



Photograph courtesy of the Department of National Defence

# OCEANS WORLD DAY

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## WORLD OCEANS DAY

# Canada long way from protecting its oceans, says Suzuki Foundation

NDP MP Peter Stoffer says Canada has oil and gas concerns, and possible dragging rights.

By HARRIS MACLEOD

The United Nations Environment Program calls for 25 to 30 per cent of ocean territory to be designated marine protected areas, but with less than one per cent of Canada's oceans protected by the federal government, Canada is "a long, long way" from where it should be, says the senior marine conservation specialist for the David Suzuki Foundation.

"Some scientists say 50 per cent of the total ocean area should be protected. When you get into these broader stakeholder, multi-government forums, [it becomes] 25-30 per cent of the areas that should be protected, so we're a long, long way from that," said Bill Wareham, of the Suzuki Foundation.

The Department of Fisheries and Oceans announced its \$61-million Oceans Action Plan in 2007 that, among other things, committed to creating six new MPAs by 2012 (there are currently seven).

Additionally, three marine protected areas will be created through a joint program between Parks Canada and Environment Canada.

Mr. Wareham said progress under the Oceans Action Plan has been "extremely slow," and he blames the government for not investing enough in the program, and not having a cohesive vision for managing Canada's oceans.

"It's just so slow," Mr. Wareham said. "Overall, our view in the conservation community is we're not getting very much action very quickly on the outcomes of these commitments."

Mr. Wareham said most of the program's budget has gone towards things like coastguard vessels, harbour improvements, and putting oil spill response equipment on icebreakers. Things he said are good in and of themselves, but don't address the investment in conservation that the Suzuki Foundation and others are calling for.

"They're spinning it as this big investment, but it's not going towards the things we think really are good measurements for conservation," said Mr. Wareham.

He's also concerned that the government is taking a "scattered" approach to choosing which areas will be marine protected areas, which can blunt the positive impacts of conservation because marine life can be exploited when it moves outside those areas.

NDP MP Peter Stoffer (Sackville-Eastern Shore, N.S.), his party's fisheries and oceans critic, said he shares Mr. Wareham's concerns about the lack of connectivity among marine protected areas. He attributes the government's reticence to designate more marine protected areas to trepidation about losing out on possible future economic benefits.

"I think they're worried about doing that because they have oil and gas concerns and possible dragging rights. And so, if they start protecting these areas, those areas would be off limits to those activities. And they're probably concerned about that but the reality is they should be more concerned about the health of our oceans. And they need to also work with the United States and other countries that we share our oceans with," Mr. Stoffer said.

Wayne Moore, director general of oceans at the Department of Fisheries and Oceans, said the government does not have any percentage goal for how much of Canada's ocean territory should be protected, and instead is focusing on the "quality" of the marine protected areas. He said that connectivity is an important element in protecting oceanic ecosystems, but that protecting discreet systems can also be an effective conservation tool.

"We're not just focusing on a percentage," said Mr. Moore. "What we're focusing on is the quality of the MPA. We're focusing on designing a system that protects and conserves unique features, whether its areas of high biodiversity, species at risk and their habitat, or other such conservation imperatives. So really we have a very strong focus on protecting the right things."

Mr. Moore said the Department of Fisheries and Oceans has been consulting widely for the past two years, and though he could not provide any specific timetables he said they are on



Photographs by Jake Wright, *The Hill Times*

Oceans talk: Liberal MP Gerry Byrne and New Democratic Party MP Peter Stoffer both say the federal government is doing little to protect our oceans.

track to reaching their goal of creating six new marine-protected areas. He said the department has high standards for making sure they conduct thorough scientific research, as well as consult with various stakeholders in industry, environmental groups, the provinces and territories, and communities. Mr. Moore said that as the process of designating more of Canada's ocean territory protected areas develops, the government will learn how to do it faster.

"We're not planning to drop our standards. We've done seven [MPAs] already, we're learning from the work that we've done there, we're learning from the experiences of others and we think that the next six that will be coming through the system will be coming through in a much more timely fashion. Can I give you specific timeframes? No, but I think we will make significant progress over the timeframes in the past," Mr. Moore said.

Mr. Wareham stressed that some activities can still be conducted within protected areas, and that the key is tailoring the permissible economic activity to the ecological peculiarities of the MPA.

"Some of them don't need to be 100 per cent closed protected areas, some of them just have to be closed to certain activities to protect the feature that you're

interested in. As an example, you may still be able to provide sport fishing in some places, or maybe even you allow commercial fishing in some places but you don't allow oil tankers. It can be a range of management approaches that happen in these protected areas," he said.

Liberal Fisheries and Oceans critic Gerry Byrne (Humber-St. Barve-Baie Verte, Nfld.) said his position is that marine protected areas should not be "no-go zones," but rather areas that are subject to government regulation depending on what it's trying to achieve. He said the government should do more to reach common ground with stakeholders, something Mr. Moore said the government is doing plenty of.

"The idea of protected areas as simply being no-go zones is not what we envision a protected area to be. Protected areas are definitely not no-go zones. They're areas that follow and respect the principles of sustainable development that take into consideration unique aspects of the environmental concerns of the areas, and full measures are put in place to protect those environmental concerns."

Mr. Moore also emphasized that MPAs are just "one tool in the tool kit" in ocean conservation.

*The Hill Times*



Hundreds of whales are killed every year in the Southern Ocean Whale Sanctuary under the guise of scientific research. Some of these whales are listed as endangered, unable to recover from commercial whaling despite a global ban.

Two Greenpeace activists exposed large-scale corruption within the Japanese government-sponsored whaling program.

Junichi Sato and Toru Suzuki now await trial in Japan. The case of the Tokyo Two shows freedom of expression is not being protected.

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GREENPEACE

## WORLD OCEANS DAY

# World must stop destroying oceans or it's the end of life on Earth

Scientists have found the global ocean is more acidic now than it has been in 20 million years.

By BEA VONGDOUANGCHANH

Carbon dioxide's effects on the world's oceans' chemistry is a "sleeping issue," say environmental experts, and if nothing is done to reduce greenhouse gas emissions quickly to mitigate ocean acidification, it will be the end of life on Earth.

"If everything on land were to die tomorrow, everything in the ocean would be fine, in fact it would be healthier. But if everything in the ocean were to die tomorrow, we too would die because we would not have the ability to maintain our carbon and oxygen cycles and therefore our atmosphere that gives us life. So we are fully dependent on what happens to life in the ocean," says author and scientific journalist Alanna Mitchell, who wrote the book *Sea Sick: The Hidden Crisis in the Global Ocean*. "As we change the chemistry of the global ocean, we're changing its ability to support life as we now know it in the ocean. What's at stake is life as we know it. It's very, very serious."

Ms. Mitchell, a former journalist with *The Globe and Mail* who also wrote *Dancing at the Dead Sea: Tracking the World's Environmental Hotspots*, said ocean acidification is more serious than climate change because the oceans—which make up 99 per cent of the Earth—control the carbon, nitrogen, and most of the oxygen cycle on the planet and if they are destroyed, humans could not live on the land. "What we've got is an incredibly urgent issue," she said.

The Interacademy Panel on International Issues, a global network of science academies, released a statement on June 1 calling on the world to cut its greenhouse gas emissions to prevent catastrophic climate change in the oceans.

"Ocean acidification is irreversible during our lifetimes and those of many generations to come. To minimize the risk of these large-scale and long-term changes to the oceans the increase in atmospheric CO<sub>2</sub> must be curbed by reducing emissions from human activities," said the statement, which was endorsed by 70 academies around the world, including The Academies of Arts, Humanities and Sciences of Canada, the U.K. Royal Society, U.K., and the U.S. National Academy of Sciences. "Ocean acidification is a direct consequence of increasing atmospheric CO<sub>2</sub> concentrations. To avoid substantial damage to ocean ecosystems, deep and rapid reductions of global CO<sub>2</sub> emissions by at least 50 per cent [of 1990 levels] by 2050, and much more thereafter are needed."

Ms. Mitchell said scientists have found that the global ocean is more acidic now than it has been for 20 million years, a surprise to many because scientists did not think it was possible for humans to change its chemistry. "It's really an unusual time in the planet's history," she said, noting the several other issues that are polluting the ocean and changing its ecosystem. She said that the ocean is absorbing 80 per cent of the heat from global warming which is raising the temperature and causing damage to species and plant life underwater. There are also several "dead zones" where there is little or no oxygen to sustain any life, mostly caused by chemical runoffs from

industry. "It's huge, and it's not so much pollution, it's called the sleeper issue, or the other CO<sub>2</sub> problem."

Green Party leader Elizabeth May told *The Hill Times* last week that if the Canadian government does not act now with the rest of the world to curb and reduce greenhouse gas emissions, it will be a "death sentence" for everyone. "Reducing greenhouse gases as a matter of terrestrial environment is critical but when you look at in terms of marine environment, it's even more urgent," she said. "We've taken marine life for granted for far too long. ... Our attention has been distracted and this is a critical aspect of global impacts of our addiction to fossil fuels."

Ms. May criticized the Conservative government for doing "nothing" on the environment and greenhouse gas reduction front, while blocking international negotiations on climate change.

Conservative MP Mark Warawa (Langley, B.C.), Parliamentary secretary to the Environment minister, told *The Hill Times* last week that the government was committed to protecting the environment as well as reducing greenhouse gas emissions. "Canada has oceans on three sides and we're totally committed to working with our international and continental partners to join together on the fight against climate change," he said. "It's unfortunate that when the previous government came into power in 1993, they acknowledged this was a big problem but they didn't do anything on it. We've been in government since 2006 and we've moved aggressively."

Mr. Warawa said that the Conservative government has introduced a chemical management plan to limit CO<sub>2</sub>, harmonized vehicle standards, invested in renewable fuels and new technology such as carbon capture and storage to address the climate change crisis. In a MP's Statement last week, Mr. Warawa also noted that the government "is working hard to protect and preserve our rich and vast ecological landscapes. To date, over 100 million hectares of land, roughly 10 per cent of Canada's land mass, and three million hectares of ocean waters have been protected."

He told *The Hill Times* that the government continues to be committed to making 90 per cent of Canada's electricity come from non-emitting sources by 2020 as well as reducing CO<sub>2</sub> by 20 per cent of 2006 levels by 2020 through a cap and trade system with the U.S. "We're on track to do that," he said. "As we go into Copenhagen, we will present to Canada the full sweep of policies. After Copenhagen we will then introduce the regulations to enact those policies and then Canada will move forward very quickly."

Ms. Mitchell said the problem of ocean acidification can be addressed and she is pinning her hopes on the UN's climate change negotiations in Copenhagen, Denmark, this December that leaders of the 189 countries who will be attending will agree on stringent reductions. "If they don't come up with something really substantial and doable and something that they can commit to at that meeting in December, the scientists are saying that we really have lost the window. That doesn't mean all of the cuts have to be in place by the end of December but they have to know how they're going to cut and they have to really stick to it," she said. "We have a lot at stake. I think our role in this as a country is to be a strong medium power on the international stage, a voice of reason on this to try to push for immediate solutions in reducing CO<sub>2</sub> emissions and ultimately CO<sub>2</sub> concentrations in the atmosphere."



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## WORLD OCEANS DAY



Photo courtesy of the Department of National Defence

St. John's Harbour: The health of our oceans is deteriorating because of two human stressors: global warming and over-fishing, says Professor Jeffrey Hutchings.

# Canada has geographical, moral imperative to protect health of oceans and its species

Since 1961, 90 per cent of the global uptake of heat resulting from climate change has been borne by the oceans, not by the atmosphere. This will have important, if unpredictable, consequences for things that live in the ocean and for us, as well.

*The following is an edited excerpt of a speech delivered by Jeffrey Hutchings, professor of biology and Canada Research Chair in Marine Conservation and Biodiversity, Dalhousie University when he testified before the Senate's Fisheries and Oceans Committee on May 5. The committee is looking at the federal government's new and evolving policy framework for managing Canada's fisheries and oceans.*

By JEFFREY HUTCHINGS

**O**TTAWA—Canada has the longest coastline in the world. We have the geographical, if not moral, imperative to be international leaders in protecting the health of the oceans and the species that inhabit them. The oceans are more than simply a repository of water: They provide a primary source of protein and food for the world and they contribute to cultural and spiritual values that cannot be easily quantified. The oceans moderate our climate, they affect our weather and there is a sense of wonder and aesthetic beauty to the oceans that mean something to us all.

However, the health of our oceans is deteriorating because

of two human stressors: global warming and over-fishing.

Since 1961, 90 per cent of the global uptake of heat resulting from climate change has been borne by the oceans, not by the atmosphere. This will have important, if unpredictable, consequences for things that live in the ocean and for us, as well. Oceanic water masses are changing in size, temperature and salt concentration. They may change their patterns of circulation. The oceans are becoming more acidic. Sea levels are rising.

All of these changes will affect the productivity of the oceans.

There may be shifts in the distributions of various species for the simple reason that species determine their locations on the basis of temperature. These distributional shifts will alter the balance between predators and prey. Endangered species along our Atlantic and Pacific coasts are losing their habitats because of increasingly-frequent storms and more intense tidal surges.

In the Arctic, home to three-quarters of Canada's coastline, loss of critical habitat in the form of sea ice affects the polar bear in serious ways.

However, as important as these climate-change-related threats are to marine species, they pale in

comparison to the consequences of over-fishing. In the Pacific, one can find Canada's largest fish, the basking shark, which is as big as a school bus. It feeds on plankton and other small organisms. Around Vancouver Island in the 1930s and 1940s, there were hundreds of basking sharks in the coves and inlets. They were fished for their livers in 1940s and, from 1954 to 1970, they were the subject of a pest eradication program by the federal Fisheries Department. Since 1996, only six have been observed off the coasts of B.C.

British Columbia's rock fishes are what I would describe as the gems of the North Pacific; they are the coral reef analogs of the Pacific Ocean. They are colourful fish and some live to be more than 150 years of age. However, most of the rock fishes we have been harvesting have declined by 80 or 90 per cent.

The Atlantic makes up 20 per cent of Canada's coastline. Here, many species have been depleted to almost unimaginably low levels because of over-fishing. The Porbeagle is a shark that has declined 90 per cent since the early 1960s. The American plaice off Newfoundland and Labrador was once the largest fishery for flatfish, sole and halibut in the world. It has declined 96 per cent.

However, it is cod off Newfoundland and Labrador that has declined 99 per cent from 1962 to 1992 that stands as the greatest loss of a fishery in the world. This was once the largest cod stock in the world and, to put this in some perspective, the decline of cod is the greatest numerical loss of a vertebrate in Canada history—more than two billion individuals in 30 years. By weight, trying to compare that, the loss of reproductive cod would be about 27 million humans. Why have cod declined by levels unprecedented in Canadian, if not, global history? Over-fishing is the reason. We never remotely achieved the intended management targets.

Canada's fish are a common property resource. They belong to all of the people of Canada. According to the Supreme Court of Canada, it is the duty of the minister of Fisheries and Ocean duty to manage, conserve, and develop the fisheries on behalf of all Canadians in the public interest, not solely in the interests of commercial fish harvesters.

Canada is a signatory to a variety of agreements, one of which is the 1995 United Nations Fish Stocks Agreement. Under that agreement, it is stipulated that signatories shall apply the precautionary approach to the management of its fisheries. When you adhere to the precautionary approach, you are acknowledging that the absence of full scientific certainty shall not be used as a reason for postponing decisions where there is a risk of serious or irreparable harm. From a fisheries' perspec-

tive, the idea is that one sets target reference points for harvest levels and levels of fish abundance that you wish to achieve, and limit reference points for harvest levels and fish abundance levels that you wish to avoid because they are likely to lead to serious or irreparable harm.

In other words, the argument is that there should be open transparent numerical objectives against which management plans can be defensively constructed and against which they can be judged by industry, lawmakers, and our society.

The auditor general has severely criticized Canada's fishery management plans for not identifying clear, measurable objectives. In a paper published last year by DFO, scientists concluded that implementation of sustainable management on marine fisheries has occurred slowly, if at all.

In the United States, recognition of over-fishing and the development of fishery rebuilding plans are undertaken under the auspices of a piece of legislation called the Magnuson-Stevens Fishery Conservation and Management Act. The act makes it clear that any management plan by the Secretary of Commerce must contain measures necessary to prevent or end over-fishing and rebuild over-fished stocks. The U.S. has formally adopted fishery reference points, and these are used to determine when a fish stock has been over-fished and they are used as targets for rebuilding plans. Few fish stocks in Canada have reference points, and none of these are recognized by legislation.

Where do some of our cod stocks stand today? Cod in the Southern Gulf of St. Lawrence are currently at one-third of their limit reference point. Northern gulf cod are currently at less than one quarter of their limit reference point. Northern cod are at about one-sixth of their limit reference point, where the limit reference points are the points below which serious harm can occur.

It is under the auspices of Canada's Fisheries Act that fisheries depletions have taken place. Few would argue, I would think, that it currently offers an effective legislative tool for the rebuilding of fish stocks.

In the U.S., one can look at a comparison between the American legislation, the Oceans Act, the Fisheries Act and the Species at Risk Act and look at the degree to which they are likely to be useful tools for rebuilding and recovering fish stocks.

One can also ask the question of whether we should have prescriptive legislation as opposed to discretionary legislation. The Minister of Fisheries and Oceans has, arguably, the greatest discretionary power of any minister of the Crown. Neither the Fisheries Act nor the Oceans Act can be described as prescriptive pieces of legislation. That is, neither act specifies specific conditions under which the minister must respond in a proscribed form. However, whereas the U.S. act is mainly prescriptive active, the Fisheries Act, being highly discretionary, is unlikely to be an effective tool.

What might we do about this situation? There are steps that can be taken, and I will identify four.

The first is a fairly straightforward one. There is a need for honourable, accountable and effective leadership with respect to our oceans. Such leadership must begin with the Prime Minis-

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# Canada has longest coastline in world, should protect oceans

The health of our oceans is deteriorating because of two human stressors: global warming and over-fishing.

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ter and simmer down through the cabinet to the Minister of Fisheries and Oceans and to the upper echelons of the bureaucracy.

Second, I would argue that there is a need for new legislation, the primary purposes of which would be to prevent and end over-fishing and to rebuild depleted fish stocks. The new act could be called something along the lines of the "fish and fisheries conservation and management act." The new law would formalize the explicit use of target and limit reference points in fisheries conservation and management. That would fulfill obligations that Canada has under various international agreements to implement rules for how to harvest and rebuild depleted stocks. Proscriptive legislation would end over-fishing and allow stocks to rebuild. These are the objectives written into the U.S. legislation.

A related concern is the regulatory conflict that exists within DFO insofar that the department has a dual role: promotion of industry and economic activity on the one hand, and, on the other hand, protection of fish and fish habitat. The simultaneous achievement of these two goals within a single piece of legislation has generally proven ineffective.

Third, we require environmentally informed consumer and corporate behaviour. Among other things, it would involve the simple labelling of fish products at the supermarkets that would inform the consumer about things such as the correct species of fish, the waters from which the fish were caught and the means used to catch the fish. The increased move towards some form of third party certification of sustainable seafood may provide an effective means of informing consumers and of changing consumer behaviour.

Fourth, I would point to education and acceptance of society's responsibilities. I have an eight-year-old daughter, and it will be up to people like her and her generation to change things. We can help by educating our youngsters, our children and grandchildren about the oceans and the diversity of life that inhabits the oceans. Such education can only lead to a sense of proprietary care and concern and a sense of stewardship and ownership that does not currently exist in this country.

Assigning blame for over-fishing is not simply a matter of pointing a finger at a minister, at a bureaucrat or a fisherman. We are all involved;

we are all implicated. The fish are our fish; they belong to us. We all need to pay for the sustainability of that biological ocean bounty in some form or another. The question is: What will you give up? Be it the commercial catching of fishing or the eating of tuna-filled sushi, societal behaviours must change.

Newfoundland's northern cod provides an illustrative example of what I have been trying to convey in these introductory remarks. For 500 years, the fishery was sustainable. It was the largest cod stock in world. Since then, it has declined 99 per cent. It represents the greatest numerical loss of a vertebrate in Canada history. There has been no recovery since the fishery was first closed in 1992, 17 years ago, but that has not stopped the fishing for northern cod. In June of last year, the minister of Fisheries and Oceans announced a 30 per cent increase in the quota for northern cod. It was astonishing to me that such an un-environmental and scientifically vacuous decision, so bereft as it is of careful thought and consideration for future generations, could have been made on the most depleted fish stock in the world with barely a whimper from the media, the public, the NGOs or Parliament.

It speaks volumes to me of the central political problem facing fish and fisheries in this country: there are minimal political costs associated with poor decisions.

To conclude, biological depredation of the waters bordered by the longest coast line in the world ultimately reflects a disingenuous commitment to environmental sustainability. There is a clear need to replace societal and governmental lip service with meaningful responses to over-exploitation, habitat alteration and climate change. I have suggested that such responses require committed and honourable leadership on the national and international stages, new legislation in some form, environmentally informed consumer and corporate behaviour and acceptance of the inevitable short-term socio-economic costs borne by all Canadians that will be required to achieve longer term societal benefits.

Recovering and maintaining the health of our oceans is a non-negotiable responsibility to future generations that we can neither afford nor have the right to ignore.

—Source: *Senate Committee on Fisheries and Oceans, May 5.*

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## WORLD OCEANS DAY

# World Oceans Day: Will Canada keep riding the wave?

We're leading the world in oceans S&T, but it won't be for long if we don't invest now.

By MARTIN TAYLOR

VICTORIA, B.C.—Understanding the oceans has never been so critical to our national and global futures. The oceans feed us, provide vital natural resources, determine climate patterns, and harbour in their depths the biological, chemical and physical processes that shape our planet. In short, our existence depends on them.

The bad news is that science-based "state of the ocean" reports point to a list of serious problems—ocean acidification, ocean pollution, ocean warming, depleted fish stocks, reduced biodiversity—that together constitute an environmental crisis.

The good news is that the wake-up call for immediate action is starting to be heeded nationally and internationally, and the scientific community is uniquely placed to serve the public good by providing the research base on which sound policy decisions can and should be made.

The best news is that the Canadian ocean science community is an international leader in key areas of ocean research—in fisheries biology, ocean observing systems, ocean (especially fish) tracking networks, ocean ecosystems, and Arctic Ocean research. This prominence makes sense since we border three major oceans and have the longest coastline in the world. More directly, it reflects strategic decisions by several universities—including the University of Victoria, Dalhousie, Memorial and Laval—to build critical mass in the ocean sciences and complement the long history of research by Fisheries and Oceans Canada. This capacity-building has in turn led to successes in major research funding competitions, especially those of the Canada Foundation for Innovation and the Natural Sciences and Engineering Research Council, as well as the creation of major research infrastructure platforms.

In the case of ocean observing systems, Canada is home to the world's most innovative

ocean observatories—VENUS and NEPTUNE Canada. Both involve pan-Canadian consortia of universities led by the University of Victoria in collaboration with private and public sector partners. This pioneering S&T is transforming ocean research using powered, submarine fibre-optic cabled systems and state-of-the-art data communications that stream real-time data to the Internet from sensors and instruments on the seafloor and in the water column.

The data allow for advanced system-based science over a 25-year span in ways not previously possible, and support a quantum leap in understanding complex ocean processes and their consequences. These Canadian facilities are the focus of international attention as other countries plan similar ocean observing systems.

The observatories are informing public policy, stimulating economic development, promoting public outreach, and

Under the leadership of Ocean Networks Canada (ONC), the not-for-profit agency created by the University of Victoria in 2007, a federal Centre of Excellence in Commercialization and Research has recently been established to accelerate the economic development and outreach opportunities created by the VENUS and NEPTUNE Canada research programs.

Building upon strong partnerships established during the design and installation of the two observatories, the new ONC centre of excellence will increase the global competitiveness of Canadian ocean industries in the areas of sensors and instruments, ocean system technologies, and oceans information technology. The outreach programs of the centre will expedite the communication and dissemination of the research, mostly in real time, to audiences of all ages through the Internet, school programs, aquaria and science centres, and the media.

And yet, despite these impressive accomplishments and the prospect of major scientific and societal returns on the capital investment in these observatories, there remains a critical Achilles heel which threatens their future vitality and success as world-leading major science facilities in Canada—the absence of a program to fund the core operating costs of major initiatives in S&T.

The issue is currently under review by the federal Science and Technology Innovation Council (STIC), but the urgency of a resolution cannot be overstated, with the short-term operating funding of both observatories due to expire by mid-2010.

Rarely is Canada in a position of world leadership in S&T. This is all the more significant in an area of such profound global consequence as ocean research. It's an enviable and envied position for Canada. The scientific, environmental, economic and social consequences of letting this opportunity slip are huge, nationally and internationally.

World Oceans Day is a timely and vital reminder of why we cannot let this happen.

Dr. Martin Taylor is president and CEO of Ocean Networks Canada at the University of Victoria. He was UVic's vice-president of research from 1998 to 2007.

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**'Rarely is Canada in a position of world leadership in S&T. This is all the more significant in an area of such profound global consequence as ocean research. It's an enviable and envied position for Canada. The scientific, environmental, economic and social consequences of letting this opportunity slip are huge, nationally and internationally.'**

positioning Canada as a global leader in addressing the challenges of ocean change. Located in coastal (VENUS) and in coastal to deep ocean environments (NEPTUNE Canada) to maximize their scientific contribution, the observatories are yielding data that address some of the most challenging ocean-related public policy issues—hazard mitigation (earthquakes and tsunamis), ocean-climate dynamics, resource assessment, and sovereignty and security.

Although they are positioned in Pacific waters off the Canadian coast, the two observatories are test beds for backbone technologies, innovative instrumentation and data management systems that can be applied in the Arctic and Atlantic oceans as their strategic, environmental and economic importance continues to build.

## WORLD OCEANS DAY

# We have to save our dying oceans

Our oceans are dying, and without life in our oceans, life on land will perish.



BY LIBERAL MP  
KEITH MARTIN

Our oceans are dying, and without life in our oceans, life on land will perish. The threats to our marine environment, our global life support system, come from many sources, but all have one common cause: human activity.

Human-generated global warming, pollution, and over-fishing have collided to create a perfect storm that has produced devastating changes in our oceans. The rapid extinction of fish species, destroyed ecosystems, and changing weather patterns are affecting all life on earth.

Global average surface temperatures have already increased by 0.8° C above pre-industrial levels (the upper sustainable limit of temperature change is deemed to be 2° C). This is producing a warmer ocean that is more acid-

ic, and less able to remove carbon dioxide and produce oxygen. The fear is that this will stimulate feedback loops that generate ongoing and irreversible temperature increases. Warmer oceans have also produced marine dead zones, where no life exists. These areas are increasing in number and size.

Massive over-fishing is devastating fish stocks. Of all of the commercially fished species, 30 per cent have crashed, 40 per cent are overexploited and a further 30 per cent are being fished at their maximum capacity.

Pollution from storm sewers, dumping, and agricultural practices are killing our oceans.

Like every country, Canada has stark choices to make and they must be made quickly. So what solutions could we employ to address these grave challenges?

This is a watershed year in the battle to arrest climate change. In August, the Third World Climate Change Conference will take place in Geneva, and in December, the world will meet again in Copenhagen to produce an inter-

national framework that goes beyond the Kyoto Accord.

In the end, the international community must put a price on carbon and set up an international trading mechanism for carbon credits. Doing so would help to put a stop to deforestation and the destruction of our carbon sinks. This is one of the easiest and quickest ways to decrease atmospheric CO<sub>2</sub>.

How this could work is as follows. Carbon sinks should be seen as a public utility. Currently, they have commercial value when trees are cut down and sold. However, they also have value as they remove CO<sub>2</sub> and produce O<sub>2</sub>. A hectare of jungle removes approx 200 tons of carbon per year from the atmosphere. At \$10/ton, a hectare of jungle is worth \$2,000 a year. This is real value and would create an incentive for developing countries not to cut down their jungles and forests. Indeed, this is our best chance to save the two lungs of our planet that are extremely threatened; Amazonia and the Congo Basin.

Using the Ocean's Act of 1996, Canada must enact a comprehensive ocean's management plan. This will enable us to apply a holistic approach to manage the ocean's multiple uses: resource extraction, shipping, conservation, fishing etc. This is the same approach used for managing land. Currently our oceans are a free for all. This structure will provide certainty for all user groups.

Part of the plan must include the establishment of marine protected areas (MPAs). A commitment to do this was made in 2004, in Canada's Ocean's Action Plan. Sadly, only 0.5 per cent of Canada's Exclusive Economic Zone is set aside in protected areas, placing us 70<sup>th</sup> out of 228 nations.

Overfishing: Fish species must have time to recover. Reducing the number of fishing boats world-wide (there are 4,000,000) will be crucial. Total allowable catches must be reduced and must be based on sustainability. Enforcement capacity must be strengthened, including the establishment of zones in international waters that are crucial for species recovery where fishing is pro-

hibited. Extremely destructive fishing practices like bottom dragging should be banned or used in a very limited way.

Forestry codes in Canada must be reviewed and enforcement must occur to ensure that forestry practices are not destroying critical spawning habitats.

Endangered fish species must also be listed under Canada's Species at Risk Act. Despite provisions within the Act, Canada has not listed one single endangered or threatened fish species under SARA.

Local environmental assessments must drive repairs to storm sewers, and better source control mechanisms should be put in place to prevent the dumping of toxic substances into our water systems.

Canada should lead a worldwide phase-out of non-biodegradable plastics that kill more than 100,000 marine mammals and more than 2,000,000 seabirds a year.

Our oceans are the lifeblood of our planet. Canada has an opportunity to act, and be a leader in saving them. In saving our oceans, we will be saving not only ourselves, but all life on earth.

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# It's time feds take concerted action to protect our threatened oceans

The greatest impact of climate change may be to our oceans. If the oceans die, we are told, there goes the planet.



BY NDP MP  
LINDA DUNCAN

This June 8, almost two decades after World Oceans Day was first conceived at the World Summit on Sustainable Development, is it too much to expect our federal government to take concerted action to protect our threatened oceans?

Celebrating the significance of our oceans is all the more pressing as science reveals that the greatest impact of climate change may be to our oceans. If the oceans die, we are told, there goes the planet. With just 200 days left until Copenhagen, we need our federal government to show leadership in addressing climate change. This year's theme "one ocean, one climate, one future" provides a clear wake-up call.

Canada is blessed in bordering three great oceans, the Pacific, the Arctic, and the Atlantic. Our nation's very motto is *ad mare usque ad mare*. Starting with aboriginal peoples, our vast coastlines have bred centuries of maritime cultures. As we plundered the oceans to grow our communities and economies, we also significantly impacted them, with depleted fisheries and tanker spills—the ExxonValdez still having its effect. But our oceans face more insidious perils.

Fully 80 per cent of the pollution load in the oceans originates from land-based activities. The deposition of persistent organic pollutants (POPs) from industrial activity has contaminated marine life, the seabed, and the water. Industrial mercury emissions have contaminated tuna and spawned health advisories. Large marine mammals are now so burdened with toxins they are treated as toxic waste when their bodies wash up on shore. Wild salmon stocks are threatened by poor logging practices, over-harvesting and large-scale fish farming and land and airborne contamination.

With the escalated melting of Arctic sea ice, and mounting pressure to approve LNG ports and coastal tanker traffic, all three coastlines, resident communities and marine species face increasing threats. Major public investment in geological surveys is intended to attract investment in resource exploration and extraction. Yet

given the vacuum of clearly defined ownership and exploitation rights, and any prescribed regulatory regime and or enforcement capability, will we merely repeat the debacle of the past? The federal government long ago abandoned its mandate for protecting and managing Canada's inland waters and fisheries.

Frankly, I favour the more enlightened approach espoused by Canada's scientific experts and northern leaders, like Inuit leader Sheila Watt-Cloutier. Canada must take a more principled and human-centered approach favouring cooperative management and stewardship of the Arctic. The race to exploit the wealth underlying the Arctic Ocean must take a back seat to finalizing a binding Arctic treaty with other circumpolar nations, in concert with Northern governments and communities including to describe a framework for shared science, setting maritime boundaries, resource development, environmental protection, transport, spill response, enforcement and dispute resolution.

During this 40<sup>th</sup> Parliament a series of leading polar and ocean scientists have come to the Hill to share their knowledge, concerns and recommendations for the oceans' plight.

We were told that current designated Canadian marine Protected Areas account for less than 0.05 per cent of our coasts

and ocean space. Increased coastal urbanization requires urgent action by all government levels. Improved planning models should be explored and applied as we extend our exploitation of resources into the 200-mile exclusive economic zone.

But perhaps, most profoundly, we were told we are changing the ability of our vast oceans to sustain themselves. The oceans are treated as a free carbon sink. As acclaimed science journalist and author Alanna Mitchell (*Sea Sick, The Global Ocean in Crisis*) revealed, this has profoundly altered the acidity, salinity, temperature, volume, ice cover, and natural cycles of the ocean—and ability to moderate and stabilize climate and to sustain itself.

An estimated 70 per cent of the world's major fisheries are failing, largely due to over-fishing. Changing ocean conditions have affected breeding and survival rates of corals, plants, mammals, and fish, wreaking havoc on food chains and throwing populations out of balance. Canada must quickly move beyond claims of sovereignty to assume responsibility for protecting the integrity of oceans. The federal government has constitutional authority over our domestic fisheries, international treaty making and our oceans.

Failure to take action wrought the demise of our cod fishery.

This same dragging of heels addressing logging, over-fishing

and fish farms has similarly impacted the West coast salmon fishery. The debate over coastal tanker traffic looms again, with LNG ports and expansion for Asia-bound bitumen, timber and grains. Canada can lead a global movement to develop and implement an Ocean Reforms Agenda that lays the foundation for recovery and builds solid protection for our oceans and their biodiversity.

We can begin at home, by addressing land-based sources of pollution, by issuing federal regulations to reduce mercury emissions from coal-fired plants. We can reinvest in fisheries and marine science and connect science to policy and management. By relying on independent, peer-reviewed science, we can enact effective controls on over-fishing and institute programs to rebuild fisheries and other marine life.

We need expedited action on our international obligations by designating more marine protected areas, attention to improved coastal zone management and action, finally, on invasive species.

Ultimately, Canada must show leadership in protecting the integrity of our oceans. It will not be sufficient to embrace a domestic ocean reform agenda: we must also do our part to provide development assistance to other nations struggling to address ocean impacts—as we did in the 1980s and early 1990s. After all it is one shared ocean resource.

To quote Alanna Mitchell, "... the ocean contains the switch of life. Not land, not the atmosphere. The ocean. And that switch can be turned off."

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