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Environmental News from BC and the World  
**20th**  
Anniversary Year

# Watershed *Sentinel*



Summer 2010  
Newstand Price \$4.95

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- *Chernobyl Science*
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# Watershed *Sentinel*



Summer 2010

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**N**o matter where on Earth we live, we are all residents of a watershed. Throughout history, clans, tribes, and all organized groups have endeavoured to protect their home watershed or territory. Sentinels were stationed throughout the highlands of a watershed to herald the coming of friends or of threats in the form of encroachment, floods, fire, or hostile armies.

Threats to our watersheds exist to this day whether they come from careless individuals or insensitive corporations. The *Watershed Sentinel* keeps watch and informs.

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SUMMER 2010



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## EDITORIAL

# The Great Change

In the future, (if there is a future for this pitiful, immature species) the events of April 22, 2010 in Bolivia will be recognised as the beginning of the Great Change.

On this Earth Day, 35,000 delegates from organizations, nations, and tribes around the world at the Global Peoples Conference on Climate Change and the Rights of Mother Earth issued the People's Accord of Earth Day 2010.

They declared the need to recognize the Rights of Mother Earth, to honour indigenous wisdom accumulated over the millennia, and the need for planetary justice, especially in the throes of climate change. This powerful declaration is a milestone in our journey as human beings, a journey that has only two destinations. We may continue along this familiar road that leads to death for our kind and all our relations on planet Earth. Or we may turn to the more difficult, most necessary path, one of love and respect, for ourselves and all beings.

The events of Bolivia were echoed in coastal BC, when Alexandra Morton began her remarkable Get Out Migration, bringing a flood of community people to the Legislative Buildings in Victoria, demanding an end to open net fish farms and a future for wild salmon. These people were a colourful, creative, and cheerful mix of young and old, children and grandparents, First Nations prominent among them.

Cosy Lawson, one of the Migrants from Tofino, says we need a Re-evolution. As the First Nations pointed out, we need great leaders, but they will come forward in our time of need, as Morton herself has done. Standing together is how we will find each other and begin the Great Change.

Apparently, the Re-evolution also will not be televised – major commercial media ignored, downplayed, or misrepresented both of these seminal events.

*Delores Broten, Comox BC, May 2010*

## At the 'Shed

**Next Issue:** This is a bigger than usual issue of the *Watershed Sentinel*, but you can poke away at it all summer long. We're taking a bit of a break to tend the garden, look around, see what's up, and re-stock our energy supplies. Look for our next issue in the first weeks of September.

**Bundle Bargains:** We're also going to be doing some bean counting, along with the bean growing, because we need to find a new way to pay for distributing those many bundles of magazines to local organizations and groups. If you get a bundle, we will be contacting you with a new subscription offer for bulk copies which should help cover our escalating costs.

**HST:** Yes, the dreaded Harmonised Sales Tax, if it comes into effect, will hit BC magazines hard because up until now we have been exempt from provincial sales tax on expenses. This means that we are going to have to squeeze an extra 7% out of our meagre budget, and we are not sure what the implications will be. We have decided not to raise the price of subscriptions, at least for now, but we do look forward to some amazing creative budgeting over our summer downtime. Translation: we haven't got a clue!



# Around The World

Compiled by Susan MacVittie

**BP and other oil companies who have leases in the Beaufort Sea have asked for an exemption from drilling a second relief well in the same season.**

## Clean Air Rules for Ships

The international body governing the shipping industry has approved rules to limit air pollution from ships in most US and Canadian waters.

The rules will take effect in 2012, and by 2015, they will require harmful air pollution from ships in a low-pollution zone known as an Emission Control Area to decrease by 80 percent or more. The law applies to large ships such as container ships, oil tankers, and large cruise ships. Ships will be unable to meet the new standards by burning bunker fuel.

Friends of the Earth petitioned the US Environmental Protection Agency in 2000 to dramatically reduce air pollution from ships, following up with legal action

—*Friends of the Earth,*  
March 26, 2010

## Coke Liable in India

A High Power Committee established by the state government of Kerala in India has recommended that Coca-Cola be held liable for US\$48 million for abuse of water resources and contamination of water and soil as a result of the company's bottling operations in Plachimada, India.

The plant in Plachimada has been shut down since March 2004 as a result of the community-led campaign challenging Coca-Cola.

—*India Resource Center,*  
March 25, 2010

## Lumber Industry Cut

The recession has cut the Canadian lumber industry down to half its peak size. Vancouver-based Wood Markets states that Canadian lumber

production is down 45 per cent to 19.4 billion board feet from its 2004 peak of 35.1 billion board feet. The Canadian lumber decline follows the decline in US housing starts.

—*Vancouver Sun,*  
March 17, 2010

## Oil To Be Left in the Soil In Yasuni Park, Ecuador

Ecuador's largest oil reserves, amounting to some 900 million barrels, will be left underground in Yasuni National Park in exchange for more than \$3 billion. Under the unprecedented agreement, known as the Yasuni-ITT Initiative, the government of Ecuador will not exploit the Ishpingo-Tambococha-Tiputini oil field within the Amazon rainforest park, which scientists have determined to be the most biodiverse area in South America. The agreement between Ecuador and the United Nations Development Programme creates a trust fund to receive donations to the Yasuni-ITT Initiative.

—*Environmental News Service,*  
2010

## Guide to Pesticides

The Environmental Working Group (EWG) has released their updated *Shopper's Guide to Pesticides*, which lists US fruits and vegetables based on their levels of pesticide residue. The guide lists the "Dirty Dozen" – those which should be bought organic and the "Clean 15" – those that are lowest in pesticides. The Guide can be found at <http://www.foodnews.org/sneak/EWG-shoppers-guide.pdf>

—*Environmental Working Group,*  
April, 2010

## Slick Oil

A major focus of the US congressional committee investigation into the Gulf of Mexico oil spill will be the failure of a "blowout preventer" installed at the opening of the well. The blast killed 11 workers. Since then, estimates vary on how much oil – between 210,000 to 1,050,000 gallons/day – has been pouring into the Gulf from a blown-out undersea well.

Other unsavory issues are slowly coming to light:

- Last year Canadian regulations no longer required equipment such as safety valves and blowout preventers. US federal regulators warned rig operators more than a decade ago that they needed backup systems to control the undersea valves known as blowout preventers, but industry denied the need.

- The industry lobbied against requirements for oil platforms to have remote control shut-off devices as backup systems.

- BP assured the US Department of the Interior last year that an oil spill at the Deepwater Horizon site was "unlikely" and an environmental impact study was waived.

- BP and other oil companies who have leases in the Beaufort Sea, have asked the Canadian National Energy Board for an exemption from drilling a second relief well in the same season.

—*Associated Press, May, 2010*

by Delores Broten

**T**hey came, singing and chanting, drumming and dancing. First they came as a trickle, then a flood, and still they came, in a multitude of generations and races, from towns and First Nations across the Island. They came with costumes, they wore their button blankets, they came with colourful salmon people signs. There were native singers, there was a samba band, there was a marching band, and they flowed onto the lawn of the BC Legislature in their joyous thousands.

How many thousands may be a point of debate for years, since the Canwest papers published numbers lower than either the official or unofficial police estimates, cited by other media, of four to five thousand.

They were all part of the greatest environmental march in BC history and they were answering the call of biologist Alexandra Morton to show the government that it was time to close down open pen salmon farms and to protect wild salmon.

The First Nations had honoured Morton all the way along her passage from Sointula on Malcolm Island down Vancouver Island to Victoria. On this day they called her sister, leader, honourable, they gave her an eagle



## The Great Get Out Migration

feather, and pledged to stand strong.

Community activists from up and down the island and the mighty rivers which bring the salmon inland to succour people and ecosystems all over BC, shaped her journey with their own creativity in town after town. In the end, on May 8th in Victoria, they gave wild salmon, and her, their time and their marching, singing, dancing bodies. Salmon are sacred, they agreed.

Morton said she had tried every other way to move government policy, from peer reviewed, published science papers to the courts. In the end,

with no major organization's help, she took her message to the people. She also promised the crowd that she took no money for her salmon work, so her integrity called to them, as she said, "This is over to you now." She asked the crowd to pressure politicians like never before. "People and salmon can live together. Ten thousand years ago, after the glaciers, First Nations and salmon came together into a hostile land and thrived together."

She also posed a fundamental challenge. "Do we live in a democracy or not? This is a test."



## First Nations Say No Tar Sands Pipelines and Tankers in BC

On March 23, the 21st anniversary of the Exxon Valdez oil spill, First Nations stood as a unified block to announce their opposition to a proposed Tar Sands pipeline that would bring expanded amounts of Tar Sands oil from Alberta to British Columbia, where the oil would be shipped by oil tankers to overseas markets, notably China.

"We will protect ourselves and the interests of future generations with everything we have because one major oil spill on the coast of

British Columbia would wipe us out," said Gerald Amos, Director, Coastal First Nations, an alliance of nine First Nations. "This bountiful and globally significant coastline cannot bear an oil spill. This is where Enbridge hits a wall."

Coastal First Nations from Vancouver Island to the BC/Alaska border are unanimous in their opposition and are joined by the vast majority of First Nations affected along the pipeline route from Kitimaat to Alberta. These First Nations – whose territories are

all directly impacted by the proposed Enbridge Northern Gateway Pipeline – stood in unity to voice their opposition. The Coastal First Nations issued a declaration from their First Nations governments:

"...in upholding our ancestral laws, rights and responsibilities, we declare that oil tankers carrying crude oil from the Alberta Tar Sands will not be allowed to transit our lands and waters."

—Coastal First Nations,  
Carrier Sekani Tribal Council,  
March 23, 2010

by Norberto Rodriguez dela Vega

An historic conference recently took place as part of Earth Day 2010 celebrations. President Evo Morales called for the First Peoples' World Conference on Climate Change and Mother Earth's Rights to be held in the Bolivian city of Cochabamba. "We want to celebrate the International Day of Mother Earth with a massive statement in support of the restoration of the rights of mother earth and harmony with nature," said President Morales. The event closed on Earth Day – April 22 – with a Declaration of Rights of Mother Earth.

The conference was a grass roots response to addressing climate change issues, after the failure of the Copenhagen conference last December. More than 35,000 people from 140 nations, including 56 government delegations, attended the conference. During his opening statement at the conference, President Morales shouted "Planeta o Muerte!" (Planet or Death!) and drew a big response from the crowd, that prior to Morales' invocation were singing "Oye-amigo-tu-tierra-esta-en-peligro" (Listen friend, your earth is in danger).

As preparation for the conference, in February of this year they drafted a declaration with nine articles. A few excerpts from the Preamble follow.

#### **We, the peoples of Earth:**

Gratefully acknowledging that Mother Earth gives us life, nourishes and teaches us and provides us with all that we need to live well;

Recognizing that Mother Earth is an indivisible community of diverse and interdependent beings with whom we share a common destiny and to whom we must relate in ways that benefit Mother Earth; acknowledging that by attempting to dominate and exploit Mother Earth and other beings, humans have caused severe destruction, degradation and disruption of the life-sustaining communities, processes and balances of Mother Earth which now threatens the well-being and existence of many beings;

Convinced that the fundamental freedoms and rights of Mother Earth and of all beings should be protected by the rule of law, and that the corresponding duties of human beings to respect and defend these rights and freedoms should be enforced by law;

# Planeta O Muerte!



*Rights of Mother Earth*

Proclaim this *Universal Declaration of the Rights of Mother Earth* to complement the *Universal Declaration of Human Rights* and to serve as a common standard by which the conduct of all human beings, organizations, and cultures can be guided and assessed...

The complete draft of the Declaration may be read here: <http://pwccc.wordpress.com/2010/02/07/draft-universal-declaration-of-the-rights-of-mother-earth-2/>

This Declaration of Rights of Mother Earth is following the precedent set by Ecuador, when in 2008 Ecuador rewrote its constitution to include a *Bill of Rights of Nature*.

It seems to me that Pachamama (Mother Earth), will be pleased by this gift from President Morales and the many thousands of people that truly care about Her.



At the same time as the historic declaration of the Rights of Mother Earth, the oil slick from the April 20 explosion and subsequent sinking of the Deepwater Horizon drilling platform began to spread across the Gulf of Mexico. NASA's Aqua satellite captured this image on April 25, 2010.

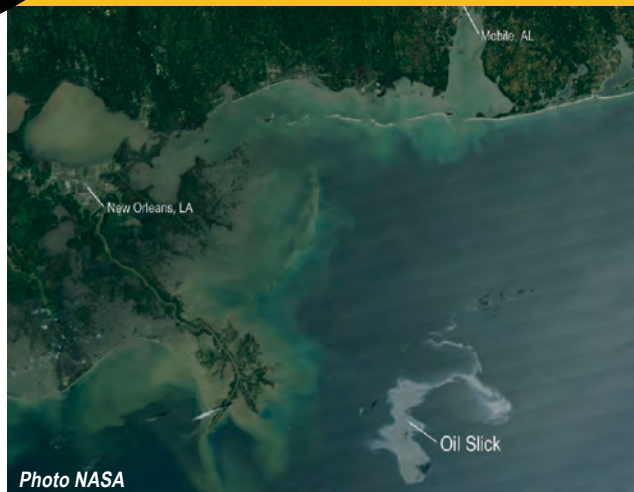


Photo NASA

# From Our Readers

## Of Old Growth and Growth

This is in response to your editorial “Telling the story.” When I first came to Vancouver Island in 1975, many of us from Victoria to Comox were working feverishly to protect the remaining Coastal Douglas-fir (CDF) forests.

After all the efforts of environmentalists past and present, the CDF is now considered endangered with only 1% of its old growth remaining. All but one of the 16 ecological communities in the CDF have been red-listed by the Conservation Data Centre. And today’s environmental groups are working feverishly to protect those. Little has changed, save the areal extent of the CDF old growth and the declining health of its communities.

Ironically, even if the remaining 1% of the CDF old growth is secured, biodiversity within its borders will likely continue its downward trend. Scientific reports and papers are now appearing with some regularity that show biodiversity being lost even in protected areas. If organisms are affected by climate change, for example, protecting borders and the lands within them won’t help.

As you note, “environmentalists have achieved so many gains,” but have we really? Despite our efforts, ecosystems and species diversity around the world are in worse shape than they were 20 years ago. Some gains!

Here’s how this happened: Environmentalists and their organizations have been addressing the symptoms of environmental degradation rather than the root cause. Until we unite and collectively focus our efforts to deal with the root cause, economic growth and its fundamental conflict with biodiversity conservation – little will change.

The challenge, indeed, is whether or not we can build a grass roots groundswell of people and organizations that understand the cause of our environmental problems (and many of our social problems) and work to change this destructive and fatally flawed economic model.

If we can’t “get it,” I doubt the general populace ever will. And, as most of us well know, time is our enemy because the rate of change we’ve initiated is happening so fast. We need to change the way we do things and we need to make that change now!

*Neil K. Dawe, The Qualicum Institute,  
Qualicum Beach, BC*

## Gasification and Heat

I am sure you know about the recent happenings in Kamloops and gasification. I am more concerned with the carbon dioxide and heat that is produced by the gasification process than I am about the pollution. The process that was going to be used here was actually hotter than

**The Watershed Sentinel welcomes letters but reserves the right to edit for brevity, clarity, legality, and taste.**

**Anonymous letters will not be published.**

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***editor@watershedsentinel.ca***

molten lava. It would be akin to having a molten lava stream running through town.

The company has decided not to put their plant here so a person could say we won, but the fact is our planet’s problem is that it is over heating, and scientists tell us that as a result of pumping too much carbon dioxide into the atmosphere. I understand that this gasification plant idea is getting bigger across the whole world, “Lets burn garbage and make electricity” – that kind of stuff.

We will then be producing more of the CO<sub>2</sub> and heat that is killing us.

*Bill Davies, Kamloops, BC*

## Dark Coal History on the Island

My maternal grandfather came to Vancouver Island from Cumberland, England, to work in the coal fields south of Nanaimo: White Rapids Coking and Coal Company, a division of Canadian Collieries (Dunsmuir) Ltd. The history of coal mining on this Island is one of ugliness, nastiness, corruption, and tragedy. My father was twelve and a half years old when he finished grade seven in Nanaimo. He wanted to continue his education but his father had other plans for him. He went into the coal mines as a “pony boy” at the end of June, and turned thirteen in December: this in spite of child labour laws. To me that has always seemed to show the situation of coal on this Island...never mind federal law, just get busy and cut coal.

Virtually none of the real history of coal extraction is taught in schools. What little is passed on would have you believe everything was ticketyboo and people actually celebrated the chance to moil in the darkness.

The coal shafts were hellish dangerous. Untold numbers of people died from “bad air” and others were blown apart and turned to grue by explosions. Still others drowned when the shafts flooded.

It has taken generations to undo the damage, both environmentally and socially, and so now the frikken brain trust wants to go back to the “good old days” and start extracting coal again. And the withering wits in Victoria are not only allowing it, they are encouraging it.

*Anne Cameron, Tahsis, BC*

## More Letters, page 38



# Have You Heard

Compiled by Delores Broten and Susan MacVittie

## NS Bans Bottled Water

The Premier of Nova Scotia has announced a ban on the sale of bottled water in all provincial facilities that have potable water. This makes Nova Scotia the very first province in the country to commit to ending this environmentally unfriendly practice. Across Canada municipalities and school boards, universities and colleges, faith-based organizations and restaurants are standing up for public water by taking out the bottle.

—CUPE Nova Scotia,  
April 26, 2010

## Marine Harvest Charged

The Canadian federal government will lay charges for illegal possession of salmon under the *Fisheries Act* against the fish farm company, Marine Harvest, as a result of a private prosecution laid against the company by marine biologist and activist, Alexandra Morton.

Morton's lawyer, Jeff Jones, says the province of BC has a historically poor record on private prosecutions but this case was possible because the jurisdiction for fish farms is now back with the federal government and not with the province. That was the result of Morton's constitutional challenge to the province's regulation of fish farms, in which the courts ruled in 2009 that the federal government is responsible for fish farms.

—*West Coast Environmental Law*,  
April 27, 2010

## Government Ordered to Protect Caribou

BC Supreme Court released its decision relating to West Moberly

First Nations' petition to stop the plans of the Ministry of Energy, Mines and Petroleum Resources and First Coal Corporation to develop a coal mine that would destroy critical habitat of the Burnt Pine Caribou Herd in north-east BC.

—*West Moberly First Nations*,  
March 23, 2010



## Klinaklini River Project Dead in the Water

The proposed run-of-river project on the Klinaklini River has been dropped from BC Hydro's roster after Environment Minister Barry Penner vowed to oppose the scheme.

The Kleana power project would have generated two-thirds as much energy as the massive Site C dam that the BC government is promoting on the Peace River. The proposal required approval to change the boundaries of a protected area in the Great Bear Rainforest, developed after a decade of consultation with environmentalists.

—*Globe and Mail*, May 6, 2010

## Ontario Solar Energy

Two studies conducted by the Queen's University Applied Sustainability Research Group have found that

solar power in southeastern Ontario has the potential to produce almost the same amount of power as all the nuclear reactors in the United States.

One study discovered that, if choice roof tops in southeastern Ontario were covered with solar panels, they could produce five gigawatts, or about five per cent of all of Ontario's energy. The study took into account roof orientation and shading.

—*Queen's University*,  
April 16, 2010

## Alberta First Nations Oppose Peace River Dam

The Athabasca Chipewyan and Smith's Landing First Nations in Alberta are opposed to BC Hydro's Site C dam on the Peace River because of fears of its devastating impact on the Peace-Athabasca delta. Water levels receded in the delta region after the WAC Bennett Dam was built, as documented by Alberta Environment. The project is in the environmental assessment stage and Alberta Environment is seeking intervener status on the project, but has not stated why.

—*Edmonton Journal*, May 5, 2010

## NS Bans Biosolids

Despite assurances from Nova Scotia Environment Minister that biosolids, or human sewage sludge are safe for fertilization, products using it will not be sold in Atlantic Superstore or Sobeys outlets.

Canada's Green Party is applauding the retailers' decision, saying biosolids just aren't safe.

—*95.7 News*, April 14, 2010

# Back to BC's War in the Woods?

Documents from the BC Ministry of Forests & Range provide the outline of a dramatic remake of the ministry with a re-orientation of the Ministry's values and objectives, re-organization of job responsibilities, closure of offices in many towns, and the slashing of budgets, including layoffs.

The documents signal a move away from the traditional role of the ministry which, at least on paper, was to protect and conserve the forest for the future as a renewable resource. The emphasis now is on delivering the forest to a competitive logging industry. The changes are reflected in the changes in the ministry's mission, changes that were apparently developed by senior management under direction from the BC Liberal Cabinet.

Old Mission Statement : To protect, manage and conserve forest and range values through a high performing organization.

New Mission Statement: To provide superior service to resource stakeholders by supporting competitive business conditions and by managing forest and range values.

A powerpoint slide show developed in March 2010 says that the top of the "big picture changes" is to enhance "industry competitiveness" and "results based regime/professional reliance."

The professional reliance will not be available to the ministry from 204 positions eliminated, with more than another 100 employees opting for reduced workhours. The entire package of cuts and re-orientation means less protection for the public interest in what still remains a public asset.

—D.B. with sources from *The Tyee*, March 23, 2010, and Ministry of Forests & Range, "Response to the Changing Business Environment", March 2010.

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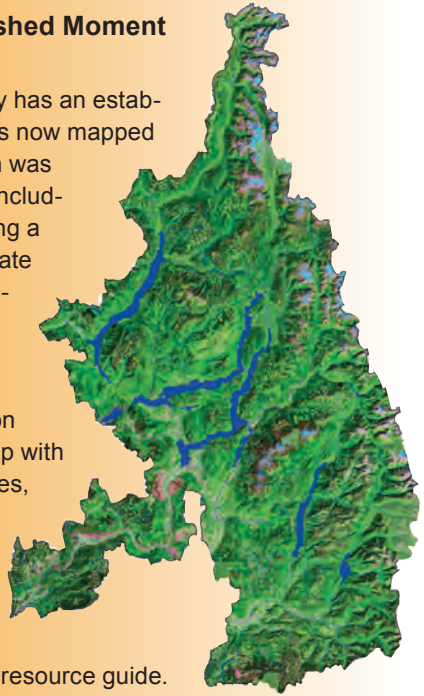
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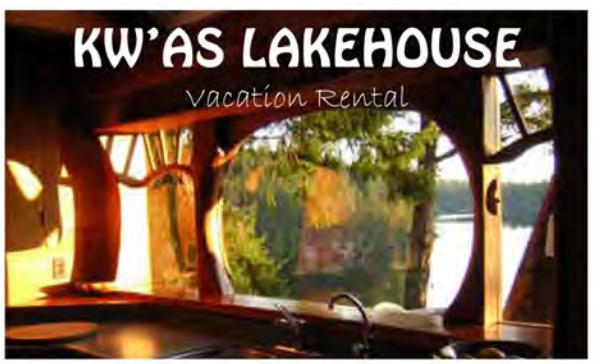

**Shuswap Watershed Moment**

The Shuswap finally has an established identity that is now mapped in this poster, which was widely distributed, including to schools, during a full week of "Celebrate the Shuswap" activities in April around Earth Day. Conservation groups who usually focus on advocacy teamed up with government agencies, local First Nations, schools, businesses and community groups to produce the map and accompanying resource guide.



Visit [www.shuswapwatershed.ca](http://www.shuswapwatershed.ca).

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# Quinsam Watershed Shows High Arsenic

After decades of monitoring by the Campbell River Environmental Council, the Quinsam watershed at the edge of Strathcona Park on Vancouver Island has finally received some of the scientific scrutiny it deserves, and, apparently, requires. An assessment of arsenic levels in lake sediment around the Quinsam coal mine has been initiated by the Canadian Water Network

The city of Campbell River gets its drinking water downstream from the mine, and high sulphate levels have been a focus of concern for years.

Dr. W. Cullen reported to a packed public meeting in Campbell River that the arsenic, especially in the sediments in Long Lake, which receives seepage from several waste pits and settling ponds for coal waste and sulphur washed from the coal, was highly

elevated – up to thirty times BC contaminated sediment levels. Tests also indicated that the arsenic is of a kind which can be stored in the bodies of living creatures.

The arsenic is released from iron pyrites by sulphate, which is formed with the exposure of the wrong kind of rock to water and weather.

The report is succinct: “Arsenic concentrations are elevated in Long Lake as a result of acid rock drainage and other chemical process associated with mine waste. The high arsenic levels are associated with high concentrations of sulphate. The arsenic is available to bivalves, and presumably other biota.”

The mine is currently seeking to expand into an area which is extremely high in sulphur-bearing rock,

and that expansion has been exempted from environmental assessment by the BC government.

When asked by members of Coalwatch, who are monitoring a proposed new coal mine near Fanny Bay, whether similar problems could be anticipated in that mine, Cullen indicated the answer was yes.

Several days later, Hillsborough Resources, who own the mine, released a statement that there was no proof that the arsenic came from the mine.

—D.B See: *An Environmental Investigation of the Quinsam Watershed*, prepared by Environmental Sciences Group, RMC, Kingston, Ontario and UBC, April 2010 (RMC-CCE-ES-10-20)/

## Fish Lake Update

By Maggie Paquet

The final week of hearings on the fate of Teztan Biny (Fish Lake) in the heart of Tsilhqot'in territory by the Canadian Environmental Assessment Agency panel was held in Williams Lake April 26-May 3. The panel heard presentations in four main areas: mine plan alternatives, water quality and quantity, fish and fish habitat, terrestrial environment, and socio-economic effects of the proposed mine.

“Throughout the...hearings we heard Elders, youth, and everyone's voice speaking for the water, fish, and future generations, along with concerns and questions of the serious environmental impacts of this proposed gold-copper mine. What was most interesting to hear was how technical and government's submissions confirmed the community members' environmental impact concerns (First Nations and non-First Nations alike): said Marilyn Baptiste, Xeni Gwet'in Chief.

DFO's submission stated that the Fish Lake system is unique and highly productive, explained how Taseko's plans don't account for this, and listed a series of nine major risks, including:

- the mine's alternatives assessment has not accurately characterised impacts to fish and fish habitat;
- irreversible changes will be made to the Fish Lake and creek system before the success of the proposed plan has been demonstrated;
- lost fishing opportunities will not be replaced;
- First Nations will not be able to meet their food, social, and ceremonial needs for fish.

In Nov 2007, the BC Supreme Court ruled that the Tsilhqot'in people held the aboriginal right to hunt, trap, and trade throughout their claim area, which includes the proposed mine site.

The panel has until July 2 to present its recommendations to the federal Environment minister, who



Maggie Paquet

Cecil Grinder, of the Tl'etinqox (Anaham) First Nation, and Roger William, a Councillor of the Xenigwet'in (Nemaiah Valley) First Nation drum open the daily sessions of the CEAA Review Panel

will take the report to cabinet for a final decision.

# Eating Our Way Back to the Future: Low Greenhouse Gas Agriculture

by Joyce Nelson

Peak oil may soon give us peak food. As we run out of fossil fuels, food will get increasingly expensive not only to produce, but to import and export. Changes to this system can also be good news, however, since globally, agriculture and our industrial food system account for almost one-third of all greenhouse-gas (GHG) emissions that contribute to climate change. Changing how we farm our food can literally change the fate of the world.

With an entire agricultural edifice constructed upon cheap energy, Canada is especially vulnerable, and not just because of rising oil prices – which economist Jeff Rubin (*Why Your World is About to Get a Whole Lot Smaller*) recently claimed will reach “record highs” by 2011. Canada’s dominant form of agriculture follows a high input, energy-intensive, export-oriented model of industrial food production that gives little thought to feeding ourselves. According to the *Toronto Star* (Oct. 12, 2009), “Canada now imports 80 percent of its fruits and vegetables,” even though we grow more than 100 varieties of these foods, mostly for export.

Sarah Elton’s book *Locavore* (Harper Collins, 2010) describes the absurdity: “Carrots from Ontario’s richest soils, in the Holland Marsh, are loaded onto trucks and driven south to the US and shipped to places as far away as Puerto Rico and Venezuela, passing other trucks heading north loaded with American carrots destined for Ontario stores.”

Equally mind-boggling is the fact that globally, agriculture and our industrial food system account for almost one-third of all greenhouse-gas (GHG) emissions that contribute to climate change. Critics are increasingly calling for ways to both increase our food sovereignty and lessen agriculture’s carbon footprint – both of which would be helped by a focus on production for local markets, which, in turn, would help sustain family farms.

Nonetheless, the Harper government’s new national policy for agriculture, “Growing Forward,” remains largely

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committed to industrial-scale agriculture and biotechnology, with an emphasis on production for export. That policy has been roundly criticized across the country.

As the National Farmers Union (NFU) Women's Advisory Committee recently claimed, "Canadians need a [national food] policy that recognizes the importance of food providers, the local community, and the natural resources our food system is built on." Calling for "more attention to a triple bottom line" that includes social, environmental, and financial contexts, the NFU Committee argues that attention to this bigger picture "would better position Canada to prepare for a future made uncertain by the effects of climate change and peak oil."

### Peak Soil

One of those effects is "peak soil." Across the planet, an estimated 75 billion tonnes of fertile topsoil is lost annually because of urban sprawl, chronic soil mismanagement, erosion, flooding, and drought. As climate change leads to increasing fluctuations of weather, farmers are focussing on good soil management for uncertain times.

Laura Telfort, Executive Director of the Canadian Organic Growers Association (COG), agrees that the Canadian system is "designed for big export kinds of agricultural operations" but, she tells me in our phone interview, the Feds "want to move farming into a better environmental position." That means that out of \$8 billion in federal/provincial annual funding for farm programmes, there are "some good programmes," especially for "rebuilding the soil."

Healthy topsoil contains an incredibly diverse community of organisms – billions of beneficial microbes per handful, nitrogen-fixing fungi, nutrients and earthworms. A major factor in soil health is the amount of

carbon content it is storing, called soil organic carbon (SOC). Agricultural soils can thus act as a very effective carbon sink ("conservation carbon"), or these soils can release their carbon

Switching to organic farming methods can reduce carbon dioxide emissions from soil by up to 92 percent.

through faulty farming practices.

What's being called "low GHG agriculture" places top priority on soil restoration and soil as a carbon sink

(increasing SOC) and looks to farming methods that are common practice in organic agriculture and, in some cases, practices that were widely used by Canadian farmers sixty or more years ago. While only a few of these methods are currently funded by Canada's federal farm programmes, some of them are supported at the provincial level.

### Soil's Conservation Carbon

One of those practices is the planting of cover crops. Bare, unplanted fields erode more easily and

*Continued on Page 11* ➔

## Saying No to Genetically-Engineered Alfalfa

Opponents of genetically-engineered (GE) crops and foods are urging Canadians to oppose the introduction of GE alfalfa. The Harper government has already approved Monsanto's GE alfalfa, but Monsanto has not yet applied for "variety registration" – the next step before the crop can be commercially grown in Canada.

Patrick Connor, a Toronto member of the Non-GMO Project, told me, "If genetically-modified alfalfa is introduced into Canada, it would decimate organic farmers" by easily contaminating their alfalfa crops. Alfalfa is widely used as a cover crop and as a high protein livestock feed. If their alfalfa is contaminated by GE seeds, organic farmers could lose their markets for organic meats and dairy.

Flax farmers in Canada are now paying a heavy price because of GE contamination. Late last year, Canadian flax exports were discovered to be contaminated with a GE flax that is not approved in Europe, and farmers lost their export markets in 28 countries. They are also having to pay for costly testing and cleanup.

Lucy Sharratt, Co-ordinator of the Canadian Biotechnology Action Network ([www.cban.ca](http://www.cban.ca)) is urging Canadian citizens to voice their support for Bill C-474, a private member's Bill introduced in Parliament by Alex Atamanenko, the NDP Agriculture Critic and MP for BC's Southern Interior. The Bill would require "an analysis of potential harm to export markets be conducted before the sale of any new genetically engineered seed is permitted" in Canada.

Bill C-474 passed second reading in the House of Commons on April 15 and moved to committee for further study, especially throughout June. This is the first time a bill to change the rules on GMOs has passed second reading. Sharratt says, "We can't allow Monsanto's GE seeds to destroy the livelihoods of farmers and jeopardize the future of organic farming."

—J.N.



↔ *Future Farming continued*

release carbon, which is why some farmers are now being paid by the acre to plant certain cover crops.

The most popular is alfalfa, which is deep-rooted and can soak up heavy rains. Alfalfa also builds the soil and naturally breaks up pest cycles. The usefulness of alfalfa is one of the reasons that organic farmers and consumer groups are fiercely opposing the introduction of genetically-engineered alfalfa into Canada (see sidebar 1).

In its 2008 document entitled *Low Greenhouse Gas Agriculture*, the UN's Food and Agriculture Organization (FAO) recommends reduced or no tillage on crop-land in order to increase SOC. The use of "no-till" farming conserves soil carbon because there is no churning up of soil between crops. Rather than being ploughed under, crop stubble is left in place to reduce erosion and new seeds are planted between the stubble rows.

The COG's Telfort says that "Canada leads the world in no-till," which is rapidly being adopted across the country. Some 30 percent of Canadian cropland is no-till. "But," says Telfort, "we think you need to do organic no-till" to be really effective.

As the World Resources Institute has recently found, "Without tillage to eliminate weeds, no-till farmers apply more pesticides and herbicides and are likely to rely on GMOs [genetically-modified organisms]."

"With organically managed soils," Telfort explains, "there are mycorrhizal fungi which live in association with plant roots and make nutrients available to plants." These fungi produce a potent glue-like substance called glomalin that stimulates increased soil aggregates which "hold the soil together." Usually, nitrogen and carbon are "sent back out of soil," says Telfort, but with organic soil, the nitrogen and carbon stay inside the soil. "That's why we think organic

no-till is the answer. If we could get the chemicals out of no-till, Canadian soils could hold a lot more carbon and more nitrogen." Healthy soil also usually means fewer weeds and thus less need for herbicides.

While some scientists dispute the effectiveness of no-till to increase SOC, there are many other benefits of the practice, including a reduced need for irrigation, less labour from the farmer, increased soil quality, reduced erosion, less fuel use, less compacting of soil by a tractor, and increased ability of the soil to withstand extreme weather.

"I remember the drought on the Prairies five years ago," says Telfort. "You could drive through the countryside and immediately see which farms had the better soil management practices because of the green fields. Better soil handles things like drought and extreme rains." Switching to organic farming methods can reduce carbon dioxide emissions from soil by up to 92 percent.

Crop rotation is another practice that can restore soil and sequester carbon, and also keep weeds in check. Planting corn one year, followed by oats or barley, and then two years of

### A "Capitalist Con-Job of Epic Proportions"

The manufacture of phosphate fertilizers creates a highly toxic (but lucrative) by-product. When raw phosphate ore is processed into water-soluble phosphate (via the addition of sulphuric acid) to make phosphate fertilizer, the high fluoride content of the ore is vaporized and forms two toxic gaseous compounds: hydrogen fluoride and silicon tetrafluoride. These emissions are captured at the fertilizer plant by "wet-scrubbers," which scour the toxins from the plant's stacks. This residue becomes hydrofluorosilicic acid (HFSA).

The HFSA is then collected, pumped into tankers, and sold to communities across North America, who add HFSA to their drinking water supplies as the primary chemical used in water fluoridation, supposedly to prevent cavities.

According to Toronto's *Vitality Magazine* (March 2010), "Safe disposal of phosphate fertilizer factory waste (HFSA) is very expensive and a financial liability for Big Agribusiness – which would prefer to sell this poison at a profit to our municipalities."

The phosphate fertilizer industry, which includes subsidiaries of Cargill and Archer Daniels Midland, sells more than 200,000 tonnes of HFSA annually in North America, earning millions of dollars for this toxic waste. Nationwide, about 42 percent of Canadians drink fluoridated water treated with HFSA.

Robert Carlton, a former US Environmental Protection Agency scientist, has called this arrangement a "capitalist con-job of epic proportions," which has been going on for more than fifty years.

Fluoride is increasingly being linked to dental fluorosis, osteoporosis, and brain disorders. In 2006 Canada's National Research Council identified fluoride as an "endocrine disruptor" which can harm thyroid function. The Canadian Association of Physicians for the Environment (CAPE) considers fluoride "a potential immunotoxin, embryotoxin, neurotoxin, and harmful to bony tissues, including both dental and ordinary bone."

Rock phosphate also contains cadmium, a heavy metal that is contaminating oyster beds on the West Coast possibly through farm runoff.

—J.N.

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hay (alfalfa) is considered one example of a good rotation.

There are also increased calls to restore native grasslands across Canada, which can effectively remove CO<sub>2</sub> and nurture topsoil. The deep roots of native grasslands can sequester as much as 1.8 metric tonnes of carbon per hectare.

### Animal Management

These grasslands can also be used as pasture for farm animals. In fact, cows that pasture on grass produce 20 percent less methane from burping and farting (called enteric fermentation). Cows' stomachs are intended to digest grass, not the corn they are fed on factory farms. The methane they produce is one of the most potent GHG emissions – twenty-one times more potent than CO<sub>2</sub> – and the biggest source of methane on the planet. Methane accounts for about 14 percent of all GHG emissions globally, and two-thirds of all methane emissions come from enteric fermentation and farm animal manure.

Guy Dauncey's *The Climate Challenge: 101 Solutions to Global Warming* (New Society Publishers, 2009) recommends: "If 50 percent of the world's grassland farmers were to graze their animals rotationally, mimicking the way they used to graze when predators were around, they could store an additional one tonne [of GHG] per hectare per year."

Wayne Roberts, agricultural writer for Toronto's *Now Magazine* (Feb. 25, 2010), reminds us that such grazing can help with manure management: "While the barren feedlots of conventional farming turn cow dung into toxic waste, animal poo dumped on luxuriant growing grass becomes organic fertilizer."

Although grass-fed dairy cows produce less milk, this grazing is part of what's called integrated crop and livestock farming, another low GHG

agricultural practice that saves energy by not having to bring feed to the animals or remove their wastes, as in factory farming. Integrated farming also helps decrease external inputs, mak-

Across the planet, an estimated 75 billion tonnes of fertile topsoil is lost annually

ing the farm more self-sufficient and economical. Some farmers are also using animals in place of tractors.

Conventional farmers are increasingly using anaerobic digesters as a way to turn feedlot animal dung into composted fertilizer. These industrial-size digesters use bacteria to hasten the composting process and provide energy at the same time. They have been called "the real waste-to-energy technology" of the future, and

they cut down on nitrous oxide emissions from manure, which are 310 times more potent as GHG than CO<sub>2</sub>. An estimated 80 percent of all nitrous oxide emissions globally come from the farm sector.

A landmark 2007 FAO study estimated that industrial meat production – the factory farm raising of chickens, turkeys, hogs and beef cattle – is by itself globally responsible for nearly 20 percent of all GHG emissions.

### Getting Rid of Problems

"One huge policy shift we could make," says Telfort, "is to ban synthetic fertilizers. You'd have a huge, 30 percent reduction of [agricultural] green-house gases immediately. The energy that goes into the production, manufacturing, distribution, and use

*Continued on Page 14* ⇨



Cows that pasture on grass produce 20 percent less methane from burping and farting (called enteric fermentation). Cows' stomachs are intended to digest grass, not the corn they are fed on factory farms.

Ester Stribos

↔ *Future Farming continued*

of synthetic fertilizers is immense. If we could get rid of them, we could get rid of a lot of the problem.”

We could also get rid of a huge, if little-known, side-effect of that industry. Every tonne of nitrogen fertilizer that is phased out reduces GHG emissions by the equivalent of five tonnes. At the least, conventional farmers can do testing to determine the exact amounts of fertilizers needed.

Interestingly, Telfort says that in 2007-08, when the price of fossil fuel-based synthetic fertilizer “went through the roof,” conventional farmers couldn’t afford it and “found they could do without it,” although “they went back to it” when the price came down.

“Rather than focus on these kinds of piecemeal programmes,” says Telfort, “why not just pay farmers to do organic farming? The European Union pays farmers to convert to organic.”

In its recent Economic Stimulus Package, the Green Party of Canada recommends setting up a \$500 million fund to help farmers transition to organic – with the money coming from the removal of the GST exemption for agricultural pesticides.

It’s a recommendation that makes sense because Canada’s farm programmes “are not written for organic farmers or for small-scale farming,”

says Telfort. Organic farmers “can apply for all the programmes, but they have a harder time with the way programmes are designed” and small-scale farmers are “disadvantaged by all these rules against small farms” in Canada.

That’s exactly the point that Thomas Pawlick underlines forcefully in his new book, *The War In the Country: How the Fight To Save Rural Life Will Shape Our Future* (Greystone Books, 2009), which focuses on the fight to save Canadian small-scale farming “systematically penalized” by unfair tax regimes, rules, regulations, building codes, and programmes that fa-

Every tonne of nitrogen fertilizer that is phased out reduces GHG emissions by the equivalent of five tonnes

vor industrial farming.

One telling example that Pawlick, the former editor of *Harrowsmith* magazine, provides is the practice of farmers using portions of their land for grazing or a woodlot, and finding that government authorities have reassessed the land as residential for tax purposes because they’re not growing a crop on it. He also cites bizarre dairy and egg marketing board regulations such as the requirement for a separate building for grading eggs, and a 38-

page rule-book to follow for that procedure. And, writes Pawlick, raising free-range chickens is “expressly outlawed by the federal government” unless you have a minimum of 125,000 chickens.

**Back to the Future**

In March 2008, Britain’s Institute of Science in Society reported that shifting to organic agriculture could cut world energy use by 16.5 percent and reduce greenhouse gases by 29.5 percent. In April of the same year, the UN Agricultural Assessment meeting in Johannesburg reached a similar conclusion, calling for an end to fossil fuel-based agriculture and a return to natural, low-impact, sustainable farming.

Even more significant, in 2008 the highly respected US-based Rodale Institute released its report entitled *Regenerative 21st Century Farming: A Solution to Global Warming*. As a result of nearly thirty years of study of soil carbon data, the Institute announced that “the vast, untapped potential of regenerative agricultural practices” of organic farming “can be the most effective currently available strategy for mitigating CO<sub>2</sub> emissions,” and “if practiced on the planet’s 3.5 billion tillable acres, could sequester up to 40 percent of current CO<sub>2</sub> emissions.”

Thus, switching to organic, low GHG agricultural practices could not



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Ester Strijbos

## By the Numbers

Forget about carbon markets, geo-engineering and all the other false solutions. Here is a real way out of the climate crisis, by reducing total GHG emissions:

- Use agroecological practices to rebuild the organic matter in soils lost from industrial agriculture - 20-35%
- Decentralise livestock farming and integrate it with crop production: 5-9%
- Distribute food mainly through local markets instead of transnational food chains - 10-12%
- Stop land clearing and deforestation for plantations - 15-18%

These straightforward measures would lead to a reduction of 1/2 to 3/4 of current global GHG emissions.

What is required to get there is what farmers and food producers have been defending and calling for for decades:

- Decentralisation of production and distribution,
- Effective support for agricultural practices based on agro-ecological processes, biodiversity and local knowledge, and
- Profound agrarian reform

Politics is the only thing standing in the way of such a transition. The problem is that the corporations that profit from industrial food are setting the policy agenda. It's time to take the fate of the planet and humankind from the hands of big speculators and put the world's food producers first.

—*Small Farmers Can Cool the Planet: A way out of the mayhem caused by the industrial food system*, November 2009, GRAIN,

[www.grain.org](http://www.grain.org)

only reduce the 30 percent of GHG emissions that current industrial agriculture creates, but could also sequester through soil restoration another 40 percent of emissions globally. That's a huge solution. The report continues: the Rodale Institute "advocates a rapid, nationwide transition from today's prevailing, petroleum-based farming methods to what we refer to as 21st Century biologically based, or regenerative, agricultural management practices."

By 2009, there were more than 500 farmers markets in Canada – a \$1.03 billion per year business. As well, Sarah Elton's *Locavore* reports that small-farm CSAs (community-supported agriculture) grew from a mere 60 in 1990 to 1,700 across North America in 2009. Clearly, the public wants good, local, organic food. De-

mand for organic food is increasing 20 percent per year, while the number of organic farmers in Canada is increasing by only 1-5 percent per year. But as the Rodale Institute report notes, "Farmers can transition to new practices relatively quickly and inexpensively using low-cost tools."

With peak oil set to make the import/export of food prohibitively expensive, Jeff Rubin argues that "the future will look a lot like the past. And that means more farms." Growing local food for local markets is probably the most important low GHG agricultural practice we can adopt, and ironically, it's one of the most radical suggestions of our time.



Joyce Nelson is a freelance writer/researcher and the author of five books.

## TLC for Wild Hills and Beaches

Jordan River, Sandcut Beach, and the Sooke Hills occupy a very public place in the Vancouver Island community. These Western Forest Product properties are being sold on the public market. Responding to islanders' sense of community ownership over these properties, The Land Conservancy of BC and the Capital Regional District are taking advantage of the opportunity to protect 2,350 hectares. TLC needs to raise \$3.25 million to save this cultural and natural heritage. To support the Wild Hills and Beaches Campaign, please visit [www.conservancy.bc.ca](http://www.conservancy.bc.ca) or call 1-877-485-2422.

# Saving Water Drip by Drop

A checklist to remind you of all the things you can do to use water wisely



by Delores Broten

From the *Watershed Sentinel*,  
August-September 2002

Living on the 'wetcoast' of BC we are blessed to have access to fresh, clean water. Yet, although 25% of Canada's flowing water is in BC, the increase in population growth, the expansion of industry and agriculture and the potential of climate change puts pressure on water supplies. Especially in the summer months, when water demand increases and precipitation decreases. Canada is the second largest water consumer in the world – 1,600 cubic metres of water per person per year. This is more than twice as much water as the average person from France, three times as much as the average German and almost four times as much as the average Swede.

Whether you live in the country, where wells run shallow and sometimes dry in the summer, or the city, where the cost of water treatment infrastructure is sky-rocketing, saving fresh water is in everyone's best interests.

## The bathroom

- This one is so simple – and like so many simple things, it's so easy to forget. Don't leave water running while you brush your teeth or wash. You could run through 5 litres of water a minute uselessly down the drain this way.

- Get a low flow shower head, preferably one with a shut-off button while you are soaping or shampooing. You'll never notice the difference, but it's about 11 litres of water a minute.

- Replace a conventional flush toilet with an Ultra Low volume unit. Cost: about \$200. Water savings: 12 litres per flush!

- Alternatively, get a toilet dam for about \$10, which displaces some of the space in the tank and lowers the amount of flow.

- Check for leaks in the toilet seal, which can silently drain water, by putting a couple of drops of food colouring in the back. If the colour shows up in the bowl, the culprit is revealed. The problem is probably a valve that isn't seated properly, or a bent lift wire or corroded valve seals. These items can all be repaired cheaply with kits from building supply stores.

## Kitchen

- Save those dirty dishes and only run the dishwasher when you have a full load.

- When rinsing vegetables or dishes, fill the sink or a bowl; don't leave the tap running. It can use between 15 and 20 litres of water per minute. Wash fruit and veggies in a sink half filled with water (about 12 litres). If your washing time takes 3 to 5 minutes, you'll save 33 to 48 litres of water.

## All over the house

- Replace the filters in your taps with low flow aerators – cheap (less than \$5), easy, effective. There are two types, so be sure to ask for the low flow one.

- And of course, fix those leaky taps. A tap leak of one drop per second adds up to a spectacular 10,000 litres of water a year!

## Outdoors

- You don't need to water the lawn compulsively – aerate it, keep it cut long (at least 6 cm). So the roots stay cool, keep it mulched, and give it

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2.5 centimetres of water once a week or less. Delay sprinkling in the spring and encourage deep roots. Even if it turns brown it will survive to green up again once the rain comes. Plant native shrubs and ground cover to replace some of your lawn; they take less water and provide wildlife habitat.

- Oscillating sprinklers can lose up to 50% of their output to evaporation; sprinklers that lay down water in a flat pattern are no more expensive and lose very little water. Better yet are soaker hoses so the ground can absorb all the water.

- A running hose can waste 20 litres of water a minute. Use a spring-loaded nozzle. A forgotten sprinkler can waste over 1,000 litres of water per hour!



- Water in the early morning if possible; less water is lost to evaporation, but

the plants will not be prone to diseases if they have the day to dry off.

- Don't wash your car too often, and when you do, use a bucket and do it on the lawn so the water gets re-used. Remember – A clean car is a sign of a sick mind!

- Make a rain barrel and use the soft water for your plants – and your hair!

- You can buy rain barrels from Lee Valley Tools, or other stores, or you can make your own. You need a very large plastic container (food grade containers or garbage cans), an outdoor tap, two bolts and two washers. At the level you want the tap at the bottom of the barrel, drill a 1/2" hole. Install the tap, with the two washers held on each side of the barrel by the nuts. Use a little silicone to seal it. See our Rainwater Collection Booklet on our Special Feature section on the right hand side of our homepage.

- And for goodness sakes if you see someone watering their driveway – hand them a broom!



## Industry's thirst for water

Manufacturers, farmers, shippers and others in the “supply chain” use almost 270 gallons of water to put \$1 worth of sugar on supermarket shelves, according to a new study documenting American industry's water use.

How many gallons of water does it take to produce \$1 worth of sugar, dog and cat food, or milk? The answers appear in the first comprehensive study in 30 years documenting American industry's thirst for this precious resource. The study, which could lead to better ways to conserve water, is in the American Chemical Society's *Environmental Science & Technology*, March 31, 2010.

Chris Hendrickson and colleagues note in the new study that industry (including agriculture) long has been recognized as the biggest consumer of water in the United States. They estimated water use among more than 400 industry sectors – from finished products to services – using a special computer model. The new data shows that most water use by industry occurs indirectly because of processing, such as packaging and shipping food crops to the supermarket, rather than direct use, such as watering crops.

Among the findings for consumer products: It takes almost 270 gallons of water to produce \$1 worth of sugar; 200 gallons of water to make \$1 worth of dog and cat food; and 140 gallons of water to make \$1 worth of milk. “The study gives a way to look at how we might use water more efficiently and allows us to hone in on the sectors that use the most water so we can start generating ideas and technologies for better management,” the scientists note.

—ACS News Service,  
March 31, 2010

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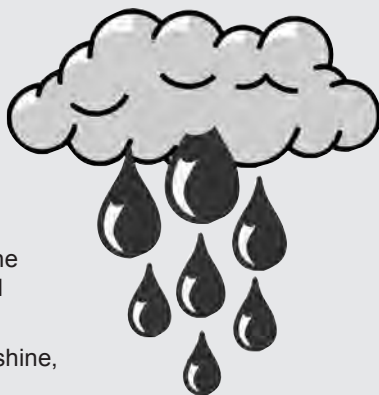
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Water conservation pamphlets from the Nanaimo and Greater Vancouver Regional Districts

City West Water's Conservation, Sunshine, Victoria [www.citywestwater.com.au](http://www.citywestwater.com.au)

For complete instructions on a do-it-yourself rain barrel, with mosquito screening, see *Organic Gardening*, July/August 2002

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## BC Pollution Monitors



# Out of Kilter

by Dave Stevens and Delores Broten

Due to a design error, the readings can be up to 50% off when the weather is cold. The Ministry is slowly replacing the equipment, but in the meantime, we have to ask: **What are you breathing?**

“there is no apparent lower threshold for the effects ...on human health.”

So the question of just how much pollution we are breathing is not at all theoretical – it matters a lot whether the readings are correct and current.

There is good reason to doubt that anyone in Canada has a solid handle on how much air pollution Canadians are exposed to.

Pollution data comes mainly from two sources, self-reports by the polluters, published in the National Pollutant Release Inventory (NPRI) and ambient (outdoor) measurements taken by firms and governments.

Ambient air pollution monitors are located where the pollution they assess is, to some degree, representative of what people will breathe. In Smithers BC, where I live, the particulate matter (PM) monitors are co-located with St. Joseph's School in the middle of town. This is a common situation in BC. Data from these monitors is collected on an hourly basis, reported to a central database maintained by the Ministry of Environment (MoE) in Victoria and available online. One very common monitor is a type of continuous device called a TEOM, a Tapered Element Oscillating Microbalance.

The basic idea behind a TEOM is that pollution particles (particulate matter, or PM) are drawn through an opening into the machine and their size is measured. The size of the opening determines how big the particles are, so a 2.5 micron opening is

used to measure a certain size of very small particles, called PM2.5. A ten micron hole would be used in measuring PM10.

The readings are micrograms of PM, either PM2.5 or PM10, per cubic metre of air. A common sort of reading is that taken this morning in Smithers at 9AM of 16 micrograms ( $\mu\text{g}/\text{m}^3$ ) of PM2.5. Not enough to kill you outright (for most people) but not a healthy level either.

“No one ever died from breathing an annual average.”

—Dr. David Bates

A great deal of public health work has been done on the health effects of PM and while the subject is too large to tackle here, it is certainly clear that there is no minimum level of PM below which there are no health effects. There's no threshold of safety: if you can detect it, it hurts you. And the more there is, the worse and the more immediate the effects are. The Canada Wide Standard settled on by the Canadian Council of Ministers of Environment aimed for levels of PM 2.5 of no more than  $30 \mu\text{g}/\text{m}^3$ , 24 hour averaging time, to be in effect by this year, 2010. It also stated that recent scientific evidence indicated that

## But are they? not necessarily

Winter often has the highest pollution levels. Cold air tends to produce atmospheric inversions that trap and concentrate pollution near the ground. Levels in Smithers last year in January reached 165 for PM10 and 65 for PM2.5. These figures are not exceptional for the place and time of year.

Now, measuring instruments always have limitations, and it is necessary to take the characteristics of the gear into account in deciding what to make of the data. In an attempt to provide stable conditions for reliable measurement, the manufacturers of the TEOMs warm the inlet air in cold weather. And that turns out to be a problem.

Smoke emitted in cold weather contains volatiles that form particles. But when these airborne particles pass through the warmed inlet pipe they partly re-evaporate and fail to deposit on the microbalance. They become immeasurable.

BC MoE staff estimate that in cold weather the TEOMs routinely underestimate PM levels by as much as 50%. So the peak levels in Smithers referred to above might have been up to 300 for PM10 and 130 for PM2.5.

These levels are about half of what is estimated for the infamous London smog epidemic of 1954 which killed 4,000 people immediately and another 8,000 with subsequent infections. Nonetheless, they are still a long way from desirable.

**What is to be done?**

BC has already begun to replace the province's monitoring equipment. This offers the prospect of more accurate measurements. To look at the differences in measurements, some of the new equipment is running in parallel with the older TEOMs. This promises to be useful to evaluate data gathered by the network in years past.

The data from the new gear is likely to be quite bad news.

Part of the Canada-Wide Standards for PM and Ozone is the *Guidance Document on Achievement Determination*. This sets out the method of determining whether a given place exceeds the 30 µg/m<sup>3</sup> national standard. But of course it relies on the accuracy of the measurements.

The BC Lung Association's 2009 *State of the Air* report shows, "The highest concentrations were observed in the central interior (e.g. Quesnel and Prince George) and Bulkley Valley (e.g. Houston and Smithers). Daily values ranged from 8-26 µg/m<sup>3</sup> (based

on annual 98th percentile)." But those values are based on the old equipment. If the levels were actually 16-52 we have quite a different picture.

Areas that were thought to be ok by provincial or national standards will now be sometimes out of attainment, and worse health effects are to be expected.

How will government and industry react? A rational, precautionary approach indicates that more protective measures will be taken. Permit holders formerly thought to be operating safely will now be revealed as contributing excessively to health risks for those nearby. Unfortunately, the BC government commonly conceives of its role as handmaiden to industry, making deals and providing breaks to make industry in BC more "competitive." An added "regulatory burden" will not be viewed favourably by these partners.

It is standard advice from government and



"Each 10-µg/m<sup>3</sup> elevation in fine particulate air pollution was associated with approximately a 4%, 6%, and 8% increased risk of all-cause, cardiopulmonary, and lung cancer mortality, respectively."  
 —Lung Cancer, Cardiopulmonary Mortality, and Long-term Exposure to Fine Particulate Air Pollution, Pope et al, *Journal of the American Medical Association*, (JAMA) 2002;287(9):1132-1141 (doi:10.1001/jama.287.9.1132)

health authorities during pollution episodes to go inside and sit quietly. Some highly vocal outrage is likely to be a more productive course.



Dave Stevens is a self-employed computer geek and amateur carpenter. From time to time he advises Environment Canada on how to handle toxic emissions. They don't take the advice but they pay anyway.



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# Cook better, burn less, breathe more

by Stephen Leahy

Rebecca Arrieta Vermeer often woke up choking on the smoke from the open-wood fires as her neighbours prepared their early morning meals in Dumaguete City, Philippines. This is what more than half of the world's population experiences every day since they rely on dung, wood, crop wastes, charcoal for cooking and heating. Most of this burning is done indoors where few have chimneys, including the 30 to 40 poor families that surrounded the house Vermeer, now a resident of North Saanich BC, inherited.

"At first I was angry but then I saw the children," says Vermeer, who spends half of the year returning home to the Philippines, following her retirement as economist and policy advisor in the BC public service. Many children had dripping noses and were wheezing with congested lungs. Some had asthma.

"That's when I decided to do something to help," she said and remarkably went on to invent a locally-made, high-efficiency cooking stove called the eco-KALAN and "magic box" slow cooker.

Indoor air pollution can be far worse than outdoor pollution especially in poorly ventilated buildings. Every year indoor air pollution is responsible for the death of 1.6 million people – that's one death every 20 seconds – reports the World Health Organization.

In a vicious cycle, poor families



Ester Strijbos

**Making Vietnamese noodles: The soot from inefficient burning of biomass for cooking and heating is responsible for 20 to 30 per cent of current overall global warming.**

can't afford cleaner fuels or stoves or lanterns, which then impacts their health, making them less able to earn money and having to spend precious dollars on medicines.

Worse, if possible, is that the soot from this inefficient burning of biomass for cooking and heating is responsible for 20 to 30 per cent of current overall global warming. Yes, that's right, nearly a third. Soot or black carbon warms the planet in two ways. In the lower atmosphere the dark particles absorb heat from the sun and act like an extra blanket, raising surface temperatures. In cold regions the soot coats snow and ice, turning it grey and reducing the albedo – the ability to reflect sunlight. When the snow and ice is darker, it soaks up more heat from the sun, which accelerates melting.

A study released in April confirms that black carbon is respon-

sible for much of the early spring snow and ice melt in the Earth's 'third polar region,' the 1.6 million square kilometre area in Asia comprising the Himalayas–Hindu Kush and nearby mountains along with the high-elevation Tibetan Plateau. The meltdown there is happening at twice the rate as in North America. "By inducing early retreat of snow cover, black carbon causes (Hindu-Kush-Himalaya-Tibetan Plateau) land areas to absorb more sunlight and warm disproportionately," reports Mark Flanner of the University of Michigan and the National Center for Atmospheric Research in Boulder, Colorado.

Roughly 35 per cent of all black carbon comes from Asia, the source of the infamous brown cloud of pollution

that crosses the Pacific and contaminates air in western North America. Eliminating black carbon emissions from biomass burning and from burning diesel fuel (the other major source of black carbon) could increase the spring time snow cover in Asia substantially, recovering perhaps 25 per cent of what has been lost in the past 100 years, Flanner said.

Flanner and other experts agree that black carbon is also responsible for much of the rapid meltdown currently underway in the Arctic.

Unlike carbon dioxide that stays in the atmosphere for centuries, soot only remains in the air for weeks or months. And there are easy, quick fixes for soot: filters on diesel engines and high-efficiency stoves like Vermeer's eco-KALAN.

There are lots of well-designed stoves available but to keep the costs

## CLIMATE SOLUTIONS

down the eco-KALAN is made by local potters from clay found around the small city of Dumaguete, at the southern tip of the Philippine's Negros Island. Vermeer collaborated with Nate Johnson and Mark Bryden of Iowa State University and Sebastian Africano of Trees Water and People and the Aprovecho Research Center to make a high-efficiency version of the traditional kalan (stove). The eco-KALAN has an outer shell (kalan) on which the cooking pot sits; the inner chamber (rocket elbow) where the combustion takes place; and a shelf with air holes to hold the fuel.

"The improved version of the eco-KALAN now uses 80 per cent less fuel than the traditional kalan," says Vermeer. It can burn wood, twigs, branches, charcoal, bamboo, and any part of the coconut tree such as stems, husks, shells, and leaves. The stove is sold at a subsidized price of C\$8.00. "The pay-back is just one month in savings on purchasing fuel-wood," she says.

In very poor mountain communities or slums where people earn less than \$2 a day and spend all of that on food, the eco-KALANs are given away using her pension money and donations from individuals in Canada and Europe. The total cost of production, transportation, education and training, event documentation, and refreshments for a presentation to the community amounts to roughly \$18 to \$20 per eco-KALAN, she says.

Lower cooking costs are just one benefit. The eco-KALAN also results in cleaner air, less respiratory disease for local people, and it reduces deforestation pressures. It also means less black carbon in the atmosphere.

To further reduce the need for firewood, Nate Johnson, an engineering student, built an insulated box out of discarded packing materials and some aluminium foil where a pot can continue cooking for two or three



Kees & Rebecca with recipients at Habitat Bajumpandan Presentation

hours without any additional heat. "People can't believe it's still cooking without fire. That's why they call it the magic box."

Officially called the eco-Magic Box, local trade schools are beginning to manufacture and sell the boxes, she says.

"The [high-efficiency stove] is the fastest 'bang for the buck' to reduce black carbon, methane and other gas emissions as well as improving air quality and health," says Kirk Smith, professor of global environmental health at the University of California and a leading expert on indoor air quality.

But Smith has struggled for 20 years to find the money to put these stoves into the homes of an estimated 500 million poor families that need them. Health or development agencies in rich countries say they don't have the money, or they want solid proof that such stoves will save lives, Smith says.

Meanwhile dozens of non-governmental organizations from public service groups like the Rotary Club, church and environmental groups, and individuals like Rebecca Arrieta Vermeer recognize an obvious solution when they see one and cobble together money, bringing tens and perhaps hundreds of thousands of stoves to Asia, Africa, Latin America and the Pacific.

The eco-KALAN is a high-efficiency stove that results in cleaner air, less respiratory disease for local people, and it reduces deforestation pressures. It also means less black carbon in the atmosphere.



Sadly, the public in rich countries like Canada allow their governments to ignore this easy solution to boost global health, reduce deforestation and slow climate change. In a typical example, Canada's federal government and Alberta will spend \$1.6 billion of public money on an untested technology called carbon capture and storage to combat climate change. In reality this is a gift to highly profitable energy companies to help them deal with their pollution problem, if the technology even works. Instead, that \$1.6 billion could buy 60 to 80 million stoves, improving the health and lives of hundreds of millions *and* do far more to combat global warming than any single effort to date.

Vermeer says giving away her stoves is the best thing she's ever done.

"This is a good way to end our lives, doing something that we're so happy to be involved in."

"I wish others could experience this."

Me too.



Stephen Leahy is an environmental journalist based in Oxbridge Ontario.

# BC Parks

## A Jewel in the Crown, Albeit Somewhat Chipped

**The incredible range of BC Parks reflects an equally diverse historical origin. Some recent developments suggest this magnificent heritage could be chipped away if we don't pay attention.**

BC Parks

by Maggie Paquet

Silent paddling on one of Wells Gray's spectacular lakes.

My introduction to BC Parks came about one sweltering summer afternoon about 35 years ago. Acting on a rumour, I drove to the campground at Goldstream Provincial Park. Getting direction from park staff, I hiked up a trail to an innocent-looking side branch and went carefully down the steep slope to the river. Amazement greeted me! A waterfall plunged into a deep green bowl lined with shrubs, flowers, and ferns, and towered over by huge Douglas-firs and red cedars. The water was cold and sublimely refreshing. There were a few people there, but it was peaceful. I went back to the swimming hole on hot days throughout that summer and the next. I explored the rest of that remarkable park on Victoria's doorstep, including attending some of the evening 'naturalist talks' in the park's amphitheatre. I did some research on its history. I wanted to know how and why this precious place came to be dedicated to the public. Ultimately, I was inspired to look into this "BC Parks thing."

What I learned motivated me to go exploring around the province at every opportunity. Over the years, I visited other family camping parks – Alice Lake near Squamish, Cultus Lake near Chilliwack, Wasa Lake near Cranbrook, Charlie Lake near Fort St. John, and Lakelse Lake near Ter-

British Columbia, as a jurisdiction, has one of the largest and, along with ecological reserves, most ecologically varied park systems in the world. It is definitely something of which we can all be very proud.

race. I combed incredible ocean beach parks, such as Rath-trevor near Parksville, and French Beach west of Sooke. I went to parks that offered both frontcountry camping and incredible backcountry experiences, such as Manning, off Hwy 3 past Hope, and Golden Ears, in the Coast Mountains north of the Fraser River. I enjoyed tiny peaceful oases no larger than a few picnic tables and a fire grate, such as Memory Island in the middle of Shawnigan Lake. I wandered through parks that celebrate settlement history, such as Fort Steele in the East Kootenay, and Cottonwood River and Barkerville in the Cariboo. I

marvelled at magnificent waterfalls, such as the 137-metre-high Helmcken Falls in Wells Gray, and danced in the spray on the big rocks over which the Bijoux Falls tumble in the Pine Pass northeast of Prince George. I fished for steelhead (and caught one!) along the banks of the Quinsam River in the campground part of Elk Falls park near Campbell River. Eventually, I even made it into two spectacular wilderness parks: the Stikine River RA (now a class A park) in BC's rugged and remote northwest, and Strathcona – BC's very first provincial park – in the north-central part of Vancouver Island.

Years later, while researching my books on BC Parks, I discovered even more about provincial parks that convinced me we had something special. For example:

- The massive Lloyd George Icefield in the heart of Kwadacha, southwest of Fort Nelson and east of the Rocky Mountain Trench, is the largest icefield in the Rockies north of the 54th parallel.
- Spatsizi and the newer Muskwa-Kechika area parks protect habitat for Stone's sheep, nearly all of the world's population of which occur in northern BC.
- Volcanics are a major feature of some parks, including Wells Gray, Mt. Edziza, Mt. Seymour, and Garibaldi.
- Khutzeymateen is Canada's only grizzly bear sanctuary and is home to about 50 grizzlies.
- Liard River Hot Springs are ranked in the top five of all North American hot springs.
- Strathcona Park contains the 440 m Della Falls, Canada's highest and one of the ten highest falls in the world.
- Inside the 116-km parallelogram-shaped chain of lakes, rivers, creeks, and portages in Bowron Lake Park are sedimentary rocks that contain fossil trilobites and primitive corals.

What all this says is that British Columbia, as a jurisdiction, has one of the largest and, along with ecological reserves, most ecologically varied park systems in the world. It is definitely something of which we can all be very proud. But, like liberty, the price of all this grandeur and diversity is eternal vigilance (and we're lucky to have a lot of "park patriots" in our province). Before I get into that topic, however, let's have a brief history of how we got this still great park system.

### BC Parks History

There have been three primary waves of incentives to establish BC's parks. The earliest was to provide mountain wilderness parks largely visited by adventurers and wealthy tourists with time and money to spare. Concurrent with commercial tourism promotion was an expansionist desire by governments to entice settlers into new areas. To facilitate this, national and provincial governments ceded long tracts of Crown lands to accommodate building railroads.

In BC, the first park was Strathcona and the railway was the E & N. On March 1st 1911, Strathcona Provincial Park was legislated with passage of the *Strathcona Park Act*. While the original *Act* clearly intended to protect the park from mining, logging, and similar industrial development, both mining claims and timber holdings had been granted prior to the park's establishment, and existing rights and interests were exempted from the *Act*. In 1918, the *Act* was amended to open the park to the "location, acquisition and occupation of mineral claims under the *Mineral Act*."

And so it began – from the very earliest days of our provincial parks system – this seesaw behaviour of government, shifting back and forth from protecting lands for recreation and conservation on one hand, to allowing – encouraging even – industrial uses on the other.

Strathcona was soon followed in 1913, when BC's sec-



ond park was established with the *Mount Robson Park Act*. Both Strathcona and Mt. Robson were adjacent to railway land grants. Mt. Assiniboine in the Rockies and Kokanee Glacier in the Selkirks were both established in 1922, and Garibaldi in 1927. By 1930, 13 provincial parks had been created, and at least another 50 areas had been reserved "for the pleasure and recreation of the public."

Not all early parks catered to wilderness enthusiasts. John Dean Park on Mt. Newton in Central Saanich was established in 1921 as a day use park and to protect a small bit of old-growth Douglas-fir and Garry oak-wildflower meadow. Unlike previous parks, this was the first donation of private land for the specific purpose of park designation.

Up until the Depression, parks were added and managed haphazardly. A Forest Service public works program was created in 1929. For nearly the next three decades, parks were the responsibility of the Forest Service. In 1957, the Department of Recreation and Conservation was created, including an independent Parks Branch. A philosophy of establishing, operating, and managing provincial parks became more clearly defined.

The next wave peaked in the 1950s and '60s. This was a time of road-building to meet the greater mobility of post-war peregrinations; matching it was a major expansion of the provincial park system. Destination campground parks to serve the newly mobile middle and work-

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## THE LAND

### ↔ BC Parks continued

ing classes cropped up along equally newly built roads all across the province. These parks featured family-oriented campgrounds, expanded facilities, such as picnic tables, potable water, outhouses (even showers and flush toilets in some), fire grates and the provision of firewood, and – what became hugely popular – BC Parks’ famous interpretation programmes. The big parks had wardens and on-site staff to assist visitors... oh, and collect camping fees.

A revised *Park Act* was passed in 1965. It provided a detailed classification of provincial parks, management guidelines, and increased protection, including restrictions on land uses and resource extraction. Conservation, while a partial rationale for a few earlier parks, was becoming an important reason for many of the newer parks.

Setting aside large areas for conservation and to manage parks for ecological integrity and wilderness preservation was becoming an important goal, both for the public and BC Parks managers, and represents the third wave.

Parks were starting to be seen as something other than simply places for the public to visit for sport and refreshment, or places to take the kids so they could blow off steam and maybe learn something about “nature.” Rather, parks were beginning to be recognized as sanctuaries for biological diversity, as gene pools, as sources for pure water, as places of beauty in their own right, and as a source for something intangible that is increasingly required, but equally increasingly difficult to obtain, in our crowded and cluttered lives: solitude, spiritual renewal. During the 1970s, large remote wilderness parks were established, including Cape Scott, Naikoon, Spatsizi Wilderness, Mt. Edziza, Purcell Wilderness, and Desolation Sound.

Throughout the 1980s and ’90s, a number of public consultation processes took place over nearly every corner of the province, including the Wilderness Advisory Committee, Protected Areas Strategy, Commission on Resour-



Early (1965) backcountry campfire in Strathcona Park.

S & G Mitchell

es and Environment, and numerous Land and Resource Management Planning (LRMP) processes. One of the most important recommendations of the Wilderness Advisory Committee was its advice to government stressing the need for a clear and consistent wilderness policy with explicit management guidelines.

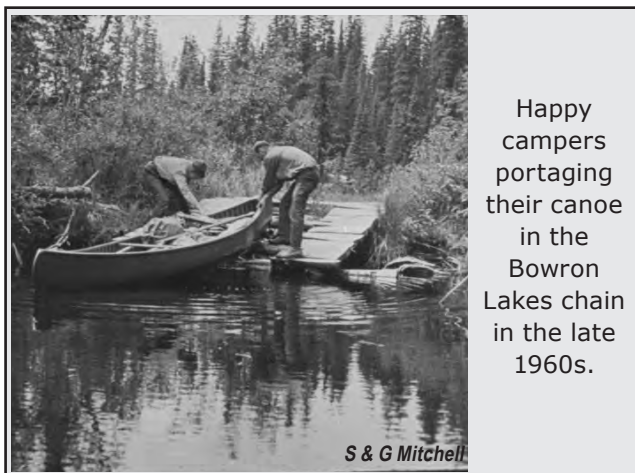
There were some highly controversial goings on during these times, including confrontations with logging and mining interests, such as what occurred in Clayoquot Sound, which resulted in the largest mass arrests in BC history. Nonetheless, these very public processes resulted in significant additions to the parks system, such as Valhalla, Akamina-Kishinena, Kakwa, Carmanah-Walbran, Tatshenshini-Alsek, Stikine River. These were followed in the next decade by large protected areas, often co-managed with First Nations, like those in the Muskwa-Kechika and the Khutzeymateen Grizzly Bear Sanctuary.

The reality of First Nations aboriginal and territorial rights and ongoing treaty negotiations asserted itself into the designation and management of new and existing parks and conservancies. The Nuu-chah-nulth Tribal Council and Tla-o-qui-aht First Nation declared Meares Island in Clayoquot Sound to be a Tribal Park. In the Stein Valley, the Lytton and Mt. Currie First Nations put the BC government on notice that there would be no industrial activity and no compromises in the Stein. Many of the newer protected areas and conservancies, including the Stein Valley Nlaka’pamux Heritage, Ts’il’os, and Anhlut’ukwsim Laxmihl Angwinga’asanskwhl Nisga’a (Memorial Lava Bed), as well as the Great Bear Rainforest, have come into being as a direct result of negotiations with First Nations communities for co-management and other opportunities, as well as protections for traditional livelihoods and values.

Information about endangered spaces and endangered species was hitting the news on a regular basis. Climate change, and its effects on future conditions both in and out of parks, was also becoming a concern.

The *Park Amendment Act 1995* increased the total minimum area of the province to be designated as protected park land from 2,550,000 hectares to 7,300,000 hectares,

Continued on Page 26 ↔



Happy campers portaging their canoe in the Bowron Lakes chain in the late 1960s.

S & G Mitchell

**Parks were beginning to be recognized as sanctuaries for biological diversity, as gene pools, as sources for pure water, as places of beauty in their own right, and as a source for something intangible that is increasingly required, but equally increasingly difficult to obtain, in our crowded and cluttered lives: solitude, spiritual renewal.**



**Magnificent and serene  
Chilko Lake in Ts'il'os Park in the Chilcotin.**

#### Establishment dates of some of the more well-known parks

1930s	Wells Gray, Mt. Seymour, Tweedsmuir
1940s	Elk Falls, Little Qualicum Falls, Englishman River Falls, MacMillan (Cathedral Grove), Stamp Falls, Roberts Creek, Cultus Lake, Manning, Hamber, Premier Lake
1950s	Miracle Beach, Goldstream, Alice Lake, Rosebery, Kokanee Creek, Champion Lakes, Okanagan Lake, Vaseux Lake, Lakelse Lake, Tyhee Lake, Moyie Lake, Wasa Lake, Marble Canyon, Liard River Hotsprings, Muncho Lake
1960s	Sasquatch, Newcastle Island, Birkenhead Lake, Rath Trevor Beach, Sproat Lake, Golden Ears, Rolly Lake, Boya Lake, Driftwood Canyon, North Thompson River, Paul Lake, Ellison, Haynes Point, Allison Lake, Bugaboo, Charlie Lake
1970s	Cape Scott, Horne Lake Caves, Schoen Lake, Chilliwack Lake, Naikoon, Spatsizi Wilderness, Mt. Edziza, Purcell Wilderness, Atlin, Cypress, Desolation Sound Marine, Elk Lakes, Carp Lake
1980s	Stikine River, Gitnadoix River, Akamina-Kishinena, Valhalla, Kakwa, Botanical Beach, Joffre Lakes, Lake Lovely Water, Babine Mountains, Meziadin Lake
1990s	Carmanah-Walbran, Tatshenshini-Alsek, Tahsish-Kwois, Khutzeymateen, Clayoquot Arm & Plateau, Clendinning, Cowichan River, Height-of-the-Rockies, Gladstone, Goat Range, Gowlland-Tod, Kianuko, Lower Tsitika River, Ts'il'os
2000s	Choquette Hot Springs, Gilpin Grasslands, Iskut River Hotsprings, and many more, including many conservancies

⇐ BC Parks continued

which was to be further increased to 10,000,000 hectares by January 1, 2000. As of 2010, BC had 989 parks and protected areas in over 13 million hectares, accounting for over 14% of British Columbia’s land base.

**Disturbing trends and conditions**

While all these additions were generally welcomed by the public, we shouldn’t fall into the trap of confusing quantity for quality. While public consultations had helped establish better rationales for parks and park boundaries, and added many important areas to the system, I think most would agree that the quality of management and programmes has declined in recent years. Many of the new parks (and a lot of older ones) do not have management plans. There have been severe cutbacks in both office and field staff throughout the system. One of the biggest losses is the “institutional memory” of many of the former public servants who ensured the high standards BC Parks was once famous for.

As BC Parks entered the new millennium, it was becoming apparent that the comparatively rational days of yesteryear had morphed into the days of nickel-and-diming every aspect of park creation and management, including the unpopular move to increase the size of parking lots at the expense of park lands and install parking meters in a number of parks.

Gone are the days of widespread public consultations on park establishment. Gone are adequate numbers of park wardens to assist visitors and protect park resources. Gone too are the outstanding naturalist programmes, which provided an important public education service not available anywhere else. Contracting out most park services – and

stretching them beyond effectiveness – has not resulted in an improved level of service to the public.

A highly disturbing trend has been changing parks and protected areas legislation over established areas to remove land and re-draw boundaries to allow for industrial uses, often with little or no public consultation. Many hard-fought battles involving all sectors of society over many years, such as through LRMP processes, have been turned around with no recourse and little respect for the previous work. The effects of increased roads, pipelines, and transmission lines on wildlife and habitats to allow for industrial developments in and adjacent to protected areas are a major concern. Just a few examples of this include:

- removal of over 1,000 ha from Graham-Laurier Park in the Muskwa-Kechika Management Area to allow for 11 kms of a road or pipeline through the park;
- legislative changes to allow for resort development and directional drilling for oil and gas immediately adjacent to parks;
- reduction of 20% of South Chilcotin Mountains (Spruce Lake) park to allow for mining and tourism in the areas removed;
- removal (allegedly temporary) of lands in Mt. Robson park to run an oil pipeline through it;
- the massive number of IPPs and “run-of-river” projects that will affect conditions inside parks and fish and wildlife outside parks

**Time to re-organize and re-focus?**

Environmental groups like Canadian Parks and Wilderness Society, the Sierra Club, and the Wilderness Committee have remained focused on issues to do with parks, but likely the rest of us haven’t; not so much, anyway. It may be time to have a close look at BC Parks to see what’s needed to ensure the system can deliver the promise that many of us felt 20-30 years ago. Maybe it has been a case of “out of sight, out of mind” for much of the public that has allowed some of the reversals in recent years. It’s never wise to take anything for granted. The time may be ripe for “parks patriots” to regroup.



Maggie Paquet, biologist, writer, and editor, is the author of *Parks of British Columbia & the Yukon*, *The BC Parks Explorer*, and numerous articles about wilderness, parks, and the BC environment.

Many thanks to the Mitchells, Bill Merilees, and BC Parks for the use of their pictures.

**Summary of Park and Protected Area Designations**

Designation	Number	Area (ha)
Class A Parks	604	10,356,571.5
Class B Parks	2	3,778.0
Class C Parks	14	495.0
Recreation Areas *	7	57,756.9
Conservancies	143	2,115,262.0
Environmental and Land Use Act Designations	71	450,081.9
Ecological Reserves**	148	162,596.6
<b>Total</b>	<b>989</b>	<b>13,146,227.9</b>

Source:  
[www.env.gov.bc.ca/bcparks/aboutBCParks/prk\\_desig.html#ClassA](http://www.env.gov.bc.ca/bcparks/aboutBCParks/prk_desig.html#ClassA)

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# Trophy

## Hunting of Bears

by Ian McAllister, *Pacific Wild*

In April, the BC government once again opened the gratuitous sport hunt of bears in the Great Bear Rainforest and across BC. The genetically distinct Haida black bear is being targeted as well as the monarch of the rainforest – the grizzly. Even the coastal black bear that carries the recessive gene that produces the pure white bear, or Spirit bear, can legally be killed in over 98% of its range.

In 2007, 430 grizzlies were killed in BC, 363 of them by sport hunters, making the year the highest rate of hunter-caused mortality of this iconic bear since records have been kept. In 2009, approximately 300 grizzly bears were killed. These sad statistics put the lie to the provincial government's own description of grizzlies as "perhaps the greatest symbol of the wilderness" whose "survival will be the greatest testimony to our environmental commitment." Many of these bears are killed within the 60 provincial parks and conservancy areas where it is still legal to trophy hunt bears and a disturbingly large percentage of the bears killed are reproductive -aged females.

Conservationists and independent scientists have been saying for years that the grizzly sport hunt in its current form reveals a provincial government sorely out of step with reality on three fronts – grizzly bear science, economics, and public opinion. First

Bears are imbedded in our culture and society; they symbolize the natural world that BC is so blessed with. Yet, British Columbia continues to kill our great bears for sport, pleasure and profit.



**Mom and Cubs**  
Photo Ian McAllister

Endangered Wildlife in Canada), the federal *Species at Risk Act (SARA)* and the British Columbia Conservation Data Centre consider grizzlies a species of special concern.

In 2004 the European Union banned the importation of grizzly bear parts from BC over concerns that bear popula-

tions are not being managed sustainably. While grizzlies are listed as a species of special concern in Canada, they receive no legal protection under provincial or federal law. Government policy makers continue to use flawed methodology, speculation and conjecture instead of peer-reviewed science to establish grizzly bear population estimates. They argue that grizzly bear hunting is important economically when it is abundantly clear that bears are worth more to the economy alive than dead. They also say there

Nations have been pleading with the government to stop the hunt because, as Art Sterritt from Coastal First Nations describes: "This is not a sport, it is a senseless slaughter. The trophy hunt goes against every moral teaching that we carry and is disrespectful to our culture and values."

For decades, wildlife management and regulation has been governed more by politics than by anything resembling sound scientific reasoning, despite the fact that COSEWIC (Committee on the Status of

is a social or historical imperative to maintain the hunt, when it is also obvious that a majority of British Columbians and international tourists would rather see our bears alive and protected.

### Flawed Science

Male grizzlies have large home ranges, as large as 4,000 square kilometres, making them extremely susceptible to habitat fragmentation through resource extraction and road building. In this light, sport hunting can have a critically detrimental impact. Because grizzlies reproduce slowly, they also recover slowly from human-induced mortality. Furthermore, the use of boats, trucks, and blinds to stalk bears, as well as the practice of baiting of bears have, in some cases, created a modern hunt that is too efficient, tipping the balance dangerously in favour of humans.

On this point, a critical review of the BC government's 1994 Grizzly Bear Conservation Strategy, written by renowned bear scientists Drs. Brian Horejsi, Lance Craighead, and Barrie Gilbert, is as relevant today as when it was first released in 1998. As the authors wrote more than 10 years ago, "the history of population estimates in BC has consistently erred on the side of under-estimating mortality and over-estimating population size." Early estimates were based on the number of bears killed, which was arbitrarily set at a mortality rate of 5%, meaning, absurdly, that the estimated population always matched the mortality.

Between 1972 and 1979, the province declared the total population of grizzlies to be 6,660. In 1990, that number doubled to 13,160, using the same flawed habitat suitability-based model. Today, government continues to increase the estimate and has recently increased acceptable human-

caused mortality rates to 9%. Essentially, the BC government has found that it is much easier to artificially increase the number of bears in BC and subsequent mortality targets than to protect bear habitat or eliminate the hunt.

In 2007, Kootenay-based wildlife biologist Dr. Michael Proctor used a method called DNA mark and recapture to survey grizzly bears in the Purcell Mountains. He came up with "estimates considerably lower than Provincial estimates." Where

Well over 2000 grizzly bears have now been killed for sport in BC because of Premier Campbell's crass political knee-jerk reaction to an NDP decision.

government biologists said that grizzly bears were at 93% of their habitat potential in the Central Purcell Mountains, Proctor's results indicated a much lower number at roughly 54%, putting bears in this region of southeastern BC close to the 50% mark – the threshold for threatened status. Proctor's research is particularly significant considering that the province used inflated grizzly bear population estimates as a cornerstone for its environmental approval of the controversial Jumbo Glacier ski resort proposal.

Political interference has also trumped science when it comes to following through on commitments to establish special management areas for grizzly bears. As far back as 1998, Drs. Horejsi, Craighead, and Gilbert noted that the British Columbia Grizzly Bear Conservation Strategy did well at documenting the threats facing grizzlies, but lacked the necessary regulatory teeth to implement landscape-based conservation measures. Indeed, as the reviewing scientists noted, the government highlighted the strategy's own limitations when

it candidly admitted that it would not impose any new regulatory limitations on land use, such as logging, mining, and other industrial scale development, to protect grizzly bears.

Early in 2001, following widespread public outrage over grizzly bear mismanagement and government incompetence on this issue, the outgoing New Democratic Party heeded the demands of 68 professional biologists and established a three-year moratorium on hunting grizzly bears "pending completion of comprehensive population studies in the province's six bio-regions." Just six months later, one of the first acts of the newly elected BC Liberals was to reinstate the trophy hunt. "The previous New Democratic Party government imposed the three year moratorium for political reasons," then Water, Land and Air Protection minister Joyce Murray stated disingenuously. Well over 2000 grizzly bears have now been killed for sport in BC because of Premier Campbell's crass political knee-jerk reaction to an NDP decision.

### False Economics

The second pillar of government grizzly bear management to crumble is economics. The continuation of grizzly bear sport hunting for the benefit of a handful of guide-outfitters and wealthy, mostly foreign, clients is predicated on some troubling and false assumptions about the economic benefits of grizzly bear hunting versus viewing. The enduring provincial government myth that the grizzly bear sport hunt is an important economic contributor fails to hold up under scrutiny, as a 2003 study by conservationists suggests. While direct revenue from the grizzly bear hunt is estimated to be approximately \$3.3 million, grizzly bear viewing currently brings in roughly \$6.1 million. Dean

*Continued on Page 30* ⇨

⇐ *Bears continued*

Wyatt, owner and manager of Knight Inlet Lodge, says he has hosted 16,000 guests since 1998, when he bought the lodge and introduced bear viewing to the Glendale River and estuary.

“Our guests are shocked when they hear that we’re shooting grizzlies. Many of these people come from countries that have lost most of their large carnivores,” Wyatt says of his mostly British, Australian, and European clientele. “The government has always thrown economics in our face, now we’re proving that there’s more money in viewing.”

There’s no doubt, provincial government policy shows a bias against grizzly bear viewing even though the sector is expected to grow in economic importance and proposes a much more sustainable and humane way for the general public to enjoy grizzlies than a limited entry sport trophy hunt. The Commercial Bear Viewing Association of British Columbia lists 11 member companies and the industry is growing exponentially.

**Flaunting Public Opinion**

Clearly, BC citizens expect much more in terms of protecting grizzly bears. In fact, while wealthy trophy hunters fly in from around the globe to shoot bears in BC, an overwhelming

majority of citizens are in support of an outright ban on grizzly bear sport hunting in British Columbia. According to a random poll conducted by Ipsos Reid in 2009, 79% of British Columbians oppose the trophy hunt of bears in the Great Bear Rainforest. Five other polls have been done since 2000 on this issue, and they all show

Early estimates of the grizzly bear population were based on the number of bears killed, which was arbitrarily set at a mortality rate of 5%, meaning, absurdly, that the estimated population always matched the mortality.

the vast majority of British Columbians oppose the trophy hunt, including a majority of BC-registered hunters.

British Columbia supports one of the greatest diversity of bears in the world, however, our government continues to treat bears as an expendable resource. The science behind the population estimates on which annual hunting rates are based is flawed, and arguments in support of grizzly bear hunting are based on false assumptions about the economic importance of the hunt. Clearly, a growing number of people believe it is time to end the

trophy hunt before these animals are pushed to the brink of extinction or extirpated as they have been elsewhere in the continent.

Why do we allow the bear hunt to continue? This question has been put to government by over 100,000 people in recent months, and they have yet to be provided with an answer that addresses the three pillars outlined here.



Ian McAllister is the co-founder of Pacific Wild, [www.pacificwild.org](http://www.pacificwild.org), a wildlife conservation group based out of the BC central coast. He is a co-author of the recently released *Salmon Bears, Giants of the Rainforest*, (Orca Books).

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It's been 20 years since the *Watershed Sentinel* began as a photocopied newsletter on Cortes Island, BC and in celebration of the ideas, news and people that shaped us, over the next few issues we'd like to take you on a walk down memory lane.

SOCIETY

# A Look Back at Recent History



by Susan MacVittie

*In the beginning...*

It was the winter of 1990 and MacMillan Bloedel, one of the largest forestry companies in BC, had volunteered to share their five-year logging plan with the small community of Cortes Island. The Cortes Island Forest Resource Committee was formed to discuss options to clear-cut logging on the Island and represent the views of the community to MacBlo and the Ministry of Forests. What better way to bring information to Cortes residents than a series of newsletters that were produced by our now infamous WS Editrix, Delores Broten. After a blockade, a successful survey to support a moratorium on clearcut logging (75% in support!) the Cortes community entered into a decade of negotiations over the details of a few small experimental cuts, explorations of eco-forestry with Herb Hammond and the Klahoose First Nation, but the situation remains unresolved to this day.

In the course of producing the newsletter, Delores had received a lot of information across her desk (and still does) that pertained not only to forestry issues, but fisheries, toxins, sustainable living, and a slew of other topics that were interconnected and needing to be shared. Ideas for a local environmental magazine became a reality in January, 1991, with the first issue of the *Watershed Sentinel*.

Published by the Friends of Cortes Island, volunteers contributed ideas, stories, artwork, money, time and support to the 12 page magazine that was photocopied on recycled paper and distributed to community outlets on Cortes and neighbouring Quadra Island. After wearing out a couple of photocopy machines, it was decided that a proper press job was needed, as well as the addition of subscription forms, since people from off-Island kept requesting copies. The *Watershed Sentinel* was on to something!

## What's in a Name?

Twenty years ago the word 'watershed' was hardly heard, and stream stewardship groups were in their infancy. Delores' partner, Don Malcolm, came up with the name, the *Watershed Sentinel*. As the editorial from the first issue explains, "We all live in a watershed; we all live in a series of watersheds nested inside one another like Chinese

boxes. Water runs from the land and road beside my house into the ditch, which drains into the creek, which tumbles its way into the sea at Whaletown Lagoon....When we each look after our watersheds, the earth will look after herself. And us."

The interconnectedness of nature is reflected in the web of topics over WS's first year. A peek into the second issue reveals local news such as the Cortes Firehall rezoning and updates from the Cortes Forest Committee alongside articles on BC Social Credit government's bid for bulk water exports, the Manantlan Biosphere Reserve in Mexico and a detailed definition with hand drawn graphics of the chemical, benzene.

## Then @ Now

### Jan/Feb 1991

**Then**

The Social Credit government of BC had over 20 applications for bulk water export licenses which would put water under the terms of the Free Trade Agreement.

**Now**

In 1995 BC legislated to prohibit bulk water exports.

### Aug/Sept 1991

**Then**

Blockades and legal action, by the Western Canada Wilderness Committee and other activists, against logging by MacMillian Bloedel in the Tsitka Valley, home to Robson Bight whale rubbing beach on Vancouver Island, BC, are on-going.

**Now**

Most of the watershed is clearcut, except Lower Tsitka Provincial Park created in 1995, 3,745 ha.

### Feb/March 1992

**Then**

"Carbon, CO<sub>2</sub> and Commodity Forests" by Bruce Davies is one of the first discussions about carbon storage in old growth and how clear cutting contributes to carbon dioxide.

**Now** Canada promises to reduce greenhouse gas emissions 20% by 2020 – the discussion on carbon capture and storage continues...

**Feb/March 1992**

**Then** BC Government gave approval to the sale of cutting rights in Clayoquot Sound.

**Now** Summer of 1993, Clayoquot Sound became the site of one of the largest civil disobedience campaigns in Canadian history. In 1995 BC government adopted a Science Panel’s recommendation to end clear cut logging in the Sound. January 2000 designation of the Clayoquot Sound UNESCO Biosphere Reserve. The Friends of Clayoquot continue to take action – this time it’s Imperial Metals application for an open pit copper mine on Catface Mt. within the Reserve, across from the town of Tofino, and the Science Panel recommendations still aren’t fully implemented, in Clayoquot or anywhere else in BC.

**Oct/Nov 1992**

**Then** The Kemano Completion Project proposes to divert more of the Nechako River, BC to run Alcan’s aluminium smelter at Kitimat.

**Now** NDP government cancelled the project in 1995.

**Feb/March 1993**

**Then** Denman Island residents rally to save Lindsay Dickson Forest from development.

**Now** In 2001 the province of BC acquired the 134 acre Lindsay Dickson Forest and transferred it to Islands Trust Fund for preservation.

**June/July 1993**

**Then** Bilateral panel ruled restrictions on BC raw log exports are an “unfair subsidy” under Free Trade Agreement. Canadian Trade Minister, Council of Forest Industries, Canadian Pulp & Paper Association and International Woodworkers of America-Canada rejoice.

**Now** Forest industry reps, government and workers ask for ban on BC raw log export, but raw log and chip exports are now over 10% of the cut and still rising.

**Dec94/Jan95**

**Then** MacMillan Bloedel pulp mill at Powell River experienced the worst chlorine accident in BC history – we almost scooped the *Vancouver Sun* on this story!

**Now** The kraft mills in BC and North America are still using chlorine dioxide gas.



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Did you know that many of our feature writers (and for that matter, all those who contribute to the nuts and bolts of getting this magazine into your hands) volunteer their time and talents? We’d like to change that. So if you like what we’re doing, please consider contributing to our new Writers’ Fund. It’s easy – use the insert to mail in a donation or click on the donate button on our website [www.watershedsentinel.ca](http://www.watershedsentinel.ca)

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And please, write to us once in a while and add your voice to the Watershed Sentinel.

Thank you for your support,  
Delores Broten, Editor



## Chernobyl – The Watershed



Chernobyl: Consequences of the Catastrophe for People and the Environment, Yablokov et al, eds, Wiley-Blackwell, 2010. ISBN: 978-1-57331-757-3 US \$150/CDN \$180, 400 pages, ppb. Also available as

Annals of the New York Academy of Sciences, Volume 1181, [www.nyas.org](http://www.nyas.org),

*Reviewed by Anna Tilaman and Gordon Albright*

The explosion of one of the reactors of the Chernobyl nuclear plant in the Ukraine on April 26, 1986, almost 25 years ago, could well have been the beginning of the end of the nuclear industry. It most certainly was a watershed for millions of people, changing their lives and their environment in the most dramatic way, essentially forever. Emissions from the explosion of this one reactor alone were a hundred times greater than the radioactive contamination from the bombs dropped on Hiroshima and Nagasaki. The fallout has covered the entire Northern hemisphere.

In April 2005, just prior to the 20th anniversary of the Chernobyl disaster, the World Health Organization (WHO) and the International Atomic Energy Agency (IAEA) published the *Chernobyl Forum*. Advertised as “the fullest and objective” review of the consequences of the Chernobyl accident, this report was based primarily on about 350 western research papers. It virtually ignored the findings of some 30,000 scientific papers prepared by scientists working and living in the stricken territories. Instead, it relied on input from “experts” representing international bodies (WHO, IAEA, the United Nations Scientific Commission on the Effects of Nuclear Radiation (UNSCEAR)), and the nuclear energy industry.

The report greatly downplayed the effects of the Chernobyl explosion both locally and worldwide. Its shortcomings were too egregious to be left unchallenged.

This motivated a group of scientists who were heavily involved in the aftermath of the Chernobyl disaster to begin the enormous task of assembling the findings of thousands of published articles that were for the most part available only within the former Soviet Union or Eastern Bloc countries, and were not accessible in the West.

The culmination of this work is *Chernobyl: Consequences of the Catastrophe for People and the Environment* (Annals of the New York Academy of Sciences, Volume 1181). The senior editor and author is Alexey Yablokov (Centre for Russian Environmental Policy, Moscow), with co-authors Vassily Nesterenko and Alexey Nesterenko (In-

Physicians were restricted from calling any medical findings radiation-related unless the patient had been a certified “acute radiation sickness” patient during the disaster

stitute of Radiation Safety, Minsk, Belarus), all very eminent scientists.

This volume is based on more than 5000 published articles, primarily in Slavic languages, by researchers who observed and documented the Chernobyl catastrophe. Although the authors modestly acknowledge that this volume is not comprehensive, since new studies are continually being published, they still felt it should be released because “...it is necessary for humankind to deal with the consequences of this, the largest technological catastrophe in history...” Nevertheless, this volume is the most comprehensive review of the health and environmental consequences of the 1986 Chernobyl disaster to date.

At the time of the Chernobyl disaster, Vassily Nesterenko was Director of the famous Institute of Nuclear Physics of Minsk, Belarus. The day after the accident, he flew over the burning reactor. He was also one of the eight hundred thousand “liquidators” brought in to the site to contain the escaping radiation. Together with the Nobel Peace Prize winner Andrei Sakharov, he ended his professional nuclear career to work tirelessly, against enormous government resistance, to protect people, children above all, from Chernobyl’s radioactive dangers.

More than three billion people inhabit areas contaminated by Chernobyl’s radionuclides. Radioactive contamination from the Chernobyl meltdown spread over 40% of Europe and wide territories in Asia, northern Africa, and North America. Nearly five million people (including more than one million children) still live with dangerous levels of radioactive contamination in Belarus, Ukraine, and European Russia.

In the words of the authors, “There is no reasonable explanation for the fact that the International Atomic Energy Agency and the World Health Organization (Chernobyl Forum, 2005) have completely neglected the consequences of radioactive contamination in other countries, which received more than 50% of the Chernobyl radionuclides, and addressed concerns only in Belarus, Ukraine, and European Russia.” The authors systematically explain the secrecy conditions imposed by the government, the failure of technocrats to collect data on the number and distribution of all of the radionuclides of major concern, and the restrictions placed on physicians against calling any medi-

cal findings radiation-related unless the patient had been a certified “acute radiation sickness” patient during the disaster, thus assuring that only 1% of injuries would be so reported. Government technocrats also did not mention many serious diseases caused by the Chernobyl accident, such as nasopharyngeal problems caused by burning uranium, the radioactive fallout that resulted in general deterioration of the health of children, wide spread blood and lymph system diseases, reproductive loss, premature and small infant births, chromosomal mutations, congenital and developmental abnormalities, multiple endocrine diseases, mental disorders and cancer.

This report vividly documents the immediate effects of radiation exposure on many millions of people, and the contamination of their land. “More than 20 years after the catastrophe, by virtue of the natural migration of radionuclides the resultant danger in these areas has not decreased, but increases and will continue to do so for many years to come.” But the report also demonstrates that the spread of

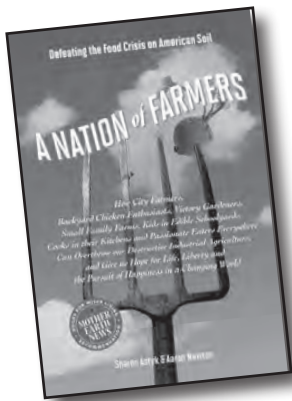
More than three billion people inhabit areas contaminated by Chernobyl’s radionuclides.

deadly radionuclides from this single nuclear accident will harm life throughout the world for centuries.

In her review of the book, Dr. Rosalie Bertell stated that “this book is a ‘must read’ for all of those bureaucrats currently promoting nuclear power as the only solution for climate change. Those who seek information on the disaster only from the official documentation provided by the IAEA, WHO and UNSCEAR need to broaden their reading to include the reality check from those scientists who have access to local findings and are simply telling the truth, with no hidden propaganda agenda.”



Anna Tilman is an activist and researcher who has written the Yellowcake Trail series for the *Watershed Sentinel*.



## Defeating the Food Crisis

*A Nation of Farmers*, Sharon Astyk & Aaron Newton, New Society Publishers, ISBN 978-0-86571-623-0; US/Can \$19.95, 393 pages, ppb

Reviewed by Maggie Paquet

Subtitled “Defeating the Food Crisis on American Soil,”

the information in this book is just as applicable to Canada. We are a more northern country, most areas have a much shorter growing season than in the US and, more to the point, an awful lot of our food is imported.

This book is all about reducing the scale of agriculture and transforming it back into farming. This will not only feed people better, and more healthfully, it will feed the souls of those who produce the food and those who consume it.

Industrial agriculture – agri-business – costs us more than our health. It concentrates power and big bureaucracy, uses up a lot of land, contributes in a major way to pollution, sustains the oil industry, and uses water in often very unsustainable amounts. And it supports the Big Lie – the one that, as the authors say, is repeatedly drummed into our heads by the vested interests who tell us “we cannot make real and deep and radical change in our way of living, even if it is the right thing to do.”

Recent movements to eat locally grown food, such as the 100-Mile-Diet, and the proliferation of farmers’ markets are clear evidence that a lot of people are increasingly fed up with going to their local supermarket only to find tasteless strawberries on steroids and meat and dairy products laced with hormones.

Another response to increasing health concerns is high consumer demand for organic foods. But how organic is the “organic” food in your local grocery store? Unless you know where your food is grown, you can have no real guarantee of its quality – organic or not.

This book has some amazing references, wonderful quotes, downright great information, and is a fascinating read. Invoking the courage, knowledge, and hard work of early Americans, the authors relate the need to reinstate what was once widespread knowledge about how to grow and use food. We need to do the same here in Canada.

From food to history to philosophy to politics, readers are challenged to make big changes about food. The authors would like to see at least a third of Americans grow some percentage of their own food – that’s 100 million farmers. We’d like to see at least 10 million Canadians take up this challenge.



Maggie Paquet is a biologist, writer and editor, who has written numerous articles for the *Watershed Sentinel*.

# Change Down on the (Fish) Farms

The conversation has changed, and we are on the cusp of an enormous shift in fish farming

by Ruby Berry, Georgia Strait Alliance

If the wild salmon are going to survive, the open net cage farms must get out of the water. If the salmon aquaculture industry is to survive, it must get into closed containment.

Most British Columbians are calling for this transition. But what does it mean and how close are we to making it happen?

Only two years ago, government and industry were claiming that growing salmon in tanks was an impossibility and would never happen.

## Sales at Overwaitea

But times have changed and we are on the cusp of an enormous shift. Overwaitea Food Group has committed to switching to selling farmed salmon only if it is grown in closed containment. You can now buy salmon grown entirely in tanks at their Save-On-Foods stores, at comparable prices to open net cage farmed Atlantics, and the company is still turning a profit. Numerous commercial scale closed system salmon farms are being planned and developed in BC, and Marine Harvest has posted a position for a Project Manager for a closed containment pilot salmon farm. Most noticeably, the conversation has changed from dismissive to problem solving. It's beginning to feel like a gold rush.

The key to closed system aquaculture is control of the interactions between the wild and the farmed. Systems which allow control of water intake, water and waste outputs, and separation from surroundings, will reduce and actually eliminate a number of current problems:

- No longer will there be the danger to the environment and wild salmon from high levels of disease, sea lice, escapes, fish waste, and marine mammal entanglement.
- The farms will be protected from increasingly dangerous ocean conditions such as algal blooms, storms and possible attack from invasive species, such as in Ireland, where an entire farm was wiped out by jellyfish – twice.
- There is also virtually no risk of the farm fish contracting and spreading disease and parasites, resulting in minimal use of antibiotic or pesticide use.

The one major problem of farming salmon which closed containment does not address is that of feed. As salmon eat other fish, currently the feed is being made from whole fish caught for this purpose, consuming more fish by

Overwaitea Food Group has committed to switching to selling farmed salmon only if it is grown in closed containment.



Corey Peet

Closed containment salmon technology

weight than is produced. This must be addressed if salmon farming in closed containment is to be truly sustainable.

Closed system salmon aquaculture has the potential to develop in some very different ways: from small artisan farms for the local specialty market to major operations mirroring the current export industry.”

## On Land or Sea

Commercial scale closed contained salmon will be grown in tanks on land or in the ocean.

Tanks in the ocean employ flow-through technology, reducing disease and sea lice transfer, by bringing sea water from depths, and collecting the waste before releasing the water back into the ocean. Land-based systems use either fresh, or brackish (combination of fresh and salt) water, likely from wells, upwards of 90% of which is treated and re-circulated. This allows for the optimization of temperature and oxygen levels. The operator

can essentially replicate summer for the fish, resulting in healthier, faster growing fish.

Both forms require more sophisticated equipment than open net cage operations, but can be located on the grid, near processing facilities and the labour force. No longer will employees have to live away from home while on shift.

An additional benefit is the opportunity to use the ‘waste’ from the farms to grow other food crops. At the moment an astounding amount of this valuable fertilizer component is indeed going to waste, and fouling the ocean at the same time. For every pound of fish produced, the waste generated can grow the equivalent of six heads of lettuce. This technology could provide coastal communities with jobs, fish income and fresh vegetables.

We have a wealth of expertise and motivation to address the few remaining challenges. The only real hurdle remaining is political will. The federal government supports the current open net cage industry financially in a number of ways. This could easily be shifted to support a transition to closed containment technology.

Let your government know that you want this to happen – to protect the wild salmon, the wild marine environment, and the economy and jobs of the coastal communities.



See [www.georgiastrait.org](http://www.georgiastrait.org) for more information



by Maryjka Mychajlowycz, Friends of Clayoquot Sound

The spring of 2010 marks 25 years since Meares Island in Clayoquot Sound was saved from logging by Friends of Clayoquot Sound, Tla-o-qui-aht and Ahousaht First Nations, Tofino locals, and lots of public support.

In 1977, locals got wind that MacMillan Bloedel planned to log Meares, Clayoquot Sound’s second largest island at 8,300 hectares, as well as Tofino’s water source and view, and the home of Tla-o-qui-aht First Nation.

Although 99% of the island was (and still is) allocated in logging tenures, almost all of Meares’ ancient temperate rainforest remained intact because logging companies hadn’t got to it yet. Locals organized against the Meares logging plan and Friends of Clayoquot Sound was incorporated as a non-profit society in 1979.

In November 1983, the BC cabinet declared a ‘compromise’ solution, giving logging companies the go ahead to log 90% of Meares, and deferring for 20 years logging on the remaining 10%.

Friends of Clayoquot Sound decided to resist any attempt to log Meares. They organized a well-attended Meares Easter Festival in April 1984 and cleared what became the Meares Island Big Tree Trail, still in use today. A highlight of the Easter Festival was Tla-o-qui-aht First Nation’s declaration of Meares Island as a Tribal Park.

A Tribal Park sign and a cabin were erected on Meares later in 1984. On November 21st a historic standoff occurred – sixty stalwart protesters, natives and non-natives, greeted MacBlo loggers when they landed ashore. The protesters stood their ground and the loggers turned and left.

MacBlo immediately applied for a court injunction to make it illegal to interfere with their operations on the island. Tla-o-qui-aht and Ahousaht First Nations countered with an injunction, based on their aboriginal title, prohibiting any MacBlo operations on Meares.

The First Nations injunction, originally dismissed and then appealed, was upheld by the BC Court of Appeal on March 27th, 1985. Meares Island was safe and jubilation ensued. To this day, the March 1985 injunction decision protects Meares from logging and other development. In 1994, the First Nations Meares land claim court case was adjourned indefinitely, with the injunction in force, and Meares Island became part of treaty settlement. In their current treaty negotiations, Tla-o-qui-aht continue to consider Meares Island a Tribal Park. The magnificent ancient forest of Meares appears safe for the foreseeable future!



# More From Our Readers

## Greenwash of Logging

Let me get this straight.

Company A logs a hectare near Prince George. On average that removes 100 tonnes of carbon from the forest. Then there are the emissions from logging, clear cuts remain a carbon source for at least 8 years after logging, even accounting for regrowth.

To replace the lost carbon will take 125 years. The additional carbon from the industrial activity is external to the forest system and cannot be recovered by the forest.

Less than 15% of the wood makes it into wood products lasting over 5 years, never mind the 125 year rotation.

When made into pellets and burned, the carbon footprint is increased by 50%, and when shipped to Europe the carbon footprint is doubled, to 200 tonnes per hectare. In fact, for the next 60 years burning pellets puts more carbon into the atmosphere than burning natural gas.

According to the Pacific Carbon Trust none of this carbon exists. All of this released carbon is “neutral,” declared nonexistent by government. The ecosystem doesn’t know this carbon doesn’t exist, it goes on making CO<sub>2</sub>.

Then the final insanity. After clearcutting and releasing all this carbon, the companies will now be PAID to plant GMO trees and dump fertilizer on the soils, which is in itself a carbon intensive process.

This is the Greenwash of the Low Carbon Economy.

It is time to hold this government accountable for deceit sanctioned by current forest policy re: carbon emissions. In future such policies will be judged as criminal.

*Dave Neads, Anahim Lake, BC*

## WTE Contracts

I’d like to add another emphasis to the Waste to Energy critics. Two “C” words: Conservation and Contracts.

First, the only energy source that is remotely sustainable is Conservation. In BC, we have the distinction of being some of the greatest wasters of electricity anywhere. The potential to produce “new energy supply” from conservation is where we must concentrate. Data shows that we could supply electricity needs for another 25 years in BC from the capacity we already have by being smarter and more modest in our demands. Improving buildings to use less heat is the only remotely sustainable solution.

If waste-to-energy plants are built to “exploit this wasted resource now going to landfills” as the proponents say, doesn’t that further diminish the already weak incentives to conserve? Especially once WTE suppliers put purchase contracts in place. Unlike our hydroelectric system, you can’t slow down a combustion plant when demand

drops, as it does overnight. Somebody has to keep buying that power, or the operator can’t afford to run the plant.

Contracts, the other “C” word, in order to invest in a WTE plant, an operator must have reliable long term contracts to supply them with waste as fuel. Municipal waste collectors will have to meet their quotas. There goes years of hard-won gains in moving towards reducing the solid waste stream at source and through recycling. The contract says tonnes of combustibles have to be delivered, so a whole new lobby is created overnight to resist new packaging laws, producer responsibility, recycling incentives etc. Our provincial policies on solid waste reductions might have to be weakened just to serve the WTE industry.

We can’t move towards energy sustainability by just adding new energy sources to the stream. Every new source holds so many contradictions like these. We have to start to come to terms with our demands and expectations.

*David Rousseau, Cortes Island, BC*

## Poop 4 Power

Someone explain to me why the energy intensive process of hammering a drill bit two miles into the earth and then one or more miles horizontally makes economic sense. The economics of this process must be framed in a bubble by which the gas companies are subsidized by a tax process that covers their costs. We taxpayers not only pay taxes on the natural gas we buy, but we pay their cost of doing business as well. The cost of diesel goes up as more of it is used to drill, so we pay more for the low energy methane product produced. You don’t need to be a “tree-hugger” to know when you’re getting had.

There are alternatives to shale gas drilling. It is just the economics are skewed so badly in favour of gas and oil, that the energy efficient processes are not happening. Millions of cubic feet of methane are produced every day from sewage treatment plants, landfills, and animal farms. Anaerobic bacteria in oxygen-free environments release methane instead of carbon dioxide. Machine shops could be manufacturing methane digestors for farms, municipal sewage plants, and landfills. The methane can be trapped, compressed and sent out the pipelines that presently exist. No depletion of the fossil gas, no depletion allowances paid. The farmers have an extra income on an on-going basis, and the cities and villages with sewage treatment systems reap an income to lower or at least stabilize taxes for services.

Ultimately, we need to shift over to a non-carbon Hydrogen economy. In the meantime, what is wrong with using poop for power instead of ripping up the beautiful neighbourhood where we live?

*Ruth S. Young, Horseheads, NY*



## *Imagination's Quickening, and the Curse that Damns Us All*

by Don Malcolm

From the primitive minting of those first crude coins in Asia Minor, somewhere in what is now present-day Turkey, money has led humanity on a path that, perhaps, we ought not to have followed.

The advent of those first coins, followed throughout the ages by the establishment of the monetary system, has quickened the greed of most of the population of our wonderful and beautiful planet, our only haven in an un-caring, insentient universe.

In its beginning, money did not spring into popularity immediately. It took some time for those early people to realize the value of those stamped bits of metal, at a time when it was easy to steal a few sheep or goats from a sleeping shepherd on the other side of the hill, to trade for a coat, or rug, or a weapon perhaps, if the amount of sheep or goats delivered, satisfied the weapons maker.

Thereby, with the minting of those first coins, primitive commerce was born.

In those early days, it would have been impossible to imagine where money would take humanity, along with all of earth's creatures – benefits, and hardships.

Copper, silver, and gold were minted into coins. Those who possessed or owned the coins carried them in sacks of various sizes, secreted out of sight, on the undersides of their garments. Sometimes a trusted slave, under close scrutiny and threat of whipping or death, carried the heavier sacks.

From coinage to paper money, and all of its constructs, mankind has worn and followed a destructive path, leaving behind waste and ruin, with little regard for recovery. Over the years we have returned, again and again, to our great forests to glean yet another premature harvest, with little regard for future generations of humanity and the wild creatures that live there. With impunity, we have dumped toxic chemicals into our lakes and rivers, putting at risk the fish that inhabit those waters, and the humans and animals downstream that might eat those fish, or drink the water. And we have done this with little thought for our home-

lands, and the planet that is home to all of humanity, and all of its creatures.

We have abandoned most of the railroads of our North American continent, built with the muscle and sweat, and in some measure, the very lives of men who built them, choosing instead to build more and more highways, to satisfy our love affair with the private automobile and the profits of the automobile industry.

As a monument to personal wealth, we build huge houses where, often, only a couple of people live, while homeless people sleep without shelter.

Humanity has come a long way since the minting of those first coins in Asia Minor. It's questionable whether or not we have learned anything significant in our journey.

In some places on our beautiful planet people wallow in conspicuous wealth and power, while just over the next hill children go to bed sick and hungry

Has the idea of money been both a boon and a curse to humanity...or a spider's web that captures and entraps all of us?



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Wilderness Committee

## Under the Owl's Wings

**S**outhwest mainland BC is home to over two million people. You'd think that with all the people who live here, quiet wild places would be hard to find. But that's not the case.

Drag your butt up on to the mountain-top ridges above Chilliwack Lake, or bushwhack to the headwaters of Gold Creek in Golden Ears Park or any one of several thousand other places and it's going to be you and the trees and critters. That's a good thing – especially for the critters!

But the main threat to wildlife in the mountains hasn't been crowds of weekend gawkers. It's tended to be smaller groups, mostly riding bulldozers and packing chainsaws. The logging industry has left its deadly mark on local wildlife habitat. Far too many river valleys in southwest mainland BC have had a logging road punched to the back of the watershed, with its forest cloak ripped to tatters by clearcut logging.

In such a wild and rugged landscape as ours, it's sometimes difficult to judge what effect all this logging has had on local wildlife populations.

A common way to judge the health of wild country is to choose a wild animal who is particularly sen-

sitive to habitat destruction. And by sensitive I don't mean the critter's feelings are hurt when its home is logged. I mean it dies out. We call such a wild animal an indicator species – which means that when its population

starts to go down, many of the other wildlife in the area may be the next to hit the old extinction slide.

In the southwest mainland we have a superstar indicator species. We have the Northern spotted owl.

**Back in the 1880s, there would have been about 500 pairs of spotted owls in the local forests. Now there are six.**

The health of the spotted owl reflects the health of its ancient forest habitat. In southwestern British Columbia, the only place the spotted owl is found in Canada, over 75 vertebrates (animals with a backbone) live in the same area as the spotted owl. Hiking in the ancient forests of southwestern BC, you can find Rocky Mountain tailed frogs, cougars, grizzly bears, cutthroat trout, fishers, white-tailed deer, hairy woodpeckers, black bears, flammulated owls, Northern goshawks, pileated woodpeckers, coho salmon and even the elusive marbled murrelet to name a few. However you will also find that 25% of these are endangered because of loss and fragmentation of their habitat by industrial logging.

So, how is Spotty the indicator owl doing?

Back in the 1880s when Vancouver was just getting started, there would have been about 500 pairs of spotted owls in the local forests.

In 1990 provincial and federal biologists estimated that the spotted owl population had declined to a pitiful 10% remnant with only 50 pairs left. This should have been an extreme wake up call for our provincial government – but the logging of the region's ancient forests continued.

In 2001 government biologists estimated that the spotted owl population had declined to only 25 breeding pairs. The chainsaws and bulldozers kept at it.

And now – finally in 2010, the International Year of Biodiversity – the BC government has placed some areas of southwest BC's ancient forests off limits to the logging industry in order to try to recover the population of spotted owls.

You may wonder how many are left in the wild. There are six. This year the BC government plans to capture two of them for their captive breeding programme. And then there will be four left in the wild – for now.

Spotty has been indicating for some time now that we need to ban the logging of all ancient forests. If we don't, we'll soon reach the point where we are talking about the last four grizzlies, or the last four salmon or the last four murrelets, or the last four goshawks – the last four of everything. If that happens, it will be a mighty lonely place I figure. We'll be left to try to imagine back to a time when all creation lived together under the owl's wings.

◆  
Joe Foy is Campaign Director for the Wilderness Committee, Canada's largest citizen-funded membership-based wilderness preservation organization.

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Sandcut Beach, photo: Sylvan Mabey

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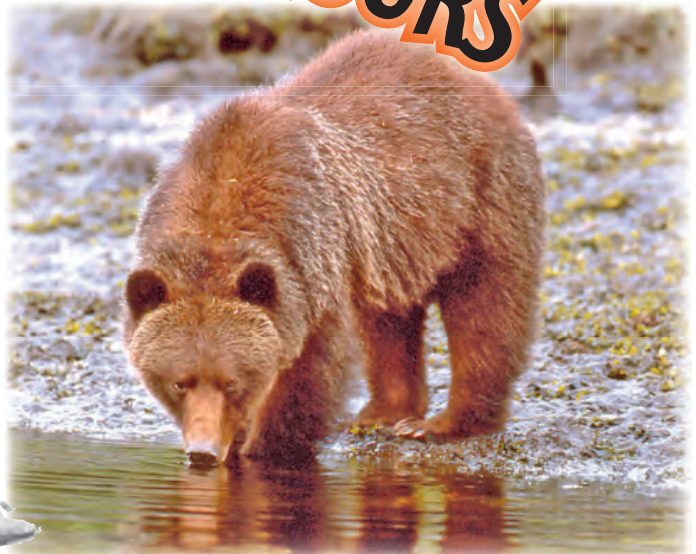
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