ABSTRACT

Significant research on Arctic sea ice trends and the potential for resource development have been well documented and illustrated as drivers for changes to Arctic shipping traffic patterns. There is a strong awareness of the potential risks to the environment such as an oil spill in ice as well as impacts on traditional human activity. Similarly, there is awareness that there will be a demand for increased navigation services such as aids to navigation, charting and emergency response capacity. However, many questions remain about what impact sea ice trends and resource development have had on shipping and accidents. To date, the Arctic Marine Shipping Assessment (AMSA) project has provided a snapshot of Arctic shipping traffic patterns and activity for the year 2004 and suggests a further research opportunity exists to conduct a trend analysis of shipping activity. The AMSA report suggests that “As marine activity continues to expand in the Arctic, statistical trends indicate that the potential risk of vessel mishaps and marine pollution incidents also increases” (Arctic Council, 2009). However, this is not necessarily the case where risks are managed. Accident trends in the Canadian Arctic suggest that safety management, vessel design and navigation experience have had positive impacts and one must look more closely at specific areas of operation, vessel types and activity to identify opportunities to improve risk management including both prevention and response. So the question remains “What can we learn from recent trends in vessel traffic and accident rates to better understand potential navigation impacts in the future?” Using the AMSA Shipping Database (Arctic Council, 2009) and a spatial trend analysis of Canadian Arctic shipping traffic and vessel accident rates covering the period 1987 to 2008, this paper will report on preliminary findings, show where accident rates are increasing and decreasing, provide traffic trends for each Shipping Safety Control Zone, help to dispel a few myths, and possibly confirm other rumours.

KEY WORDS: Arctic; shipping; traffic; casualty, marine; trend; safety.

INTRODUCTION

The Arctic Council, representing the member states of Finland, Iceland, Norway, Russian Federation, Sweden, the United States of America and permanent participants representing Arctic Indigenous populations was formed in 1996 to provide a forum to promote cooperation in sustainable development and environmental protection in the Arctic. In 2002, the Arctic Council expressed concern that a reduction in Arctic sea ice will lead to increased transport and access to resources and that these emerging activities in the Arctic require a more coordinated approach to sustainable resource extraction and pollution prevention (Arctic Council, 2009). While overall Arctic sea ice extents have been decreasing for the past 50 years, the Canadian Arctic shows year to year variability in ice coverage. Figure 1 illustrates changes in ice coverage for all Canadian waters north of 60° and Hudson Bay. Certainly, access to the Canadian Arctic has been governed by the Arctic Shipping Pollutions Prevention Regulations in order to manage vessel safety and the degree of risk presented by ice regimes, but increased ability to access the Arctic does not necessarily translate to increased activity.

Figure 1. Historical Canadian Arctic Ice Coverage for Oct. 15, 1971-2009 (Source: Environment Canada, Canadian Ice Service, 2009)

If we recognize that resource extraction in Canada’s Arctic is driven by price and transportation feasibility then one would expect to see increased exploration and project development traffic as oil and mineral prices rise. But resource extraction in the Canadian Arctic is not just a function of feasibility; it has also been a means of establishing sovereignty. For example, in the interests of establishing more Canadian control over Arctic oil and gas resources, the government formed Panarctic Oils in 1968 which consolidated exploration efforts with the government as the major shareholder. In 1985, the MV Arctic began to carry crude oil shipments from Bent Horn to Montreal for Canarctic Shipping Company—also controlled by the federal government. The increased tanker traffic was more the...