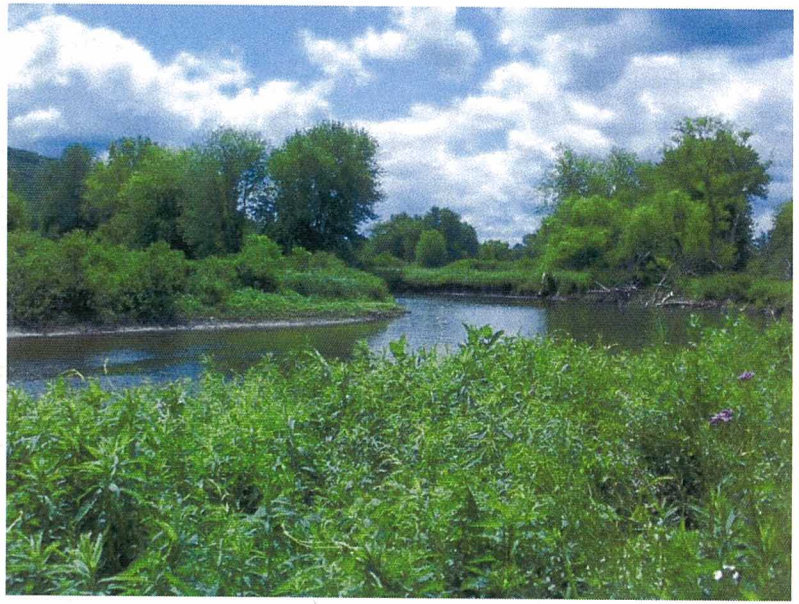
ATTACHMENT B

Housatonic River – Rest of River



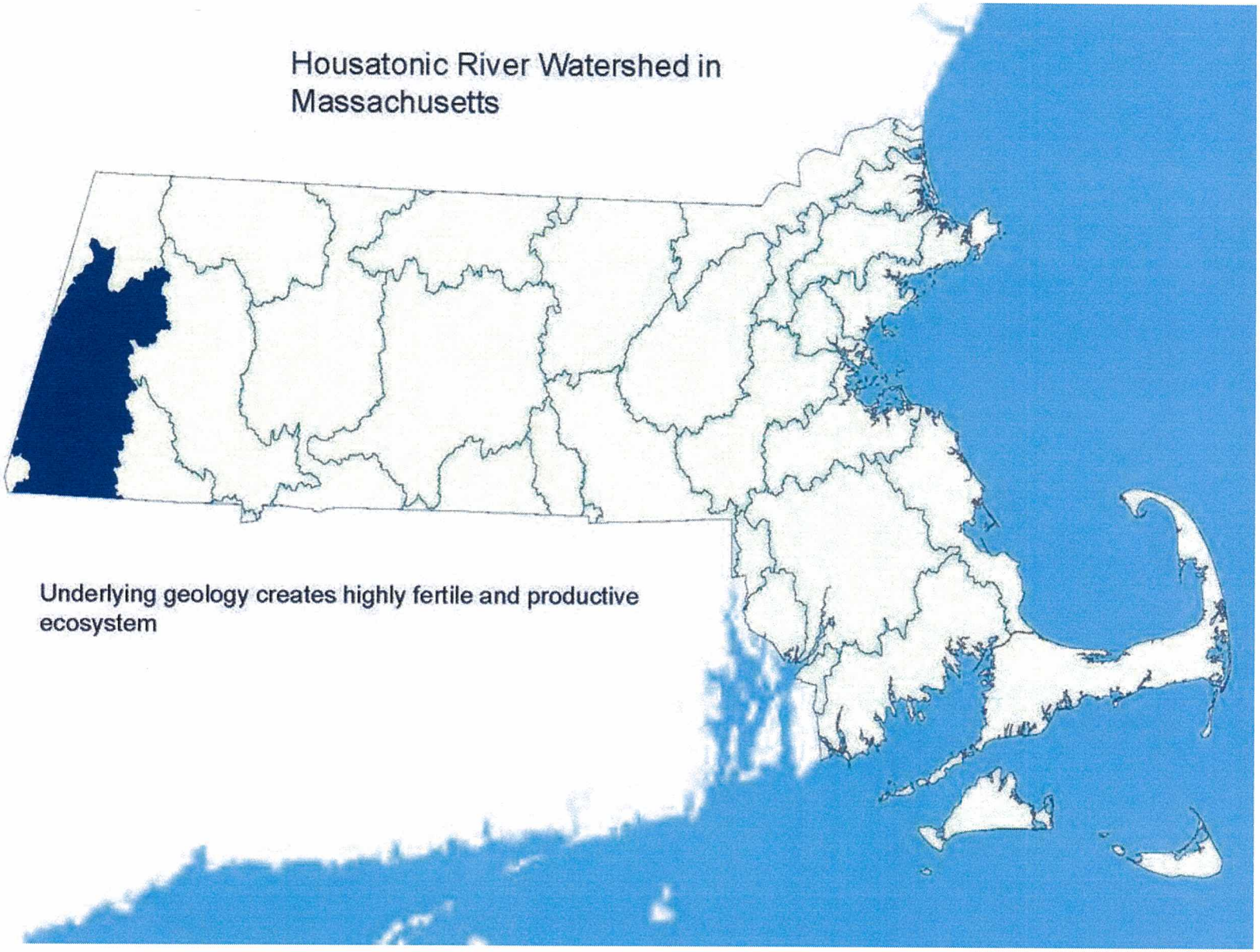
The Commonwealth Proposal

October 12, 2011

Lenox, Massachusetts


No Other Place Like It In
This State:
"Area of critical Environmental
Concern" (ACEC)

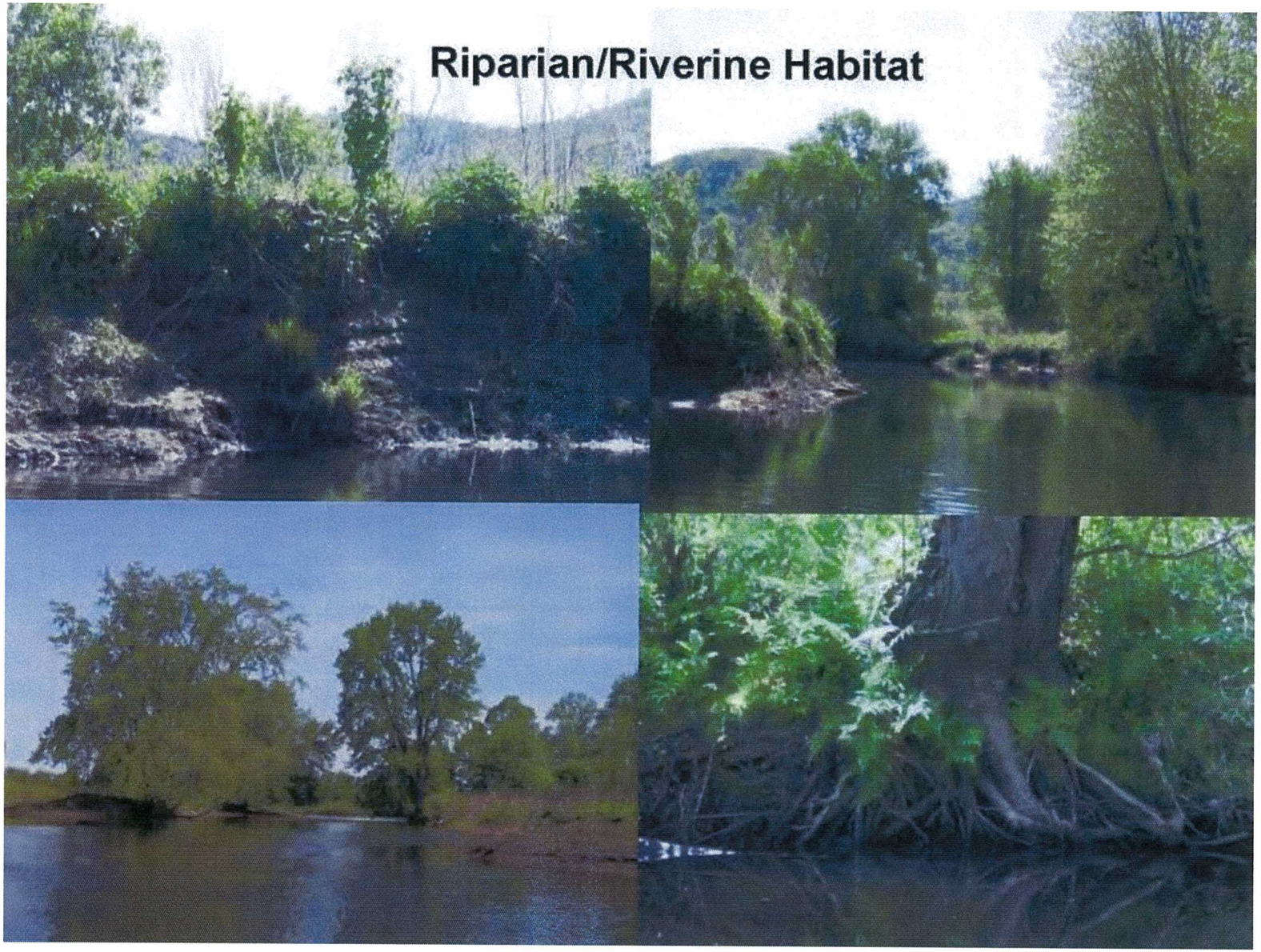
Housatonic River Watershed in Massachusetts



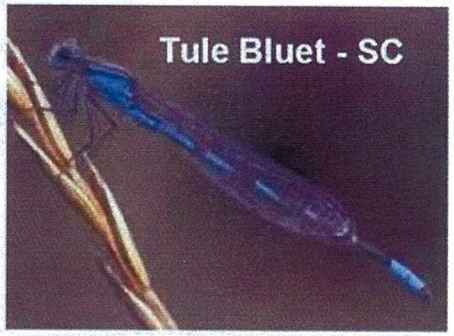
Underlying geology creates highly fertile and productive ecosystem

MassDEP

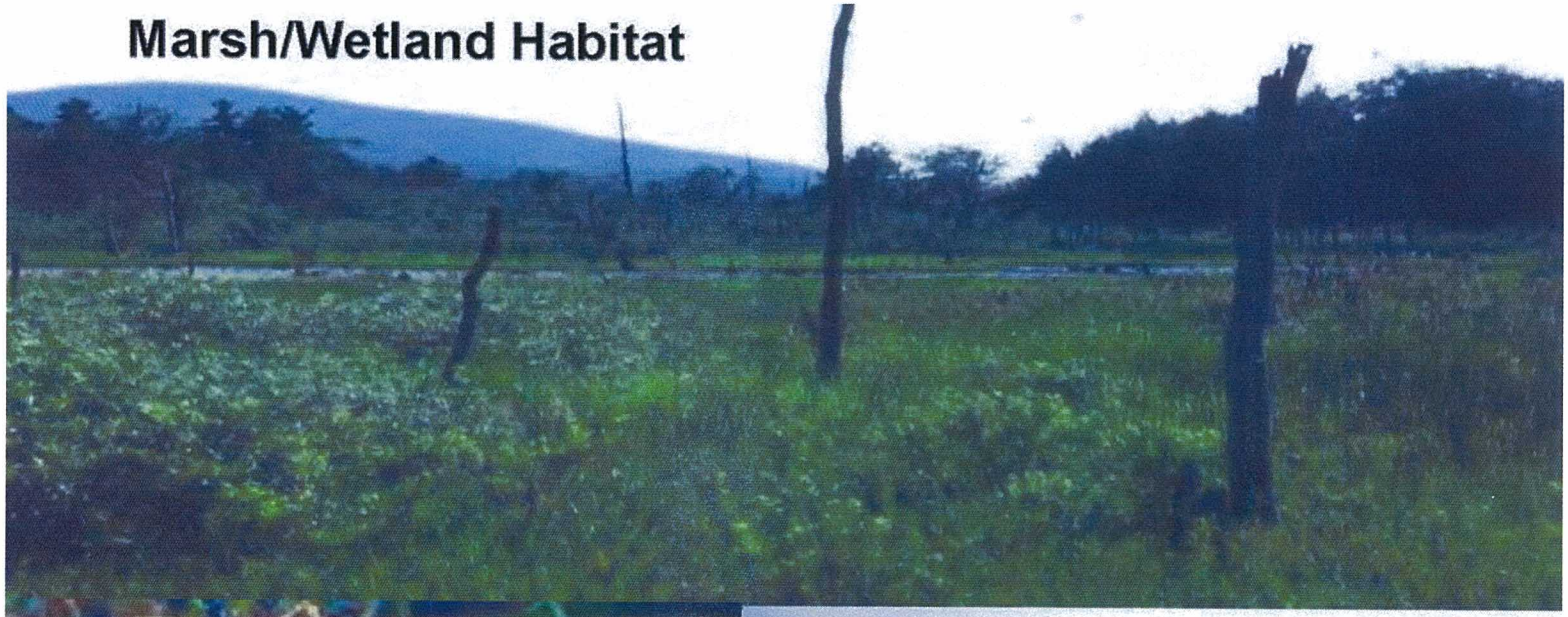
Riparian/Riverine Habitat



Riparian/Riverine Habitat



Marsh/Wetland Habitat



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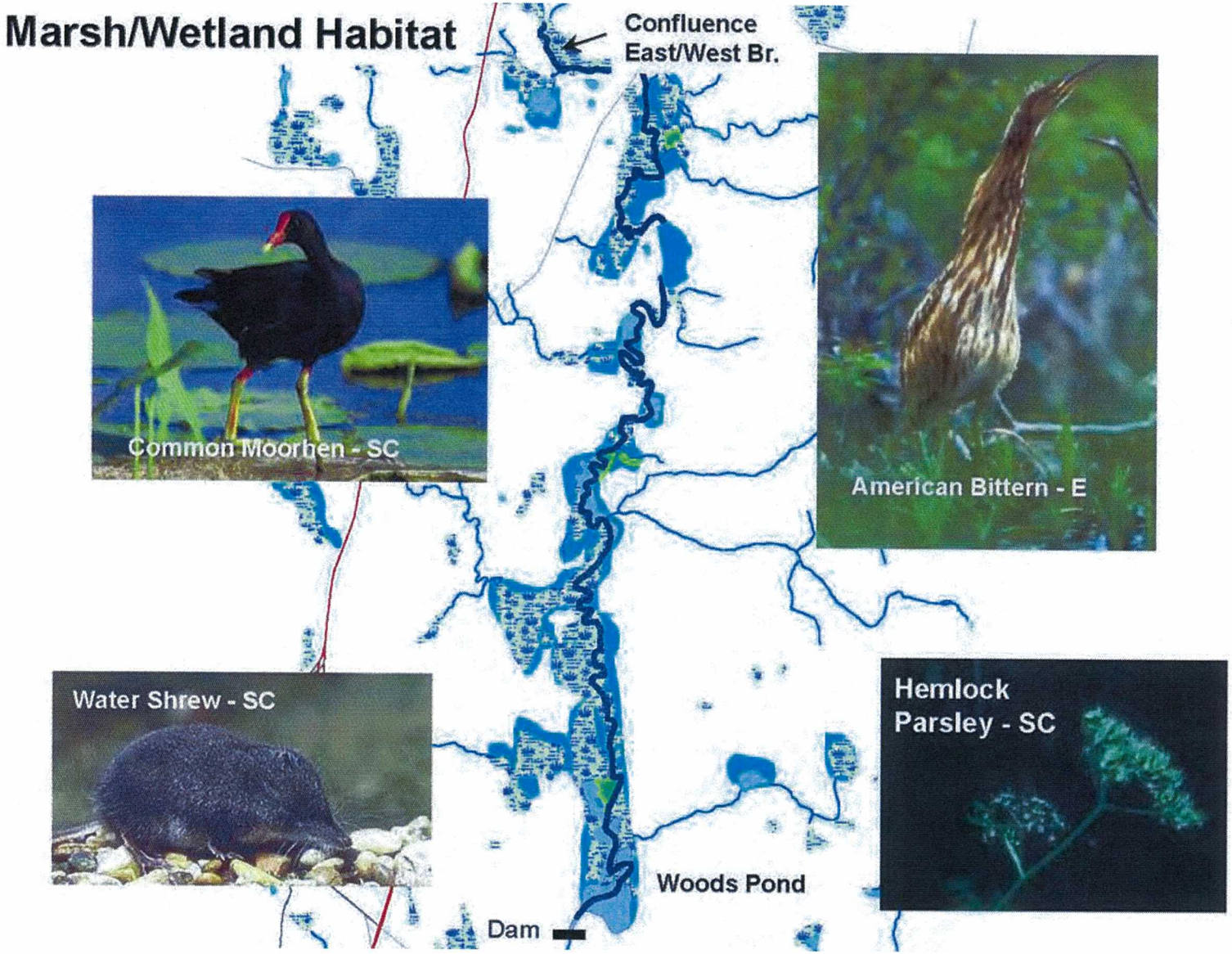
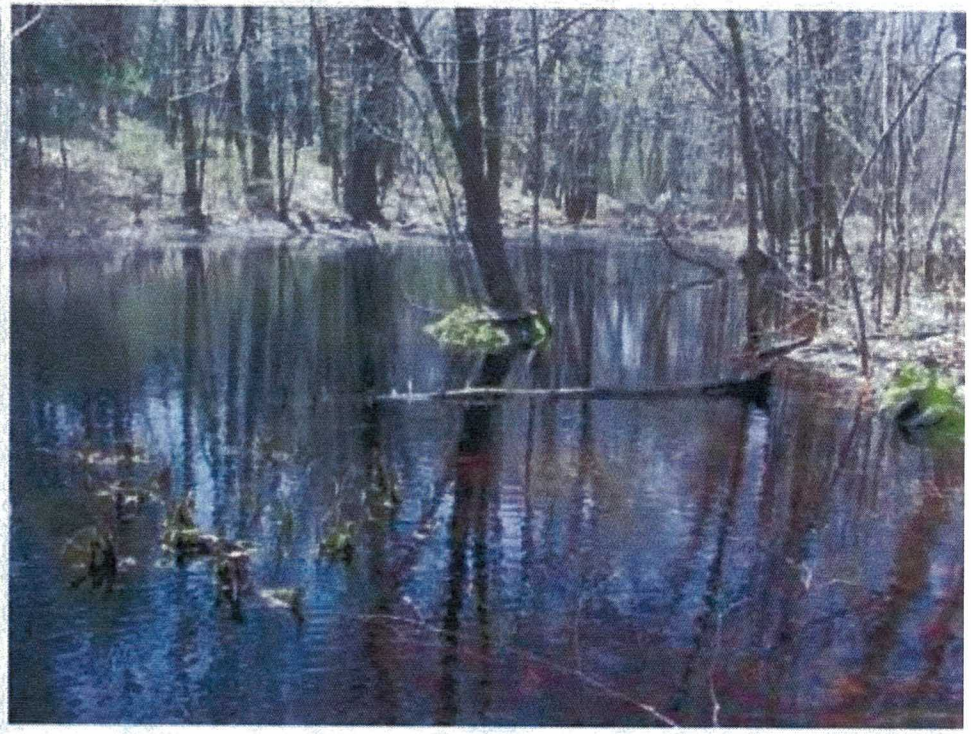
Marsh/Wetland Habitat

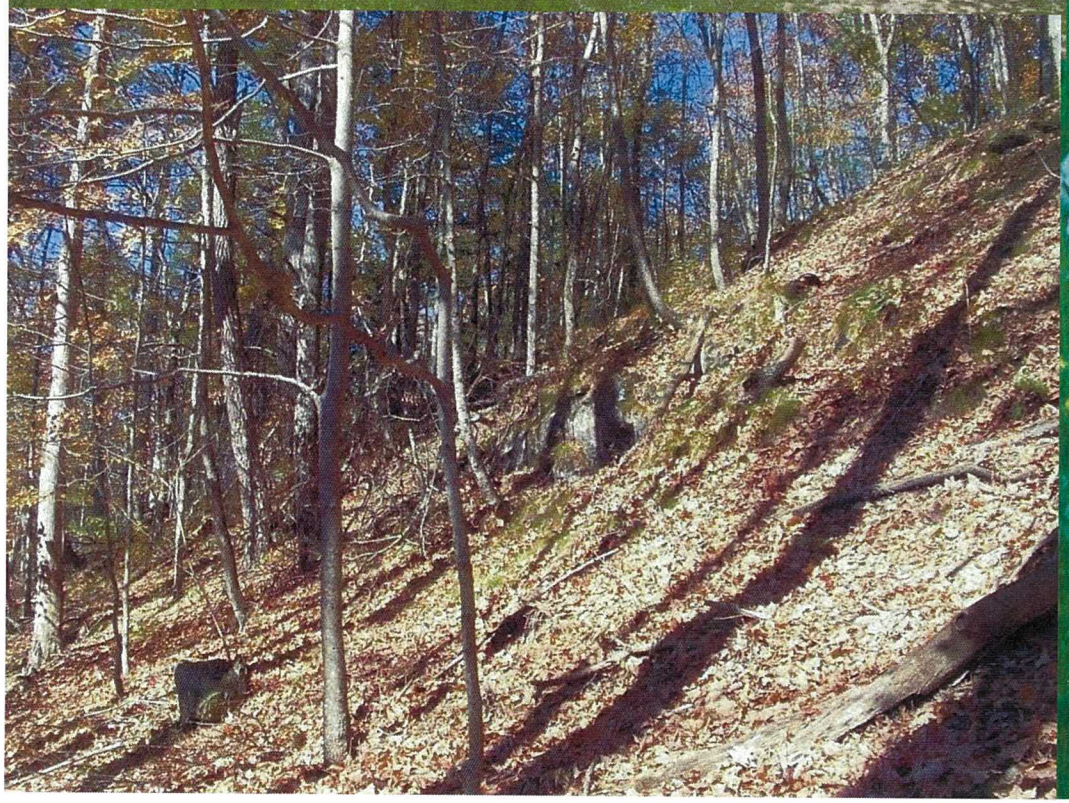


Floodplain Forest

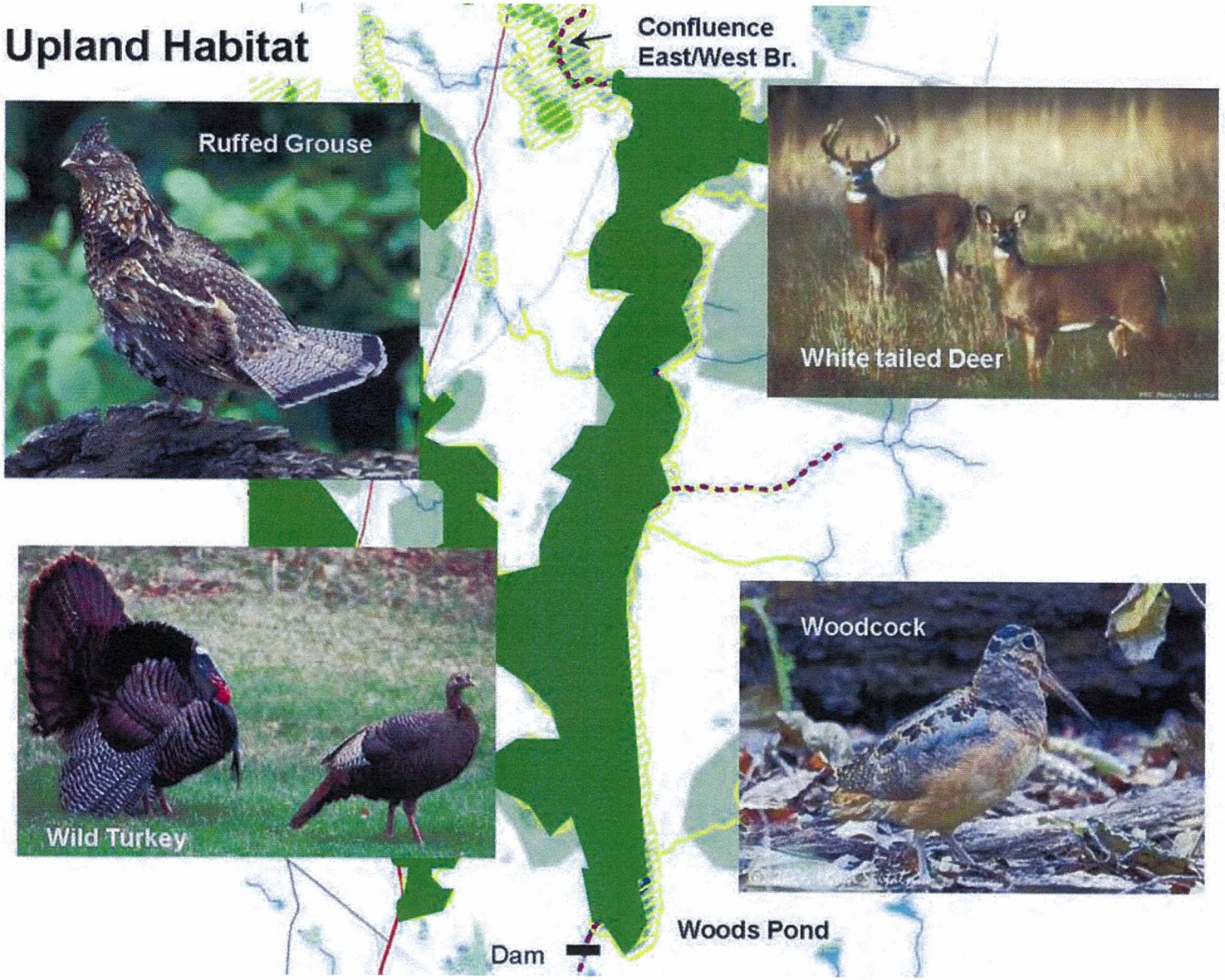
Vernal Pools



Upland Habitat



Upland Habitat



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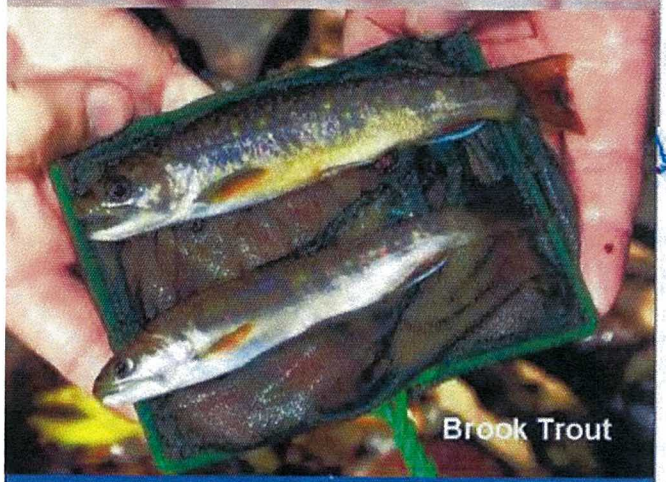
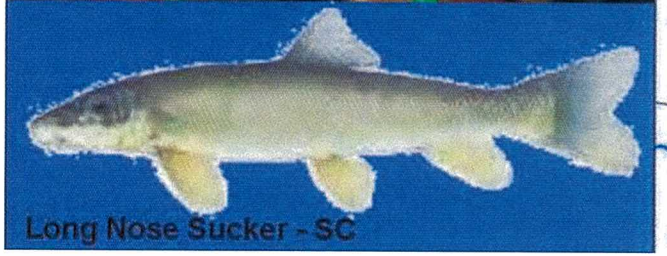
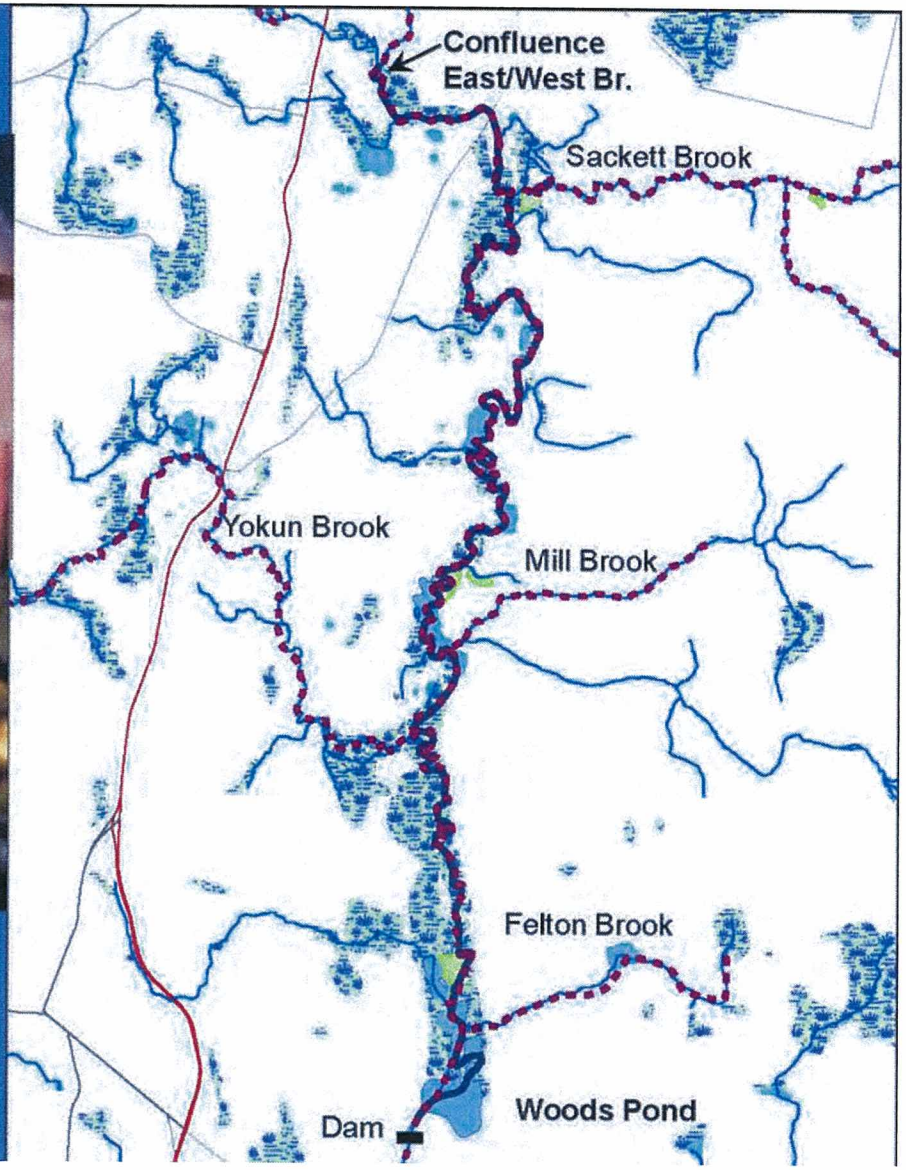
Cold Water Fisheries Resources







MassDEP

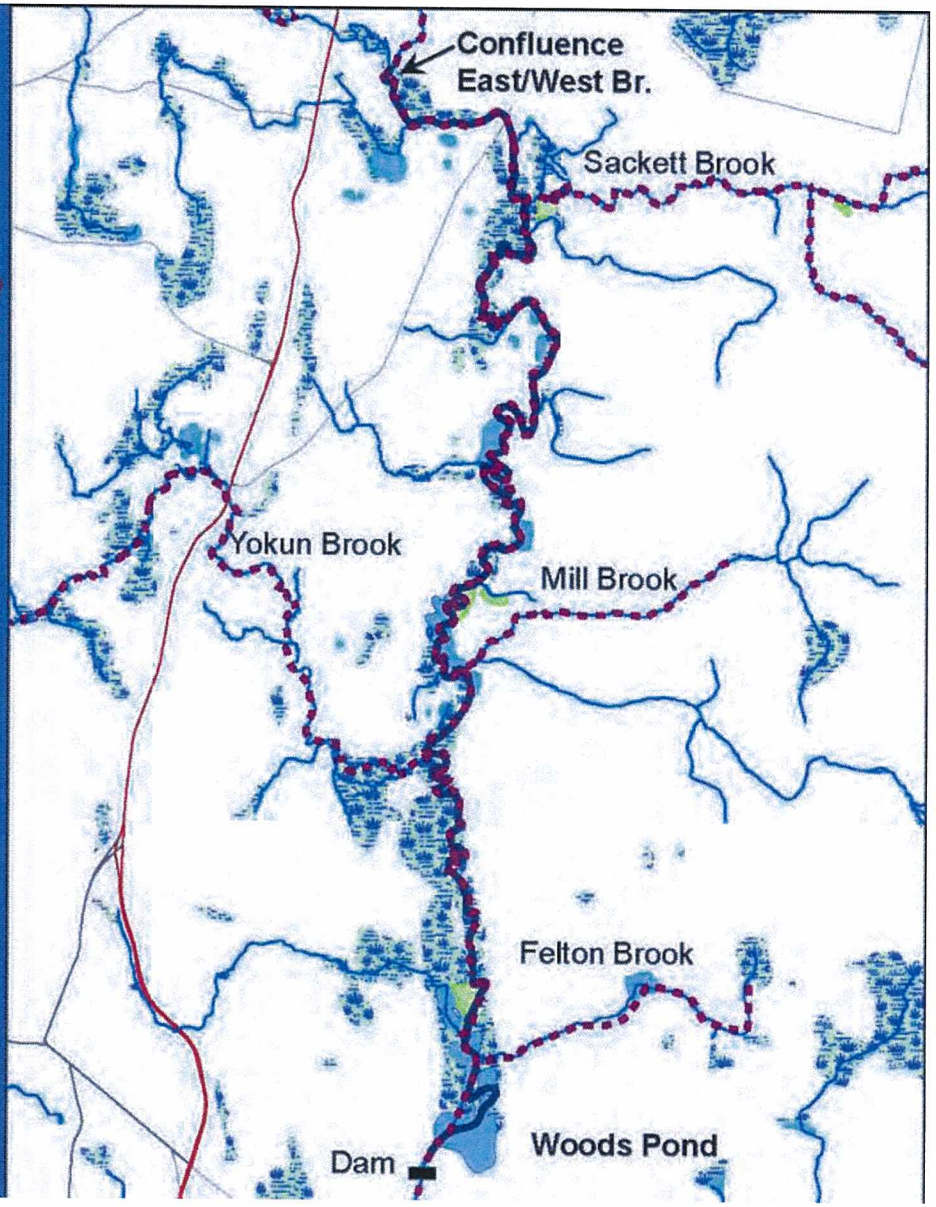
The Watershed Supports 110 Plants & 51 Animals

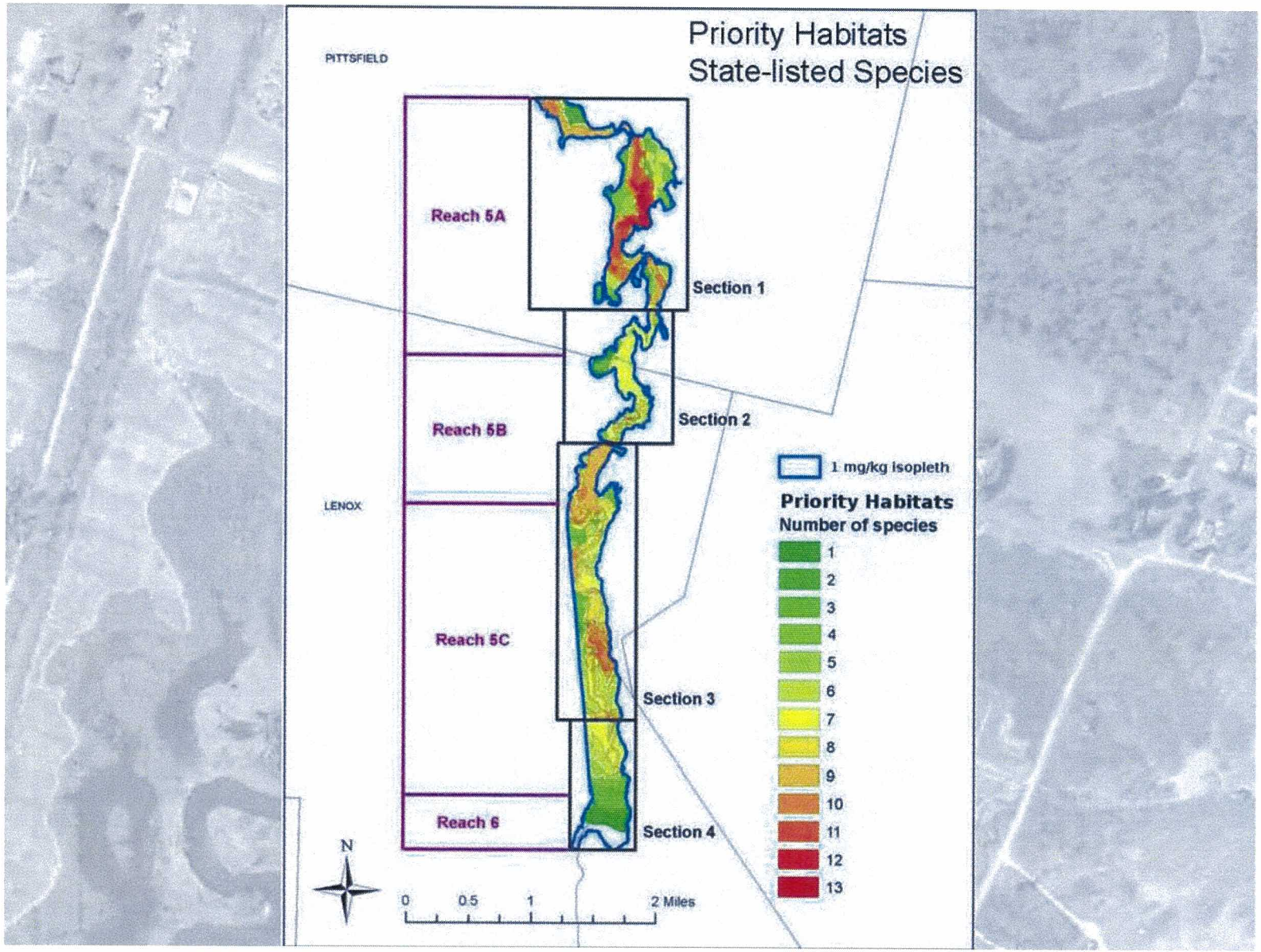
Protected Under the Massachusetts Endangered Species Act (MESA)

Primary Study Area (PSA)

Critical Area for Biodiversity and Supports:

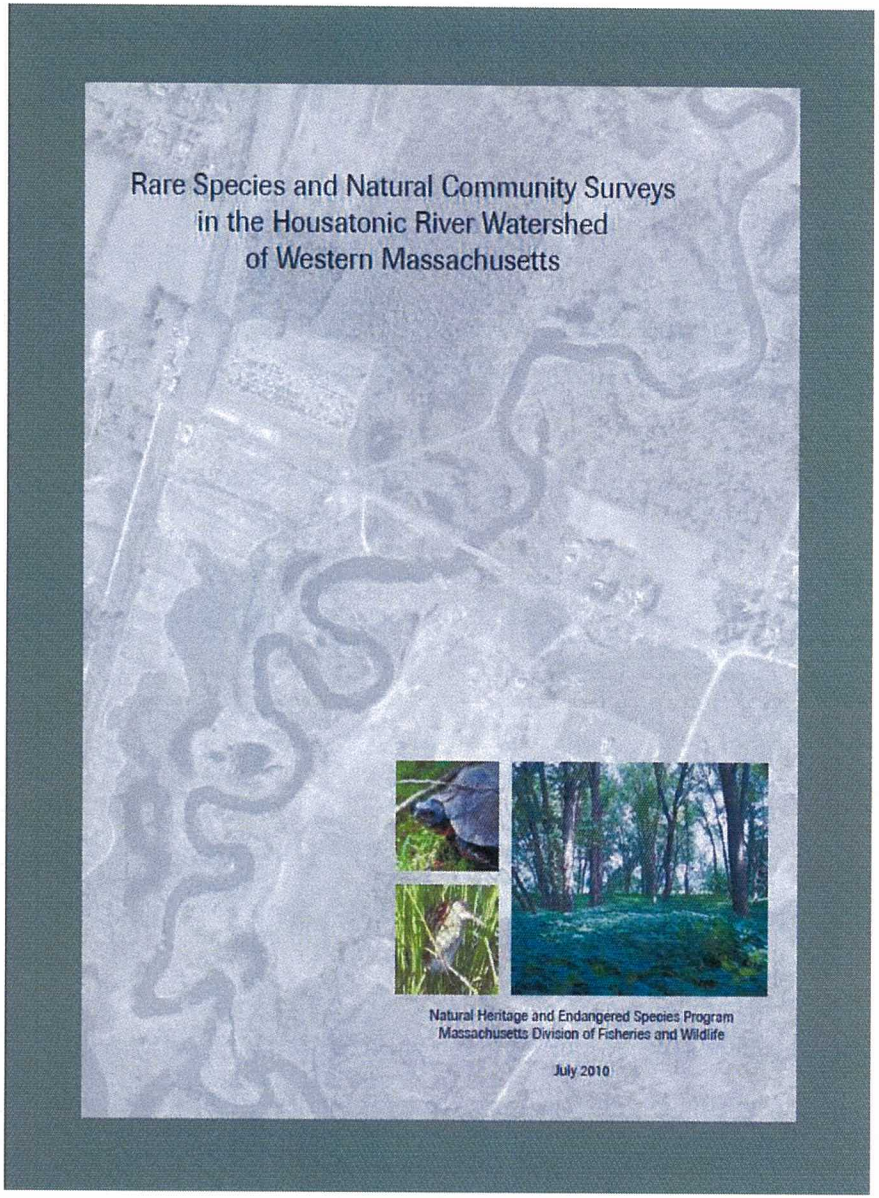
- 25 State-Listed Species
- 107 vernal pools
- 13 Priority Natural Communities
- Coldwater Fisheries Resources




Priority Habitats
State-listed Species
PITTSFIELD
LENOX
Reach 5A
Reach 5B
Reach 5C
Reach 6
Section 1
Section 2
Section 3
Section 4
1 mg/kg isopleth
Priority Habitats
Number of species
1
2
3
4
5
6
7
8
9
10
11
12
13
N
0
0.5
1
2 Miles

➢No meaningful Scientific Evidence showing population level impacts to state-listed species, in fact...

- ❖ Natural Heritage Study
- ❖ Individuals vs. Populations
- ❖ Common vs. Rare species



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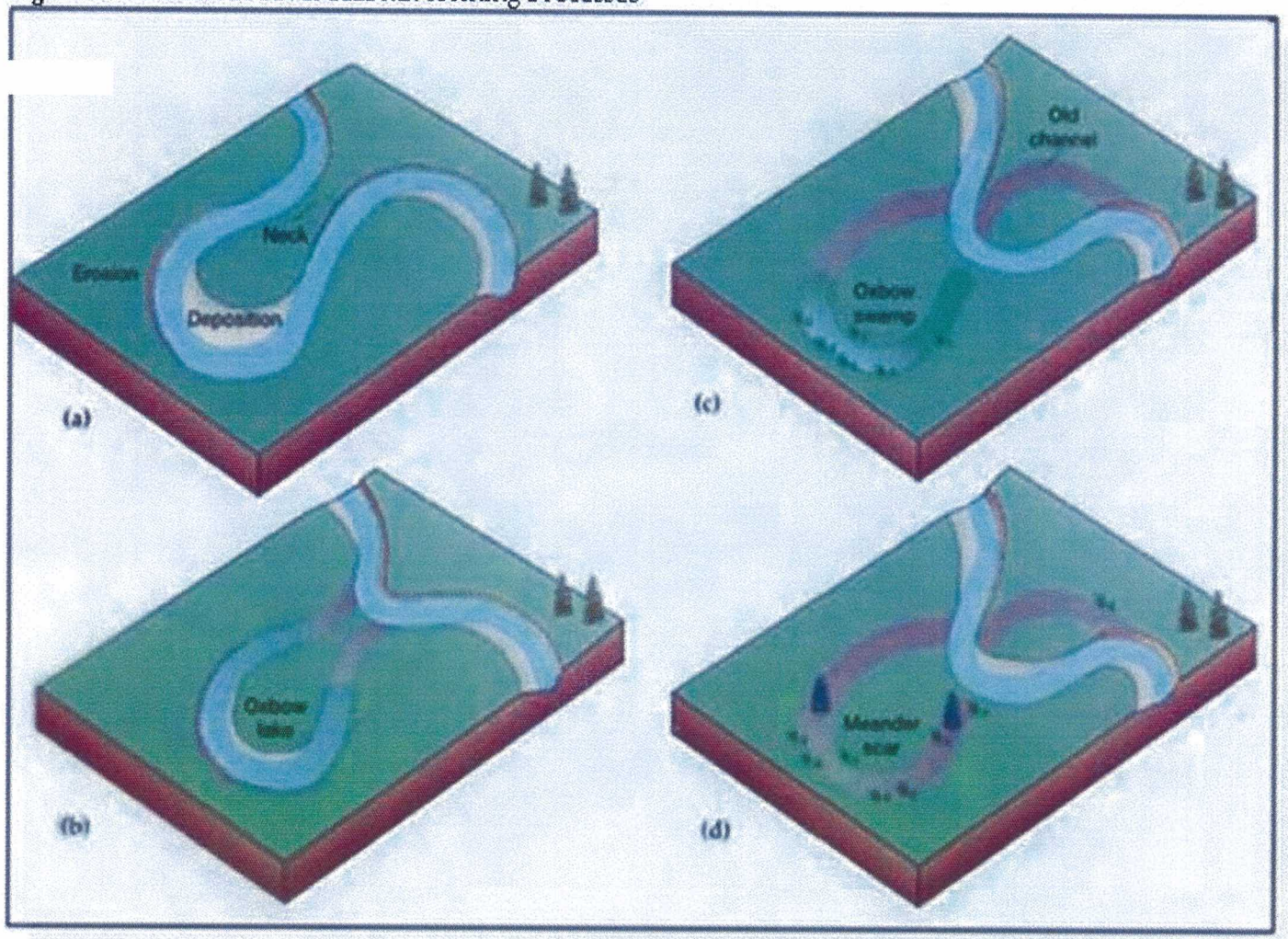
A Meandering River

- Maintaining a diversity of wetlands & habitats

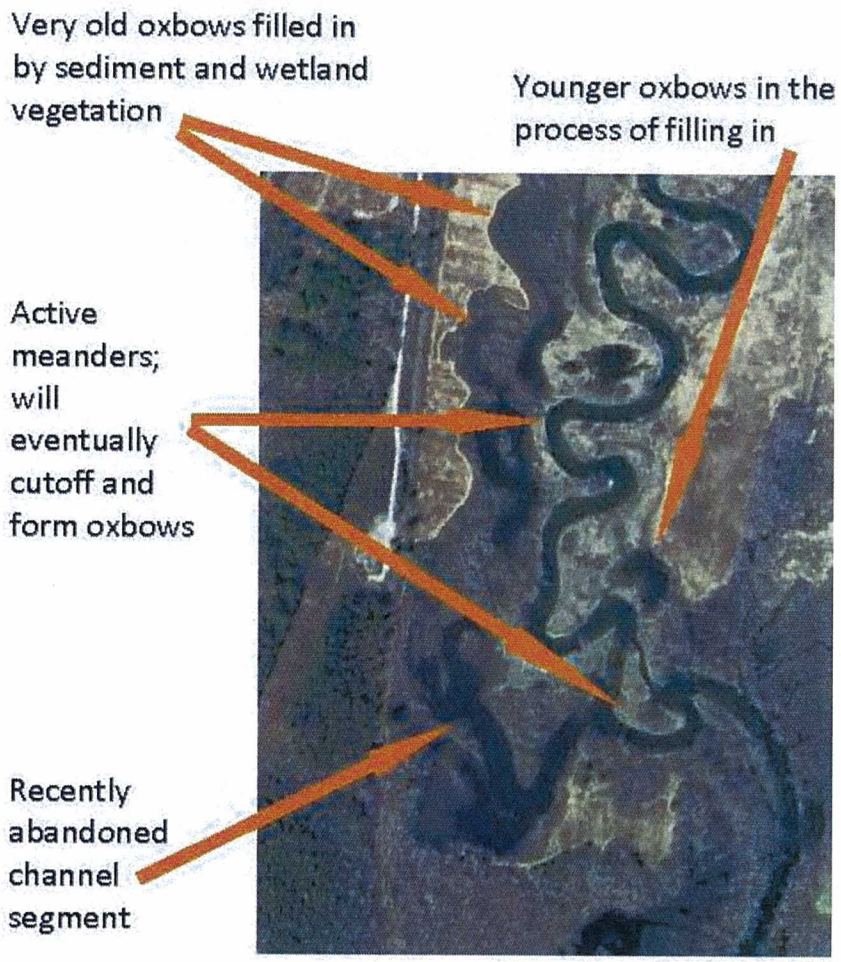
Figure 8. Housatonic River Habitat-forming Processes

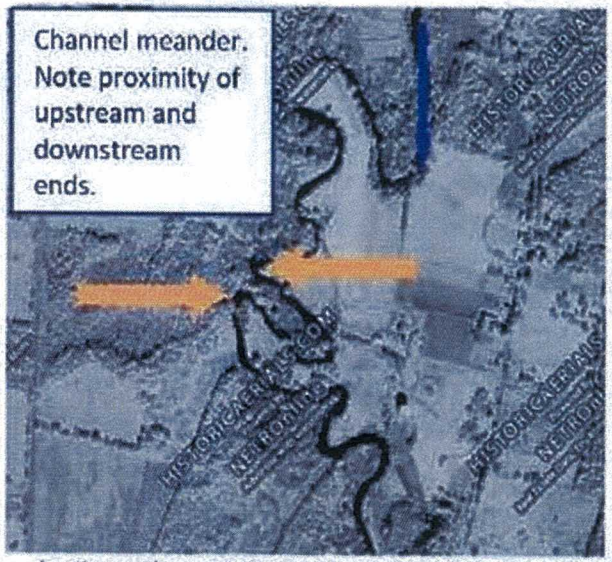


(Central Michigan University College of Science and Technology)

Meander, Oxbow, and Floodplain Processes

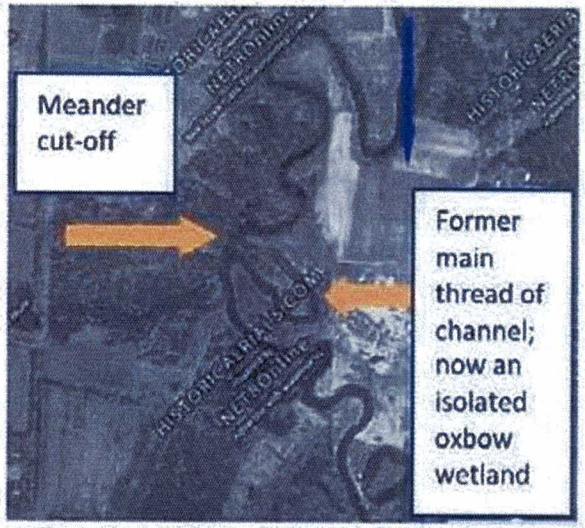
Housatonic River





1971

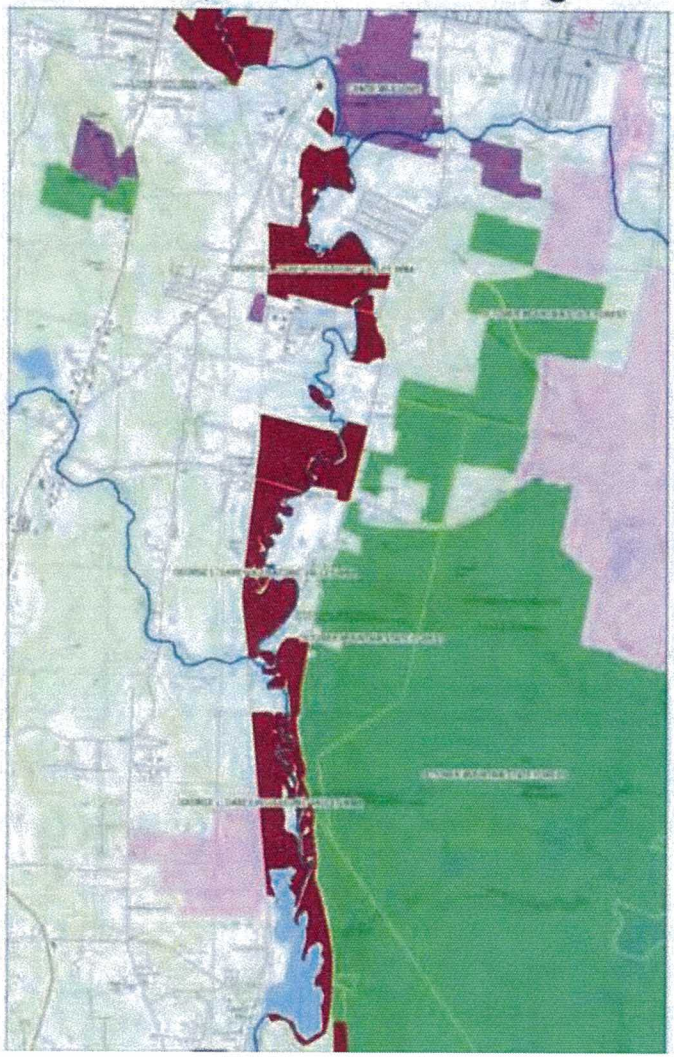
b. Example a. 1971 aerial photo of the Housatonic River. Screen shot from aerialphotos.com



1997

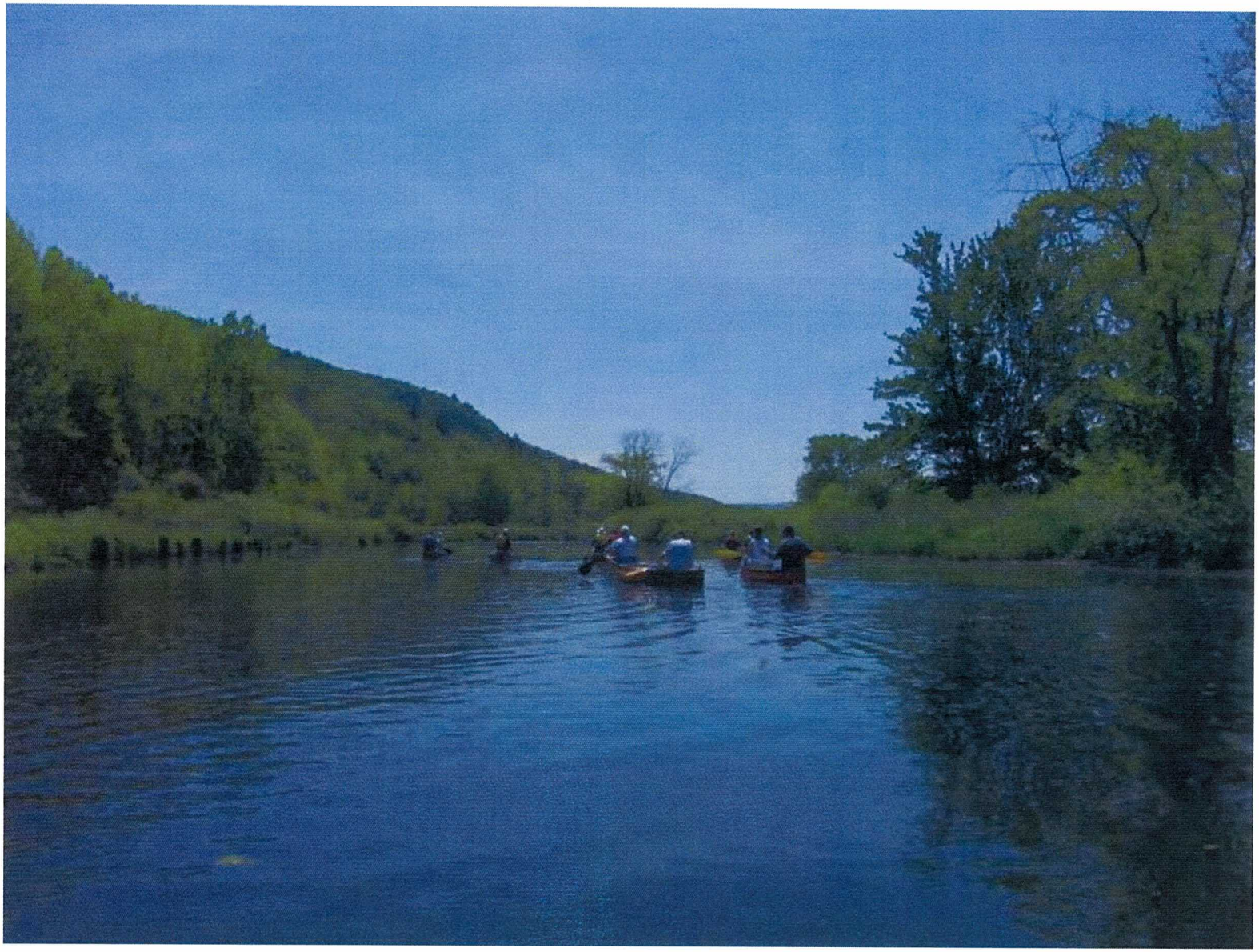
c. Example a. 1997 aerial photo of the Housatonic River. Screen shot from aerialphotos.com.

Substantial Public Investment in Open Space: Protects Species & Meandering River



Summary

1. No other resource like it in the Commonwealth. PSA supports robust populations of many state-listed and other wildlife species.
2. Bank stabilization will permanently disrupt the river meandering process. Restoration of this process is not possible and it is this process which maintains the ecosystem's habitat and wildlife diversity.
3. The short and long term ecological harm caused by stabilizing the river banks far outweigh any benefits of lower PCB concentrations for wildlife and their habitats.
4. The Commonwealth's proposal is not a trade off between public health and the environment - it protects both!



Housatonic River – Rest of River

Why the Need for an Alternate Proposal?

- Biologically rich ecosystem
- Can achieve risk standards for human health risk
- Unrestricted fish and waterfowl consumption is not achievable within our lifetimes
- Meeting ecological risk standards will cause greater environmental harm than benefit

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Summary of Major Public Comments

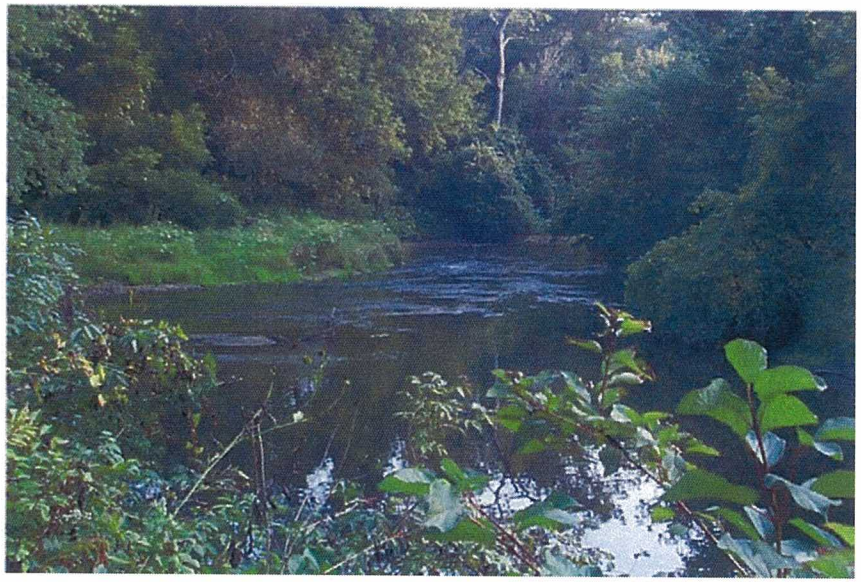
- Full cleanup should be conducted
- No removal – Monitored Natural Recovery
- Use of innovative technologies
- No disposal/landfills in Berkshire County
- Use Adaptive Management approaches
- Minimal bank stabilization and no hard armoring
- No capping of PCBs
- Dredge Woods Pond

Screening of Alternate Technologies

Treatment Technology	Description	Current Limitations
Physical and Chemical In Situ Ex: Activated Carbon Nanoremediation Cement-based Additive	Injecting/mixing an immobilization agent or chemical surfactant/solvent	•Clearing of the site may be required (floodplain) •Difficult to deliver reagents •Unproven time frame to reach remediation •Toxicity of additives •Unproven on a large scale
Biological In Situ Ex: Microbial dechlorination	Introducing microorganisms/nutrients	
Biological Ex Situ Ex: Various processes	Landfarming or amending removed material	•Requires dredging, dewatering, and large tracts of land •Residual material needs amending •Efficiency issues •Potential air emissions
Thermal Ex Situ	Heating of material	

Housatonic River – Rest of River

The Commonwealth Proposal



- Evaluated several remedial technologies
- Phased, long term approach
- Adaptive Management
  - Allows for use of innovative, future technologies
- Priorities
  - Protecting Human Health
  - Preserving the Housatonic River Ecosystem
  - Bulk removal of PCB mass

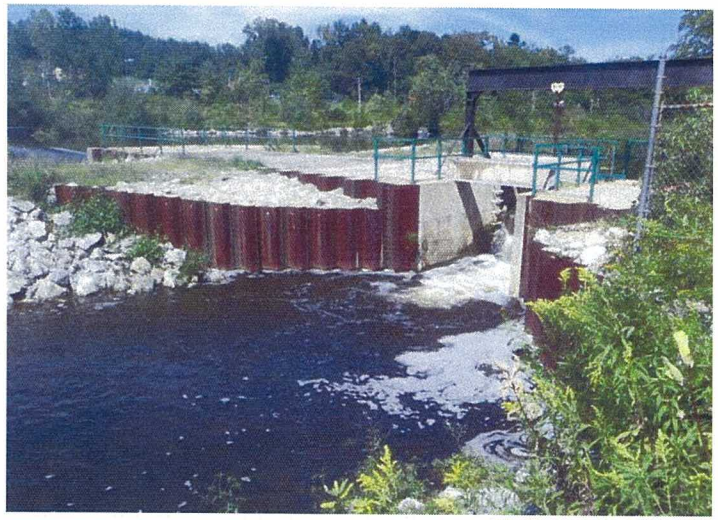
Housatonic River – Rest of River

The Commonwealth Proposal – Major Elements

- Bulk Source Removal within Woods Pond
- Floodplain Remediation
- No dredging or armoring of Housatonic River
- Ongoing Monitoring, Remediation, and Review
- Ongoing review of innovative technologies
- Off-Site Disposal to an out of state permitted landfill

Housatonic River – Rest of River

Woods Pond Source Removal



- Two Main Sources of PCBs in Rest of River Sediment
  - River sediment and banks
  - Woods Pond sediment
- Our proposal – Remove most of PCB mass in Pond at the outset, then periodically remove PCBs accumulated behind the dam

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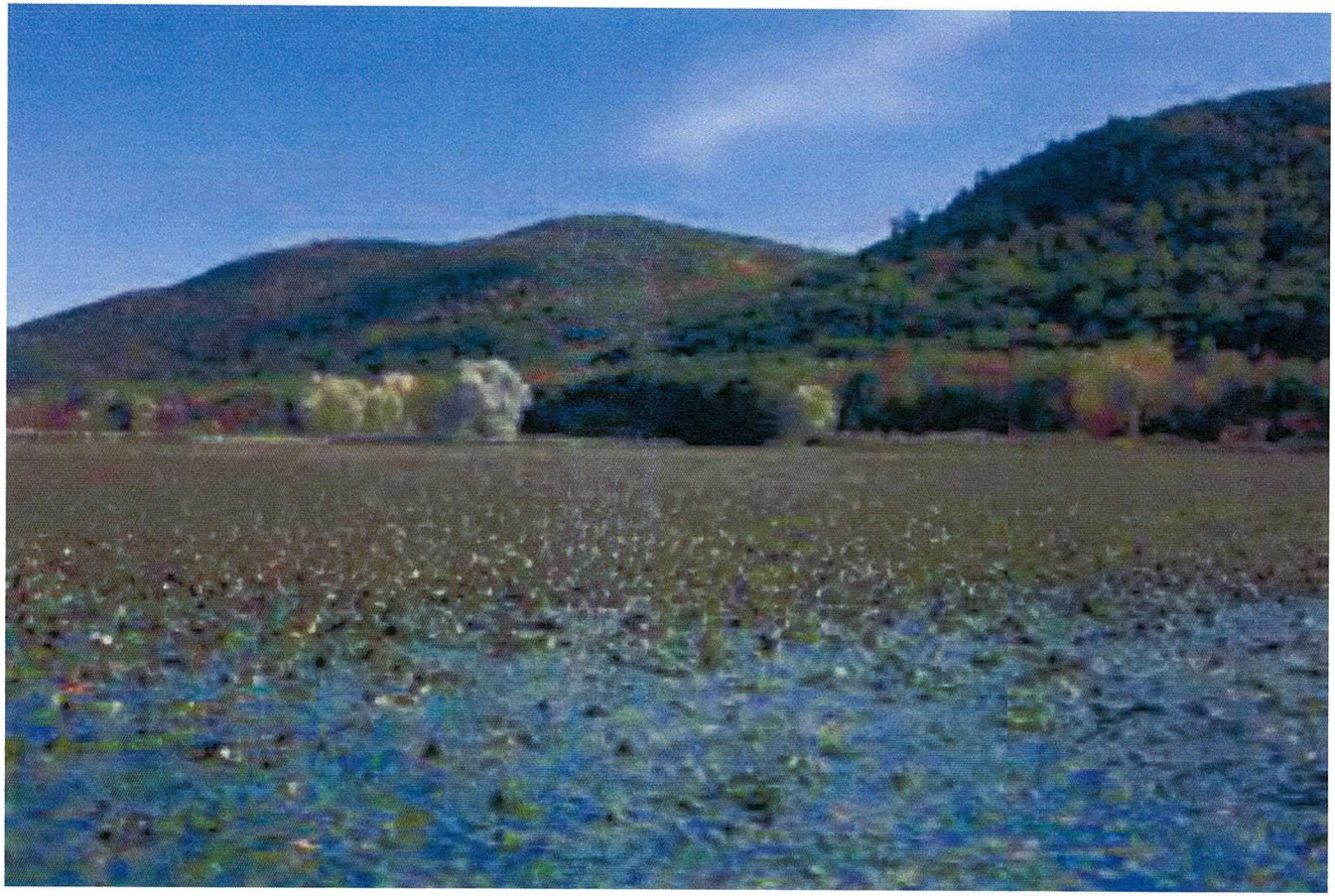
Housatonic River – Rest of River

Woods Pond



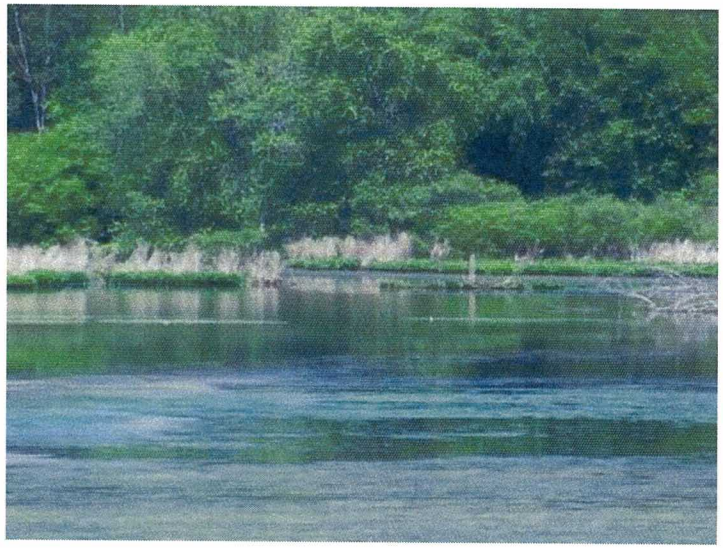
Housatonic River – Rest of River

Woods Pond Source Removal

- Up to 25% of PCBs mass in ROR in pond
- Mitigates disastrous public health consequences in the event of dam failure
- Increased sediment trapping efficiency
- Increased recreational use

Housatonic River – Rest of River

Woods Pond Source Removal



- Choked with sediment and weeds
- Removal can be done without significant ecological impacts
- Habitat improvements to the pond – increase depth

Housatonic River
Rest of River
Basis for Floodplain and Sediment Remediation

- Rare and Endangered Species Thriving
- Balance – Risk Reduction vs. Habitat Destruction
  - Cancer Risk Limit 10^{-4}
  - Non-Cancer Hazard Index of 1
  - Cancer Risk Limit of 10^{-5} where possible

Housatonic River – Rest of River

Human Health Risks – Floodplain and Sediment

- Reduction of Human Health Risks
  - 3 primary exposure scenarios – direct contact, consumption of fish and waterfowl, and consumption of agricultural products
  - Risk standards not currently met for direct contact in the floodplain and consumption of fish and waterfowl

Housatonic River – Rest of River

Human Health Risks – Floodplain and Sediment

- Goal to achieve upper bound risk limit
- 33 acres of floodplain remediation
- 11 acres of sediment around Woods Pond
- No remediation of river banks needed to meet the risk limit
- Future remediation, where necessary

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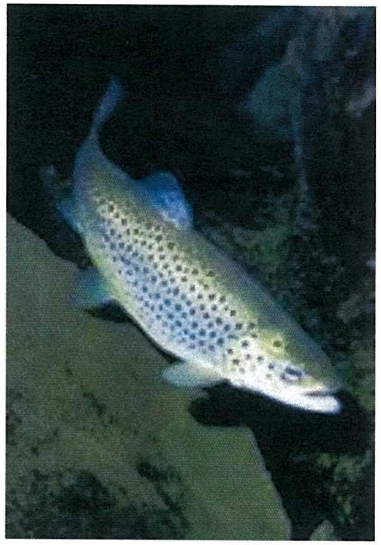
Housatonic River – Rest of River

Human Health Risks – Fish and Waterfowl Consumption



- Long-standing and widespread awareness of PCBs
- None of the CMS alternatives will allow for unrestricted consumption of fish and waterfowl
- Mercury advisory will restrict fish consumption for foreseeable future
- Commonwealth proposal includes robust set of outreach activities and ongoing assessment

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Housatonic River – Rest of River

Fish and Waterfowl Consumption

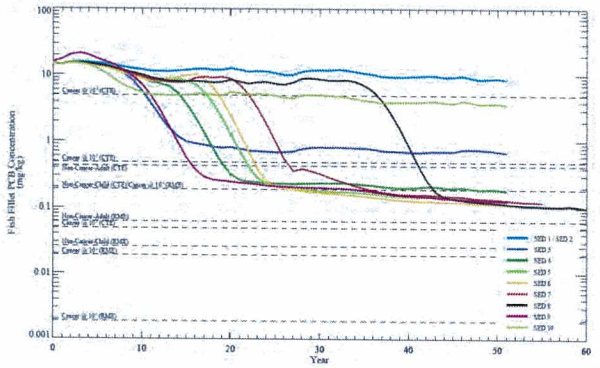


Figure K-13.4-1e. Average fillet PCB concentrations in largemouth bass from Reach 6 (Lower Bound).

- No alternative meets unrestricted fish consumption within our lifetime
- Some alternatives reach fish consumption to 14 meals per year
  - Diluted and ambiguous message concerning health risks of eating fish from the river
  - Significant ecological damage to achieve this goal
  - Only allowed for healthy, adult males and women over childbearing age

MassDEP

Housatonic River – Rest of River

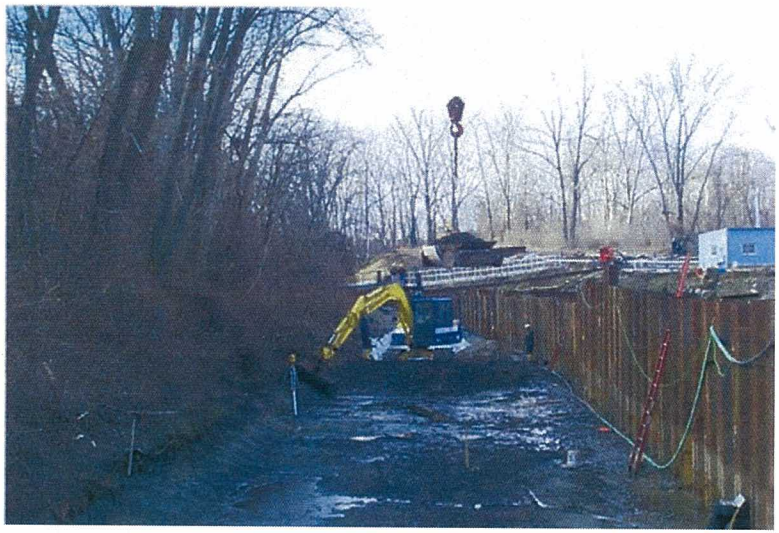
Human Health

- SED 8/FP 7:
  - 351 acres of river sediment removal
  - 377 acres of floodplain soil removal
  - 14 miles of river bank stabilization
  - 97 acres impacted by staging areas and roads
  - 52 years to implement

Would still require fish consumption advisory

Housatonic River – Rest of River

Human Health

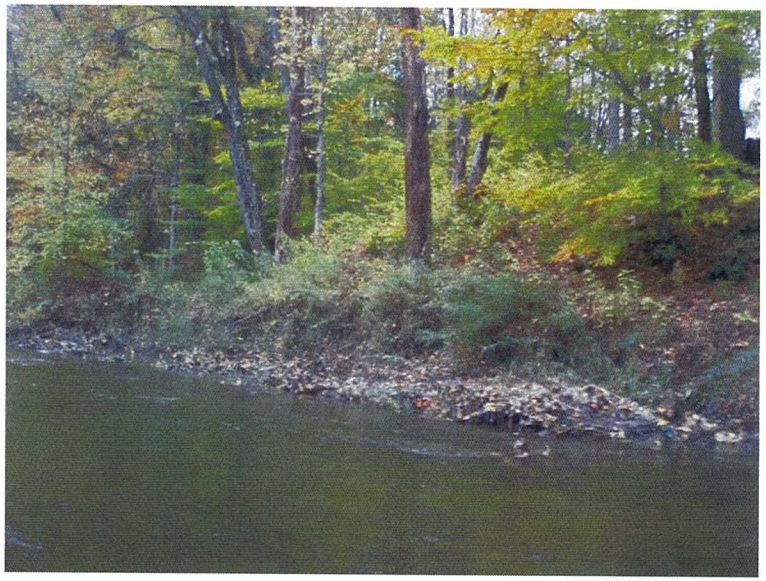


- SED 8/FP 7:
  - "Take" of 32 rare species
  - Significant impact to local population for 22
  - Permanent alteration of 14 miles of river bank

Would still require fish consumption advisory

Housatonic River – Rest of River

Sediment Remediation of River – Not Necessary Now



- Not necessary to meet human health risks for direct contact
- Severe, long-lasting impacts from bank and river bottom stabilization
- Benefits of ecological risk reduction outweighed by costs of long-term damage to ecosystem

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Housatonic River – Rest of River

Ongoing Monitoring, Remediation, and Review

- Ongoing monitoring and assessment of remediated areas
- Additional remediation, when necessary
- Removal of additional sediment accumulated behind Woods Pond Dam
- Periodic evaluations until risk limits achieved

MassDEP

Housatonic River – Rest of River

Screening of Alternate Technologies

Commonwealth's Plan allows for continued evaluation of emerging technologies:

Adaptive Management

Housatonic River – Rest of River

The Commonwealth Proposal

More Aggressive Institutional Controls

- Regular inspections
- Public outreach
- Ongoing review and evaluation

MassDEP

Housatonic River – Rest of River

Offsite Disposal – Existing Permitted Facility

- No Upland Disposal or Confined Disposal Facility
- Utilize existing rail to transport to existing permitted disposal facilities

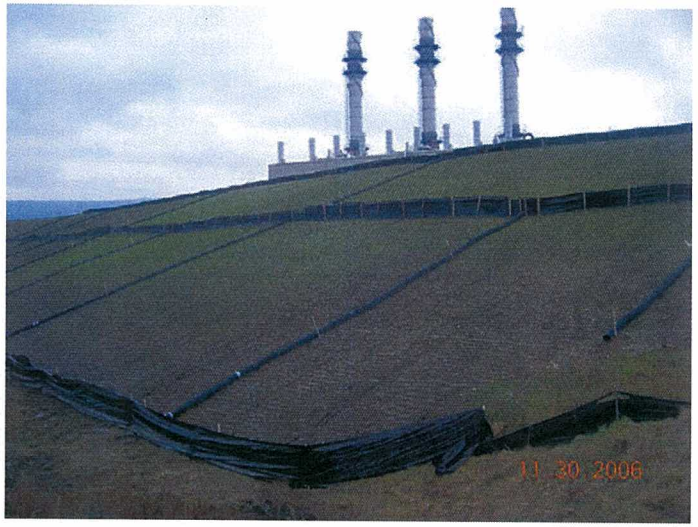
Housatonic River – Rest of River

Offsite Disposal – Existing Permitted Facility

- Existing permitted facilities
- Upper Housatonic River – Area of Critical Environmental Concern (ACEC)
- Conflict with:
  - Mass Water Quality Standards
  - Mass Wetlands Protection Act Regulations
- Reduction of compensatory flood storage

Housatonic River – Rest of River

Offsite Disposal – Existing Permitted Facility



- Negative effects on area aesthetics
- Impacts to the local economy/tourism
- Two closed PCB landfills in Pittsfield—excess burden
- Existing permitted facilities out of state
- Utilize existing rail to transport to existing permitted disposal facilities

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Housatonic River – Rest of River

Offsite Disposal – Existing Permitted Facility

- Rail is economical and feasible
- Utilized on Hudson River, Fort Edward, New York
- Current rail adjacent to Woods Pond
- Existing CSX interchange in Pittsfield

MassDEP

Housatonic River – Rest of River

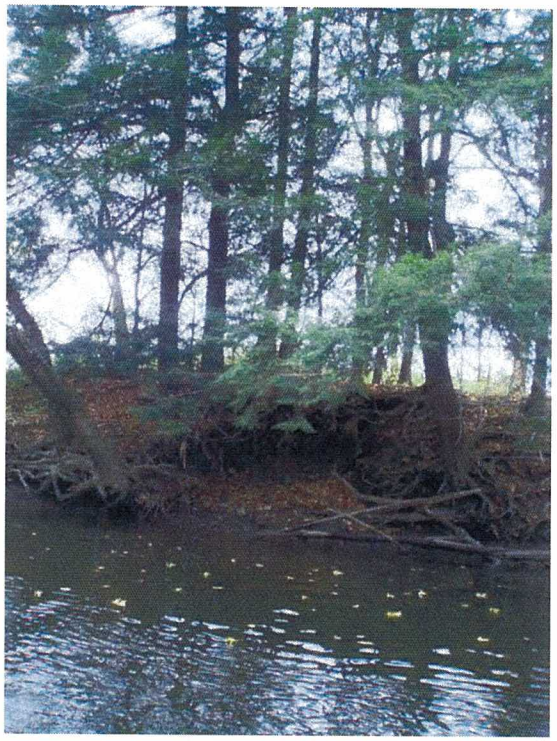
Offsite Disposal – Existing Permitted Facility

Bottom Line:

The Commonwealth vigorously opposes the creation of a new landfill in Berkshire County!!

Housatonic River – Rest of River

The Commonwealth Proposal Summary



- Abate human health risks for direct contact
- Preserves the ecological uniqueness of the river
- Reduce source of PCBs in Rest of River system
- Ongoing monitoring and evaluation
- Improve institutional controls
- Consider new technologies/Adaptive Management
- Off-site disposal of excavated material

MassDEP

Questions?

www.mass.gov/dep/cleanup/sites/housatonic.htm