CENTRE POUR LE TRANSPORT MARITIME RESPONSABLE
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CENTRE FOR RESPONSIBLE MARINE SHIPPING

# RESPONDING TO OIL SPILLS IN CANADIAN WATERS

SUMMARY PRESENTATION

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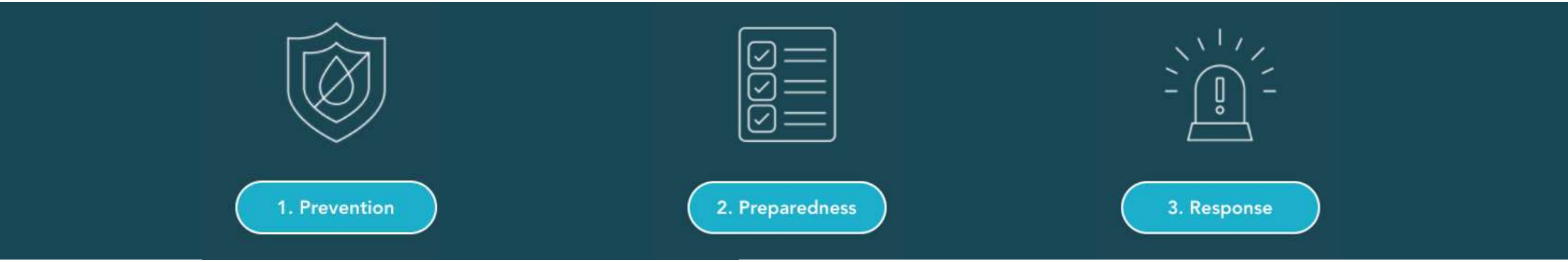
# THREE PILLARS OF OIL SPILL RESPONSE

The number of marine oil spills and amount of oil spilled worldwide has decreased over the years due to improved safety measures.

Canada has established three pillars of defence to protect the marine environment from the risk of spills:

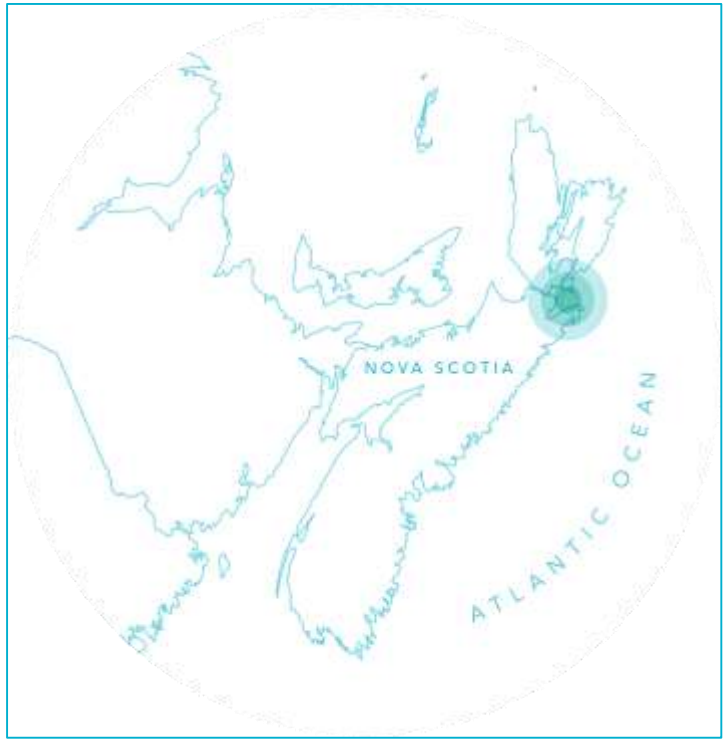



- Mandatory double hulls
- Escort tugs
- Inspections
- Local marine pilots
- Aerial monitoring activities

- Coastal risk assessments
- Regional, local response plans
- Agreements with response organizations
- Equipment caches
- On-water exercises

- Polluter
- Response organizations
- Canadian Coast Guard
- Incident Command System
- Polluter Pays Principle

# OIL SPILLS IN CANADA




## 1970: SS Arrow

- Canada's largest oil spill
- Caused by ship grounding
- 10 million litres of fuel oil spilled


## 1988: Nestucca

- Largest oil spill on Canada's Pacific Coast
- Caused by ship collision
- 874,430 litres of fuel oil spilled

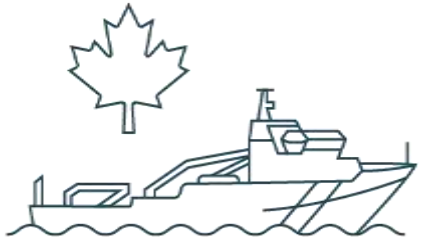

## 2016: Nathan E. Stewart

- Most recent spill of note
- Caused by ship grounding
- 110,000 litres of diesel fuel spilled

# WHO RESPONDS TO AN OIL SPILL?

Canada's oil spill response system is a public-private partnership that relies on relationships among key partners:

**The Polluter**



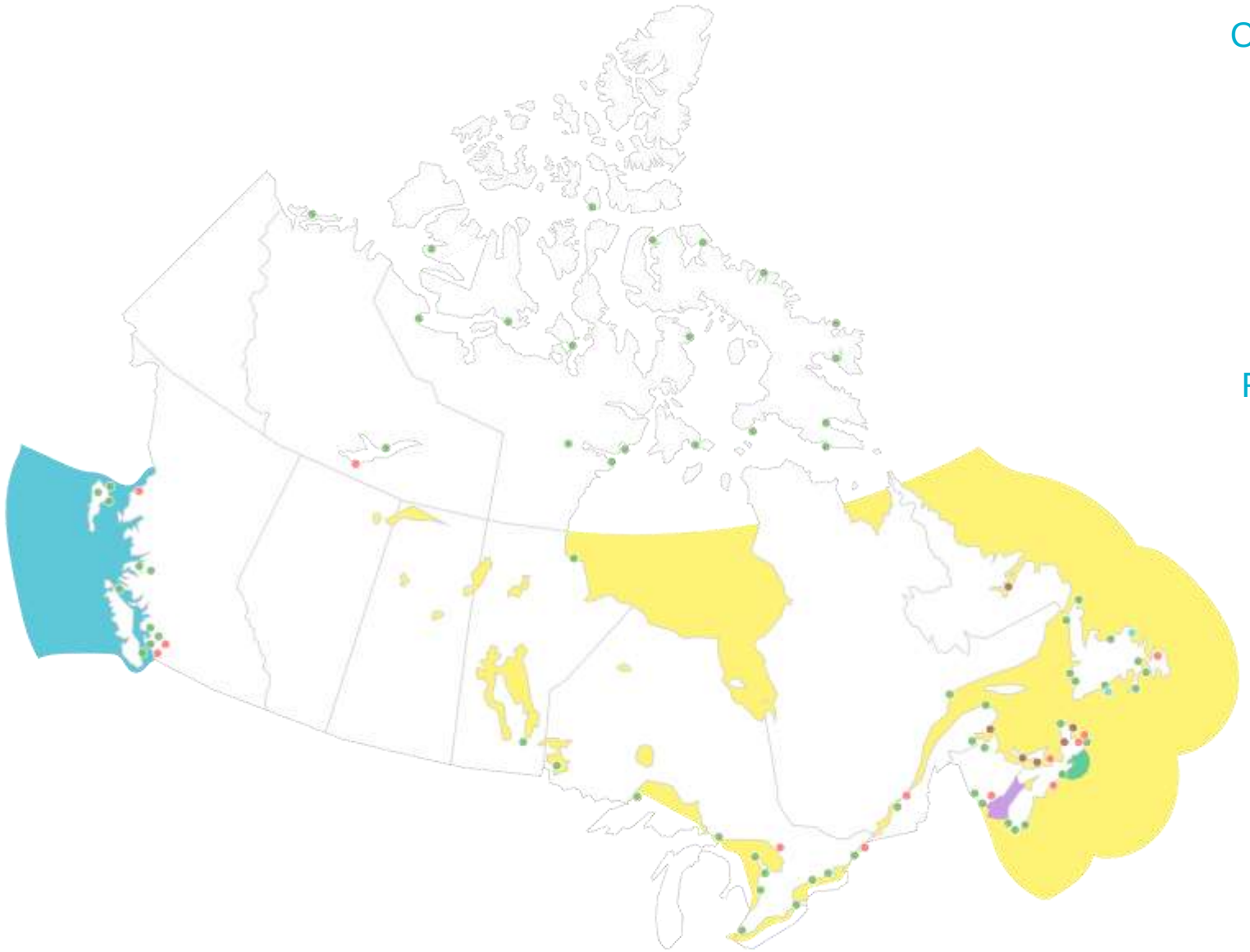
**Canadian Coast Guard**

**Response Organizations**

**Governments**

**Indigenous, Coastal Communities & the Public**

# CANADA'S OIL SPILL RESPONSE ASSETS



## Canadian Coast Guard

- Staffed facilities (ship)
- Staffed facilities (shore)
- Unstaffed caches
- Unstaffed caches (seasonal)

## Response Organizations

- Western Canada Marine Response Corporation
- Eastern Canada Response Corporation
- Atlantic Environmental Response Team
- Point Tupper Marine Services

# RESPONSE ORGANIZATION PROFILES

## Western Canada Response Corporation

- Covers Western Canada's coastline
- 55 response vessels
- 7 response bases
- 11 equipment caches

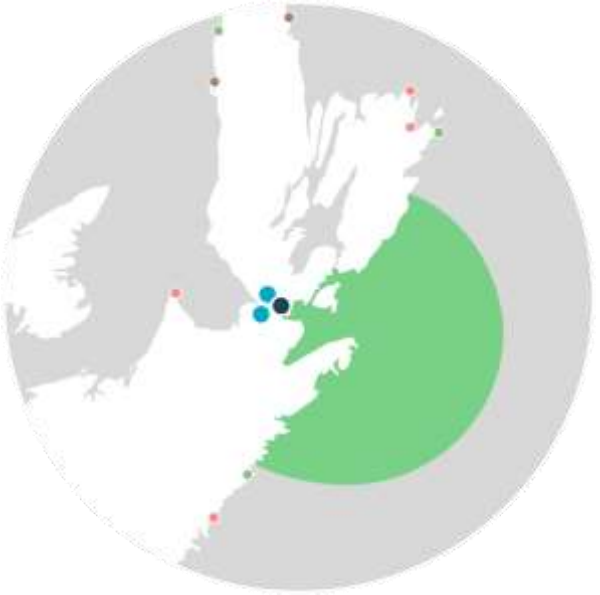
## Eastern Canada Response Corporation

- Covers all navigable waters east of the Rocky Mountains
- 88 response vessels
- 6 response bases
- 3 equipment caches

## Atlantic Environmental Response Team

- Covers the Bay of Fundy region
- 30 response vessels
- 5 response bases
- 3 equipment caches

## Point Tupper Marine Services



- Covers waters around Point Tupper, Nova Scotia
- 12 response vessels
- 1 response base
- 2 equipment caches

# WHAT HAPPENS WHEN A SPILL OCCURS?

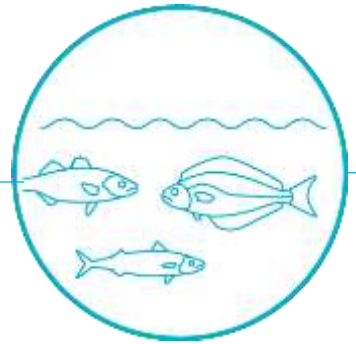
1. Incident

2. Detection

3. Reporting

4. Activation of response teams

5. Response (clean up)



6. End of response

7. Debriefing

# STAGE 1: EVALUATION

Situational information collected pre-spill along with information about the spill is used to determine the best response strategies and clean-up methods to use.

This information includes:

- Location of the spill
- Proximity to sensitive areas, habitats and wildlife
- Type and amount of oil spilled
- Type of water and shoreline
- Sea conditions
- Currents and tides
- Air and water temperature
- Presence of ice, rain or snow





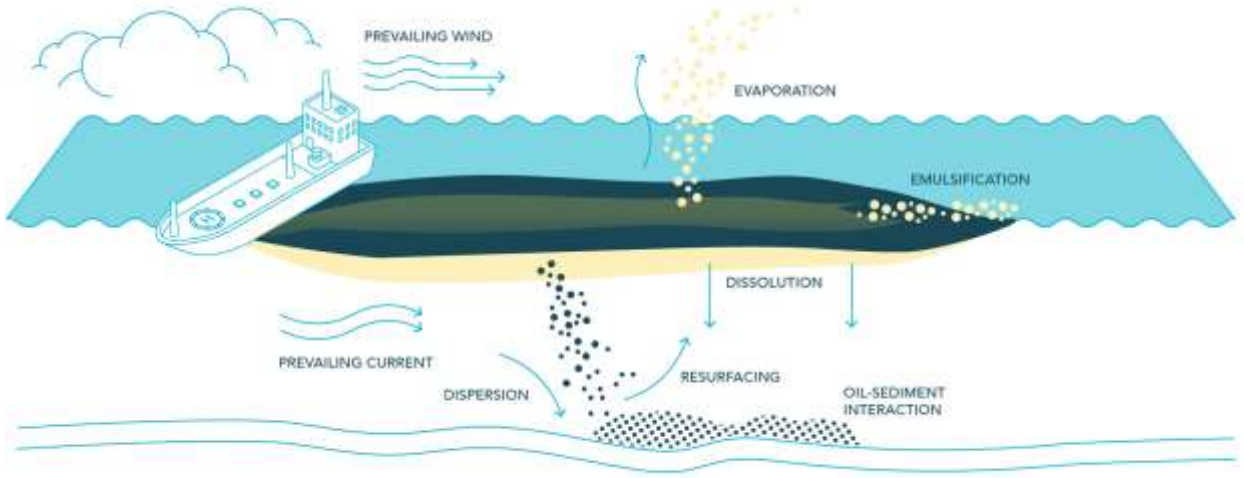

# STAGE 2: CLEAN UP

To prevent the oil from spreading, the slick is first contained with floating barricades and is then recovered from the water.

Clean-up methods used in Canadian waters include:

## Mechanical recovery

## Natural recovery



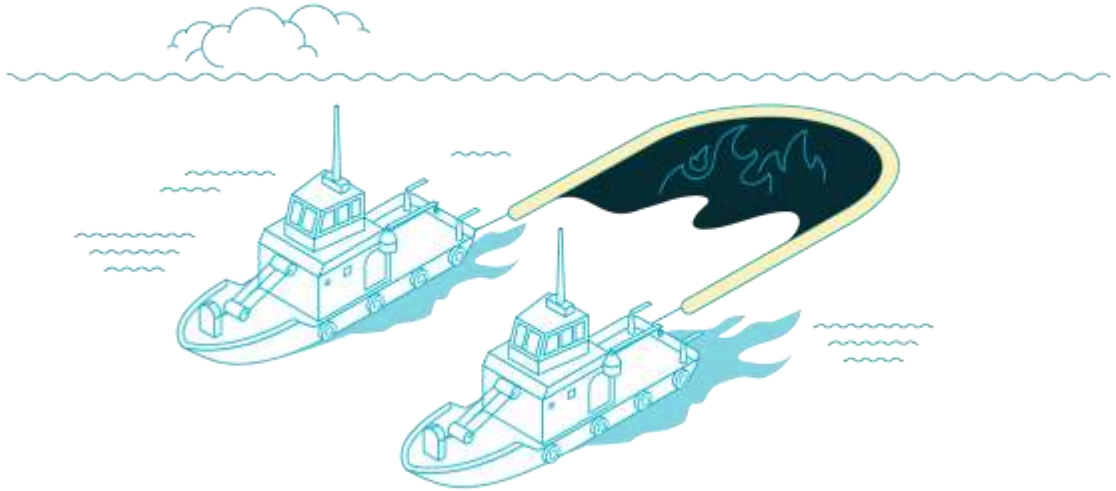
# ALTERNATIVE CLEAN-UP METHODS

Alternative clean-up methods used internationally are currently under study in Canada.

These methods include:

Chemical oil dispersants

In-situ burning

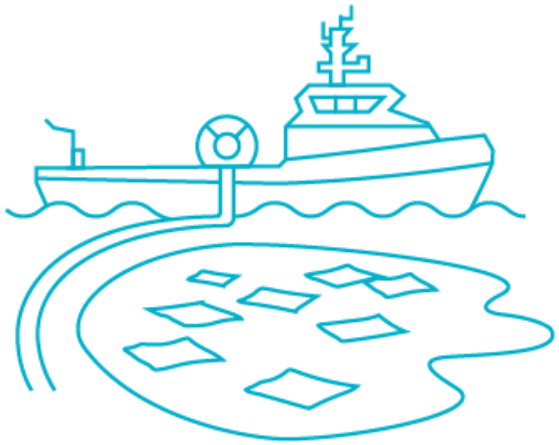


# SHORELINE CLEAN UP

If oil finds its way to the shore, response teams are mobilized for shoreline clean up.

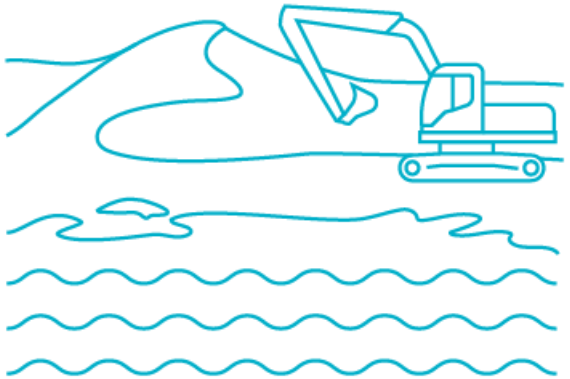
Clean-up methods used to recover oil for the shore include:

Sorbents



Shoreline flushing

Berms



Vacuums

# STAGE 3: DISPOSAL OF OILY WASTE

The safe disposal of oily waste recovered from the water and shores is the responsibility of the polluter.

The choice of the appropriate disposal method depends on the level of contamination of the recovered oil and factors such as:

Type of oily waste

Amount of oil recovered

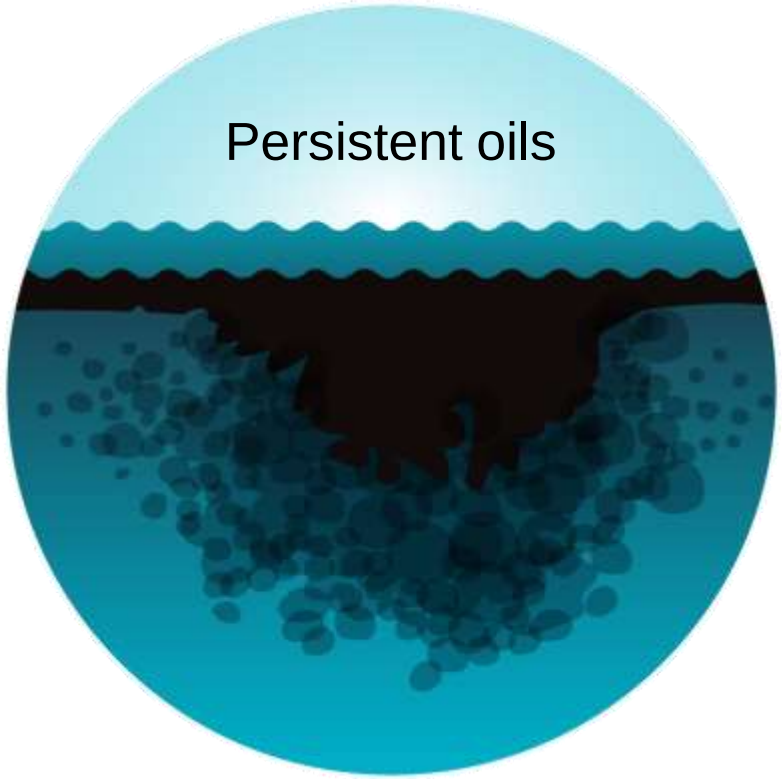
Location of the spill

Storage & transportation capacity

Availability of storage & disposal facilities

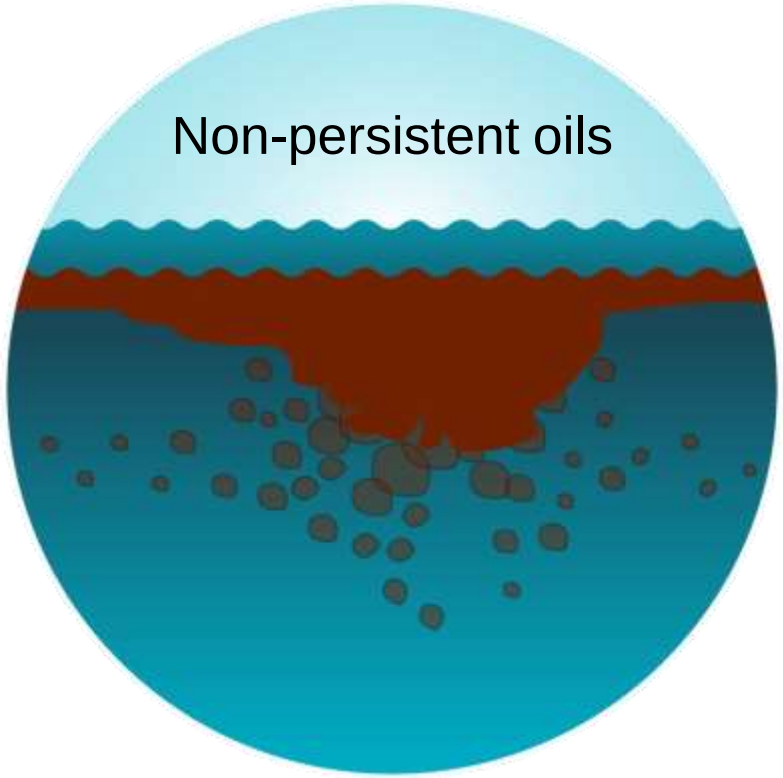
Cost involved

# HOW DO DIFFERENT TYPES OF OIL BEHAVE IN WATER?




Types
- Heavy fuel oil
- Low sulphur marine diesel oil
- Crude oils
- Heavy oils
- Bitumen

Common behaviours
- Spread
- Emulsify
- Interact with sediments




Types
- Gasoline
- Kerosene
- Diesel
- Liquefied natural gas
- Jet fuels

Common behaviours
- Spread
- Evaporate
- Disperse
- Dissolve

# WHO PAYS FOR THE COST OF CLEAN UP?

Under the Marine Liability Act, the polluter is liable to pay for the clean-up costs. The shipowner is the primary source of compensation, covering eligible costs up to a limit.

If the claims submitted exceed the limit of liability of the shipowner, additional compensation may be sought from other industry-funded sources, including:

Canadian

**The Ship-source Oil Pollution Fund**

The SOPF

International

**The 1992 International Oil Pollution Fund**

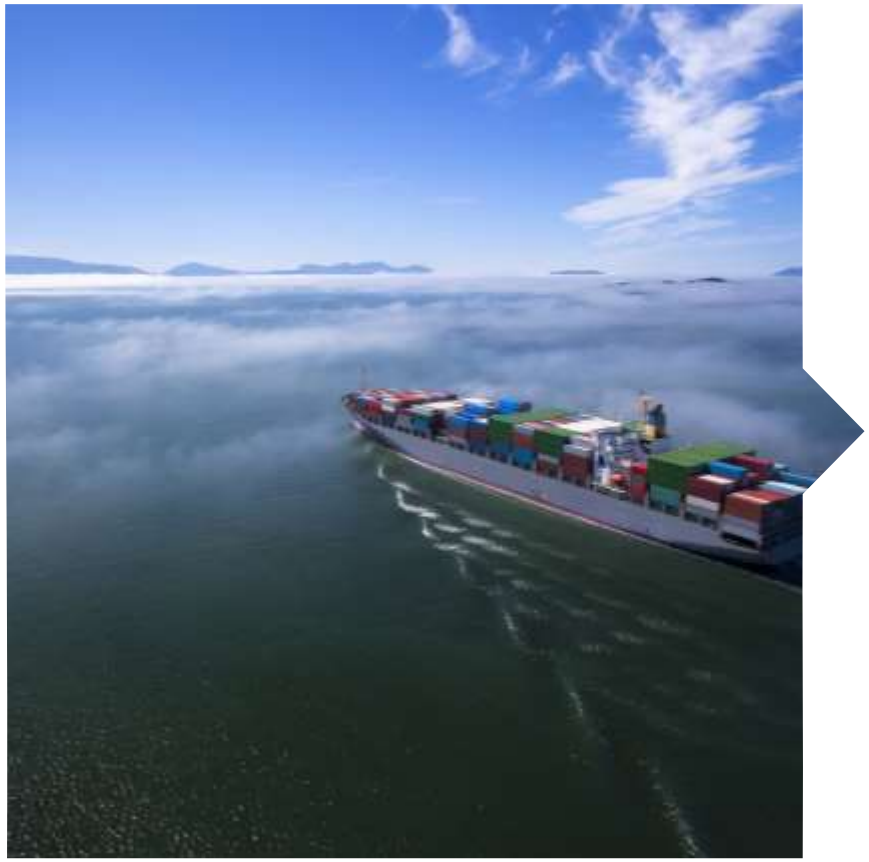
The 1992 Fund

International

**The International Oil Pollution Compensation Supplementary Fund**

The Supplementary Fund

# INFORMATION



**Clear Seas Centre for Responsible Marine Shipping** is an independent not-for-profit research centre that supports safe and sustainable marine shipping in Canada.

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