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Beauty and the Enchanted Beast: The Narwhal (*Monodon monoceros*) in the Canadian Cultural Landscape

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Abstract

The narwhal (*Monodon monoceros*), is an Arctic whale with an eye-catching spiralled horn which is the subject of indigenous folklore and medieval legends. This animal's 'horn', or tusk, is in fact a tooth that grows to lengths upward of 9ft in males, and very rarely in females (Silverman and Dunbar, 1980; WWF, 2011). The rising temperatures in the Arctic are reported to be impacting the primary habitat of this specific marine species of the Northern hemisphere (Boswell, 2010), and there have been accounts that it is being overfished in certain Northern communities. There are historical, economic, spiritual and cultural ties related to the narwhal hunt which involve both indigenous and non-indigenous populations. The narwhal is featured prominently in the Canadian cultural landscape on both the coat of arms for the Northwest Territories (1956) and Nunavut (1999). In combining sentimental appeal with regional identity, an emblematic device that depicts a species gives rise to a sense of pride and connection. There is relevance in understanding the nature of the symbolic ascription of the narwhal as this information offers policymakers clarity on the public's perception of the species and what specific scientific research and educational programs are necessary to ensure its conservation.

Keywords: Narwhal, wildlife emblems, tradition, *Monodon monoceros*

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Introduction

This essay explores a historic review of the narwhal in human culture, and examines the extent to which this cetacean is linked with the Canadian populations' oceanic identity. Moreover, through the examination of popular stories, myths and current news items on the species, it explores the extent of the narwhal's presence in Canada's collective consciousness prior to it being represented on both the Northwest Territories and Nunavut's coat of arms and its recognition thereafter. Mass media can play an important role in developing, reflecting and shaping the popular perceptions of wildlife concerns, and since the narwhal received near threatened status (2008), news media reports concerning issues that impact on the conservation of the species have increased in frequency. Newspaper articles and news related pieces serve to educate the public on matters that may be somewhat removed from their daily routines, in as much as these same stories can reflect community concerns and nurture human bonds with the species in question. Indeed, "the seascape is a living history with associated myths, stories, legends that provide moral and cultural guidelines [; it] is the storehouse of social identity. . ." (Cordell 307).

"Man is the principal predator of narwhals" (Reeves and Tracey 4; Laidre and Heide-Jorgensen, "Arctic Sea"), and the opportunistic hunting of the species extends into the distant past (Scoresby, "An Account"; Murdoch; Lubbock). The historical accounts of the narwhal in Canadian culture are mainly representative of a conceptual coalescence between the consumption of nonhuman nature and commercial trade. The narwhal in many human narratives is closely linked with economic exploitation and how it may, in part, comprehensively respond to an anthropocentric or human-focused need for i.e., wonder, weaponry and as a medicinal cure-all (Shepard). Conversely, in light of its historical narrative connection with the unicorn, the narwhal's existence has itself come into question (Manguel; Tat). Moreover, the narwhal is a species which has not survived in captivity and as a result has had little firsthand exposure to the general public (Reeves and Tracey; Milius). The doubtful existence of the narwhal as a result of its mythological ties has been fateful for those with interests in oil explorations within its habitats, as they have perceived the species as an "environmental nuisance" (Lopez 29). The lack of tangible data on the narwhal has only served to heighten a human curiosity about the species, and a continual fascination for the wonder of this enchanted being.

Unfortunately, in recent years the narwhal's welfare has been under notable threat. Climate change is increasingly altering the species' available habitats as are current drilling and mining projects (American Cetacean Society (ACS) 2005).

A stew of chemical pollutants circling and permeating Arctic environments has resulted in high levels of heavy metals in the skin of the narwhal (Milius). In addition, the overfishing of the species for its tusk has diminished the narwhal population while overfishing of the species' key prey has reduced the narwhal's available food source. The Canadian Department of Fisheries and Oceand (DFO) sets yearly quotas that are monitored by the International Whaling Commission, and it has also been reported that there has been a lack of compliance for the set quotas (Finley *et al.*; Finley and Miller; Hrynyshyn and Sorg; Nicklen). However, more recent appreciation for the efforts of conservation groups that champion the species is gaining force. In the case of the Canadian peoples of Northwest Territories and Nunavut, the cultural, social, and economic worth of the narwhal is reflected by its place on their code of arms. The prominence of the narwhal as a valued emblem of the Canadian North can contribute to the general public's compassion for and understanding of the needs of this species and their connection with the country's aquatic heritage. However, in some instances the contemporary invasion of modern weaponry has led to many abuses in the narwhal hunt (Nicklen). Human beings, regardless of their cultural heritage, make daily decisions that have negative consequences for both other animals and humans alike. These decisions are multi-faceted, and while an outsider may not fully comprehend the nature of the strong hunting heritage in the Inuit culture, we need to step back and show consideration and understanding for the motivations and needs of the narwhal hunt in Indigenous communities, a practice that is steeped in their cultural traditions. Thus, one of the main components in raising conservation awareness for the narwhal among the Canadian Indigenous communities will depend on building a stronger communicative link between elders in the community and the younger generations. The Inuit hunters of today will need to enhance the intra-generational bond with the senior members of their community, as the wisdom of their elders will benefit these younger members of the community and lead them toward a conservation ethic relating to concepts of subsistence hunting.

Origins and Beliefs

The Construction of a Species in Euro-American Culture

The narwhal has an extensive cross-cultural mythological history (Woodburn Hyde). The etymology of the word 'narwhal' is uncertain. However, there is speculation that the Old Norse word *nafaar* meaning corkscrew, in reference to

the animal's tusk, is the source, or the word, *nár*, which translates to corpse may be the origin. But, most references to the source of the word claim that it stems from the Old Norse word, *nár*, and the species has subsequently taken on the linguistic translation of 'corpse whale'. This illustrative moniker is in reference to the animal's blotchy grey and white skin colour, and is a reflection of its resemblance to the imagery of the cadaver of a drowned mariner. Historically, the pallid complexion of the species and its related symbolic ascription, have mythically been associated with the cause of certain human deaths, and such ethereal mystery still resonates in certain geographical areas (Lopez).

The Vikings discovered the narwhal in the first millennium and returned to their homeland with stories of the sea unicorn and its enchanted horn (Cawardine; Hrynyshyn, "Canada's Narwhal Whale"). After the introduction of the sea unicorn by the Vikings, an exclusive European market evolved for the narwhal tusk, which became known as the 'alicorn' (Bonner). In the Middle Ages, the unicorn's horn was believed to possess potent magical and religious properties (McGovern), and it was often used as a therapeutic tonic to test for toxic substances in food, as an antidote to poison, and as an aphrodisiac (Laufer and Pelliot; Knight; Hunt; Hrynyshyn, "Canada's Narwhal Whale"; Pluskowski). The study of museums revealed that the Baroque antiquaries collected the narwhal's tusk for its mystic properties, and it was also a fascinating curiosity in European cultures (Impey and MacGregor; Pluskowski; Grafton). The long serpentine tusk of the species gave mystical life to the Europeans' belief of the unicorn in fables and medieval bestiaries (Laufer and Pelliot; Woodburn Hyde; Gravestock; Daston and Park; Pluskowski). But, the horn believed to be that of the unicorn, was in most instances a narwhal tusk (Bada *et al.*; Berta; Simpson and Roud; Hunt; Heide-Jorgensen and Laidre).

The exceptionally eye-catching narwhal tusk had a rich multiplicity of significance from the demonstration of noble status to the tangible illustration of Christ's connection with God (Pluskowski). The emulation of the narwhal tusk's morphology in many ecclesiastical furnishings and architectural structures are illustrative of the use of exotic species as active players in the creation of material customs in the liturgy of the sixteenth and seventeenth centuries (Fernie; Binski and Alexander; Sinding-Larsen; Wood).

The confusion between the real and mythical species was first demystified in 1621 when Gerhard Mercator, a European cartographer, revealed the narwhal to be the source for the magical unicorn horn (Lopez). The revelation of this unique physiological feature was exposed once again in 1638 by Øle Wurm, a Danish professor, during one of his lectures. However, although the unicorn connection with the narwhal was disputed by Liebniz, the early works of Gaspar Bartholin,

another prominent Danish physician and naturalist from the 17th century also tied the wonder of the unicorn with a nondescript aquatic species found in the oceanic North (Ariew). In Medieval societies, all narwhal tusks were unicorn horns and this is reflective of their cultural significance and commercial value within the context of the visual culture of the period (Pluskowski). The unicorn myth carried on into future generations and it had become so ingrained within various levels of European society that to accept Wurm's revelation would have deeply impacted on European commercial trade (Lopez). Although the unicorn had been integrated into Britain's coat of arms, in 1746, the proliferation of evidence disproving the cure-all properties of the unicorn/narwhal tusk forced British physicians to immediately halt their prescriptions of the horn as a panacea (Tucker). Mullan and Marvin have stated that "in an important sense, animals are human constructions"(3). In this respect, the exotic illustration of the narwhal, as the unicorn in European culture, is an excellent example of how the collective narrative can socially construct a living being and solidify local to global intrigue in a species. A Chinese scholar stated over 3600 years ago how the narwhal species "roams in a dignified manner and cannot be caught" (Hrynyshyn, "Canada's Narwhal Whale" 1). The hunt of the narwhal for the export of their tusks was familiar to both Chinese and Japanese traders and craftsmen long before the European construction of the species as a unicorn (Laufer and Pelliot; Ufer) and prior to indigenous fauna as a valuable trading commodity in the Atlantic (Seaver).

The Birth of the Narwhal in Indigenous Culture

Narwhal folklore is clearly embedded in cultural and natural history. Whilst European constructions of the narwhal as the fabled unicorn cross many borders (Hrynyshyn, "Canada's Narwhal Whale"), the narrative construction of the narwhal in Canadian culture is seeded in Inuit culture. Most narwhal tusks would have been acquired from local Inuit peoples as the required travel times to reach the narwhals' summering waters would have inhibited the possibility of hunting by Western settlements (Bruemmer; Gulløv). Amongst the Canadian Inuit and native Greenlanders, the narwhal is referred to as "*qilalugat tugaliit* ('the tusked whale') and *qilalugaq qernetag* ('the one that is good at curving itself to the sky')" (Hrynyshyn, "Canada's Narwhal Whale" 1). Moreover, there are cultural traditions in Canada that have relied on narwhal ivory as an 'iconic product' as evidenced by, for example, "a vinyl recording of the Pope's address to the people of Newfoundland when he visited in 1984 [and was presented with] a set of rosary beads carved from narwhal tusk" (Smith 43).

There are a number of similarly themed storylines on the creation of the narwhal in Canadian indigenous societies. The most widely known Inuit legend is about the creation of the narwhal. The essences of most of these tales recount how an evil woman, or a maternal figure in some adaptations, was dragged into the sea and was transformed into a narwhal. The swaying of her tresses in the depths of the ocean currents are believed to have formed the animal's characteristic helix shaped tusk (Rogers). There are slight variations on the tale, but most of the versions emphasize concepts of deception and retribution.

In 1899, A. L. Kroeber recorded the Smith Sound Eskimo adaptation of the narwhal creation tale which is derived from the thoughts of Eskimos from Alaska to East Greenland and Labrador. This version of the tale was also widely told in the Mackenzie area and along British Columbia's central coast. The Smith Sound Eskimo narrative recounts the tale of a young blind boy named Lumaak who is deceived by his grandmother (Bryant; Wilhelmy). When the young boy is out hunting with his grandmother, she lies when he kills a bear with his bow and arrow. However, she is unable to escape his keen sense of smell when she cooks the bear meat that evening. The boy then retaliates by transforming his grandmother into a narwhal (Bennett and Rowley).

In the Canadian cultural landscape of Nunavut, another version of the narwhal creation tale has been adapted to take a very different narrative turn that reflects the well-documented problem of violence, particularly against women, within a number of northern communities. In a report prepared for the Canadian Department of Justice, several community members have shared their knowledge and stories. Specifically, the narwhal is described by community members as ". . . a victim of violence who fled up a cliff to avoid her abuser. When it appeared he would catch her, she twisted her hair into a long plait, and lowered herself over the cliff into the sea. The famous tusk of the narwhal is a remnant of her twisted hair; the mottled white skin of the narwhal is said to be marked with her bruises" (Gallagher-Mackay 33).

In both representations of the narwhal there is an embedded sense of infamy. The illustrative connection between the narwhal as a victim and survivor of abuse provides a voice towards addressing the sometimes silenced issues of gendered violence in some Nunavut communities. Whereas as the familiarity of other communities with the tale of the narwhal as a symbol of dishonesty may well have tacit implications that could lead to detrimental consequences for the species.

Emblematic Ascriptions

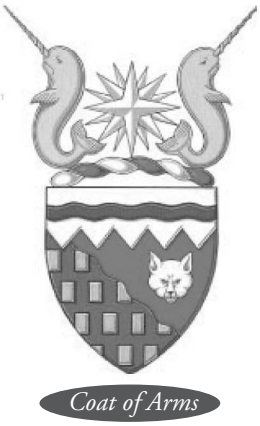
With relation to the narwhal as an emblematic species to represent the

Canadian peoples oceanic identity there is a wealth of research that has been conducted to reveal how the use of animals as emblems in business ranging from fashion to airlines create a sense of brand recognition and/or national pride (Thurlow and Aeillo; Morgado). Countries around the world have used emblematic imagery to represent their identity. In Cambodia, the national fish symbol is the Giant Mekong Barb (*Catlocarpio siamensis*) (Forestry Administration of Cambodia 2010), while the national fish of the Bahamas is the Blue Marlin (*Makaira nigricans*) (Department of Marine Resources 2010). The use of fauna, flora or entomological emblems is an effort to draw attention to the rich biodiversity of a region. The selection process often engages the public to participate in the choice for their regional emblems. By involving the public in choosing an emblem, governments, industry and organisations can create a collective climate in which interest is generated for a species.

The policy relevance of research into how certain species acquire their symbolic significance within a larger collective can aid in revealing the wider public's connection with and understanding of a species. Consequently, the level of interest and public support for the implementation of regulatory measures, conservation programs and educational projects is dependent on the appreciation for the role of the species within the public sphere (Morzillo *et al.*). Discovery of a public understanding, affinity for, and relationship with a specific species will determine the receptiveness of conservation programs and marine protected areas or the respect for certain restrictions and laws (Sall; Bunce *et al.*).

The significance of the narwhal in European culture, for example, led to the animal being ascribed emblematic status on Britain's coat of arms by James I in 1424 (Lopez). Christain V, the Danish king, was crowned in 1671 in a coronation chair solely fashioned from narwhal tusks and designed by Bendix Grodtschilling, an artist and distinguished naturalist, which can still be admired in the Riddersal of the Rosenberg Castle in Copenhagen (Sognnaes; Jelsoft; McLeish). The European affinity for the narwhal blends with Canada's rich indigenous history, and consequently, the narwhal has received emblematic ascription on the coat of arms for the Northwest Territories (1956) and Nunavut (1999) (see Fig. 1). The recognition of the narwhal, *qilalugaq tugaalik*, as a symbol on the coat of arms for the Northwest Territories and Nunavut underlines the deep ties that this species holds within a Canadian culture that has been shaped by indigenous society and northern indigenous cultures that have been affected by Euro-Canadian identity.

Nunavut's coat of arms



Northwest Territories coat of arms

Fig. 1

Economic and Environmental Conservation Impacts

Regional Populations and Conservation Status

In 1996 *Monodon monoceros* was classified as data deficient by the International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened Species. The lack of knowledge on the species was mirrored in 2001 at the *14th Biennial Conference on the Biology of Marine Mammals* when there was only one narwhal related paper among the estimated 800 submitted abstracts (Hrynyshyn, "Canada's Narwhal Whale"). However, in just a short time after, in 2008, the species received near threatened status (IUCN 2011), and there has been growing concern for the intense hunting of the narwhal within the Greenland and Canadian borders. In addition, there are uncertainties about the actual numbers of the species in the Canadian North as there are no reports for the hidden mortalities. The uncertainty about statistical credibility regarding narwhal population densities raises questions on whether the species warrants threatened status (*ibid*.). However, this 'conservation-dependant' species differs in subpopulations in relation to its geographical populations (*ibid*.). Within the narwhal populations, there are three identifiable groups and only one of them has been reported as healthy by the Canadian DFO. Pierre Richard, a Narwhal biologist, from the DFO has documented population estimates for the Baffin Bay group at upwards of 60,000 (Richard *et al*., "Baffin Bay Narwhal"). In contrast, the Hudson Bay group are reported in the low one thousands and the East

Greenland group are scarce in the low hundreds (Dorais; Hrynyshyn, "Canada's Narwhal Whale").

In 2008, the DFO authorised a cull of 200 narwhals that were trapped in the Pond Inlet region (Laugrand and Oosten). Hunters were required to attach hunting tags for each animal killed to monitor the species' numbers, but since the killing was sanctioned by the DFO as a cull, there were no effects towards the yearly harvest quotas (CBC News, "Killing"). What the DFO originally tagged as a 'humane hunt' attracted worldwide media attention, and incited bitter disputes amid Inuit leaders and the Sea Shepherd Conservation Society, an environmentalist group, as the numbers of narwhals killed far surpassed the initial estimates (Laugrand and Oosten). Yearly quotas for the Pond Inlet are set at 130 narwhals a year. However, Harry Flaherty, chairman of the Nunavut Wildlife Management Board, was not concerned about the elevated numbers of narwhals killed as the community had remained within their designated limits in previous years (SIKU News, "Narwhal Hunt"). As an enduring monument to the sizeable take of 629 narwhals during the 'humane hunt', 25 narwhal carcasses remained as a reminder to a time when there was "*maktaaq* for everyone" (Armbruster; Zarate; Laugrand and Oosten 83).

Export of the narwhal tusk has been at the centre of heated debates between the Canadian federal government and the Nunavut communities over the narwhal hunt. Cathy Towtongie, President of Nunavut Tunngavik Inc. (a land-claims organization), has accused the DFO of violating the harvesting rights of the Inuit by imposing a ban on international narwhal tusk exports (Windeyer). The basis for the uproar from the 17 of the 25 communities which are affected by the ban lies with their assessment that narwhal populations are not under any threat from harvesting practices (CBC News, "Nunavut Inuit"). Given that whalers in the Kugaaruk, Taloyoak, Gjoa Haven, Igloolik, and Pond Inlet regions have been permitted to continue to export their narwhal tusks internationally, the communities affected by the ban have questioned the scientific validity of the regulatory efforts (CBC News, "Canadian Federal Narwhal Tusk Export"). However, as stated by the IUCN (2011), there are narwhal populations that do not seem to be showing decreasing population numbers while others are at serious risk of endangerment. As a result, the discrepancy in the number of narwhals between the distinct groups can lead to confusion when trying to implement widely accepted management and conservation plans (Richard and Pike). The absence of consultation and communication about the imposed ban by the DFO thus prompted community disagreement, and as a result, led to misperceptions by those affected by the narwhal quotas (Bankes; Terriplan). However, Sylvie Lapointe, the Department's Director of International Fisheries

Management, defends the ban on the grounds that there is cause for scientific concern given the decreasing populations in specific regions as a result of overfishing (CBC News, "Canadian Federal Narwhal Tusk Export").

The narwhal export ban has equally sparked discord within Canada's political landscape. In April 2011, Liberal Candidate Paul Okalik publicly attacked the Conservatives for the DFO's move to ban narwhal tusk exports (CBC News, "Seal Hunt"). While there was public outcry about narwhal tusk exports, the current government has also backed seismic testing along the Lancaster Sound area in the hopes of charting the area for possible oil and gas resources (CBC News, "Canadian Federal Narwhal Tusk Export"). This move to push forth the seismic testing for economic gain has been strongly opposed by the Inuit in the affected communities given the documented adverse risks to the migration routes of marine life (*ibid*.).

Impact of Environmental Degradation

There are several cetacean species that are hunted and utilized in Northern communities. Species, such as the polar bear, walrus, beluga and the narwhal, have a long history which is interwoven with the traditions of the communities of the circumpolar region (Høvelsrud *et al*.). The narwhal is an important product for economic trade in the North, and the use of this animal plays a key role in feeding indigenous populations during the winter when there is less access to imported supplies (Blackney). These highly remote populations traverse the largely tundra, barely populated, and vast expanse of the Northwest Territories and Nunavut in Arctic Canada (Høvelsrud *et al*.).

Indigenous and frontier Arctic peoples have had to rely heavily on the resources of the sea for their survival, and this is still the main source of their livelihood today (*ibid*.). Narwhals are not only a rich nutritional source, the skin known in Inuktitut as *maktaaq*, is a delicacy among the Inuit people (Wagemann and Kozlowska; Gearheard *et al*.; Wenzel). As a valuable trading and economic resource for the Canadian Inuit peoples, even the by-products of the narwhal are traded as secondary products (ACIA 2004; Gearheard *et al*.). However, Arctic species, such as the narwhal, that rely on the sea ice for their survival are sensitive to any climactic changes that impact their sea ice conditions and habitats (Ford *et al*., "Climate Change in the Arctic"). Therefore, any environmental degradation to these aquatic habitats will undeniably have serious consequences for both the marine animals in these regions and the populations that count on them (Høvelsrud *et al*.).

Arctic species require a certain climactic environment, and any substantial

changes can prompt a geographic migration of these animals. The highly complex climactic variability not only affects the distribution and composition of Arctic species, but the health and disease vectors that relate to these marine species are equally affected with the advent of climate change (ACIA 2005; Laidre *et al.*, "Qualifying"). As a consequence of geographical migration, changes in health, health/disease vectors, abundance and availability will impinge on the hunting endeavors of Arctic indigenous communities such as the Inuit and Inupiat (Gearheard *et al.*, "It's Not That Simple"; Høvelsrud *et al.*).

Participation in marine mammal harvesting among Arctic indigenous groups is not only a crucial economic practice, but it is also clearly tied to their shared communal identity and plays a vital role in both social relationships and sustaining indigenous mores (ACIA 2005). Each region will have its own specific focus on the type of species that is hunted, the hunting methods used, and the cultural traditions related to the hunt. Culturally specific regional differences can enhance climatological data by establishing a mosaic of regional narratives, generational oral testimony, and a greater clarity about concerns regarding climate change (Høvelsrud *et al.*). The case studies researched by Høvelsrud, McKenna and Huntington (2008) illustrate "marine mammal harvesting and other human interactions in the context of existing culture, economy, governance, and management regimes in selected Arctic regions" (7). When there are discussions of climate change knowledge, the inclusion of the indigenous perspective in the scientific community has been historically less adaptive to incorporate this wealth of qualitative knowledge and field experience (Greenfieldboyce). However, the long-established practical experience of the Inuit concerning the ocean and sea ice environments and narwhals is gaining recognition and beginning to be accepted as a valued complement to observational data gathered by scientists in climate change research (WWF, "Narwhal Tracking Project"; ACIA 2005; Gearheard *et al.*, "It's Not That Simple"; Greenfieldboyce; Gearheard *et al.*, "The Igliniit Project"). In very much the way that the Inuit have adapted modern fishing techniques with traditional methods to increase harvests (Wenzel), the assimilation of the two knowledge systems—namely, between the scientific paradigm and that of traditional ecological knowledge (TEK) as offered by Inuit community elders—can only enrich, refine, and further substantiate the gauges and markers of climate change and its ensuing effect on marine harvests and the communities that depend on them.

The Inuit and Inuvialuit harvest narwhal from the Davis Strait, Baffin Bay, and Foxe Basin-Hudson Bay stocks for food, and the animal is an essential source of protein for local residents (Laidre *et al.*, "Qualifying the Sensitivity"). Although urban societies may imagine that advancements in fishing practices

would obliterate any ties to traditional methods of fishing and hunting, these Arctic communities still practice their traditional hunting methods for complex spiritual, socio-cultural, and historic reasons. In order to ensure the intensified efficacy of their harvests, traditional foraging practices are combined with modern equipment (Lee and Wenzel; Ford *et al.*, "Climate Change"; Høvelsrud *et al.*, "Marine Mammal Harvests"). However, the inclusion of modern harvesting tools has also been in response to climate change which has forced narwhal populations to migrate farther north, and hunters must now carry small water crafts to ensure their return due to the annual spring break up of ice (Ford, "Living with Climate Change").

The Inuit are traditionally nomadic but many modern-day groups now live within permanent villages. The structural shift to a sedentary lifestyle has only deepened their concern about the effects of climate change, as the main source of food and income for the Inuit peoples is derived from the outlying ocean and sea ice environments (Reid *et al.*; Gearheard *et al.*, "It's Not That Simple"; Ford *et al.*, "Climate Change"). The Inuit rely heavily on the use of traditional food sources as they are regarded as healthier and more economical than commercial products, especially for those families who are under the poverty line (Nuttall *et al.*). However, sea ice is not the only threat to the Inuit's food supply. Research conducted by Wagemann and Kozlowska (2005) on the concentrated levels of mercury in narwhal *maktaaq* (0.59 μg/g wet wt) from the eastern Canadian Arctic show quantities that exceed the Government of Canada's guidelines for human consumption and export (342). The insidious threats of chemical contaminants have also been revealed in current research indicating the growing incidences of wildlife cancers, and abnormalities of a hormonal, developmental and neurological nature (Wilson *et al.*; Hrynyshyn, "Canada's Narwhal Whales"; McAloose *et al.*). While regional pollution can be an issue, global air currents are such that toxins can travel vast distances settling in disproportionately higher quantities in the Arctic.

Over the last century, there has been a marked decline in the sea ice of Arctic regions at a rate of 6% per decade which has been documented by both the scientific and Inuit communities (Gearheard *et al.*, "It's Not That Simple"). By 2100, the current predictions reveal an expected sea ice decline of an added 10-50% and the possibility of near ice-free summers in the Canadian Arctic as early as 2050 (ACIA 2004, 2005). The most recent reports warn of even greater and more rapid declines in sea ice. There are over 90% of the Inuit in the Canadian Arctic whose subsistence is reliant upon the Arctic wildlife for food and materials to make clothing and tools (Reid *et al.*; Gearheard *et al.*, "It's Not That Simple"). The arts and craft industry of Nunavut is driven by the ivory by-

products of the narwhal tusk which is often fashioned into pieces of jewelry and traditional carvings (Høvelsrud *et al.*). Although the yearly decrease in sea ice may not pose an immediate threat to hunting activities or socio-cultural and economic life, the sustained loss will unquestionably have a significant impact on the Inuit peoples' way of life (Nuttall *et al.*; Marcoux; Walsh). The loss of sea ice has many devastating implications beyond financial hardship for the Inuit. They devote much of their time to educating their younger generations on weather, ice conditions, and marine species biology. But, the environmental degradation of traditional hunting grounds has diluted the transmission of the Inuit's values, skills, philosophy and ecological knowledge to future generations (Ford *et al.*, "Climate Change"; Gearheard *et al.*, "It's Not That Simple"; Høvelsrud *et al.*).

Overfishing

In the last thirty years, there has been mounting public scrutiny against the increase in a lack of discipline in certain narwhal hunt expeditions (Lopez). Prior to 2004, there were no set limits on the yearly take of narwhals for hunters in communities such as Niaqornat (Tucker). It has been argued that contemporary indigenous hunters have adapted a utilitarian concept of the narwhal hunt (Land; Lopez). The influx of new material has diminished the historical value of the use of narwhal products in contemporary societies. At one time, the narwhal tusk would serve as a replacement for timber in barren communities, the skin was fashioned into dog harnesses due to their cold weather resilience, the outside layer of skin was used an excellent source of vitamin C, sinews were exceptionally durable sources of thread, blubber was burned to provide a clean and bright light, and the remains were a bountiful source of food for the hunters' dogs (Hrynyshyn, "Canada's Narwhal Whale"; Bryant; Jefferson *et al.*; Tucker; Lopez). But, the ecophilosophy of revering the natural world (whereby hunters take only what is absolutely needed to survive and make full use of every part of an animal) is more prolific in our socio-cultural history than in the present techno-industrial context (Matthiasson; Brody; Land; Meith; Damas; Lee and Wenzel; Jefferson *et al.*; L'Abbe).

Narwhal tusk exports, much like the fin trade in the shark industry, are extremely lucrative and this has in some cases reduced the narwhal to its tusk. Wildlife photographer, Paul Nicklen, who has lived among the Inuit communities from Baffin Island in the Canadian Arctic describes the frenzy of the narwhal hunt. Nicklen's account of the use of high-powered rifles for the narwhal hunt is far from the traditional hunting approaches in which the concept of subsistence hunting is paramount. The high-powered rifle style of hunting is one that re-

quires a formidable level of skill from the hunter. Nicklen explains how the hunter must shoot the whale "in the spine or brain (an organ the size of a cantaloupe)" and precisely in "the instant [the narwhal] fills its lungs with air" (5); any err in accuracy will result in the loss of kill. During his own narwhal hunting expedition with the Inuit, Nicklen sadly recalls how the result of a 12-hour hunt and over a hundred rifle shots left many animals wounded or lost to the seafloor (Watson; Nicklen). The concerns regarding the motivations behind the narwhal hunt are heightened by the seemingly disregard for the living being itself and a growing separation from subsistence hunting (Watson). In January 2011, the DFO prohibited "the export of narwhal tusks and other narwhal products from 17 Inuit communities" soon after the "Inuit [had] gained a foothold for seal products in the Chinese market" (ICTMN). This recent ban has been met with lawsuits launched by an Inuit land-claim group stating that the government does not have the right to blindly implement such a ban without community consultations (CP). The narwhal hunt and tusk harvesting has been a long-standing controversial issue and there are many variables that come into account in assessing current species populations. There have been questions of doubt on the population status of the animals by the Inuit communities and the DFO which has caused great contention between both groups. However, the implemented ban has not been put in affect to "impact on the domestic management of narwhals or domestic trade," but rather in response to impeding foreign sales to "increase harvest levels" dwindling narwhal populations (Boswell).

Regrettably, hunting is not the only threat to the species survival. The disregard for set quotas on narwhal bag limits are additionally compounded by the overfishing from commercial halibut fishers in the West Greenland waters, and there is great risk of entanglements of the narwhal in gillnets set for Greenland halibut (*Reinhardtius hippoglossoides*) (Beck and Mansfield; Reeves and Tracey; Laidre and Heide-Jørgensen, *Seasonal Feeding Intensity*; Laidre and Heide-Jørgensen, "Arctic Sea Ice Trends"; Treble and Stewart). Essentially, there is competition between humans and narwhals for the same prey (Jefferson *et al*.). Greenland fishing vessels are looming over the narwhal's feeding grounds, and the overfishing of the narwhal's food sources by commercial anglers are a foreboding presence on the ecological status of the species (Laidre and Heide-Jorgensen, "Seasonal Narwhal Habitat"; Laidre and Heide-Jorgensen, "Arctic Sea Ice Trends").

Discussion

The narwhal has been a species that has fascinated human beings from all

walks of life for millennia. The anatomical function of the narwhal tusk has yielded a number of theoretic pathways, from its use in aggressive encounters (Silverman and Dunbar) to detecting potential benthic prey (Freuchen and Salomonsen); as a weapon or to impale their prey (Scoresby, "Journal"; Tomilin); as a tool to create breathing holes in thinner ice sheets (Scoresby, "An Account"; Tomilin); and as an apparatus to moderate body temperature or to transmit sound (Best; Ford and Fisher, "Underwater Acoustic Signals"). However, a majority of the research has tended to lean toward the narwhal tusk as a useful weapon or means of defense in fights or as a secondary sex characteristic, much like the brilliant coloration of male birds or the horns in goats and antelopes (Low; Beddard; Norman and Fraser; Miller; Slijper; Mansfield *et al.*; Nweeia). Yet, most recent discoveries have revealed that the narwhal tooth is designed to detect fluctuations in water temperature, barometric pressure, particle gradients, and changing salinity levels, thus giving the unusual projection, hydrodynamic sensor capabilities (Milius; Nweeia).

Searching back through the portal of human history, the narwhal tusk was believed to have a multitude of medicinal purposes, as broadly illustrated during the Middle Ages, from the ability to strengthen cardiovascular ability to a cure for various neurological disorders (ACS 2005). The long-standing belief that the narwhal tusk holds medicinally potent properties is still very much alive in contemporary Chinese medicine—ground narwhal tusk is used in tonics as a remedy for "fever, toxicity, pleurisy, measles, pain and venereal disease" (Hrynyshyn, "Canada's Narwhal Whale" 7). However, the true enchantment of the narwhal's distinctive tusk is not in any medicinal applications for human ailments but rather in its true biological purpose which has eluded scientific explanation for hundreds of years.

In Euro-American cultures, the narwhal tusk was a prized possession even before Tulpius first associated it with the unicorn in 1648 (ACS 2005). The species has been represented in both literary and visual art forms from Olaus Magnus' published drawing of a fish-like creature in 1555 to literary references in the notable works of Herman Melville in *Moby Dick* (1851) and Jules Verne's *Twenty Thousand Leagues Under the Sea* (1869). Amongst Royals such as Christian V of Denmark, Kaiser Karl V of Austria and Queen Elizabeth I of England, the narwhal tusk was a valuable cherished treasure and a sign of nobility. Amid numerous indigenous cultures, as discussed, the narwhal has been a critical nutritional source for its high vitamin C content, and the species had a variety of useful applications from the tusk as a substitution for walking sticks and tent poles to the delicacy of the skin known as *maktaaq* (Reeves, "Recent Development"; Hrynyshyn, "Canada's Narwhal Whale"; Jefferson *et al.*; Tucker; Lopez).

In relation to current research efforts there is an increasing need for recognition by Western researchers of the Inuit knowledge on the narwhal diets and migration patterns which can aid in tagging programs that yield valuable quantitative information on species behaviour patterns and surrounding aquatic atmospheric changes (Greenfieldboyce; Snyder Sachs). Tagging programs in conjunction with an awareness of how narwhals use their ecosystem can help government lawmakers more adequately organise, enforce and implement the required protection measures necessary for the more isolated species such as *Monodon monoceros* (State of New South Wales 2005; Recreational Fishing Trusts 2005; Greenfieldboyce; Snyder Sachs). Moreover, the emblematic status of the narwhal can, in future applications, shed light on the outcome of ascribing such status to other animals, fish or insects. One of the benefits of drawing attention to a specific representative of a group of living beings is that it can also ensure protection and well-being of the other species that interrelate with it. Accordingly, the link between Canada and its aquatic heritage with the narwhal can contribute to a better appreciation of the ecosphere as a whole.

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美女與魔獸：加拿大文化地景中的獨角鯨(一角鯨)

摘　要

獨角鯨，又稱作一角鯨(*Monodon monoceros*)，是一種具有顯著螺旋角的北極鯨，也是許多原民傳說和中古世紀傳期的主題。此種動物的「角」，或長牙，其實是一顆牙齒，在雄性鯨身上可長到九英呎，極少出現在雌性鯨。報導指出，北極溫度的上升衝擊這種北半球特殊海洋物種的原始居住環境，同時也指出某些北方國家過度獵捕的情況。獨角鯨的獵捕有著歷史、經濟、精神與文化上的連結，無論是原住民或者非原住民都與其相關。在加拿大的文化地景中，獨角鯨也成爲西北行政區與努勒維特盾形圖章的顯著特色。這種描繪物種的象徵性圖章結合了具感性訴求的地域認同，並引起民族驕傲與連結感。因此，若要探求獨角鯨的象徵意義如何爲政策制定者顯示出大眾對此物種的理解，也必須考慮有哪些特定的科學研究以及教育課程在確保獨角鯨的保育方面是不可或缺的。

關鍵字：獨角鯨，野生動物象徵，傳統，一角鯨