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Paul Paquet Senior Scientist Michael Price Biologist, Wild Salmon Program THE FUTURE OF COASTAL BRITISH COLUMBIA means much more to me now. Being a new parent, I am invested in tomorrow like never before.

This spring, baby Maëlle adventured into the heart of the Great Bear Rainforest. There she entered ancient river valleys blessed with salmon – an ocean food that has fed grizzly bears, wolves, eagles and a whole web of life for millennia. I shared with her an ocean bustling with fish, whales, seals, sea lions, dolphins, and birds.

This precious coast will always be a part of who Maëlle is. I envision her exploring tide pools like I did as a child; tasting salmon for the first time; and learning to sail from her grandfather.

But obscuring these idyllic visions are some disquieting thoughts. What if Maëlle inherits a coast like Prince William Sound, where the *Exxon Valdez* spewed oil across a landscape that is still impacted by the disaster's aftermath? What if she one day suffers what children of the Gulf Coast will endure over the next several decades in the wake of the BP Deepwater Horizon catastrophe?

Why do I worry? Enbridge Inc. filed their application for the Northern Gateway Project with the National Energy Board in June.

Their troubling scheme includes a twinned pipeline over the rugged Rocky and Coast Mountains between Alberta's tar sands and

the port of Kitimat. Condensate would be shipped to the north coast and piped to Alberta to dilute the thick tar sand's bitumen. In return, "the world's dirtiest oil" would be pumped back to the coast and shipped via supertankers to Asian and American markets.

The plan is nothing short of arrogant in its ambition to taunt one of the world's most rugged landscapes and perilous coastlines. We hear dubious promises of "world-class" safety practices. Will pipeline maintenance match existing Enbridge standards that have polluted Michigan's Kalamazoo River, wildlife, and people? Are their ocean transport protocols similar to those delivered by BC Ferries, which lost the *Queen of the North* along the proposed tanker route a few years ago? Will their clean-up responses match BP's, which failed the Gulf Coast? If anything has been learned from the Deepwater Horizon catastrophe, it is that even the best available technology can be reduced to irrelevance by human error, malfunction, bad luck, weather, and their wicked convergence.

As you will read in this year's *Tracking Raincoast*, our major focus for now and the foreseeable future is addressing and curtailing the risks posed by Northern Gateway. Raincoast is engaging on this issue from every angle with research, education, and advocacy. Everything we have worked for and continue to work for is at stake.

We seek your support for our urgent and important efforts to safeguard BC's treasured coast.

Dr. Chris Darimont

Science Director, Raincoast Conservation Foundation



British Columbia's Great Bear Rainforest is facing its most severe threat to date. Enbridge Inc.'s intention to pipe crude oil from Alberta's tar sands to the north coast of BC means 225 super tankers (each tanker being over three football fields in length) could be plying our coastal waters annually as they transport "the world's dirtiest oil" to Asian and American markets.

The Enbridge Northern Gateway Project proposes two pipelines, each 1,170 kilometres, between an inland terminal in Alberta and a marine terminal near Kitimat, BC. The risk of a catastrophic oil spill to coastal marine species and ecosystems, as well as to the food supply and livelihoods of First Nations and coastal communities, is considerable. Raincoast's *Oil Free Coast* initiative is taking action to address and curtail these risks.

What's At Stake? Everything

What's At Stake? The Cost of Oil on BC's Priceless Coast is a popular report based on five years of marine surveys by Raincoast scientists and field assistants in the waters of the proposed tanker route. The report was released in 2010 on the 21st anniversary of the Exxon Valdez oil spill in Prince William Sound.

In collaboration with colleagues at Duke University and University of Alaska, Fairbanks, our work identified key regions used by 14 species of marine mammals and 70 species of marine birds to breed, forage, rest, overwinter, and migrate. Such information helps quantify the ecological importance and value of marine life at risk from proposed oil development and transport,



and assess whether the risk is worth the cost. We continue to communicate our findings to the public, domestic, and international media, local marine planners, coastal First Nations, the scientific community, conservation groups and provincial and federal governments.

The Enbridge Hearings

As a formal intervener, Raincoast will be participating in the Canadian federal government's Joint Review Panel (JRP) process. We will be assessing the risks to the marine and terrestrial environment associated with the proposed Enbridge pipeline. Raincoast is focusing on direct and cumulative ecological impacts to habitat and wildlife, the consequences of a spill to habitat and wildlife, and the marine navigation risk assessment.



Message in a bottle

As part of an effort to understand ocean currents and how they would influence the movement of a potential oil spill, scientists from the Institute of Ocean Sciences teamed up with the Gitga'at First Nation and Raincoast to drop "drift" bottles into the Pacific Ocean just off Gil Island.

In September, school children from Hartley Bay tossed 500 drift bottles from Achiever into Wright Sound (photo). In late November, the first bottle was found in Sandspit, BC. The bottle travelled about 100 nautical miles across Hecate Strait in 65 days, onto the shores of Haida Gwaii.



Salmon and Oil Analysis and Report

The distribution and abundance of salmon is critical to the ecological health of the eastern Pacific coastal food web. A catastrophic oil spill threatens hundreds of BC's coastal salmon populations and potentially stocks from the

Fraser River, Alaska, Washington, Oregon, and California, depending on the location and timing of a spill. Our report will include an overview of Enbridge's proposed oil port and marine shipping routes, the salmon runs potentially affected by a spill, the danger of oil to salmon, and cumulative impacts to salmon in the Northeast Pacific Ocean.

Mapping Coastal Habitats

Raincoast, the Gitga'at First Nation and SeaChange Marine Conservation Society have teamed up to map nearshore (tidal) habitats in Gitga'at territory. Gitga'at territory comprises all entrances of the proposed oil tanker routes between Queen Charlotte Sound/Hecate Strait and Kitimat. The goal of our project is to identify and map nearshore habitats like eel grass that serve as nurseries for the shellfish, finfish, and ground fish that support



What would an *Exxon Valdez* size oil spill look like in BC? The black boundary delineates the 3,400 km² area affected by the *Exxon Valdez* oil spill in Prince William Sound, Alaska. This area was then overlaid on the BC coast to convey the size of the region impacted.

coastal food webs and the Gitga'at way of life. Linking this information to youth, school programs, and marine planning is a key objective of the work.

Marine Birds

After completing four years of intensive marine bird surveys in the waters adjacent to the Great Bear Rainforest, we presented some of our findings at the 1st World Seabird Conference and in our What's at Stake? report. In 2011, we're continuing analysis and placing our attention on the application of this research. We will release a report that provides a framework for renewable energy planning using the conflict between marine bird conservation and wind turbines as the template.

Our coastal journey surveying sheltered inlets and exposed seas between Queen Charlotte and Dixon Entrance gave us a glimpse into the unique lives of marine birds. Inspired by the voyage, Raincoast is producing a coffee tablestyle book to be published by Greystone Books. Together with a series of stunning images by photographers from the Pacific coast, the narrative weaves our encounters with marine birds together with their human and natural histories and the wild coast they inhabit.





Pigeon guillemots, and their cousins the auklets, murrelets, and puffins, are members of the alcid family. They are widely distributed throughout our study area in Queen Charlotte Basin. Pigeon guillemots are one of the species that appear not to have recovered from the *Exxon Valdez* oil spill. However, the lack of baseline data makes this difficult to accurately assess.



Salmon for Wildlife

PACIFIC SALMON are a foundation species for coastal ecosystems.
As such, Raincoast wants to establish a salmon allocation for wildlife within fishery management plans.

Canada's Wild Salmon Policy

In 2005, the federal Department of Fisheries and Oceans (DFO) developed a laudable Wild Salmon Policy (WSP) to conserve the abundance and diversity of wild salmon. The policy further recognizes the importance of salmon as a food source for other species. The WSP is fundamental to protecting salmon and ecosystems, but it currently exists only on paper; it has not been implemented.

While adequate funding is required, implementation of the "ecosystem objectives" remains outstanding largely because it means catching less and allowing more salmon into the rivers to spawn – a notion somewhat contrary to traditional fisheries management. Given this, we will be undertaking a technical critique of the fishery models that perpetuate high exploitation rates.



Salmon Carnivore Project

Raincoast's Salmon Carnivore project blends sophisticated research with applied conservation to investigate how dramatic salmon declines affect bears. We have conducted two field seasons, sampling more than 5000 km² of the Great Bear Rainforest. This project contributes to improved management of

bears, salmon, and habitat of both.

As with social media, our non-invasive fieldwork allows us to track the latest news about our loved ones. During the 2010 field season, we added another 65 "friends" – 24 grizzlies and 41 black bears. Information derived from their hair revealed their sex, when and where they visited our hair-snagging stations, and where they travelled in the Great Bear Rainforest. These private insights – combined with information on salmon numbers – allow us to assess their future like never before.

It's early yet to forecast what their future holds. We do know, however, that bears will continue to suffer if status quo salmon management persists, so we are speaking out for change now. Coupling scholarly work and advocacy, we submitted the first formal proposal to implement the ecosystem objectives of the Wild Salmon Policy.



Our proposal, published in the journal *Conservation Letters*, presented a realistic, defensible, and urgent plan to allocate a portion of salmon from fishing nets to the mouths of bears and other species. An important part of this proposal emphasized how some salmon might be worth more alive than dead. Salmon-dependent ecotourism, for example, is one route for coastal communities to benefit from marine resources while securing salmon for wildlife.

"Profile Photos" of some of our new grizzly acquaintances. As with many people online, they shared personal details: how much salmon they ate, the stress they were experiencing, even shots of the kids.





Salmon for killer whales

In 2008, Raincoast and other NGOs, represented by Ecojustice, filed a lawsuit charging that DFO was not doing its job to protect the critical habitat of BC's resident killer whales. In December 2010, a federal court judge ruled in our favour. A key aspect of protecting critical habitat is ensuring the whales have an adequate supply of Chinook salmon. DFO must start allocating salmon to wildlife as part of its fisheries management plans.

Freedom to Roam Home

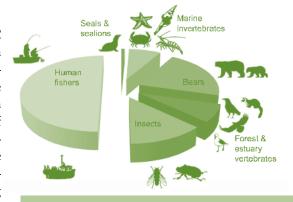
The journey that salmon embark on from their birth rivers through the Pacific and back rank among the world's greatest migrations. Further, their role as ecosystem engineers upon their return helps cultivate life in coastal watersheds. Yet increasingly, salmon are not making it home.

Raincoast is proposing shifts to salmon harvesting in which some runs, particularly those returning to parks and reserves, are allowed to reach their spawning rivers without the gauntlet of hooks and nets that typically stop them.

Borrowing from Patagonia Inc.'s visionary *Freedom to Roam* campaign, in which the protection of corridors for wide ranging terrestrial species is being advocated, we are calling our effort to safeguard salmon migration routes the *Freedom to Roam Home* initiative.

Sustainable Fisheries

Raincoast is evaluating whether BC commercial chum and pink salmon fisheries meet criteria for certification as sustainable under the Marine Stewardship Council label. Although Raincoast supports the objectives of certified fisheries, we believe stronger criteria need to be adopted before these fisheries can be labelled sustainable. To achieve this, we are examining two aspects of the Marine Stewardship Council's program as it applies to BC commercial salmon. These are: 1) Strengthening the criteria that define sustainable salmon fisheries in BC; and 2) Evaluating whether pink and chum salmon meet the existing criteria as defined by the Marine Stewardship Council.



Salmon consumption by wildlife

Although more than a hundred wildlife species – like grizzly bears, wolves, and eagles – depend on salmon, commercial and sports fisheries often capture more salmon than the consumption from all these animals combined.



Fraser River Sockeye

2010 will be forever etched in the memories of British Columbians as the year sockeye salmon returned to the Fraser River on masse; the largest return in a century. An estimated 34 million sockeye found their way back to BC waters and we celebrated. This time last year, we were all wondering why sockeye destined for the Fraser collapsed to a record-low of 1.5 million and a federal judicial inquiry was established to investigate. Our salmon team is participating with the inquiry to improve its understanding of factors affecting sockeye populations. Our recently published article in the Canadian Journal of Fisheries and Aquatic Sciences describes wild juvenile salmon infected with sea lice in multiple regions of coastal BC. Another manuscript, to be published in PLoS ONE, is the first to illustrate the magnitude of sea lice infection on juvenile Fraser River sockeye after they migrate past farms in the Georgia Strait. Raincoast will be tracking the causes of reduced marine survival for sockeye into 2011.

The Herring Coast

On Vancouver Island, Pacific herring spawn each spring in Quatsino Sound. For marine birds and mammals, the herring spawn signals an opportunity to gorge after a lean winter. From the moment they are laid as eggs on nearshore kelps and eelgrass, these oily fish are a major prey species and an ecological mainstay for coastal marine ecosystems.



Sooty shearwaters and humpback whales compete for herring along their route.

Like salmon in coastal rainforests, we asked whether spawning Pacific herring contribute a similar pulse of nutrients and energy to terrestrial ecosystems. Our research, done in partnership with the University of Victoria, seeks to trace the myriad of ecological linkages between herring spawn events and terrestrial ecosystems that have long been overlooked. This winter, we'll publish a peer-reviewed paper that highlights one of the surprises we've uncovered so far.



Our *adventures* depend on *nature*.

Each year since 1986, the *Maple Leaf* has introduced guests from across North America to the awe of the BC and Alaska coast. We share a passion with Raincoast for exploring and protecting it. We also bring our guests to meet Raincoast scientists in the field.

We encourage and applaud your support of Raincoast, too.

In the same vein, please consider making your next holiday a vote for responsible tourism. Amazing vacations can benefit conservation.

We invite you to explore the coast in comfort aboard the classic schooner *Maple Leaf*.

Download the 2011 catalogue today.



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Large Carnivore Conservation

The focus of our large carnivore work is the conservation of apex and summit predator species (such as wolves and grizzly bears) by safeguarding their life requisites. These include protecting habitat, attaining trophyhunting closures, stopping unnecessary lethal predator control and advocating for a wildlife welfare ethic.





A New Hunting Territory

Our 2005 purchase of a commercial hunting tenure has been an enormous success in terms of protecting grizzlies, wolves and other top predators from commercial trophy hunters.

In 2010, Raincoast negotiated the purchase of a hunting territory like no other - the primary place in the world where spirit bears roam.

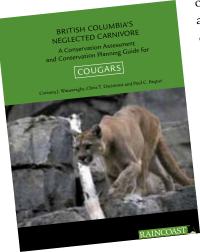
Despite a restriction on killing spirit bears, sport hunting of black bears – that carry the recessive gene that causes the white coat – is allowed. This purchase will protect one of the world's rarest bears and safeguard the rainforest wolves we have studied for a decade. We only have a few months to raise the acquisition costs of \$370,000.

Map of hunting license acquisitions on the BC coast

Raincoast's existing 24,700 km² hunting territory is in green. We have a purchase agreement for the spirit bear territory shown in yellow. Raincoast's ownership of these two territories will end the commercial trophy hunting of bears and wolves in over 28,000 km² of the BC coast.

Cougars: BC's Neglected Carnivore

When it comes to cougar conservation in BC, ecological information sufficient to prepare an informed management strategy is lacking. In anticipation of the first provincial conservation plan for cougars, however, Raincoast sees an important



opportunity to contribute to cougar conservation and welfare. Raincoast's vision for cougar-human coexistence is informed by the best available scientific information, an acknowledgement of the uncertainty in information on cougars, and widely held societal norms about how wildlife should be treated.

Our comprehensive report British Columbia's Neglected Carnivore: a Conservation Assessment and Conservation Planning Guide for Cougars analyzes cougar ecology, investigates current policies, and makes recommendations on how a management plan ought to proceed.

Conservation strategies should include protection of remaining high-value habitat for

cougars and their prey; elimination of cougar hunting; replacement of lethal control with non-lethal strategies; and education to reduce cougar-human conflict. Research priorities for BC cougars, which could use noninvasive tools, include understanding the influences of habitat fragmentation on cougar-prey systems, and investigating the ecological, evolutionary, and ethical consequences of cougar hunting.





Halting lethal predator control

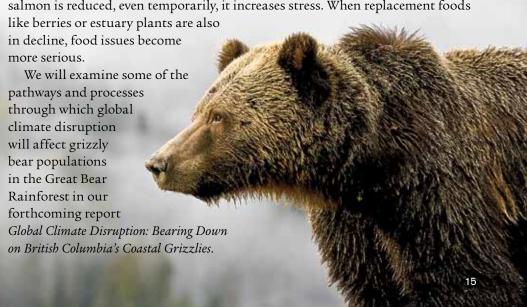
A disturbing number of grizzly bears are being shot as "control kills" in BC, especially in the Bella Coola valley. Most of these grizzlies are being destroyed because of careless human behaviour like (knowingly) leaving out unsecured food. Raincoast wants bear attractant laws under the Wildlife Act to be made enforceable with repercussions for violators.

Grizzlies in a Changing Climate

The BC coast is not immune to the impacts of climate change. During the 20th century, sea levels at Prince Rupert rose 12 cm and the height of damaging extreme water levels increased 22-34 cm. Coastal rivers are also experiencing peak water flows earlier, a shift that is reducing April to September flow. Total precipitation on the BC coast has increased 3 to 6 per cent since 1961, with more precipitation falling as rain. At some sites, more than 40 per cent less snow has fallen. Meanwhile, the glaciers and snow pack that streams and rivers depend on for sufficient flows are vanishing.

Raincoast wants to understand what these changes and other climate disruptions might mean for grizzlies. Will the geographical range of bears be altered as their environment transforms? Will their feeding behaviour change if salmon abundance and distribution are affected? What if these disturbances combine with other human-caused stressors like habitat fragmentation and run-of-theriver diversion projects?

Wide-ranging species such as grizzly bears often use a variety of food items that are patchily distributed over the landscape. When a primary food item like salmon is reduced, even temporarily, it increases stress. When replacement foods



the BRISTOL FOSTER fund



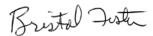
Bristol Foster, noted scientist and conservationist, has served on the Raincoast Board of Directors for as long as the organization has existed. As our longest-serving board member, Bristol has been a stalwart and unwavering supporter of Raincoast's mission. He generously shares his wisdom, in addition to his extensive science and conservation expertise.

Dear Friends,

I am asking for your support of Raincoast Conservation Foundation through *The Bristol Foster Fund*.

Protecting the lives of bears, wolves and whales depends largely upon the effectiveness of individuals and the resources they have to work with. Core support for essential operational needs such as salaries, a place to work, communication technology and development planning are the hardest funds to acquire. The primary intent of this capacity building fund is to sustain the day to day operations of Raincoast, as well as providing for the timely response to emerging environmental issues as they arise.

Thank you - For the coast,





Friends of Raincoast

profiles individuals who deserve special recognition for their dedication and generosity in helping protect the lands, waters and wildlife of coastal British Columbia.

DON ARNEY

HELICOPTER ROTORS SLOW and come to a stop as pilot Don Arney completes another successful landing. Navigating coastal topography by air is extremely challenging, but Raincoast friend and supporter Don Arney, is an expert. For the past five years, Don has generously donated his helicopter time to fly Raincoast's research teams to corners of the Great Bear Rainforest that would be impossible to reach by boat or foot.

His contributions extend far beyond the gift of flight. His kindness and compassion inspire all who work with him. On the ground, Don sports gumboots and helps with all aspects of fieldwork. Inventor by trade and passion, Don's innovations – through his company, SEI Industries – have made award-winning contributions to international firefighting and aviation.

In Raincoast, Don sees "a passionate group of scientists and conservationists who work hard on behalf of the bears, salmon and their rainforest home." We feel lucky to count Don among our treasured friends and are deeply grateful for his contributions to conservation of BC's coast.

YES! I would like to support The Bristol Foster Fund and Raincoast programs.

To make your donation: Visit our website at www.raincoast.org/donate. Our convenient and safe on-line service is set up to issue CRA-approved e-tax receipts immediately following confirmation of your gift, *or* fill out and send us this form.



A note to our US supporters: Please complete this form (cheques or money orders payable to Raincoast US) and send to: Raincoast US, PO Box 311, Orcas Island, WA 98280. For online donations, please visit www.raincoast.org/donate and select the *Network for Good* icon.

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Raincoast donors continue to be as loyal and generous as ever. We are forever grateful for your ongoing support and investment in Raincoast. Thank You.

Achiever and the Raincoast Field Station



It was another eventful year of field work at Raincoast. Once again, our Field Station, on Denny Island near Bella Bella, and Achiever, our dedicated research vessel, demonstrated Raincoast's tremendous capacity to facilitate science, education and conservation. Both were busy from early April through the first half of November.

The combination of good facilities, versatile vessels, and the expertise of Doug Brown, our field station manager, and Brian Falconer, our marine operations coordinator, enabled a variety of research and film projects.



Our year round capability, experience, and work ethic attracts film crews, photographers and scientists from around the world to study everything from bears and wolves in the Great Bear Rainforest to humpback and fin whales in Hecate Strait.

All these projects support our long term goal of healthy ecosystems on an oil-free coast. Both the field station and Achiever are eyes and ears on the land and water.

We are a powerful presence throughout our commercial hunting territory, helping to deter poaching and other illegal activities. It is impossible to overestimate the value of the capabilities we have developed to access, study and showcase to the world, the stunning beauty and ecological value of these remote places.

Tracking Raincoast 2011 photographers

Doug Brown: pp.3, 7 (kittiwake, guillemots) p.10 (killer whale), p.18 (field station) Mark Carwardine: p.5 (humpback)

(sockeye)

Brad Hill/naturalart.ca: back cover (spirit and black bear)

lan Jansma: p.6 (students on Achiever) Guillaume Mazille: front

cover (wolf) Hiromi Naito: p.11

Klaus Pommerenke/ Bears-and-more.de: p.8 (wolf), p.14 (cougar), p.18 (wolf pup)

Eric Sambol: p.4 (sitting grizzly, p.7 (snow geese), p.13 (spirit bear), p.15 (both grizzlies)

Jared Towers: p.11 (humpback and shearwaters)

Larry Travis: p.2 (grizzly), p.9 (grizzly with salmon), p.19 (spirit bear)



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Please remember to send in your annual gift prior to December 31st to qualify for a 2010 tax receipt. Of course, if you prefer to wait, your gift will also be most gratefully received in the New Year! Thank You!

Raincoast Conservation Foundation



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