastal areas to breeding grounds in the St. Lawrence Valley and the Great Lakes. This is illustrated at both 'The Waterfield' and Colonie Landfill-Crescent Pool. Ring-billed Gull numbers increase and fall off sharply as they move through the region.

Following passage of the Ring-billed Gull, there is period during late spring and early summer when few, if any, are found at Tomhannock Reservoir, although a significant number of immature Herring and Great Black-Backed Gulls remain in the region. This supports our vespertine observations in that a majority of the gulls that spend the night at the reservoir are Ring-billed Gull. The small number of Ring-billed Gull that do remain in the river valleys are immature birds.

During late May and early June there is an increase in the number of Great Black-backed Gull at 'The Waterfield'. This corresponds to the opening of the locks along the Mohawk River, which allows for the spring spawning migration of adult Blue-backed Herring. The closed locks cause the herring to pile up in these areas, making them easy prey for the Great Black-backed Gull and, to a lesser extent, the Herring Gull. There is a subsequent decline in the number of gulls found at the Landfill-Crescent Pool. The use of landfills as feeding sites is primarily a winter or cold-weather phenomenon.

From mid July to early October, there is a notable influx of gulls at Tomhannock Reservoir and the two river valleys. Most of the incoming birds are Ring-billed Gull returning from their breeding grounds, accompanied by juvenile birds. The presence of the newly fledged young probably accounts for the higher total number of Ring-billed Gull than earlier in the year.

Ring-billed Gull, as well as Great Black-backed and Herring Gulls, tend to gather at the Waterfield and similar sites such as Cohoes Falls

and Crescent Dam/School Street Power Station, rather than at the Colonie Landfill-Crescent Pool, attracted by the fall migration of the young-of-the-year Blue-backed Herring. On their way back to the Atlantic Ocean the young herring must pass through the turbines of power dams where they are stunned or killed to benefit the gulls. We have observed the gulls feeding on herring on many occasions.

Late summer and fall is the time of year when upwards of 7,000 gulls arrive at Tomhannock Reservoir to roost overnight. A majority of these are Ring-billed Gull, but recently we have noted that a small percentage of the birds are immature Herring Gull. The resulting flocks congregate in tight rafts well away from shore. The presence of the immature Herring Gull may be dependent on the presence of older, more experienced Ring-billed Gull.

With the onset of winter the number of gulls in the river valley and overnight roosts at Tomhannock Reservoir declines. Decreasing temperatures push Ring-billed Gull to the milder coastal areas; the Mohawk River migration of the young Blue-backed Herring subsides and many of Great Black-backed and Herring gulls follow the fish southwards in the Hudson Valley (Smith 1985).

The majority of the gulls that remain in this region at the end of the calendar year, mostly Herring and Great Black-backed Gulls, shift from areas providing access to Blue-backed Herring, and move to the landfills to join thousands of starlings and crows. With the freezing of Tomhannock Reservoir the remaining gulls are excluded and shift to the open waters of the Adirondack, Crescent, Vischer Ferry, and School Street Power Stations, and the cycle continues.

A central observation is that the gulls leave their feeding and resting sites along the rivers in mid to late afternoon and concentrate overnight in large rafts at Tomhannock Reservoir and the upper reaches of the Hudson estuary. Typically the daily regime involves a westwardly morning flight bringing them to feeding sites soon after dawn and an eastwardly flight in the afternoon back to regional overnight roosts. We wonder if other 'gullsheds,' such as those centering on Wachusett Reservoir and Quabbin Reservoir in Massachusetts experience a similar pattern of gull movements.

CONCLUSION

Two years of data characterize the cyclical movements of three gull species in the Capital Region in response to the seasons and the availability of food in landfills and the migrations of the Blue-backed

Herring. Featured is the diel movements of gulls between landfills and a major public water supply reservoir, conservatively nine thousand birds in 1991 and eleven thousand in 1992. Populations of the three species have grown dramatically from the time of W. W. Judd (1907), and it will be fascinating to follow the changes from this baseline inevitably linked to the closing of landfills and regional development.

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