



# Biology @ Acadia

## DETERMINING FEATHER MERCURY LEVELS IN SIX SPECIES OF ARCTIC MARINE BIRDS

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Although the Canadian Arctic appears to be a region removed from the harmful effects of pollution, environmental contaminants occur in significant concentrations, particularly in marine ecosystems. Mercury (Hg) levels especially have been of increasing concern in the Canadian Arctic. Current attempts to quantify bio-accumulated mercury often involve invasive sampling methods, such as blood sampling. The objectives of this study were to determine:

(a) whether Hg was higher in feathers from top predators and scavengers, similar to patterns found in their eggs; and (b) whether the non-invasive method of sampling feathers is an appropriate alternative to invasive methods. Methyl Hg and total Hg levels were determined from feather samples of six species of Arctic marine birds: Thick-Billed Murre (*Uria lomvia*), Northern Fulmar (*Fulmarus glacialis*), Black-Legged Kittiwake (*Rissa tridactyla*), Ivory Gull (*Pagophila eburnea*), Glaucous Gull (*Larus hyperboreus*), and Common Eider (*Somateria mollissima borealis*). Consistent with my expectations, Hg levels were markedly greater in feathers for species that fed higher in the food web in Arctic marine environments. Consequently, sampling feathers for mercury concentrations appears to be a suitable alternative to employing invasive methods to assess and monitor mercury concentrations.



**Ben Callaghan** graduated from Liverpool Regional High School in Liverpool, Nova Scotia in 2009. Ben is currently completing his Honours thesis in his 4th year in Biology at Acadia. He is a Senior Resident Assistant at a residence on campus, and is an active participant in the Acadia SMILE program. He plays Frisbee on the weekends and is involved in a number of volunteer opportunities such as Acadia Partners for Mental Health, Relay for Life, and Shinerama. Next year, he intends to travel across Europe to as many different countries as possible. After his year of travel, Ben intends to either enter a graduate program or medical school.

