

OIL SPILLS AND VANCOUVER'S **STANLEY PARK**



A REPORT ON THE CONSEQUENCES OF OIL
TANKER TRAFFIC IN BURRARD INLET



WILDERNESS
COMMITTEE



TankerFreeBC

July 2012

Vancouver, British Columbia, Canada



“There will always be unfortunate circumstances and situations that cause accidents.”

— United Nations Environment Programme, Global Marine Oil Pollution

“Pollution damages soil, water and air and interferes with human health, quality of life and the natural functioning of Park ecosystems.”

— Robyn Worcester, Conservation Programs Manager, Stanley Park Ecology Society

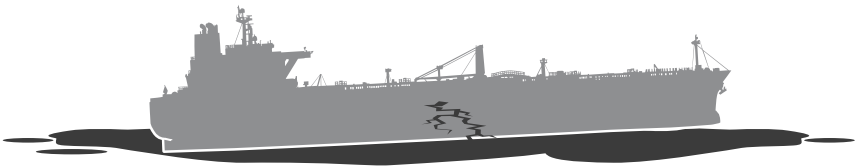
About the author:

Rex Weyler is an author, journalist and ecologist based in British Columbia. Previously, Rex served as a director of Greenpeace in the 1970s, and was a co-founder of Greenpeace International. He has worked on environmental campaigns around various issues and is currently active with Tanker Free BC, protecting the BC coast from tar sands oil tankers.

Also contributing to this report were: **Mary Kelly, Dana Cook, Robyn Worcester** of the Stanley Park Ecology Society, **Damien Gillis** of the Common Sense Canadian, and **Ben West** of the Wilderness Committee.

The Wilderness Committee is Canada’s largest membership-based, citizen-funded wilderness protection group. We are a registered charitable non-profit society with members, supporters and volunteers from coast to coast to coast, and offices in Vancouver, Victoria, Winnipeg and Toronto.

P.O. Box 2205,
Station Terminal
Vancouver, BC
V6B 3W2
Toll free: 1-800-661-9453
Tel: 604-683-8220
WildernessCommittee.org
info@wildernesscommittee.org
Printed on 100% post consumer recycled paper.



SUMMARY



This report provides a detailed analysis of the potential impacts of an oil spill on Vancouver’s Stanley Park and surrounding waters. Kinder Morgan’s proposed pipeline expansion would bring about 300 to 400 massive oil tankers per year through the Burrard Inlet and into Vancouver Harbour – a shift that would drastically increase the city’s chances of falling victim to a catastrophic oil spill.

Marine ecosystems around the Georgia Strait have already suffered significant damage as a result of increased shipping traffic and industrial pollution, which has affected critical habitat and contributed to declines in local bird populations. **If a major oil spill were to occur in these waters, it could devastate both resident and migratory species in the region and have a ripple effect on the entire marine food chain.**

Citing extensive research conducted by the Stanley Park Ecology Society, this report sheds light on some of the

unique and fragile ecosystems that currently rely on Stanley Park for habitat and food, demonstrating what could be at stake in the event of a spill. It addresses potential causes of marine oil pollution, including major spills and the so-called “normal spillage” that can cause serious damage to harbour ecosystems.

Since the tankers coming in and out of the Vancouver port would carry heavy bitumen crude oil from the tar sands, the risks associated with a spill would be even greater than with conventional oil. The 2010 Enbridge spill in Michigan – pouring 20,000 barrels of diluted bitumen into the Kalamazoo River – taught the world a frightening lesson about the high cost and difficulties involved in cleaning up the sinking, chemical-laden substance.

In addition to the ecological impacts, this report addresses some of the social, economic and public health effects of a potential oil tanker accident. In the event of a spill, the appeal of

Stanley Park’s world-renowned seawall and wildlife viewing areas could be forever diminished, and Vancouver’s “Greenest City” ambitions would be a thing of the past. In addition to health problems caused by the toxins in diluted bitumen, local residents and visitors would face emotional and psychological consequences after such a disaster. More importantly, the Tsleil-Waututh First Nation (the People of the Inlet) would be left with irreparable damage to the waters in their traditional territory, which have already been heavily impacted by industrial activity.

After exploring these important risks and consequences, the report concludes that federal, provincial and municipal governments should work to ensure the protection of Stanley Park by banning the export of tar sands oil through Burrard Inlet, and by convening a meeting of stakeholders around the Salish Sea to address habitat protection and restoration.



The Ecosystems of Stanley Park and Surrounding Waters

Stanley Park is the jewel of Vancouver and one of the largest, most ecologically diverse urban parks on Earth. Ancient shell middens attest to the rich abundance of food that once fed the indigenous Coast Salish people of this region.

A bitumen oil spill in Burrard Inlet or the southern Georgia Strait would devastate much of the marine ecosystem and food chain of Stanley Park. **The area has already been heavily impacted by increased shipping activity, making it even more vulnerable if a spill were to occur.**

Vancouver visitors are aware of the extraordinary gardens, forest, and wetlands of Lost Lagoon and Beaver Lake, which serve as critical habitat for migratory and breeding birds, terrestrial amphibians and other species. Stanley Park remains one of the few places left in the Lower Mainland where rainforest habitat exists in close proximity with forest wetlands, intact salmon streams, intertidal seashore, and deep water habitats.

Most vulnerable to the impact of an oil spill are the park's rich and diverse intertidal zones. The rocky, sandy, and mud substrates support marine algae, shellfish, fish, shorebirds, and many of the 30 mammal species that depend on

the intertidal food chain. The nearly nine kilometres of shoreline includes rock, cobble, and sand beaches. Kelp beds provide important habitat just off-shore. Mussels, barnacles, clams, and other invertebrates provide food for birds and mammals. Blue mussel (*Mytilus edulis*) beds on the western shoreline provide food for a globally significant population of wintering Barrow's goldeneye and thousands of blue-listed surf scoters.

As stated by Robyn Worcester, Conservation Programs Manager with the Stanley Park Ecology Society, "Research has shown that off-shore sediments in Coal Harbour contain elevated levels of heavy metal and other chemical pollutants. Water quality in Burrard Inlet remains a major concern."

Over the last decade, increasing port activity in Vancouver Harbour has contributed to declines in some water birds. Common loons, pigeon guillemots, western grebe, and great blue heron are now significantly more rare than they were just a decade ago.¹ Nevertheless, these bird species occupy the intertidal zones of Stanley Park, along with diving and dabbling ducks – such as surf scoters, American wigeon mergansers, and goldeneye ducks – as well as other species such as shorebirds, grebes, gulls, and cormorants.

The park shoreline remains an

important migration stopover point for water birds, including some species at risk. It also provides vital winter habitat for these birds, which later each year provide food for wintering raptors. At least 236 bird species rely on Stanley Park for food, wintering, migration stopovers, or breeding habitat.

The shorelines and waters surrounding Stanley Park are classified as an Important Bird Area of Canada, with up to **17,000 individual birds** using the park every year. The park and waters of Burrard Inlet also provide habitat for year-round resident birds including raptors, riparian birds, wetland birds, forest birds, grazing birds, colonial nesting birds, and birds considered species at risk in BC.² Population declines in about 30 bird species have been identified, and many species that were common to the park waters in the 1980s are rare today.

Wetlands and streams provide egg-laying sites for amphibians and birds. Marine mammals like seals, cetaceans, and sea lions also use these waters, feeding on the salmon and other species in the area. Five species of salmon feed here on their way to and from spawning rivers, and Stanley Park contains one of only three remaining salmon streams in the City of Vancouver.

Fragile Shorelines

The shoreline and mudflat comprise fragile, complex ecosystems. A paper-thin layer of "biofilm" coats the intertidal mudflats and other substrates in this region. This thin film of seawater bacteria and diatoms provides necessary nutrients for shorebirds. The "mucopolysaccharides," an easy-to-digest, high-energy food, provide up to 70 per cent of the diet for western sandpipers, dowitchers, turnstones, and other shorebirds.³ According to Environment Canada researcher Robert Elner, commercial ports have been unknowingly destroying this natural biofilm. **Oil port activity, with routine spills, could virtually destroy this important wildlife resource. A catastrophic oil spill could obliterate it.**

Stanley Park's marine habitats already suffer from pollution, erosion, and other impacts from harbour activity. A complete biophysical inventory of the Park has recently been completed, and the Stanley Park Ecology Society is now tracking changes in important environmental indicators, such as bird species diversity, as they work to preserve and restore the health and biodiversity of Stanley Park's ecosystems.

An oil disaster in this region would devastate the fragile intertidal ecosystem and likely extirpate the marginal species. A single spill would have the potential to kill thousands of individual birds, disrupt migration patterns along the west coast, and pollute breeding and nesting habitat for many years into the future.

The Devastating Outcomes of a Dil-Bit Oil Spill at Stanley Park

In March 1989, several hours before the Exxon Valdez tanker ran aground spilling 11 million gallons of crude oil into Prince William Sound, concerned citizens had gathered at city council chambers to discuss the potential impact of a major oil accident in their waters. At this hearing, a fisherwoman had said, "it's not a matter of what if, but when."⁴ Now, over 20 years later, the region is still dealing with the consequences of one of the worst oil spills in North American history.

Crude oil has a greater impact on marine environments than refined gasoline products, but the diluted bitumen ("dil-bit") from the tar sands is even worse than the traditional crude oil that devastated the Alaskan coast. A spill of dil-bit has been described as "the Spill from Hell".

In July 2010, a 30-inch pipeline owned by Enbridge Energy burst, spilling 20,000 barrels of tar sands

dil-bit into a tributary of the Kalamazoo River in Michigan. Cleanup costs vastly exceed the cost for traditional crude oil. The challenges of dealing with sinking bitumen shocked the U.S. Environmental Protection Agency. "I don't think anyone at the state level anticipated that," said EPA Incident Commander Ralph Dollhopf. "I don't think anyone at the EPA anticipated that. I don't think anyone in industry anticipated that."⁵

Dil-bit utilizes toxic chemicals to help increase the viscosity of the oil. This includes Benzene and other neurotoxins and cancer causing carcinogens. When a dil-bit spill occurs, the toxins evaporate into the air and the heavy oil sinks. If a spill were to take place in Vancouver Harbour, it would create a nauseatingly rancid-smelling toxic cloud that would be carried in the wind across the Lower Mainland.

To make things worse, the federal government recently announced

the closure of a key environmental emergency response centre in Vancouver, as well as the Kitsilano Coast Guard station, which both would have been vital to spill response strategies in the region.

Although it is important to have an operational oil spill response plan with trained volunteers and professionals, such training does not imply that we are prepared for an oil spill. History shows that serious spills can kill thousands of birds, fish, plants, and sea mammals – even with the best response teams working to mitigate the damage. In any oil spill on water, recovering 15 per cent of the oil is considered a successful clean-up, and dil-bit creates a whole new set of challenges.⁶



Specific Concerns Related to Diluted Bitumen (aka Dil-Bit)

Bitumen, when diluted with condensed gas and/or volatile solvents such as naphtha, separates when released into the marine environment. The volatile gases – toluene and the carcinogen benzene – are released into the air causing headaches, nausea, dizziness, coughing, and fatigue among the local population. One may fairly assume that all other animals that breathe the air would experience similar symptoms. After the Michigan oil spill, the toxic fumes remained for weeks, and could be smelled up to 50 kilometres away. Two years after the spill, up to 30 miles of the Kalamazoo River still remained closed to fishing, swimming, or even wading in

the water.

It is possible that a spill in Burrard Inlet or the Georgia Strait would require an evacuation of areas in BC's Lower Mainland and surrounding islands. Clean-up crews would have to battle the toxic fumes, as well as bitumen sinking below their skimmers. As the heavy bitumen sinks and moves with wind and tides, it covers the marine bottom-life, mixes with the sediments, impacts shellfish, and kills ocean plants, fish, and marine mammals.

Diluted bitumen crude also contains sulphur, paraffins, asphaltics, naphthene, benzenes, and other compounds that have toxic effects on plants and animals.⁷ Marine mammals, fish, birds, reptiles, amphibians, shellfish, and plants

could be suffocated and poisoned by a spill. In turn, food chain disruption could occur following the loss of photoplankton, shellfish, fish, and birds. The heavy crude would obliterate the biofilm, the bacteria, diatoms, and mucopolysaccharides that provide a high-energy food source for shorebirds in Burrard Inlet and Georgia Strait.

Another class of toxic chemicals in bitumen – polycyclic aromatic hydrocarbons (called “PAHs”) – dissolve in the water. These toxins could contaminate the entire marine ecosystem and leach into the marine substrate, killing and contaminating clams, oysters, mussels, and marine microorganisms.



marine animals that rely on the primary producers and meiofauna could die from suffocation and ingesting toxic food. Water fleas, nudibranchs (slugs), and anemones could die off in huge numbers, approaching or reaching 100 per cent die-off near an oil spill. The 1980 Ixtoc I oil spill in the Gulf of Mexico killed 50 to 80 per cent of the bottom-dwelling creatures along some shorelines.

The burrowing invertebrates – clams, sea cucumbers, urchins, gooey duck – would perish along with them, at rates of nearly 100 per cent near the spill, and ranging for kilometers of coastline. Seven species of clams, four species of crab, blue mussels, and the Nuttall cockle thrive in the unique marine habitats of the park. In an oil spill, most of these intertidal shellfish would perish.

Along with the nutrient-rich biofilm

itself, the bottom-dwelling amphipods, harpacticoid copepods, isopods, mysids, cumacea, shrimp and juvenile crabs provide the main diet for fish and birds. As these crustaceans die off from oil suffocation and poisoning, the fish and birds who survive have no food, or toxic food.

Studies around Nanaimo show that pink salmon fry feed primarily on harpacticoid copepods, juvenile copepods and barnacle larvae. In the Fraser estuary, juvenile Chinook salmon

feed on 48 taxa of invertebrates including harpacticoid copepods, amphipods, worms, mysids, and fish and insect larvae. The salmon also feed on aphids and chironomids which grow in the Fraser River estuary.⁹ An oil spill in Burrard Inlet would reach these vital marine food production marshes and devastate salmon food sources.

Industrial sites have already polluted BC marine sediments with lead, mercury, cadmium and PCBs. The Kinder Morgan pipeline company

would like to dredge the Second Narrows channel, but when a channel is dredged, we lose the productive sea bottom from the ecosystem. The intertidal ecosystems of Stanley Park are already weakened by such impacts. An oil spill in Burrard Inlet would take these fragile ecosystems over several biological tipping points, and would likely change the ecology of the inlet for centuries before it could recover.

Impact on Species

Naturalists have documented over 230 bird species in Stanley Park forests, wetlands, seashore, and cultivated parks. These birds migrate from three continents, breed, or spend the winter in and around Stanley Park. They feed directly on the biofilm, plants, and seeds on mudflats, marshes, and beaches. The winter birds rely on the organisms that consume the bacteria from the decomposition cycle.

Burrard Inlet, the Fraser Delta, and Stanley Park provide a vital link between Alaska and California for migrating birds including shore, sea, and perching species.¹⁰

The mussels and barnacles filter feed on the plankton. Ducks and other shorebirds eat shellfish, sea plants, and intertidal plants. Around Stanley Park, these food sources include sea lettuce, wrack seaweed, Turkish towel and two species of green algae.

The weak tidal flow in Coal Harbour provides a fine, silty, mud substrate that is a primary food source for the local marine ecosystem. Eel grass thrives in the Deadman Island intertidal zone that also provides a rare dunegrass habitat,

which is an ecological community at risk in BC. An oil spill here would kill these key food production sites.

A mix of gentle sloping beach and rocky drops creates a diverse ecosystem around Brockton Point and Burnaby Shoal, where red Irish lord and sailfin sculpin spawn in the gravel, cobble, and boulder sea bottom. Pacific herring, sole, sea urchin, sponges and tunicates also thrive here. Marine biologists first discovered the northern feather duster worm here, named for our city: *Eudistylia vancouveri*. This species of worm could become locally eradicated with a single oil spill.

Bull kelp beds from Brockton Point to the Lions Gate provide critical habitat for invertebrates, fish, and marine mammals. The Beaver Creek estuary is a rich organic production zone and food source for Pacific salmon and coastal cutthroat trout.

Black oystercatchers, Barrow's goldeneye, surf scoters, long-tailed ducks, and many other diving duck species feed on blue mussels and other marine invertebrates near Siwash Rock – the most heavily used bird feeding

area of the Stanley Park shoreline. Along the western shore toward Second Beach another rare dunegrass habitat and broken boulders provide feeding and roosting habitat for gulls, cormorants, dabbling ducks, and shorebirds including black turnstones and sanderlings, which arrive in the fall and stay the winter. An oil spill would destroy these habitats for visiting and resident bird species.

The park's sandy beaches also provide the perfect feeding habitat for wading birds such as the Pacific great blue heron, a blue-listed species at risk in BC. Large trees along the shore contain the largest urban heron colony in the country, representing a globally significant number of breeding pairs for this subspecies.

The hunters and scavengers – falcons, hawks, vultures, osprey, eagles, and owls – feed around the park, and would be poisoned by toxic prey after an oil spill. Four pairs of bald eagles breed in the park and live here year-round. Since they feed on the sea life, an oil spill would likely decimate Stanley Park's eagles and their young. Peregrine

Impact on the Marine Ecosystem

After an oil spill, the decline of the Stanley Park marine ecosystem would begin with the loss of plankton, algae, biofilm, sea plants, and other primary biomass food sources for all other animals. The grasses and plants on the region's mudflats and shorelines capture solar energy and decompose, then that energy is converted by the meiofauna for the small crustaceans, juvenile fish, and filter-feeding invertebrates. Bacteria – the most important organisms in the oxygen-rich top substrate – could suffocate from lack of oxygen. The nematode worms and ciliates, who feed on these bacteria could perish. The single-celled ciliates and the nematodes consume bacteria, diatoms, algae and flagellates, and form a vital link between decomposing organic material and the fish and invertebrates in the marine food chain.

Within several kilometers of an oil spill, most of these primary foods would be smothered and poisoned.

These tiny meiofauna in the marine soils form the basic link that transforms captured solar energy into the marine food chain, and create a productive marine ecosystem. The mud, gravel, and rock shorelines, where all this biosphere activity occurs, would be devastated in the event of an oil spill. Oil kills and stunts wetland grasses, causing root structures to decay and soil to erode. The loss of plants and eroded soil destroys wetland nurseries for birds, fish, and other animals.⁸

The Stanley Park shoreline habitat – and shorelines from Indian Arm to Vancouver Island – could become toxic from the bitumen chemicals and could be filled with dead, un-metabolized biomass. Millions of small

falcons, merlin, and osprey also feed along the shoreline throughout the year and would be impacted by a loss of prey in their hunting grounds.

Marine mammals frequent Stanley Park as well, including cetaceans, humpback and grey whales, porpoises, and orcas. Most common are harbour seals and sea lions. Terrestrial mammals also rely on the crustaceans and other

intertidal creatures for much of their diet. Racoons, mink, weasels, and several species of brown bats live in the park. Many of these mammals feed off the beaches and would therefore be harmed by an oil spill. In particular, the park’s three river otter families and several pairs of mink almost exclusively use the shoreline for food. Yuma myotis are one species of bat that feed

specifically on insects emerging over the shoreline every night during the summer months.

The Canadian Species at Risk Act and the BC Wildlife Act were created to protect all these wildlife species. Since a bitumen crude oil spill would devastate this marine ecosystem, these laws could reasonably be applied to restrict crude oil tankers from the BC coast.

government and corporate assertions about contemporary oil slick recovery technologies.

In 1996, after the Sea Empress tanker ran aground at the South Wales Coastal National Park, releasing more than 16 million gallons of crude oil into a marine nature reserve, the attitudes of the local people regarding the risks and benefits of oil economies swiftly changed.

Despite the high unemployment rate in the region, authorities rejected planned developments to import a bitumen-based product for expansion at a local power station.¹⁴

The impact of large amounts of crude oil released into Stanley Park’s waters would have a devastating effect on the emotional and psychological health of British Columbians. “Beautiful BC” and

“The Greenest City” would be distant legends. Our commercial fisheries and shellfisheries would be devastated. Hundreds of people would lose their livelihoods.

If such a catastrophic accident were to happen, the public would demand to know why tankers were ever allowed into our waters, and why authorities believed it was worth the risk.

Long Term Impacts

If a spill were to occur, the thick, heavy, toxic bitumen crude oil would sink and smother the marine substrate. Benzenes and other toxins would poison the foundations of the food chain. The toxic polycyclic-aromatic-hydrocarbons (“PAHs”) would dissolve in the water and poison all life forms in the intertidal, marine substrate and in open water.

From studies of historic oil spills, these are some of the long-term impacts from crude oil in a marine ecosystem:

Persistence: Evidence from the Ixtoc I spill in the Gulf of Mexico and the Amoco Cadiz spill in France show that oil remains in the substrate even after 30 years. Some researchers have estimated that crude oil may persist in an ecosystem for up to a century, with continued negative impacts on flora and fauna.^{11,12} Evidence from the Exxon Valdez disaster showed that only two of the 28 species injured (river otter and bald eagle) were fully recovered after 10 years.¹³

Death: Fish, birds, marine mammals, reptiles, amphibians, shellfish, and plants are suffocated and poisoned.

Disease: Oil is known to cause cancer, liver decay, tumors, ulcers, respiratory failure, narcosis, and other diseases in animals, including humans.

Erosion: Oil kills and stunts wetland grasses and other plants, causing root structures to decay and soil to erode.

Food chain disruption: Local food chains are significantly impacted after the loss of phytoplankton, shellfish, fish, and birds.

Breeding habitats destroyed: The loss of plants and eroded soil destroy wetland nurseries for birds, fish, and other animals.

In addition to these species, it’s important to consider the other mammal that uses Stanley Park: Homo sapiens. The toxins in tar sands dil-bit are known to cause a number of serious health problems and diseases in both humans and animals. In addition to the negative physical effects that oil poses for human health, large-scale oil spills also result in negative mental health effects, similar to post-traumatic stress disorder, as individuals grapple with the reality of being forced to accept overwhelming and long-standing damage to nature and to their community.

The landowners and fishermen who lost their livelihoods after the Exxon Valdez accident never received the compensation that a jury ordered Exxon to pay for punitive damages. This insult was added to the loss of income from closed fisheries in the oiled areas. In Prince William Sound, herring fisheries remained closed or limited even 10 years after the spill.

After the 2006 Guimaras oil tanker disaster in the Philippines, a coordinator of the World Wide Fund for Nature stated that the environmental and social effects may be felt for at least two generations.

The oil spill damaged the reefs, the shorelines, and swamplands. Suffocation and toxins damages the feeding and breeding ground for fish in the Taklong Island National Marine Reserve. Hardest hit were fishermen, who lost their modest livelihoods.

Witnessing or enduring an event such as a catastrophic oil slick that destroys beaches, marine life, tourism and fisheries challenges the social, emotional and psychological health of the affected community. These kinds of negative effects are rarely included in risk assessment studies or accounted for in

Danger in Burrard Inlet

“When the tide is out, our table was set,” recalls Rueben George of the Tsleil-Waututh, the Indigenous People of the Inlet. Burrard Inlet, the traditional waters of the Tsleil-Waututh, is a sacred place that had provided food for many generations. That food resource is already virtually obliterated due to the oil refineries and oil tank installations around Burrard Inlet.

“We’ve had enough of seeing our waters destroyed,” says Rueben George. “The Inlet is sacred to us. Our creation stories go back to this channel of water.” This waterway remains unceded Coast Salish territory, the land of the Tsleil-Waututh, the Squamish, and the Musqueam.

Located within the Burrard Inlet, Second Narrows is the most dangerous navigational point in Vancouver Harbour. Tidal currents reach three knots through the narrows. Prevailing southwest winds can reach hurricane force, gale warnings are not uncommon, and even in a 25-knot strong breeze, a large ship navigates at its peril between the rocks. The large oil tankers can only travel through these narrows at high tide, and even then a loaded Aframax tanker has less than a two-metre clearance from the rocks below.¹⁵

The Second Narrows CN rail bridge spans the narrowest point with a width between pillars, at high tide, of about 134 metres – less than half the length of a Suezmax tanker. A simple rudder malfunction with a little wind and current, even with tug escorts, could turn a tanker enough to collide with

the Railway Bridge.¹⁶ In October 1979, the freighter Japan Erica collided with this bridge, shutting down North Shore bulk terminals for three months and railway traffic for nearly five months.

Kinder Morgan now wants to dredge this channel so they can bring in bigger tankers, which increases the likelihood of an accident at this dangerous narrows.

Furthermore, increased vessel traffic density raises the risk of a tanker collision, especially at a port entrance.¹⁷ For example, in 2007, an 800-foot container ship crashed into one of the towers supporting the San Francisco-Oakland Bay Bridge, spilling over 56,000 gallons of heavy fuel into the San Francisco Bay and Pacific Ocean. Similarly, at Portland, Maine, the Julie N tanker crashed into the side of the Million Dollar Bridge that spans Portland Harbor. Simple human error caused this accident. According to the accident report, the ship’s operator

directed the crew to steer to the port side (left), when he intended the ship to be driven to the starboard direction (right).¹⁸

One of the most catastrophic oil tanker accidents in history occurred off the coast of Nova Scotia in 1988. The Odyssey, a Liberian-registered tanker, was caught in a severe storm, exploded at sea and sank, releasing 40 million gallons of oil into the ocean – the amount of crude oil carried by a Suezmax tanker. Currents pushed the oil east, across the North Atlantic, which damaged the marine food chain. The oil poisoned plankton and krill – the shrimp-like crustaceans that supply food for whales, penguins, seals, squid and fish.¹⁹

Oil spills have proven inevitable with oil tanker traffic. The International Tanker Owners Pollution Federation maintains a database of accidental oil spills from tankers and barges, and **they have**

recorded nearly 10,000 incidents since 1970.²⁰ No policy or regulation can predict the impact of currents, wind, technical malfunctions, or human error. Despite their ruinous effects, major

spills only account for a fraction of the oil in the oceans. “Normal spillage” accounts for most of the oil. This routine, operational release of oil occurs at oil docks, tank installations, from ships that

flush their tanks at sea and in harbours, and from minor ruptures, pipe breaks, and so forth. These smaller “normal” oil spills can cause severe damage to a harbour ecosystem.²¹

Major Risks

- 1. “Normal Spillage”, accepted by the oil industry as business as usual, could persistently and relentlessly kill the marine ecosystem, starting with the biofilms and small organisms of the mudflats and estuaries.
- 2. Shipping accidents occur regularly in all ports, including Vancouver Harbour and elsewhere on the coast of BC. Human and mechanical errors are common causes.
- 3. Storms, high winds, gales, tides, and other vessels all pose risks, and periodically cause oil spills.
- 4. Earthquakes and tsunamis could cause a full tanker-load of bitumen crude oil to spill.
- 5. Internationally, tankers have become targets of terrorism and war crimes. During the 1991 Gulf War, oil pipelines were deliberately blown up. With Canada joining the US recently in Middle Eastern wars and war rhetoric, Canada becomes a target for retribution, which increases the risk of a deliberate attack on an oil tanker.
- 6. Over an extended time, the risk of a large scale crude oil spill at an oil shipping port approaches near-certainty. In a global sense, the Exxon Valdez disaster was not unusual, but common. Over the last 40 years, on average, the equivalent of more than two Exxon Valdez oil spill disasters have occurred each year. If we allow Vancouver Harbour to become the tar sands shipping port, eventually, we will most likely experience a spill of this magnitude.

Conclusion and Next Steps

Oil tanker accidents are an inevitable outcome of tanker traffic worldwide. The continued expansion of oil tanker traffic in Burrard Inlet, British Columbia poses the extreme risk of an accidental spill, releasing millions of gallons of crude oil into the environment and devastating

marine life, natural habitats, shorelines, beaches, and fisheries. Stanley Park, an ecological jewel in Vancouver, would be destroyed and transformed into another industrial dead zone. Our regional municipalities understand the importance of Stanley

Park to this region’s social, business, and ecological integrity. These governments might help preserve the park by banding together and communicating this urgency to the provincial and federal governments, who share jurisdiction for these waters with the people of Vancouver.

Given the scale of this risk – ecological and economic destruction of this region – we believe the provincial, federal and municipal governments should take the following steps immediately:

- **Ban the export of diluted bitumen from Burrard Inlet**
- **Convene a meeting of all stakeholders within the Salish Sea, focused on habitat protection and restoration**

The wildlife, and the ecosystem itself, have no official voice in our political system. The people of Vancouver will have to stand up and give Stanley Park and its inhabitants that voice, to preserve and restore these important, sacred, and life-giving ecosystems.

References & Citations

1. http://stanleyparkecology.ca/wp-content/uploads/downloads/2012/02/SPES_-Winter-Waterbird-Trend-Report-6-Dec-2011.pdf

2. <http://stanleyparkecology.ca/wp-content/uploads/downloads/2012/03/State-of-the-Park-Report-for-the-Ecological-Integrity-of-Stanley-Park-full-report1.pdf>

3. <http://www.canada.com/life/Magic+tidal+flats+shorebird+populations/6115696/story.html>

4. <http://arcticcircle.uconn.edu/SEEJ/Alaska/miller2.htm>

5. http://www.mlive.com/news/kalamazoo/index.ssf/2011/07/kalamazoo_river_oil_spill_resp.html

6. <http://www.itopf.com/spill-response/clean-up-and-response/containment-and-recovery>

7. See Friends of the Earth, National Resource Defense Council & Mitchell Anderson (The Tyee).

8. <http://www.waterencyclopedia.com/Oc-Po/Oil-Spills-Impact-on-the-Ocean.html>

9. Levings, Conlin & Raymond. University of British Columbia E-Fauna BC Atlas, 1991.

10. Butler & Campbell. UBC E-Fauna BC Atlas, 1987.

11. Gillis & Kaufman. “The Corrosive Legacy of Oil Spills”. New York Times, July 18, 2010.

12. <http://www.who.edu/oceanus/viewArticle.do?id=25568>

13. <http://arcticcircle.uconn.edu/SEEJ/Alaska/miller2.htm>

14. Edwards, Ron & Ian White. “The Sea Empress Oil Spill: Environmental Impact and Recovery”. Report to the Sea Empress Environmental Evaluation Committee. London, UK, 1998.

15. Baker, Peter. “Oil Risks on the B.C. Coast”. Vancouver Naturalist, September, 2010.

16. “Crude Oil in Burrard Inlet Risk Assessment Update”, 2010. <http://bcwaters.org>

17. http://www.oilspilltaskforce.org/docs/vessel_traffic/2002_Final_Report.pdf

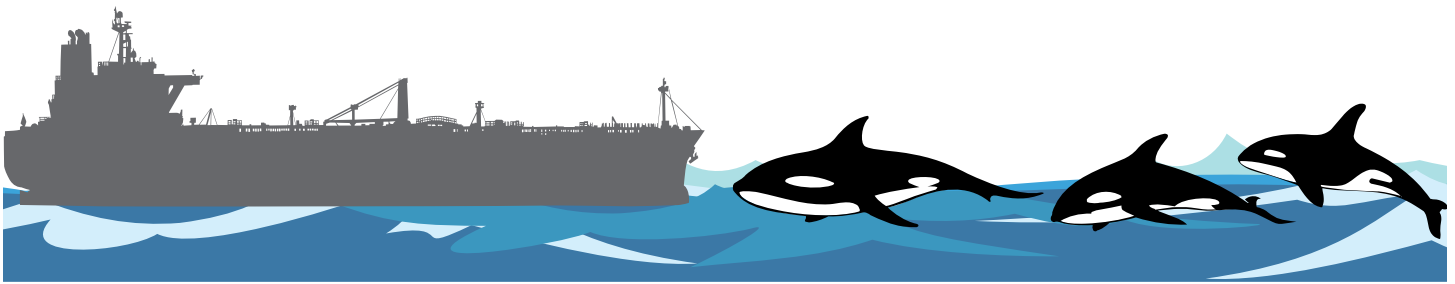
18. http://en.wikipedia.org/wiki/Julie_N

19. International Council for the Exploration of the Sea. “Marine Pollution: Yearbook 1990”. Pergamon, 1990.

20. <http://www.itopf.com/information-services/data-and-statistics/statistics/index.html>

21. “Bilge Oil Blues”. Elements Environmental Magazine, June 2006. Available at www.elements.nb.ca





For more information, contact:

Wilderness Committee

604-683-8220

WildernessCommittee.org

Tanker Free BC

778-882-8354

TankerFreeBC.org

Stanley Park Ecology Society

604-718-6523

StanleyParkEcology.ca



WILDERNESS
COMMITTEE



TankerFreeBC

SPECIAL THANKS TO:

STANLEY PARK

ECOLOGY SOCIETY
