Understanding Types and Benefits of Fish Habitat and Structure

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ILMA Workshop

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NIU DeKalb, IL

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Importance of Fish Habitat

- What is “fish habitat”?
  - “those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity”
  - All required physical and chemical factors for all life stages

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Importance of Fish Habitat

- What is “fish habitat”?
  - Physical
    - Water Depth
    - Current/Waves
    - Bottom Type
    - Cover
    - Clarity/Turbidity

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Importance of Fish Habitat

- What is “fish habitat”?
  - Chemical
    - Temperature
    - Dissolved Oxygen
    - Nutrient Levels
    - pH
    - Conductivity

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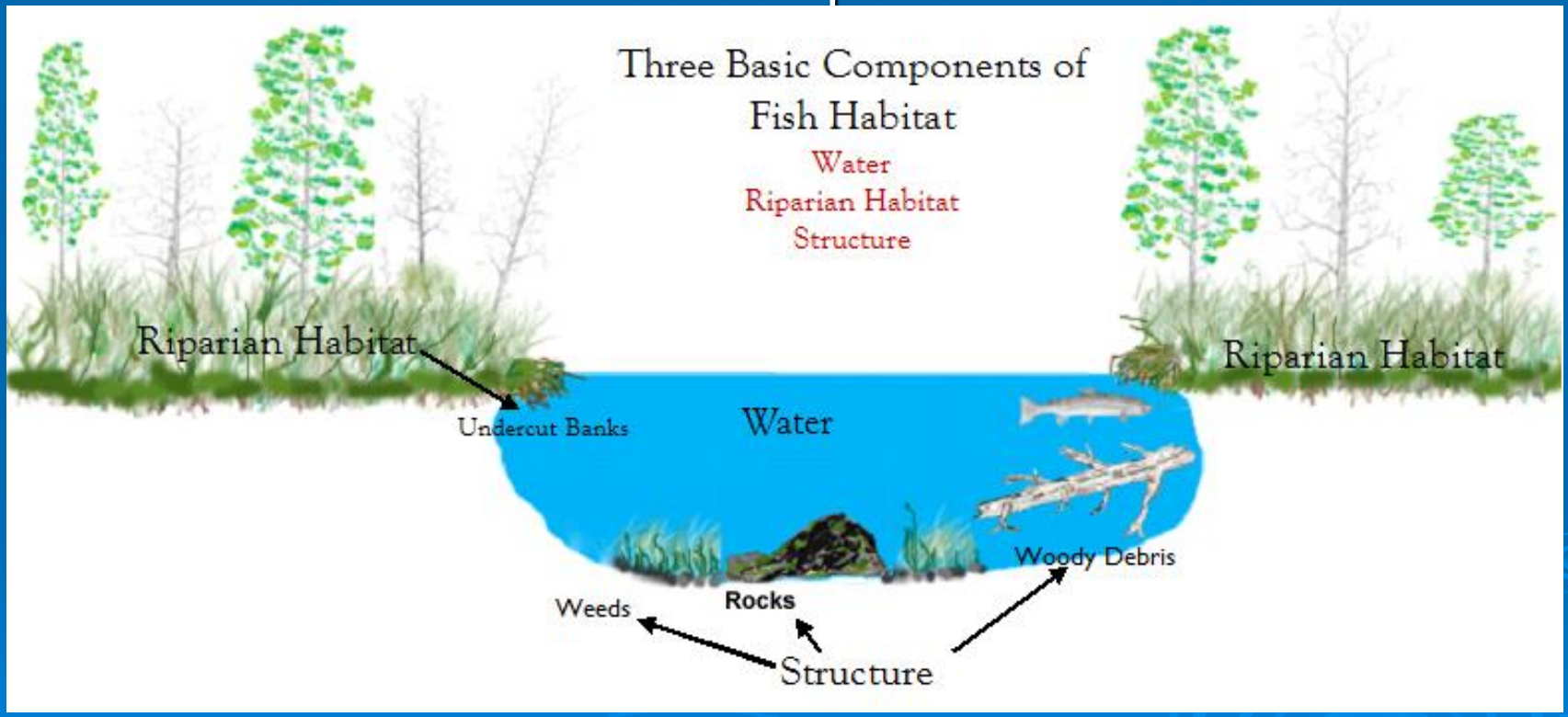
Importance of Fish Habitat

- What is “fish habitat”?
  - Three Components



streamtender.com

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Importance of Fish Habitat

- Why do you need Fish Habitat?
  - Cover/protection from predators
    - Small fish can hide
  - Area for predators to hide to ambush prey
  - Food/area for food organisms to grow/live
    - Invertebrates colonize
    - Algae grows
    - Some fish eat plants

Importance of Fish Habitat

- Why do you need Fish Habitat?
  - Shade from the summer sun – cooler water
  - Spawning
    - Proper substrate
    - sand/gravel/cobble/vegetation/woody debris

Importance of Fish Habitat

- Why do you need Fish Habitat?
  - Water Quality
    - Poor water quality can put stress on fish
    - Monitor
      - profiles of water column
      - Indication of parameters limiting fish production.

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Importance of Fish Habitat

- What is happening to habitat?
  - Babe's message on Midwest Habitat Project
  - Development within the watershed
  - Increased run-off
  - Harvesting of aquatic plants
  - Removing of woody debris
  - Shoreline development
  - Sedimentation

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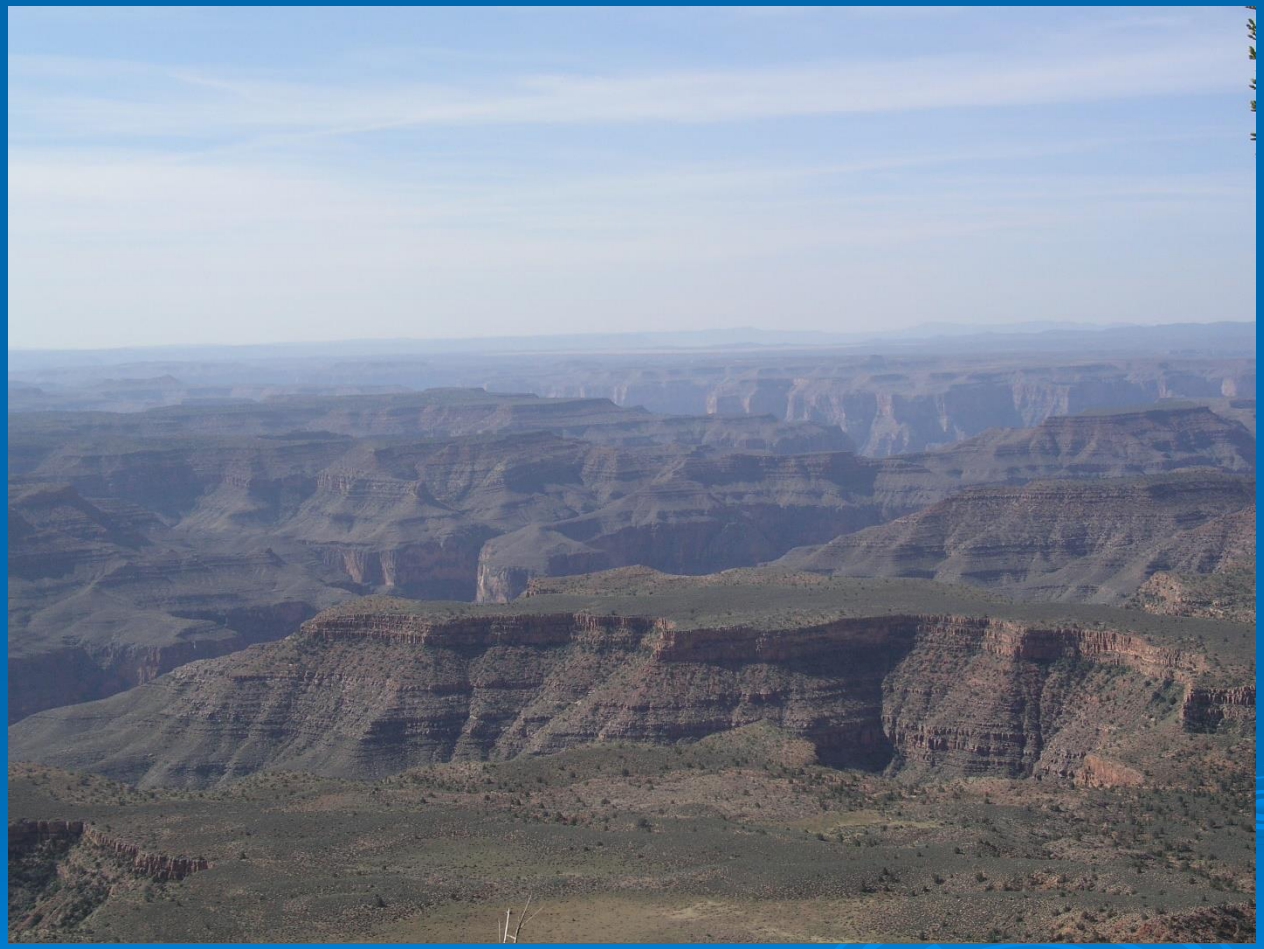
Importance of Fish Habitat

- What is happening to habitat?
  - Fluctuating water levels
  - Too much – disperses fish
  - Too little – concentrates fish
  - Increased recreational use – boating

Natural Habitat

- Water!
- Without it, everything else is moot!



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Natural Habitat

- Oxygen

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Natural Habitat

- Substrate
  - Boulder
  - Cobble
  - Gravel
  - Sand
  - Silt
  - Hardpan

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Natural Habitat

- Undercut banks
- – Rootwads and Rootmats
- – Boulders
- – Logs and other LWD
- – Aquatic Macrophytes
- – Pools
- – Overhanging Vegetation
- – Backwaters and Shallows

Natural Habitat

Undercut Banks

Root wads

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Natural Habitat

- Boulders
- LWD

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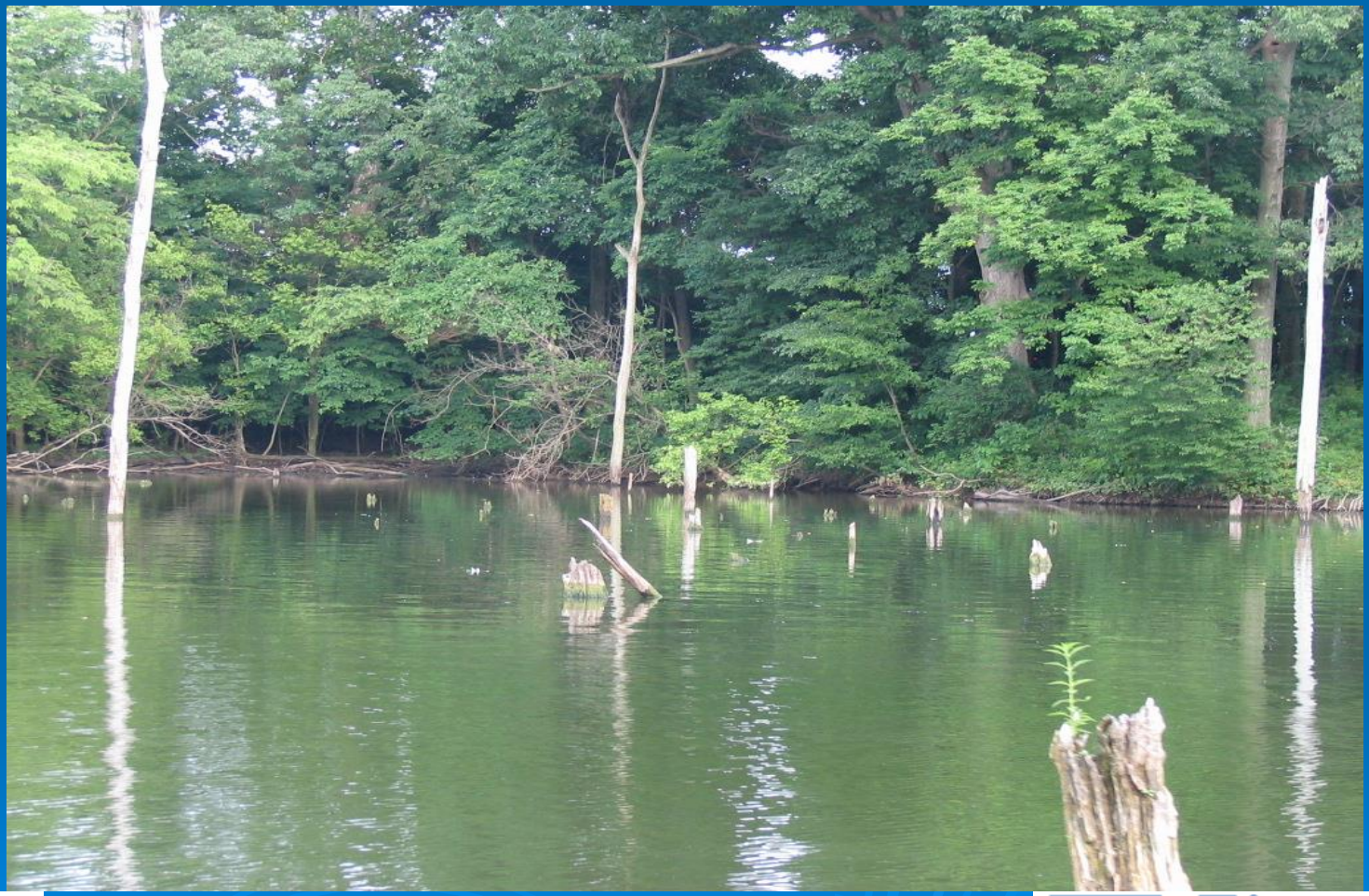
Natural Habitat



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Natural Habitat

- Aquatic Macrophytes
  - Emergent
  - Submergent

Natural Habitat

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Natural Habitat

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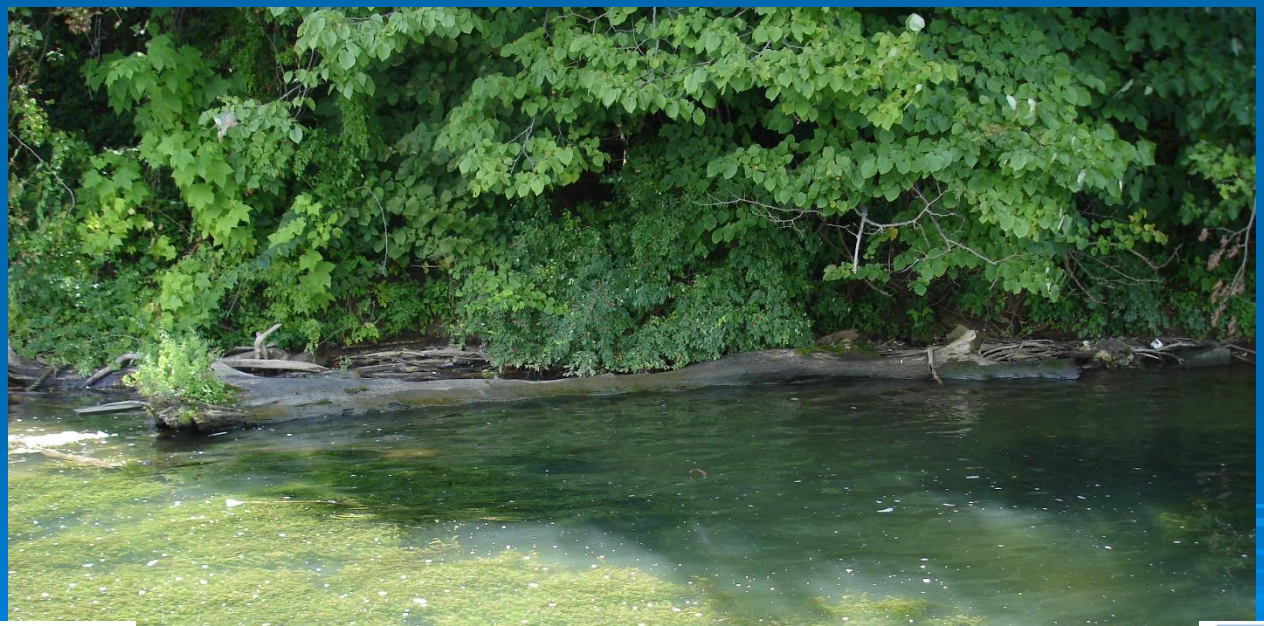
Natural Habitat

- Pools
- Overhanging Vegetation
- Backwaters and Shallows



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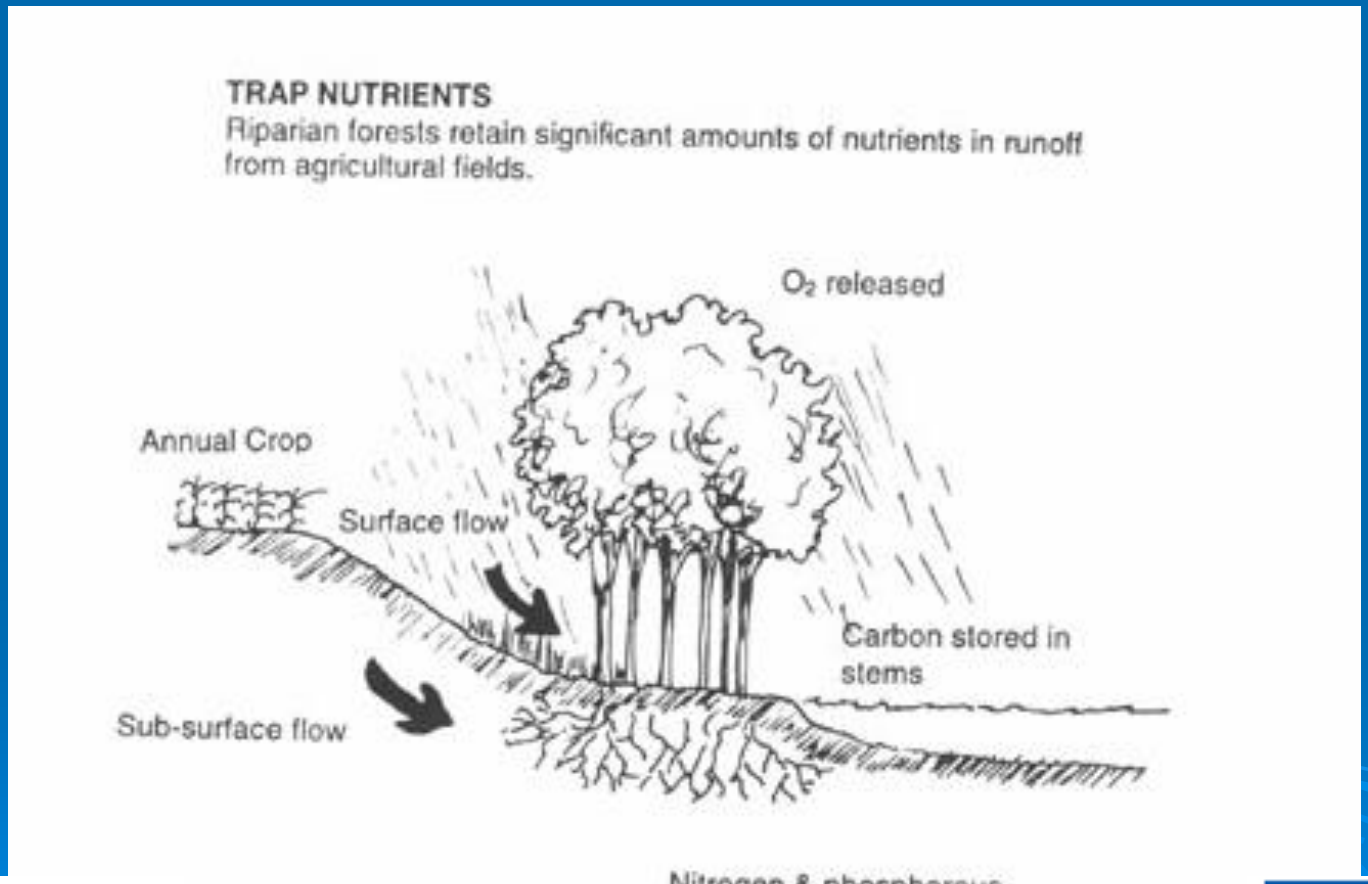
Natural Habitat

- Riparian Buffer



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Natural Habitat

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Types of Artificial Habitat

- Fish Cribs
- Christmas Trees
- Fallen Trees
- Half-Logs
- Reefs
- Pipes
- Plastic Structures
- Other Structures

Types of Artificial Habitat

- Fish Cribs
  - Various construction materials
    - Wood
    - Plastic
    - Metal
    - Concrete

Types of Artificial Habitat

- Fish Cribs
  - Construction
    - No matter the material, construction is similar
    - Stack materials 4 to 5 feet high
    - Weigh the bottom with rocks/cinder block
    - Stuff with brush/tree branches
    - Should be placed in 10 to15 feet of water
    - Long life expectancy – can last over 20 years

Types of Artificial Habitat

- Fish Cribs
  - Construction – Log Crib
    - 6 to 8 foot logs stacked “log cabin” style
      - These logs are held together with rebar
    - Hardwood works best – last longer
    - Base of crib covered with smaller “sapling” size poles
      - Nailed into place
    - Fill crib with brush/tree branches/rocks
    - Attach enough cinder blocks to base to get crib to sink
      - Sometimes more may be needed once deployed

Types of Artificial Habitat

- Fish Cribs
  - Construction – Log Crib

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Types of Artificial Habitat

- Fish Cribs
  - Construction – Log Crib

Types of Artificial Habitat

- Fish Cribs
  - Construction – Pallet Crib
    - Pallet – Cinderblock – Pallet – Cinderblock
      - Chippewa Flowage in Northern WI
      - Pallets donated
      - Pallets are layered separated by cinderblocks at each corner until 3-4 pallets high
      - Strapped together with metal banding – “sandwiches”
      - Fill with brush
      - This project used a pontoon boat to deploy cribs
      - Cost approximately $10 each

Types of Artificial Habitat

- Fish Cribs
  - Construction – Pallet Crib
    - Oconto County WI

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Types of Artificial Habitat

- Fish Cribs
  - Construction – Pallet Crib
    - Tee-pee
    - Three pallets
    - Tied or nailed together
    - Can fill with brush
    - Weighted with bricks

Types of Artificial Habitat

- Fish Cribs
  - Construction – Pallet Crib

Types of Artificial Habitat

- Fish Cribs
  - Construction – Pallet Crib

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Types of Artificial Habitat

- Fish Cribs
  - Construction – Plastic Crib
    - Commercially sold
    - Fill with stones/brush
    - Weigh with rock/cinderblocks

Types of Artificial Habitat

- Christmas Trees
  - Easy to collect – readily available
  - Concrete into a bucket
  - Deploy on ice or by boat
  - Short life span – maybe 10 years
  - Key is to keep trees submerged
  - Should be placed in 10 to 15 feet of water

Types of Artificial Habitat

- Christmas Trees

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Types of Artificial Habitat

- Christmas Trees

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Types of Artificial Habitat

- Christmas Trees

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Types of Artificial Habitat

- Christmas Trees

Xmas Tree lifespan

3 years

5 years

10 years

Christmas tree structures that were submerged for 3, 5, and 10 years. They last longer than a person might think! The key is to keep them submerged. Trees that are alternately flooded and then exposed will decay much faster.

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Types of Artificial Habitat

- Fallen Trees
  - Large whole trees
  - Dropped near the shore
  - Anchored out in 10 to 15 feet of water – not navigation hazard!
  - Long life expectancy
  - Can cause shoreline erosion if not maintained

Types of Artificial Habitat

- Fallen Trees

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Types of Artificial Habitat

- Fallen Trees
  - Pewaukee Lake - WI

Types of Artificial Habitat

- Fallen Trees
  - Pewaukee Lake - WI

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Types of Artificial Habitat

- Fallen Trees
  - Bony Lake - WI

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Types of Artificial Habitat

- Half-Logs
  - A 6 to 8 foot log cut in half
  - A cinder block or log used as a spacer between lake/stream bed and half-log
  - Rebar driven through half-log and spacer into lake/stream bed
  - Should be placed in 3 to 5 feet of water
  - Long life expectancy – up to 20 years

Types of Artificial Habitat

- Half-Logs

Types of Artificial Habitat

- Reefs
  - Generally built out in open water
  - Rock/gravel/sand
  - Very expensive
  - Very intensive
  - Generally a government funded project

Types of Artificial Habitat

- Reefs

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Types of Artificial Habitat

- Reefs
  - Lake Carrol IL

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Types of Artificial Habitat

- Reefs

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Types of Artificial Habitat

- Pipes
  - Concrete or Plastic
  - Long life expectancy
  - Should be placed in depths deep enough not to cause a navigational hazard
  - Many layout possibilities

Types of Artificial Habitat

- Pipes

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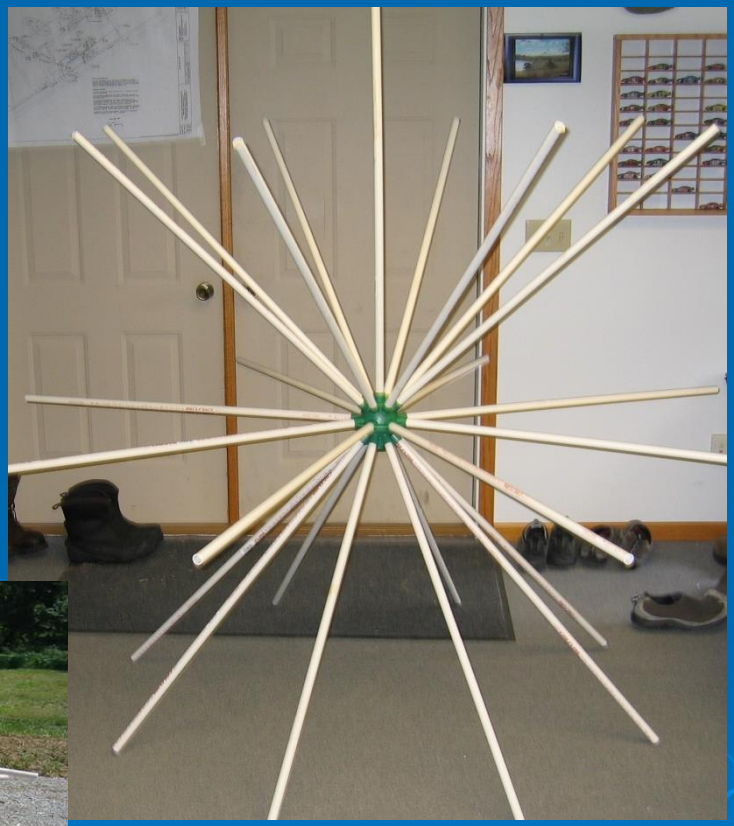
Types of Artificial Habitat

- Pipes



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Types of Artificial Habitat

- Other Plastic Structures
  - Pipes
  - Siding
  - Milk crates
  - Fencing
  - Anything and everything

Types of Artificial Habitat

- Other Plastic Structures

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Types of Artificial Habitat

- Other Plastic Structures

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Types of Artificial Habitat

- Other Plastic Structures
  - Fishiding

Types of Artificial Habitat

- Other Plastic Structures

Types of Artificial Habitat

- Other Plastic Structures

Types of Artificial Habitat

- Other Structures
  - Just some ??

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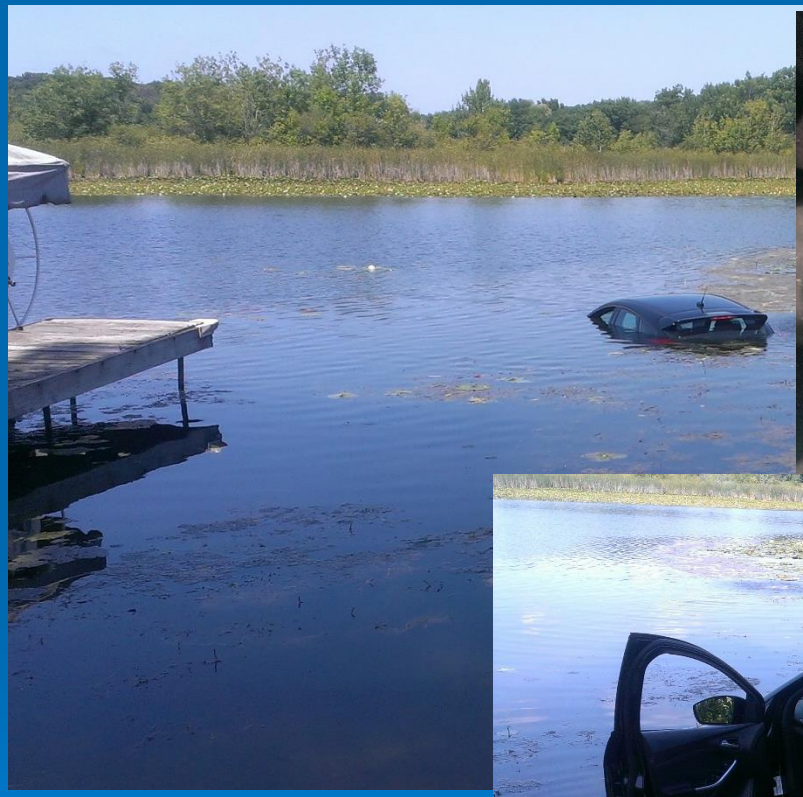
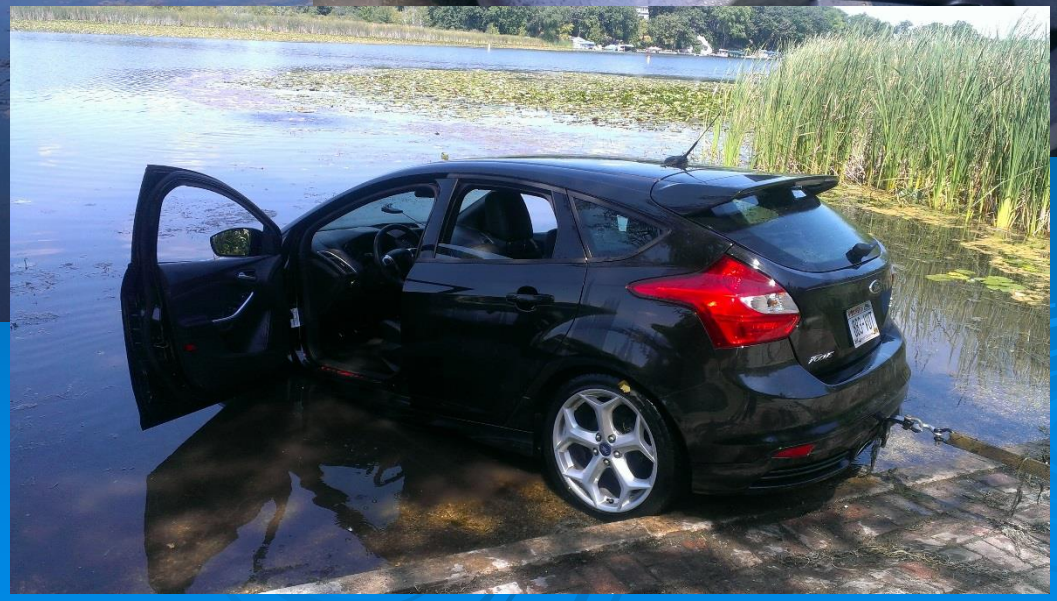
Types of Artificial Habitat

- Other Structures





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Problems/Up-keep

- Natural
  - Wind
  - Age

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Problems/Up-keep

Sediment Build-up

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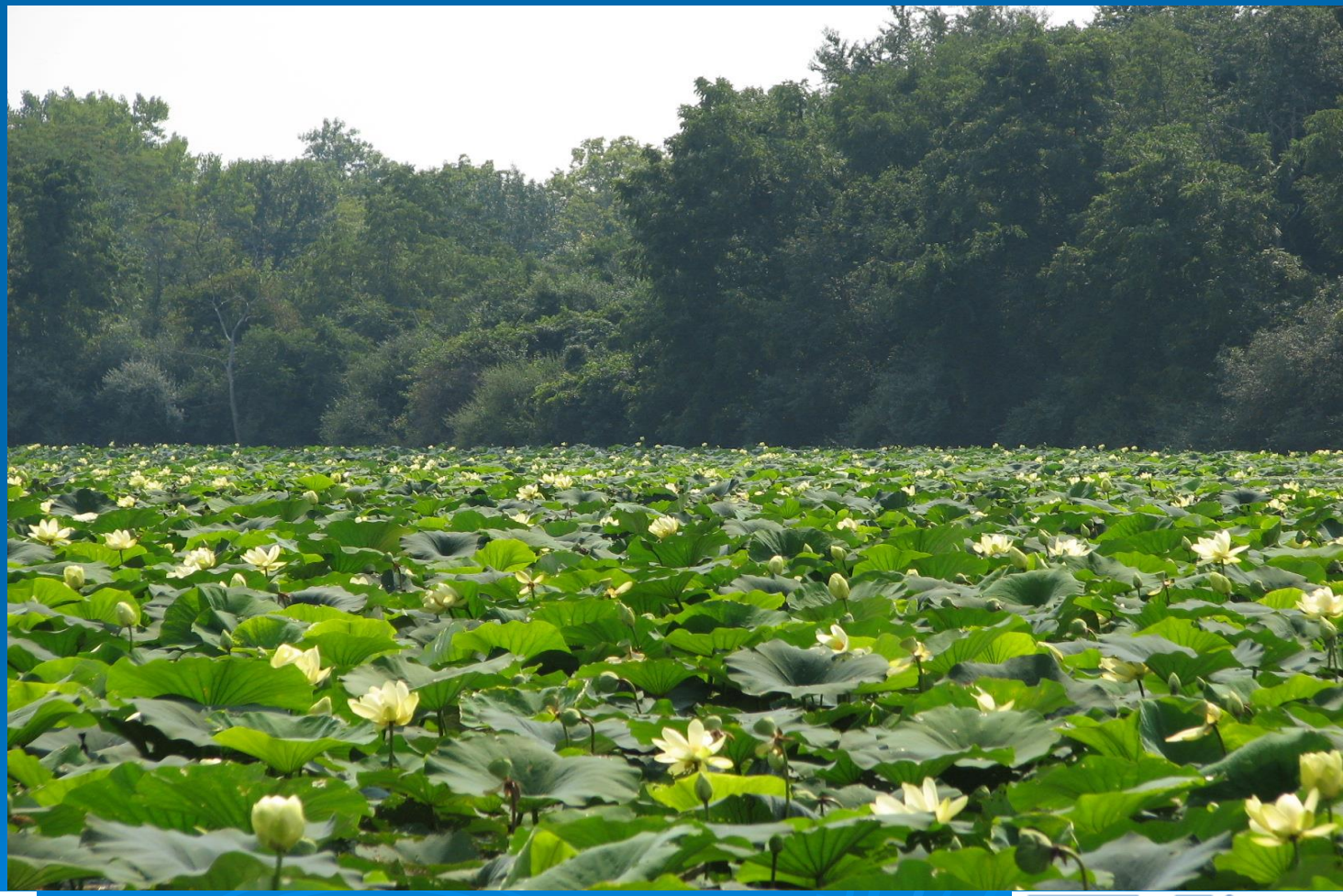
Problems/Up-keep

- Too Much of A Good Thing



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Problems/Up-keep

- Exotic/ Invasive

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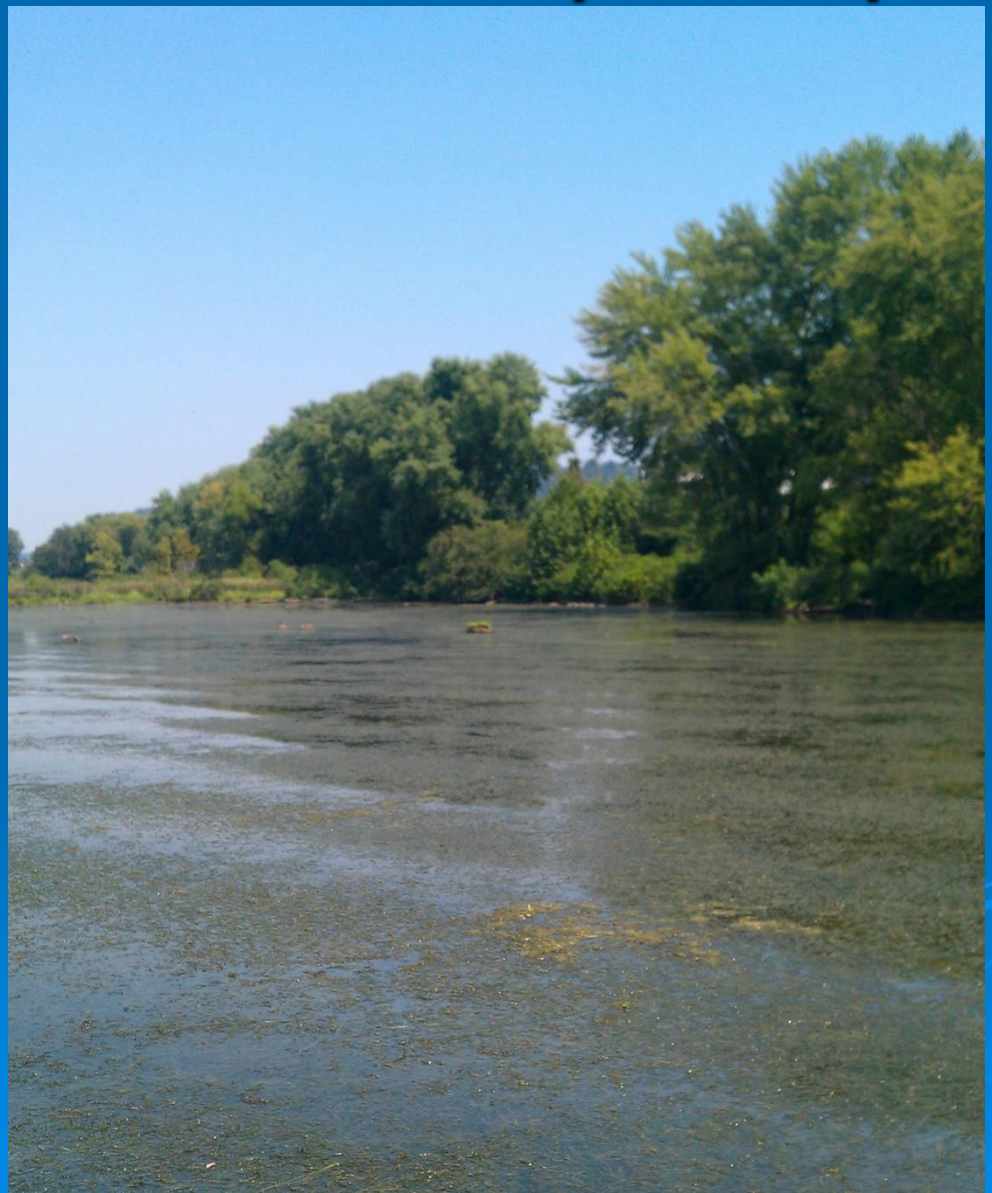
Problems/Up-keep

- Go, Go Hydrilla!



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Problems/Up-keep

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Problems/Up-keep

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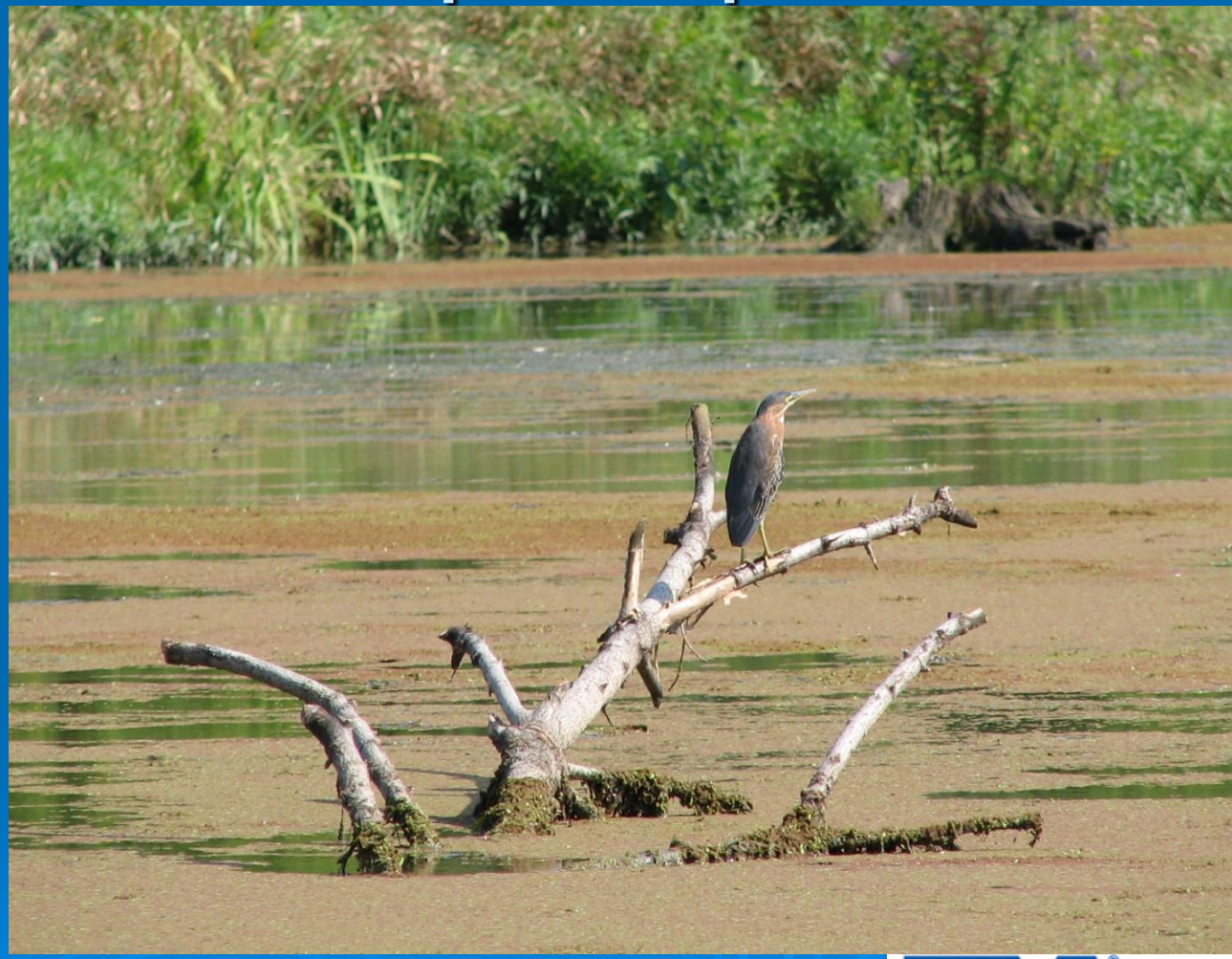
Problems/Up-keep

- Depth
- Location



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Problems/Up-keep

- Growing Pains

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Problems/Up-keep

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Problems/Up-keep

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Problems and Upkeep

- Not weighted enough
- Short life span
- Not put in deep enough water
- Become navigational hazard
- “ugly”

Hands On Activity

- Pallets
- Porcupine

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Habitat in Action

- Pictures:

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Habitat in Action

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Habitat in Action

- Video links:

https://www.youtube.com/watch?v=cqFv0yrb7js

https://www.youtube.com/watch?v=GAnsr-z1baE

https://www.youtube.com/watch?v=jfme0SZXVZI

https://www.youtube.com/watch?v=TGOBnlDDfzk

https://www.youtube.com/watch?v=Pox3Vs2NjCE

Future Workshops

POD – April/May

Hands on – July/September

Need a Lake Association to host

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QUESTIONS?

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