

September 2008

Mercury in New York State Bald Eagles



New Release: Summary of a recent study conducted by BioDiversity Research Institute & NYSDEC

What we found

Elevated mercury levels are regularly found in fish and birds in some regions of New York State. We investigated the extent of mercury pollution in bald eagles sampled 1998 - 2006 throughout New York, focusing on eagles in the Catskill region, recently noted as a potential “mercury hotspot.” This area also contains a large number of nesting bald eagles.

We found bald eagle chicks in the Catskill Region contained higher mercury levels than those sampled elsewhere in the state. Mercury levels were highest in lakes and reservoirs in or near the Catskill Park boundary, and lowest on rivers such as the Delaware River.



A bald eagle feeding its chick

Eagle chicks had elevated mercury levels in a quarter of the territories sampled in the Catskill region.

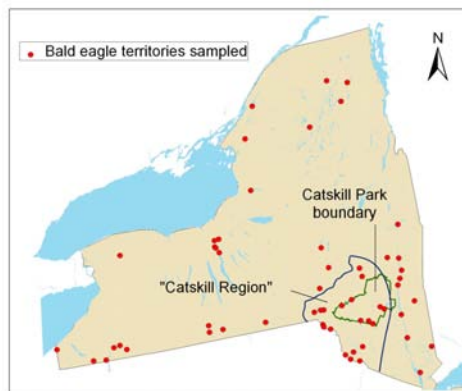
One-third of the adults in the Catskill region and a quarter of those sampled statewide had accumulated mercury in their bodies to levels associated with harmful effects in other fish-eating birds such as common loons.

New York's Catskill region receives some of the highest rates of mercury deposition in the U.S. That's where we found eagles with high mercury levels.

What do our results mean?

Our findings suggest atmospheric mercury is prevalent in the bald eagles' prey (fish) and is accumulating in adult bald eagles and their chicks. This was especially the case in the Catskill Region, where mercury deposition is high.

Eagles that accumulate too much mercury in their bodies can experience negative effects on behavior, reproduction, or neurological function. Females pass on their mercury loads into eggs, which can also affect hatching.



The Catskill Park and broader Catskill region in New York State (noted above) are subject to some of the highest rates of atmospheric mercury deposition in the U.S.

Project Collaborators & Supporters

BioDiversity Research Institute, Gorham, ME

The Nature Conservancy, Albany, NY

New York State Dept. of Environmental Conservation, Albany, NY

Important findings

- Eagle chicks in the Catskill region had mercury levels most similar to chicks sampled in areas associated with significant mercury problems, such as Maine lakes and a mercury mine in B.C., Canada.
- All eagle chicks sampled in areas outside the Catskill region had mercury levels below levels of concern.
- High mercury levels were often found in eagle chicks at sites where predator fish such as smallmouth bass, brown trout and walleye also had high mercury levels.
- Eagle chicks on lakes and reservoirs had higher mercury levels than those on rivers.



NYSDEC biologist Peter Nye at a bald eagle nest.



NYSDEC

Bald eagle triplets

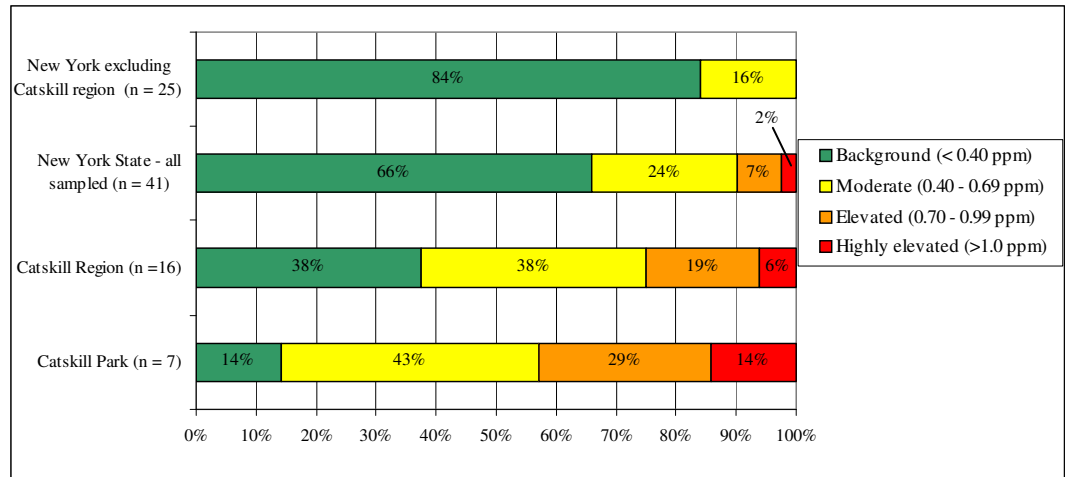
Bald Eagle facts

- Bald Eagle populations across the continental U.S. plummeted to dangerously low levels over an approximately 30-year period due to combined impacts of human disturbance, habitat loss, and most recently, catastrophic affects of DDT pesticides.
- Due to the banning of DDT in 1972 and protections for eagles and their habitats, eagle populations have recovered throughout much of their breeding range and were removed from the Federal Endangered Species List in 2007.
- Bald eagle populations were restored to New York State. From 1976 – 1988, NYSDEC biologists transplanted 198 eagle chicks to New York from other states (AK, WI & MN).
- Bald eagles remain listed as a threatened species in New York.
- There were 145 occupied bald eagle territories in New York in 2008. They produced 188 chicks.

For a copy of the complete report please visit:
www.briloon.org OR
www.nature.org/eny
 For more information on NYS bald eagles please visit:
www.dec.ny.gov/

Where is the mercury coming from?

Mercury is a naturally occurring element that is made more biologically available through human activities. The primary source of mercury to the northeastern U.S. are airborne – coal-fired power plants, waste incinerators, and other smokestack industries. Non-airborne sources include landfills, gold mining, and some manufacturing facilities. Once mercury is deposited on the landscape, factors including water and soil chemistry influence the extent to which it is available to wildlife. Long-lived birds like bald eagles that eat fish are particularly susceptible to accumulating contaminants.



Higher proportions of bald eagle territories in the Catskill Region and within the Catskill Park boundary had eagle chicks with elevated mercury levels compared to elsewhere in NYS.

What does this mean for eagles in New York?

New York's bald eagle population has shown strong population growth and reproduction over the last two decades. Findings of this study show that current environmental mercury loads in bald eagles in some areas approach or exceed levels associated with reproductive or behavioral harm in eagles and other species such as common loons. Although state eagle biologists have not detected any reproductive problems to date in the Catskill Region, mercury could slow the pace of population recovery for eagles in some parts of New York.

What's needed?

Our findings emphasize a need for improved mercury monitoring programs. Further research is needed to determine: (1) if mercury may affect eagle reproduction in the Catskill region, and (2) whether eagles in other mountainous regions such as the Adirondack Park are at increased risk to accumulating atmospherically deposited mercury as might be expected due to some similar habitat characteristics as those found in the Catskill Region.

This project was initiated by a grant from The Nature Conservancy, Albany, New York. Significant support for this study was also provided by NYSDEC's Endangered Species Unit and BRI.



An eagle chick before and during sampling

BioDiversity Research Institute