Gull Behaviour and Movement Patterns at Maple, Ontario

by
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Introduction

Ring-billed Gull (*Larus delawarensis*) populations have dramatically increased on the Great Lakes (Ludwig 1974) and particularly on the Leslie Street Spit in Toronto. Steers (1979) reported that gulls initiated nesting on the spit in 1973 when 10 pairs of Ring-billed Gulls nested. In 1976, 10 382 pairs of Ring-billed Gulls nested, along with 12 pairs of Herring Gulls (*Larus argentatus*), 1246 pairs of Common Terns (*Sterna hirundo*) and 4 pairs of Caspian Terns (*S. caspia*) (Blokpoel 1977; Fetterolf and Blokpoel 1977). This Ring-billed Gull breeding colony continued to increase annually and comprised approximately 67 000 pairs in 1981 (W.E. Southern, pers. comm.).

The purpose of this study, conducted in 1981, was to determine the existing number of gulls and their behaviour in the vicinity of Maple, Regional Municipality of York, Ontario, and to assess the hazard they posed to aircraft. A new landfill site was proposed north of the town, which would handle a large portion of Metropolitan Toronto's wastes. The Maple Airport is located immediately adjacent to a seasonally operated theme park (Canada's Wonderland), and there was concern that gulls flying between the amusement park and the landfill site could be a hazard to aircraft. A landfill site serving the local area was operating north of the proposed landfill at the time of the study.

Methods

Observations of gulls were made from a car parked on the north side of Major McKenzie Drive at the end of one of Maple Airport's runways. The study area was a rectangle defined by Jane Street on the west, the first fenceline north of Major McKenzie Drive, the trees along the headwaters of the Don River on the east and the woodlot south of the airport (Figure 1).

All gulls seen within this area were recorded, as was the time, the number of gulls in each flock, their approximate altitude, and the direction of flight. When possible, their origin and destination were recorded, as were any other behavioural

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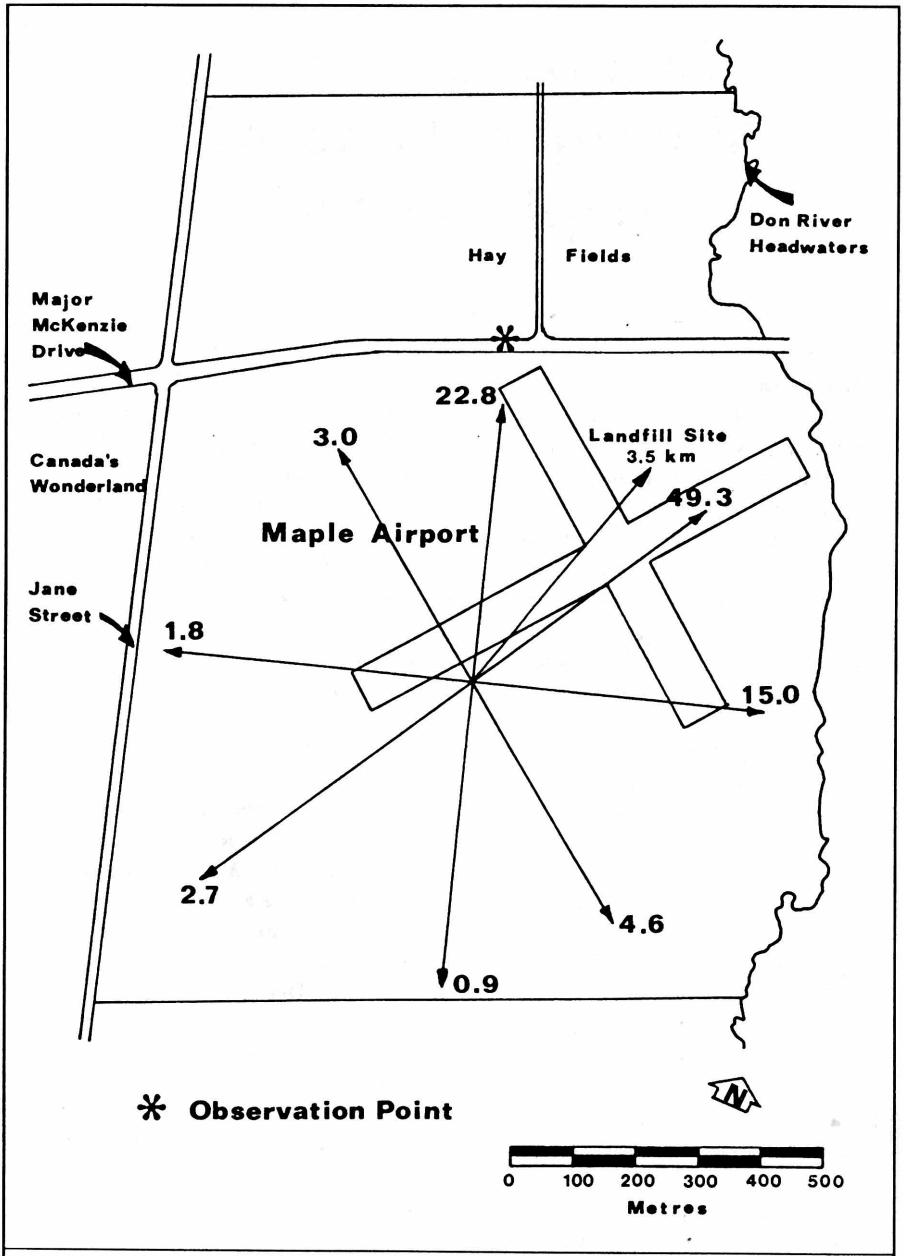

Figure 1: Morning movements of Ring-billed Gulls at Maple Airport, 10 July–15 October 1981. The numbers at each directional arrow indicate the overall percentage of gulls that were observed flying in that direction.

patterns that were of significance.

Observations began at, or shortly before, dawn and lasted a minimum of three hours. In the first four observation periods, an evening watch of two and a half to three hours was conducted before dusk. Observations were made on a total of 14 days, starting on 10 July 1981. After 23 July, observations were conducted at weekly intervals, until 15 October.

The number of take-offs and landings at the airport was recorded during the observation period to determine possibilities of aircraft-gull collisions. Collisions, near-collisions and potential problems were also noted, and the number of birds landed on the ground within the study area were recorded.

When it became apparent that gulls were roosting overnight in the study area, frequent pre-dawn visits were made to Canada's Wonderland and occasional notes were made on pre-dawn gull populations in the existing and proposed landfill sites nearby.

Results

Gull Activity Around the Airport

Gulls were most active in the morning, particularly during the first hour after dawn. The number of gulls observed at the airport in mornings ranged from 6 to 391. Maximum numbers were seen in July, with sightings gradually tapering off to a minimum observed on 15 October. The total number of gulls seen during the morning counts was 1693, an average of 121 per morning. During July, 189–391 gulls were seen per morning (~277); in August, 34–173 were seen (~97); in September, 60–102 were seen (~74); and in October, 6–110 were seen (~60).

As many as 150 gulls were seen during the first hour of daylight. During July and August, 40–60% of all gulls seen appeared in the first hour. In September and October, gulls stayed active into the second hour of daylight; occasionally more were seen during the second hour than the first. Gull movement dropped off as the day continued so that by the third hour of daylight, gull activity was negligible.

Gulls landed on the airport during 11 of the 14 morning observation periods, with a maximum of 54 recorded at one time. On the airport, gulls foraged on freshly-cut grass or loafed on the runways. They generally ignored airport traffic, moving casually out of the way of aircraft and then returning. On 13 August, an aircraft landed, hitting and killing a gull that was slow in getting off the runway. There were several other near-collisions observed during the study.

The hay fields situated just north of the airport were a favoured foraging spot, particularly shortly after the hay had been cut. Gulls landed during five of the morning observation periods, with a maximum of 243 being present at one time. While in the fields, gulls were constantly observed flying up, circling around the field at an altitude of 5m or less and dropping into

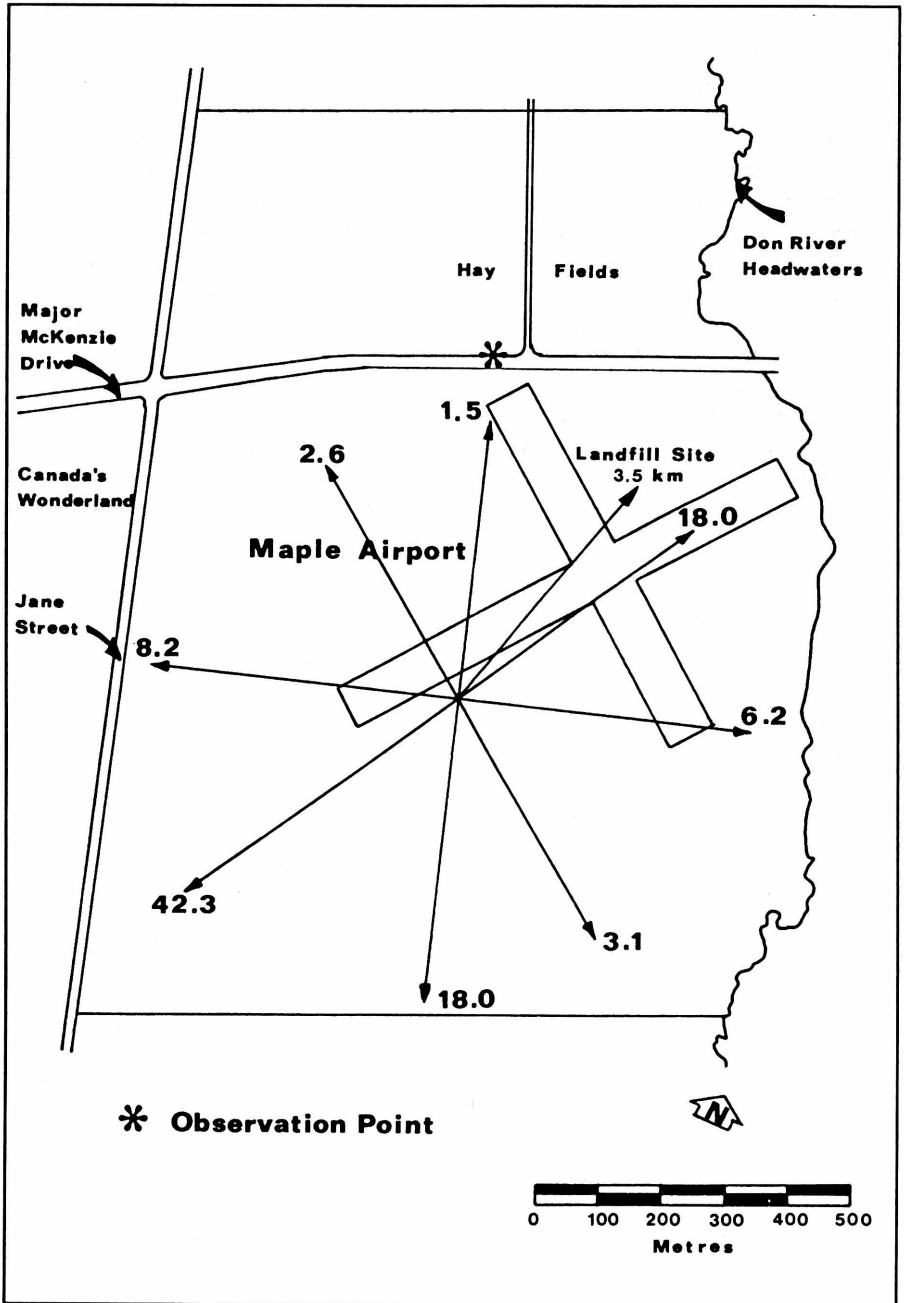

Figure 2: Evening movements of Ring-billed Gulls at Maple Airport, 10 July–15 October, 1981.

another location. Maximum activity was during the first two hours of daylight, with most leaving by the third hour. None was observed in the hay fields after 27 August.

Most mornings flocks of gulls were small, comprised of only two or three birds, but flocks of 10 were common. Larger flocks occurred in July, when a maximum of 54 was seen flying together. The mean number of birds per flock was 3.0.

In the mornings, most birds (49.3%) were heading in a northeast direction, the approximate direction of the landfill site (Figure 1). The directions north, northeast and east constituted 87.1% of the morning flight directions. Most of the eastern flights were of gulls coming from Canada's Wonderland and landing directly on the airport. Birds also came into the study area from the south, possibly from Lake Ontario.

Evening Activity

Evening gull activity around the airport was light, so that only four sets of observations were made. A total of 194 birds was seen in the evening, an average of 49. From 32 to 90 gulls were seen during a single observation period.

No gulls were observed landing on the airport in the evening and only five were seen landing on the hay fields. Most observations were of single birds, although one flock of 28 was seen. In the evening, the dominant direction of flight was southwest (42.3%) with the majority of birds returning to Canada's Wonderland (Figure 2).

Loafing

In the afternoons, gulls loafed in a variety of sites around Maple. The preferred area was the existing landfill, where a total of 1099 gulls was counted, representing 34.1% of all observations made during this phase of the study.

The parking lots at Canada's Wonderland had the second highest count of afternoon gulls, 898 (or 28.2% of the total). This area was not checked on the first day of the study, so that this total was probably higher. There was a noticeable decline in gull use of Canada's Wonderland after it was closed for the season on 10 September.

The proposed landfill site became attractive to loafing gulls after a heavy rainstorm in early August created ponds. The count here totaled 710 gulls (22.1%), with gulls being present on nine of 14 observation periods.

Other loafing and foraging spots were fields that were being ploughed and cultivated fields that had been planted to fall wheat. Six fields accounted for 512 afternoon gull sightings, or 15.6% of the total.

Daily numbers of gulls observed during afternoon counts ranged from 44 to 641 (~230). There appeared to be no seasonal trend in the number of gulls present, as counts fluctuated sporadically from one week to the next. Some weeks there may have been more attractive feeding sites that lured the gulls out of the study area.

Roosting
Pre-dawn counts revealed that almost 600 gulls were roosting overnight at Canada's Wonderland when it was open daily. Once the park was open only on weekends or closed for the season, the parking lots were abandoned as a roosting site.

Numbers and Species of Gulls
It was difficult to estimate the total number of gulls present in the study area at any given time. There appeared to be 600–700 gulls in the study area until mid-September, although this is a conservative estimate, as many gulls left the study area during the first hour of sunlight. By 8 October, there were about 400 and a week later when the study was terminated, approximately 200.

Almost all of the gulls observed were Ring-billed Gulls. Not all gulls could be positively identified to species, as many were seen at a distance and it was not possible to check all gulls in flocks. Herring Gull was the only other gull species positively identified during this study. A total of 11 was observed from 16 June to 13 August. The Herring Gull population appeared to be quite small and represented 0.5% or less of the total gull population.

Airport Traffic
Airport traffic was generally light during the observation periods. However, all observations were conducted on weekdays and weekends were busier. Only one aircraft landed during the first hour of daylight throughout the study. This represents 0.5% of the 191 take-offs and landings recorded during the morning observation periods. During this same period, 40.4% of the gull activity occurred, with an average of 49 gull sightings per hour. In the second hour of daylight, there were 12 take-offs and landings (6.3% of total) and 529 gulls were observed (31.2% of total); an average of 38 gulls per hour. The maximum number of gulls seen during the first hour was 157, while 135 was the most seen during the second hour. Evening aircraft traffic was considerably heavier. In four evenings, 508 take-offs and landings occurred, compared to 191 in 14 mornings. However, evening gull activity was negligible, averaging approximately 13 sightings per hour.

Conclusions

Gulls were abundant in the vicinity of the Maple Airport. Considerable numbers of gulls flew through critical air space, and they often landed on runways, the mowed grass of the airport, and the hay fields immediately north of the airport.

Although peak times of gull activity did not coincide with periods of heavy air traffic, there remains some potential for aircraft-gull collisions. One such collision was observed, as were a number of near misses.

Canada's Wonderland's parking lots were preferred overnight gull

roosts until the park closed. At daylight, gulls dispersed from the park, primarily in a northeast direction to the existing landfill site or other preferred foraging sites such as ploughed fields, hay fields or the airport. Many gulls also remained to feed and loaf at Canada's Wonderland.

Behavioural patterns of gulls at Maple were similar to those reported in other studies. Southern (1976) reported that Ring-billed Gulls do not leave the breeding range immediately after leaving the colony, but gradually disperse. Starting in July and continuing through mid-October, they drift southward, with the mean distance between the colony and recovery sites gradually increasing with time. This is consistent with the steady decline in gull numbers at Maple as the season progressed.

Gilbertson (1975) found that Herring Gulls tended to stay in the immediate vicinity of the nesting colony and did not migrate out of the area. This may explain their relative rarity at Maple.

Gulls are opportunistic feeders. In addition to fish, they eat garbage, worms and insects. They have been observed hawking insects in flight, following tractors during ploughing and picking worms off pavement (Mueller and Berger 1965; Blokpoel 1976; Kirkham and Morris 1979). In this study, they were probably gleaning and hawking insects in the freshly cut hay fields and the airport grass. On the runways, they may have simply been loafing, or eating worms which had crawled out onto the pavement.

Acknowledgements

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