Introduction and Personal Context:

I began an Honours Bachelor of Arts program at Lakehead University in 2008 (geography major, history minor). I developed an interest in Canada's North which culminated in an examination of traditional (aboriginal) and scientific knowledge of the current status of Canadian polar bears (*Ursus maritimus*) for my honor's thesis (York 2012). I graduated in June 2012 with first-class standing (over 80% average) and a Mapping Sciences certificate.

I am currently enrolled in a Masters of Environmental Studies program at Lakehead University which focuses on Northern Environments and Cultures (MES-NECU). I selected this program because it is interdisciplinary and the faculty associated with this program have direct experience in polar bear ecology, management, environmental ideology, northern cultures and the interactions of aboriginal Canadians and Euro-Canadians. The multidisciplinary focus allows me to acquire analytical and modeling skills associated with the physical and biological sciences, and also consider aboriginal traditional knowledge, wildlife governance systems from land-claim wildlife boards to national governance and international governance. Lakehead graduate students are taught how to collect and analyze data, how to write clearly and concisely, and how to defend our own ideas and research. We are encouraged to evaluate our work in a multi-disciplinary context that considers the social and political implications, as well as the scientific results. This program is eligible for SSHRC because I will be conducting original research and completing course work focusing on both science and social science research methodologies. This program will help me to gain the knowledge and skillsets needed to conduct original research in the area of northern wildlife conservation, contribute to academic or agency research and management initiatives, and hopefully discover a meaningful middle-way to be an educated Canadian and maintain the values associated with my Metis heritage.

Research Context:

Polar bears are a symbol of the north for many cultures, but recently they have also become an agenda-driven poster species for Second-Wave Environmentalists (Dearden and Mitchell 2009) seeking to convince policy makers and the public that anthropogenic global warming constitutes a climate crisis (Slocum 2004). It has been predicted that up to 70% of current stocks will be gone by 2050 (Amstrup et al. 2007). Although long-term (future) climate warming effects on individual polar bear subpopulations are likely to be negative (Amstrup et al. 2007; Derocher et al. 2004; Stirling and Parkinson 2006; US Department of the Interior 2008) it seems unlikely that polar bears will become a species at risk of extinction from anthropogenic global warming within the time lines currently projected. There are no projections of climate change that suggest an ice-free arctic except seasonally (IPCC 2007) and polar bears currently thrive in regions where sea ice is seasonal (Aars et al. 2006; Lunn et al. 2001; Obbard et al. 2010). Although declining sea ice is a conservation concern to polar bears, current subpopulation response to climate warming suggests that there is no climate crisis for polar bears at present, and effects of climate warming appear to have been exaggerated.

As non-government organizations (e.g., Center for Biological Diversity) push for further protection of polar bears, their efforts impact aboriginal people and polar bears in a negative way. Inuit and First Nations have the right to harvest wildlife as both Treaty and land claim rights, so long as their harvest is not a conservation concern. Polar bear governance focuses on controlling hunting. As climate continues to warm and the negative effects associated with warming are apparent, the only possible response from a management perspective is to reduce hunting. The notion that controlled hunting is no longer feasible due to population decline due to climate change is a major concern for the Inuit and First Nations who rely on the harvest of polar bears not only as a part of their culture and livelihood, but also a major source of traditional income (Dowsley 2009b; Wenzel 2011).

Traditional ecological knowledge (TEK) disputes the claim that polar bears are declining in most cases. Aboriginals have an independent sense of population trends that is determined according to

principles of knowledge developed from centuries of living with and hunting polar bears and other animals (Berkes 2009; Dowsley 2005; Huntington et al. 2004; Freeman and Wenzel 2005). TEK can provide insight on population trends and environmental issues, making it a useful validation tool for scientific study. Projections of a rapid decline in polar bear numbers also do not seem to be consistent with recent scientific information. There is concern that some of the key studies suggesting that polar bears are in trouble have sampling issues that make their conclusions suspect. The apparent exaggeration of the effects of a warming climate on Canadian polar bears suggests that agenda-driven science may be inherently unreliable. TEK may prove to be a more accurate source of information on trend than the studies that claim to have measured declines (York 2012).

Objectives:

The theoretical framework seeks to examine polar bear status from both demographic and socio-cultural perspectives in an attempt to compare status determinations and highlight areas of conflict. This study will examine how the scientific and TEK perspectives provide a basis for the popular perspective held by the media and the public, and discuss why the popular perspective may be different. It will consider how polar bears are used as a symbol and examine environmentalism as an ideology.
The specific objectives of the proposed research will be to:

- develop an updated status table where scientific and TEK perspectives can be easily compared to identify areas of conflict.
- provide an overview of the legislative authority of polar bears in Canada.
- examine the symbolic meaning of polar bears from multiple perspectives.
- consider the controversy in polar bear management, especially the evidence for climate change impacts.

Methodology:

The status determinations for both perspectives (scientific and traditional) will be driven by population modeling and a review of academic literature. Population growth rates and the probability of decline at current harvest levels will be evaluated for each of the 13 subpopulation of polar bears in Canada based on the most recent demographic and harvest statistics using the newest version (1.9.9.32) of RISKMAN population viability analysis software (Taylor et al. 2001b). Traditional Ecological Knowledge (TEK) will be summarized from recent status reports and academic literature to determine status. Scientific perspectives and TEK perspectives will be compared as a test of correspondence to highlight areas of conflict. The examination of governance on polar bears will be driven by a review of academic literature, legal mandates, and government policies. Examining the three main perspectives (science, TEK, and popular) will be driven by a series of semi-structured telephone interviews and a review of academic literature. The interviews will focus on representatives of Inuit and First Nations communities, and members of government agencies and environmental non-government organizations. The methodology for each of the participants will follow the requirements of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans. This study will adhere to Lakehead University ethics standards concerning collection and use of Aboriginal information.

Contribution to the Advancement of Knowledge:

By examining legal mandates and government policies regarding polar bears this study will provide a better understanding of how polar bears are managed within Canada. It will provide an updated status table where scientific and TEK perspectives can be easily compared and highlight areas of conflict. The study will also examine the use of TEK as a validation tool for scientific perspectives when determining population status.

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