

ON NOTICE FOR A DRINKING WATER CRISIS IN CANADA

BY EMMA LUI

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Acknowledgments

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Photos

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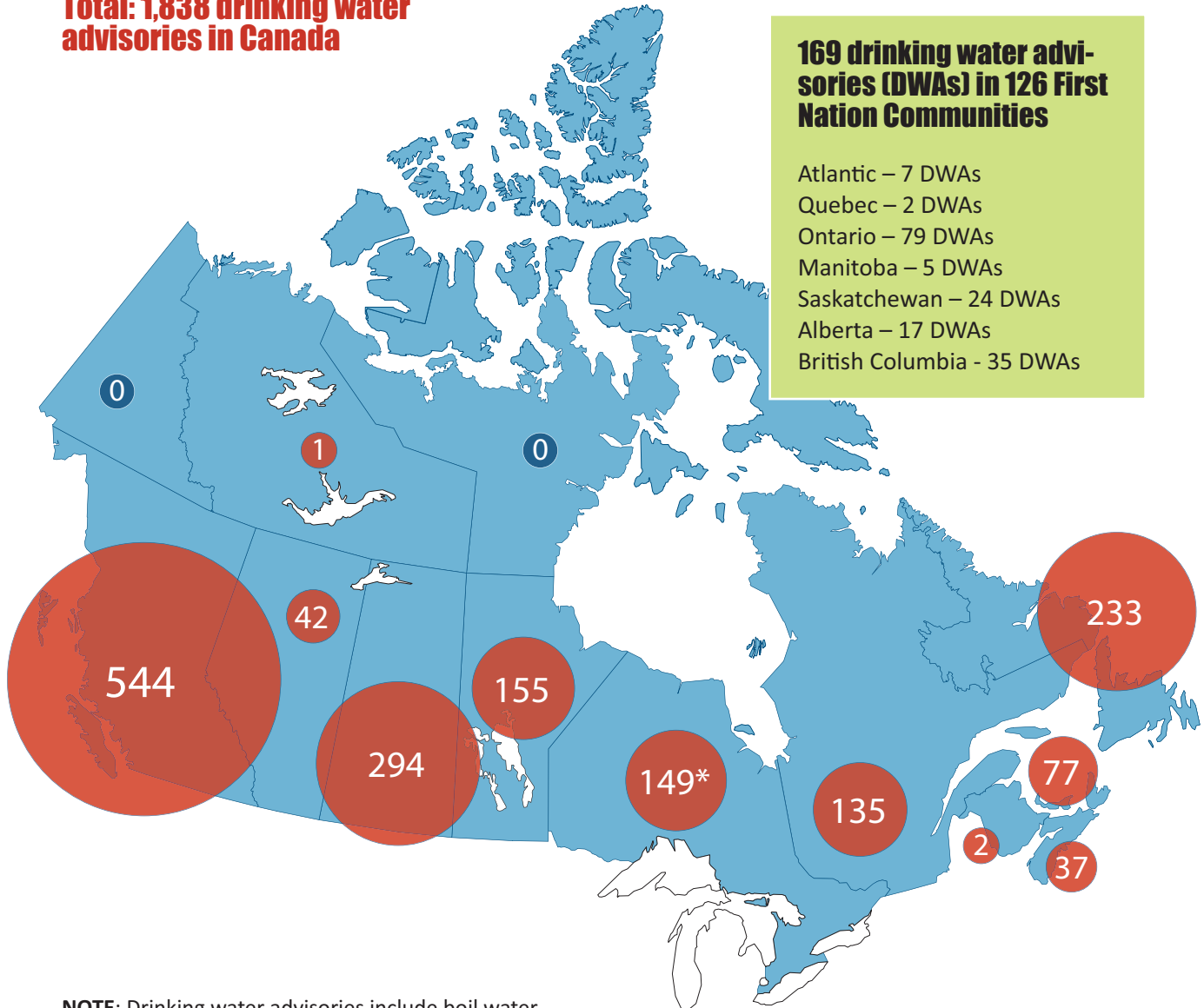
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Drinking water advisories by jurisdiction

Provinces and territories: 1,669

First Nations: 169

Total: 1,838 drinking water advisories in Canada



NOTE: Drinking water advisories include boil water advisories, water quality advisories, do not use/consume advisories, precautionary drinking water advisories, and any other advisory for drinking water.

*Information for Ontario only includes Boil Water Advisories.

INTRODUCTION

Water is a vital part of our day-to-day lives – we need it for drinking, sanitation and household uses. Communities need water for economic, social, cultural and spiritual purposes. Imagine having to boil water for everything you do in your home: to cook, clean, wash. Not being able to turn on taps and get clean, safe water is a problem that many families across Canada and in First Nation communities face – some for years at a time.

Lakes, rivers and groundwater are integral parts of ecosystems that provide drinking water, regulate the climate and sustain wildlife. Yet as of January 2015, there were at least 1,838 drinking water advisories in effect in Canada, including 1,669 drinking water advisories in communities across Canada and 169 drinking water advisories in effect in 126 First Nations communities.

Canada is the country with the third most renewable freshwater, holding roughly seven per cent of the world's renewable freshwater. However, weakened environmental legislation, damaging and polluting industries, and water privatization efforts are putting our water sources at risk. Governments and industries are putting drinking

water at risk by promoting fracking, mega-dams, mining, tar sands development and massive pipelines like the Energy East pipeline, and trade deals like Canada-European Union Economic and Trade Agreement (CETA), which pose ever-present threats to our lakes, rivers and groundwater.

In 2008, the Canadian Medical Association Journal found there were 1,766 boil water advisories in Canada (not including in First Nation communities).¹ Resource and development projects are being promoted across the country without updated information on the total number of drinking water advisories.

This report provides an overview of the drinking water advisories in each of the provinces and territories in 2015. It also provides a summary of the threats to drinking water sources across Canada. It shows that water must be put at the centre of all policy, as Maude Barlow recommends in her most recent book, *Blue Future*, if we are to protect it for current and future generations and that we urgently need an updated national water policy in Canada that ensures clean, safe water for everyone now, and for future generations.

A diesel spill in the St. Lawrence River affected nearly 300,000 residents of Longueuil, QC in January 2015. Photo: Flickr user le calmar, CC-by-nc 2.0



DRINKING WATER ADVISORIES IN CANADA



There were 1,838 drinking water advisories (DWAs) in Canada and First Nation communities as of January 2015. Most provinces and territories make information on DWAs publicly available on a website – only Ontario, Prince Edward Island and Nunavut do not. The number of advisories is not exhaustive as several health authorities note that not all DWAs are reported. However, this review does show that access to clean drinking water is tenuous in many municipalities and in Indigenous communities.

The provincial and territorial advisories are issued for different locales including municipal water systems, towns, apartment buildings, schools, parks, campgrounds, stores and restaurants. The majority of advisories in First Nation communities were for public and semi-public water systems with a handful of advisories in place specifically for a community centre and daycare, health centre and airport.

Drinking water advisories in Indigenous communities

As of January 2015, there were 169 DWAs in 126 First Nation communities.² Ontario has the highest number of DWAs for Indigenous communities (79), followed by British Columbia (35), Saskatchewan (24), Alberta (17), the Atlantic (7) and Quebec (2).

Most DWAs in Indigenous communities are boil water advisories. However, there are a handful of communities that are under “do not consume” orders including: Kitigan Zibi (Quebec), God’s Lake First Nation (Manitoba), Pinaymootang First Nation (Manitoba), Kahkewistahaw (Saskatchewan) and Shoal Lake First Nation (Saskatchewan). A 2011 access to information request noted that the reason for Kitigan Zibi’s “do not consume” order is because of an unacceptable level of uranium.³

The number of people affected by each DWA ranges from 0 to 5,000, yet for many communities the number of people affected is marked “unknown” on the Health Canada website. Some of the oldest advisories date as far back as 1995 (Neskantaga First Nation in Ontario) and 1999 (Kitigan Zibi in Quebec). Shoal Lake First Nation No. 40 has drawn media attention for its boil water advisory which has been in place for more than 17 years.

In June 2014, Health Canada began posting the names of First Nations communities that were under DWAs. However, they do not provide reasons for the DWAs. An access to information request from January 2011 listed various reasons for the DWAs including: “unacceptable microbiological quality, inadequate disinfection or disinfectant residuals, operation of system would compromise public health, significant deterioration in source

water quality, unacceptable turbidity [cloudiness] or particle count and equipment malfunction during treatment or distribution.”

Drinking water advisories in the provinces and territories

Out of British Columbia’s five regions, 79 per cent of the 544 advisories were in place in the Interior region, which includes Kootenay, Okanagan and Thompson/Cariboo/Shuswap.⁴ The length of the advisories varies, with some dating back to the 1990s. The reasons for the DWAs include: “source water contamination, inadequate disinfection/treatment, unacceptable microbiological quality, water quality failing to meet Canadian Drinking Water Standards, and unacceptable turbidity.”

The 42 DWAs in Alberta were caused by “negative pressure leading to stagnant water, which creates the risk of bacterial growth and pathogen infiltration, groundwater under the direct influence of surface water (GWUDI) and total coliform bacteria.”⁵ The Calgary zone has the most advisories out of Alberta’s five zones with “total coliform bacteria” listed as the cause for most of this zone’s advisories. Only information dating back to 2011 was available.

Saskatchewan has 294 DWAs, the earliest of which dates back to 2002.⁶ The reasons for the DWAs include “inadequate disinfection residual in distribution system, failure to meet minimum treatment/design requirements, equipment failure or damage and undetermined source of contamination, total coliforms and E. Coli being detected in drinking water system, and significant

deterioration of source water quality suspected or confirmed due to environmental conditions.”

In Manitoba, a total of 155 DWAs were in place in January 2015, including 85 DWAs in public water systems, 54 DWAs in semi-public systems, and 16 BWAs in area-wide private wells.⁷ There were no reasons provided.

It was very difficult to get information on Ontario’s DWAs. The advisories are not posted on a website. After several emails and phone calls, we received an email from a spokesperson for the Ministry of Health and Long-Term Care stating 149 boil water advisories were in place in January 2015. However, this does not include water quality, do not use/consume, precautionary or other drinking water advisories. There was no information given on the details, reasons or causes of the boil water advisories.

In Quebec, there were 135 DWAs.⁸ The southwest region of Montérégie had 25 DWAs, the highest number of DWAs among the 17 administrative regions across the province. The advisories date as far back as 2001 with “do not consume” advisories for two schools from 2003 and 2004. There are no reasons provided for the DWAs on the Développement durable, de l’Environnement et de la Lutte contre les changements climatiques website.

Nova Scotia had 37 boil water advisories for its public (individual) water supplies.⁹ Most were is-

There are multiple drinking water advisories in Wheatland County, AB. Photo: Jeff Wallace via Flickr, CC-by-nc 2.0



sued in the last two years with one dating back to 2004 for Margee Forks Waterline in Margee Forks, Inverness County.

The two DWAs in New Brunswick were in the Villages of Port Elgin and Doaktown (southside).¹⁰ The reasons were a malfunction of chlorination system and increased turbidity levels with both advisories lasting just over a month.

The number of DWAs in Newfoundland and Labrador is high for the province's small population. There are 233 DWAs in Newfoundland and Labrador,¹¹ a province with a population of 527,000 people. Compare that to the 294 DWAs in Saskatchewan, a province with a population of 1.1 million people. The number of people affected by each DWA ranges from 0 to 15,077. The oldest advisories date as far back as 1989 and the reasons provided include "lack of a disinfection system (off or non-existent), no free chlorine residual detected in water distribution system, water distribution system undergoing maintenance, and the chlorination system off due to taste."

Prince Edward Island does not publicly post its drinking water advisories on a website. After several attempts to gather this information, a representative from the province's Department of Health and Wellness returned our call and informed us that there were 77 DWAs across the island in effect in January 2015. Most of the DWAs were precautionary boil water advisories because of "total coliform bacteria." Five advisories were issued because of the presence of E. Coli. The advisories were for various sites including schools, community halls, churches, dairy farms

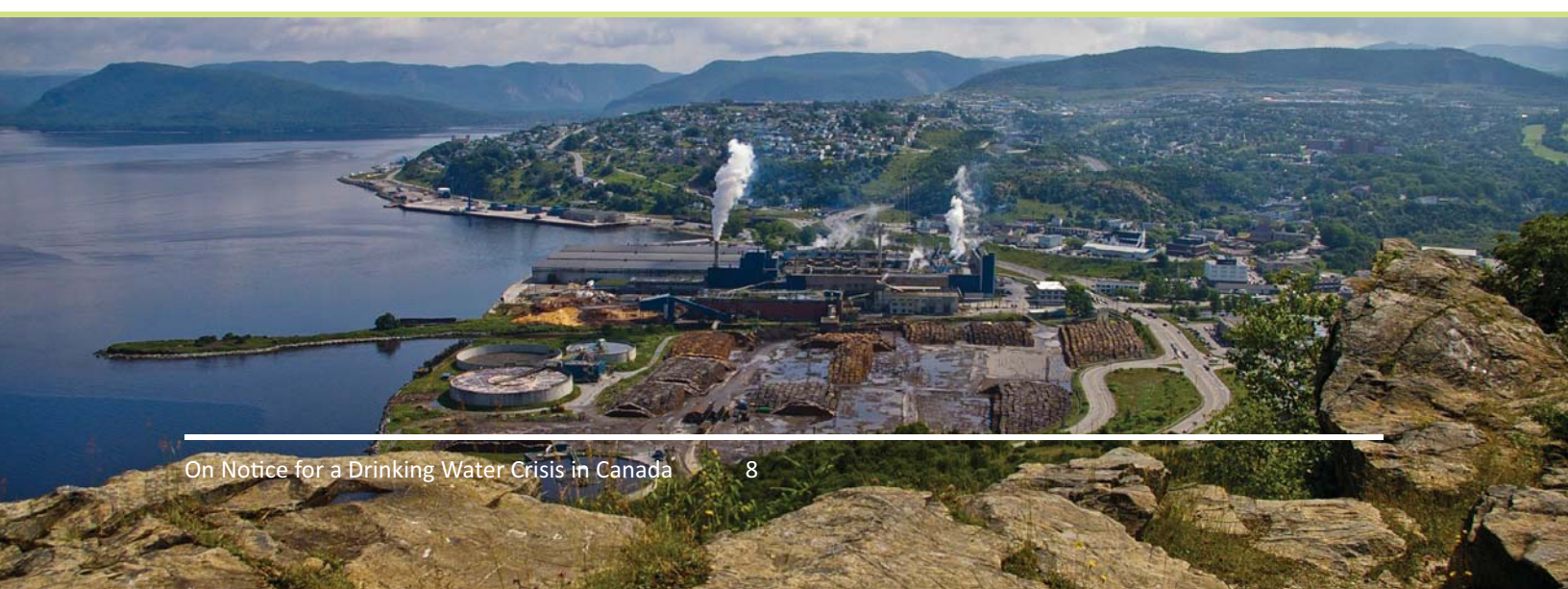
and seasonal tourism properties. CBC reported one DWA at Montague Consolidated School at the end of December 2014, which followed another advisory for the same school in November.¹² The representative noted that work is underway to hook Montague School up to a new water system. All advisories are issued because of bacteria and issued for a single drilled well as PEI gets all of its drinking water from groundwater. There were no DWAs for municipal systems. The Department of Health and Wellness does not collect data on DWAs for private homes. While homeowners are encouraged to test their well water, they are not required by the Department of Health and Wellness or Department of Environment to report any problems with their drinking water.

The Yukon did not have any DWAs in place in January 2015. Boil water advisories appear to be posted on the Health and Social Services website.¹³

The Northwest Territories had one DWA, which was posted on their Municipal and Community Affairs website.¹⁴

Nunavut does not publicly post their drinking water advisories. A representative of Environmental Health confirmed there were no DWAs at the end of January 2015.

A drinking water advisory in Cornerbrook, NL affects over 15,000 people. Photo: Flickr user Kino Praxis, CC-by-nc-sa 2.0



CURRENT THREATS TO WATER



The federal government

On July 28, 2010, 122 countries voted to pass a resolution at the United Nations (UN) General Assembly recognizing the human right to water and sanitation. On September 23, 2011, the UN Human Rights Council (HRC) passed a resolution on the human right to safe drinking water and sanitation and called on governments to develop comprehensive plans and strategies, assess the implementation of the plans of action, ensure affordable services for everyone, and create accountability mechanisms and legal remedies. The Canadian government finally recognized the human right to water and sanitation in June 2012 at the UN Conference on Sustainable Development, but has yet to implement this right.

The federal government has Guidelines for Canadian Drinking Water Quality, but needs to enact national, legally binding standards for drinking water to replace these guidelines. What's more, Ecojustice's 2014 report *Waterproof: Standards* found that Canada's drinking water standards continue to be below international benchmarks and are at risk of further falling behind.¹⁵

In addition to its lagging drinking water standards, the Harper government has been promoting water-intensive industries such as tar sands development and mining by gutting much needed envi-

ronmental legislation, cutting funds to critical water research, and muzzling scientists who conduct research on these polluting industries. The 2012 omnibus budget bills implemented sweeping changes to environmental laws and removed critical safeguards for water protection. The *Canadian Environmental Assessment Act* was replaced with a new act that eliminated 3,000 federal environmental assessments. The federal government also gutted the *Fisheries Act* and removed protections for 99 per cent of lakes and rivers by overhauling the *Navigable Waters Protection Act*.

Canada was founded on the traditional lands of Indigenous peoples. Indigenous peoples have occupied the lands, implemented their governance systems and laws, and have never relinquished rights to their lands and adjacent waters with the signing of treaties. Free, prior and informed consent must be obtained by governments and industry on activities affecting land and waters on indigenous lands and territories.

While the provinces and territories are responsible for municipalities' drinking water, the federal government is responsible for drinking water on First Nation reserves. As of January 2015, there were 169 drinking water advisories in effect in 126 First Nations communities.¹⁶ There are routinely more than 100 water advisories in effect,

with more than half of the advisories in place for between five to 15 years. These advisories in First Nations communities are a black eye for the Canadian government, pointing to the long-standing and systemic failure to provide clean, safe drinking water to Indigenous communities.

While there are more than 20 federal departments and agencies with different responsibilities for freshwater, there is no national strategy to address urgent water issues and no federal leadership to conserve and protect our water. The Federal Water Policy is more than 30-years old and badly outdated.

Canada urgently needs a National Water Policy based on the principles of water as a commons, a public trust, and a human right. The notion of the “commons” asserts that water is a common heritage to be shared, protected, managed and enjoyed by all. A commons framework requires a shift in water governance to prioritize the human right to water, public participation, and the inclusion of First Nations and other communities in decision-making processes. Public trust principles require governments to protect water sources for communities’ reasonable use, and to make private use subservient to community rights.

British Columbia

Potential spills by tar sands pipelines like Northern Gateway and the Kinder Morgan Trans Mountain pipeline pose a threat to the hundreds of lakes and rivers along their routes. Tankers to ship the tar sands crude put the coast at great risk.

B.C. is home to what’s known as the “world’s largest frack.” The province has seen a huge boom in fracking projects in its northeast corner that

put rivers, lakes and groundwater at risk from contamination at the well sites. Encana has applied to withdraw 10 million litres of water per day – roughly the average amount of water used by 30,000 people in Canada per day – from Fort Nelson River for its fracking project. The project, fervently opposed by the community, will seriously impact the river, which is the lifeline of Fort Nelson First Nation. These fracking projects, along with a multitude of pipeline projects, could fuel over 18 proposed Liquefied Natural Gas (LNG) plants along the West Coast. This could see the province giving away billions of litres of freshwater and have serious impacts on wild salmon rivers and marine environments.

In Hope, B.C., home of one of the two Nestlé plants in Canada, Nestlé had been bottling 250 million litres of water each year without paying for it. Changes to B.C.’s 100-year-old Water Act require companies to pay \$2.25 per million litres.¹⁷ The revised Water Sustainability Act fails to recognize water as a human right and public trust or respect a community’s right to say “no” to projects that abuse or pollute water.

The Site C dam in the Peace River Valley will impact freshwater resources, fertile farmlands, food security, wildlife, and indigenous rights and local communities and continues to be met by community and First Nation opposition despite receiving the B.C. government’s approval. According to the David Suzuki Foundation, the destruction of forests, which act as a natural filter for water, could drive up costs for local municipalities to provide drinking water.¹⁸

The proposed Site C Dam in British Columbia will flood this section of the Peace River Valley. Photo: Flickr user iducktape, CC-by-nc-sa 2.0



Imperial Metals, the mining company responsible for the largest mining spill in B.C.'s history – the ongoing Mount Polley Mine disaster – is moving forward with the much contested Red Chris mine in the Sacred Headwaters in northwestern B.C. It also has two mining projects proposed in Clayquout Sound – a copper mine at Catface Mountain in Ahousaht territory and the Fandora gold mine on Tla-o-qui-aht territory. The company also has the Ruddock Creek lead and zinc mine, which threatens some of the most important watersheds and salmon runs in Secwepemc territory, including the Adams River run, the world's largest remaining sockeye salmon run.

Yukon

While there is currently no fracking in the Yukon, the company Northern Cross has been conducting 3D seismic testing. There has been local opposition and the Council of Yukon First Nations, Vuntut Gwitchin First Nation and Kaska First Nation have all come out against fracking.

The Yukon legislature created the all-party Select Committee Regarding the Risks and Benefits of Hydraulic Fracturing, which released its final report and recommendations in January 2015. The report noted that, "All Yukoners have a deep connection to water and land, and value clean water as a resource with intrinsic value." Yukon First Nations have resolved to "keep their waters clean for future generations."¹⁹ The Committee outlined the risks of fracking, including surface spills, leaky well casings, fluid migration to groundwater sources, the quantity of water used, flowback water and the lack of scientific information about groundwater quality near fracking projects. The report recommended baseline testing, research of the impacts of fracking fluids on groundwater and well integrity, establishing seasonal thresholds, and mandatory disclosure of chemicals to the public.

While the Yukon has not experienced as much industrial activity compared to other regions, the tailings and contaminated sites of abandoned mines such as Faro, Mount Nanson, and Keno are posing a risk to local waterways. Proposed mines

and expansions, such as the Casino Mine could also negatively impact water quality.

In December 2014, the Yukon Supreme Court underscored the importance of the territory's agreement with First Nations when it struck down the Yukon government's Peel land use and watershed plan.

Alberta

In 2011, production of the tar sands – known as one of the world's dirtiest fuels – used approximately 170 million cubic metres of water, equivalent to the residential water use that year by 1.7 million Canadians.²⁰ The Athabasca River is the primary source for water used for tar sands development, putting one of the world's largest freshwater deltas at risk.

Trade deals pose a worrying threat to our freshwater sources. Maude Barlow has written, "The Harper government has pulled out all the stops to negotiate powerful new trade deals that give transnational corporations more rights to dictate Canadian environmental, economic and social policy. Using NAFTA, eight different U.S. corporations are currently suing Canada for \$2.5-billion in compensation. The Canada-EU deal [CETA] would give European companies similar rights, while the Canada-China deal [FIPA] would allow Chinese state-owned companies to sue Canada if any limit is placed on growth in the oil sands, including on the amount of freshwater drawn for these water-intensive projects."²¹

TransCanada has proposed a plan for the Energy East pipeline. If it is approved, it would be the largest pipeline in North America. It would carry 1.1 million barrels of tar sands oil per day from Alberta to refineries in Quebec and New Brunswick. The pipeline falls within the Saskatchewan River Basin and crosses four watersheds in Alberta including Battle River, Sounding Creek, Red Deer River and the South Saskatchewan River, in addition to a number of small watercourses and streams.²² A spill would have devastating impacts on drinking water sources.

Farmers and landowners who live near fracking drill sites are raising concerns about the impact that fracking is having on their drinking water, health and livestock. Some landowners can even light their tap water on fire because it is so contaminated with methane. Fracking fluids contaminated groundwater in Grande Prairie, Alberta in September 2011. The Energy Resources Conservation Board conducted an investigation and released a report stating that the water table was fracked and 42 cubic metres of propane gel was released into an underground aquifer.

Northwest Territories

Water is a highly valued resource in the Northwest Territories (NWT). In 2006, the NWT became the only Canadian province or territory to declare water a fundamental human right.

Despite having some of the most pristine freshwater in the world, there are reasons for northerners to be concerned about their water resources. The Mackenzie River Basin watershed that encompasses much of the NWT originates for the most part in British Columbia and Alberta, provinces that have high industrial development, including hydro-electric dams, tar sands projects, large scale agri-businesses, mining projects, timber harvesting, and pulp production. Water flow and quality is at increasing risk of being impacted by these developments, which is why the NWT government is currently finalizing transboundary water agreements with these provinces to better regulate the quantity and quality of the water flowing into the NWT.

Climate change and subsequent warming trends, seen most strongly in the far north, are resulting in falling water levels in major rivers and lakes in the NWT. Low water levels, such as in the Mackenzie River and Great Slave Lake, in recent years have impacted ecosystems and communities.

Horizontal hydraulic fracking (or shale fracking) is an emerging threat in the NWT, with ConocoPhillips fracking two oil wells in the early winter of 2014. Many NWT organizations and residents are concerned about the impacts of shale fracking, including the Dene Nation, which passed a resolution in 2011 calling for a shale fracking moratorium. Husky Oil is currently assessing the viability of mining silica sand deposits in a sensitive cultural and recreational area in the North Arm of Great Slave Lake close to Yellowknife. The mining and transport of silica sand by barge from this operation would increase environmental disturbances and risks to public health and safety from fracking operations.

Citizens in Yellowknife already have to deal with the toxic legacy left by Giant Mine, which along with the seven million ounces of gold produced between 1948 and 1999, also produced 237,000 tonnes of arsenic trioxide. The highly toxic waste is currently stored underground and is held in place by permafrost. However the permafrost is not stable and billions of dollars of our tax dollars is being used to permanently freeze the ground around the buried tailings to prevent them from leaching into Great Slave Lake and the Mackenzie River.

Yellowknife can be seen in the distance, beyond the Giant Mine site in NWT. Photo: Flickr user Loutron Glouton, CC-by-nc-sa 2.0



Interestingly, even when surrounded by freshwater, residents of some small communities in the NWT are unable or unwilling to drink the water coming from their taps due to the water treatment process, which adds chlorine, making the water taste of chemicals. Water storage tanks can cause water to become stale and, in some cases, contaminated because the household tanks are difficult to clean out regularly. Small communities are relying on single-use bottled water, which has environmental, climate, and social impacts far beyond the reaches of the communities themselves.

In all, risks to water flow and quality from industrial development, both upstream and in the NWT itself, climate change, and local water management problems are increasing and need to be addressed if NWT residents are assured of long-term access to clean and sustainable freshwater.

Saskatchewan

More than 12 per cent of Saskatchewan is covered by lakes, rivers, streams and other bodies of water. Resource development such as potash and uranium mining and oil and gas drilling are putting these water sources at risk.

There are nine potash mines in this Prairie province. Potash mining is a water-intensive industry and there is the risk of water contamination at every stage of development. In 2012, Western Potash Corp. struck a 45-year deal with the City of Regina to buy its wastewater. Potash solution mining, one of two methods for mining potash, uses more water than the conventional process. This water, once it is used, is injected underground into deep formations resulting in a loss of freshwater in the hydrological cycle.

Most uranium production in Canada comes from Cameco's Cigar Lake mine and Areva's Midwest mine in northern Saskatchewan. According to the Pembina Institute, uranium mining has a range of devastating impacts including "the creation of massive stockpiles of radioactive and toxic waste rock and sand-like tailings, to serious contamination of surface and groundwaters with radioactive and toxic pollutants."²³

Agricultural run-off is another pressing water issue in the province. Saskatchewan Eco Network has noted that, "In Saskatchewan the most common types of run-off pollutants are nutrients (nitrogen and phosphorous from chemical fertilizers and manure), dissolved organic material and pesticides."²⁴ High levels of these pollutants pose a significant risk to drinking water.

The impacts of climate change will also affect water availability in Saskatchewan. All of the surface water in Saskatchewan comes from glaciers in Alberta, many of which are receding, so water resources are expected to dwindle over time.

Decommissioned uranium mines and decommissioned mill tailings in the Uranium City area of northern Saskatchewan are an ongoing source of contamination to Beaverlodge Lake and other nearby watersheds. Uranium and selenium levels are well above Saskatchewan Surface Water Quality Objectives.²⁵ The Gunnar uranium mine on the northern shore of Lake Athabasca is scheduled for remediation by the Saskatchewan Research Council. Originally a source of uranium for the nuclear weapons industry, remediation on the site is so complex to manage that estimated remediation costs have ballooned to over \$200 million.²⁶



The Gunnar uranium mine in Saskatchewan. Photo: Tim Beckett via Flickr, CC-by 2.0

The small border town of Creighton was recently removed from the Nuclear Waste Management Organization's list of communities for potential sites for long-term disposal of high-level radioactive waste from Canada's nuclear reactors. Disposal of this waste presents very substantial risks,

including the risk of a transport accident and the risk of serious groundwater contamination at or near the site.

Kent Campbell, Saskatchewan's former Deputy Minister of Energy and Resources, claimed that over the past 50 years, fracking has been used on roughly 33,500 oil and gas wells in the province, although the widespread use of multi-stage horizontal fracking is a more recent development. Documents obtained from the Ministry of Economy reveal that there were close to 3,200 horizontal wells in the province in 2013. There are few surface water resources in parts of southern Saskatchewan, particularly in the southwest, which raises concerns that fracking companies are using groundwater sources.

Saskatchewan, with 27, has the third highest number of First Nation communities under drinking water advisories.

The Energy East pipeline would, if approved, put waterways at risk. The pipeline would begin in the neighbouring province of Alberta and cross four watersheds in Saskatchewan: South Saskatchewan, Qu'Appelle, Souris and Assiniboine rivers as well as nine watercourses.²⁷

Water privatization also threatens drinking water quality. The City of Regina approved a public-private partnership (P3) model for its new wastewater treatment plant despite fervent public opposition and estimates that a P3 would cost \$61 million more.

Manitoba

In Manitoba, the Energy East pipeline would cross and pose risks to the Assiniboine River west of Miniota and south of Portage la Prairie, and the Red River south of Winnipeg.²⁸

The \$6.5 billion Keeyask dam would be located about 725 kilometres northeast of Winnipeg, where Gull Lake flows into Stevens Lake, and would flood approximately 46 square kilometres of boreal taiga lands. The traditional lands of the Pimicikamak and Tataskeyak Cree Nations are being sacrificed for hydro power that is primarily intended for export and pipelines. The new dam is expected to power export pipelines like Energy East.

Concerns have also been raised in Manitoba that the Energy East pipeline would run past the Shoal Lake No. 40 First Nation and the Iskatewizaagegan No. 39 First Nation in Ontario. The Shoal Lake aqueduct is the source of Winnipeg's drinking water.

In January 2015, some Winnipeggers took the city's two-day precautionary boil water advisory as an opportunity to draw attention to Shoal Lake First Nation No. 40, which has been under boil water advisory for more than 17 years.

In July 2014, Manitoba declared a state of emergency as it dealt with flood levels that exceeded 2011 levels. Sixty-eight communities were af-

Floods in Manitoba threatened water access for residents of 68 communities in 2014. Photo: Flickr user two stout monks, CC-by-nc-sa 2.0

ected and residents faced challenges accessing potable water. Lake St. Martin First Nation is still dislocated from the flood.

Fracking for oil in the province is confined to a small corner in southwestern Manitoba. Yet the number of fracking operations has skyrocketed in recent years. Since 2006, 1,978 horizontal wells have been drilled, most of which use hydraulic fracturing. In July 2013, *The Winnipeg Free Press* reported that most of the 3,600 active oil wells in the province use fracking.

Ontario

Ontario is the province with the highest population in Canada and has over 300 First Nation communities. Ontario borders four of the five Great Lakes. Altogether, there are 250,000 lakes, rivers and streams holding roughly one-third of the world's freshwater.

The transport of tar sands bitumen and fracked oil by rail, tanker and pipeline is putting the drinking water of millions of Ontarians at risk. The Energy East pipeline would cut across the Great Lakes-St. Lawrence River Basin and has 41 named river crossings.²⁹ Many community residents oppose the massive pipeline project, saying it is "Our risk, their reward."

Community concern is also high for the Line 9 pipeline. Maude Barlow has written, "The National Energy Board has also approved Enbridge's

application to reverse the flow of Line 9 from Sarnia to Westover. People and communities all along the route have raised strong concerns as Line 9 travels through crowded urban centres as well as along the entire northern shoreline of Lake Ontario and along the St. Lawrence to Montreal. First Nations communities have been particularly vocal in their critiques of Line 9."³⁰

Ontario has the highest number of First Nation reserves under drinking water advisories with nearly half of the First Nation drinking water advisories in Ontario.

The proposed Ring of Fire mine in the Hudson Bay Lowlands, the world's third largest wetland, would impact 31 Indigenous communities who have rights to the land and still hunt and fish to maintain their traditional way of life.

In southern Ontario, proposed nuclear waste dumps, landfills, megaquarries and Nestlé's bottled water plant pose a threat to waters in the Great Lakes Basin.

Chemical industry and oil refineries near Sarnia, ON threaten Lake Erie, Lake Ontario and the St. Lawrence River. Photo: Corey Seeman via Flickr, CC-by-nc-sa 2.0



Quebec

Since June 2011, Quebec has upheld a moratorium on fracking for oil and gas beneath the St. Lawrence River. In December 2014, Premier Couillard ruled out fracking again after the shale gas review by the Bureau d'audiences publique sur l'environnement warned shale gas development could negatively impact the environment, particularly the quality of surface and underground water. Canada is facing a \$250-million NAFTA lawsuit from Lone Pine Resources under investor-state rights for Quebec's moratorium. Communities in Quebec, including Gaspé and Ristigouche, have passed municipal bylaws to protect their water from oil and gas drilling, but have faced lawsuits from oil companies and have been denied provincial support.

Enbridge's Line 9 pipeline, a 38-year old natural gas pipeline across Ontario and Quebec, has been approved by the National Energy Board for reversal to ship tar sands oil to Montreal. The pipeline will be operational by June 2015 and poses serious risks to the St. Lawrence River and local waterways.

In Quebec, Energy East would endanger 30 rivers with risks of landslides and spills, and threaten 18,000 birds living along the St. Lawrence.³¹ While the proposed refinery in Cacouna has been cancelled due to concerns for the local beluga population, a new refinery is possible and opposition across Quebec continues to grow.

A diesel spill in Longueuil in January 2015 contaminated the municipal water supply and increased concerns about shipping oil through Quebec.

Quebec also faces unprecedented supertanker oil shipments on the St. Lawrence River. In the fall of 2014, Suncor Energy sent two of the largest oil supertanker ever to sail on the St. Lawrence River from the Port of Sorel-Tracy through Lac Saint-Pierre, a UNESCO Biosphere Reserve, and on to Sardinia, Italy and the Gulf of Mexico. A report by the Council of Canadians showed that a spill of 10 million litres - less than 10 per cent of the cargo of an Aframax class supertanker - would cost over \$2 billion far more than the \$1.4 billion available

for spills in Canada.³² The proposed Energy East pipeline could add 200-300 supertankers a year to the St. Lawrence, creating an unacceptable level of risk to drinking water and the environment. Oil shipment by rail is also set to increase in Quebec, despite the disaster in Lac-Mégantic on July 6, 2013 where a freight train carrying Bakken crude oil derailed, killing 47 people and spilling 100,000 litres of oil into the Chaudière River.

The provincial Plan Nord, an \$80-billion resource extraction plan for the north of Quebec, also presents threats to water. Plan Nord includes 11 proposed mines and expansive infrastructure projects. Plan Nord is strongly opposed by First Nations and Inuk communities, particularly with the proposed addition of 3,500 megawatts in hydroelectric production to Quebec's controversial system of dams. Dams, such as the La Romaine project, threaten the traditional territories of First Nations and Inuk communities and displace groundwater.

Nunavut

While Nunavut contains 21 per cent of the freshwater in Canada, the territory still faces water shortage issues and threats to drinking water. Municipalities suffer from insufficient wastewater infrastructure and the safe delivery of drinking water is compromised by the climate and the remoteness of populations. Many municipalities draw their drinking water from local rivers, basins, and even glaciers that are all at risk due to climate change. Drinking water shortages are exacerbated by the ongoing crisis in food prices, which makes bottled water completely inaccessible. Nunavut has no source water protection legislation, leaving drinking water and groundwater sources at risk. In a 2011 evaluation of drinking water protection by Ecojustice, Nunavut received the lowest grade of any province or territory.³³ Groundwater is threatened by inadequate infrastructure, such as the Iqaluit dump, which burned for four months, and resource extraction projects like the open pit Meadowbank gold mine.

Nunavut's water is also at risk with the potential drilling for Arctic oil. While no fracking is currently

happening in Nunavut, the National Energy Board approved an application for seismic testing in Baffin Bay and the Davis Strait. The community of Clyde River is opposed to seismic testing, fearing risks to marine life and oil spills if drilling is undertaken. Clyde River's opposition is supported unanimously by the Nunavut Association of Municipalities.

New Brunswick

Since 2010, one of the key water issues in New Brunswick has been shale gas development. Penobsquis, a small community in the southwest of the province, had its first non-conventional gas wells drilled in 2000-2001. The community has had to deal with a combination of gas production and potash mining, and dozens of homes have suffered well water loss.

Former Conservative Premier David Alward promoted fracking projects in the province, promising job creation despite strong opposition from people and community groups that pressed for a provincial ban or moratorium. Community groups and Indigenous communities like Elsipogtog First Nation warned about water use and risks to drinking water. With shale gas as a key election issue in the 2014 election, Liberal leader Brian Gallant unseated Alward in part because of a promise to enact a moratorium on shale gas.

The massive Energy East pipeline project crosses the Restigouche River Basin and travels down the St. John River Basin.³⁴ It would cross waterways at

almost 300 locations, including streams and rivers of the Miramichi, Tobique, Grand Lake and Kennebecasis – some of New Brunswick's best known waterways. The pipeline also puts the iconic Bay of Fundy at risk.³⁵

Base metal, potash and antimony mines in the province, including the Picadilly potash mine and the Sisson Project's Tungsten and Molybdenum mines, pose a threat to local waterways of the Kennebecasis and Nashwaak, two major tributaries of the St. John River. The legacy of coal burning has resulted in high levels of toxic heavy metals in Grand Lake, the province's largest freshwater lake.

Provincial water policy has also taken a nosedive in recent years, specifically for surface waters and wetlands. The provincial Ombudsman issued a public report in August 2014 shedding light on the failings of the provincial water classification program to set water quality standards for rivers, which were passed under the Clean Water Act in 2002, but never enforced. Wetland management has been up in the air since 2011 when the previous government changed how wetlands were identified and regulated, leaving more than 50 per cent of New Brunswick's wetlands exposed to development with no government regulatory oversight.³⁶ A long-term wetlands management strategy has been under development since 2011, but has yet to be released publicly.

The legacy of coal burning has resulted in high levels of toxic heavy metals in Grand Lake, the provinces' largest freshwater lake.. Photo: Flickr user Adrian F1, CC-by-nc-sa 2.0



Most communities in New Brunswick are on the province's coast or along its rivers. Climate change will result in rising sea levels and impact the availability of clean drinking water. The province's Coastal Protection Strategy and Flood Risk Reduction Strategy were developed to help address climate impacts, but do not yet spell out regulatory requirements. The previous provincial government's 2014 forestry plan increased the amount of Crown land the forestry industry has access to by 20 per cent, causing concern as to whether the increased forest area allowed to be cut will come from river and stream buffer zones. The forests of New Brunswick, on traditional Wabanaki territory, act as a natural filter for water, mitigate the impacts of climate change, cool regions with greenspaces and water bodies, and control floods and erosion.

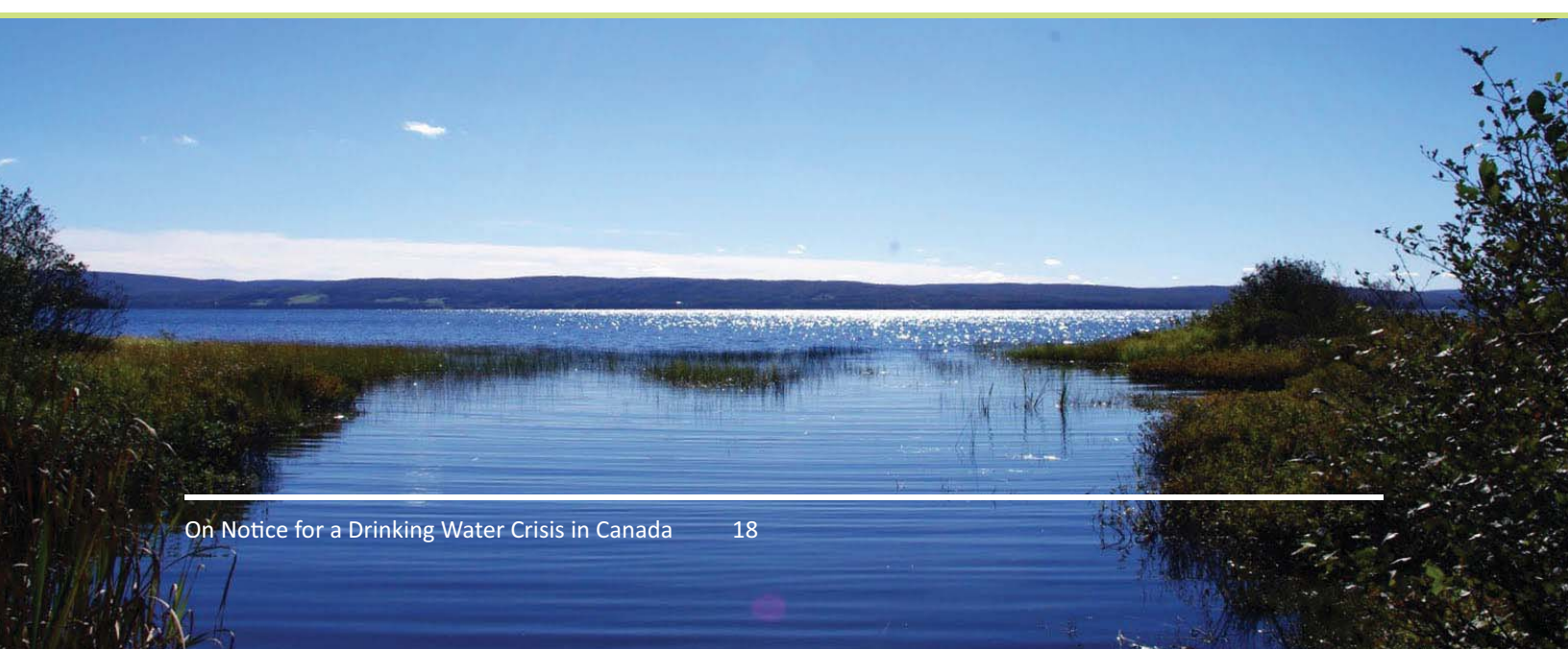
Nova Scotia

Fracking has also been a hot button issue in the province of Nova Scotia, which includes regions of the Mi'kmaq nation of Mi'kma'ki. In 2010, residents began to raise concerns about the potential for fracking near Lake Ainslie, Nova Scotia's largest freshwater lake. PetroWorth Resources had been granted permission to drill an exploration well beside the lake. In the face of strong community opposition, which led to a municipal bylaw and resolution and a provincial Supreme Court appeal against Nova Scotia Environment, PetroWorth abandoned its drilling approval and let the lease expire in July 2013. Public pressure from Lake Ainslie and dozens of communities across the prov-

ince resulted in an internal review in 2010, which was extended to 2012 and then changed to an independent review in 2013. In August 2014, after hosting 11 public meetings across the province where opposition to fracking was loud and clear, the review panel released its final report stating that fracking should not be allowed in the province at this time.³⁷ Soon after, the Liberal government passed legislation prohibiting high-volume fracking in shale in the province. New regulations to support the act are expected soon.

Yet the province is still dealing with a legacy of exploration activities near the Bay of Fundy in 2007. Millions of litres of wastewater from the vertical fracking in two wells remains in ponds near the community of Kennetcook, and at the industrial facility in Debert. The wastewater is a contentious issue, with the province and the industrial facility desperate to find a solution for treatment and disposal of the waste. At least four Atlantic municipalities are considering treating fracking wastewater in their local wastewater systems, which would then be discharged into local rivers, all of which are connected to the Bay of Fundy. The town of Amherst recently rejected this risky plan after the community banded together to stop it. Colchester rejected a fracking wastewater treatment proposal in 2013, but is currently reviewing a similar proposal by the same company, Atlantic Industrial Services.

In 2010, residents began to raise concerns about the potential for fracking near Lake Ainslie, Nova Scotia's largest freshwater lake. Photo: Inverness County C@P Network Society via Flickr CC-by- 2.0



Lakes and rivers have also been polluted with excessive nutrients and phosphorus, most of which originates from the 150 mink farms in the province. New regulations for fur farmers announced by the government in 2014 do not sufficiently protect water systems and drinking water in fur farming areas.

Historic pollution of the Pictou Landing First Nation community by a local pulp mill reached a fever pitch in the spring of 2014, after another release of pollution into Boat Harbour. Native and non-native communities stood together to demand that the mill be closed and restorative action be taken to clean up the harbour. In June 2014, the Nova Scotia government and the Pictou Landing First Nation reached an agreement that the government would work toward closing this facility and clean up the harbour.

Newfoundland and Labrador

Similar to other Atlantic provinces, Newfoundland and Labrador has a moratorium on fracking. On October 10, 2014 the provincial government announced it will conduct a review and hold community consultations under an independent panel. However, community organizations have raised concerns that the panel is industry-friendly and lacks environmental and community health experts.

Concerns with fracking include its negative impacts on the more than \$1 billion tourism industry – particularly with the proximity of one proposed location to Gros Morne National Park (a UNESCO World Heritage Site) – the fisheries, as well as to human health and the environment. Newfoundland and Labrador currently has no regulations that deal specifically with fracking, and no disclosed facilities to manage fracking wastewater.

The increasing levels of disinfectant byproducts, particularly trihalomethanes (THMs), found in drinking water has been a concern to communities across the province. Long-term exposure to high levels of THMs, which includes the potential carcinogen chloroform, has been linked to a higher risk of bladder and colon cancers.

Muskrat Falls hydroelectric project, slated to start producing power by the end of 2017, will increase mercury levels in Churchill River, which flows into Lake Melville, and prevent Inuit from eating fish and game.

Atlantic Canada is also facing the prospect of offshore drilling in the Gulf of St. Lawrence, which industry and some governments are pushing for. Corridor Resources recently received approval for exploration activities in Old Harry, a very sensitive marine environment in the gulf north of Cape Breton in the Cabot Straight. It is estimated that there is up to two billion barrels of oil beneath these waters and four or five trillion cubic feet of natural gas. The nature of gulf waters means that an oil spill would eventually reach the shores of Nova Scotia (shores of Cape Breton), PEI, western Newfoundland, New Brunswick and Quebec.

Prince Edward Island

There are no fracking operations in Prince Edward Island, but some experts estimate that the amount of shale gas reserves could expose 40 per cent of the province to fracking. Residents in the province have joined together to form a diverse coalition under the banner “Don’t Frack PEI.” The coalition highlights the serious risks fracking poses to the island’s groundwater.

Major players in the potato industry are urging the provincial government to end its moratorium on deep-water irrigation wells. Yet allowing deep well irrigation is a huge danger to PEI’s deep water aquifer — the groundwater resource for all Islanders — and could result in long-term groundwater depletion.

Heavy pesticide use is suspected in four major fish kills since 2010 where approximately 1,000 fish, including brook trout, rainbow trout and Atlantic salmon, were found dead along waterways.

CONCLUSION

From fracking, to pipelines like Energy East, to mega-dams, there are many threats to our lakes and rivers and the costs to community health, sustainable jobs, economies and ecosystems are high. Yet from coast to coast communities are standing up in defence of our water to say “no” to projects that threaten them. Community organizing played a key role in the moratoria on fracking in the Atlantic provinces. There are 16 communities in Canada that have become “Blue Communities” by passing resolutions that recognize the human right to water, ban the sale of bottled water at municipal facilities and events, and pro-

mote public water services. These communities are creating a vital and pivotal shift to collectively protect our waters on the principle that water must be shared equitably by all who live around it and protected for generations to come.

The provincial, territorial and federal governments have a responsibility to work with Indigenous peoples to provide leadership and coordination to conserve and protect our water. Based on the UN resolutions on the human right to safe drinking water and sanitation, the Canadian government is obligated to develop a comprehensive national plan of action.

To curb immediate threats to water, the Canadian government must develop a National Water Policy that:

- Establishes national enforceable drinking water standards.
- Recognizes water as a human right.
- Respects Indigenous water rights.
- Declares surface and groundwater a public trust.
- Creates a national public water infrastructure fund.
- Provides a strategy to address water pollution including reinstating changes to environmental legislation, removal of the Schedule 2 loophole that allows mining companies to dump toxic waste in healthy lakes, a ban on fracking and a just transition away from tar sands and all fossil fuels.
- Invests in water and wastewater infrastructure, particularly in First Nations communities.
- Bans bulk water exports.
- Excludes water from the North American Free Trade Agreement, the Canada-European Union Comprehensive Economic and Trade Agreement and all current and future trade agreements.

It is only with these steps that we will begin to have a chance to ensure clean, safe water for everyone now, and for generations to come.

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