Harris Lake
Habitat Enhancement Project

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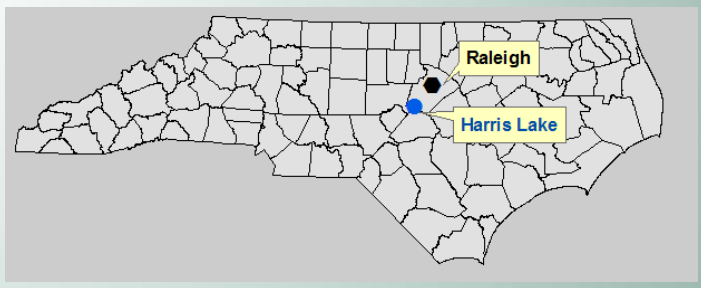
NC Wildlife Resources Commission

Outline

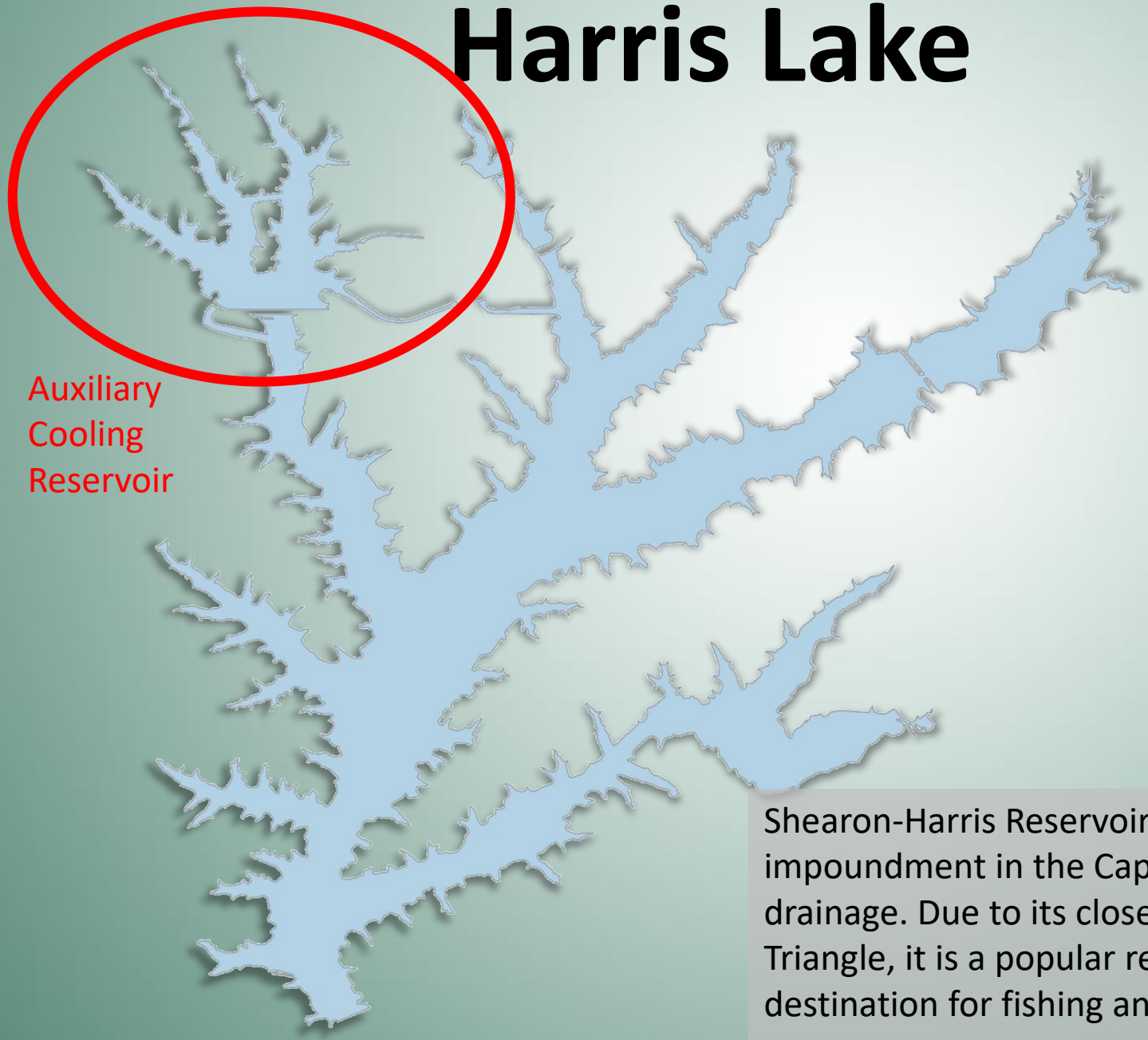
- Background Information
- Habitat Enhancement Plan
  - –Goals
  - –Constituent Input
  - –Enhancements
- Partners

Harris Lake



Shearon-Harris Reservoir is a 4,151 acre impoundment in the Cape Fear River drainage. Due to its close proximity to the Triangle, it is a popular recreation destination for fishing and watersports.

Harris Lake



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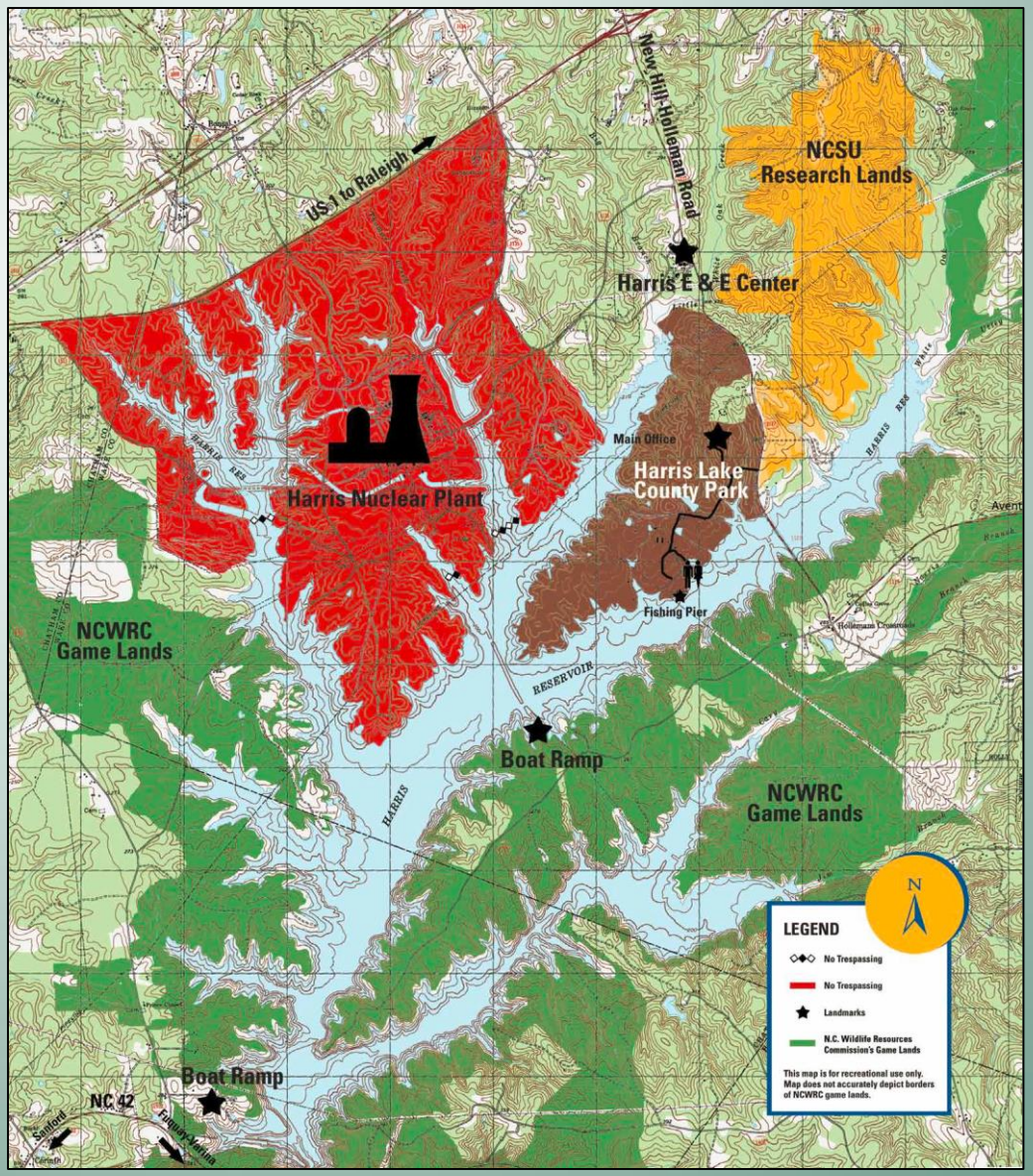
History

- Harris Lake:
  - Reached full pool in 1983
  - Formed by impounding Buckhorn and White Oak Creeks in Wake and Chatham counties
  - Backup water source for cooling Shearon Harris Nuclear Facility
  - Watershed rapidly urbanizing



Harris Lake Fisheries

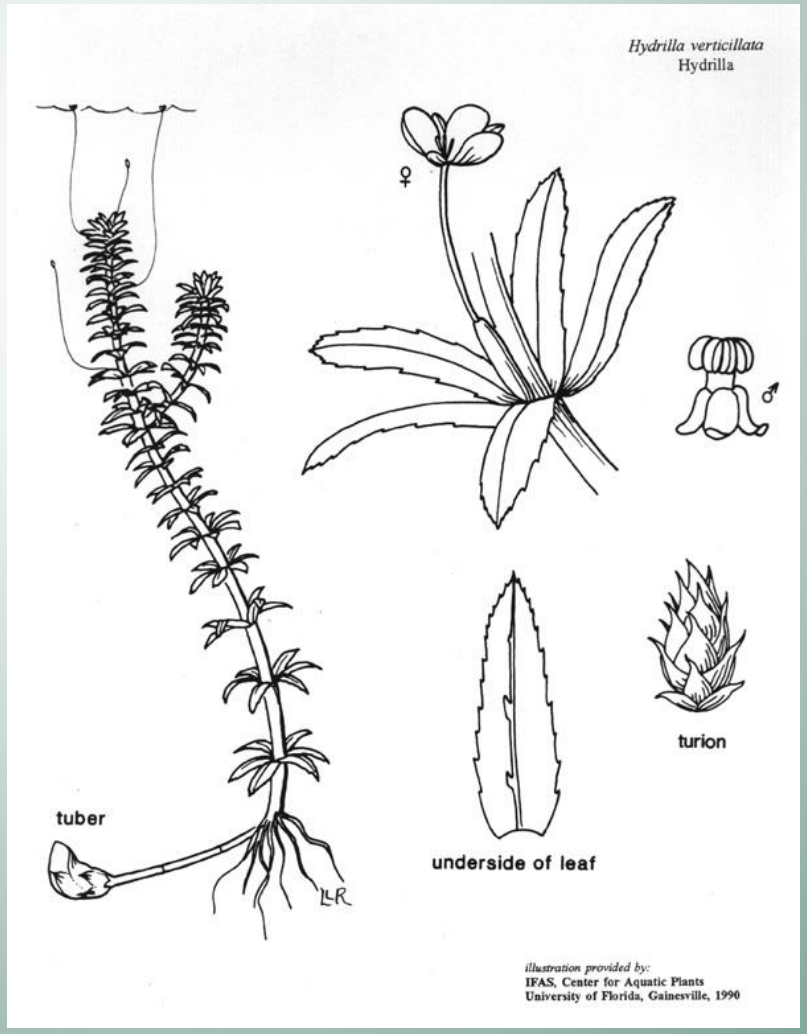
- Largemouth Bass Fishery
  - Ranked #1 bass fishery in Southeast U.S.
  - #4 in the entire U.S. by Bassmaster Magazine in 2017
  - Fast growth, large size, excellent abundance
- Crappie Fishery
  - Rapid growth
  - Excellent condition
  - High abundance
- Commission and Duke Energy staff monitor fisheries annually

History–Hydrilla

- Nuisance vegetation in Harris Lake:
  - Hydrilla 1st reported in 1988
  - Potentially expanded to 1,900 acres in 1990's
  - Estimated 942 acres of Hydrilla in 2015; 232 acres in 2018
  - No active hydrilla management taken place until Dec 2018
  - 1,400 triploid grass carp stocked in Dec 2018
  - 2,600 triploid grass carp stocked in May 2019
  - Low end of recommended Grass Carp stocking rate
    - Stocked 10 fish/vegetated acre in Harris Lake

Hydrilla – A Noxious Aquatic Weed

- **Submersed plant**
  - Native to Asia
  - Brought to USA in 20th century
  - 1980 – 1st report of it in N.C.
- **N.C.'s most costly aquatic plant to control**
  - Annual expenditures exceeding $1.5 million
- **Reproduces through fragmentation, turions, and tubers**
- **Tubers can remain dormant for 7 years**
- **Prohibited plant**
  - Not legal to culture, sell or transport



Why Manage Hydrilla in Harris Lake?

- Federal Noxious Weed
- Linked to Avian disease (Avian Vacuolar Myelinopathy)
- Source population for downstream spread to Cape Fear River Basin and transport to other waterbodies

Bonus Content – Lyngbya

- Filamentous cyanobacteria (Blue-green algae)
- Forms large mats on lake floor – sometimes floating
- Often replaces Hydrilla
- Easily transferred among water bodies
- Effective treatment difficult
  - Research ongoing at NCSU

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Harris Lake Habitat Enhancement Plan

Cooperative effort developed, funded, and led by the North Carolina Wildlife Resources Commission.

Guided by public input to maintain, enhance, and restore aquatic habitat in the lake for the greatest use by all.

All habitat enhancements are procured and installed under the supervision of NCWRC and permitted by the lake owner, Duke Energy.

No unregulated enhancements are approved by the NCWRC or Plan partners.

Harris Lake Habitat Enhancement Plan

Goals:

- Maintain balanced and popular fisheries
- Establish and expand coverage of native aquatic vegetation (1 acre of founder colonies) by 2023
- Install at least 30 acres of artificial and natural structure (400 - 700 fish attractors) by 2023,
- Maintain existing water quality conditions
- Provide competition for Lyngbya

Habitat Enhancement Plan

Habitat Remediation:

- **Document existing habitat**
- **Constituent Input**
- Vegetation establishment
- Cut and cabled trees
- Artificial fish attractor structures

Existing Habitat Sites

Habitat Remediation:

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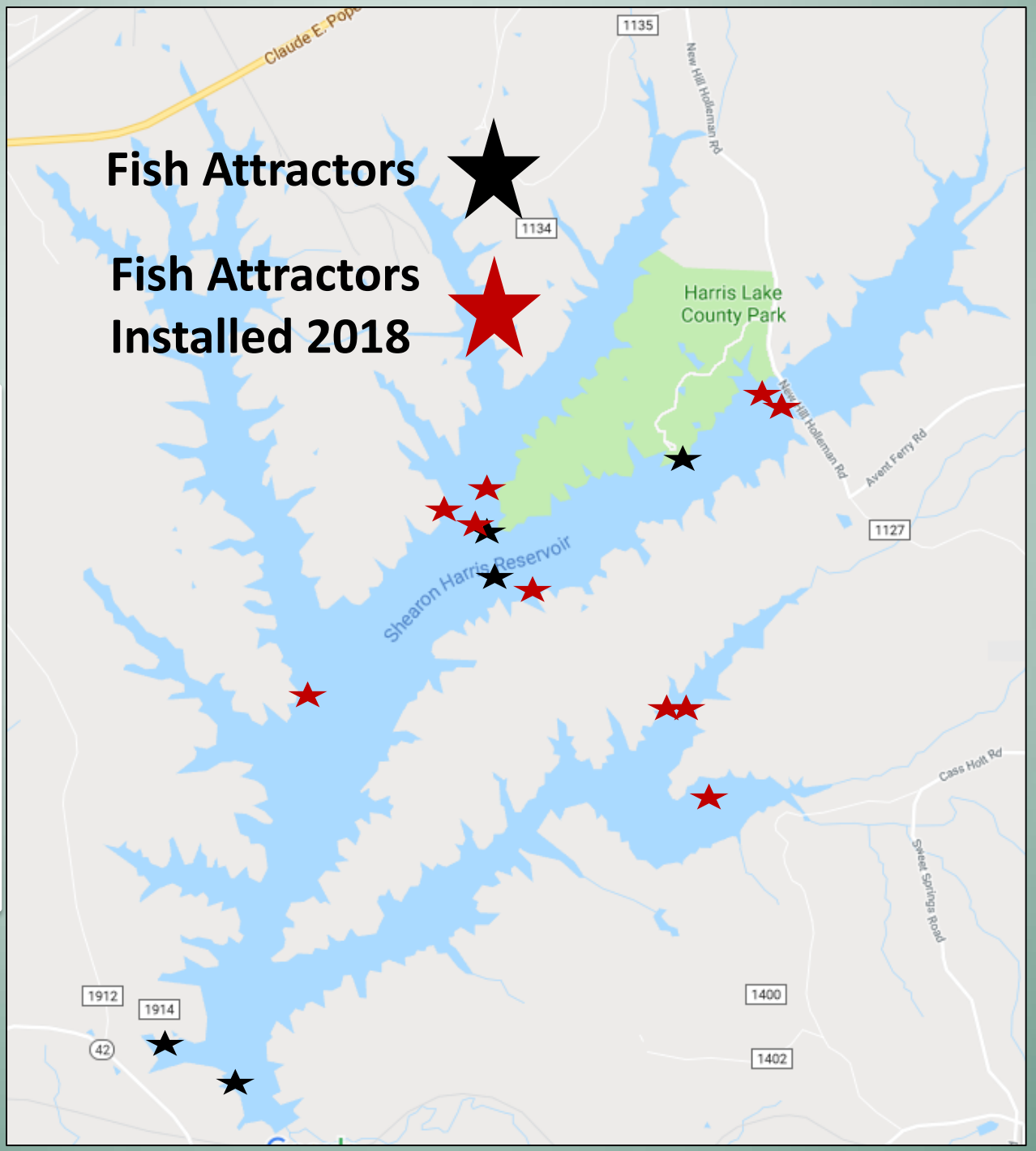
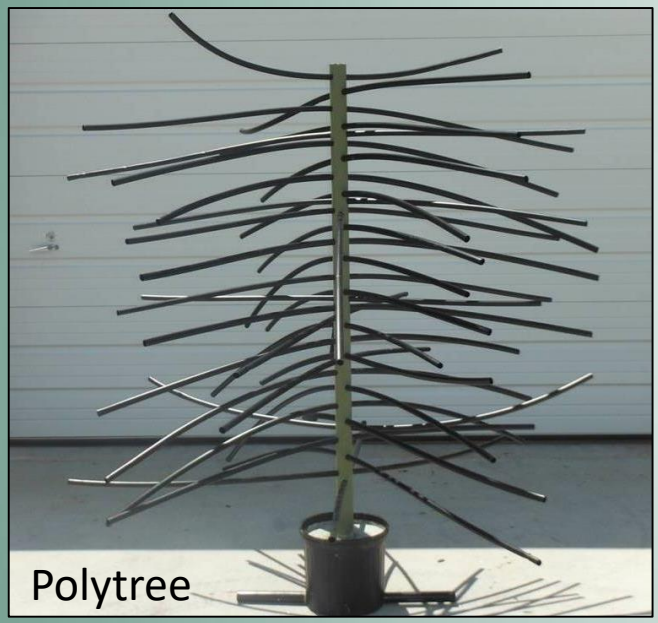


Existing Artificial Structure


Polytree


Mossback


Barrel Structure


Stake Beds

5 reefs are made up of Mossback, Barrel Structures and stake beds. Commission staff established 10 additional sites using polytrees at Harris in Aug 2018.

Habitat Enhancement Plan

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Types of Outreach

Started with a Big Public Meeting – Oct 2018

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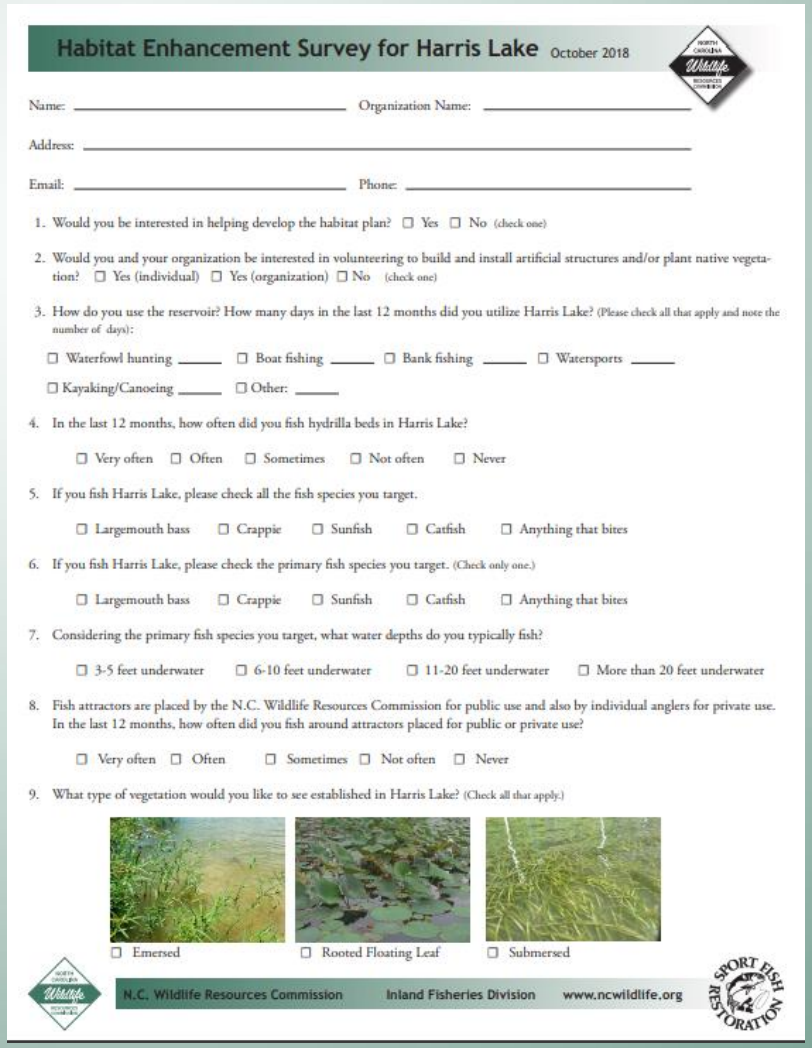
Types of Outreach

The NCWRC has promoted this project and solicited input through:

- Press releases
- Public meeting
- Questionnaire
  - Online
- **Fishing shows**
- **Meeting with local clubs**
- **Solicited GPS locations**
- **Individual basis**
- **Stakeholder group**

Questionnaire

- Open from Oct. 2018 – Feb. 2019 on our website
- Questions about:
  - Lake use
  - Fishing habitats
  - Enhancement preferences
- **47** responses



Habitat Enhancement Survey for Harris Lake October 2018

Name: _____ Organization Name: _____

Address: _____

Email: _____ Phone: _____

1. Would you be interested in helping develop the habitat plan? ☐ Yes ☐ No (check one)
2. Would you and your organization be interested in volunteering to build and install artificial structures and/or plant native vegetation? ☐ Yes (individual) ☐ Yes (organization) ☐ No (check one)
3. How do you use the reservoir? How many days in the last 12 months did you utilize Harris Lake? (Please check all that apply and note the number of days):

   ☐ Waterfowl hunting _____ ☐ Boat fishing _____ ☐ Bank fishing _____ ☐ Watersports _____

   ☐ Kayaking/Canoeing _____ ☐ Other: _____
4. In the last 12 months, how often did you fish hydrilla beds in Harris Lake?

   ☐ Very often ☐ Often ☐ Sometimes ☐ Not often ☐ Never
5. If you fish Harris Lake, please check all the fish species you target.

   ☐ Largemouth bass ☐ Crappie ☐ Sunfish ☐ Catfish ☐ Anything that bites
6. If you fish Harris Lake, please check the primary fish species you target. (Check only one.)

   ☐ Largemouth bass ☐ Crappie ☐ Sunfish ☐ Catfish ☐ Anything that bites
7. Considering the primary fish species you target, what water depths do you typically fish?

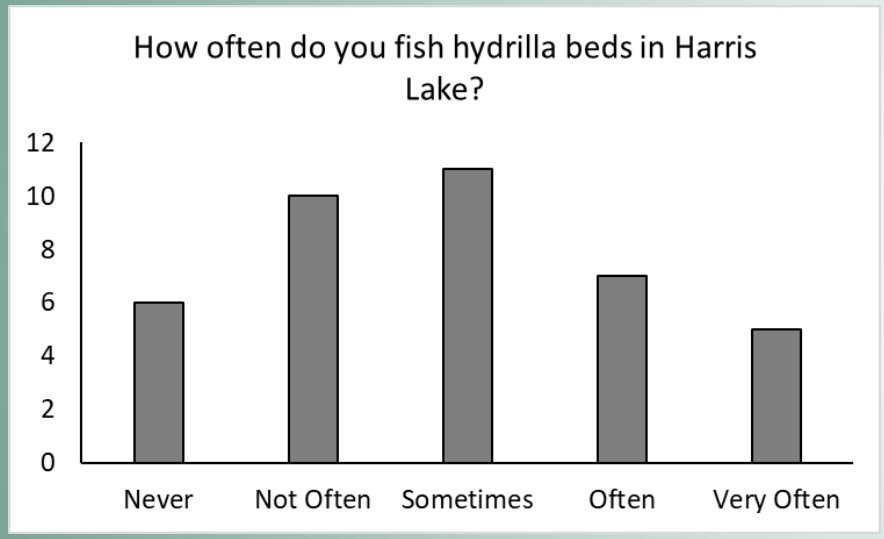
   ☐ 3-5 feet underwater ☐ 6-10 feet underwater ☐ 11-20 feet underwater ☐ More than 20 feet underwater
8. Fish attractors are placed by the N.C. Wildlife Resources Commission for public use and also by individual anglers for private use. In the last 12 months, how often did you fish around attractors placed for public or private use?

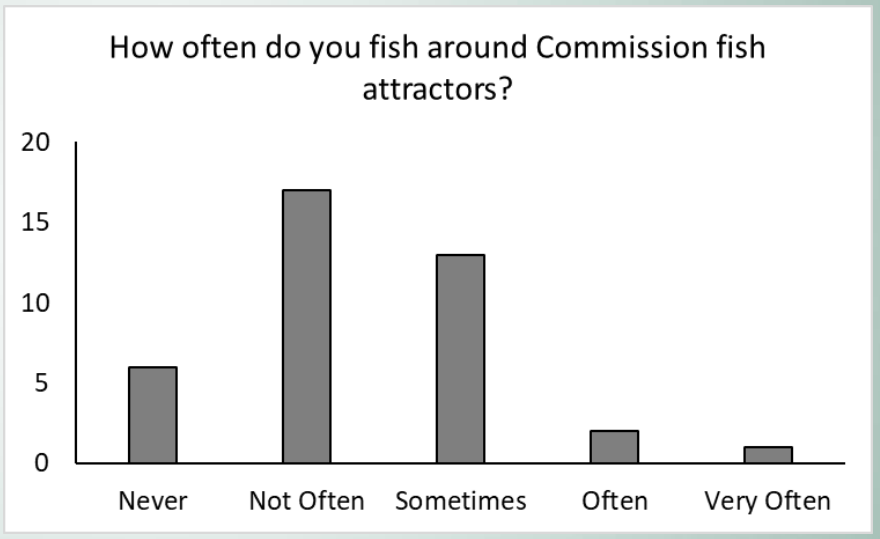
   ☐ Very often ☐ Often ☐ Sometimes ☐ Not often ☐ Never
9. What type of vegetation would you like to see established in Harris Lake? (Check all that apply.)

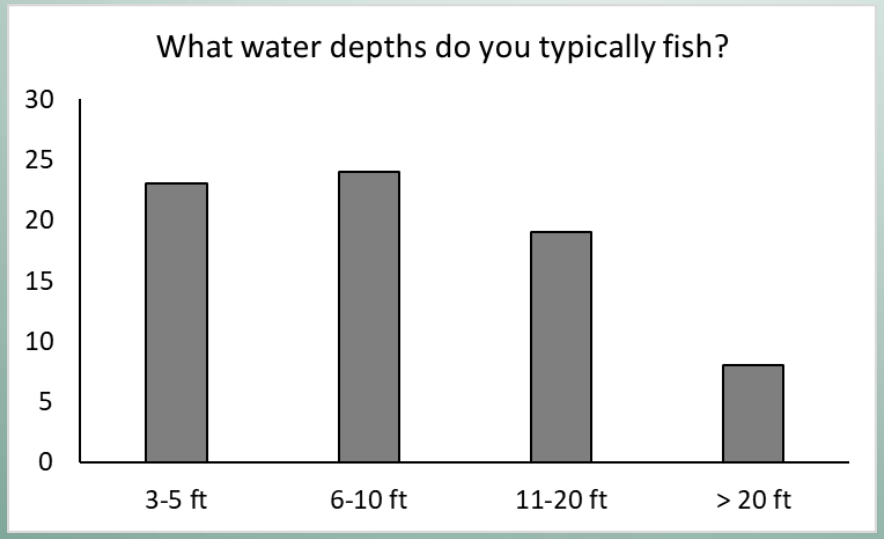
N.C. Wildlife Resources Commission Inland Fisheries Division www.ncwildlife.org

SPORT FISH RESTORATION

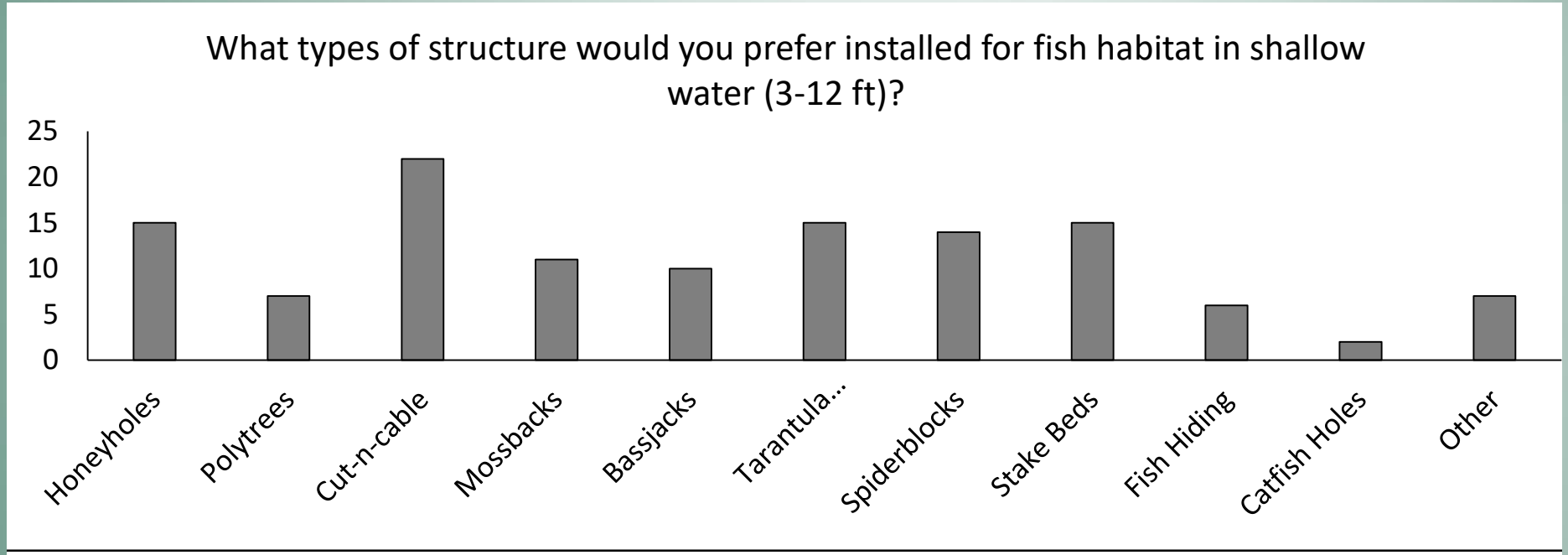
Questionaire - Responses

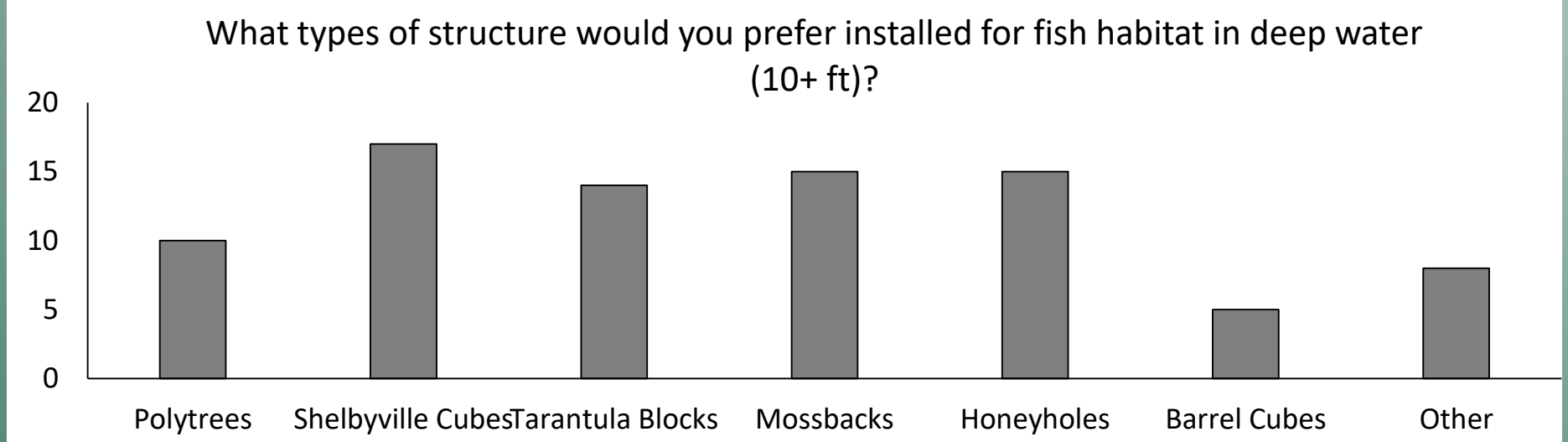






Questionaire - Responses





Constituent Input

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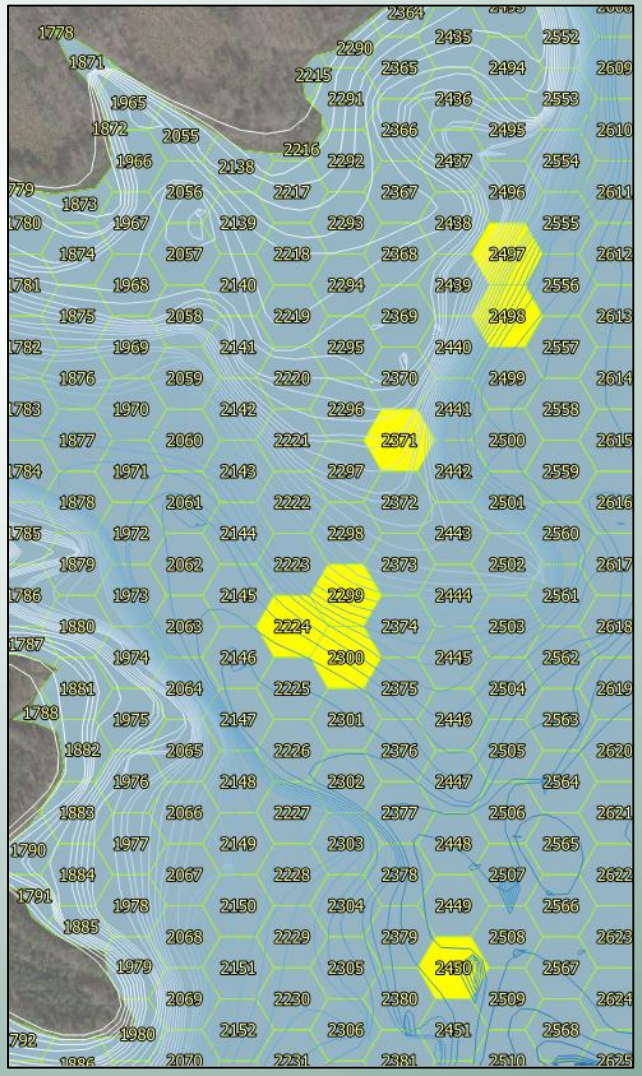
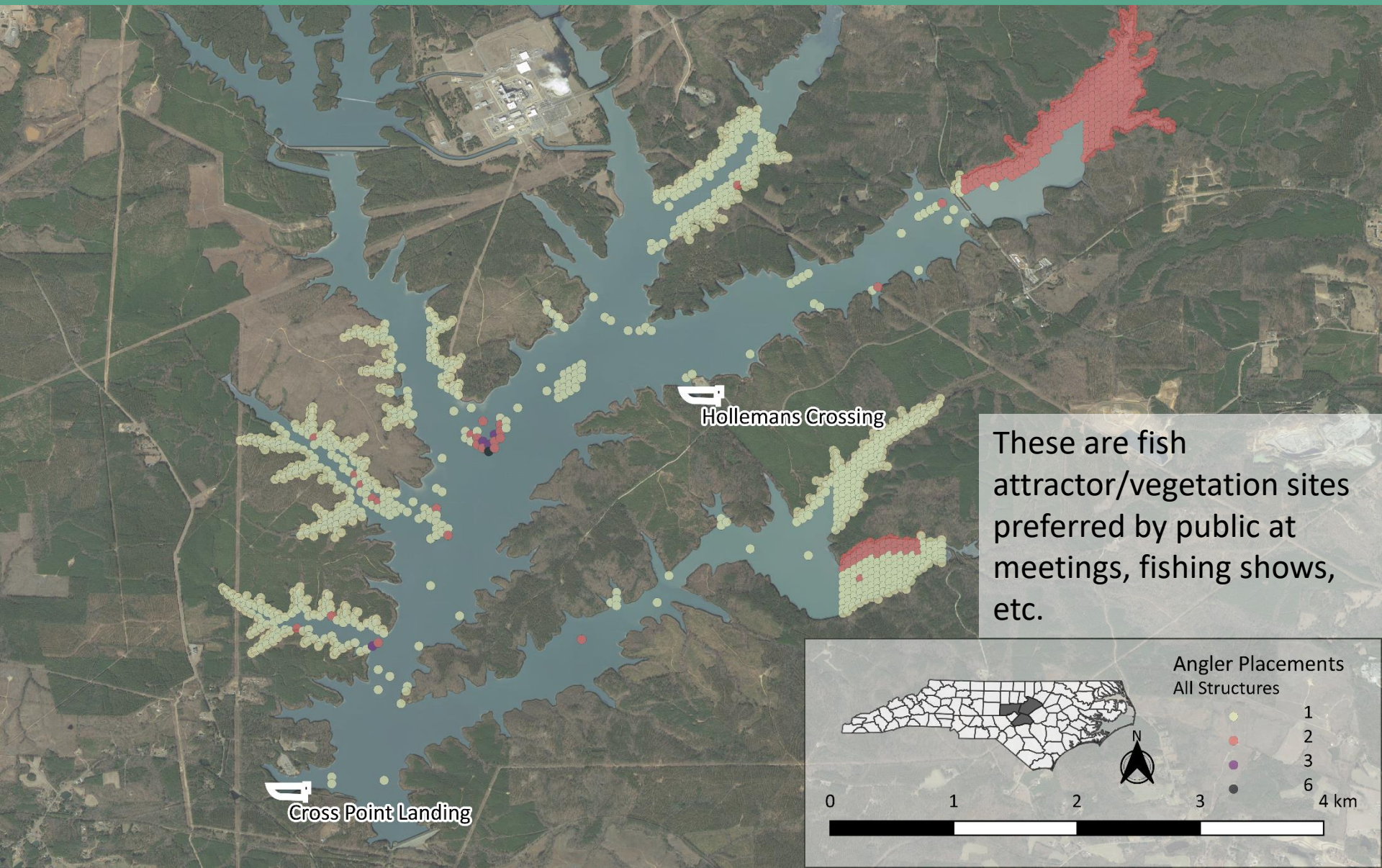
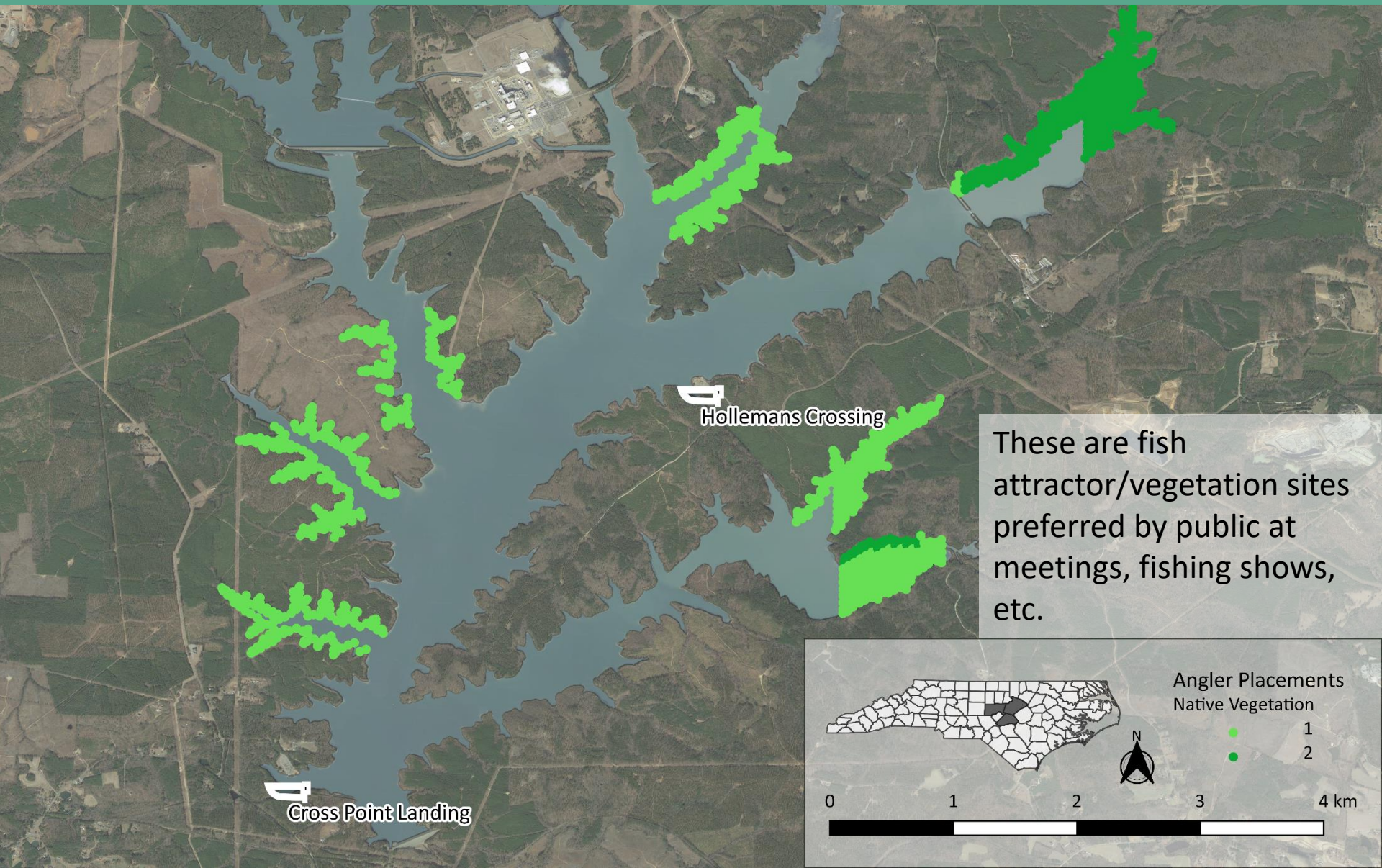


All Structures/Vegetation



Vegetation


Hollemans Crossing
Cross Point Landing
These are fish attractor/vegetation sites preferred by public at meetings, fishing shows, etc.
Angler Placements
Native Vegetation
1
2
N
0
1
2
3
4 km

Habitat Enhancement Plan

Habitat Remediation:

- Document existing habitat
- Vegetation establishment
- Cut and cabled trees
- Artificial fish attractor structures

Habitat Enhancement Zone

- Habitat available year-round to fish
- 20ft contour and shallower
- Above thermocline

Habitat Enhancement Zone

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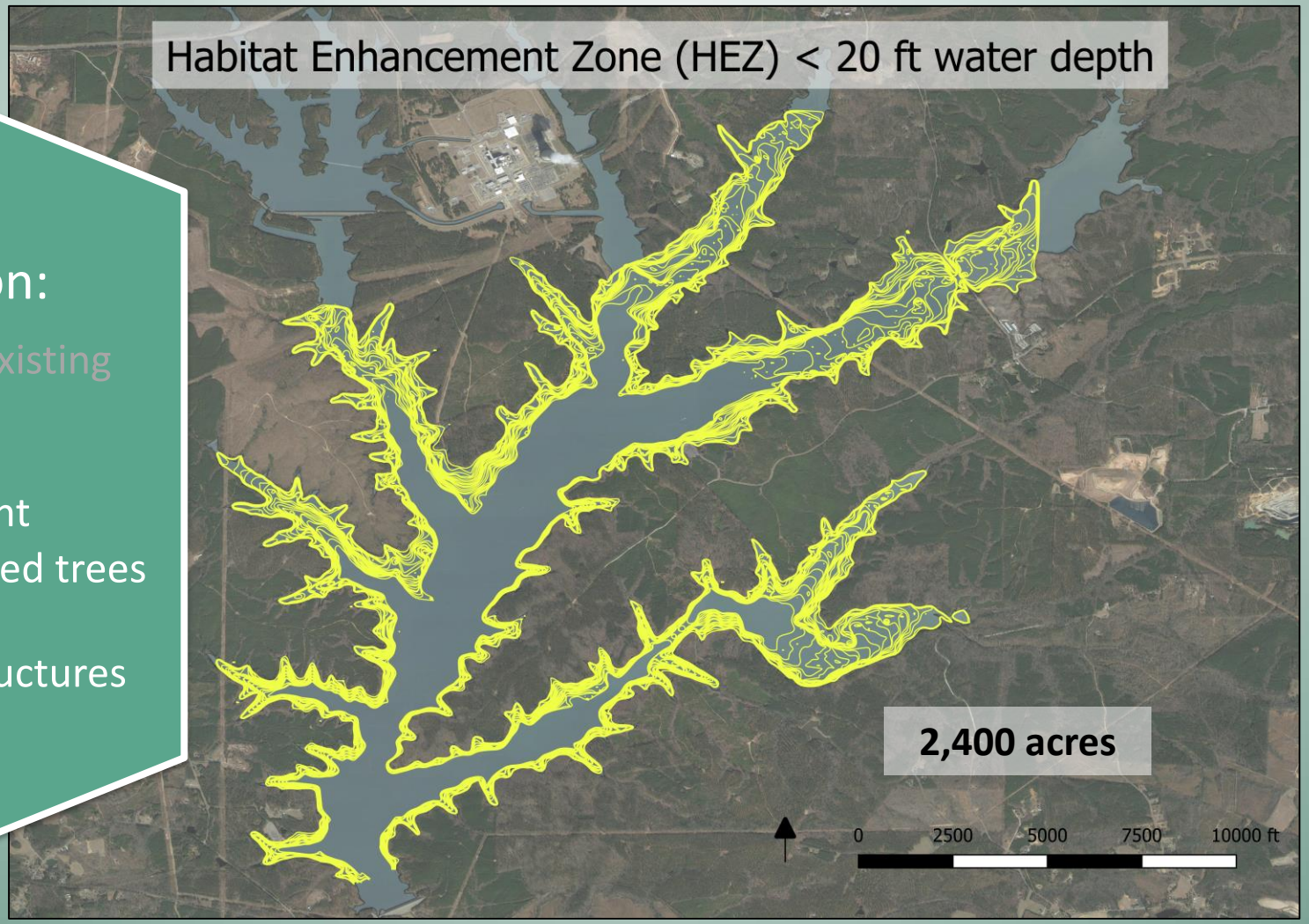

Habitat Enhancement Plan

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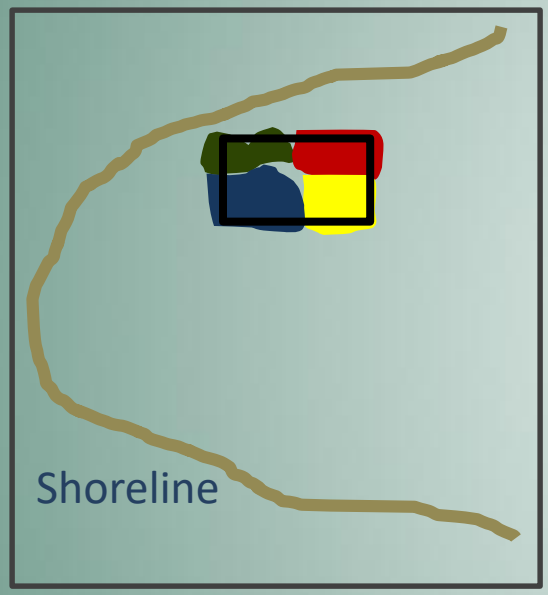
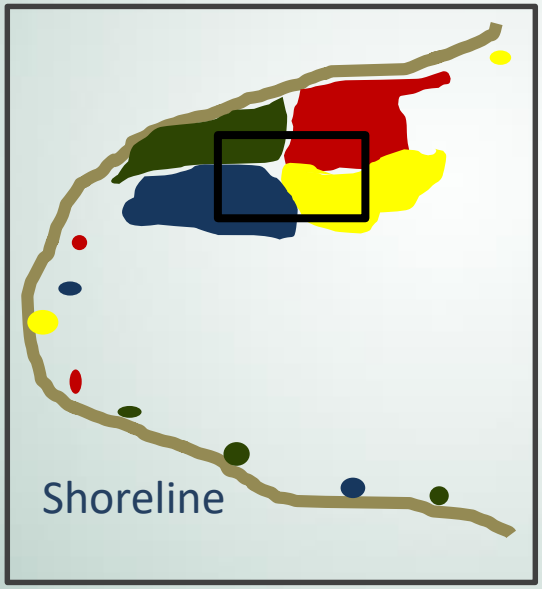
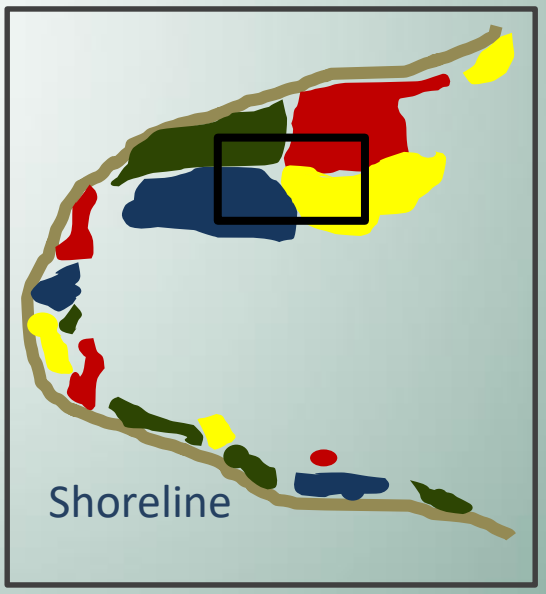
Establish Founder Colonies



Initial fenced enclosure planted with 4 species of aquatic vegetation

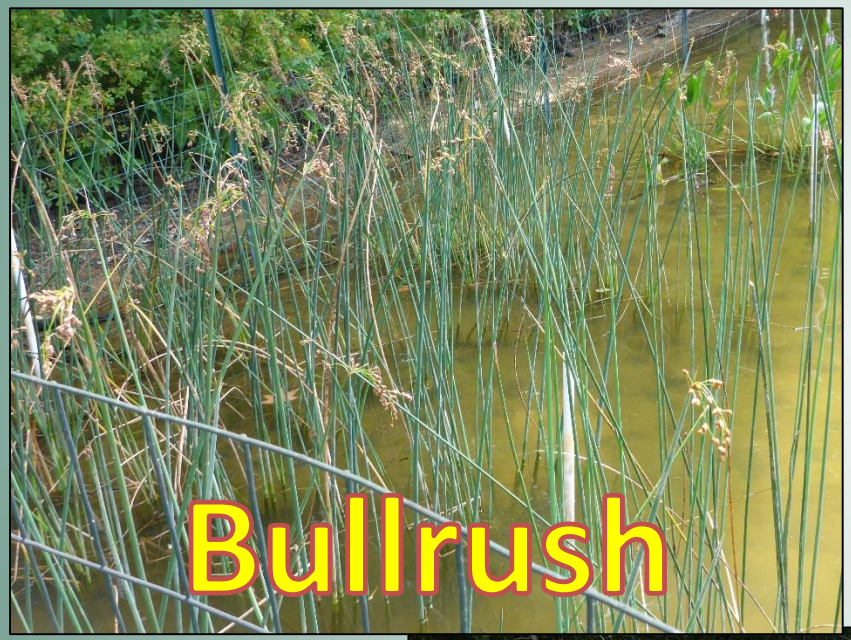


Over time, vegetation expands outside the enclosure



After a few years, large swaths of vegetation spread beyond the enclosure

Native Vegetation



These are **emergent** species of native vegetation we are trying to establish in Harris Lake

Native Vegetation

These are **floating-leaved** species of native vegetation we are trying to establish in Harris Lake

Native Vegetation

These are **submersed** species of native vegetation we are trying to establish in Harris Lake

Habitat Remediation:

- Document existing habitat
- **Vegetation establishment**
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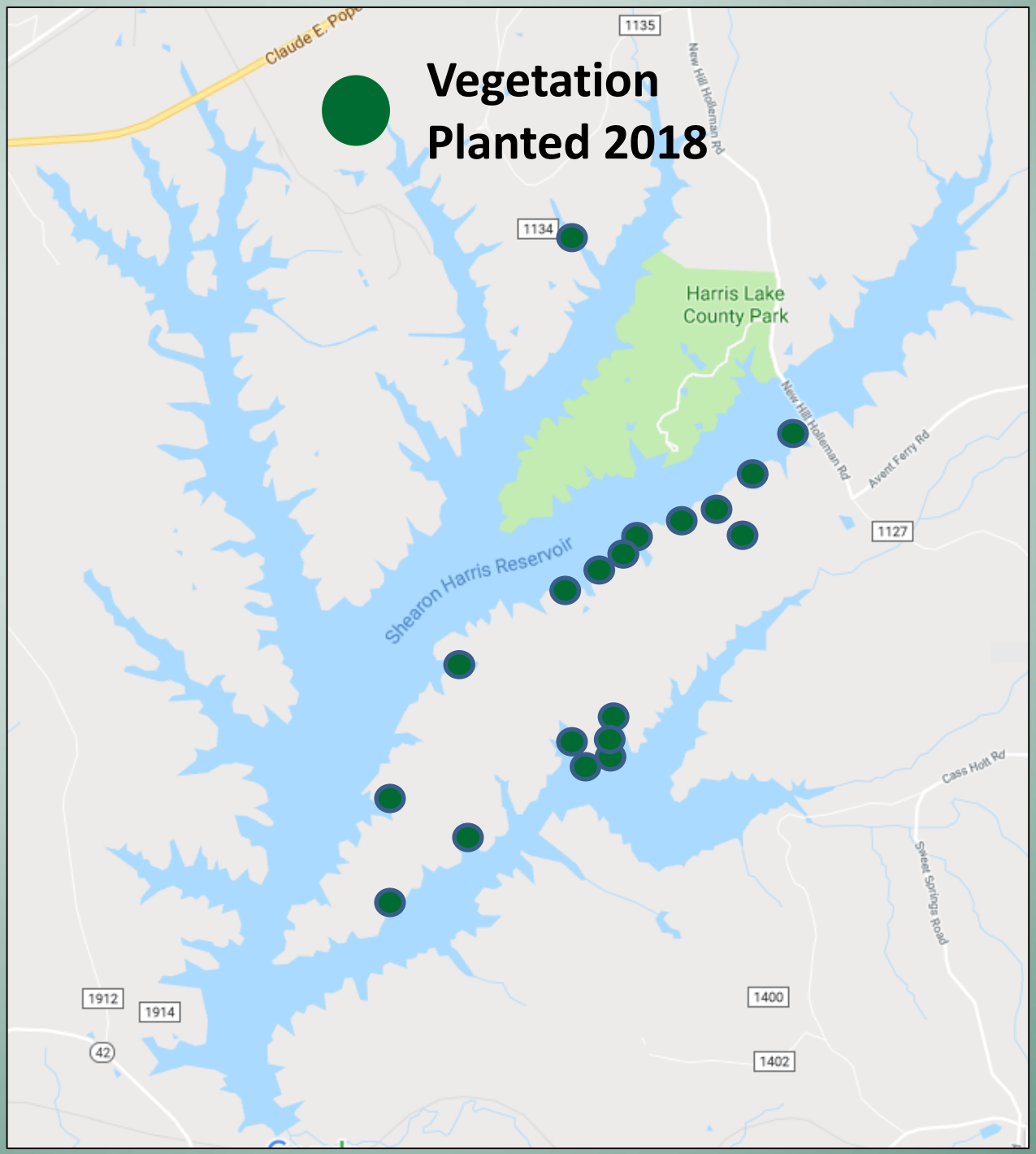

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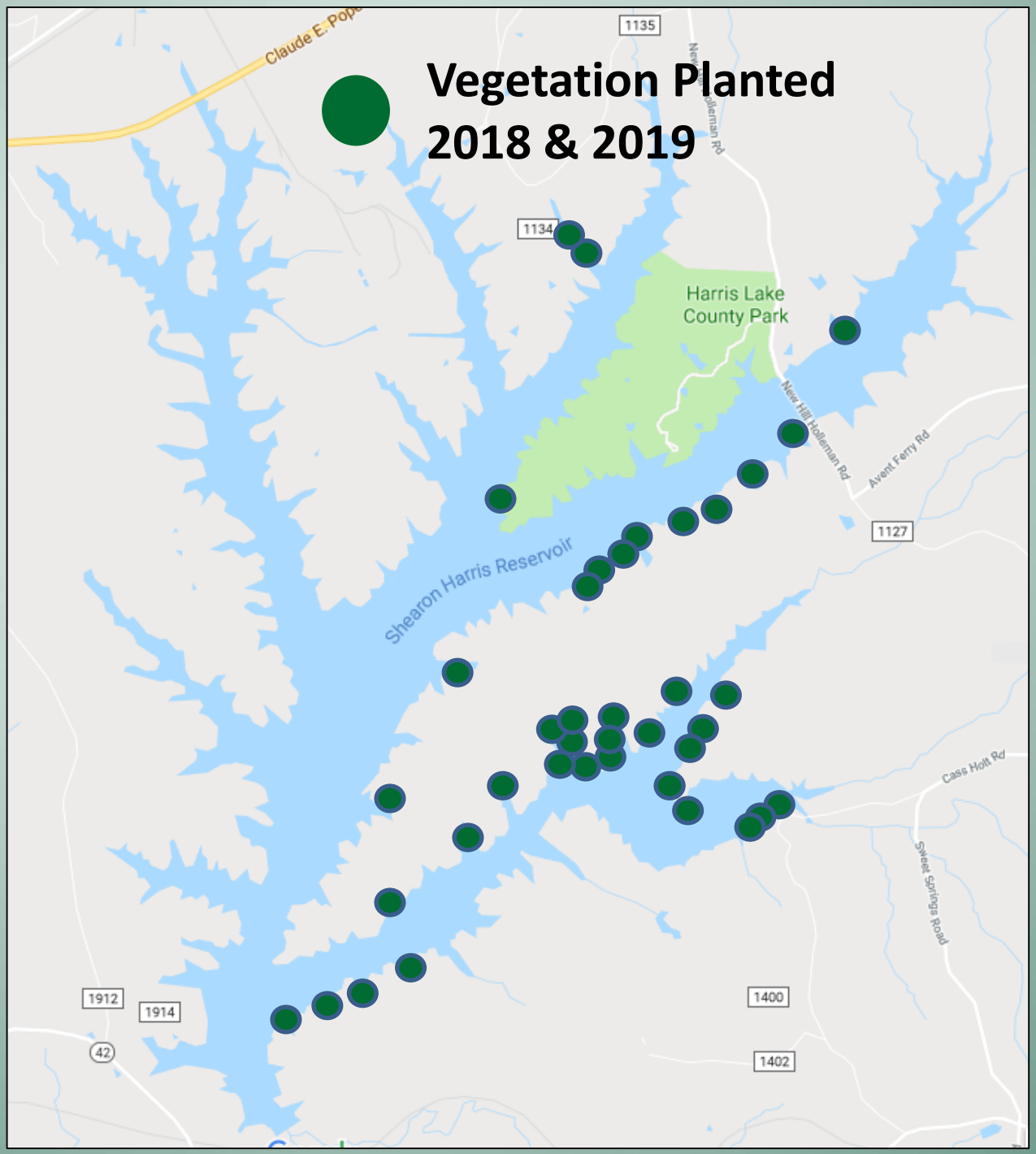

Habitat Enhance Plan

Habitat Remediation:

- Document existing habitat
- Vegetation establishment
- **Cut and cabled trees**
- Artificial fish attractor structures

Habitat Enhancement Plan

Habitat Remediation:

- Document existing habitat
- Vegetation establishment
- Cut and cabled trees
- **Artificial fish attractor structures**

Selecting Reef Locations:

- **All sites will be identified with GPS coordinates available online.**
- **GPS coordinates only**: Top of fish attractor 7ft below full pool water surface (12-20ft bottom depth)
- **Marked by fish attractor buoy**: Small reef 6-12ft bottom depth
- Hazard shallow water coves (4-12ft bottom depth)

Habitat Enhancement Plan

Selecting Reef Locations:

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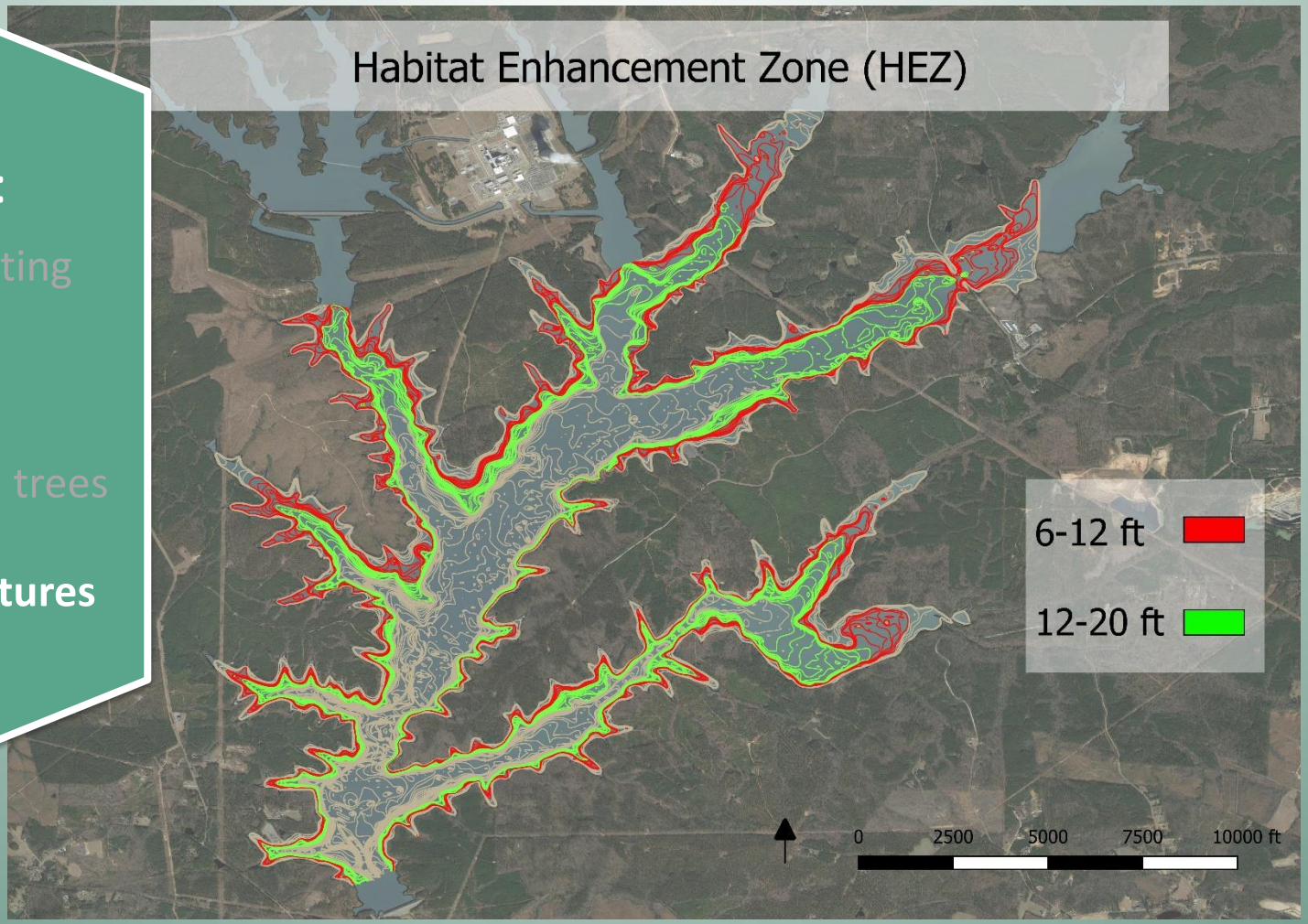
- **Artificial fish attractor structures**



2019 Reef Locations

Habitat Remediation:

- Document existing habitat
- Vegetation establishment
- Cut and cabled trees
- **Artificial fish attractor structures**

Artificial Fish Reefs

Partners

Wake County Parks Recreation
NC State University Basspack Bass Fishing Club
Carolina Kayak Anglers

DWR
Division of Water Resources

DUKE ENERGY®

Clint Morgeson

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Volunteers