



A model for the world

Environmental navigation: Vessel Traffic Management on Canada's West Coast

K. Joseph Spears

The world economy is dependent on shipping and the free movement of goods and commodities. Over 90 per cent of world trade is carried by 60,000 commercial vessels. The recent developments with Canada's potential export of oil sands to Indo-Pacific markets has highlighted the regulation of shipping issues on Canada's West Coast. For the last 125 years, west coast shipping has been essentially unnoticed and has flown under the radar in the Canadian and British Columbian psyche.

Canada and British Columbia have recently woken up to the fact that we are an ocean nation and shipping is critically important to our economic future in a changing world. We only have to look at proposed increase pipeline capacity to tidewater, increased coal metallurgical exports and potential LNG developments in conjunction with the Asia-Pacific Gateway Corridor Initiative to see that these all have a major shipping component. Unlike Norway, we are not a nation of seafarers. This is not a commercial, political or environmental issue but rather a national issue that has many different components, all of which need to be considered equal in importance and relevance.

In order to move forward in a changing world, as a nation, Canada needs clear thinking around these important maritime governance issues which have an environmental risk component. We should not be afraid of dialogue and debate. This is too important an issue to undertake on an ad hoc basis. This article will look



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at the importance of environmental navigation by examining Vessel Traffic Management with particular focus on Canada's West Coast waters. The future regulation of shipping on Canada's West Coast will determine access to export markets.

The world shipping community recognizes that shipping has an environmental impact given its scope and size. Few industry sectors are as global as shipping. The industry is working hard to minimize its environmental footprint through leading-edge thinking, the development of technologies and best practices on issues such as air emissions, marine-mammal interactions, hydro-acoustical ship-generated noise, ballast water exchange and navigating in certain marine protected areas at specific times in a voluntary and/or regulated manner. Industry-led initiatives, such as the Sustainable Shipping Initiative and Green Marine — a leading Canadian non-governmental agency made up of shipping firms and port authorities — have led to many great results through a collaborative approach. One such example is Port Metro Vancouver's world-leading development of shore power at Canada Place for cruise ships, allowing for a reduction in air emissions.

Given the international nature of shipping, there is the requirement for

a globally uniform regulatory regime. It often takes serious time and effort to create consensus with industry and governments on changes to a global industry that could collectively cost billions of dollars. That is one of the strengths of the International Maritime Organization (IMO), arguably one of the most successful arms of the UN. It has the ability to identify a problem, reach a globally acceptable solution, often in a very technical complex area, and then implement an international agreement through flag and coastal states. Shipping knows it needs to evolve and respond to its environmental impact and has been very proactive on this front.

The notion of the environmental navigation is actually an old concept that can be traced back to early negotiations leading up to the *Law of the Sea Convention*. The concept has seen a reawakening in light of the revolution in green and/or sustainable shipping and is thought to be an over-arching concept that brings together public and private sectors to capture all of the elements. Environmental navigation creates a working concept which seeks to minimize environmental impact and limit environmental risks and damage. It embraces many elements of the shipping regulatory regime which the Government of Canada has adopted

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to give effect to the *Law of the Sea Convention* (ratified by Canada in 2003) and the various legal instruments enacted by the IMO and adopted as legislation by both the flag and coastal states.

Canada takes a risk-based approach to shipping governance. There is no reason why there cannot be a full and open dialogue on the subject of environmental navigation in Canada. Our economic future depends on this discussion. The problem is complicated because we have very few ship owners in our country and, on the West Coast, most of our export commodities are carried on foreign-flagged vessels. That actual ship owners and/or charterers are not found in the debate makes for a one-sided argument. The issue is further complicated by the lack of scientific data on ocean issues on Canada's West Coast and cuts to ongoing ocean research.

Canada has been a leader with respect to environmental navigation through Vessel Traffic Management schemes (VTS) since these radical ideas were first proposed. The late Captain Dave Brenner was a driving force in developing this regime. In fact, Canada led the world with respect to the shore-based control of shipping in the 1970s. There has always been a conflict between freedom of navigation, often regulated by the flag state, and regulation by the coastal state and its shore-based controllers. Some of the world's first vessel traffic schemes were put in place in the approaches to Canso Strait and the Bay of Fundy by the Canadian government in response to the *M/V Arrow* oil spill in 1970. At that time, control of shipping by the coastal state was considered controversial as it took away the right of freedom of navigation. Over time, VTS has matured as an accepted component of navigation in conjunction with compulsory pilotage explored in an earlier article (*BC Shipping News* November 2011 issue). This combination has worked very well on Canada's West Coast and has achieved an impressive safety record.

The land-based VTS operated by the Canadian Coast Guard is not unlike air traffic control where vessel controllers provide information and navigational advice but it is not prescriptive. There



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are no specific routing directions or navigation advice given by shore-based controllers who normally are not certified mariners. There are also radar gaps in coverage on a coastline of 28,000 kilometres with 6,000 islands interspersed throughout these waters. There are a number of policy measures such as "areas to be avoided", "traffic separation schemes", and "recommended navigational tracks" for vessels already in place under the Canadian regime. There are also Movement Restriction Areas (MRAs) wherein local safety regulations have been established by legislated authority. This regime is set out under the *Canada Shipping Act, 2001* (Part 5-Navigation Services) which sets the Vessel Traffic Service Zones.

Prior to beginning a voyage within Canadian waters or entering from seaward, reporting traffic (i.e., most commercial vessels) are required to obtain a VTS clearance before proceeding on its voyage. A clearance is issued by a Marine Communications Officer (MCO) after screening information about identity, condition, cargo and intentions of the vessel. As it proceeds on its voyage, the ship is required to maintain a listening watch on designated marine VHF radio channels and report at specific positions, Calling-In-Points (CIPs). In turn, the vessel is provided with information, advice, and sometimes directions pertaining to other marine traffic, as well as navigational safety and weather information



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by the VTS Centre. There is not complete radar coverage in all of these coastal areas but Automatic Identification System (AIS) provides space-based and radar monitoring for real time positions. AIS transmitters are mandatory in all vessels over 300 tonnes and send a coded signal giving information concerning the vessel.

With some exceptions, every ship 20 metres or more in length is required to participate in the system. Vessels bound for the ports of Prince Rupert and Kitimat will enter an area of responsibility of the Prince Rupert Traffic Zone. The Prince Rupert MCTS Centre operates 12 remote VHF radio sites. The Prince Rupert Zone, the largest VTS zone in Canada, extends from Cape Caution to the Alaskan border and encompasses more than 77,000 square kilometres (30,000 square miles).

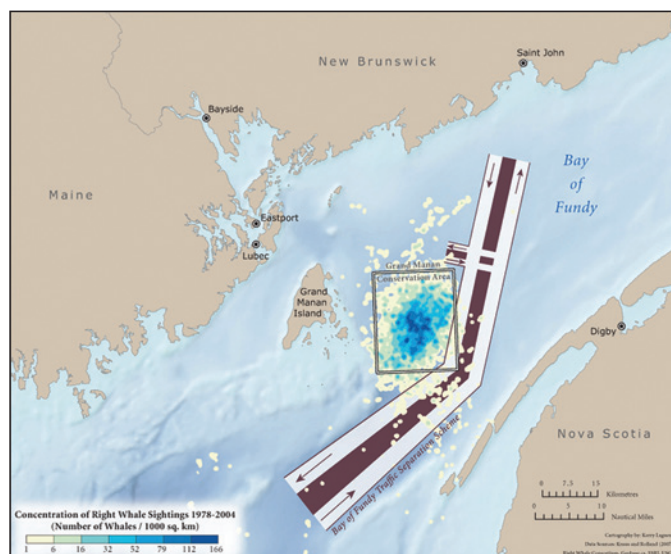
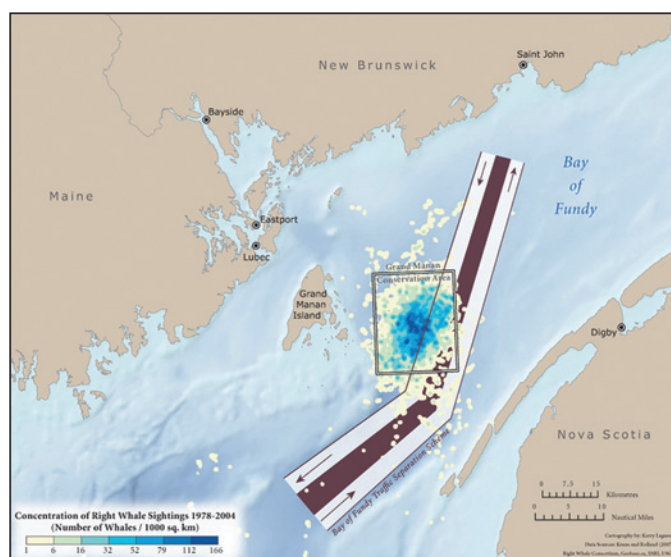
In the entrance to the Strait of Juan de Fuca, there is a joint U.S./Canada VTS system operated by the U.S. Coast Guard

and the Canadian Coast Guard. This takes into account the congested waters and the international boundary between Canada and the United States and it is managed in a holistic fashion and by an international agreement. In this area, with a high concentration of pleasure craft, it is not uncommon to have over 10,000 vessels navigating through these waters during the summer. Many of these are non-reporting vessels. Recently, the Government of Canada has taken steps to consolidate these vessel traffic centres.

The Canadian Coast Guard is the lead agency with respect to vessel traffic services that acts to help prevent maritime collision incidents. With an increase in vessel traffic and recognition of the growing importance of environmental factors, vessel traffic systems are capable of taking into account environmental considerations. Recently in the Bay of Fundy, Canada adopted and moved its vessel traffic scheme to avoid interaction with the Atlantic right whales, which is an endangered species. In that area, there is a great deal of tanker traffic transiting in and out to the Port of Saint John, New Brunswick. This has minimized whale/vessel strikes considerably and has been considered a great success. Similar steps were taken off Southern California by the U.S. Coast Guard through the development of traffic lanes away from areas known for their whale concentrations.

What is clear is that industry, government and other groups working together can minimize environmental impacts. A cornerstone of environmental navigation is the existing vessel traffic systems and regimes that are in compliance with the *Law of the Sea Convention* and can have a very positive effect in balancing competing rights. There is a balancing of rights between freedom of navigation and protection of the environment. We constantly need to discuss this balance and have a mechanism that allows for the free flow of information. The key here is to have underlying environmental information and baseline data in a usable format to allow for the development of best practices and a risk-based shipping governance regime that is flexible and minimizes environmental impacts and risks. Canada has led the way with respect to vessel traffic services. In this century, known as the maritime century, environmental navigation will continue to respond to new challenges. Environmental navigation on Canada's West Coast is a model for the world and proposed increased marine shipping activity can be managed to minimize the environmental risk by a combination of VTS, compulsory pilotage, designated vessel traffic lanes and marine spatial planning. Canada has a solid base from which to build. Canada's economic future depends on getting this balance right in the maritime century.

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Right whale density in the Bay of Fundy in relation to the old shipping lanes (top) and the amended shipping lanes (bottom). Source: The Canadian Whale Institute (www.rightwhale.ca).

Kerry Laguerre, Bay of Fundy Shipping Lanes.