

## NOTES AND OBSERVATIONS

### Interactions Between Gulls and Predatory Diving Birds (Loons and Cormorants)

This report is a follow up to my observations of the simultaneous predation by loons and gulls on the same aquatic animals of Lake Champlain in the year 2014 (Klein, H. G. 2015. A Multi-species Feeding Aggregation Involving Gulls and Common Loons on Lake Champlain. *The Kingbird* 65: 103-105). Two hypotheses were suggested regarding the relationships between the Common Loons and the gulls (Ring-billed, Herring, Great Black-backed, and Bonaparte's). One was that the plunge-diving and surface-diving of the gulls on the subsurface prey animals (presumably small fish) was simply coincidental with the feeding of the loons on these prey animals that had independently ventured to the surface of the lake. An alternate hypothesis was that the underwater activity of the loons was the cause of the effect, in that prey animals were induced to the lake's surface where they were vulnerable to predation by the gulls as well as by the loons. As reported here, the result of my more focused observations (in 2015) on the behavior of the loons and gulls lends more credence to the second hypothesis.

The 2015 observations reported here occurred at the same place and under similar conditions as those of 2014. The most concentrated study period was 6-8 October 2015, covering about a dozen intermittent observations during a total of seven hours. Observations were made at a variable distance of about one mile through a Kowa 20X-60X zoom telescope.

The gulls were mostly Ring-billed Gulls, with small numbers of Great Black-backed and Herring Gull at times. The divers were always at least one (and possibly two, at times) Common Loons. On some occasions one Double-crested Cormorant was an unexpected participant; its role was unclear.

In the following general summary, the activities seen were similar to those reported for 2014. A swarm of gulls, hovering above and plunge diving into a small area of water surface, was correlated with the presence of a loon or two (plus sometimes a cormorant) in the water below. Amid much splashing, the loons were mixed in with the plunge- and surface-diving gulls, all species apparently attempting to feed on the prey animals just below the water's surface. This activity would start quickly and end abruptly, depending on whether or not the loons continued to dive, a presumptive cause and effect.

Specifically, there were some episodes that were visible in enough detail to further clarify the elements of cause and effect. Typically in these instances, a loon floating at the surface, with some gulls floating nearby, would dive. About 20 seconds later the gulls would rise from the water and hover and plunge dive at the place where the loon had risen close to the surface. All species appeared to be feeding on an abundant prey population. This scenario was seen a number of

times and supports the hypothesis that the diving and underwater activity of the loons was causing the ensuing swarming and diving of the gulls.

In another incident, a loon was floating some distance from a large concentration of gulls floating at the surface (the aftermath of a recent swarming). A few gulls were near the loon; it dove and soon these gulls rose into the air and began plunge diving where the loon had dove. Presently, a glimpse of a loon was seen among the splashing gulls. Moreover, nearby gulls immediately flew over and joined in the general predatory behavior. From this, and many other similar observations, it appears that the gulls realized that a feeding opportunity was imminent. They were quick to react by joining the feeding frenzy.

In conclusion, my study of the interaction of loons and gulls in exploiting a food source leads me to believe that the loons were causing a prey species (presumably small fish) to become vulnerable to gulls at the surface of Lake Champlain. An interesting question is, "What were the loons doing underwater that caused the fish to rise to the surface?" A conservative explanation might be that the loons were simply pursuing a school of small fish whose instinctive collective behavior was to flee toward the water surface when attacked by a predator.

An additional note: Although this report (and the Klein 2015 note) focuses on the underwater activity of the Common Loon, other predatory diving birds should be mentioned. In addition to Double-crested Cormorant, Common Merganser (and probably Red-breasted Merganser) may have the same four gull species (mostly Ring-billed) associated with them. Very often, gulls are seen floating near cormorants and mergansers, seemingly waiting for a feeding opportunity to occur. (In this study mergansers were not seen participating in the swarming, diving behavior of gulls.) Occasionally, gulls (again, mostly Ring-billed) were seen agitatedly flying about in wide circles above a flock of actively diving cormorants. The gulls dove down to the water surface and appeared to be picking up something there, presumably small fish. Sometimes a gull appeared to be aggressively snatching something from the bill of a cormorant. This activity may continue for several hours and then gradually taper off, with fewer cormorants diving.

The common thread that occurs throughout these observations of loons, cormorants, and gulls is that the underwater activity of the predatory aquatic birds is the causative factor and the resulting predatory behavior of the gulls on a prey population made vulnerable by the underwater activity of the diving species.

**Harold G. Klein**, 185 Stafford Drive, Plattsburgh, NY 12901