



British Columbia Coast Pilots: Emerging Issues

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The BC Coast Pilots (BCCP) have piloted vessels in and out of harbors since the mid-1800s and hazards that have existed for millennia are still around. To ensure safe and responsible pilotage, the BCCP continuously assess the marine environment to identify current and emerging issues. As trade becomes ever more important to our economy, and as we see advancements in marine transportation, it is more important than ever to understand the risks and work with stakeholders — like government, First Nation communities and its leaders, environmentalists, and the shipping industry — to mitigate potential hazards or accidents. This document intends to outline what those emerging issues are, why they are challenging, and how the BCCP is working to address them.

Larger Ships

Over the last 15 years, ship sizes have increased by six per cent. We are in an era of mega ships, carrying more cargo than ever before. Previously, it was thought that a ship of 250m in length was a large vessel. Now we regularly pilot vessels 366m in length, the equivalent of almost four football fields, and 400m vessels are planned for the west coast. Cruise ships are also getting bigger and have increased in length by 27 per cent from 1995 to present. Years ago, a cruise ship would carry 2,000 passengers. Today, BC Coast Pilots commandeer ships with over 4,000 tourists. Many ports, including the ones along the BC coast, lack the necessary infrastructure to accommodate the emergence of these mega ships.



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As a result, ports and pilots face two related challenges:

1. Increased ship specialization requiring sophisticated and unique port cargo handling systems; and
2. Larger ships that need deeper and wider channels, berths, and more demanding ship handling. Due to channel limitations, wide and longer tank ships in Vancouver cannot be accommodated (since the length and beam guidelines have already been maximized). Larger ships are often less maneuverable than smaller vessels; they may need more assistance from tugboats to stay under control, and thereby depend on the navigational and vessel handling skills of pilots to be handled safely in the constrained waters of harbours.

West Coast ports benefit from having deep water, but also have difficult navigational approaches and facilities (e.g. docks) that are not always designed for larger vessels. These may include limited spacing between vessels when alongside the dock or the inability of fenders on the berth face to absorb the load of the ship expect under the most benign conditions.

Solution

Pilotage has enabled the ports to handle nearly the largest ships afloat and, over time, to accept increasing numbers of such ships. Since large ships show up with little advance warning, pilotage has been a critical factor in enabling ports to respond to the market need by providing the ability to accept such ships without infrastructure improvements in respect of berthing capacities.

The BCCP were instrumental in supporting Vancouver's ability to accommodate larger ships by:

- Developing new navigational procedures to safely handle larger container ships. A computer simulation is still ongoing to determine the largest ship that the First Narrows can handle.
- Completing a Container Berth Risk assessment for developing procedures for docking large vessels at the existing piers in Vancouver. Now 180,000 tonne ships are safely docked at berths that were originally designed for 60,000 tonne ships.
- Completing a 2nd Narrows (Vancouver harbor) risk assessment to improve the safe piloting of tankers with a deeper draft. This increase of draft, in the same channel, was achieved in consultation with BCCP and facilitated by the implementation of various measures: insisting on better surveys, improved charts, improved tidal predictions, having 1-time tidal information over an Automatic Identification System (AIS), better navigational aids, and developing and implementing customized Portable Pilot Units (PPU).

Based on market projections, the increased size and number of mega-ships will continue for the foreseeable future and pilots will continue to need to work with ports and government to design safe practices to ensure the ship and the environment are well protected.



BCCP is a member of the Port of Vancouver's ECHO Program Vessel Operator Committee

Collision Course

When a whale is hit by a ship or other vessel in the water, they are likely to die or suffer a life-threatening injury. Increasing ship, boat or other vessel traffic is a real threat to whales in the water, and the rise in the number and huge size of these vessels means whales are at risk. Often, whales are unable to avoid ships and many collisions even go unnoticed.

A major factor resulting in whales colliding with ships is that many vessel operators do not slow down their ships in high-density areas and also fail to heighten their visual awareness for possible whale presence. Pilots are professionally trained in this regard, and their services are essential to reducing the number of collision with Pacific Coast whales.

Protecting Whales

British Columbia has a productive coastal ecosystem that sustains populations of whales, porpoises and dolphins (cetaceans). The Port of Vancouver's Enhancing Cetacean Habitat and Observation (ECHO) program notes that much of the commercial vessel activity in the southern coast of BC transits designated critical habitat of endangered southern killer whales as well as areas known to be of importance to other at-risk whales.

Damage to cetaceans as a result of ships is threefold: collision with ships, resulting in death or injury; effects of noise pollution, causing susceptibility to diseases and lesser reproduction; and environmental contaminants.

Noise Pollutions

Studies suggest that the sounds of ship's propellers, military sonars, or explosions during oil and gas explorations co-exist with those used by whales for communication and feeding. The underwater noise produced from ships trigger significant drops in cetacean stress hormones, which could be held directly responsible for vulnerability to sickness and compromising procreation of their species. Underwater noise from vessels can also interfere with killer whale echolocation clicks, calls and whistles, inhibiting the ability to hunt, navigate and communicate.

Environmental Contaminants

Contaminants from vessel traffic can accumulate in a whale body, potentially impacting reproduction, development and immune system functions.

Solution

The Ocean Protection Plan (OPP) reinforces the federal government's commitment to minimize the effects of shipping on whales. BCCP is a member of the Port of Vancouver's ECHO Program Vessel Operator Committee, which is exploring ways of implementing concrete mitigation measures that will protect whales while limiting costs for shipowners/operators.

Potential mitigation measures include slowing vessels down to speed to reduce the volume and intensity of ship generated noise. BCCP participated with the ECHO program in 2017 and 2018 to slow down vessels in Haro Straits to reduce the vessel noise impact on the SRKW. Pilots are also reporting the presence of whales in the area to ensure others vessels take avoidance actions. BCCP will continue to work with the Port and government to ensure all appropriate steps are taken for not only the SRKW, but all marine species to reduce the negative impact of commercial marine activities.

Planned Energy Projects

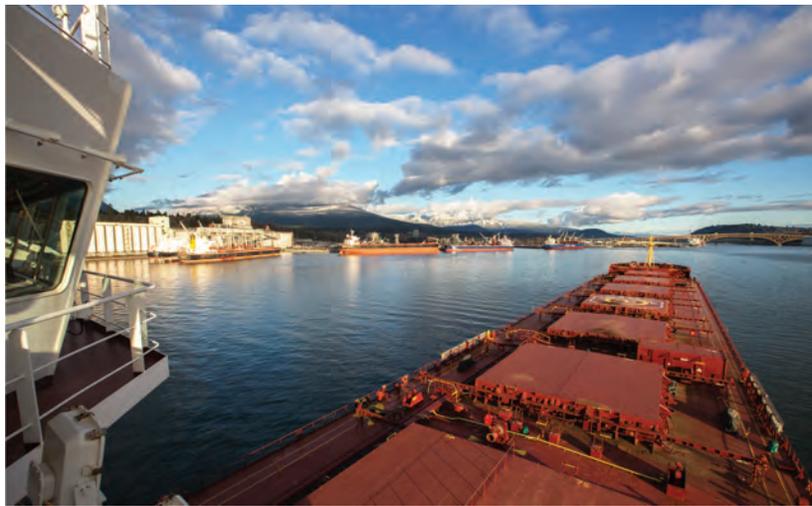
In 2016, eight per cent of total Pacific Pilotage Authority (PPA) assignments were petroleum and tankers. Key catalysts that will increase assignments include the construction of proposed LNG and oil export plants along the BC coast. For example, currently about five double hulled tankers a month ship oil out of Kinder Morgan's Westridge Terminal in Burnaby. That number could increase seven-fold to thirty tankers a month due to the Trans Mountain expansion project which would replace the existing loading berth with three new berths. This has identified the need to provide sufficient experienced marine pilots with local knowledge to match an expected increase in shipping.¹

The safe transportation of oil and gas products is a subject of great concern for all Canadians. On the one hand, energy is an important export and a key contributor to the national economy and prosperity. On the other hand, transporting liquid gas or crude oil over thousands of miles by either pipeline or rail and then transferring it to tankers for even longer distances by water creates risk to the environment.

Solution

Marine pilotage is an important factor in ensuring the safe transportation of petroleum products by water. Due to navigational improvements, including the development of specific pilotage practices, the greater use of escort tugs, and the extension of exclusion zones and restricted areas in which unlicensed organizations are not permitted, the safety record of oil tankers has dramatically improved since the 1970s.²

BCCP have participated in discussions on the West Coast concerning strategies for the safe carriage of petroleum products at sea. Moreover, with all the mitigations the pilots have put in place, the risk to the environment is not an issue. To prepare for increased demand, BCCP alongside with the Pacific Pilotage Authority are consistently investing in the recruitment of the next generation of pilots with the local knowledge of the rugged, challenging coastline, including its weather patterns.



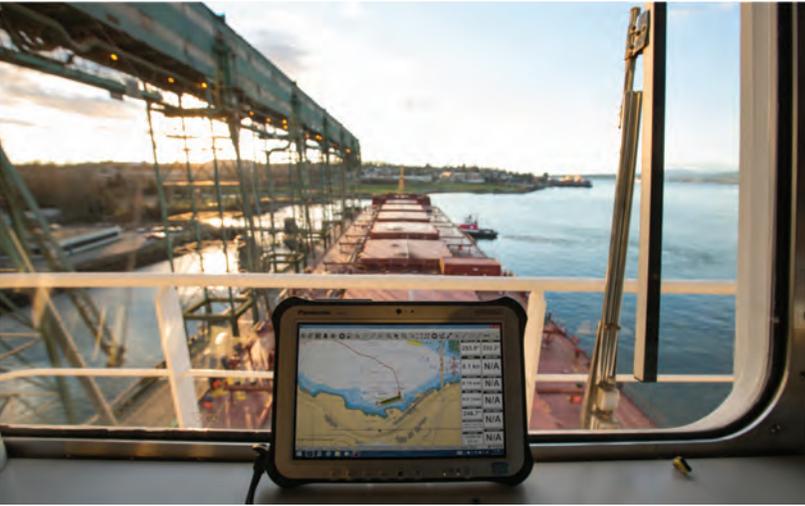
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¹ National Post, "More Marine Pilots Needed for B.C.'s Energy Projects, Says Pilotage Authority," March, 2014

² Context, "World-Class Marine Shipping: The Canada Way," July, 2016

Technology

It is no secret that new technology is impacting all sectors of our lives and the marine industry is no exception. Recently, there were announcements regarding “autonomous ships” which could cross the ocean with no on-board human interaction. While perhaps laudable from a cost saving perspective, the reality is that vessels in close proximity to land require the hands on expertise of a licensed local pilot who is intimately familiar with the coastline as well as the shipboard systems



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BCCP is at the forefront of shipboard navigation equipment and has worked with electronic manufacturers to design, test, and produce highly accurate and specialized equipment (Portable Pilotage Units) that exceeds the technology currently on board vessels today. This equipment coupled with a pilot's years of local knowledge and ship handling, provides the best service for the Canadian public. For example, pilots use Portable Pilotage Units to increase the accuracy and safety of piloting of larger vessels through Vancouver harbor's 2nd Narrows and other confined waterways.

Pilots will continue to develop electronic tools that can enhance their piloting skills, particularly as vessels continue to increase in size. It will be necessary to manage the expectations of some marine stakeholders that in the near future all vessels will be completely unmanned.

Solution