Merrymeeting News

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The Newsletter of Friends of Merrymeeting Bay • PO Box 233 • Richmond Maine 04357 • 207-666-1118 • www.fomb.org

Friends of Merrymeeting Bay (FOMB) is a 501(c)(3) non-profit organization. Our mission is to preserve, protect, and improve the unique ecosystems of the Bay through:

Education

Conservation & Stewardship

Research & Advocacy

Member Events

Support comes from members' tax-deductible donations and gifts.

Merrymeeting News is published seasonally and is sent to FOMB members and other friends of the Bay. Article hyperlinks and color images are available online at: www.fomb.org

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Central Maine Power Violates Bay Airspace

As if it were not enough in 2011-2012 that CMP installed radiation-emitting electric meters throughout their service area, to the detriment of human and wildlife health; and not enough about 4 years ago they put a new line of arguably unnecessary high voltage towers in at the Woolwich-Abbagadassett Pt. Kennebec crossing and west into Bowdoinham; add to that the current over-billing scandal and investigation as well as the proposed new high voltage line from Canada, bringing dirty Hydro Quebec power to southern New England.

Rendition of new towers, approximately to scale. ***Photo: Ed Friedman***

Now CMP is assaulting our relatively dark Bay sky with two new gigantic replacement towers at the Chop Pt. Kennebec River crossing between Woolwich and North Bath. Bad enough these two new towers are far higher (240' and higher on the ridges) than the old ones (209') but these are lit up with three ridiculously excessive layers of flashing LED lights at their tops, mid-point and approximately at treeline. They are like two giant pulsing pillars welcoming one to a red-light district.

These lights flash 60 times/minute (60fpm) and in a strobe-like sequence. They are red at night and white during the day and tend to draw your eye despite the vertiginous effect. While this configuration is based on FAA lighting guidelines, like guidelines from many agencies, they are technically not regulations or statute because that would have required congressional approval. That distinction provides a little wiggle-room with compliance.

For instance, the FAA, for other tower lighting scenarios, has a whole variety of lighting options including number of lights, intensities, colors and rate of flashing. The aforementioned tower crossing at Abbagadassett Pt. has a single 20fpm flashing light on top and steady light down low (also detrimental because, until 4 years ago, it was dark...for only a 15' difference in height we now have 4 more towers, within a mile of each other, adding to light pollution).

In recognition of the national and international Dark Skies Initiative, the FAA added a section to their Lighting Advisory Circular. An approved alternative to constant tower lighting is an Aircraft Detection Lighting System (ADLS). This system automatically detects aircraft in the vicinity and only turns tower lights on when aircraft are present. In an area like the Chops the lights would be off virtually all of the time. That's the good news. The bad news is ADLS works via active X band radar transmitting in the 8-12 gigahertz (GHz) range probably in strengths from 12-12,000 watts* bathing the area in harmful electromagnetic fields.

Central Maine Power continued

In 2011, the World Health Organization (WHO) designated all radiofrequency radiation (RFR) in the range of 30 kilohertz (KHz) to 300 GHz as a class 2B possible human carcinogen. Many independent researchers now believe this should be upgraded to a Class 2A-probable human carcinogen or Class 1, known human carcinogen particularly because the National Toxicology Program-part of the National Institutes of Health-recently found clear evidence (their most definitive category) of brain and some evidence of heart tumors in rats from whole body exposure to low level non-ionizing RFR of the sort we are talking about. Cancer clusters around radar installations have existed for years. Non-carcinogenic microwave sickness with symptoms like fatigue, neurological problems, tinnitus, A-fib and loss of cognitive abilities to name a few, first became evident in people working in radar facilities. Radar has also been shown to disrupt bird, bat and insect behavior.

Communication and utility towers are major sources of avian mortality due to their physical structure, supporting guy wires and or associated power lines, lighting and radiofrequency radiation. Merrymeeting Bay is recognized by the American Bird Conservancy as a Globally Important Bird Area. Our Bay is the largest fall staging area for migratory waterfowl north of Chesapeake Bay. According to US Fish & Wildlife Service, to minimize bird deaths from towers, lighting, which attracts and disorients birds, should be minimized. Lights, if they must be used should be flashing, with maximum dark intervals and are less harmful than steady burning lights.

Along with the other detriments noted here, the value of any area real estate with a view of the towers or within their red glow on a cloudy night has taken a hit, probably a major devaluation. There are many of us who would never buy a house where we are today if our viewshed included two throbbing red towers spoiling the landscape and night sky. And there are some of us who know enough to never buy a property in close proximity to a radar installation.

Major towers blight the Bayscape and present aesthetic, economic and psychological problems as well as, health and wildlife hazards. A community evaluation of questions like the following should have been considered before their erection. Is the crossing required to service North Bath or can power come up from the south? Is there enough local air traffic present to require full dress lighting (definitely a rhetorical question)? Do the towers need to be so high and set back so far from the river? If needed, do the powerlines need to be above ground? Or, is this project as executed, deficient in necessity? Short of lowering towers below the lighting threshold, removal, or issuance of a permanent Notice to Airmen (NOTAM) of unlit towers, minimal lighting is probably least bad of the remedial options. Thank you CMP.

* For comparative reference, smart electric meters (2.45 GHz) and most cell phones (900-1800 megahertz) transmit with strengths of about 1 watt while handheld portable 2-way radios are about 5 watts.

The Lucky Alewives

I can hear woodcock in the back field deep after sunset. It's mid spring by the calendar. Maple sugaring is about done. One more boil to secure a year's supply of "the good stuff". At work we're gearing up for another season of field work. They are coming. Alewives, bluebacks, shad, stripers, eels, salmon and sturgeon. Glass eels fresh from the Gulf Stream heading into inland fresh water bodies, rivers, streams, ponds and lakes. All the other fish mentioned are here to spawn someplace in the watershed. And spawning is hard and perilous work for our anadromous fish.

> *Our Winter 2019 Merrymeeting News cover story,* ***Stinky Salmon & Other Fertilizers*** *focused on the incredible bidirectional nutrient transfers provided by migrating pacific salmon during their spawning runs into northwestern rivers. These same vital processes (An 1852 history of Kennebec County recounts that in Gardiner and Pittston "alewives were so plentiful at the time the country was settled that bears, and later swine, fed on them in the water. They were crowded ashore by the thousands."), or what's left of them, also occur in Maine rivers. Maine Department of Marine Resources fisheries biologist and FOMB board member Nate Gray describes a piece of the action here where recently 57 bald eagles, were aggregating for a seasonal river herring supper along with osprey, herons, striped bass and even the occasional seal, all 70 miles from the ocean.*

The calls will come about mid-season. "We see dead fish"! And then you have to explain. And the explanation is fascinating from the restoration standpoint. From any standpoint, really. The "dead fish" these folks see are

usually river herring adults on their run to spawn. The Sebasticook River, largest sub-drainage of the Kennebec River at 900 square miles, is home to one of the largest river herring runs in existence. In 2018 the Sebasticook Benton Falls fish lift facility, ten miles upriver from Winslow, passed 5.7 million river herring. Those river herring are split in to two distinct species. Alewives and blueback herring. Alewives at 4.2 million compose the bulk of Benton's run. The remaining 1.5 million are bluebacks. Sounds like a lot doesn't it? And it is a lot….relatively speaking. Just a few years back the run wasn't nearly so large. Maybe a few hundred thousand. Dam removals and installation of fish passages throughout the basin allowed the populations to rebound significantly. So significant that people are beginning to see "dead fish".

An eagle swims for an alewife *Photo: Michael Robinson*

We joke at work that "An alewives job is……to be eaten". In reality it's no joke. We can prove this peril out "by the numbers". Let's do some math. We'll take a small stable pond with a yearly run of 100,000 alewives. They're pretty much fifty-fifty male to female. So this pond will get about 50,000 females. Each female carries about 100,000 eggs. So we get about 5,000,000,000 BILLION eggs. That's five born the "numbers As soon as they're it is a brutal game" begins. And of the gory details. I'll spare you some young alewives By fall, surviving their journey to the are getting ready for nursery time spent ocean. During early 4,945,000,000 in fresh water, about Consumed by the have…….been eaten. hungry pound and feeding thousands of winter starved denizens from bacteria to bass. That's 4.9 BILLION that didn't make the cut. And they've only just started the game. They're not even six months old yet. The ones that survive to migrate to the ocean are miniature miracle mirrors of their parents. If you thought it was tough in the pond….well now that they're bigger, maybe three inches long, they attract a lot of attention. Exiting the pond in their millions attracts predators galore. Fish, birds, mammals, reptiles will gather along the pond outlet and stream to extract their tolls. The predators remember. They remember the runs of years past. They remember where to be and when to be there. The alewives run the gauntlet. An endless gauntlet.

Remember we had a stable run in that pond of about 100,000 per year? To maintain that run we needed 5,000,000,000 eggs. The juveniles when they left the pond numbered about 55,000,000. By the time they're adults their numbers have dwindled another 99.9%! From five billion at start, down to 100,000 four years later. As a percentage, .00002. Two ten thousandths of a percent survive. These numbers never fail to amaze me. These small fish, the lucky alewives, against all odds, survive to spawn and renew the "numbers game".

When you get a run as large as the one at Benton the numbers go from unbelievable to downright staggering. IF we run those same numbers against the Sebasticook. We start with 2.75 million females times 100,000 eggs and we get a whopper of a number. Two hundred eighty seven billion eggs to start. Four years later the gauntlet has reduced those numbers to 5 million and change. None of this happens in a vacuum. All those fish. Eggs to adult. Are feeding myriads of hungry mouths. Along the banks of the Sebasticook you will find evidence of the gauntlet. River herring carcasses are scattered along the banks. All in various states of decomposition. Some places there may be hundreds. Other places there may be thousands. A trail of destruction. And I can see why that upsets people. But in those thousands, millions, billions of deaths there are millions of mouths fed. Millions of opportunities to survive. An entire ecosystem thriving. All on the backs of "dead fish". ***Nate Gray***

One of the most controversial environmental issues to hit Maine recently is Central Maine Power's proposal to build a high voltage powerline corridor across the state from Canada to NH, their second after the Maine Power Reliability Project. While many good points are typically raised in debates around this proposed corridor, seldom does any party challenge the lie and misperception that big hydropower from Hydro Quebec is green energy. Our Altered Flows article in the Winter 2019 issue of Merrymeeting News touched on some negative aspects of this dam-related topic and our colleagues at Friends of Sebago Lake (FOSL) have begun an online research library on the subject at www.friendsofsebago.org. This summer FOSL and FOMB are working with Quebec Labrador Foundation-supplied Montreal-based conservation intern Kiran Yendamuri, a recent graduate of McGill University. Kiran is helping expand the FOSL altered flows research library.

The article below adds to the subject in an excellent way. It is written by Andrew Nikiforuk an award-winning journalist, writing about the energy industry for two decades. Nikiforuk is a contributing editor to The Tyee, an independent award-winning (Excellence in Journalism & more) online news magazine based in BC which published this January 24, 2018.

Megadams not Clean or Green, Says Expert

Politicians who describe dams as "clean energy projects" are talking "nonsense" and rejecting decades of science, says David Schindler, a leading water ecologist. Former premier Christy Clark often touted the Site C dam (on the Peace River in B.C.) as a "clean energy project" and Premier John Horgan has adopted the same term. But that's not the story told by science, Schindler told The Tyee in a wide-ranging interview. In fact studies done by federal scientists identified dams as technological giants with lasting ecological footprints almost 40 years ago, he said.

Dam construction and the resulting flooding produces significant volumes of greenhouse gas emissions. Canadian dams have strangled river systems, flooded forests, blocked fish movement, increased methylmercury pollution, unsettled entire communities and repeatedly violated treaty rights.

Schindler, a professor emeritus at the University of Alberta and an internationally honoured expert on lakes and rivers, pointed to the increased mercury levels as a health and environmental risk. "All reservoirs that have been studied have had mercury in fish increase several-fold after a river is dammed," he said. "How can any of those impacts be regarded as green or clean?"

The Site C dam is no exception. A report by the University of British Columbia's Program on Water Governance found the Site C project, which faced a federal-provincial Joint Review Panel in 2014, "has more significant negative environmental effects than any other project ever reviewed under the Canadian Environmental Assessment Act (including oil sands projects)."

"The scale of impacts results from the rare and ecologically important biodiversity of the Peace Valley," the UBC report noted. Schindler said other countries, like Brazil, have put the brakes on hydro development over concerns about Indigenous rights, economics and environmental damage. "Brazilian politicians seem to learn a lot faster than Canadian politicians," he said. In contrast the Canadian government proposes to meet its failing climate change goals by replacing fossil fuels with massive amounts of hydroelectric power, which government bureaucrats still misleadingly call "non-emitting."

One federal plan, the Mid-Century Long-Term Low-Greenhouse Gas Development Strategy, includes scenarios that would see the equivalent of another 118 Site C dams built across Canada by 2050, many on Indigenous land in northern Canada. But to call dams "non-greenhouse gas emitting" sources of power, as the Canadian government now does, is completely dishonest, said Schindler.

Dams create greenhouse gas emissions by flooding soils and vegetation, which then decompose and release methane and carbon dioxide over time. The same microbial decomposition also helps to accelerate the production and bioaccumulation of mercury in fish and eaters of fish. Schindler said each reservoir's emissions are different depending on the depth, size, amount of land flooded and location. In extreme cases, energy from dams can produce as much greenhouse gas as burning coal, he said. Some reservoirs can release methane and CO2 for more than a hundred years, he added. On a global average reservoirs created by dams release three to five times more emissions than natural lakes or wetlands due to the high volume of wood, vegetation and peat decomposing in flood waters.

"When you add the emissions from building and producing materials for a dam, as well as the emissions from clearing forests and moving earth, the greenhouse gas production from hydro is expected to be about the same as from burning natural gas," said Schindler.

According to one 2012 study Canada's 271 large dams have affected 130,000 kilometres of rivers and flooded tens of thousands of hectares of land. Calculating greenhouse gas emissions from the nation's hydro reservoirs is not an exact science, but estimates range from 1.5 megatonnes to 17 megatonnes a year. According to a recent UBC analysis of greenhouse gas

emissions from Site C, its reservoir will create meaningful greenhouse gas emissions, primarily in the 2020s and 2030s, and the project would "make it harder to meet Canada's 2030 greenhouse gas reduction commitments."

Schindler said he began concluding dams are not clean 40 years ago. "My realization that dams weren't clean came when federal researchers started research on South Indian Lake in the 1970s," he recalled. The lake, Manitoba's fourth largest, was located north of Lake Winnipeg and supported a small Cree community that depended on a thriving white fish fishery, North America's second largest, for its livelihood. That self-sustaining resource provided families with incomes of $100,000 a year.

But in the 1960s the Manitoba government proposed a massive $2-billion project to divert water from the Churchill River into the Nelson River to provide cheap power for city dwellers and U.S. customers. At the time Robert Newbury, a professor of civil engineering at the University of Manitoba, raised serious concerns about whether the project was needed and its impact. "Nowhere is the cost of the loss of the Churchill River calculated. Its existence, aesthetics, native community options, ecology and unique role of creating a livable environment in an otherwise harsh land are considered to be worthless in the energy budge," wrote Newbury at the time. Despite stiff opposition from First Nations and many southern Manitobans, the new government of the day pushed the project forward.

Daniel-Johnson Dam, Manicougan River. Photo: Hydro-Quebec

"Can we... face up to the prospect of disrupting two communities of 700 people, completely upsetting the lake on which they depend for their livelihood making it quite impossible for at least some of them to continue to live independently?" asked then-NDP premier Ed Schreyer before the decision — before doing just that. The diversion, which promised a "brighter future" for southerners, flooded the community with three metres of water and destroyed 800 square kilometres of Cree land. "Mercury levels went up and destroyed the fishery," recalls Schindler. In exchange for lost land and livelihoods, the NDP government relocated Cree residents and offered them "direct colour TV broadcasts of improved quality." (The damage continues to this day. "Our government talks about reconciliation and a bright future for all," wrote a Manitoba Indigenous fisher in 2016. "We don't see it.").

In the 1990s more research confirmed the dirty impact of dams on waterways that sustained Canada's First Nations at the Experimental Lakes Area in northwestern Ontario, a research station that Schindler founded. Scientists flooded boreal wetlands and then boreal forests covered by different amounts of soil and vegetation and discovered the inundation of all kinds of landscapes increased both greenhouse gas emissions and the volume of methymercury being released into the water. The researchers also noted that "Boreal developments generally involve reservoirs with large surface-area-to-volume ratios that flood substantial quantities of organic bio-mass, which predisposes these reservoirs to high production rates of greenhouse gas and methylmerucy relative to the amount of power produced." Similar results were found at the La Grande complex in northern Quebec, which created 15,000 megawatts of hydroelectric capacity by flooding nearly 13,000 square kilometres of boreal forest and wetlands. "Researchers found the same impacts there," said Schindler. "The findings were parallel. More mercury and greenhouse gas were being released because of the dams in the James Bay area." Just 10 years after the flooding of the La Grande complex mercury levels in pike and walleye rose six times above their baseline levels. By the 1980s, 60 per cent of the Cree living near the La Grande estuary reported mercury levels above the World Health Organization tolerance limit.

International studies have all reached similar conclusions: dams have high environmental and economic costs. "I don't know what our politicians are doing," said Schindler. "Are they not reading science at all? How can they come out and call dams clean power. There is no excuse for this kind of ignorance." Nor have the issues gone away. Only sustained protests and hunger strikes over the Muskrat Falls dam forced the Newfoundland government to respond to scientists' concerns about mercury contamination. Premier Dwight Ball committed to making all future decisions "using science-based research."

Megadams have other impacts that have not been fully studied, Schindler said. Development fragments watersheds as industry builds roads and transmission lines. In turn the fragmentation destroys or disturbs wildlife habitat, and opens the surrounding area to hunters and fishermen who are not entitled to treaty benefits. "Both can quickly deplete the resources necessary for Indigenous subsistence in the region of a dam," says Schindler. "Everywhere Canadian engineers have changed water levels with dams, communities have been shattered," he said.

Politicians, said Schindler, need to recognize that all energy sources emit carbon dioxide and all have an ecological cost. Although dams may sometimes be low-carbon emitters, the destruction of fisheries and violation of First Nation treaties and communities can't ever be whitewashed as green or clean, he maintained. "As Site C, Muskrat Falls and developments in Manitoba and Quebec illustrate, these are not problems of colonial attitudes of a distant past: they are as acute now as they ever were."

For only the second time ever, Bay Day was cancelled this spring due to weather. This has not kept us out of area schools, as the photo at left illustrates. Here, FOMB volunteer Dick Brown helps West Bath third-graders learn about non-point-source pollution in their module on water problems. Following their section, the kids created a video public service announcement about the issue. Look for it on our website soon, in the video section.
Photo: Lori Sawyer

Frankenfish Update

On April 24 FOMB and a dozen or so other plaintiffs from across the US and Canada filed a brief in our continued challenge against the FDA and AquaBounty over the manufacturing and licensing of AquaBounty's genetically engineered (GE) "salmon" made with DNA from Atlantic salmon, Pacific king salmon, and Arctic ocean eelpout.

Back in August 2018 FDA moved for judgment on four of our claims, namely that FDA lacks the authority to approve GE animals as "animal drugs" under the 1938 Federal Food Drug & Cosmetic Act (FFDCA), and that if it FDA does have this authority, it failed to create its GE animal program through regulations, as opposed to a guidance, and failed to analyze the environmental impacts of its new GE animal program. Further, if FDA is going to approve GE animals as drugs it must ensure their environmental safety under the FFDCA "safe and effective" standard for animal drugs. Because FDA moved on these four claims based solely on our complaint, we cross-moved for summary judgment and pointed the Court to evidence in the record that supports these claims. FDA also challenged our standing to attack the GE animal guidance, as opposed to just the GE salmon approval.

Studies show a high risk for GE organisms to escape into the natural environment, and that GE salmon can crossbreed with native fish. Transgenic contamination has become common in the GE plant context, where contamination episodes have cost US farmers billions of dollars over the past decade. In wild organisms like fish, it could be even more damaging. The FDA ignored two million comments against GE fish in approving the AquaBounty application.

Going forward, the FDA and AquaBounty will file their oppositions to our motion for summary judgment on June 26, and we will file our reply on July 26. Should the Court hold oral argument, we have suggested August 15 as the date for that, to be confirmed by the Court. It is also possible the court will hold off consideration of some or all of the claims until we file summary judgment briefing on the remaining 8 claims (under the National Environmental Policy Act and Endangered Species Act), and consider them all together. We now turn to reviewing the evidence in the record that supports those remaining claims, determining which documents we may rely on (and if necessary resolving disputes over privilege with the court), and briefing them.

The plaintiff coalition, jointly represented by legal counsel from Center for Food Safety and Earthjustice, includes Pacific Coast Federation of Fishermen's Associations, Institute for Fisheries Resources, Golden Gate Salmon Association, Kennebec Reborn, Friends of Merrymeeting Bay, Ecology Action Centre, Food & Water Watch, Center for Biological Diversity, Friends of the Earth, Cascadia Wildlands, and Center for Food Safety.

We Need You! Please Support Our Important Work

FOMB Leadership

Our accomplishments are due to the hard work of dedicated volunteers, especially those who serve on our committees. If you want to get involved and serve, please contact the committee chair or Ed Friedman. We always welcome member input and we'd love for you to join us!

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Membership Levels

☐ $1,000+ Sturgeon
☐ $750 American Eel
☐ $500 Wild Salmon
☐ $250 Striped Bass
☐ $100 Shad
☐ $50 Alewife
☐ $20 Smelt
☐ Other

Name _____

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☐ $7 Enclosed (optional) for a copy of *Conservation Options: A Guide for Maine Land Owners* [$5 for book, $2 for postage].

☐ Renewal
☐ New Member
☐ Send information about volunteer opportunities
☐ I would like a sticker

Thanks to Rebecca Bowes for newsletter layout.

Join the fun—Summer Outside!

Most FOMB outings are canine-friendly (spectator at Two Coves Farm). Mike Robinson (L) gets private instruction (sometimes it pays to show up!) from National Geographic photographer Mauricio Handler (R) at our Wildlife Photography Workshop and captures Damariscotta alewives with a long lens. Photos: Ed Friedman

Friends of Merrymeeting Bay
P.O. Box 233
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Summer Outside! 2019

All events free* and open to the public. More information at www.fomb.org

JUNE 1 Wildlife Photography with Mauricio Handler *Damariscotta Mills, 8:30am, Mauricio Handler at 504-0733*

JUNE 15 Sheep Dog Demo & Two Coves Farm Tour with Joe Grady *Harpswell, 10 am, Ed Friedman at 666-3372*

JULY 20 Lower Androscoggin Kayak Paddle-Michelle & Stan Moody *Brunswick, Call for time, Michelle Moody at 406-5221*

AUGUST 10 Cathance River Paddle with Michelle & Stan Moody *Bowdoinham, Call for time, Michelle Moody at 406-5221*

AUGUST 24 Forest Insect Walk with Cathy Reynolds *Bowdoinham, 9:00 am – 11:00 am, Ed Friedman at 666-3372*

SEPT 6 Swan Island Outing with Jay Robbins* ($8 Island Fee)* *Richmond, 9:00 am - 1 pm, Jay Robbins at 737-2239*

SEPT 15 Swan Island Circumnavigation by Boat with Jay Robbins* ($ Island Donation Appreciated)* *Richmond, 3:15 - 5:30 pm, Jay Robbins at 737-2239*

Joe Grady and Nuala manage sheep at Two Coves Farm. Photo: Ed Friedman