



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 in our [online edition](http://www.fomb.org) at [www.fomb.org](http://www.fomb.org)

For more information, contact:

Ed Friedman  
Chair  
207-666-3372  
[edfomb@comcast.net](mailto:edfomb@comcast.net)

## Lower Androscoggin Upgraded!

Finally, after about 15 years of FOMB efforts, over 20 years of our citizen volunteer monitoring, and on the 50th anniversary of the Clean Water Act, for which the Androscoggin River was a poster child, part of the lower Androscoggin has received a State classification upgrade from C to B.

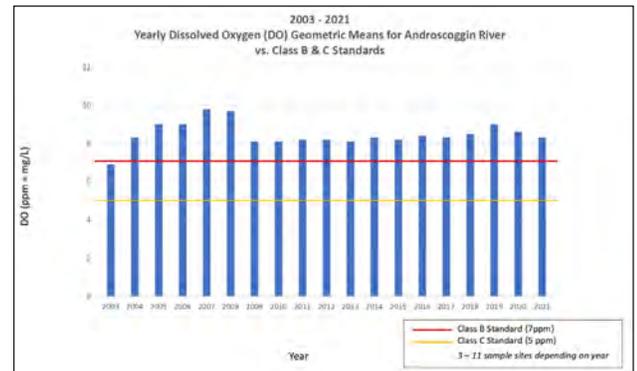
The change, signed into law on March 31, locks in existing Class B quality from the Bay to Worumbo dam in Lisbon Falls. Statutory language prohibits backsliding without major review and virtually impossible EPA approval. With the prior regulatory situation of ambient conditions better than classification minimums, river water quality could have been degraded from actual conditions while still meeting its then current Class C classification. *There was "room to pollute."*

Water quality classification is based largely on dissolved oxygen (DO) and bacteria levels, but also on the type and number of macroinvertebrate aquatic species present and the water quality they are indicative of.

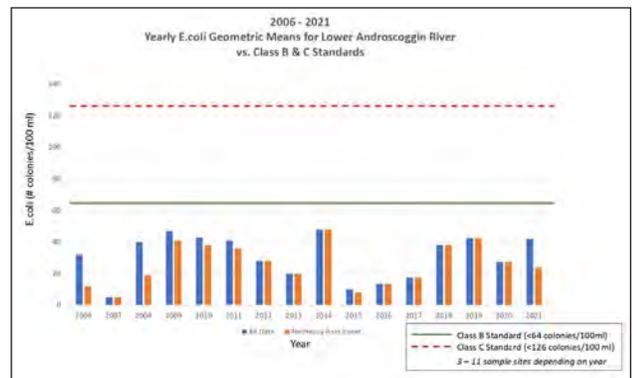
In summer, the dissolved oxygen content of Class B waters may not be less than 7 parts per million or 75% of saturation, whichever is higher. For Class C it is not less than 5 parts per million or 60% of saturation, whichever is higher. The higher the DO, the more not only *fish-friendly*, but for species like Atlantic salmon, *fish-critical*.

Between April 15 and October 31, the number of Escherichia coli (E. coli) bacteria in these waters may not exceed a geometric mean of 64 colony-forming units (CFU) per 100 milliliters over a 90-day interval or 236 CFU per 100 milliliters in more than 10% of the samples in any 90-day interval. For Class C during this same period, the number of E. coli bacteria may not exceed a geometric mean of 100 CFU per 100 milliliters over a 90-day interval or 236 CFU per 100 milliliters in more than 10% of the samples in any 90-day interval. Low bacterial levels are better and safer for all species in and on the river, including recreational users.

Aquatic macroinvertebrates are sampled using mesh bags or wire baskets full of standardized measures of cobblestone. They are set on the bottom generally for about 28 days to see what species colonize them. Please see the article entitled "Bugs" in our



Yearly DO geometric means 2003-2021 Lower Androscoggin



E. Coli geometric means 2006-2021 Lower Androscoggin



*Lower Androscoggin Upgraded! continued from page 1*

[Summer 2021 issue](#) for details on this effort. Bug taxonomy is done on the colonizers, with species and abundance then submitted to the DEP for input to their classification models. The model then spits out a hopefully appropriate classification type. Our [final report](#) is posted in the FOMB web cybrary in both [Biology](#) and [Chemical](#) sections.

**Results of the DEP linear discriminant model (LDM) and DEP determinations for six (6) sites on the Androscoggin River between Lewiston and Brunswick.**

| Site | Probability of Class A | Probability of Class B | Probability of Class C | Probability of Nonattainment | DEP Final Determination |
|------|------------------------|------------------------|------------------------|------------------------------|-------------------------|
| 1    | 16%                    | 99%                    | 100%                   | 0%                           | B                       |
| 2    | 1%                     | 51%                    | 100%                   | 0%                           | B*                      |
| 3    | 6%                     | 97%                    | 100%                   | 0%                           | B                       |
| 4    | 0%                     | 0%                     | 100%                   | 0%                           | C                       |
| 5    | 2%                     | 4%                     | 100%                   | 0%                           | C                       |
| 6    | 1%                     | 31%                    | 100%                   | 0%                           | C                       |

\*DEP used Best Professional Judgement: Indeterminate for Class B (p = 0.51); raised to Class B based on community structure.

While ideally we had hoped for an upgrade to Gulf Island Pond or even Great Falls in Lewiston, our strongest data have always been from the Bay to Worumbo dam. Sampling Site 1 in the table above was a short distance below I-95, Site 2 a mile below Durham Boat Launch, Site 3 between Durham and Sabattus Stream mouth, Site 4 below Sabattus Stream mouth, Site 5 below Worumbo dam opposite the Pejepscot Boat Launch, and Site 6 just upstream of I-295. Ironically, sites within the upgrade area, 5 and 6, model out at Class C. This is because both of these sites, as well as Site 4, are within dam impoundments characterized by unusually stagnant water with higher temperature, less oxygen, and often denser substrates, less hospitable to invertebrate colonization.

Because of their unique characteristics, hydropower impoundments are granted certain exemptions by the legislature under [MRSA Title 38 §464. 10](#). In summary, the statute says that because of the aquatic life differences of impoundments, if a river with impoundments is classified as A or B, the impoundment itself shall also be considered to meet that standard, provided it at least meets C criteria; unless:

- (1) Reasonable changes can be implemented that do not significantly affect existing energy generation capability; and
- (2) Those changes would result in improvement in the habitat and aquatic life of the impounded waters.

If the conditions described in (1) and (2) occur, those changes must be implemented and the resulting improvement in habitat and aquatic life must be achieved and maintained. According to statute, a determination should be made whether above conditions 1 or 2 apply to river sections encompassing Sites 4, 5, and 6 and, if so, improvements must be implemented (to meet Class B conditions). If 1 and 2 do not apply, Class B conditions are deemed to have been met in these impoundments. While our current upgrade did not extend further upstream, aquatic life sampling results for sites 1–4 bode well for future efforts!

*Ed Friedman*

## *Volunteers Make it Possible!*

Thanks to so many dedicated FOMB volunteer water quality monitors for their work over the years! While many organizations have citizen water monitors and there is plenty of merit to just involving volunteers, FOMB tries when possible to use our research efforts to inform our advocacy. We have done so here to influence regulatory classification upgrades on both the Kennebec and Androscoggin Rivers. Thanks, in no particular order, to our many water quality monitors and other volunteers over the years:

**Androscoggin:** Richard Nickerson, Colleen Moore, Sarah Cowperthwaite, Helen Watts, Becky Bowes, Ed Friedman, Charlie Spies, Leon Ogradnik, Christina Eppesson, Michael Auger, Beverly Johnson, Nancy Murphy, Ken Emerson,

*Continued on next page*

***Volunteers Make It Possible! continued from page 2***

Melinda Emerson, Michael Ebert, Kermit Smyth, Judith Hunnewell, Tamara Whitmore, Debi Davidson, Guy Primierie, Margaret Soulman, Diane Richmond, Linda Hutchins, Misty Gorski.

**Kennebec:** Jim Thibodeau, Dave Hedrick, Clancy Cummins, Dee Cummins, Phil Brzozowski, Ed Friedman, Kathleen McGee, Bill Milam, Justin Smith, Theresa Torrent-Ellis, Dave LaChapelle, Warren Whitney, Erin O'Hare, Barbara O'Hare, Craig Denis, Steve Eagles, Art Carrano, Don Taylor, Bill Barron, Bill Kunitz, Pippa Stanley, Judy Lipetz, David Wall, Kathie Duncan, Tom Walling, Ed Benedikt, Allegra Boyd, Jonathan Goldthwaite, Wendy Rose, Milo Stanley, Katherine Dunn, Andrew Fiori, Muriel Hendrix, Ruth Innes, Heather Cox, Anna Cox, Olive Cox, Tom Gilbert, Tom Hughes, Peter Johnson, Charles Dyke, Penny Fox, Ned Baxter, Simon Beirne, Kate McLinn.

**Cathance:** Phil Brzozowski, Bryce Muir, Don Herbert, Warren Whitney, Dave Sherwood, Grace Sherwood, Bert Singer.

**Abbagadasset:** Helen Watts, Bill Briggs, Warren Whitney, David Whittlesey, Steve Eagles, Grace Sherwood.

**Eastern:** Steve Eagles, Justin Smith, Bruce Trembly, Phil Brzozowski.

**Lab processing:** Ruth Innes, Heather Caron, Jeff Sebell, Kermit Smyth, Ed Friedman.

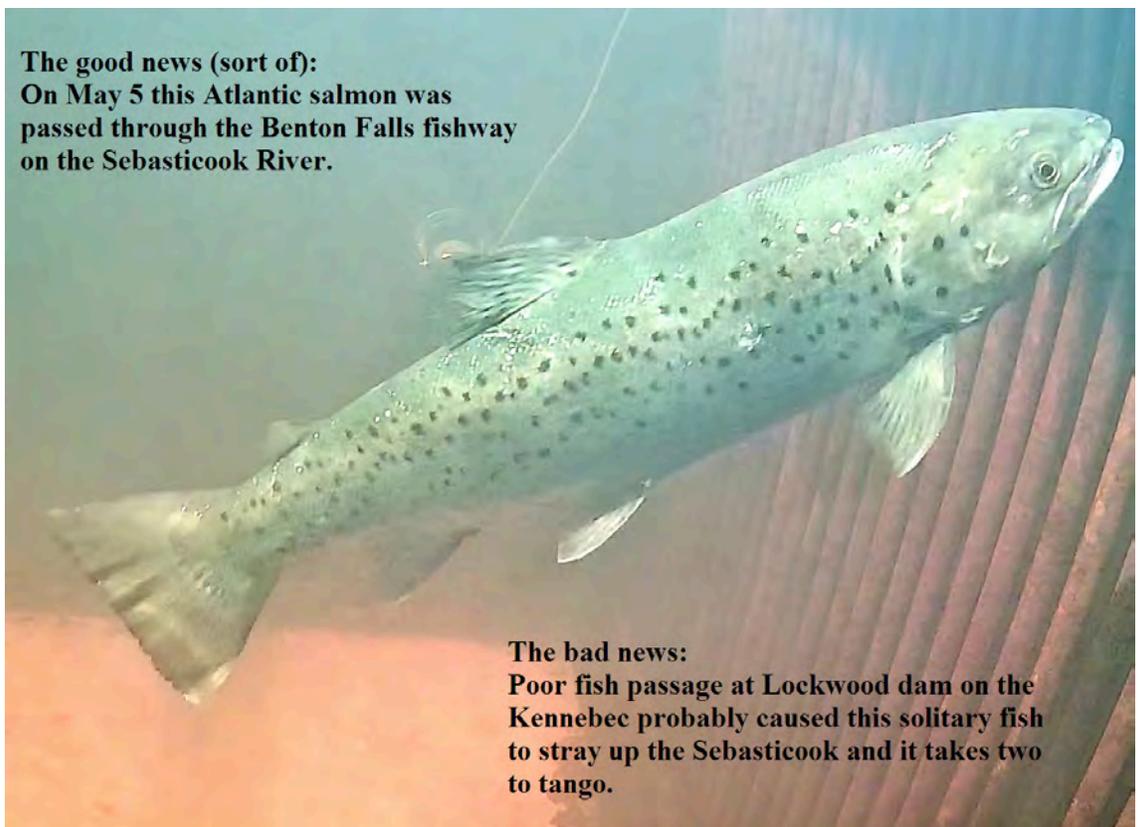
**Coordinators:** Theresa Torrent-Ellis, Bill Milam, Kathleen McGee, Kermit Smyth, Ed Friedman.

**Special thanks to:** Peter Milholland and Mike Doan, water quality coordinators from Friends of Casco Bay for refresher course support, Sandra and Mike Salazar for early Androscoggin reports, Emily Bastian for graphics help, attorneys Steve Hinchman, Rachel Doughty and Scott Sells, Peter Rubins of Grow L+A for his motivational enthusiasm, catalyst for this most recent upgrade effort, BEP members who voted unanimously for the upgrade against DEP recommendations and former state senator John Nutting and his colleagues over the years for their legislative leadership on efforts including the Color, Odor, Foam Bill, 1990; Dioxin Bill, 1996; and Phosphorus Bill passed in 2006, all helping lead to major improvements on Maine waters including sewer system upgrades by the cities of Lewiston and Auburn providing storm overflow protection; and the Gulf Island Pond Oxygenation Project.

**And to Androscoggin upgrade partners over the years (some Occasional [O], some Steady [S]):**

Towns of Brunswick [S], Topsham [S], Durham [O], Lewiston [S], Auburn [S], Brunswick Sewer District [S], Auburn Wastewater District [S], Androscoggin River Alliance [S], Natural Resources Council of Maine [O], Maine Rivers [O], Brunswick Topsham Land Trust [O], Friends of Casco Bay [S], Downeast Salmon Federation [S], Maine Council Trout Unlimited [S], Alewife

Harvesters of Maine [O], Atlantic Salmon Federation [S], Conservation Law Foundation [O], Maine Audubon [S], Native Fish Coalition [S], Grow L+A [S], Maine Municipal Association [O], Lewiston-Auburn Metropolitan Chamber of Commerce [O], Friends of Sebago Lake [S].



**The good news (sort of):**  
On May 5 this Atlantic salmon was passed through the Benton Falls fishway on the Sebasticook River.

**The bad news:**  
Poor fish passage at Lockwood dam on the Kennebec probably caused this solitary fish to stray up the Sebasticook and it takes two to tango.

## *Friends of Merrymeeting Bay Petitions U.S. Supreme Court in CMP Nuisance Case*

Richmond, Maine 4/11/22: On Friday, Friends of Merrymeeting Bay (FOMB) and three individuals (all FOMB members) filed a [petition for writ of certiorari](#) (cert) with the U.S. Supreme Court (SCOTUS) in a nuisance case brought by the group against Central Maine Power (CMP).

The [original claims](#) revolve around tower lighting and associated radiofrequency radiation (RFR) emissions, both of which the petitioners maintain are harmful to people and the environment and entirely discretionary on the part of CMP.

Justice Michaela Murphy in Maine Business and Consumer Court [agreed](#) with [CMP's motion to dismiss](#) because FOMB claims were subject to federal preemption by the FAA and FCC. FOMB and several co-plaintiffs disagreed because FAA obstruction lighting guidelines are advisory only. They [appealed](#) to the Maine Law Court. The Law Court unfortunately [affirmed](#) Murphy's ruling.

"How can a recommendation or advisory preempt actual law or ordinance?" rhetorically asked Kathleen McGee, one of the plaintiffs, appellants, and now petitioners.

"We believe the Maine courts committed a grievous error in judgement at a cost to all Mainers." McGee, who spends much of her time outside, working and recreating, has sensitivities to both RFR and strobe lighting. She can no longer look in the direction of Merrymeeting Bay if the towers are flashing.

The central question of the SCOTUS petition is whether issuance of a nonbinding "No Hazard Determination" by the FAA preempts the application of state law, despite the Determination's text stating it "does not relieve" an entity from compliance with state law. Petitioners contend the Maine court decisions harm the cooperative federalism structure of the Federal Aviation Act and now give any federal agency the power to preempt state and local laws using only an agency advisory document.

Cooperative federalism is meant to ensure a regulatory partnership between federal and state governments. The Tenth Amendment to the constitution states specific powers not expressly delegated to the federal government or prohibited to the states are left to the states and by extension, the people.

"This is essentially a local control issue" said FOMB's Ed Friedman. "What makes it

No. \_\_\_\_\_

---

In The  
**Supreme Court of the United States**

---

FRIENDS OF MERRYMEETING BAY, KATHLEEN  
MCGEE, ED FRIEDMAN, and COLLEEN MOORE,  
*Petitioners,*

v.

CENTRAL MAINE POWER COMPANY,  
*Respondent.*

---

**On Petition For Writ Of Certiorari To The  
Supreme Judicial Court Of The State Of Maine**

---

**PETITION FOR WRIT OF CERTIORARI**

---

|   |  |
|---|--|
| <p>WILLIAM B. MOST<br/><i>Counsel of Record</i><br/>DAVID J. LANSER<br/>MOST &amp; ASSOCIATES<br/>201 St. Charles Avenue<br/>Ste. 114, # 101<br/>New Orleans, LA 70170<br/>(504) 509-5023<br/>williammost@gmail.com</p> | <p>BRUCE M. MERRILL<br/>LAW OFFICES OF<br/>BRUCE M. MERRILL, P.A.<br/>225 Commercial Street<br/>Ste. 501<br/>Portland, ME 04101<br/>(207) 775-3333<br/>mainelaw@maine.rr.com</p> |
|---|--|

*Counsel for Petitioners*

---

COCKLE LEGAL BRIEFS (800) 225-6004  
WWW.COCKLELEGALBRIEFS.COM

*Continued on next page*

*Friends of Merrymeeting Bay Petitions U.S. Supreme Court in CMP Nuisance Case, continued from page 4*

so crazy is that two Maine Courts have, despite statutory and regulatory language to the contrary, unnecessarily (and unsolicited by the FAA), relinquished fundamental rights inherent to Maine and Mainers, to the feds.”

For 80 years unlit towers stood at this power line crossing of the Kennebec River between Woolwich and Bath at the Chops, even though air traffic in the area was far higher in post WWII years than now, when it is essentially nonexistent. In their past iteration, even the power lines themselves were never marked.

In 2019, CMP replaced the towers and, with no public notice or regulatory disclosure, the slightly higher new towers were lit with three levels of strobing lights, white in the daytime and red at night, totaling 600 flashes per minute.

FOMB and other residents claim the lights destroy the Bay’s previously dark sky and may adversely impact birds, bats, insects, and other important wildlife, while also decreasing property values and causing seizures in anyone with photo-sensitive epilepsy. Plaintiffs have no objection to the passive marking balls now installed on a wire between the towers. Towers at this location would need to be 400’ high to be considered de facto obstructions to air navigation. These are only 240’, and minimum safe altitudes for airplanes are 1,000’ above and 2,000’ horizontally from the highest ground structures in a given area. The towers are also marked on aeronautical charts.

After nearly a year of complaints, CMP spent \$2,000,000 to install a radar-operated lighting control system to theoretically turn the lights on only when aircraft are within 3 miles and 1,000 vertical feet from the towers.

Yet, overpowered radiofrequency radiation emissions from the radar extend nearly 30 miles and, in addition to aircraft, lights are triggered by precipitation and birds.

In 2011, the World Health Organization classified this radiation as a possible human carcinogen and in 2018 the National Institutes of Health National Toxicology Program found whole-body exposure to this low-level RFR showed clear evidence of heart tumors, some evidence of brain and adrenal tumors, and significant increases in DNA damage to the frontal cortex of the brain in exposed male mice, the blood cells of female mice, and the hippocampus of male rats.

[William Most](#), primary legal counsel for the group, noted that “the Maine courts’ decisions create real problems by undermining the structure of the Federal Aviation Act.” Most, an experienced litigator, believes this case may pose some far-reaching questions appealing to the Supreme Court. “Getting the U.S. Supreme Court to hear you is always a challenge,” he said, “but we hope the Court will take up the issue and allow the plaintiffs to show how CMP’s choices hurt CMP’s neighbors.”

In 2001 Merrymeeting Bay was designated a Globally Important Bird Conservation Area by the American Bird Conservancy. The original complaint cites various scientific studies detailing how both CMP’s Chops tower lighting and microwave transmitting radar may be particularly egregious to the Bay’s vital bird, bat, and insect populations.

Collen Moore, a third petitioner, lives in her small home at the mouth of the Androscoggin just across from the towers. As a competitive canoe racer she spends hours on the Bay practicing and is directly affected daily by both lights and radiation, both of which she is sensitive to. “What CMP has done to the Bay is unconscionable,” Moore said. “For the 4th year in a row they have come up last in JD Power’s utility customer service survey, and it’s no surprise, given the way they continually stomp on Mainers and our outstanding environment.”

FOMB has suggested quite a few zero-impact and low-cost or no-cost alternatives to lighting and radar from just turning the lights off to passive aircraft detection and/or pilot controlled lighting, but all were rejected by CMP.

For many including Representative Seth Berry, this leads to an inescapable conclusion:

“Follow the money,” said Berry, whose district has been especially hard-hit by CMP’s project. “Utilities in Maine receive an essentially guaranteed rate of return on equity of 10-14%, paid for through rate increases. The bigger

---

*“This fiasco at Merrymeeting Bay is another glaring example of Mainers being hurt by CMP and being charged for it at the same time.”*

*--Representative Seth Berry*

---

*Continued on next page*

### *Friends of Merrymeeting Bay Petitions U.S. Supreme Court in CMP Nuisance Case, continued from page 5*

the project and the more bells and whistles, the more profit they make. This fiasco at Merrymeeting Bay is another glaring example of Mainers being hurt by CMP and being charged for it at the same time.” Berry is House Chair of the Maine Legislature’s Joint Standing Committee on Energy, Utilities, and Technology, and strong proponent of Maine converting its for-profit power utilities to not-for-profit consumer ownership.

Friends of Merrymeeting Bay and the individual co-petitioners are represented by Most & Associates (<https://mostandassociates.com/>) in New Orleans and the Law Offices of Bruce M. Merrill in Portland.

Petition link [here](http://cybrary.fomb.org/pages/FOMB%20SCOTUS%20Cert%20Petition%20and%20Appendix-Combined%20Final%204-8-22.pdf) or: <http://cybrary.fomb.org/pages/FOMB%20SCOTUS%20Cert%20Petition%20and%20Appendix-Combined%20Final%204-8-22.pdf>

See the second item down at: <http://cybrary.fomb.org/legal.cfm>

*Ed Friedman*

## *Tick Wise: Lyme Disease in Maine*

With warmer weather on its way, Lyme Disease Awareness Month is here again! Health care providers reported 1,508 cases of Lyme disease in 2021 (as of March 25, 2022).

The 2022 Lyme Disease Awareness Month theme this May is “Tick Wise.” This reminds us to stop and practice tick prevention measures frequently. The easiest way to avoid tick-borne diseases is preventing tick bites. Please remember to be “Tick Wise” and:

1. Know tick habitat and use caution in areas where ticks may live.
2. Wear light-colored clothing that covers arms and legs.
3. Use an EPA-approved repellent such as: DEET, picaridin, IR3535, or oil of lemon eucalyptus.
4. Perform tick checks on yourself, family members, and pets daily and after any outdoor activity. Take a shower after exposure to a tick habitat to wash off any crawling ticks.

Infected deer ticks can spread the bacterium that causes Lyme disease when they bite. For transmission to occur, the deer tick must be attached for 24–48 hours. Use frequent tick checks to find and remove ticks as early as possible.

In Maine, adults over the age of 65 years and children between the ages of 5 and 15 years are at highest risk of Lyme disease. People that work or play outside are also at high risk of encountering infected ticks.

If a tick bites you or you spend a lot of time outdoors, make sure to watch for symptoms for up to 30 days after exposure. Also be sure to call a healthcare provider if symptoms develop. The most common symptom of Lyme disease is a skin rash. This is better known as the “bull’s-eye” rash. The rash usually appears 3–30 days after the tick bite and can show up at the bite site or anywhere else on the body. Other symptoms include fever, headache, and joint or muscle pain.

Lyme disease is treatable, and most people recover fully. Lyme disease is not the only disease that deer ticks in Maine can carry. Anaplasmosis, babesiosis, *Borrelia miyamotoi* disease, and Powassan virus disease are other tick-borne infections found in Maine, which saw record cases of anaplasmosis and babesiosis in 2021 and tied the record number of Powassan virus disease infections statewide.



**Deer tick**  
Image by Erik Karits from Pixabay

*Continued on next page*

*Tick Wise: Lyme Disease in Maine, continued from page 6*

The deer tick is the only species of tick in Maine that can pass the bacterium that causes Lyme disease. Still, there are several other species of ticks found across the state. Tick identification is important, especially when removing ticks. Free tick identification resources can be ordered at the Maine CDC website. University of Maine Cooperative Extension Tick ID Lab also offers tick identification and testing services.

**Resources:**

- Lyme disease information available at [www.maine.gov/lyme](http://www.maine.gov/lyme)
- Lyme disease data is available through the Maine Tracking Network at [www.maine.gov/lyme](http://www.maine.gov/lyme) under “Maine Tracking Network: Tick-borne Diseases” on the left-hand side of the page
- University of Maine Cooperative Extension Tick ID Lab submission instructions found at [www.ticks.umaine.edu](http://www.ticks.umaine.edu)
- For additional questions, please call Maine CDC at 1-800-821-5821 or email [disease.reporting@maine.gov](mailto:disease.reporting@maine.gov)
- Tick-borne disease videos found at <http://www.maine.gov/idepi> under “Videos” on the left-hand side of the page
- Tick identification resources and other materials available to order at [www.maine.gov/dhhs/order](http://www.maine.gov/dhhs/order)
- To continue getting Lyme updates throughout May, follow Maine CDC on Facebook, Instagram, and Twitter

*Maine Center for Disease Control and Prevention*

**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!

**Steering Committee**

- Ed Friedman, Chair (Bowdoinham)
- Vance Stephenson, Treasurer (Beavercreek, OH)
- Tom Walling, Secretary (Bowdoinham)
- Simon Beirne (Gardiner)
- Becky Bowes (Brunswick)
- Phil Brzozowski (Brunswick)
- Nate Gray (Vassalboro)

**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

**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       |                                     |

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

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                         |



Thanks to Rebecca Bowes for newsletter layout.



Friends of Merrymeeting Bay  
P.O. Box 233  
Richmond, ME 04357

Return Service Requested

NON-PROFIT  
ORGANIZATION

**PAID**  
PERMIT NO. 1  
Dresden, ME



Printed on Genesis Writing. 100% Recycled, 100% post-consumer waste, processed chlorine-free.

**Did our Speaker Series fly by without you?**

Jon Mirin stars in-  
*To Bee or Not To Bee*

**Watch recorded programs linked under Education on the right side of our home page at [www.friendsofmerrymeetingbay.org](http://www.friendsofmerrymeetingbay.org)**

FOMB hosts our Winter Speaker Series October–May, the second Wednesday of each month. Unfortunately, due to continued high rates of Covid infections, we are not scheduling our usual Summer Outside Series but may offer some pop-up events should pandemic conditions dramatically improve.