The are many issues related to major marine vessel casualty prevention and preparedness at the in and around BC’s coastal waters. However, there are also solutions to improve marine coastal protection and opportunities for shipping industry investments.
Regional issues reflect:

- Current and proposed ship-based industrial projects – such as Container Terminals, Liquefied Natural Gas (LNG) export – have and could result in unprecedented increase in vessel traffic.
- Lack of coastal protection investment and leadership by governments and the shipping industries in marine protection for managing a major vessel causally.
- Regulatory and environmental committees do not provide a forum for cooperative discussions on regional matters.
- Failure to engage First Nations and coastal communities in marine shipping oversight and response management.

A major vessel can be viewed as over 300 Gross Tons (GT) in size and sea-going, IMO convention vessels.
The traffic pattern for major sea-going vessels in and around the central and north coast are:

- Access to ports of Prince Rupert, Kitimat, and Stewart.
- Northern Great Circle Route comprised of vessel access to Asian ports from Canada, United States, and Panama Canal.

Shipping (transits per year) is expected to double by 2017 and triple by 2027.

Potential Vessel Traffic - Large Commercial Vessels
Northern BC, 2013 to 2032
Total Transits by Vessel Type

Shipping (transits per year) is expected to double by 2017 and triple by 2027.

Nuka Research & Planning Group, 2013. Volume 2: A vessel traffic study assessing the current and potential levels of shipping on the west coast of Canada, and current volume of hydrocarbons being shipped or used as fuel.
Types of Environmental Damage

Environmental damages from a major vessel casualty relate to the four types of cargos:

1. Lumber, wood, grains, ores – carried in bulk carriers.
2. Dangerous goods – carried in special chemical carries.
3. Containers and their contents – carried by container and RO-RO vessels.
4. Oil Products (persistent and non-persistent) that includes condensates, diesel, jet fuels, crude, heavy refined oil and bio-fuels – carried in tankers and barges.

Coastal Protection

What is Required

The following outlines the important elements to manage a major vessel casualty. This also includes a vessel that is needing assistance at sea. The objectives are:

1. To protect the marine environment and all its ecological, cultural, social, and commercial values.
2. To protect the assets of the shipowner.
3. To be fair, equitable, transparent, and practical in decisions and action by all jurisdictions – including First Nations – and the shipowner.
Ocean Rescue
MANAGING A FLOUNDERING VESSEL

There must be a capability to undertake timely open-ocean rescue of a floundering vessel in distress before it drifts on shore. This needs to be achieved with a suitable, powerful, seaworthy tug, that is operated by trained and tested captain and crew.

Place of Refuge
DECIDING ON WHAT TO DO WITH A DISTRESSED VESSEL

There must be an equitable, safe and suitable decision about the disposition of a rescued or damaged vessel that threatens the environment such as:

- Leave it at station;
- Tow it further offshore;
- Scuttle it;
- Direct it to a place of refuge.
Salvage
UNDEERTAKING REPAIRS AND MEASURES TO REDUCE ENVIRONMENTAL THREAT AND/OR DAMAGE

To mitigate an environmental threat or pollution from a damaged vessel requires salvage operations that involves special equipment and an experienced salvor team to:

- Provide damage surveys.
- Undertake hull patching.
- Conduct stability analysis.
- Remove (lighter) polluting cargo and fuels.
- Disassemble and remove a shipwreck.

Incident Management
BALANCING VALUES AND DIRECTING RESPONSE

If the vessel casualty is complex and protracted, there requires effective incident management to:

- Identify all ecological, social, cultural, and commercial values for the threatened/affected region;
- Develop agreed on response objectives and strategies;
- Integrate into one cooperative response team comprised of all affected jurisdictions – including First Nations, the shipowner, and contracted services.
- Supervise a large workforce for field operations.
Response Gap Analysis
KNOWING WHAT WORKS – WHEN, WHEN AND HOW

To build confidence that emergency operations will be effective, there requires a Response Gap Analysis:

- Determine when and where winds, waves, currents will impede operations and logistics;
- Ascertain if response measures will work for all types of oil being transported as cargo or as bunker fuel;
- Address response measures for other types of cargo, such as debris from containers and, chemical spills.

Geographic Response Plans
IDENTIFYING REGIONAL VALUES AND PROTECTION MEASURES

To make rapid decisions on what to protect and how from a release of cargo – oil, chemicals, containers, ores/grains – and/or the vessel’s bunker fuels, then there must be Geographic Response Plans that:

- Recognize what is feasible as determined by response gap analysis.
- Reflect the ecological, social, cultural, and commercial values of the threatened/affected region.
- Identifies areas - shores, infrastructures, habitats - needing protection and how.
- Recognizes the logistical needs to move people and equipment, and to mitigate responder impacts on communities.
Shoreline Workforce
GATHERING PEOPLE TO DO THE WORK

If there is extensive, wide-spread coastal pollution – say from oil as cargo or bunker, a debris field from a container losses, general cargo such as lumber, grains – there requires a large, willing and available workforce that must be registered, screened, trained, assigned, supervised, and paid. The number of workforce members can be from a few hundred to many thousand, as well as from a divergent cross-section of society, interests and skills.

Field Operational Logistics
MOVING PEOPLE AND EQUIPMENT

If there is an extensive, wide-spread coastal pollutions demands a very high capability to move people and equipment to and from work sites – referred to as logistics. This necessitates the use of both local and specialized vessels of all sizes and types by crew with localized knowledge.

Solutions identified: 2
Open Ocean (Offshore) Oil Spill Response
RESPONDING WITH SPECIALIZED RESOURCES

A wide-spread oil spill that occurs offshore requires the deployment of large ocean going skimming vessels, as well as the potential application of non-mechanical response tools such as in-situ oil burning and using dispersants.

Hazardous Chemicals Preparedness & Response
DEALING WITH THE DANGEROUS STUFF

For public safety and environmental protection, the requires highly specialized equipment, technologies, people and procedures to respond to a chemical incident such as a condensate spill, containers with packaged chemicals, chemical tanker casualty, or an LNG release.
Debris and Oily Waste Management
PREPARING TO DISPOSE OF WASTES

Regardless of what type of pollutant is retrieved – oil, container debris, chemicals, lumber, grain etc. – there needs to be a robust waste disposal capability and capacity planned ahead or else operations will quickly cease.

Wildlife Response
ADDRESSING A MORAL AND ECOLOGICAL OBLIGATION

There is a moral and ecological obligation and expectation to protect and treat affected coastal wildlife with the similar investment and attention as damaged shores – structured, realistic, tested, paid for, etc.
Responding to a vessel casualty is expensive and damage claims high. Canada has approximately $1.3 billion for a spill of persistent oil - if transported as cargo – but $220 million for responding to any other type of major vessel casualty – amount dependent on size of vessel.

Summary
MANAGING A MAJOR MARINE VESSEL CASUALTY

British Columbia has very marginal or no emergency capacity for a major vessel casualty and its consequences because Canada does not have a regime for preparedness that address open-ocean rescue, salvage, places of refuge, management of other non-oil cargos such as hazardous chemicals and container debris.
British Columbia has some capacity for a ship-source oil spill as Canada does have a legally mandated marine oil spill response regime, but with very narrowly defined preparedness standards in areas of large workforce establishment, wildlife response, oily waste management, open ocean spill response, use of alternative response tools (in situ oil burning and dispersants).

Influence the establishment of public oversight with coastal community involvement to monitor, assess regional vessel casualty risk and response preparedness and to leverage investments and common solutions. This also include mitigation cumulative and chronic ecological impacts from vessel operations.