April 24, 2019

Standing Senate Committee on Energy, the Environment and Natural Resources

Dear Senators:

In the 1990’s fishermen on the east coast of Canada stated concerns about the introduction of seismic blasting and offshore oil and gas exploration on their richest fishing grounds. The fishing industry in southern Nova Scotia organized and were successful in creating The Georges Banks Review Panel.

At that time, the Department of Fisheries and Oceans in The Habitat Status Report (1998) stated that “there is relatively little scientific knowledge on the potential impacts of seismic activity on marine organisms”.

The Georges Bank Review Panel Report January, 1999 states, “The basic issue was the degree of confidence provided by the limited information available on which to base a conclusion”... “The available information on the impacts of seismic surveys is generally sparse; there is some credible evidence that fish catchability can be affected. Caution is called for”... “The Panel recommends that action be taken to have the moratorium on petroleum activities on Georges Bank remain in place”.

In the late ‘90’s the Canada Nova Scotia Offshore Petroleum Board issued shoreline exploration licenses on both sides of Cape Breton Island which generated massive public opposition, generating a public review of the leases. The Public Review on The Effects of Potential Oil and Gas Exploration Offshore Cape Breton, Commissions Report (March 29, 2002) pg.32 states: “The scientific knowledge is not clear about whether the effects of seismic testing is greater or less in shallow waters”. “There is need for expert examination of the science and experience that is at the root of the remaining uncertainty”.

The Standing Committee on Fisheries and Oceans stated Nov 2001 “The Committee shares the concerns of many of our witnesses that the effects of seismic testing, particularly on larval stages and juveniles of many species, is not sufficiently well documented to provide assurance that damage to important stocks will not occur as a result of oil and gas exploration”.

The Fisheries Resource Conservation Council (FRCC) stated April 2001 “That several scientific works have described the detrimental effects of seismic on every life stage of Fish”.

Over the last twenty years, collectively, the above government sponsored and/or sanctioned institutions have documented hundreds of presentations across Canada from Fishing Organizations, First Nations Representatives, Environmental Groups, Members of Parliament, Provincial Members of Legislature, Municipal Councils, Mayors, Expert Witnesses, Biologists, Independent Scientists and Scientists from our own Government Departments. All the committees or departments recommendations have referred to the lack of science on seismic testing as being a problem.

Now, twenty years later we are still protesting the use of seismic blasting and the federal/provincial offshore petroleum boards are working diligently rounding up tax dollars from Provincial governments to promote more seismic blasting projects. In 2014 - 2015 the “Canada Nova Scotia Offshore Petroleum Board” (C-NSOPB) in reference to the BP Tangier Seismic Survey Area stated: “The Nova Scotia taxpayers expended over $11 million assisting BP with this survey”. On June 20 2018 Nova Scotia’s Energy Minister announced another $11.8 million to create seismic images to promote oil and gas development.

To our knowledge not one significant science project to evaluate the effects seismic blasting has on Plankton, Krill, Larvae, Juveniles, Fish, Vertebrates and their life stages has been commissioned by our Provincial or Federal Government. A couple of fifty thousand dollar literary searches and a small study produced by Fisheries and Oceans Canada Gulf Region science titled ‘Potential Impacts of Seismic Energy on Snow Crab’ do not fill the gaps of knowledge needed to make well informed comprehensive decisions.

A study from Australian University of Tasmania and Curtin University published in 2017 titled ‘Widely Used Marine Seismic Survey Air Gun Operations Negatively Impact Zooplankton’, states “Experimental air gun signal exposure decreased zooplankton abundance when compared with controls.” “And caused a two to threefold increase in dead adult and larval zooplankton. Impacts from one air gun were observed out to the maximum 1.2 km range sampled, which was more than two orders of magnitude greater than the previously assumed impact range of 10m. Although no adult krill were present, all larval Krill were killed after air gun passage.” “All krill larvae found in all exposed samples were dead at all range groups following the air gun pass.” “There is a significant and unacknowledged potential for ocean ecosystem function and productivity to be negatively impacted by present seismic technology”.

The above study also quoted: “Phytoplankton and their grazers – zooplankton – underpin ocean productivity, therefore significant impacts on plankton by anthropogenic sources have enormous implications for ocean ecosystem structure and health. In addition, a significant component of zooplankton communities comprises the larval stages of many commercial fishing species. Healthy populations of fish, top predators and marine mammals are not possible without viable planktonic productivity.”

“Most of the Earth’s Oxygen (50 to 85%) comes from tiny ocean plants called phytoplankton that live near the water’s surface and drift with the currents.” “Like all plants, they photosynthesize – that is they use sunlight and carbon dioxide to make food.” “A by-product of photosynthesis is oxygen.” “Scientists agree that there’s oxygen from ocean plants in every breath we take.” Quotes taken from ‘How much do oceans add to world’s oxygen.’

The oil and gas industries’ claim that each seismic blast only impacts a 10 metre range around the air gun blast, creating a 20 metre wide effected path. These blasts have an affected area of
314 square metres per air gun blast. This claim is supported by Canadas’ Offshore Petroleum Boards.

According to the Australian study the 1.2 kilometre (1200 metres) affected range or radius around the air guns blasts would cover a 2.4 kilometre (2400 metre) wide affected path. This is 120 times greater range with an affected area of 4,532,904 square metres (4.5 sq. kilometres) per air gun blast. That is 14,407 times greater than the 10 metre range (314 sq. metre affected area) we are being governed by.

The above calculations are based on a one vessel, two dimensional (2D) seismic survey, while newer seismic surveys are using up to four vessels, three dimensional (3D) seismic survey, each blasting their own array of air guns sailing parallel 1.2 kilometres apart, recording blasting echoes from each other. The affected air gun range of four seismic vessels traveling parallel with 1.2 kilometres between each vessel, covers a width of 3.6 kilometres plus 1.2 km range of the seismic air guns on the outer sides of the vessels paths, creating another 2.4 kilometres for a total affected path width of 6 kilometres. Every ten seconds, each vessel alternately blasts their array of air guns. This 3D seismic method within forty seconds has an affected area of over 11 sq. kilometres.

From the time a seismic vessel, blasts every 10 seconds (travelling 25 metres distance) approaching a range of 1.2 kilometres ahead, until the vessel or vessels passes 1.2 kilometres beyond the point, all forms of life will be subjected to 88 blasts from 24-36 airgun arrays firing simultaneously. All guns expelling air at exactly the same time is known as synchronizing the guns. Seismic vessels continue blasting for weeks and months at a time covering thousands of square kilometres.

Seismic operators will tell you how they slowly ramp up to allow fish to escape their 10 metre affected zone. The problem is life forms such as plankton, krill, larvae, juvenile and small fish do not have the ability to move out or a 10 metre affected range without having to move out of a 1200 metres (1.2 kilometre) affected range.

For Example:

Polarcus UK Ltd, is proposing to conduct 2d, 3d and 4 dimensional seismic surveys in the Newfoundland Labrador Offshore Area. On February 27 2018 the Canada-Newfoundland/Labrador Offshore Petroleum Board (C-NLOPB) asked Polarcus: “In light of the recently released publication, ‘Widely Used Marine Seismic Survey Air Gun Operations Negatively Impact zooplankton’, “please report on the implications of the study results for the conclusions of the environmental assessment and the mitigation measures that are described therein”.

Polarcus UK Ltd. responded: “It should be noted that there are a number of uncertainties in the study results. It is not possible to draw any conclusions as to the cause of the drop in abundance of zooplankton”… “The research paper does not change the conclusions of the assessment”.

On January 19, 2019, iPolitics news reported it requested comment from Department of Fisheries and Oceans (DFO) about its departmental data and whether anyone is looking at the same aforementioned survey. iPolitics was referred to Natural Resources Canada which said the request should go to the Canada-Newfoundland Offshore Petroleum Board (C-NLOPB).
A spokeswoman for the C-NLOPB said there are no plans to stray from the current course. “There is no conclusive scientific evidence that would change the approach to our authorizations of seismic activity”, Lesley Rideout said in an emailed statement. “If scientific evidence were to warrant regulatory changes in the future, that would be the responsibility of Governments. The board’s role in regulatory development is advisory, and we then provide regulatory oversight of relevant industry activities”.

On Jan. 15 2019 a letter from C-NLOPB to Polarcus states “The EA Report and EA Addendum, as referenced above, describes the Project in sufficient detail and provides an acceptable assessment of the potential environmental effects of the project.”

This is the heart of the problem. The C-NLOPB asked the seismic operator Polarcus if they agreed with the 2017 Australian study cited above. Pursuant to paragraph 18(3) of the Canadian Environmental Assessment Act, the C-NLOPB is listed as the responsible authority for the federal environmental assessment. The fate of Marine Ecosystems and of the Atlantic and or Canadian fisheries is being decided by the Seismic industry and/or the oil and gas industry. Since the Canadian government agencies are so quick to ignore science from other countries, where is the Canadian based science they are basing their approvals on? Where are Canada’s scientific studies addressing the effect seismic air gun blasting has on larvae, juvenile fish, plankton, krill, species reproduction, life stages, senses and organs?

The government of Canada lists The Environmental Studies Research Fund as being a Government link. The ESRF “is a research program which sponsors environmental and social studies. It is designed to assist in the decision-making process related to oil and gas exploration and development on Canada’s frontier lands. The funding for the ESRF is provided through levies on frontier lands paid by interest holders such as the oil and gas companies. The ESRF is directed by a joint government/industry/public Management board and is administered by a secretariat which resides in the Office of Energy Research and Development, Natural Resources Canada”. Their list of projects is proof that their main objective is oil and gas exploration and development.

It is the Federal Government’s responsibility to make and enforce the laws of Canada. It is also the federal government’s responsibility to make sure that Canada’s Environmental Assessment Act is not the responsibility of those whose mandate is to promote oil and gas exploration and development.

It is also the federal government’s responsibility to make certain the laws they are approving are relevant to the best science Canada can provide. All federal governments over the last twenty years have had ample time and power to address the lack of science on the effects seismic blasting has on the environment – i.e. (killing Larvae, Juvenile Fish, Plankton, Krill etc.) and the effects airgun blasting has on internal organs of fish, their senses, hearing, balance, reproduction etc.

After the 2010 BP spill in the Gulf of Mexico, President Obama stated “It is pretty clear the system failed, and it failed badly”... “For too long...there has been a cozy relationship between the industry and the (regulators) that permit them to drill,”... “That cannot and will not happen any more”. (Globe and Mail, May 14, 2010). One of President Obama’s first regulatory changes after the BP oil blowout was to break up the offshore oil agency into two agencies, one to promote development and one to regulate the environment, creating two independent Government Agencies.
It is clear to the people in Canada’s fishing industry that there is a cozy relationship between the oil and gas industry and the unelected oil dominated Canadian Offshore Petroleum Boards. We cannot continue on the same path of accepting and ignoring the gaps of knowledge that were identified 20 years ago.

Many Canadians were elated to here Prime Minister Justine Trudeau announce the $1.5 billion ocean protection plan on Nov 7, 2016. On Dec 18, 2017, the Federal Government announced it will spend $80 million to protect Canada’s oceans, of which $45 million was on oil spill research and $17 million to enhance ocean models of wind, waves and currents; they also announced $175 million on Arctic Ocean protection and oil spill response. We cannot help but notice all these projects fit into the ESRF designation to assist in the decision-making process related to oil and gas exploration and development on Canadian’s frontier lands.

The effects seismic blasting has on plankton, krill, larvae, and juvenile fish and our coastal ecosystems must be studied as soon as possible. The seismic/oil and gas industries cannot be allowed to continue to operate while claiming only a 10 metre kill zone on fish while other reputable studies claim a 1200 metre or (120 times larger) kill zone. This is unconscionable.

Money from the $1.5 billion Ocean Protection plan or revenues from the new carbon tax would be well spent commissioning studies from our universities, our department of Fisheries and Ocean, our own scientists, independent experts, professors and students working together in Canadian Ecosystems. These studies cannot be tainted in any way by petroleum interest monies or any other self-interest monies. Quote by Ronnie Heighton President Northumberland Fishermen’s Association.

Dr. Lindy Weilgart Ph.D, an international expert on the impacts of seismic blasting on marine life, Department of Biology Dalhousie University, Halifax, Nova Scotia, has been studying underwater noise for 25 years. In iPolitics Jan. 1 2019 article ‘Calls to end seismic testing off NLFD as plankton levels plunge’, Dr. Weilgart states: “You’ve got 140 species that are affected by noise. This has to qualify as an ecosystem-wide impact. It’s not going to affect all species in the same way, but most stressors do not.” “The will is not there. If there are no restrictions, you just shoot away as loud as your heart desires, because no one is telling you otherwise. Certainly the government could do more. If they created the pressure, it would happen tomorrow. It’s all a matter of political will, but it’s not an engineering hurdle. It’s doable.”

In ‘A Review of the Impacts of Seismic Airgun Surveys on Marine Life’, Dr. Weilgart also stated “That seismic airguns are the second highest contributor or human-caused underwater noise in total energy output per year, following only nuclear and other explosions,” “Seismic airgun noise must be considered a serious marine environmental pollutant.” Yet there are no regulations in Canada for seismic blasting, merely a voluntary Code of Conduct.

The Gulf of St. Lawrence is one of the most rapidly de-oxygenating bodies of water on earth. According to Yale Environment 360 Oct. 1 2018, “The Gulf of Saint Lawrence is rapidly losing oxygen, declining by as much 55 percent in some spots since the 1930s – compared to a 2 percent drop globally. “Observations in the very inner Gulf of St. Lawrence show a dramatic oxygen decline,” said Mariona Clarét, an oceans modeller at the University of Washington and lead author of the new study. An area of 1000 sq. kilometres is reaching hypoxic conditions in the gulf, having already caused Atlantic wolfish populations to decline and are threatening cod, snow crab and halibut.” This is of special concern to many species such as herring that spend the winter months in the deep waters of the gulf. In the CBC news article Oct 03 2018 ‘Lack of
Oxygen in Gulf of St. Lawrence needs emergency action, says activist', the article states that Elizabeth May M.P. 'told the House of Commons on Tuesday there could be dire consequences if the issue isn’t addressed.’ Elizabeth May described the deoxygenation of the Gulf of St. Lawrence in this way: “It’s a canary in the coal mine, and we don’t want to talk about it in Parliament.”

“According to Greg Egilsson, Chairman of the Gulf NS Herring Federation, “the Gulf plankton populations are 50% of what they were five years ago and due to warming waters, acidification is increasing. DFO scientists have already determined that cod along with other species could be extinct in the gulf by 2050. Gulf’s herring stocks are down 70% over the last 20 years and are not growing as fast as they used to, a symptom of lack of oxygen. As of 2019-04-11 DFO scientist report says that Atlantic Mackerel (whose main spawning area is the southern Gulf of St. Lawrence), that mackerel stock is down 86% over past 20 years. Whales, bass and salmon are in sharp decline, over population of seals and pollution depleted ecosystems are considered to all be contributing factors. Destructive industrial practices and pollution have to be reduced on all fronts.”

The Gulf of St. Lawrence which represents less than one per cent of Canada’s Territorial Waters annually produces 40% or Canada’s landed value of fish or put in perspective, 40% of Canada’s fish caught for human consumption. It is a partially enclosed inland sea, surrounded by five Canadian provinces. Under the Canadian Offshore Petroleum Act boundaries, each province has jurisdictional rights over specific areas of water – the problem is water and fish don’t recognize provincial boundaries. The ecosystems in these petroleum board jurisdictions do not function independent of each other. The first step in co-existence is to recognize that the fishing industry has been in place for over 300 years, and has evolved through trial and error.

The Department of Fisheries recognized seventy years ago that there were distinct differences between biological and environmental considerations on the east coast of Canada. Three separate regions which still exist today were formed, Maritime Scotia Fundy Region, Newfoundland Labrador Region and the Gulf Region. Each with their own offices, administration, staff, science branch etc. functioning independently. The northern coast of Nova Scotia and the west coast of Newfoundland are both part of the Gulf Region. Our great St Lawrence River carries pollution from half of the population of Canada along with some northern USA states, adding to the Gulf of Saint Lawrence’s current extreme fragility, due to its de-oxygenation, acidification, plummeting plankton levels etc. Surely, the government of Canada ought to consider identifying the Gulf as off limits to all oil and gas activities at this crucial point in history.

When the petroleum industry landed on the east coast of Canada, the fishing industry was introduced to two new words, co-existence and mitigation. In the summer of 2017, Newfoundland’s Natural resources Minister Siobhan Coady described the 3D seismic program in the province as one of the largest in the world, and said the 2D program was “unrivalled in the modern exploration era.” As of April 3, 2019 the C-NLOPB has fifteen major projects listed as ongoing, while the C-NSOPB has four projects listed as ongoing. Each project can have multiple wells.

This is an assault on what is considered to be one of the most precious ecosystems on earth and also the best fishing grounds on earth.

The C-NSOPB Call for bids offers “A lower minimum work expenditure bid, reduced from $1,000,000 to $500,000. A 150% credit on all allowable expenditures approved in the first three
years." and "by posting $50,000 upfront EL holders have three years to assess geology, raise financing, attract a farm-in partner or surrender licence before posting large financial requirements."

At the Cape Breton public review in 2001, the fishing industry, aboriginal fishers, sports fishermen, environmentalists, concerned citizens, biologists and scientists asked for more science and protection of marine habitat, and suggested our governments raise the bid to reflect the company’s ability to deal with any kind of mishap or disaster. What about an oil spill that could cost billions? The company disappears leaving the Canadian tax payers to foot the bill, and leaving the environment and fishing industry to suffer the consequences. We do not support get rich promotional deals that jeopardize our oceans health and coastal economies.

The second new word Mitigation is probably the most overused word in oil and gas industries environmental assessments. Every effect on every ecosystem and every environmental issue is said to be mitigated. Simply writing the word on a document when you don’t fully understand a problem is not addressing the outcome or consequences of ones actions. You cannot mitigate ‘dead’.

The Gulf of St. Lawrence is in critical shape, at a tipping point, where an oil spill from a blow out or a tanker or seismic activities or other human activities, could be devastating.

On Nov. 16 2018 Husky Energy reported a spill of 250,000 litres (1572 barrels) of crude oil into the Atlantic Ocean at their South White Rose extension drill centre, roughly 350 kilometres southeast of St. John’s Newfoundland. The Sea Rose was the only producer that attempted to restart production during the storm. “Husky Energy says it is ‘deeply’ sorry for the largest oil spill in Newfoundland’s history.” The distance offshore, the open oceans sea action and the prevailing current from the Gulf Stream pushed the spill into the vastness of the Atlantic Ocean. Not one litre of oil was recovered.

An oil spill of 1572 barrels in a storm would create a totally different result in the Gulf of St. Lawrence which is surrounded by the coast lines and fishing communities of five provinces. The Gulf’s counter-clockwise prevailing currents and the fact that it only exchanges its water with the Atlantic once a year means an oil slick would float around in the gulf for months, undoubtedly making contact with the shoreline somewhere. No spot in the gulf is more than 100 kilometres from shore. The formidable quantity of ice for three winter months challenges Canada’s best icebreakers and would restrict any and all attempts to stop leaks or clean up oil spills. In the winter months oil from a well leak or a tanker will gather in or under an ice pack, sheltering it from waves while transporting the slick for miles from its original source - the perfect recipe for disaster. It’s not a question of IF there will be an oil spill but it is a question of when and how bad it will be.

Let’s not forget, British Petroleum (BP) Deep Water Horizon’s ‘Exploratory’ oil well blowout had an affected area as large as the Gulf of St. Lawrence. At the height of the ineffective clean-up ‘47,000 people had been deployed’ some using ‘10.4 million feet of sorbent boom’ (1969 miles) to clean-up the ‘665 miles of coastline contaminated by oil. Out of the ‘205.8 million gallons of oil leaked’ only ‘6.5 million gallons of oil skimmed off the Gulf by more than more than 830 skimming vessels used in the response’ were able to retrieve only 3% of the oil lost, while ‘53.5 million gallons of oil still remaining in the water’ matting the bottom ‘or washed ashore’. All facts in this paragraph were taken from BP oil spill statistics Aug. 10 2010 ‘The Deepwater Horizons Spill by the Numbers’. At the time the above document was released -
57,539 square miles of Gulf of Mexico waters remained closed to fishing. This represents an area as big the Gulf of St. Lawrence. Over eight years after ‘1.8 million gallons of both surface and subsea dispersant used’ in the Gulf of Mexico, we have no scientific evidence on how dispersants will affect our ecosystems. Yet, the Canadian Offshore petroleum boards list the dispersant Corexit 9500 for deep water and Corexit 9580 for shorelines as one of its main clean up tools.

The fishing industry in Canada is regulated by conservation laws limiting entry, seasons, trap limits, fish sizes, quotas, mesh sizes, escape hatches, closed areas that are enforced by a network of gun toting fisheries protection officers. They are backed up by regulations and predetermined lists of fines that one salmon can bring a fine of 10,000 and or the confiscation of accessories including one’s boat and/or truck. The lobster fishery list of deterents includes fines up to 2,500 per lobster and or a licence suspension for days or weeks are enforced even on accidental catch. No ‘Sorryes’ accepted by DFO.

Marine Protected Areas are supported by goodwill and we applaud the people and the political will, to protect areas with special unique features. Unfortunately a line drawn on the water will not protect the MPA from the problems we are facing. “Destructive industrial practices and pollution has to be reduced on all fronts. We do not have another twenty years to wait and see what is going to happen. It is already happening. The Gulf of St. Lawrence is dying. The proof is in front of us. To allow any oil and gas in any part of the Gulf, especially in a marine protected area, is bordering on insanity.”

Given the Gulf’s de-oxygenation, we need the plankton, (that seismic blasting destroy) to produce more oxygen. We don’t need oil slicks flooding around in the gulf killing more plankton.

The Precautionary Principle is now part of International and Canadian Law. Both the Rio Declaration and the Canadian Environmental Protection Act (CEPA) propose the use of the Precautionary Principle in the protection of environment and human health. If there was ever a need for the Precautionary Approach it is now.

If we let the Gulf of Saint Lawrence die, there is not enough money in Canada to bring it back.

We need a moratorium on offshore oil and gas exploration and development in the Gulf of St. Lawrence.

Canada’s offshore oil and gas industry needs an independent regulator, a separate agency with checks and balances to determine IF seismic blasting exploration and oil and gas development should proceed at all.

We need modern up to date science on the effects seismic blasting has on all level of life in our ecosystems now.

We need sensitive marine regions to be identified and placed out of bounds to offshore oil and gas development.

We need precautionary and ecosystem approaches in Canada’s Environment Act and Oceans Act to be enforced.
We need the Department of Environment and Climate Change to be the Responsible Authority for environmental assessments, not industry controlled petroleum boards who are in a conflict of interest.

We need The Fisheries Act and protection of marine habitat to take precedence over offshore oil and gas development and all other forms of industrial exploitation.

We need Studies to identify and address all forms of pollution.

Yes we are worried and care about the future of our children, the quality or air we breathe, the quality of water we drink, and the ecosystems that support our very existence. It gives us no comfort when we read from the Canadian Journal of Fisheries and Aquatic Sciences, vol.75, #6, June 2018 quote: “Shallow (5-35m depth) coastal waters with their proximity to human population, are likely to experience greater changes to ecosystem structure and functions from climate change and human impacts than offshore waters.”

If oil and gas reserves do exist in the Gulf, they have been there for thousands of years, they are not going anywhere. Having oil reserves in our territorial waters is showing our children we care for their future.

In the worst case scenario, if the oil and gas companies are wrong, in twenty years, the oil and gas will be gone and the fish will be gone. In the same worst case scenario, if the fishermen, environmentalists and concerned citizens are wrong by exercising a precautionary approach, in twenty years, the oil and gas will still be there and the fish will still be there for our children and our children’s children. We cannot control the course of the Gulf Stream and the Labrador Current. But as humans, we can stop polluting and stop destructive industrial practices.

To simply stand by and let the Gulf of St. Lawrence die is a crime against Humanity and life on earth.

Sincerely,

Greg Egilsson

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