“Ninety-five percent of the B.C. coast would be sterilized of development by this Bill.” This is just one of several frankly insulting arguments being tossed about by Conservative senators opposed to the Bill that would finally see a ban on north coast oil tankers enshrined in law.

Living Oceans has been working throughout its two-decade history to prevent unthinkable destruction of the marine environment from an oil spill on the North and Central Coast. This work has come to fruition in no fewer than six private Members' bills proposing to legislate a moratorium on oil tankers. One of those bills actually passed the House of Commons in 2010, only to die on the order paper.

Conservative senators have chosen to make Bill C-48, the Government’s Oil Tanker Moratorium Act, a focus of the oil patch’s frustration with pipeline development. Arguments as specious as that quoted above are banded about as if development of oil ports were the most natural and necessary thing in the world; and certainly, as if it were in the country’s best interest to develop them on every kilometer of coastline.

The truth is that one port and two potential port sites would be unable to load or offload tankers carrying more than the exempt quantity of persistent (heavy) oils, under the terms of this Bill. Arguments that this amounts to ‘sterilization’ of development insult the immense contribution of northern fisheries and tourism (among myriad other industrial and commercial ventures) to employment and wealth in the region. The simple fact is that the vast majority of northerners have said “no” to oil port development time and again.

The battle lines in the Senate are not so clearly drawn as they are in the House, since Prime Minister Trudeau released Liberal appointees from allegiance to the Party. Anyone doubting that “Independent” senators are truly independent need only read some of the Committee transcripts to see how seriously continued on page 2...
some senators are taking the job of studying the Bill, rather than simply accepting the Government’s position on it.

Many northern citizens, politicians and civil society groups have come forward to testify before the Standing Committee on Transport and Communications, to advocate for the bill. The atmosphere is decidedly toxic and the posturing apparently scripted around a number of themes:

• The area proposed for the moratorium is not different from any other area of Canada’s coast;
• Oil tanker traffic is now so safe that there is essentially no risk;
• Adding a second oil port to our coastline will “spread the risk” (they mean in a beneficial way);
• A corridor for oil tankers could be created through the moratorium area to enable oil ports to be developed; it could be protected by additional spill response equipment and then the ‘rest’ of the moratorium area would be off limits; and
• The Act as written contravenes international law.

Living Oceans produced a vast amount of expert evidence for the Northern Gateway and Trans Mountain pipeline hearings that counters every one of those arguments.

The vast majority of northerners have said “no” to oil port development time and again.

Our Oil Spill Response Gap Analysis looked at data from weather buoys in the region to see how often the sea state would prevent oil spill equipment from being deployed effectively. Just on the basis of wave height alone, we found that up to 65 percent of the time in summer, and up to 98 percent of the time in winter, booms could not effectively corral spilled oil so that it could be skimmed up. If additional factors were considered (wind, fog, rain, snow and temperature are the main factors that can restrict an oil spill response), the answer to the question, ‘can we properly protect a northern route for oil tankers?’ would be a resounding “No.”

The idea of creating a ‘safe corridor’ accordingly assumes that we can do exactly what the Oil Tanker Moratorium Act asserts to be impossible: make it safe. This is the world’s fourth most dangerous body of water. It achieves that dubious distinction because of the suddenness with which violent storms can develop here and the wave heights that result in the relatively shallow waters of Hecate Strait. These are not the conditions in which one wishes to test the integrity of the thousands of welded joints in a tanker the size of four-and-a-half football fields!

A great deal has been made of the advent of double-hulled tankers, but other evidence we developed for the pipeline hearings details the problems inherent with the design and maintenance of double-hulls. When we consider that budget, personnel and logistic limitations mean that fewer than 25 percent of the ships calling on our ports are inspected by competent Canadian authorities, it is clear that no-one can assert that we can safely hang our collective hat on tanker design standards as a safety mechanism.

It is accepted by the shipping industry that 80 percent of all accidents occur as a result of human error. Where the United States took action over a century ago to limit the risks of human error, Canada did not. American law requires that all U.S. cargo is carried in American built, owned and crewed ships. The U.S. can control the training, upgrading and safety standards of its crews and the design and equipment of its vessels, where we cannot. It has developed a corps of trained mariners, familiar with its ports and passages; and all of them communicate in English.

Canada has no similar restrictions: vessels from all over the world call on our ports for our natural resources. We have no control over crew training or vessel equipment and it is very common for there to be multiple languages spoken on board. Crews may have no familiarity at all with our ports or their approaches (and it should be observed that both Kitimat and the Port of Vancouver pose challenges to navigation seldom found in the world’s oil ports).

We say to the oil industry and its champions in the Senate: you’ve got the East Coast, the Gulf Coast, Washington, Oregon and California already; and you’ve been promised more of Vancouver/Burnaby, too. Could you not leave a bit for the whales? For the First Nations, the fishermen, the tourism operators, kayakers and sailors; for the people who depend on a clean and healthy ocean and don’t really see your industry as a welcome ‘development’?
In the wake of Living Oceans’ successful lawsuit striking down the approval of the Trans Mountain pipeline, the federal government has announced a slew of measures and money for Southern Resident Killer Whales (SRKW). The Federal Court of Appeal ruled that the government could not approve the project without identifying and mitigating the marine risks, including those to SRKW.

Marine conservation groups are less than sanguine about the adequacy of measures announced to date. The whales have been starving; and their critical habitat is far too noisy and busy with boats as it is right now. Trans Mountain plans to make both problems worse, by driving its pipeline right through the spawning beds of Chinook salmon, the main food of SRKW; and by adding 800 or so transits a year of some of the biggest, noisiest vessels to cross SRKW habitat. Add in their escort tugs and it’s north of 1600 transits per year.

One of the key objectives for fisheries managers, says the Department of Fisheries and Oceans, is the reduction of disturbance associated with recreational fishing. Instead of announcing a closure of the fishery within the whales’ critical habitat, however, the Department decided to move to non-retention fisheries for Chinook. And to ask recreational fishers to stop fishing if SRKW approach within one kilometer.

Non-retention fisheries don’t restrict fishing effort; it follows that they don’t reduce disturbance of the whales. Non-retention fisheries also result in the death of a percentage of released fish. Voluntary measures can be effective if sport fishers buy into the need for restraint; but they don’t seem to be on side here and without any monitoring and enforcement plan, there will be simply no way to know if the measure has had effect. If this sounds at all familiar, you may be recalling the scathing criticism of the Department by the Commissioner for the Environment and Sustainable Development:

“Fisheries and Oceans Canada could not demonstrate whether it had implemented any specific management measures to reduce the threats posed by commercial fishing and marine vessels...Fisheries and Oceans Canada had not adequately considered most marine mammals when managing commercial fish stocks in Canada.”

On the other hand, a fisheries closure would result in elimination of the disturbance and improved access for SRKW to food—that is to say, it would meet DFO’s stated objective. Recreational fishing is an important contributor to provincial coffers (not to mention dinner tables!) and we would not lightly suggest a closure to be a more appropriate management measure than appealing to sport fishers to co-operate on a voluntary basis. In this case, however, it appears that the sport fishing sector believes Chinook to be locally abundant in the Southern Strait of Georgia; despite abysmal spawning returns in the Upper Fraser in recent years, sector representatives maintain that the sport fishery doesn’t have significant impact on those stocks. They have taken to the streets to protest even these modest restrictions and it is no doubt owing to their objections that more stringent measures were not imposed. [photo from Wilkinson’s office?]

Sadly, the crisis for the SRKW is existential. For the government, it is merely electoral.
The federal government announced in late April that it was going to delay a decision about our new pipeline for at least a month, to provide sufficient time for First Nations consultations to wrap up. Or maybe it’s to provide time for the newly elected Alberta Premier, Jason Kenny, to make good on his election promise to scrap the cap on tarsands emissions. The cap was, after all, the stated quid pro quo for the original approval of the Trans Mountain, back when Trans Mountain was a commercial project.

Today, our beleaguered pipeline project is looking rather lame. Continued low oil prices mean that there has been no new investment in the tarsands and so the rosy projections of demand for pipeline capacity made during the heady days of $100-plus oil have not proven out. Despite the cries of “bottleneck” still echoing off the foothills, the fact is that production is down because world prices are down. That, in turn, is down to OPEC and the U.S. government, whose foreign policy on Iran includes punishing them with low oil prices. (Sorry Alberta, but nobody was really even thinking about you when they cut that deal.)

Then there’s Keystone XL, rising like the hardy perennial it’s proven to be, drawing nourishment this year from a Presidential order aimed at overcoming the last obstacles in its way. If the way is truly cleared now for the last unbuilt segment, significant new capacity could be available to tarsands producers before Trans Mountain begins bulldozing its way through salmon habitat.

China’s distinctly frosty attitude toward Canadian imports, since the arrest of Meng Wanzhou last December, does not auger well for the plan to diversify Canada’s oil markets. Japan and South Korea, both net exporters of refined oil products, have both launched aggressive plans to replace oil with natural gas and renewable energy. Japan actually reduced its refining capacity last year by almost 1,200 mbpd. Canadian producers will be competing with Middle Eastern and Russian supplies of light crude, for which most of the refining capacity is geared. This is not a scenario in which ‘tidewater access’ is going to give rise to higher prices for heavy tarsands oil than are paid presently in the US, where heavy oil refining capacity exists. Tankers leaving Burnaby’s Westridge terminal will be bound for the refineries of the US Pacific Northwest, as they have been since exports from the port were approved over a decade ago.

So there are lots of good reasons to hit the pause button, before committing Canada to throw a good $10 billion after the bad $4 billion we paid to staunch Kinder Morgan’s wounds and buy some peace with Alberta.

*We borrowed “tromedy” from Jack Devanney, author of The Tankship Tromedy. While the word hasn’t yet appeared in any dictionary, it’s a handy contraction of “tragedy and comedy” and thus has great potential for use in upcoming election coverage. We recommend it to all journalists in search of fresh descriptors.

## Salmon Farming on Land in BC: more jobs, more salmon!

A new report from the Fraser Basin Council looked at the economic potential of a land-based salmon farm located near Campbell River, BC and concluded that it would create 4000 jobs during the 2-year construction phase and over 2600 permanent, full-time jobs in growing and processing fish. The report, by Counterpoint Consulting, ran the numbers on a 50,000 MT facility composed of individual farms of 3.000 MT each—roughly comparable to an operating netpen today.

The report cites ongoing GDP contributions of $348 million and tax revenues of nearly $70 million, but warns, “However, Vancouver Island is only one potential site for land-based salmon aquaculture development in North America; there are many other locales, with a head-start. BC is not used to competing with Florida or Wyoming in the production of salmon. A new competitive reality must be recognized, and a crucial next step in attracting this industry is developing a cohesive plan for making BC competitive, and touting the advantages of locating here.”

Over the past five years, land-based aquaculture has taken off globally at an astounding rate. Today, over 500,000 MT of production is in advanced planning or construction phases. Canada ranks last among countries that have taken up the challenge; our major market, the US, ranks first. The BC industry stands to lose its US markets to green-ranked, locally-produced land-based salmon if it doesn’t move quickly to land-based production.

The question why Canada would lag behind the rest of the world isn’t hard to fathom: the cost of polluting the ocean and killing wild marine life is so low that no incentive has existed to move to land. Even that reality is changing, though; with changing ocean conditions on BC’s coast, farmers are facing costs of controlling sea lice and disease that are beginning to compare with other salmon farming regions, where costs of ocean- and land-based farming are rapidly converging.

### Salmon Farming on Land in BC: more jobs, more salmon!

<table>
<thead>
<tr>
<th>Country</th>
<th>Production Plan (Tonnes)</th>
</tr>
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<tbody>
<tr>
<td>USA</td>
<td>199,770</td>
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<tr>
<td>Norway</td>
<td>193,500</td>
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<td>Europe</td>
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<td>3,250</td>
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<td><strong>Total</strong></td>
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The wild salmon outmigration of 2019 is a puzzle of sorts: in the Broughton, despite farms reporting low lice levels, they’re continuing to treat their stock with SLICE and 90 percent of the wild pink and chum juvenile salmon are infected. In Clayoquot, where 2018 lice counts soared out of control, one hundred percent of wild juvenile salmon are now infected with lice at an average of 12 per fish. Many farms are fallow, but at least one is reporting lice numbers more than 3 times the limit.

Researcher Alex Morton found that near Glacier Falls, where one farm has been removed from the Broughton, outmigrating juvenile salmon were infected with sea louse at the rate of about 2 percent. Near the Sir Edmund and Burdwood farms, where she has sampled wild fish every year for the past 19 years, the infection rate climbed from about 67 percent early in the season, to 90 percent in late April. What’s curious about this is that in the past, we’ve always seen high levels of infestation on wild salmon corresponding to high levels on the farms; yet neither Burdwood nor Sir Edmund is reporting exceptional infestation. Despite the low levels, we are told by DFO that both farms are continuing to use SLICE, perhaps to keep numbers low enough to prevent runaway outbreaks. Treatment has had some ameliorative effect on the wild juveniles, according to Alex; she has seen a slight reduction of infestation.

Over the past 5 years, warm and highly saline ocean conditions have been blamed for the lice levels being so high. This year in the Broughton, temperatures are lower but salinity is exceptionally high at 30 ppb (where mid-20’s might be more ‘normal’ in spring conditions). High salinity favours sea louse survival and maturation, meaning that even at low infection levels, the surviving progeny of a few sea lice can survive to make more.

In Clayoquot, it appears possible that resistance is once again the issue on at least a couple of farms. Others may have stocked fish pre-treated with a new drug, Lufernon, which has just been given emergency use approval despite the fact that Norway was on track to prevent its use when the manufacturer withdrew its application there. Lufernon works to prevent the formation of the shell of the louse and its residual effects are supposed to last up to 9 months. Unfortunately, that means that the drug is being released into the marine environment with fish feces for up to 9 months, where it will have completely unexplored effects on all the other marine life that depends on a shell, such as the zooplankton at the base of the food web.

DFO’s position on the continuing infestation of wild juvenile salmon is equally puzzling: they blame ocean temperatures and salinity. Neither warm water nor saline water is capable of producing a sea louse, absent a mama louse affixed to a living salmon. At any given time, we have several million salmon hosts penned on the coast—it is frankly fatuous to suggest that the levels of lice we are seeing are a product of anything other than the farms.

When Alex and Karen point this out, there is vague reference to unknown ‘other hosts’ or ‘reservoirs’ for lice, neither of which have been identified in 30 years of scientific research. The continued insistence that lice are a natural phenomenon, and so their infestation of juveniles is a natural phenomenon, has allowed both DFO and industry to maintain that wild juvenile infestation is not a farm management issue. There remains no connection between wild salmon infestation rates and required management action on the farms.

Ocean conditions are changing and are forecast to continue to change, with warmer and more saline water becoming the norm. This presents, and will continue to present, the ideal conditions for lice to reproduce. The time to hatch may be reduced from 45 days to 8 days in warm water; and survival rates greatly enhanced. When you consider that adult females produce 500-1000 eggs at a time; and that they can do this every 10 days, exponential increases in population will quickly result.

The regulatory environment needs to change to match what's happening in the ocean. The management threshold of 3 motile lice per fish is clearly too high now; farms “managing” to that threshold in 2018 saw lice populations explode to levels not seen since before the introduction of SLICE in the early 2000’s. Farms that kept their reproductive female lice numbers very low—below 1 in most cases—did not experience similar escalations of infestation.

DFO should be ensuring that effective management measures are available to industry before a farm is allowed to stock, where management issues have arisen in recent years. Whether the cause is drug-resistant lice, warm, salty water or a combination of the two, the rate of louse reproduction means that industry must be equipped to react immediately; and DFO equipped to require protection of wild salmon in the process.
Living Oceans accompanied volunteers from the Maritime Museum of BC to Grant Bay in late March, to gather debris for their Great Pacific Garbage Patch exhibit, currently showing.

Clear the Coast 2019

Plastic in the marine environment has certainly been getting a lot more attention in the media of late; and no wonder. We are approaching the point where the total annual production of plastic will equal the total weight of all humans on the planet. As much as eight million tonnes of plastic ends up in the world’s oceans each year. By 2050, oceans will carry more plastic than fish. The debris that reaches BC waters degrades the wilderness experience, entangles and poisons marine mammals, and can pose risks to navigation. Recent studies of fish and shellfish in supermarkets have found plastic in the flesh of the food that we buy.

Internationally, the marine plastic problem is translating into policy faster than it is in Canada. Last year the United Nations Environmental Programme launched its “war on plastic” with the Clean Sea campaign. The EU has passed their European Strategy for Plastics in a Circular Economy. Just last month, Philippine President Duterte threatened war with Canada if we didn’t take back the garbage that we dumped there illegally.

Canada used its 1-year presidency of the G7 to push for non-binding promises to eradicate plastics pollution, but to date, has done nothing to actually address the problem on its own coastlines.

M.P. Gord Johns observed recently, “As Canadians, per capita, we use more plastics than any other country in the world. [Coastal communities] want action on this issue, right now we have no national policy to prevent plastics from entering our waterways, no mechanisms in place to clean up the pollution that already exists...”. Johns and M.P. Nathan Cullen each have private members’ bills before the House, dealing with both source control and cleaning up the plastics that litter our coastlines.

Living Oceans Society is working on source control of plastics through a national coalition of groups pressing for regulatory action and in the meantime, we continue our Clear the Coast program. Since 2014, we have been organizing volunteer crews to travel to northwest Vancouver Island to pick up plastic from 22 km of shoreline along a stretch from the North Coast Trail to Quatsino Sound. The result so far has been the removal of 41 tonnes of plastic from the marine environment. That is certainly worth celebrating!

For this coming summer, our funding has been reduced due to the loss of a major funder that has reprioritized its grant making. In the absence of new donors or Government funding programs, we will be unable to remove collected debris at the season’s end.

What can you do to help? Please consider making a tax deductible donation to Living Oceans’ Clear the Coast program. If your business is interested in sponsoring our programme, we would be happy to meet! To volunteer or request further information about Clear the Coast please contact rodea@livingoceans.org.
Our community workshop project has now visited six communities and involved hundreds of community members in beginning the conversation about sea level rise. The workshops were designed by Living Oceans to offer education on the basic science of sea level rise, its impacts and adaptation strategies. This first series of workshops were undertaken in partnership with the Islands Trust and we are indebted to them for providing funding as well as assistance with maps, logistics, promotion, note-taking and advice throughout; and for the invaluable contributions of the Trust planner at the workshops. The Real Estate Foundation of B.C. provided core funding to support the project here in B.C.

Living Oceans’ sea level rise project is part of a larger, national undertaking spearheaded by the Ecology Action Centre of Halifax and funded in part by Fisheries and Oceans Canada. That project is known as ECoAS—Educating Coastal Communities about Sea Level Rise (www.sealevelrise.ca). Outputs from the workshops were shared with ECoAS and helped inform the creation of tools and guidance documents for communities that are contained on the SLR website.

ECoAS is a project of Ecology Action Centre of Halifax. It is partially supported by a financial contribution from Fisheries and Oceans Canada, a grant from the Real Estate Foundation of B.C. and funding and in-kind support from Islands Trust.

Living Oceans created two resource documents to support the needs of the local communities in adapting for SLR. The documents are available on the Living Oceans website at https://livingoceans.org/initiatives/energy-and-climate-change/issues/resources-planning-sea-level-rise

Sea Level Rise

Seafood sustainability claims put to the test

Ocean-friendly. Green. Responsibly farmed. These days it seems nearly every seafood product at the grocery store has a sustainability claim of sorts. But how can shoppers differentiate between what is truly sustainable seafood and what is just green noise?

For seafood, there are typically three types of eco-labels or claims: eco-certifications, rankings and recommendations, and self-claims.

Products that feature eco-certifications, such as to the Marine Stewardship Council (MSC) and Aquaculture Stewardship Council (ASC), have been third-party certified against published standards. These certifications also require the supply chain to be certified against their chain-of-custody standard.

The Ocean Wise program is an example of a ranking and recommendation eco-logo. Recommendations are based on publicly available assessments of fisheries and farms.

While there is always room for improvement for eco-certifications and rankings (Living Oceans and SeaChoice are working diligently on strengthening these), they do provide consumers with assurance that an independent party has verified that seafood product.

This leaves the Pandora’s box of self-claims. These claims can run the gamut from company made eco-logos, slogans or text declaring green practices. Self-claims ultimately give consumers the impression that the product is ‘good for our oceans’ - but whether the claim checks out can be hard to verify as most products lack basic sourcing information due to Canada’s lax seafood labelling laws. Unlike the E.U., Canada does not require seafood to be labelled with the species scientific name, harvest origin and method (wild or farmed).

Living Oceans and our SeaChoice colleagues have begun an investigation into the prevalence of sustainability self-claims on seafood products in major supermarkets across Canada. It will be the first ‘census’ of self-claims to determine whether they are truly as sustainable as they are marketed to be.

Stay tuned to find out if that ‘ocean-friendly’ canned tuna really is that!
**Island Therapeutics: A Good–News Oil Story**

We are thrilled and grateful to now be receiving very generous ongoing donations from Vancouver Island-based Island Therapeutics, who donate a percentage of their sales to us each month!

Founded and grown within the beautiful Cowichan Valley on British Columbia’s Vancouver Island, Island Therapeutics specializes in hand-crafted transdermal patches, full spectrum oil tinctures, and other CBD-infused natural healing remedies. Their passion for the cannabis industry shines through all of their delicately fashioned products.

Says Jenelle Lecky, Island Therapeutics founder: “We are honoured to help contribute towards the efforts of Living Oceans Society. We are extremely grateful for all of their hard work, and look forward to continuing to help support their achievements with monthly donations to their cause.”

These contributions have already gone a long way in helping us plan for our upcoming Clear the Coast expedition, so if you’re looking for a way to contribute to our work while also purchasing a locally made healing product for yourself or a friend, check out Island Therapeutics at https://islandtherapeutics.ca

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**Ocean Exposures Photo Contest 2019:**
**Accepting submissions from June through September!**

Living Oceans Society annual photo contest will be up and running on our website from June 15th to September 15th, 2019. Every year we invite the public to help Living Oceans Society showcase the beauty of the ocean as we advocate for its protection, by sharing their favorite ocean photos with us. Submissions must fall into one of the three categories to qualify: ‘Below the Surface’, ‘Coastal Wildlife’, and ‘Work or Play on the Ocean’, with 3 prizes available per category. There is also one uncategorized ‘Seahuggers’ Choice’ prize (chosen by total ‘likes’ each photo gets in an album we post on our Facebook page), making a total of ten prizes to be awarded.

Please see our website as of June 15th for all contest details and rules, and take a look at one of last year’s winning entries: ‘Tide Pool Surprise’ by Tammy Tait!

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**Ways to Donate**

1. **Donate directly** to Living Oceans, if you do not require a tax receipt.

   **By cheque:** Please make cheque payable to Living Oceans Society and mail to:
   
   Living Oceans Society Box 320 Sointula, BC V0N 3E0

2. **Donate to the Canadian Coastal Research Society** if you would like a tax receipt (minimum $25).

   **By cheque or credit card:** please fill out this form. Cheques must be payable to CANADIAN COASTAL RESEARCH SOCIETY. Please note if you would like to make a one time or monthly donation. Monthly donors will receive annual tax receipts.

3. **Online:** You can donate directly to Living Oceans or to the Canadian Coastal Research Society using your credit card or Paypal on our web site.

   Canadian Coastal Research Society is a registered Canadian charity, no. 82128 1433 RR0001. Canadian Coastal Research Society and Living Oceans collaborate on charitable projects. You will be directed to the Canadian Coastal Research Society web site if you want to make a charitable donation.

   [www.livingoceans.org/donate](http://www.livingoceans.org/donate)