Oil spill risks in British Columbia from offshore hydrocarbon exploration and development: Separating myth from reality

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BRITISH COLUMBIA

Stipulations and Reality Check

- 15B gallons of oil as fuel or cargo pass through the Strait of Juan de Fuca each year (WCMSRC 2004)
- Risks of an accident from oil extraction and transport activities have been significantly reduced ~3-fold since mid-1980s (NRC 2003)
- 62.5% of petroleum releases in N. American waters from natural seeps and 4.7% from extraction and transportation (NRC 2003)

Stipulations and Reality Check

- Major oil spills are more damaging than previously thought
- *"… oil persisted beyond a decade in surprising amounts and in toxic forms, was sufficiently bioavailable to induce chronic biological exposures, and had long-term impacts at the population level."* (Peterson et al. 2003)

Stipulations and Reality Check

- Only going to look at offshore hydrocarbon exploration and development
- Not going to address:
  - Enbridge Gateway Project
  - Alaska Pipeline
  - Inshore oil transportation

Examining the “perceptions”

1. *“The BC coast is globally significant and therefore any expansion of offshore activities that might result in oil spills should be prohibited”*
2. *“BC’s extreme winter climate will likely result in oil spills or impede their cleanup if offshore hydrocarbon exploration and development activities are allowed to proceed”*

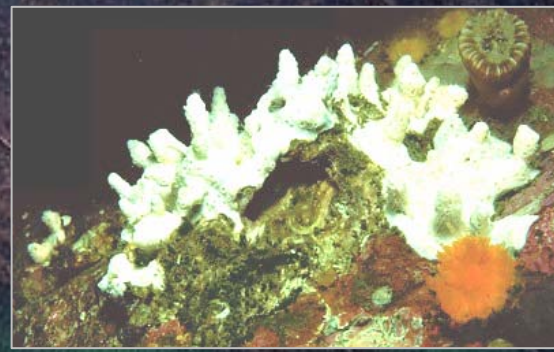
1. "The BC coast is globally significant and therefore any expansion of offshore activities that might result in oil spills should be prohibited"

- Arguments:
  1. BC's **marine biological communities** are globally significant
  2. BC's **fjord and island dominated coastline** is globally significant
  3. BC's marine biological communities are more **vulnerable** than other areas

1. “*BC's **marine biological communities** are globally significant and therefore too important to safely allow OOG activities to proceed”*

Ecological perspective:

- BC’s marine biological communities are part of a biological continuum stretching from Baja, California to the Bering Sea
- Overall, BC has less species than California but more than Alaska
- BC has few known marine endemic marine species



White stubby hydrocoral

Limpet-like yellow sea slug

Khoyatan Marine Lab

1. "*BC's **marine biological communities** are globally significant and therefore too important to safely allow OOG activities to proceed"*

Ecological perspective cont':

- Exceptions to this rule include breeding bird colonies, especially on the Scott Islands
  - 5.6M breeding seabirds from 16 species
- However, much of BC's marine environment is relatively undisturbed
- BC hosts some of the world's largest remaining intact estuaries

1. "*BC's **marine biological communities** are globally significant and therefore too important to safely allow OOG activities to proceed"*

- Socio-cultural perspective:
  - BC's coastal First Nations populations rely heavily on marine resources for food, social, and ceremonial uses
  - In this respect, BC - like Alaska - is unique with respect to many developed nations

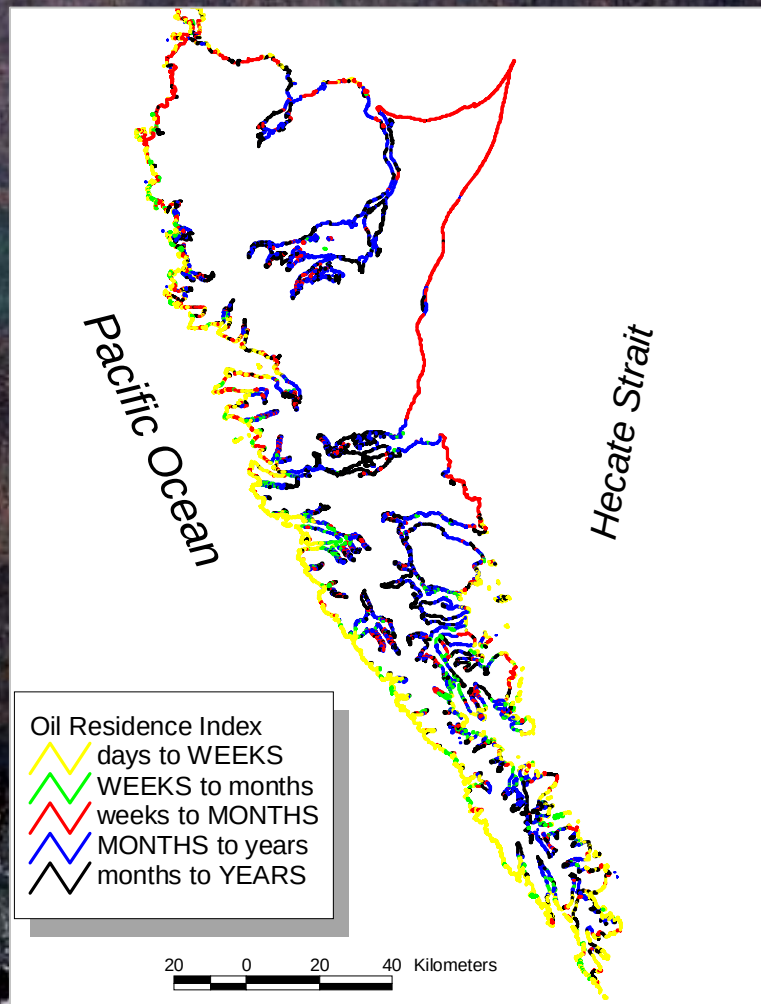
1. “*BC's **marine biological communities** are globally significant and therefore too important to safely allow OOG activities to proceed”*

- Oilspill Perspective:
  - Many marine communities - particularly in nearshore environments - are structured by disturbance

*2. BC's **fjord and island dominated coastline** is globally significant and therefore too important to safely allow OOG activities to proceed*

Ecological perspective:

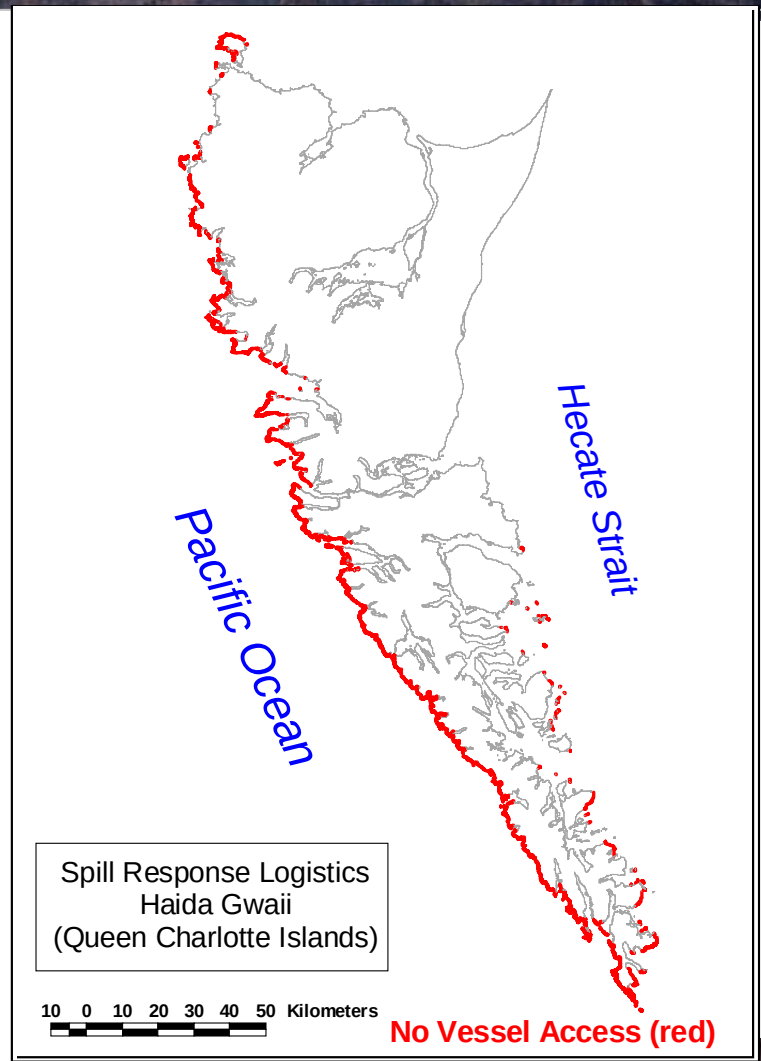
- Highly crenulated coastline presents more length and area to clean up
- Low wave exposure coastlines may harbor oil for months to many years
- High tidal stream velocities



*2. BC's **fjord and island dominated coastline** is globally significant and therefore too important to safely allow OOG activities to proceed*

Socio-cultural perspective:

- First Nation food, social, and ceremonial uses crowed into a smaller geographic area due to coastline complexity
- There is currently no terrestrial access to most shoreline in BC



*3. BC's **marine biological communities are more vulnerable** than other areas and therefore too important to safely allow OOG activities to proceed*

Ecological perspective:

- No scientific evidence to support this statement
- In contrast, many tropical nearshore environments highly vulnerable

“The BC coast is globally significant and therefore offshore oil and gas activities should be prohibited”

Conclusion:

BC's marine communities are not globally significant in terms of biological composition, structure, and vulnerability to oiling; however, they are globally significant in terms of their intactness and importance to First Nations. In addition, coastal complexity may magnify the impacts of a spill on First Nations as resources are concentrated in a small geographic area.

2. "BC's extreme winter climate will likely result in oil spills or impede their cleanup if offshore hydrocarbon exploration and development activities are allowed to proceed"

Arguments:

1. Severe wind and wave climate **may cause oil spills** as a result of building and operating infrastructure
2. Wind and wave climate **too severe to permit effective clean up** of oil spills

1. *"Severe wind and wave climate may cause oil spills as a result of building and operating infrastructure"*

- BC has extreme winter with a significant wave height of 4m (Transport Canada 1993)
- 28m wave has been recorded (Gower and Jones 1994)
- Extreme constant winds in winter
- However,
  - Offshore activities currently operating in equally severe wave climates (e.g. east coast of Canada, North Sea)
  - No sea-ice in BC
  - Shallow operating depths (< 100m)

2. *"Wind and wave climate are too severe to permit effective clean up of oil spills therefore offshore activities should be prohibited"*

- Winter wind and wave climate prohibits booming, skimming, and *in situ* burning
- Beaches too exposed to permit safe clean up
- Lack of access to most of BC coastline
- Predominant wind patterns onshore
- However,
  - Summer and fall spills likely able to be addressed with traditional methods of booming, skimming, and in situ burning

Recommendations

- Ensure rescue tug availability for disabled vessels
- Develop *in situ* oil burning or dispersant use guidelines
- Ensure adequate funds available for spill planning and response
- Initiate a natural resource damage assessment policy or process
- Develop an acceptable spill agreement between federal and provincial governments
- Complete FN coastal inventories

Acknowledgements

- Dr. John Harper, Coastal and Ocean Resources Inc.
- Stafford Reid, Ministry of Environment

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