



rising tide



Healthy Oceans. Healthy Communities. www.livingoceans.org

SPRING 2010

finding CORAL

ACROSS CANADA

Jennifer Lash is bringing the deep sea to Canadians from Toronto to Tofino with *Our Journey to the Bottom of the Sea*, her national speaking tour about last summer's Finding Coral Expedition. The research trip in search of deep sea corals on Canada's Pacific coast was the culmination of five years of work to secure protection for these slow-growing and long-lived animals, which provide critical habitat for fish and other marine creatures that live in the deep corners of our ocean. Currently, these corals are at risk from destructive fishing practice such as bottom trawling.

Jennifer's presentation features video of the spectacular deep sea coral forests she filmed from a one person sub far below the surface, along with her firsthand accounts of an encounter with a deep sea octopus, floating over a seafloor carpeted in brittle stars and viewing the scars on the seafloor from the deep sea trawlers.

After speaking to a packed Live at Lunch crowd at the Royal B.C. Museum (RBCM) in Victoria on April 7, Jennifer donated coral samples gathered during the expedition to the museum's collection. Visitors to the RBCM will be able to see the corals when the museum's Behind the Scenes exhibit opens June 25. The RBCM will make the corals' data available to researchers worldwide through the Global Biodiversity Information Facility (GBIF). British Columbia's cold water corals can then be compared with samples in other museums for DNA or chemical analysis and other changes over time.

As well as museums, Living Oceans Society is sharing data from the expedition with universities, government, fishermen and others to advance the world's knowledge about deep sea corals. The data will help inform a new marine planning process for the ocean realm adjacent to the Great Bear Rainforest. The ocean area is called "Pacific North Coast Integrated Management Area" (PNCIMA pronounced "pin-SEE-ma") by the government.

The vast forests of Primnoa coral that we found at three expedition sites are over 100 years old, making them the old growth forests of the sea and home to rockfish, shrimp, crabs, and starfish. Unlike the forests on land, these spectacular deep sea forests are not protected but Living Oceans Society is working hard to change that through the PNCIMA marine planning process. ■



Living Oceans Society would like to thank Mountain Equipment Co-op for their generous support of *Our Journey to the Bottom of the Sea*.

Jennifer Lash donating coral sampled during the Finding Coral Expedition to Moretta Frederick, a Collection Manager with the Royal BC Museum.



Rockfish with red tree coral.

Tour dates and locations

June 3, 12:10 pm
Guelph

University of Guelph
519-824-4120

June 4, 6:30 pm
Toronto

Woman's University Club
of Toronto
416-979-2000

June 5, 2:00 pm
Toronto

North York Public Library
mast@rogers.com
905-881-3548

www.findingcoral.com



Letter from the Executive Director

I am sitting in my office watching the eagles play in the wind as a shrimp boat makes its way into the Broughton Archipelago to go fishing. The shrimp fishery in British Columbia is relatively small (compared to salmon and groundfish) but it is important for my community. We have a fleet of about seven boats that fish from Sointula. That's seven families that are employed by this industry and, in a town of 800 people, it's an important economic driver.

As I watch the fish boat bounce over the waves, I think about the shrimp fishermen in the Gulf of Mexico who are watching a massive oil spill coming at them from the Deepwater Horizon oil rig that exploded on April 20 and sank two days later. Oil is spewing uncontrollably into the ocean, making this one of the largest environmental catastrophes in U.S. history and destroying the livelihoods of the Gulf fishermen.

In B.C. our fisheries, tourism industry, whales, sea birds, kelp forests and coastline have been protected from major oil spills for over 30 years by a moratorium on offshore oil and gas development and tanker traffic. In the 1980s the oil industry petitioned to have the tanker ban lifted resulting in a federal government review. The government was considering lifting the moratorium when the Exxon Valdez spilled 11 million gallons of crude oil into Prince William Sound, Alaska. The destruction caused by this oil spill led the government to let the moratorium stand.

In 2003-04 the Province of B.C. lobbied hard to get the federal government to allow oil rigs on this coast which resulted in another review of the moratorium. After numerous public hearings in coastal communities, the review panel reported that the people who live and work on this coast overwhelmingly supported the moratorium on oil and gas development and tanker traffic.

Today the moratorium is under siege again. Enbridge wants to build a pipeline from the tar sands to the Port of Kitimat. Oil tankers would then carry the crude oil through the Great Bear Rainforest, important fishing grounds and critical whale habitat to Asia.

The catastrophe in the Gulf of Mexico should remind all Canadians just how devastating an oil spill can be. It should remind all of us how important our fisheries are, from the small shrimp fishery to the iconic salmon fishery. And it should remind our Prime Minister why he must ban oil rigs and tankers from this coast. Permanently.

It is nice to know our shrimp fishermen have a place to set their gear. I wish the same could be said for the fishermen in the Gulf of Mexico.

Jennifer Lash
Executive Director



Sign up to receive Rising Tide and our e-newsletter, Oceans Update, with articles on the issues affecting our oceans and coastal communities.

Send us your e-mail address.
newsletter@livingoceans.org

or sign up online at www.livingoceans.org/newsletters/

or mail your postal address to:
Living Oceans Society
PO Box 320 Sointula, BC Canda V0N 3E0

Living Oceans Society is working to ensure the long-term health of the ocean and coastal communities on the Pacific Coast of Canada. We believe that people are part of the environment and that we can build sustainable communities by protecting coastal ecosystems today.

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OPPOSITION GROWS

AS PIPELINE AND TANKER PROJECT REVIEW NEARS

In March, on the 21st anniversary of the Exxon Valdez oil spill, Living Oceans joined with more than 150 First Nations, businesses, celebrities and organizations to voice united opposition to the proposed Enbridge oil pipeline/tanker terminal project and the risk of a massive oil spill on B.C.'s coast. Enbridge wants to build its Northern Gateway pipeline that will carry more than half a million barrels of crude oil a day from Alberta's tar sands to Kitimat where it will be loaded onto supertankers bound for Asia. That's 200 supertankers each year, loaded with crude oil, sailing through important fishing grounds, critical whale habitat and the heart of the great Bear Rainforest.

Unfortunately, despite the longstanding moratoriums on offshore oil and gas and tanker traffic, the project has the support of the federal government. Before Northern Gateway can proceed however, it must be approved by the National Energy Board and the Canadian Environmental Assessment Agency. Enbridge is expected to file its application in the near future with the Joint Review Panel (JRP) acting for the two federal agencies. To ensure that the government is aware of the need to stop the pipeline and tankers, Living Oceans Society and our conservation partners will be at the JRP to contribute evidence about the project's risks to the environment for the panel to consider.

Widespread opposition and action have stopped oil tankers and pipeline projects in the past and if necessary, it will again. In 2003 we brought our expertise and other expert witnesses to a federal review on the moratorium on offshore oil and gas when we participated in both the Royal Society of Canada's scientific review and the public review. Since then the risks from oil tankers and the consequences of spills haven't changed and neither has public concern. ■



"Can we promise there will never be an accident?
No.
Nobody can."

-Enbridge CEO, Pat Daniel.

The Deepwater Horizon oil rig in the Gulf of Mexico used the best modern technology. Just like Enbridge promises. The question isn't 'if' a spill happens, but 'when?' and 'how big?'



www.livingoceans.org/spillfreecoast

See the interactive oil spill model that shows how an oil spill from tankers, a drilling rig, cruise ships, and container vessels could affect B.C.'s coastal ecosystems and communities.

- According to international spill statistics there have been **205 tanker spills** of seven tonnes or more between 1996 and 2006.
- Globally, tanker spills of 700 tonnes or larger have occurred an average of **3.4 times annually** between 2000 and 2008.
- Clearly, when it comes to transporting oil by ocean tankers, it is not a question of if a spill will happen, but rather when. And the consequences are **frightening**.

Take *action!* on Oil Tankers

Please write Prime Minister Stephen Harper and urge him to protect the ocean by permanently banning super tankers so that B.C.'s North and Central Coast is not the site of the world's next disastrous oil spill.

Postage is free.
House of Commons
Parliament Buildings | Ottawa, ON K1A 0A6
Take action with a prewritten email at
www.livingoceans.org/programs/energy/action.aspx

OCEAN ACIDIFICATION

Ocean acidification is the ugly twin of climate change with the potential to cause extraordinary damage to ocean ecosystems. It too results from the enormous increase of carbon dioxide (CO₂) in the atmosphere, primarily from burning fossil fuels. Unlike the uncertainty surrounding climate change though, the science of acidification is a matter of simple chemistry that has been understood for more than 100 years. It cannot be refuted. It is observable and predictable, and it is happening right now.

The ocean is one of the largest CO₂ sinks on the planet. It naturally absorbs CO₂ from the atmosphere and can store it for thousands of years. Historically, the ocean and atmosphere cycled carbon dioxide at a manageable rate. However, since the Industrial Revolution when we began burning large amounts of fossil fuels, the ocean has absorbed over 500 billion tons of extra CO₂ from the atmosphere.

When the CO₂ combines with sea water it creates carbonic acid which makes the water more acidic. As a result, average ocean acidity has increased by 30 percent since pre-industrial times. Scientists predict that if we continue spewing CO₂ emissions into the air at our current rate, the ocean's acidity could increase 150 percent by 2050.

How Urgent is this Problem?

Corrosive waters have already been observed off the coast of California and basin-wide increases in acidity have been measured in the North Pacific Ocean. Rising acidity reduces the availability of carbonate, a mineral used by thousands of marine species to form shells and skeletons. Coral, shellfish and the tiny organisms that form the base of the ocean food web all use carbonate and the less there is, the harder it is for them to build their homes, grow and reproduce. If ocean acidity continues to increase, shells may actually begin to dissolve.

If populations of organisms at the base of the food web are reduced because they cannot form their shells, it ripples through the entire food web,

eventually impacting the largest organisms including whales and humans. If the fish we consume have nothing to eat, we won't be eating fish.

Ocean acidification is also expected to have dire effects on coral reefs and fisheries worldwide. Coral reefs provide homes and breeding grounds for millions of marine creatures, offer storm protection for coastal communities, and support booming tourism industries. The breakdown of these reefs will have serious consequences.

While many impacts are challenging to predict, early estimates of worldwide fisheries production losses are in the order of \$10 billion per year. This may be catastrophic for the millions of people around the world that rely on the fishing industry for food and income.

Solutions

Solving the double threat of ocean acidification and climate change—both caused by our dependence on fossil fuels—will be the challenge of the century. It will require world-wide effort to reduce CO₂ emissions from burning fossil fuels and deforestation, but it can be done, and each of us can do our part by shrinking our carbon footprint.

Reduce CO₂ Emissions

In order to avoid critical “tipping points” in the marine environment, we need to decrease the amount of CO₂ being released into the atmosphere. The Intergovernmental Panel on Climate Change (IPCC) – the leading body of climate change scientists in the world – says we need to reduce our global CO₂ emissions 85 percent below 2000 levels by 2050. In order to achieve this, developed countries, including Canada, must cut our emissions by at least 25 percent from 1990 levels by 2020, and society as a whole needs to work towards a low carbon economy.

Preserve Natural Resilience

Ecosystems will be better able to survive changing acidity levels if they have healthy fish populations and intact food webs. Marine protected areas and sustainable fishing regulations can help preserve natural resilience by reducing other threats from human activities, such as over fishing, coastal development, and pollution. A healthy ecosystem is a resilient ecosystem.



You can help

Tell the federal government you support emissions reduction policies and practices

Fly less

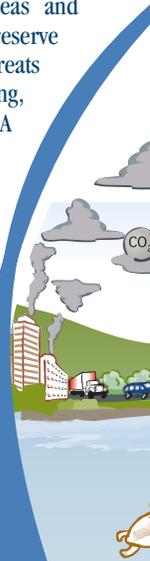
Carpool more

Walk or bike when you can

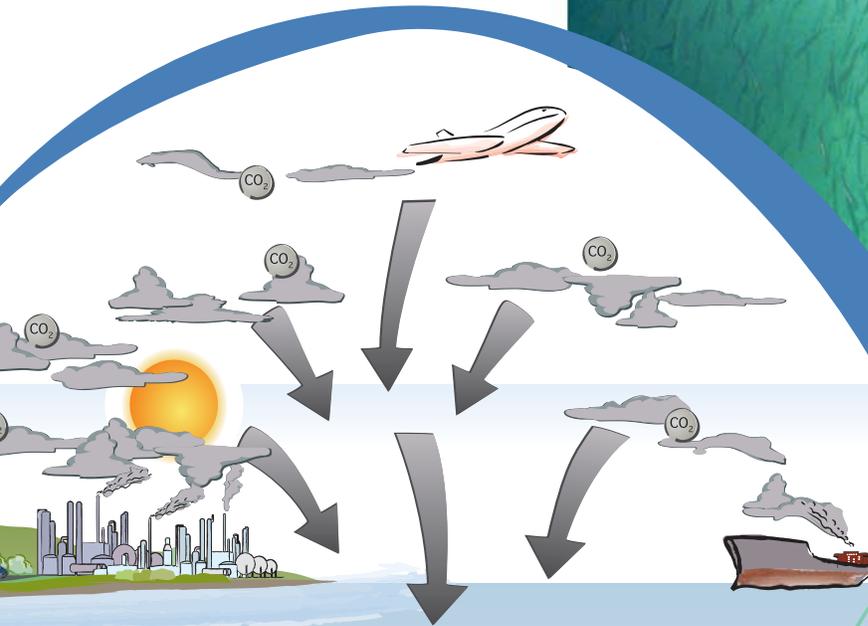
Weatherproof your home

Eat less meat

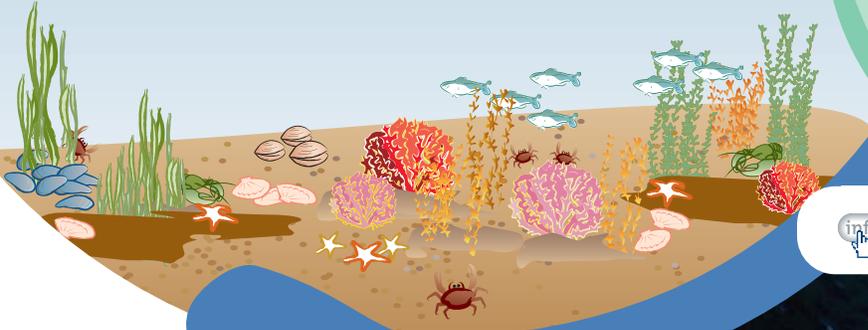
Donate to Living Oceans Society and help our campaign on ocean acidification



Solving the double threat of ocean acidification and climate change will be the challenge of the century, but it can be done.



The ocean naturally absorbs carbon dioxide (CO₂) from the atmosphere. Since the Industrial Revolution, we have pumped more and more CO₂ into the atmosphere, primarily from burning fossil fuels. The ocean continues to absorb this CO₂, but at a cost. The increased amount of CO₂ changes the chemistry of the water and makes it more acidic.



www.livingoceans.org/programs/energy/acid/

PHOTOS Dale Sanders

OVERWAITEA FOOD GROUP

CLOSING THE LOOP ON FARMED SALMON

OFG first Canadian retailer to make closed containment salmon widely available

SeaChoice retail partner, the Overwaitea Food Group (OFG), is the only Canadian grocery chain to make sustainable farmed salmon broadly available to customers across British Columbia and Alberta. OFG is the exclusive North American retailer for coho salmon sustainably farmed by SweetSpring, a land-based closed containment operation in Washington State. The closed containment coho can now be found in all six OFG companies including Save On Foods, Overwaitea, Price Smart, and Urban Fare.



Living Oceans Society has promoted closed containment salmon farming for years as a means of protecting wild salmon and their ocean environment. Closed systems separate farmed fish from wild fish and the environment. Waste, escapes and spread of disease and parasites are much better controlled than in the net-cage pens currently used by the vast majority of B.C. salmon farms. OFG's commitment to sustainably raised farmed salmon sends a positive signal to potential closed containment operators and investors that there is market support for the product this technology can provide.

The future looks promising for a smaller carbon footprint for closed containment systems as the energy performance keeps improving thanks to new technologies and alternative energy sources. SweetSpring has also made improvements to reduce the amount of wild fish needed in the feed in their land-based system.

SeaChoice, a joint initiative of five Canadian conservation organizations including Living Oceans Society, is a national program that provides science-based sustainability assessments of seafood and helps Canadian businesses and consumers make sustainable seafood choices.

The launch of a sustainable farmed salmon in Overwaitea Food Group stores marks the near year-long partnership between SeaChoice and OFG, who was one of North America's first grocery retailers to commit to a sustainable seafood program.



Sustainable sushi on your iPhone, iPod Touch or iPad

SeaChoice launches seafood guide app for iPhone, iPod Touch and iPad, now with a sushi feature

Version 2.0 of Canada's Sustainable Seafood Guide application features sustainability information for seafood products commonly found in restaurants and stores across Canada. For the first time, even sushi lovers

can use their iPhone, iPod Touch, or iPad to make sure that only sustainable choices land on their plates.

Bring the SeaChoice app to your next seafood dining experience and get to know more about our oceans and the seafood we love to eat. The free app is available for download at the iTunes store.

CREATURE FEATURE

North Pacific Giant Octopus



PHOTO: Dale Sanders

The North Pacific Giant Octopus can be found on the continental shelf of the North Pacific Ocean from the low-tide line to depths of 500 meters.

The Giant Pacific Octopus is shy and intelligent and eat sharks (in captivity, anyway, they've preyed on spiny dogfish 3-4 feet long). In spite of that, they live about four years, longer than most octopus species. As its name suggests, the Giant Octopus is the biggest species of octopus. One captured near Victoria, B.C. in 1967 tipped the scales at 70kg (156 pounds) and was almost 7.5 meters (23 feet) from arm tip to arm tip. The record weight is 600 pounds although most weigh 50 to 90 pounds and measure about 16 feet long.

The Giant Octopus uses two alternating rows of suckers on its eight arms (not tentacles) to catch its prey and taste its environment. Mature females have 2,240 suckers, 280 on each arm; males have fewer because there are only about 100 on an arm that is used for mating. All those suckers are good for opening things. In laboratory tests and aquariums they can unscrew jar lids to get the food inside. In the wild they eat shrimp, crabs, clams, abalone and scallops. If it can't pull a shellfish apart with its arms, the Giant Pacific Octopus uses its sharp, beak-like mouth to bite its meal open. The beak is made of the same substance as a human fingernail.

Harbour seals, sea otters and sperm whales hunt the Giant Octopus which has three ways to avoid being eaten: propel itself backward by rapidly forcing water out of its body; escape in the cloud of ink it squirts at an attacker; change the colour of its skin and blend in with rocks and coral. Octopuses have no bones so they can hide in caves, crevices or under boulders.

Females lay up to 100,000 eggs over a period of several days. Incubation of the eggs on the ceilings of their rocky dens takes seven months or longer depending on the water temperature. Throughout that time the female tends the eggs by cleaning and blowing oxygen over them. She does not eat and, after the eggs hatch, she dies. The newborns swim toward the surface, the size of a grain of rice, and spend one to three weeks drifting in the plankton until their head, or "mantle," grows to about 14 millimetres. Then they settle to the bottom.

The population of the North Pacific Giant Octopus is unknown and they are not listed as endangered. Octopuses have been fished commercially in B.C. with traps and by scuba divers, although some are inevitably swept up as bottom trawl bycatch. By the late 1980s Giant Pacific Octopus landings had climbed to about 200 tonnes per year because octopus is used increasingly by halibut fishermen for bait. Landings peaked in 1997 at 217 tonnes. Today, they are harvested in B.C. mostly by scuba divers in an experimental fisheries program. ■

staff



Oonagh O'Connor



Dorthea Hangaard



Vern Sampson



Jen Adams

Dorthea Hangaard spent seven years as Special Projects Manager, culminating with the successful Finding Coral Expedition. She is moving from her little cabin in the woods to a busy little town in southern Ontario where she will try to live off the grid and in the groove.

Vern Sampson shared his humour and stories with us for over two years as the Local Knowledge Coordinator, talking to fishermen and other coastal residents about the waters they know so well. Vern has been seen in his garden, on the ferry and rumour has it he may go to Senior Coffee some time.

Jen Adams made waves in Ottawa for over a year, diligently reminding everyone that all life comes from the sea. Jen will continue to raise the bar on environmental issues in Ottawa and we know she will be successful because she can run faster, ski harder, bike further, and jump higher than anyone else we know.

Our offices at Living Oceans Society have grown quieter over the last few months as we have said goodbye to four treasured members of our staff. We will miss their laughter and the passion they brought to their work. Each of them has made invaluable contributions to the protection and understanding of B.C.'s ocean ecosystems.

Oonagh O'Connor started with Living Oceans when it was run out of Jen Lash's spare bedroom. Now, after 10 years of keeping the coast oil free coast as Energy Campaign Manager, Oonagh is riding off to find adventure on the open road at the handlebars of a Harley Davidson motorcycle.

Living Oceans Society has been blessed to have these awesome people working with us. We wish them all the best. You have all left very big shoes to fill!



to Living Oceans Society

Every dollar you donate to LOS is \$2 for the fish

A generous supporter has challenged us to raise \$150,000 to protect the ocean. If we meet this challenge, our friend will match the donations, providing up to \$300,000 for ocean conservation.

YES!

Support Living Oceans Society

1 Donate directly to Living Oceans Society, (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.

By credit card: Please call 250-973-6580 and provide us with your information.

2 Donate to Oceans Fund at Tides Canada Foundation if you would like a tax receipt (min \$50).

By cheque or credit card: please fill out this form. Cheques must be payable to TIDES CANADA FOUNDATION-OCEANS FUND. Please note if you would like to make a one time or monthly donation. Monthly donors will receive annual tax receipts.

Online: www.livingoceans.org/donate.

The Oceans Fund is a special fund set up at Tides Canada Foundation to support the charitable work of Living Oceans Society. Tax receipts will be issued by Tides Canada Foundation within six weeks of receipt. For more information about Tides Canada Foundation visit www.tidescanada.org.

I would like to donate to **The Oceans Fund** at Tides Canada Foundation.

- I am enclosing a cheque for \$ _____ Payable to Tides Canada Foundation-Oceans Fund.
- I'd like you to process my donation on my credit card. Please charge:
 - \$ _____ each month OR \$ _____ once.

Start date D D / M M / Y Y

Charge my Visa Mastercard

Card# _____ Expiry date M M / Y Y

Cardholder name _____

Signed _____

Name _____

Address _____

Telephone _____

Email _____

Thank you for supporting the work of Living Oceans Society. A charitable tax receipt will be sent to you for donations of \$50 or more. Tides Canada is a registered Canadian charity: BN 86894 7797 RR0001. **Please return this form to:** Tides Canada Foundation, 680-220 Cambie St, Vancouver BC, V6B 2M9. **Questions?** Please call Living Oceans Society at 250-973-6580.

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