



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.

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Coordinator/Organizer
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FALL BAY DAY THANKS!

Fall Bay Day, held at the Merrymeeting Bay Wildlife Management Area in Bowdoinham was another success with 125 4th graders from Woolwich, Bowdoin, Bowdoinham schools and North Yarmouth Academy attending. Hands-on classes included anadromous fish printing, archaeology, beach seining, watershed modeling, conservation canines, field sampling techniques, macroinvertebrates and tree, rock and wildlife ecology walks. New for this year was a contingent of Mary Parker's Morse High School students acting as chaperones. Much appreciated by all were lunch wraps from Wild Oats Bakery and a newly graded road thanks to MDIF&W Regional Biologist Keel Kemper.



Bay Day Watershed Activity Photo: Jym St. Pierre

Thanks to guides and helpers:

Betsy Steen, Leslie Anderson, Kathleen McGee, Kent Cooper, Martha Spiess, Steve Eagles, Nate Gray, Tobey Bonney, Fred Koerber, Jay Robbins, Chris Gutscher, Megan McCuller, Tina and Hannah Goodman, Tom Weddle, Grant Connors, Ed Friedman and;

Thanks to chaperones:

Alex Maclaren, Jacob Coulombe, Molly McDonald, Ariana Purington, Taylor Chickerling, Seth Moore, Kody Mackenzie, Casey Rattleff, Korban Angwin, Alissa Ford, Mackenzie Snowden, Angie Valdez, Michael Coffin, Jacob Coffin, Shawn Duke, Tyler Hamilton, Kristen Carr, Mary Parker, Carole Sargent, David Hammond, Joan Llorente, Tom Hughes, Tom Walling and Jeff Sebell.

THEY ARE BIOCIDES, NOT PESTICIDES -- AND THEY ARE CREATING AN ECOCIDE

"A single corn kernel coated with a neonicotinoid can kill a song bird." As a long time environmental lawyer and campaigner, I should not have been stunned by that fact but I was. Shaking my head in dismay, I read on, "Even a tiny grain of wheat or canola treated with the ...neonicotinoid... can fatally poison a bird."

The report is from the American Bird Conservancy and the neonicotinoids referred to are a relatively new class of insecticides that have become the most commonly used in the world, with several hundred products approved for use in the U.S. These "neon-

ics” are neurotoxins that paralyze and eventually kill their victim. My organization, Center for Food Safety, has been working hard to halt the use of these neonicotins through litigation, legislation, and legal petitions to the Environmental Protection Agency. We are suing to address the well-publicized threat that neonicotins present to the survival of honey bees and wild bees. At the time we launched our legal actions, I did not even know about the song birds.

The anger-stirring realization that a song bird could be felled by a single seed and the prospect of bees being silenced forever brought me back to the words of Rachel Carson, written more than half a century ago in *Silent Spring*. “These... non selective chemicals have the power to kill every insect, the ‘good’ and the ‘bad,’ to still the songs of the birds and the leaping fish... they should not be called insecticides but biocides.” Through Carson’s crusade, biocides like DDT were eventually banned but new chemicals like neonicotinoids and other similar “systemic” insecticides/biocides have taken their place causing similar ecological havoc. Sadly, our regulatory agencies under the sway of the agrochemical industry have enabled this tragic and continuing environmental destruction.

I think it is long past due that we who work in the food and environmental movement adopt Carson’s nomenclature. Let’s not refer to pesticides, whether they are insecticides, herbicides or fungicides, by anything but their real name: biocides. Words do matter.

The “cide” ending in all these terms comes from the Latin *caedere* meaning “to kill.” Given that these chemicals are designed to kill that root word is accurate. But using the word pest-icide gives the impression that all these chemicals do is kill “pests,” whether insects, plant, or fungi pests. The neonicotinoids killing bees and song birds puts that delusion to rest. The bee is an insect but not a pest and the song bird is neither an insect nor a pest.

But Carson only referred to insecticides as biocides. Is it fair to put all pesticides, including herbicides and fungicides, in the same pejorative etymological category? Well, let’s look at Monsanto’s Roundup. It is the most widely used herbicide in the world because of the adoption of genetically engineered (GE) crops designed to tolerate the chemical. Is Roundup just a pesticide, a

careful killer of just those “bad” plants called weeds that farmers wish to remove? Of course not. Roundup does so much more than kill plant pests. It wipes out beneficial plants of all sorts: food crops, fruits in the orchard, flowers in the garden, in fact anything that is green. Most of these are not pests or weeds. Among the beneficial plants it destroys is milkweed, on which monarch butterflies depend. The massive use of Roundup in the U.S. has destroyed so much milkweed that monarch butterflies are now at risk of extinction. Monarch butterflies are not pests or weeds.

Then there were the University of Pittsburgh researchers who a decade ago tested how Roundup might impact immature and mature frogs in ponds. This is how the researchers summarized their results: “The most striking result from the experiments was that a chemical designed to kill plants killed 98 percent of tadpoles within three weeks and 79 percent of all frogs within one day.” That is very effective killing indeed, but of course frogs are not pests or weeds. Argentinian researchers using animal models then linked Roundup and its active ingredient glyphosate to cranial malformations and other birth defects long reported in the children of farm workers who were repeatedly exposed to the chemical. Infants are not pests or weeds. And then in March 2015, the World Health Organization’s (WHO’s) cancer authorities -- the International Agency for Research on Cancer (IARC) -- determined that glyphosate is “probably carcinogenic to humans” based on multiple lines of evidence: kidney, pancreatic and other tumors in glyphosate-treated test animals; epidemiology studies showing higher rates of cancer in farmers that used glyphosate; and research showing that glyphosate damages chromosomes, one mechanism by which cancer is induced.

So Roundup is a butterfly killer, a frog killer and potentially an infant and adult human killer. And it has numerous other untold victims, to be sure. None of these are pests or weeds. So let’s not continue to use misleading euphemisms. Roundup is not a pesticide or herbicide; it is a “biocide.”

And now to fungicides. Their use in agriculture in the U.S. has skyrocketed, almost doubling in the last seven years. Unfortunately, research on their ecological and human health impacts has not kept up with the exponential growth in the use of these chemicals. But

there is growing evidence that many of these toxics kill beneficial soil life, disrupting essential soil ecosystems. They are also increasingly becoming a water pollution problem, threatening aquatic life. Research has also pointed to concerning synergistic effects when used in tandem with other pesticides - delivering an even more toxic cocktail to bees and other beneficial insects exposed to the chemicals. Past studies indicate that 90 percent of fungicides are carcinogenic in animal models. To add insult to injury, they are also suspected of increasing obesity, especially in children. These health impacts remind us of yet another Carson insight: "Man is a part of nature and his war against nature is inevitably a war against himself."

Overall, let's contemplate what these biocides are bringing us: vast areas of this country stripped of all vegetation save for monocultured GE crops, devoid of flowers, bees, butterflies and song birds, with contaminated rivers and streams with little or no insect life, and fish and frogs and other aquatic life dead or deformed. Then there are the birth defects and cancers in our own children. What is the word that would encompass the result of our using nearly a billion pounds of biocides each year? I would suggest it is nothing short of ecocide.

Andrew Kimbrell, Founder and Executive Director of the Center for Food Safety

This article appeared in Huffington Post Green Blog on May 6, 2015 Link: http://www.huffingtonpost.com/andrew-kimbrell/they-are-biocides-not-pesticides-_b_7205586.html

WATER HARVEST

In the European Year 1547 (but it could just as well have been 1347....or 1147....etc.) and in an Abenaki summer encampment on the Eastern shore of Merrymeeting Bay, in what is now Woolwich, Maine, the sun poked its head over a mixed forest just beginning to tint of autumn's arrival. A clan of noisy blue jays initially woke Pagamquis. Thousands of dust motes danced in the light filtering in through the wigwam's smoke hole. He quietly slipped past his parents and sister, managed the door flap, and headed for the long house and Soctomah, an older relative with morning fire duty. She fixed him with an earthenware bowl of his favorite herbal tea sweetened with honey. With others he would later eat a morning meal of wild berries and a cooked fish with root paste rolled in a flat bread, stone-baked yesterday from a flour of dried, pulverized cat tail root.

A high sky, gentle breeze from the west and tonight's full moon signaled exciting times for Pagamquis and the many settlements nestled around the 9,000 acre bay...wild rice harvest day. He was now old enough to help with this centuries old spiritual tradition. For the most part, Abenaki women were keepers of the camp. Gathering wild flora and fruit, gardening, cooking....their canoe time was usually only to travel the river "highways" to and from their winter homes, up river and within the deep protected forests. But today they'd play lead roles in collecting this wild grain sown in alluvium mud found around the Bay. The plan was predicated by natural conditions and moon spirits, but came alive around a lively camp fire last night. So as the sun approached its daily zenith and the strong side of an incoming tide moved south to north, the team pushed off from shore.



Arrowhead Photo: Ed Friedman

Of the summer camp's 23 residents, 15 men and women, divided by paddling strength, used 3 birch bark and two

larger dug out pine canoes and headed north to a large island split by the mighty Kennebec River. Swan, or to them “Eagle Island” provided acres of conditions required for wild rice. Pagamquis was middle stroke in a birch bark and his awareness level was acute. He loved the selection of birds and chance to observe large fish from near. The mammoth pines on the south side of where the Eastern River feeds the Bay waved to him. Abenaki owned no property. They were part of the “circle of life” including the land and its abundance of flora and fauna surrounding and encompassing the Bay. Stewardship trumped ownership.

He watched his Mother and sister among a forest of tall tassels. They'd bend a hand full of stalks over the gunnels and flail away with a paddle. The grain rained onto the woven mats that were continuously emptied into woven baskets. The men seemed more interested in looking for fish to spear and lining up their hunting sites than gathering rice. They'd return tomorrow, as the floating spoils of the harvest would attract hungry water fowl and provide targets for their bows and arrows.

Not wanting to be stranded on mud and with baskets stocked the canoes headed to camp on the out-going tide. Their rewards would complement corn, beans, and squash the women grew annually on cleared areas of fertile soil gifted the Bay by the six rivers feeding her. Along with a cache of summer's dried fish and game hunted or trapped around their winter home, the crops should sustain them through the snow months. For Pagamquis, events like today made crafting tools and hunting points in the smoky cramped confines of a winter wigwam worthwhile.

A rich sweet smell of tobacco rose from the older men's pipes as they exchanged opinions and told stories around a fire ring. This followed a feast centered around a steamed rice and fish dish. Based on today's performance, his Father and other elders invited him to begin joining them for boat hunting tomorrow and future trade runs down river.... all the way to Sobagw, the ocean. Wild rice was a treasured trading commodity. Pagamquis would now satisfy his imagined perceptions of ocean life and its unique food types, sand areas, and best, hunting for sparkling shells for his family. Yes, being an Abenaki on Merrymeeting Bay was proving to be a good life.

What this band of Eastern Abenaki Kennebecs was harvesting was zizania aquatica polustris, a native cereal grass. A reported favorite recipe: cooked rice mixed with animal grease and maple syrup. Yum!

Steve Musica

CARP STUDY UPDATE 10-18-15

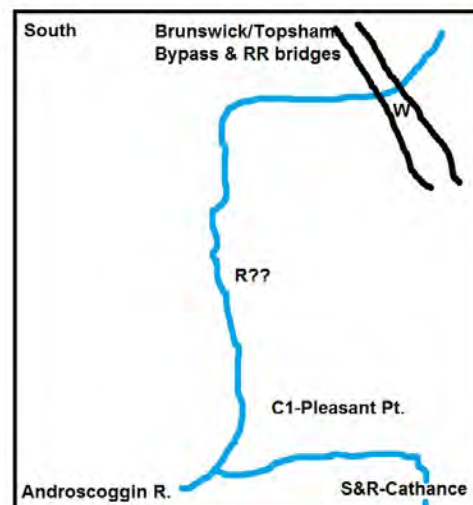
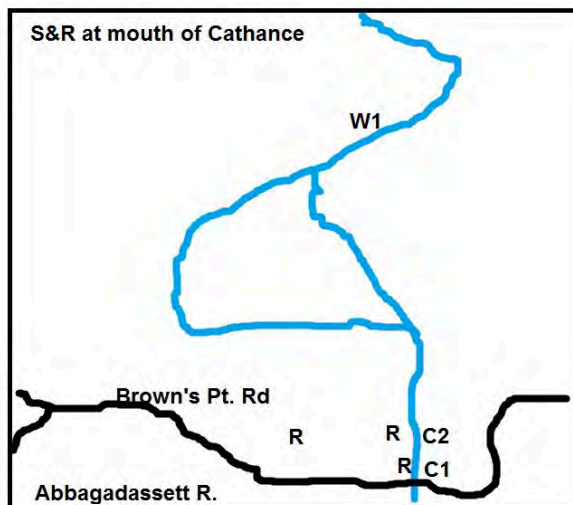
In August of 2014 we surgically implanted radio tags into twelve common carp, two from each of the Bay's six tributaries. Carp were introduced here in the 1880's and are considered an invasive species. They spend their lives rooting around the bottom for food and create an extraordinary amount of suspended sediment causing a high level of turbidity. Because submerged aquatic vegetation (SAV) creates a great deal of food and nursery habitat for young fish as well as invertebrates, biological productivity in the Bay is significantly affected by the amount of SAV.

Photosynthesis is necessary for normal proliferation of SAV and turbidity limits the depth to which photosynthesis can occur. Ergo, carp-induced turbidity is at least a contributing limiting factor to SAV proliferation. Historically, SAV may have grown at a depth of 2-3 meters but with carp-induced turbidity SAV is typically limited to 1 meter at best. The Bay's residence time for water is very long because the Chops constriction retards flows. Add carp to a naturally restricted system and added turbidity easily becomes a problem.

In many smaller systems than the Bay, radio-tagged carp have been tracked back to winter aggregations of the fish, there they have been netted in groups and the turbidity has been dramatically reduced allowing greater biological productivity.

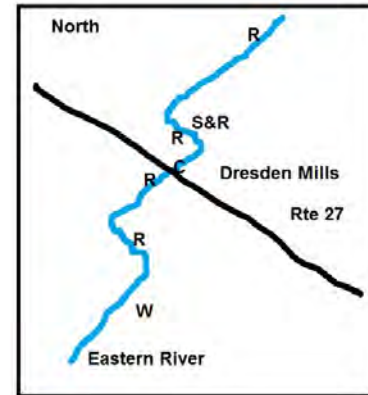
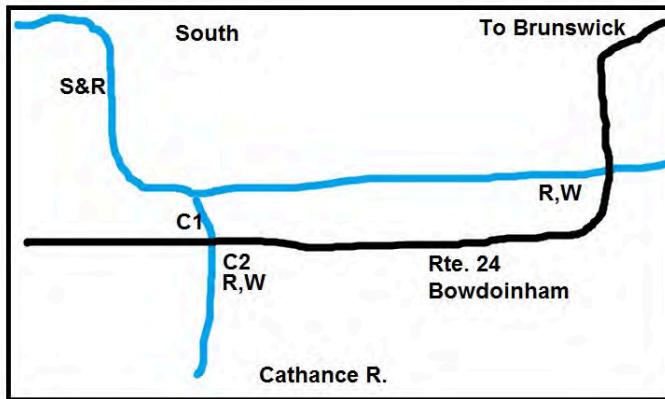
Knowing absolutely nothing about our carp when we began except they seem to spawn in shallow areas, we have lots to learn. Here's what happened and what we know thus far:

1. Nine of the 12 transmitters were located again at some point beginning several days after implanting in carp.
2. Carp had surgery and were released (S&R) varying distances from their capture (C) point. Within a few days, most carp were back at their capture site.
3. Most carp range (R) fairly close to their capture site.
4. In most cases, there do not appear to be significant spatial shifts of carp to winter aggregation areas and there does not appear to be a mixing of fish from different rivers.
5. One Eastern River carp moved downstream from the Dresden Mills bridge a few hundred yards in the winter (W). Summer of 2015, this fish ranged above the bridge as far as $\frac{3}{4}$ mile. We received a faint signal from the second Eastern River fish from Butler Cove in Bath a few days after S&R. It was never heard from again.
6. Both Abbagadasset carp disappeared the first time it got cold in the fall of 2014. Later in the winter one was found maybe $\frac{1}{2}$ mile downstream of the capture site. Once spring came, both fish returned to the capture area (one-lane bridge on Browns Pt. Rd.). But for one two week absence in September, 2015 and some daily excursions, they have stayed in the vicinity of the bridge so far this season. These fish had their surgery and were released much further (at the mouth of the Cathance) from their capture site than any others but were back at the Abbagadasset bridge when first tracked a few days later.
7. The Androscoggin River carp caught at Pleasant Pt. showed up next by the Brunswick/Topsham Bypass and was there for the winter. It has not been found since leaving there. The second Androscoggin fish was caught in Butler Cove, released at Sturgeon Island and has not been heard from again.
8. Cathance carp, both caught by the West Branch Twin Bridges on Rte. 24 in Bowdoinham were released $\frac{1}{2}$ mile downstream. They were shortly back in Bowdoinham where one has stayed by the Twin Bridges and the other by the Bowdoinham Town Landing. On occasion they are out of radio range for a short while measured in hours to a few days.
9. Both Muddy River fish were caught above the Foreside Rd. bridge but only one was heard from again, and has stayed about $\frac{1}{4}$ mile upstream of the bridge.
10. Kennebec carp were both caught in the gut between Swan Island and Little Swan and released a bit upstream at Goodwin Narrows in Dresden. They both came back to the gut, but by October only one was still there and it still is.



Key: C=capture site, S&R=surgery and release site, R=normal range, W=winter location

Not having the local helicopter access we had before this project began, our tracking has been limited to the occasional flight and boat and mostly been done by car at points close to the river. We have covered the area from Bath to Waterville and to head of tide on each tributary. In sharp contrast to reception range of several miles from a radio transmitter out of the water, when submerged, signal propagation is poor and we need to be within 1,000 feet or so to receive a signal. Our transmitters are programmed to go off at night [since we can't track then] which extends battery life for 3-5 years. Hopefully in the next couple of years we can improve and refine tracking methodologies and opportunities to better understand our carp habits. One thing appears sure, Merrymeeting Bay carp do not fit the paradigm of carp in Midwestern lakes described in the scientific literature.



FRIENDS OF MERRYMEETING BAY 2015-2016 SPEAKER SERIES

All talks 7:00pm at Curtis Memorial Library,
Brunswick, unless noted.

- | | |
|-------------|---|
| OCTOBER 14 | Voices of the Tidewater Kennebec
Bud Warren, Historian
Bowdoinham Town Office |
| NOVEMBER 11 | LMF & Public Forests Under Attack
Pete Didisheim, NRCM Advocacy Director
Bridge Academy, Dresden |
| DECEMBER 09 | 300 Years of Fishermen, Farmers & Indians Too
Christopher Sewall, Hermit Island Historian
Bath City Hall |
| JANUARY 13 | Kelping the Earth with a Virtuous Vegetable
Paul Dobbins, Ocean Approved, Inc.
FOMB Annual Meeting & Potluck: 6:00pm,
Public Welcome
Cram Alumni House, Bowdoin College, 83 Federal St., Brunswick |

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 Kathleen McGee. We always welcome member input and we'd love for you to join us!

Steering Committee

Ed Friedman, Chair (Bowdoinham)
 Nate Gray, Treasurer (Freeport)
 Tom Walling, Secretary (Bowdoinham)
 Steve Musica (Richmond)

Education Committee

Betsy Steen, Co-Chair, 666-3468
 Tom Walling, Co-Chair, 666-5837

Conservation and Stewardship Committee

Chair Vacancy

Membership and Fundraising Committee

Nate Gray, Chair, 446-8870

Research and Advocacy Committee

Ed Friedman, Chair, 666-3372

Coordinator/Organizer

Kathleen McGee, 666-1118

Friends of Merrymeeting Bay • PO Box 233 • Richmond, Maine 04357

Membership Levels

- | | | |
|---|---|-------------------------------------|
| <input type="checkbox"/> \$1,000+ Sturgeon | <input type="checkbox"/> \$250 Striped Bass | <input type="checkbox"/> \$20 Smelt |
| <input type="checkbox"/> \$750 American Eel | <input type="checkbox"/> \$100 Shad | <input type="checkbox"/> Other |
| <input type="checkbox"/> \$500 Wild Salmon | <input type="checkbox"/> \$50 Alewife | |

Name _____

Address _____

Town/State/Zip _____

Phone _____

Email _____

- | | |
|-------------------------------------|---|
| <input type="checkbox"/> Renewal | <input type="checkbox"/> Send information about volunteer opportunities |
| <input type="checkbox"/> New Member | <input type="checkbox"/> I would like a sticker |

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



Thanks to Will Zell and Zellous.org for newsletter layout.

FEBRUARY 10

The Mortal Sea

Jeff Bolster, UNH Marine Historian & Author

MARCH 09

Maine's Rare & Endangered Invertebrates

Phillip deMaynadier, Wildlife Biologist, MDIF&W

APRIL 13

Royalty of the River: Kennebec Sturgeon Status

Tom Squiers, Fisheries Biologist, formerly MDMR

MAY 11

In the Company of Bears

Ben Kilham, Independent Wildlife Biologist & Author

For more information on Speakers and Programs please visit our website.



Friends of Merrymeeting Bay
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FALL BAY DAY PHOTOS

“Fall Bay Day held at the Merrymeeting Bay Wildlife Management Area in Bowdoinham was another success with 125 4th graders from Woolwich, Bowdoin, Bowdoinham schools and North Yarmouth Academy attending.”



Photos: Jym St. Pierre