

Dr. Mark Mallory - Summary of the Candidate's Record

Mark Mallory is a recent addition to academia, having completed his PhD in 2009 (Carleton University); he was hired at Acadia University in 2011 as a Canada Research Chair (Tier II) in Coastal Wetland Ecosystems. However, he had already established himself as an internationally-recognized researcher.

Mark grew up in Ottawa but spent most of his formative years either on the family farm near Kingston or in Algonquin Park. His love of wildlife, particularly birds, led him to undertake his BSc (Hons) at Queen's University in Kingston. While working on his undergraduate degree, he obtained summer science positions with Environment Canada's Long Range Transport of Airborne Pollutants (LRTAP) program, through the Canadian Wildlife Service in Ottawa. This exposed him to internationally recognized federal scientists who were tackling a major environmental threat in Canada (acid precipitation), providing him with hands-on ecological training. This took the enviable form of paddling around hundreds of lakes and ponds in the Muskoka, Sudbury, and Algoma regions of Ontario every summer.

In 1989, after five seasons examining aquatic ecosystem health in central Ontario, Mark entered a MSc program at Carleton University, working collaboratively with the Canadian Wildlife Service on specific aspects of ecological processes by which cavity-nesting ducks in Ontario were affected by acid-induced changes to aquatic food webs. Following the completion of his MSc, he spent one year with a civil engineering firm, helping to design environmentally-friendly stormwater management ponds and artificial wetlands, before a position came available with the Canadian Wildlife Service in the acid rain program.

For the next 7 years, Mark continued to work in that program, developing predictive wildlife effects models that linked to atmospheric and deposition models; these all became part of the Canadian "Integrated Assessment Model" that was used in the Clean Air negotiations and follow-up monitoring between the USA and Canada, with the goal of reducing the effects of acidic deposition. As the acid rain program approached sunset in the late 1990s, Mark was one of the few Canadian experts on the effects of this environmental stressor on upper trophic level organisms like ducks and loons.

In 1999, with the creation of Nunavut, an opportunity arose for Mark to start a new wildlife office in Iqaluit. He moved North first as a Habitat Biologist, managing national wildlife areas and migratory bird sanctuaries in Nunavut, and then in 2003 became the Seabird Biologist for the region. At this point, Mark initiated his PhD research (while maintaining a full time job and a growing family), exploring factors influencing reproductive success of one of Canada's high Arctic seabirds, the Northern Fulmar. He completed his degree in 2009.

During this time period, he collaborated closely with federal and international researchers on questions related to contaminants, climate change, and other anthropogenic stressors on high Arctic organisms. Ancillary to his own research (but part of his job), he also managed to build

two new research stations at Cape Vera, Devon Island, and at Nasaruuvalik Island north of Resolute Bay. As well, he recognized and embraced the possibilities offered by local ecological knowledge (LEK) research, and has actively pursued research collaborations with Inuit communities to provide a more complete picture of how wildlife respond to environmental change.

By 2010, Mark sought new opportunities to extend his research interests, and came to Acadia University as a Canada Research Chair in 2011. He continues to work in the Arctic, running annual research programs at Nasaruuvalik Island, and now taking over the Environment Canada research program at Prince Leopold Island, NU. However, he also works closely with Ducks Unlimited Canada, the Nova Scotia Department of Natural Resources, and Environment Canada to address pressing research issues regarding the health of coastal islands and wetlands, and the identification of key marine habitat sites in the Arctic and along the eastern seaboard of Canada, with the ultimate goal that they be protected.

Mark is a keen collaborator. One of the keys to his success as a researcher has been his ability to create or join multidisciplinary teams that bring multiple lines of research to bear on complex and significant environmental issues.

Mark has authored or co-authored 156 peer-reviewed scientific papers on a diverse array of themes including local ecological knowledge, bird behaviour, contaminants in food webs, marine biodiversity hotspots, and the bio-transport of pollutants by colonial seabirds; the latter have appeared in top-tier journals including *Science* and the *Proceedings of the National Academy of Sciences*. His work has been the subject of numerous radio, newspaper, internet, and television reports. He is an associate editor of two scientific journals, and sits on one international and three national committees that evaluate Arctic science and funding. Since 2011 he has supported 21 BSc, MSc, PhD and post-doctoral students in his research laboratory.

Mark identifies his four greatest scientific achievements to date as: (1) combining scientific and LEK (local ecological knowledge) research to prompt the creation of two new Canadian National Wildlife Areas (Qaqqulluit and Akpait) on the east coast of Baffin Island; (2) spearheading new research that led to the uplisting of Ivory Gulls to endangered, and sparked international research on this species; (3) documenting for the first time plastic waste in Canadian Arctic wildlife (fulmars), and bringing the issue of particulate garbage in the Arctic to the forefront of the media and scientific inquiry; and (4) leading the Cape Vera project and its collaborative team in world-leading research on bio-transport and point-source contamination of coastlines by colonial species.

Mark's wife, Carolyn, is a writer who has two Arctic books in print (*Common Plants of Nunavut*, co-written with Dr. Susan Aiken [retired] from the Canadian Museum of Nature, and *Common Insects of Nunavut*) and has a children's book coming out. They have three children, Conor, Jessamyn, and Olivia, all of whom share Mark and Carolyn's passion for Canada's wild places.