

Species Status Assessment

Class: Birds
Family: Gaviidae
Scientific Name: *Gavia immer*
Common Name: Common Loon

Species synopsis:

The common loon breeds on freshwater lakes and ponds in Canada and the northern fringes of the United States; wintering occurs along both coasts. Populations are expanding across the range. In New York, the population is centered in the Adirondack region, though a small number of breeding records have been confirmed in western and central parts of the state as well. The state's breeding distribution has expanded in all directions since the 1980s when a survey was conducted on 500 water bodies in the Adirondack Park. The Adirondack population has been monitored annually since 2001 and has almost doubled in the past thirty years. Despite continuing threats from shoreline development, recreation, pollution, and contaminants, New York's population appears to be stable for the period 2001-2011.

I. Status

a. Current Legal Protected Status

- i. **Federal** Not Listed **Candidate:** No
- ii. **New York** Special Concern; SGCN

b. Natural Heritage Program Rank

- i. **Global** G5
- ii. **New York** S4 **Tracked by NYNHP?** Yes

Other Rank:

IUCN Red List – Least Concern

Status Discussion:

Common loon is a common breeder in the Adirondacks and rare elsewhere in the state, though breeding was confirmed in Chautauqua, Schuyler, and Onondaga counties during the second Breeding Bird Atlas (2000-05). Common loon is ranked as Secure in Ontario and Quebec and as Apparently Secure in New York. In Vermont and Massachusetts it is ranked as Imperiled, and in Massachusetts it is ranked as Critically Imperiled.

II. Abundance and Distribution Trends

a. North America

i. Abundance

___ declining X increasing ___ stable ___ unknown

ii. Distribution:

___ declining X increasing ___ stable ___ unknown

Time frame considered: 1999-2009

b. Regional

i. Abundance

___ declining X increasing ___ stable ___ unknown

ii. Distribution:

___ declining X increasing ___ stable ___ unknown

Regional Unit Considered: Eastern BBS

Time frame considered: 1999-2009

c. Adjacent States and Provinces

CONNECTICUT (winter) Not Present _____ No data _____

i. Abundance

___ declining X increasing ___ stable ___ unknown

ii. Distribution:

___ declining X increasing ___ stable ___ unknown

Time frame considered: 1999-2009

Listing Status: _____ Special Concern _____ SGCN? Yes

MASSACHUSETTS Not Present _____ No data _____

i. Abundance

___ declining X increasing ___ stable ___ unknown

ii. Distribution:

___ declining X increasing ___ stable ___ unknown

Time frame considered: 1999-2009

Listing Status: _____ Special Concern _____ SGCN? Yes

NEW JERSEY (winter) Not Present _____ No data _____

i. Abundance

___ declining X increasing ___ stable ___ unknown

ii. Distribution:

___ declining X increasing ___ stable ___ unknown

Time frame considered: 1999-2009

Listing Status: _____ Not Listed _____ SGCN? No

confirmations of breeding at central and western New York lakes: Chautauqua, Keuka, and Skaneateles.

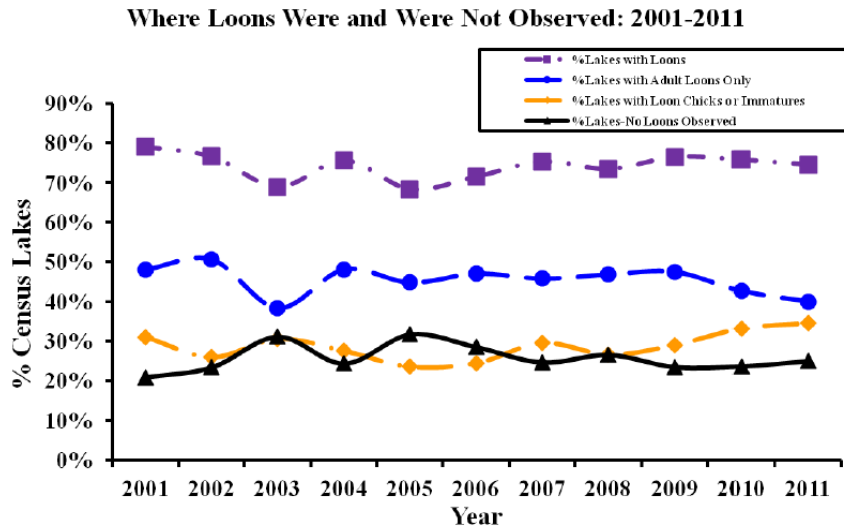


Figure 1: Loon presence during the Annual Adirondack Loon Census, 2001-2011, conducted by the Wildlife Conservation Society (www.wcs.org).

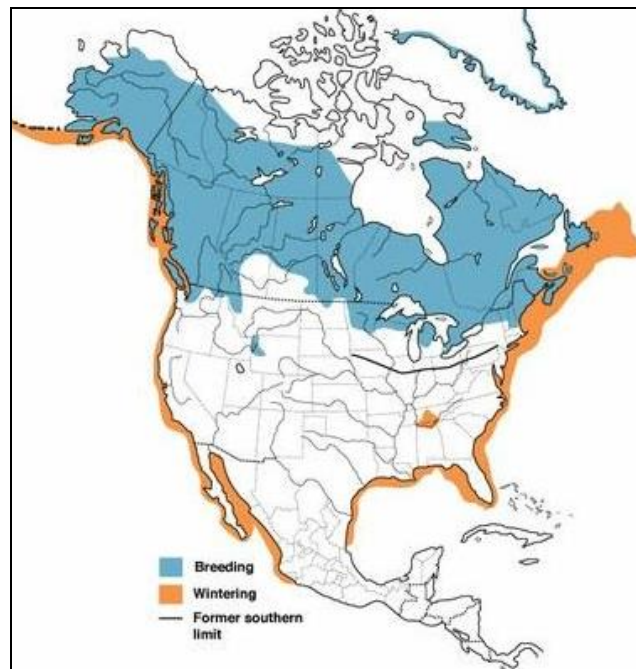


Figure 2: Range of common loon in North America (Birds of North America Online).

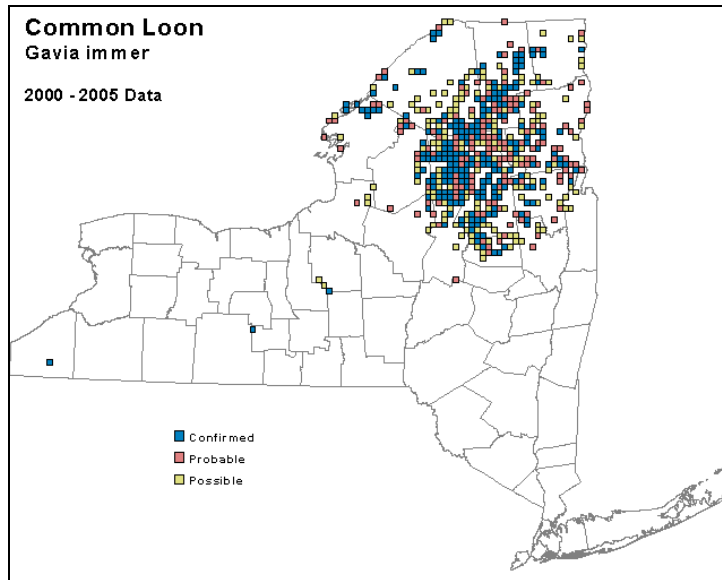


Figure 3. Common loon occurrence in New York State during the second Breeding Bird Atlas (McGowan and Corwin 2008).

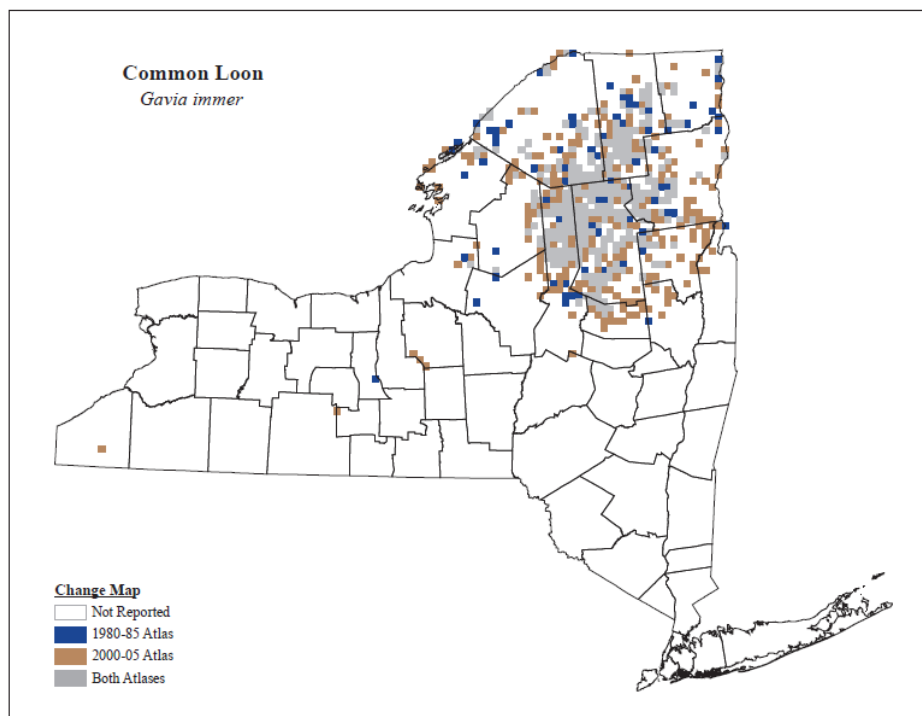


Figure 4. Change in common loon occurrence in New York State between the first Breeding Bird Atlas and the second Breeding Bird Atlas (McGowan and Corwin 2008).

III. New York Rarity, if known:

Historic	<u># of Animals</u>	<u># of Locations</u>	<u>% of State</u>
prior to 1970	_____	_____	_____
prior to 1980	_____	_____	_____
prior to 1990	<u>800-1,000</u>	_____	_____

Details of historic occurrence:

A population survey of common loons was conducted in the Adirondack Park during the summers of 1984 and 1985, finding 157 breeding pairs and 196 chicks on 500 lakes and ponds. Non-breeding birds were also documented, leading to an estimate of 800-1,000 adult loons in the Adirondack Park, including 200-250 breeding pairs. The first Breeding Bird Atlas (1980-85) documented occurrence in 369 survey blocks statewide, which is 7% of survey blocks (Andrle and Carroll 1988).

Current	<u># of Animals</u>	<u># of Locations</u>	<u>% of State</u>
	<u>1,500-2,000</u>	_____	_____

Details of current occurrence:

The second Breeding Bird Atlas (2000-05) documented occurrence in 528 survey blocks statewide, an increase of 43% (McGowan and Corwin 2008). According to the Adirondack Loon Census, the population in the Adirondack region was estimated to be between 1,500 and 2,000 birds in 2009.

New York’s Contribution to Species North American Range:

Distribution (percent of NY where species occurs)

- ___ 0-5%
- ___ 6-10%
- X 11-25%
- ___ 26-50%
- ___ >50%

Abundance (within NY distribution)

- ___ abundant
- ___ common
- ___ fairly common
- X uncommon
- ___ rare

NY’s Contribution to North American range

- 0-5%
- 6-10%
- 11-25%
- 26-50%
- >50%

Classification of New York Range

- Core
- Peripheral
- Disjunct

Distance to core population:

IV. Primary Habitat or Community Type:

1. Lake and River Shore/Beach
2. Oligotrophic Dimictic Lake

Habitat or Community Type Trend in New York:

Declining Stable Increasing Unknown

Time frame of decline/increase: _____

Habitat Specialist? Yes No

Indicator Species? Yes No

Habitat Discussion:

Common loons breed in freshwater habitats, nesting on bog mats, logs, large rocks, and along shorelines of both islands and the mainland. Wintering occurs in coastal waters along the Atlantic

Coast. Water quality is important for successful breeding and clear water is crucial for effective foraging.

V. New York Species Demographics and Life History

Breeder in New York

Summer Resident

Winter Resident (coastal waters including NY)

Anadromous

Non-breeder in New York

Summer Resident

Winter Resident

Catadromous

Migratory only

Unknown

Species Demographics and Life History Discussion:

Common loons are long-lived and have relatively low lifetime reproductive performance. The average age at first-breeding is 6 years. Adults are known to remain on breeding territory for at least 17 years (Evers et al. 2010); adults often usurped from breeding territory and may take 1 to 3 years or more to reoccupy a breeding territory (BRI unpubl. data).

A population model for New England and the Great Lakes, based on 0.48 young fledged per territory per year, indicates a breeding loon with average productivity for 24 years (based on first age breeding of 6 years and an estimated lifespan of 30 years) will produce approximately 12 young. Of these young, approximately 41% will return to their natal breeding area at age three and even fewer, based on 8% annual mortality, will survive to breeding age. Therefore, the calculated lifetime reproductive success is 12 fledged young, of which three or four will likely survive to breeding age (see Evers et al. 2010).

The longest recorded lifespan for individuals banded as adults (based on potential earliest breeding at 4 years of age) is 21 years for two New Hampshire females and 23 years for a Michigan male (banded as a chick) (see Evers et al. 2010).

Of 222 dead loons examined between 1976 and 1991, 18% were thought to have died of disease; of this diseased proportion, 38% of the deaths were attributed to botulism, 33% to aspergillosis (Franson and Cliplef 1993). Multiple causes of mortality include die-offs from botulism (Brand et al. 1983, 1988), mercury poisoning in areas highly contaminated by point sources (DCE), aspergillosis (Franson and Cliplef 1993), fish nets and traps (Carey 1993), oil spills (Sperduto et al. 2003), and shooting (McIntyre 1988), and ingestion of lead fishing jigs and sinkers (Locke et al. 1982, Pokras and Chafel 1992). Lead is considered to be leading cause of recent adult mortality.

VI. Threats:

The number of territorial loons on a lake decreases as the amount of shoreline development increases (Stockwell and Jacobs 1993). In the Adirondack Park, more than 8,000 new houses were built between 1990 and 2000, primarily along roads and lakeshores (Bauer 2001). Recreation on lakes and associated pollution increases accordingly with development.

Disturbance from recreational activities including jet skis, motor boats, canoes, or people camping can cause adult loons to be off the nest for an extended period, thus exposing eggs to predation or cooling, or causing abandonment. Recreational activities can also cause flooding of nests. In one New Hampshire study, reproductive success was lower on a lake that allowed personal watercrafts than on a lake that banned them (see Schoch 2002).

Lake acidification results in low fish populations. Ingestion of lead fishing tackle results in lead poisoning and death. The common loon has been used as an indicator species for mercury studies in the Adirondacks, which concluded, in part, that mercury is a primary stressor to loon populations, resulting in decreased productivity (Schoch and Jackson 2011). Wintering loons are susceptible to oil spills off the Atlantic Coast.

Outbreaks of Type E botulism on Lake Ontario were documented beginning in 2002. These outbreaks kill migrating loons in high numbers (over 10,500 birds from 2000-2005), mostly from the eastern Canadian Provinces and the upper Midwest because Adirondack loons appear to migrate directly to offshore wintering areas along the coast of Rhode Island, Massachusetts, and New Jersey (Kenow et al. 2006).

Are there regulatory mechanisms that protect the species or its habitat in New York?

No **Unknown**

Yes

Common loons are protected under the Migratory Bird Treaty Act.

Describe knowledge of management/conservation actions that are needed for recovery/conservation, or to eliminate, minimize, or compensate for the identified threats:

Many conservation actions have been identified to ensure the health of common loons, including continuation of annual population surveys, removing lead from the aquatic environment, lobbying for mercury regulation, education of anglers to reduce use of lead sinkers and to avoid actions that result in fishing line entanglement with birds, protection of shorelines, and public education regarding recreational impacts to nesting productivity (Schoch 2002). Conservation actions following IUCN taxonomy are categorized in the table below.

Conservation Actions	
Action Category	Action
Land/Water Protection	Site/Area Protection
Land/Water Protection	Resource/Habitat Protection
Land/Water Management	Site/Area Management
Land/Water Management	Invasive/Problematic Species Control
Education & Awareness	Awareness & Communications
Species Management	Species Recovery
External Capacity Building	Alliance & Partnership Development

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for common loon.

Educational signs:

- ___ Improve public understanding of loon conservation issues. Post interpretive signs at boat ramps, beaches, campgrounds and other public access points. Produce and distribute informational brochures, posters, press releases and other educational materials. Provide educational programs to schools, lake associations and other groups.

Habitat management:

- ___ Identify and protect known nesting areas. Protect small islands <5 ha and dead waters from development. Establish 150m buffer zones on either side of mainland nests. Shoreline areas adjacent to known nursery sites should be protected, and 150 buffers established.
- ___ Protect coastal wintering areas from the damages of oil spills.
- ___ Maintain constant water levels during peak nesting period.
- ___ Use artificial nesting platforms to improve nesting success on lakes that lack natural islands and have poor shoreline nesting habitat, fluctuating water levels, or a history of low productivity.

Habitat monitoring:

- ___ Continue aerial and beach transect surveys during the fall to determine impacts of Type E botulism on water birds utilizing the Great Lakes as stop-over sites during migration. Monitor lake pH levels in lakes within the Adirondack Park, survey forage base, and research the effects of lake acidification on breeding loons.

Habitat research:

- ___ Research migration routes and staging areas of Adirondack population.
- ___ Research the causes of type E botulism and how outbreaks can be prevented or minimized.

Life history research:

- ___ Research wintering distribution and ecology of Adirondack population.
- ___ Research the life history of juveniles between fledging and their return to northern lakes.
- ___ Research the energetic requirements of adults and young, recruitment patterns of young and non-breeders into breeding populations, effects of intra-specific competition on breeding status and success, site fidelity and territory turnover patterns, duration of pair bonds, and pattern of lake colonization or recolonization.
- ___ Determine the biological consequences of chemical and heavy metal toxicity.

Modify regulation:

- ___ Reduce human disturbance near nest sites and nursery areas during the nesting and chick-rearing period. Limit boat engine horsepower and establish speed limits on smaller breeding lakes or in designated areas of larger lakes.
- ___ Reduce mortality on the Great Lakes from commercial fishing operations by encouraging the use of fish traps that open at the top to allow loons to escape.

Population monitoring:

- ___ Monitor breeding population trends and productivity. Census adult population using repeated standardized surveys.
- ___ Survey a specified sample of lakes annually, or every few years to document population trend. Verify breeding by the presence of recently used nest or flightless young. Determine breeding chronology and outcome (chicks not considered fledged until at least 4 weeks old). Utilizing volunteer observers, implement simultaneous counts to provide an index of lake occupancy and productivity and refine statewide population totals.
- ___ Monitor chemical contaminants and heavy metals in adults and eggs on a regular basis.
- ___ Continue the banding and marking of individual birds to determine loon movement patterns, behavioral ecology, and demography.
- ___ Research and utilize radio transmitter technology on loons to determine chick survival, juvenile movement patterns and behavior, and identify migration patterns, stopover sites, and wintering habitats.
- ___ Monitor migratory trends in distribution and abundance utilizing Christmas Bird Counts and coastal/Great Lakes fall/winter loon watches.

Regional management plan:

- ___ Genotype breeding, wintering, and migratory populations using newly developed genetic techniques in an effort to map subpopulations throughout the Northeast.
- ___ Collaborate with existing planning initiative such as the North American Waterbird Plan, Bird Conservation Regional Plans and other regional efforts.

Relocation/reintroduction:

- ___ Reduce predator caused breeding failure, where problematic, by increasing hunting or trapping opportunities.

VII. References

- Andrle, R.F. and J.R. Carroll, eds. 1988. The atlas of breeding birds in New York State. Cornell University Press, Ithaca, NY.
- Bauer, P. 2001. Growth in the Adirondack Park: Analysis of Rates and Patterns of Development. Residents Committee to Protect the Adirondacks.
- Brand, C. J., R. M. Duncan, S. P. Garrow, D. Olson, and L. E. Schumann. 1983. Waterbird mortality from botulism type E in Lake Michigan: an update. *Wilson Bull.* 95:269-275.
- Brand, C. J., S. M. Schmitt, R. M. Duncan, and T. M. Cooley. 1988. An outbreak of type E. botulism among Common Loons in Michigan's Upper Peninsula. *J. Wildl. Dis.* 24:471-476.
- Carey, C. 1993. Modification of commercial trap nets to reduce capture of Common Loons. Pages 237-245 *in* The loon and its ecosystem: status, management, and environmental concerns. 1992 American Loon Conference Proceedings. (Morse, L., S. Stockwell, and M. Pokras, Eds.) U.S. Fish Wildl. Serv. Concord, NH.
- Evers, David C., James D. Paruk, Judith W. McIntyre and Jack F. Barr. 2010. Common Loon (*Gavia immer*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/313>
- Franson, J. C. and D. J. Ciplef. 1993. Causes of mortality in Common Loons. Pages 1-12 *in* The loon and its ecosystem: status, management, and environmental concerns. 1992 American Loon Conference Proceedings. (Morse, L., S. Stockwell, and M. Pokras, Eds.) U.S. Fish Wildl. Serv. Concord, NH.
- Locke, L. N., S. M. Kerr, and D. Zoromski. 1982. Case report: lead poisoning in Common Loons (*Gavia immer*). *Avian Dis.* 26:392-396.
- McGowan, K. J. and K. Corwin, eds. 2008. The second atlas of breeding birds in New York State. Cornell University Press, Ithaca, NY.
- McNicholl, M. and P. I. V. Strong. 1988. Common Loon distribution and conservation problems in Canada. Pages 196-214 *in* Papers from the 1987 Conference on Loon Research and Management. (Strong, P. I. V., Ed.) N. Am. Loon Fund, Merideth, New Hampshire.
- Parker, K.E., R.L. Miller, and S. Isil. 1986. Status of the Common Loon in New York State. NYS Department of Environmental Conservation. Report. 73pp.
- Pokras, M. A. and R. Chafel. 1992. Lead toxicosis from ingested fishing sinkers in adult Common Loons (*Gavia immer*) in New England. *J. Zoo Wildl. Med.* 23:92-97.

Schoch, N. 2002. The Common Loon in the Adirondack Park: An Overview of Loon Natural History and Current Research. WCS Working Paper No. 20.

Schoch, N. and A. Jackson. 2011. Adirondack Loons – Sentinels of Mercury Pollution in New York’s Aquatic Ecosystems. BRI Report #2011-29, Biodiversity Research Institute, Gorham, Maine.

Sperduto, M. B., S. P. Powers, and M. Donlan. 2003. Scaling restoration to achieve quantitative enhancement of loon, seaduck, and other seabird populations. *Marine Ecology-Progress Series* 264:221-232.

Stockwell, S.S. and J. Jacobs. 1993. Effects of lakeshore development and recreational activity on the reproductive success of Common Loons in southern Maine. Pp. 222-234 in L. Morse, S. Stockwell, and M. Pokras (eds.). *Proc. 1992 Conf.: The Loon and its Ecosystem: Status, Management, and Environmental Concerns*. U.S. Fish and Wildlife Service, Concord, NH.

Date last revised: July 2014