

# Merrymeeting Bay

## A Self-Guided Nature Tour of Merrymeeting Bay

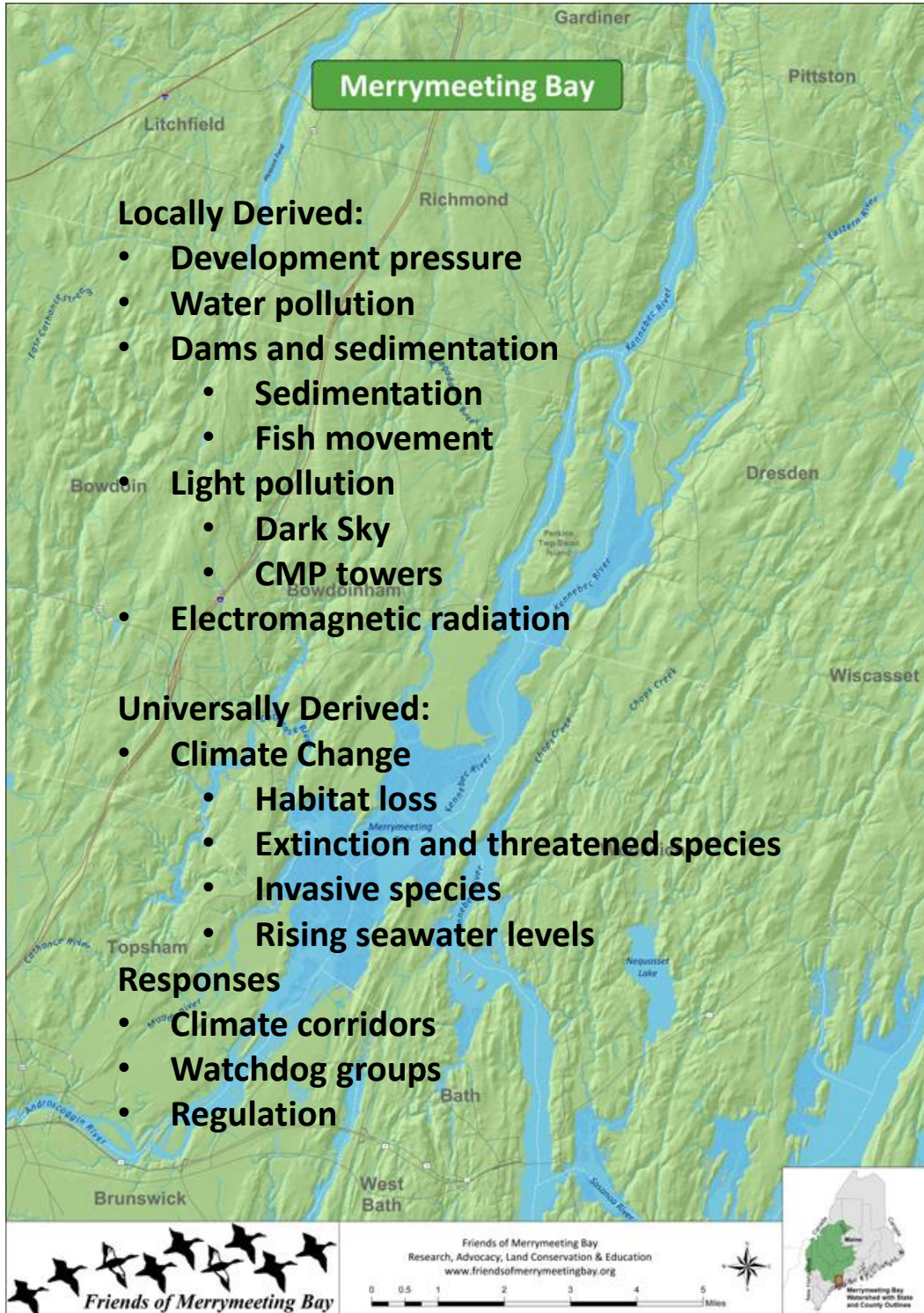
Terry Porter  
Midcoast Senior College  
Fall 2024

A Natural History Introduction to Merrymeeting Bay  
With Walks in Five Preserves that Touch the Bay

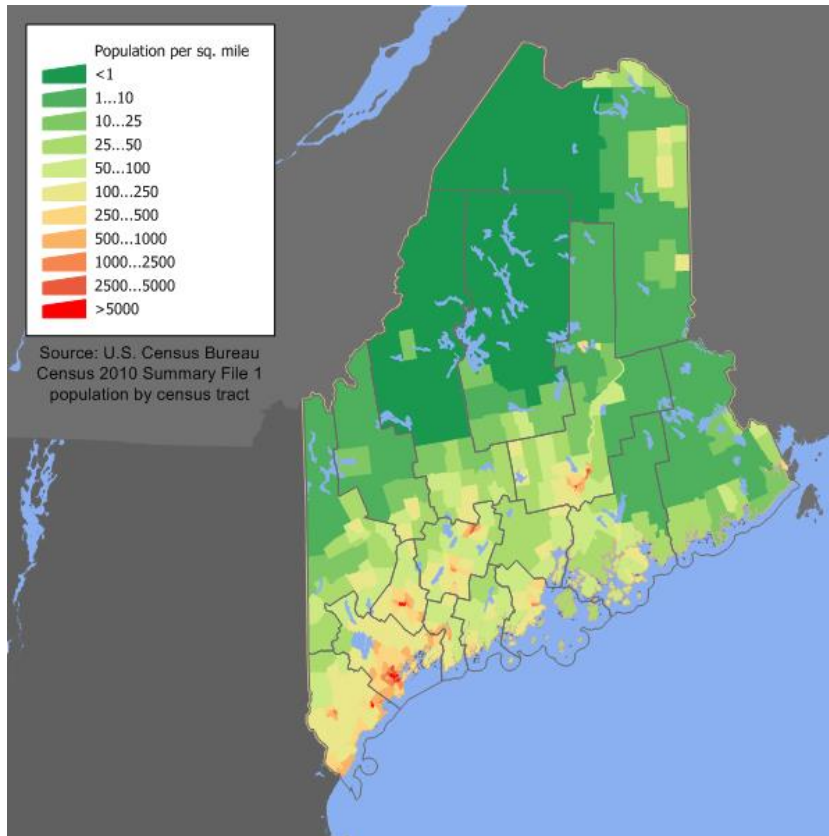




# Threats to the Bay



# Development Pressure

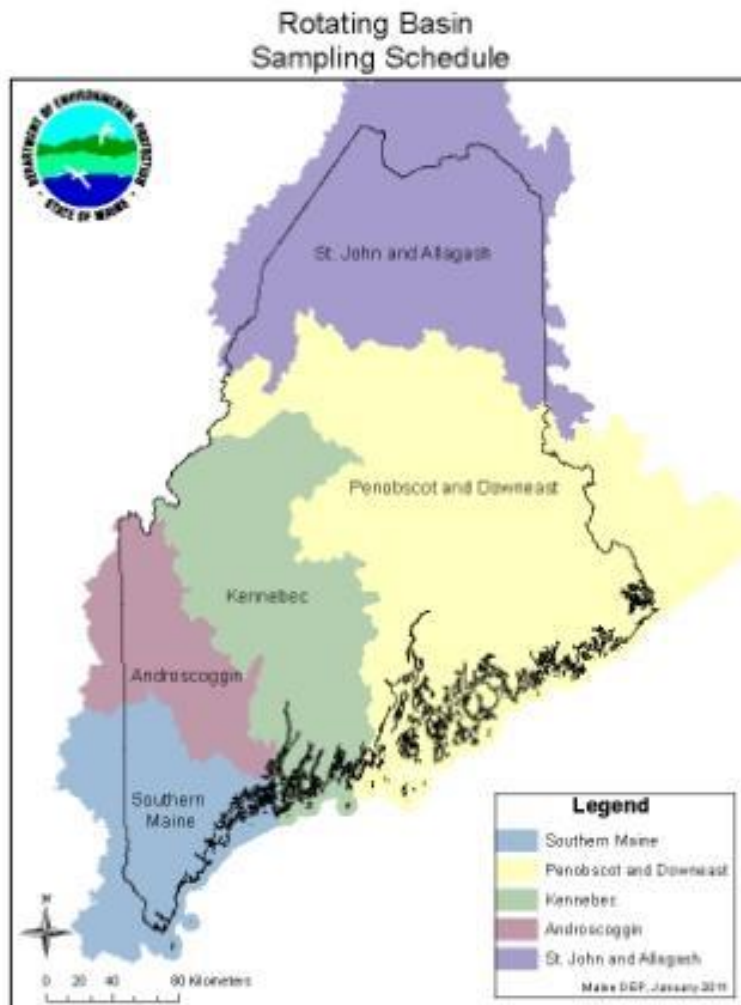


$$\begin{aligned} \text{Environmental Impact} = \\ & P \text{ (population)} \\ & \times A \text{ (affluence)} \\ & \times \underline{T \text{ (technology)}} \end{aligned}$$

e.g. US has 5% of world population but emits 25% of carbon emissions; Rich world plus China = 66% of world carbon emissions,  
Africa (20% of world population) = 3%.

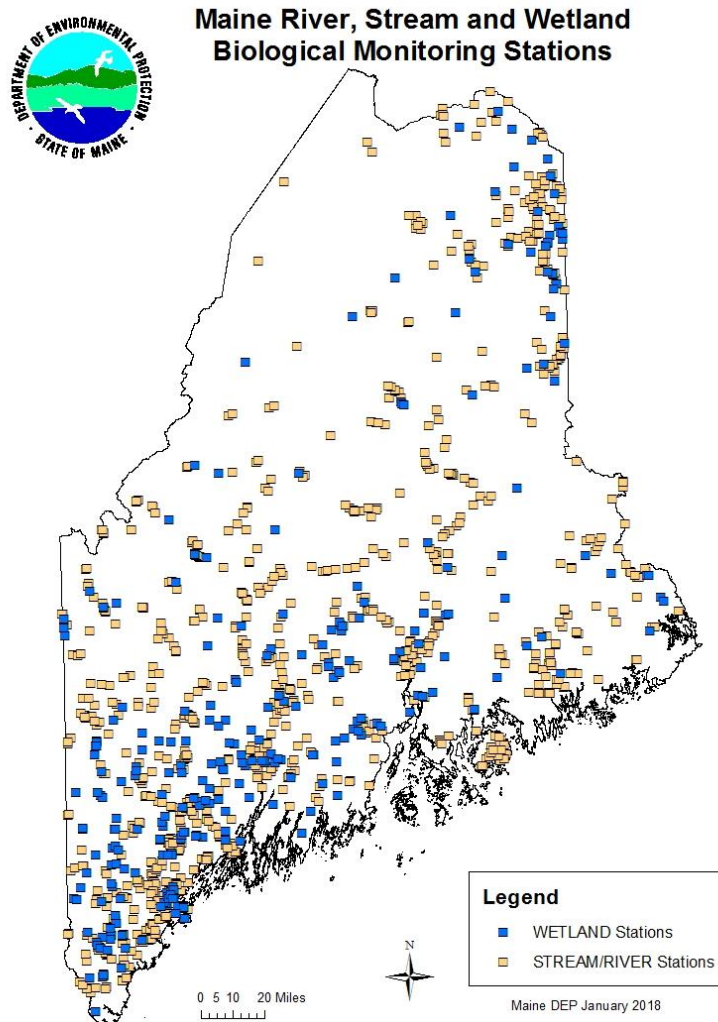
# Water Pollution

- Because Merrymeeting Bay carries 40% of Maine's rainfall,
- pollution on any upstream territory must pass through the Bay.
- Also, as water enters the Bay and slows down, it drops its upstream silt.



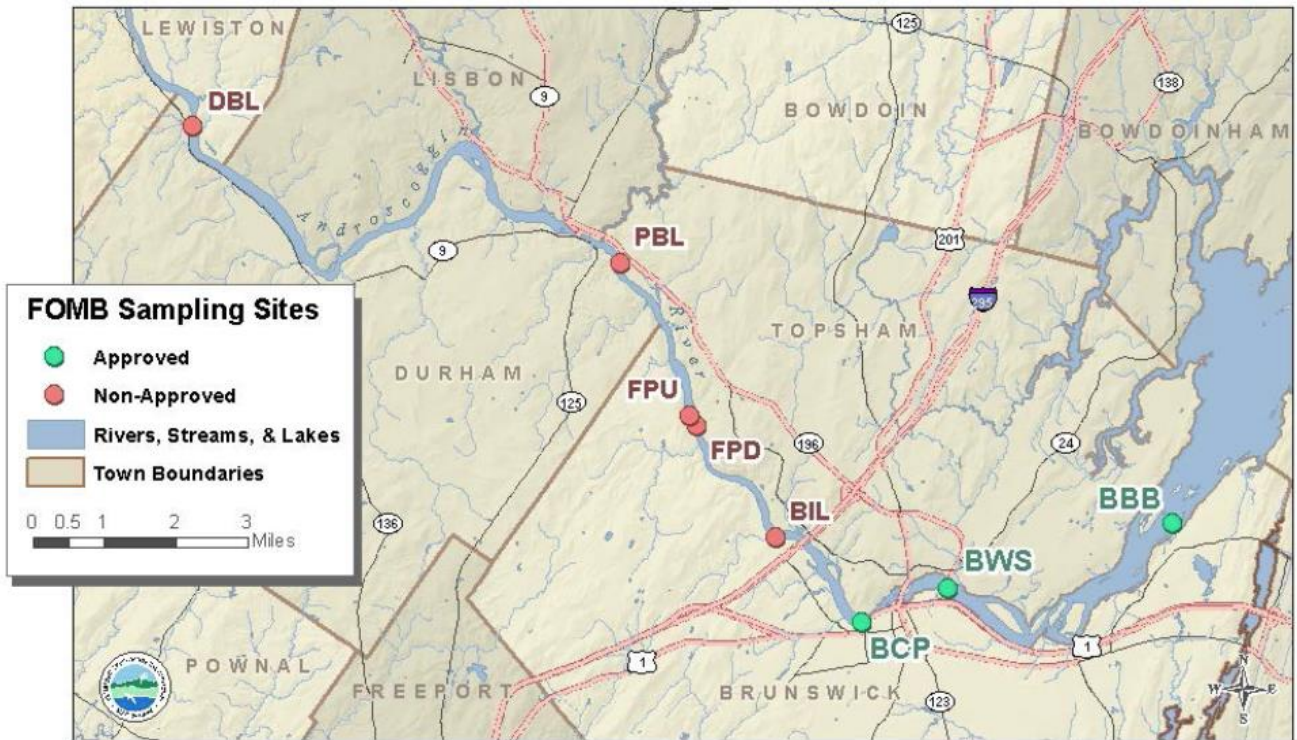
# Water Monitoring by FOMB and Maine DEP

- Federal Clean Water Act 1972
  - Point Source: homes, sewage treatment and industrial plants, pipes, man-made ditches
  - Non-point source: runoff from agricultural, mining, urban, residential sites, drainage and seepage.
- Maine DEP Biological Monitoring Program
  - Class A – Drinking water without conventional tx after disinfection.
  - Class B – Outdoor bathing.
  - Class C – Drinking water with conventional treatment and disinfection.
  - Class D – fish culture and wildlife propagation.
  - Class E – Irrigation, industrial, controlled waste disposal.





# Androscoggin River Sample Sites



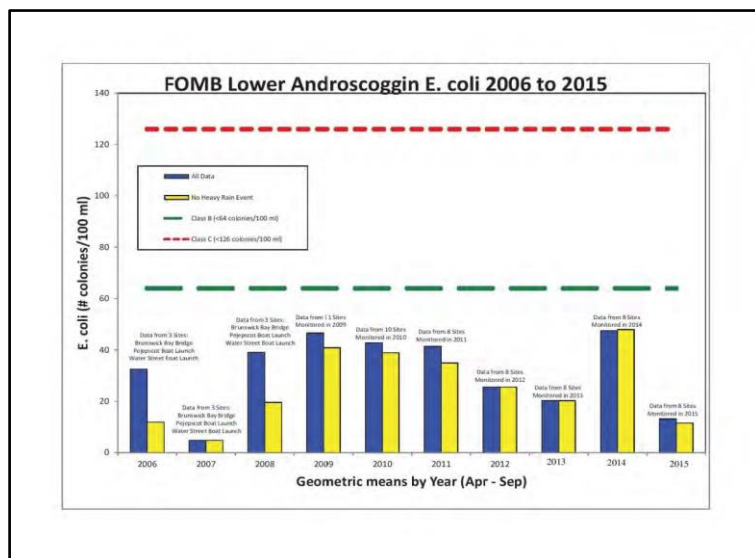
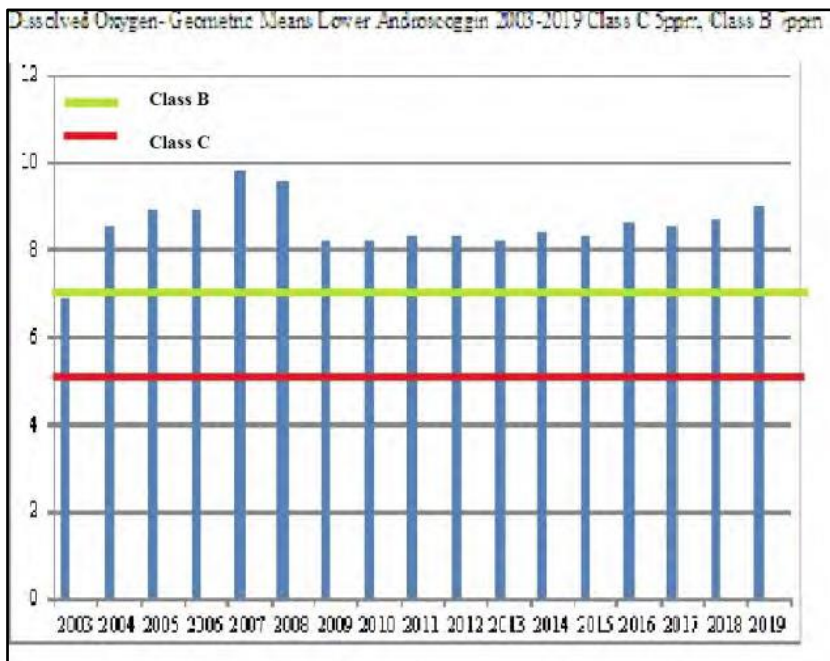
## Data Collected by Friends of Merrymeeting Bay...

- Water temperature
- Dissolved oxygen (% and mg/liter)
- Salinity
- ecoli



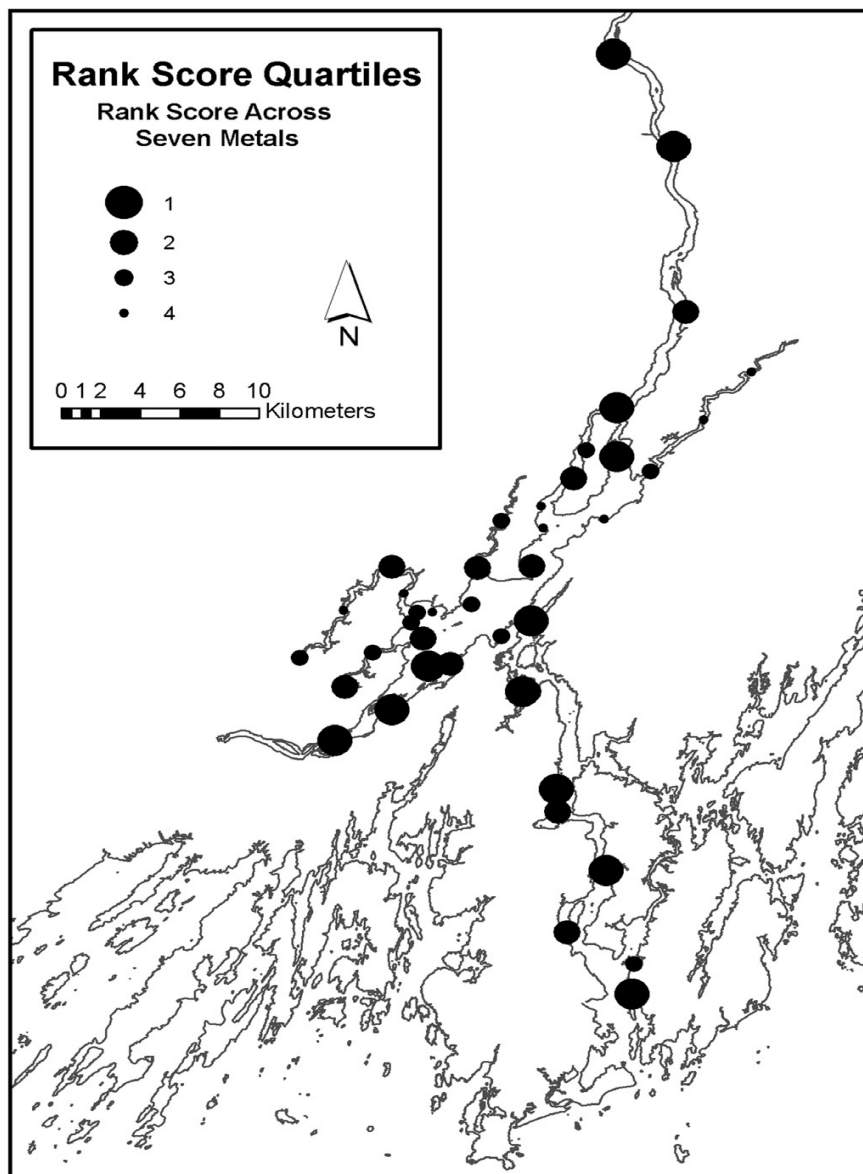
# ...Has Led to River Reclassification

- LD 1964, a surface waters reclassification bill, was signed into law by Governor Mills on March 31, 2022, effective August 8.
- Upgrades the lower Androscoggin River from Class C to Class B
- Higher levels of dissolved oxygen now required.
- FOMB has worked for many years for this change.
- Implementation is resisted by state DEP: FOMB lawsuit.



# Study of Trace Metals in MMB

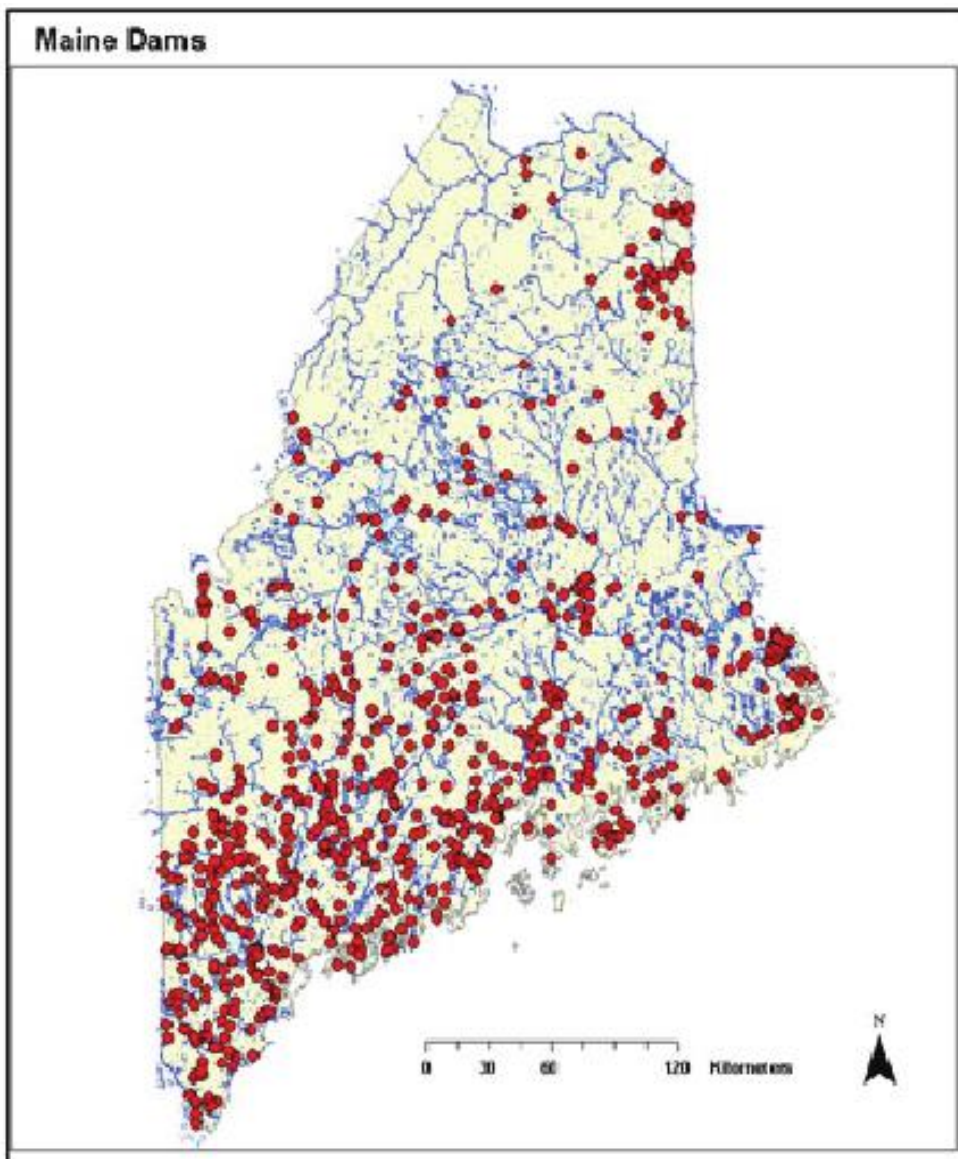
- Tested for Iron, Manganese, Chromium, Copper, Cadmium, Nickel, Lead, Zinc, Tin.





# Dams

- 1140 dams in Maine, 766 qualified for regulation.
- 102 Maine hydropower dams in Maine.
- Generate 30% of Maine's electricity.



# Dams above Merrymeeting Bay

## Androscoggin

- 100 dams
- 16 for power generation



## Kennebec

- 140 dams
- 9 hydropower dams, 4 on main stem
- Threaten salmon and other anadromous fish migration

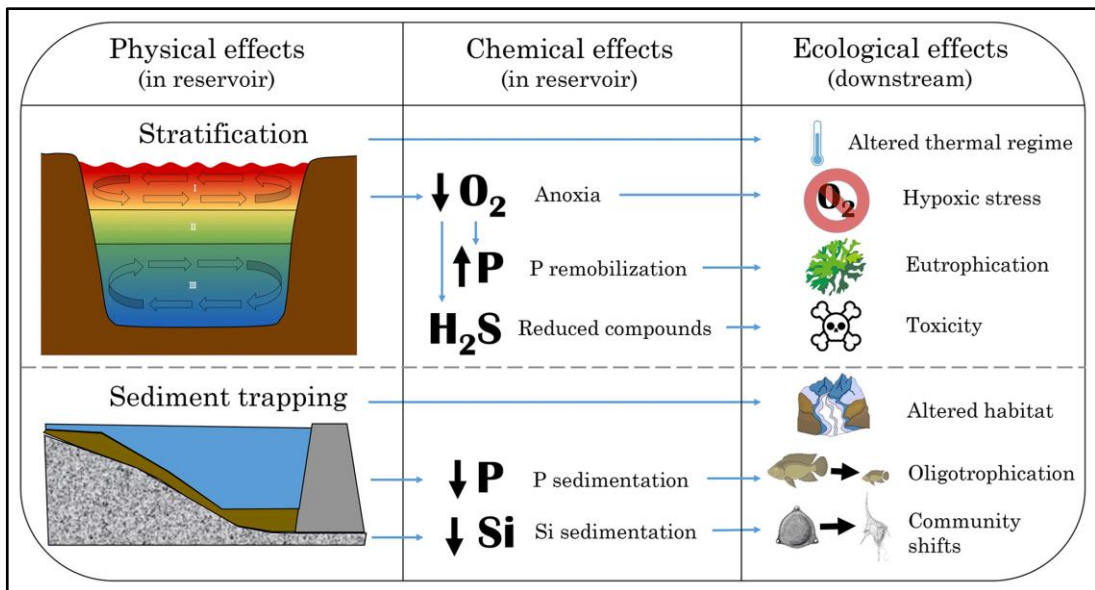


[Kennebec river restoration video](#)

# Effects of Dams on Ecosystems

- Diminish spring freshet.
- Reduced flows spring through fall.
- High flows of WARM water in winter when natural flows are at lowest
- Reduces flow of micronutrients.
- Block fish movements.

- In spillways, lack of grass cover can lead to erosion.
- Downstream sediment flows are reduced: erosion.
- Sediment does not reach coast, unavailable to replace coastal erosion.
- Thermal layering in reservoir waters are unable to filter pollutants.



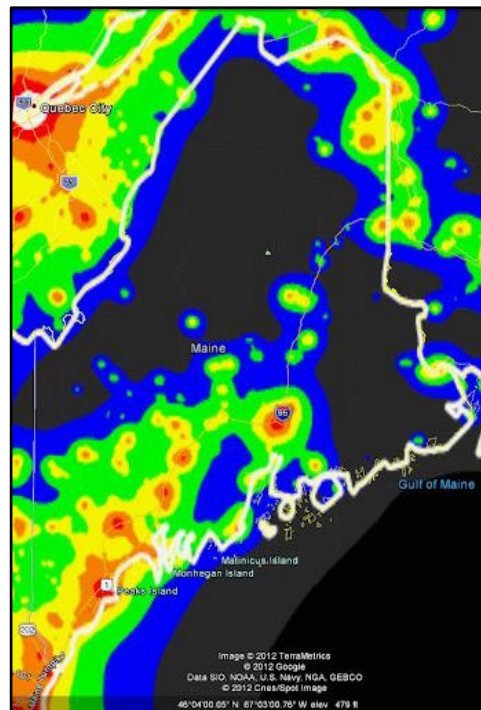
P = Phosphorus in static water, when remobilized = Algae blooms



# Over-Lighting – Saving our Night Sky

Two types of Light Pollution:

- Population concentration
- Point light emitters



## [International Dark Sky Association](#)

### **Dark Skies in Maine**

Acadia National Park.  
Blueberry Pond Observatory.  
Cobscook Bay State Park.  
Coastal Rivers Conservation Trust.  
Emera Astronomy Center.  
Katahdin Woods and Waters Recreation Area.  
Starfield Observatory.

# CMP Aircraft Towers In Merrymeeting Bay



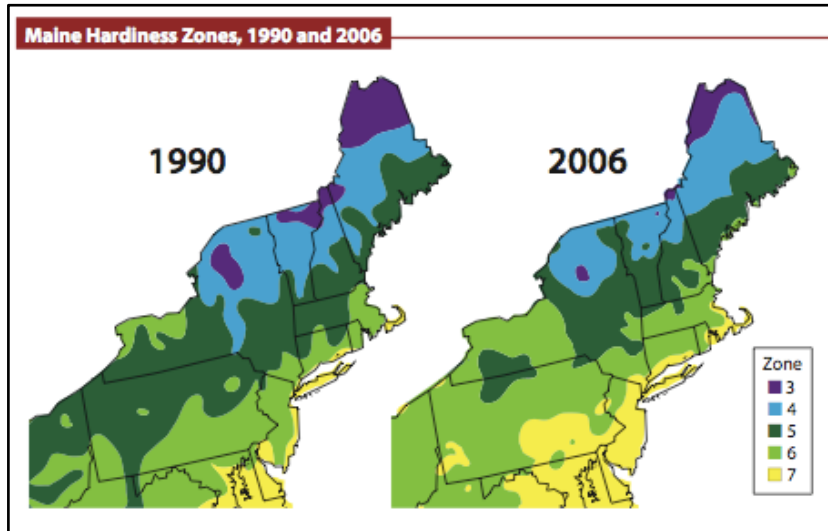
# Electromagnetic Radiation



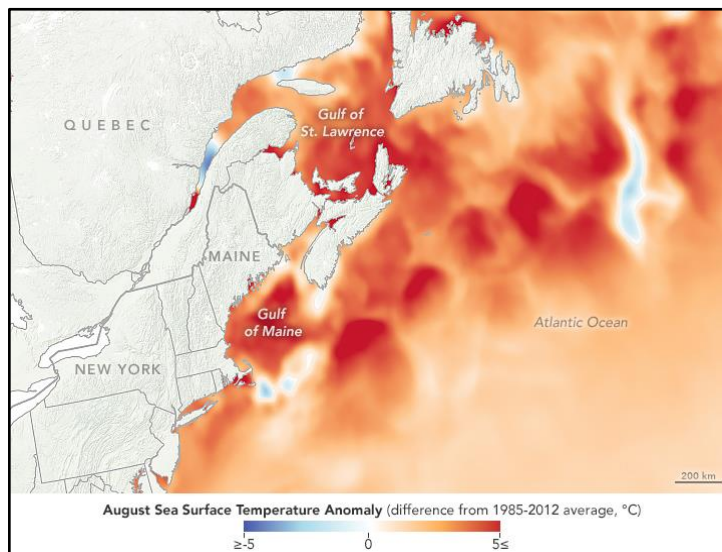
Radiofrequency (RF) electromagnetic radiation (EMR) is the transfer of electrical energy by radio waves.



# Climate Change



- Habitat loss
- Plant and animal extinction
- Species migration
- Invasive species
- Rising seawater levels
- Shoreline degradation



# Some Local Responses to Threats

1. Maintain large unfragmented blocks of land.
  1. Merrymeeting Bay is an integral part of resilient landscape climate corridors.
2. Protect farmland and support farmers.
3. Pursue responses to threatened fish migration.
4. Increase regulations for energy conservation, light pollution, shoreline stabilization, etc. at the **local level**.
5. Coordinate with other responding organizations to improve response effectiveness.



[TNC Resilient and Connected Landscapes](#)

# What Can I Do?

Education – Appreciation – Conservation



Take a friend for a walk.

Add your voice – join nonprofit advocacy groups.

- Friends of Merrymeeting Bay
- Natural Resources Council of Maine
- Many more...

Speak up – talk about it – break the taboo.

What else?



**THANK YOU FOR A GREAT CLASS  
And  
KEEP WALKING!**



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