

Monoecious Hydrilla Biology and Major Management Techniques



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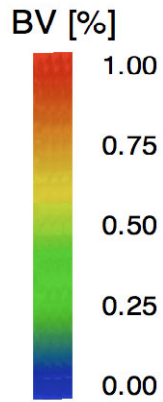


Hydrilla

- Called the “perfect aquatic weed” (Langeland 1996)
- #1 aquatic weed in U.S.
- Leaves in whorls of 3-10+
- Serrated leaf margins
- Tubers can remain in sediment for over 7 years
- Very shade tolerant
- Rapid growth: 262 ft of linear shoot tissue in 35 days (Glomski Netherland, 2012)



Temporal Development



06/12

07/10

08/18

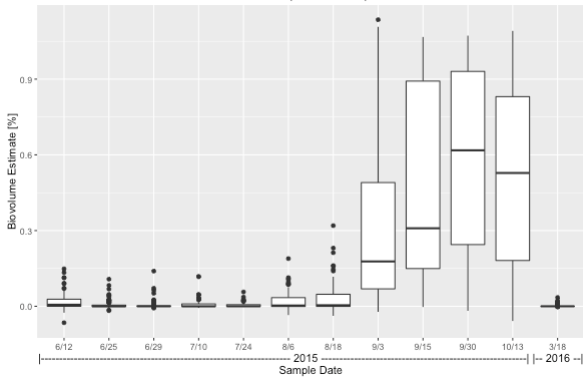
09/30

10/13

Sample Date



Shearon Harris Temporal Development -- Plot 1



Hydrilla Biotypes

- US:
 - Female triploid dioecious (FL and warm climates)
 - Triploid monoecious (NC and temperate climates)
 - New CT biotype
 - Worldwide:
 - 9 biotypes in Japan (Nakamura and Kadono 2000)
 - Benoit (2011) theorized cryptic speciation
 1. Indian/Nepal (US dioecious) species*
 2. Japan/Korean/European species
 3. Indonesian/Malaysian species (AU/NZ)*
- *US monoecious perhaps hybrid

Biotypes - Summary

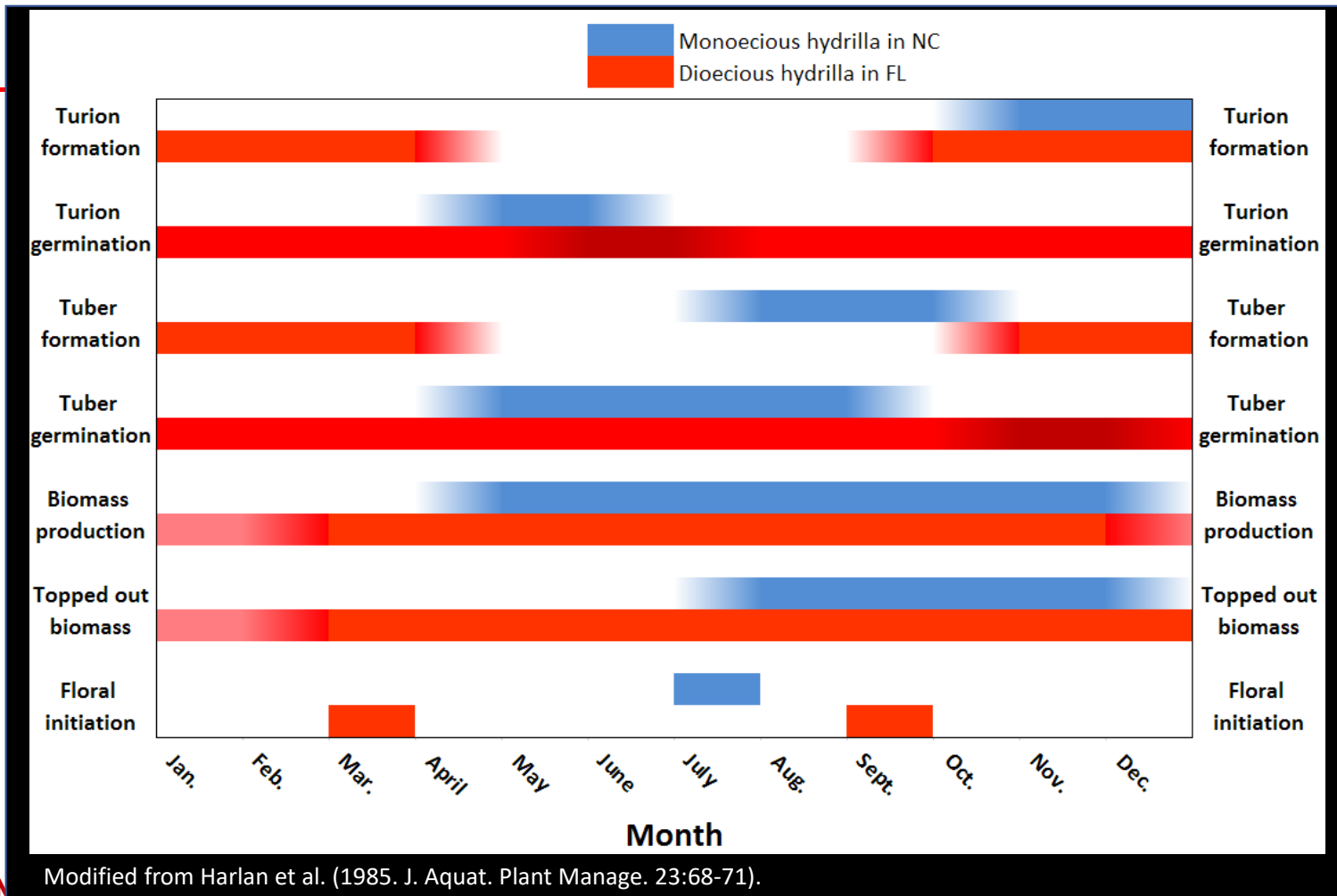
- Monoecious (historic)

- Linked to Korea
- Introduced mid 70's
- Invaded NC & north
- Less robust
- Herbaceous perennial
- May produce seed??
- Tubers:
 - Formed June – Nov.
 - Weight 76 to 139 mg
 - 430 – 1,700 / m²

- Dioecious

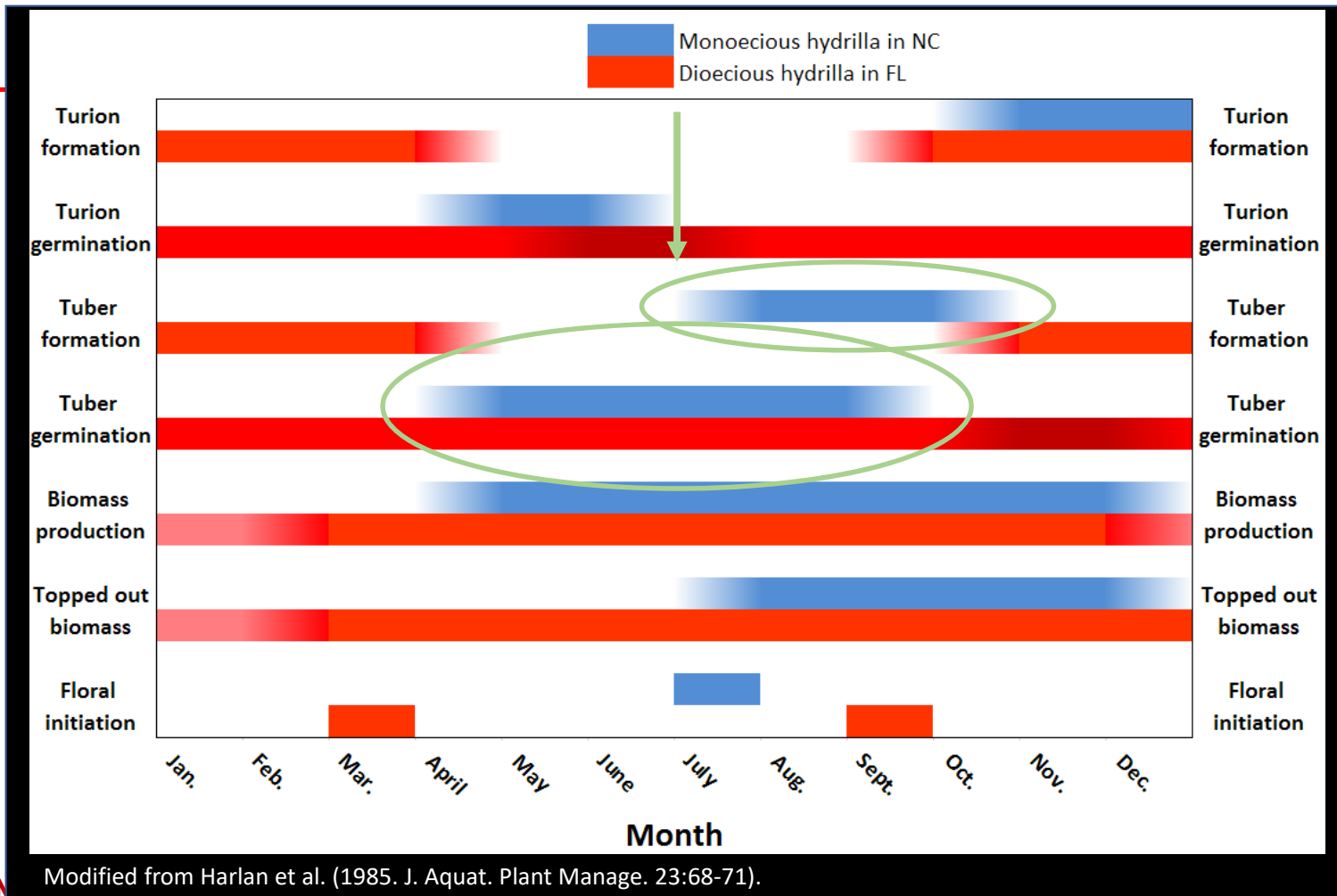
- Linked to China, India
- Introduced 1950's
- Invaded SC & south
- More robust
- Root crown persists
- No seed production
- Tubers:
 - Formed Oct. – April
 - Weight 188 to 290 mg
 - 60 – 900 / m²

Biotype Phenology



Modified from Harlan et al. (1985. J. Aquat. Plant Manage. 23:68-71).

Biotype Phenology



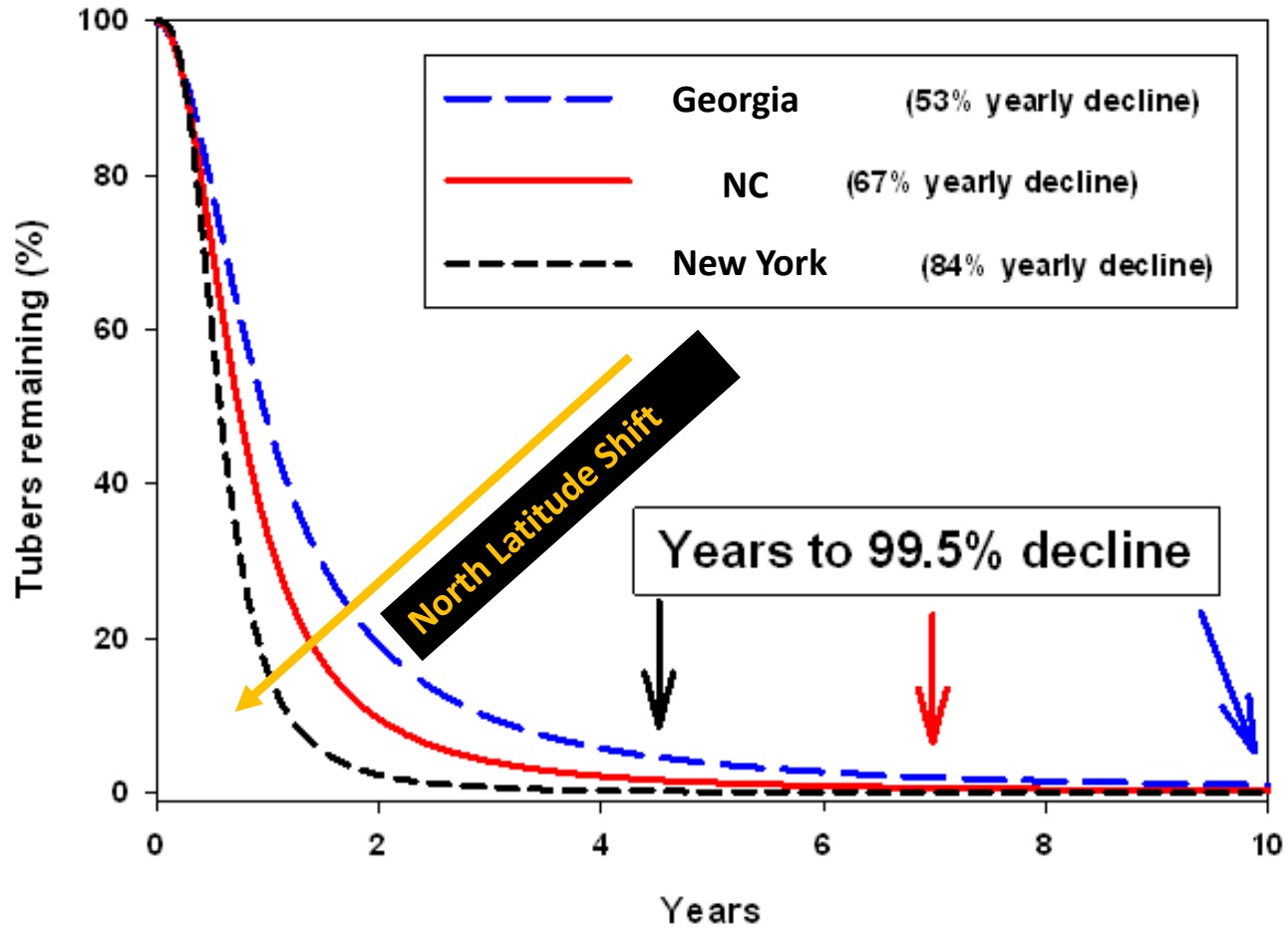
Modified from Harlan et al. (1985. J. Aquat. Plant Manage. 23:68-71).

Why is Hydrilla so Problematic?

- Produces turions that may persist in sediment for 7+ years
- Grows faster than native plants
- Dense biomass:
 - Outcompetes native vegetation
 - Reduces habitat quantity and quality
 - Inhibits recreational activities
 - Clogs drinking water intakes
 - Avian disease link



Hypothetical Tuber Longevity



Shoot Growth Development in Darkness



Light or no light after 1 and 6 wk

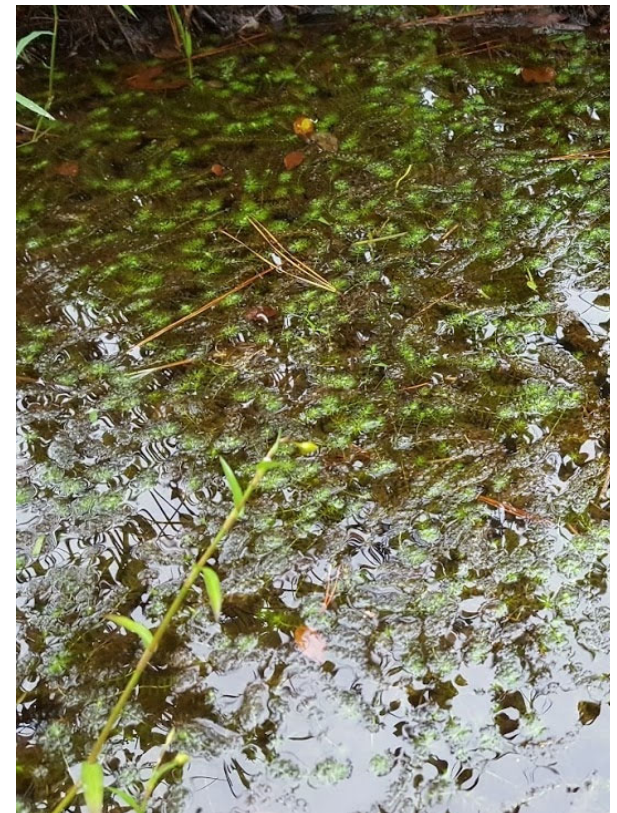
What Do We Want to Accomplish with Management?

- Define system parameters
 - What is the “natural” state of the system?
 - Will weeds decrease ecosystem quality?
 - Will weeds decrease human satisfaction?
 - How likely are new introductions?



How Do We Make Weed Management Decisions?

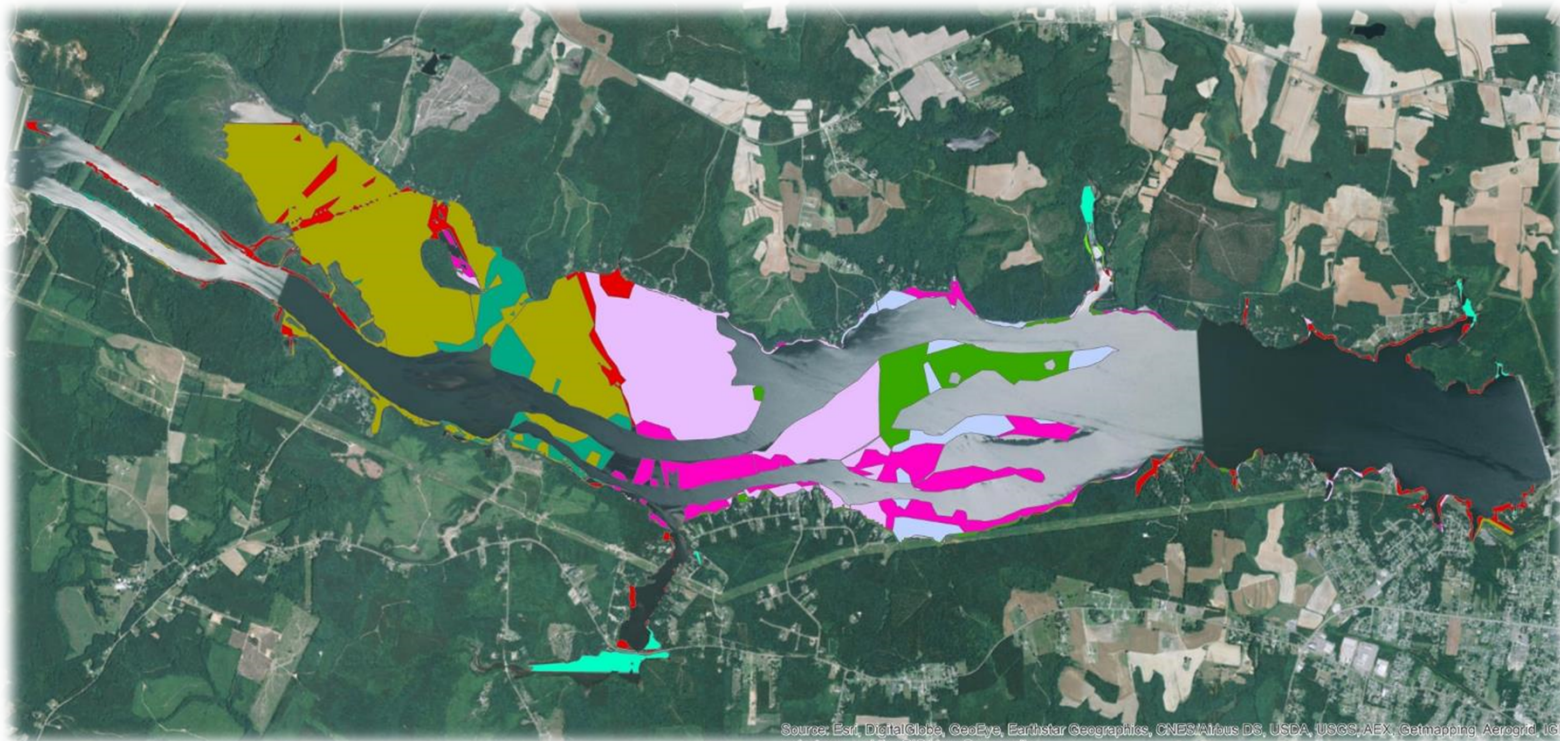
- Use of the body of water
 - Irrigation, consumption, recreation, etc.
- Plant identification
 - Plant biology and ecology
- Fish and wildlife populations
- Water quality
- Physical, environmental, and economic limitations



General Thoughts

- There is no silver bullet or “one-size fits all” approach
- Every waterbody is distinct and each needs to be clearly defined
 - Natural systems are more complex than impoundments
 - Impoundments are inherently artificial
- What are goals?
- Eradication is a big word with promises attached
- Technical advisory committees are very helpful
 - Due diligence
- Public input is necessary for many systems
- Public outreach is necessary for all systems

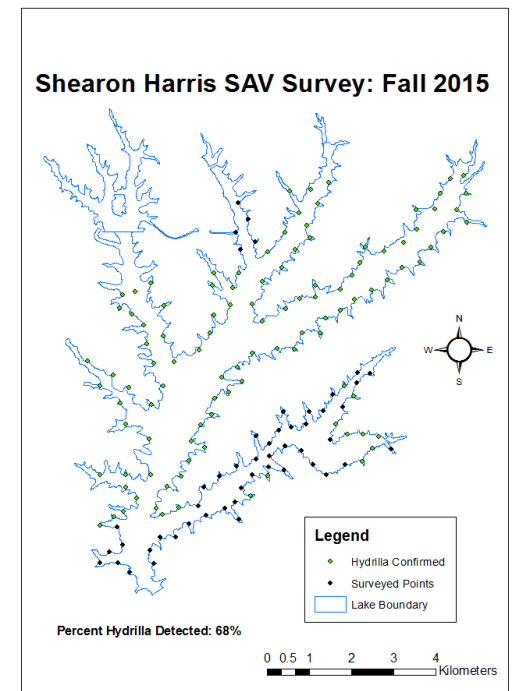
Lake Vegetation Surveys



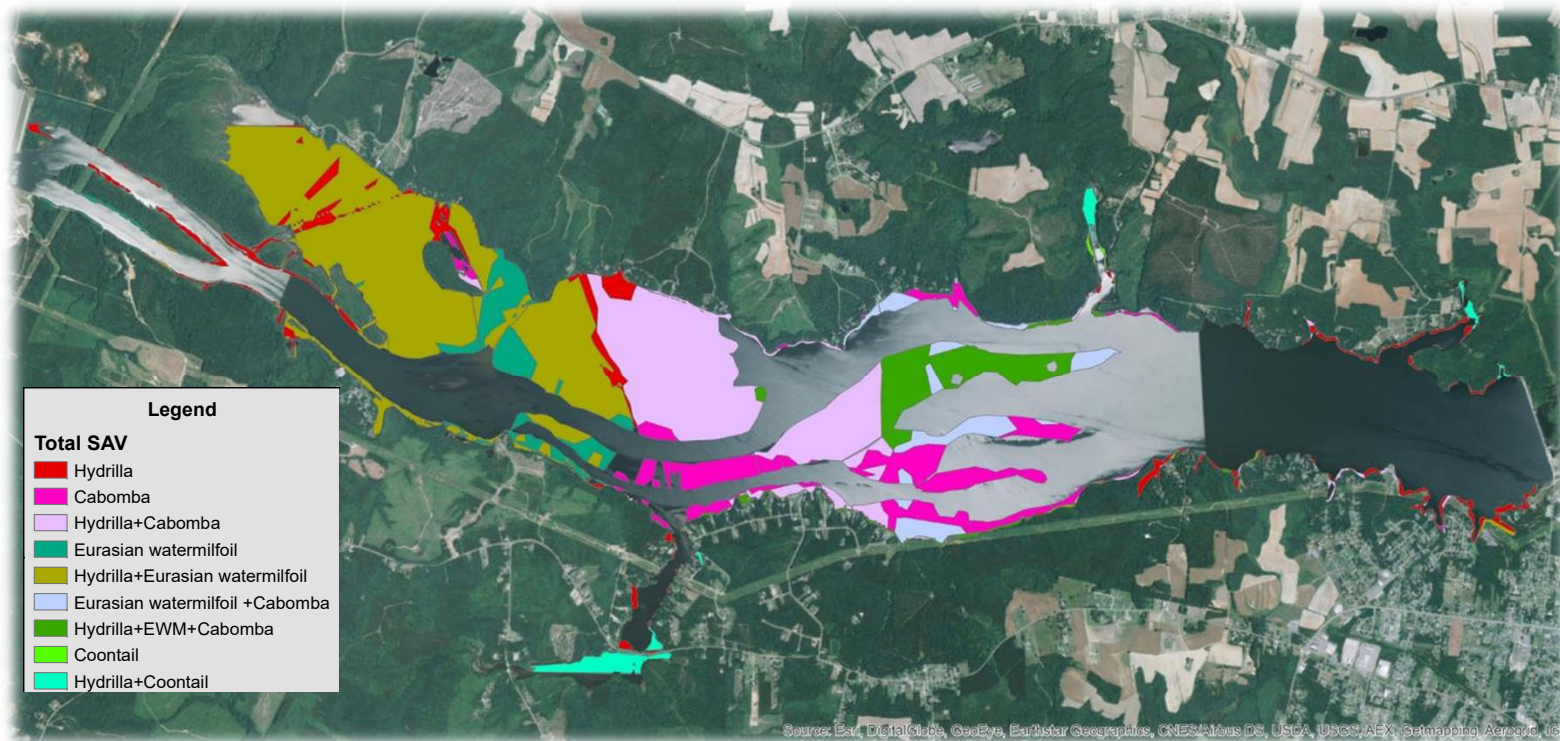
749.80 hectare total

Goals of Mapping Lake Vegetation

- Ecological assessment or to establish a standard to support management techniques through evaluating invasion levels
- Define plant distribution and abundance
- Quantify trends spatially, temporally, and overall dynamics
- Repeatability for future applications



SAV Coverage Roanoke Rapids Lake



749.80 hectare total

Linking Plant Biology to Management

- Each weed species will have different biological characteristics regarding growth, reproduction, etc.
- Management techniques need to reduce growth and interfere with reproduction
- Poor timing can make management fail
- Tools that look good in the short term may not hold up on a year to year basis



Linking Plant Biology to Management

- Species that produce propagules are more difficult to manage than those that don't
- Management must interfere with tuber production
- Hydrilla may require 10 years of treatment to deplete the turion bank
- Understanding species biology is important for targeting sensitive areas in the life cycle



General Control Categories

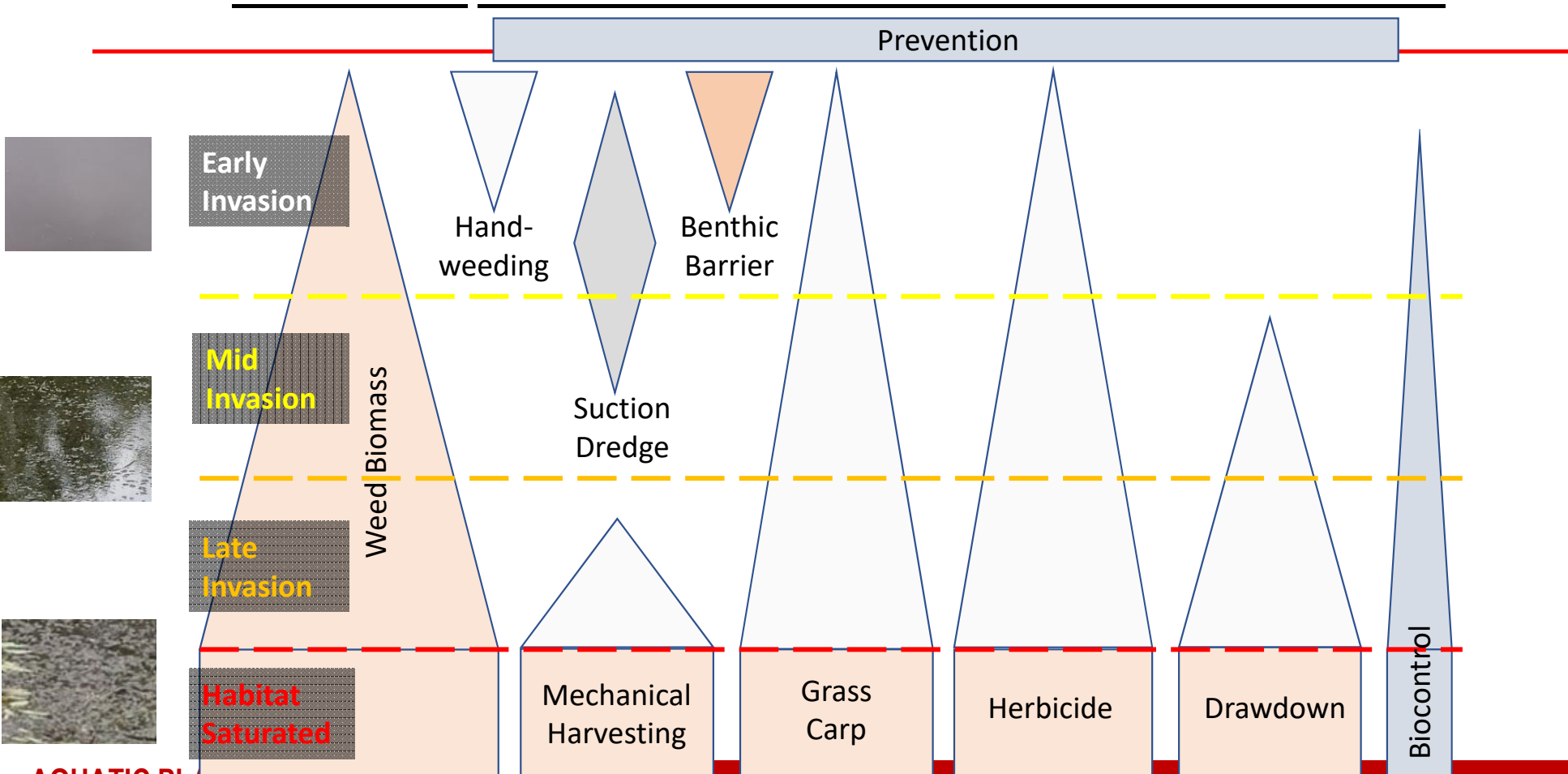
- Prevention
- Cultural
- Mechanical/Physical
- Biological
- Chemical



Selecting Control Options

Weed Growth

Control Options for Stage of Weed Growth

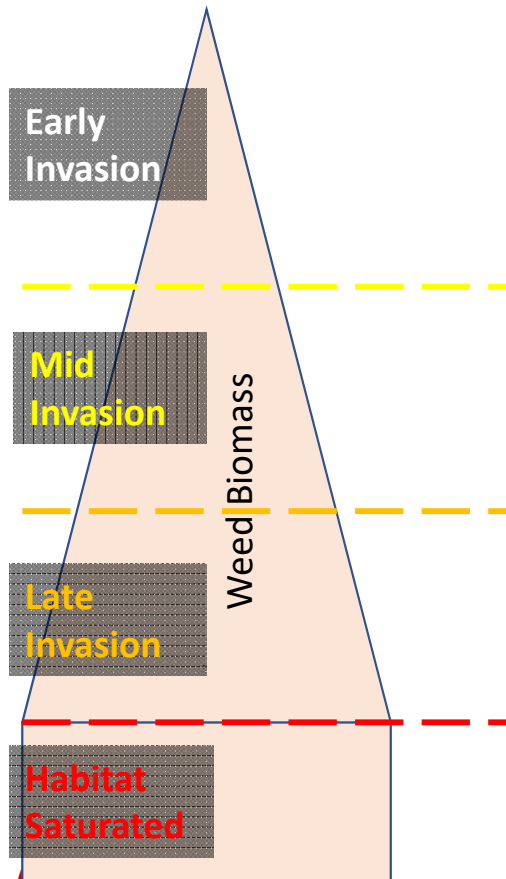


Selecting Control Options

Weed Growth

Control Options for Stage of Weed Growth

Prevention



Prevention

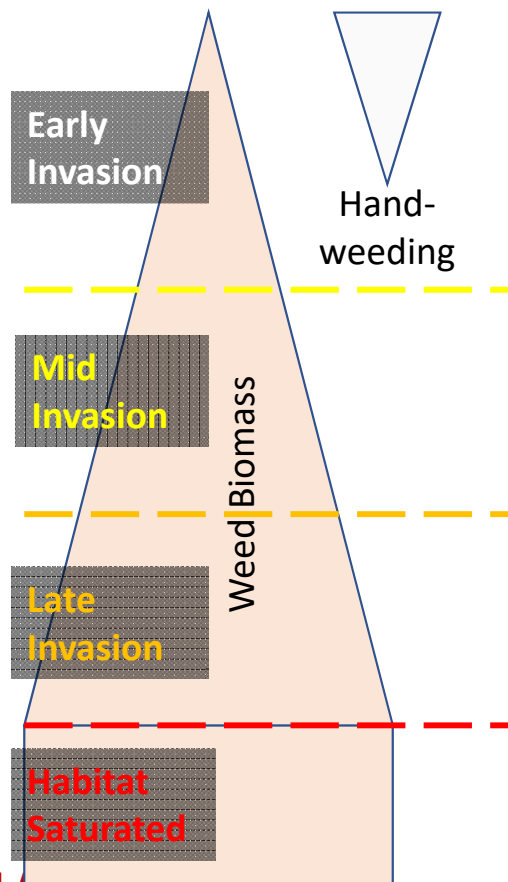
- Often too late to implement...



Selecting Control Options

Weed Growth

Control Options for Stage of Weed Growth



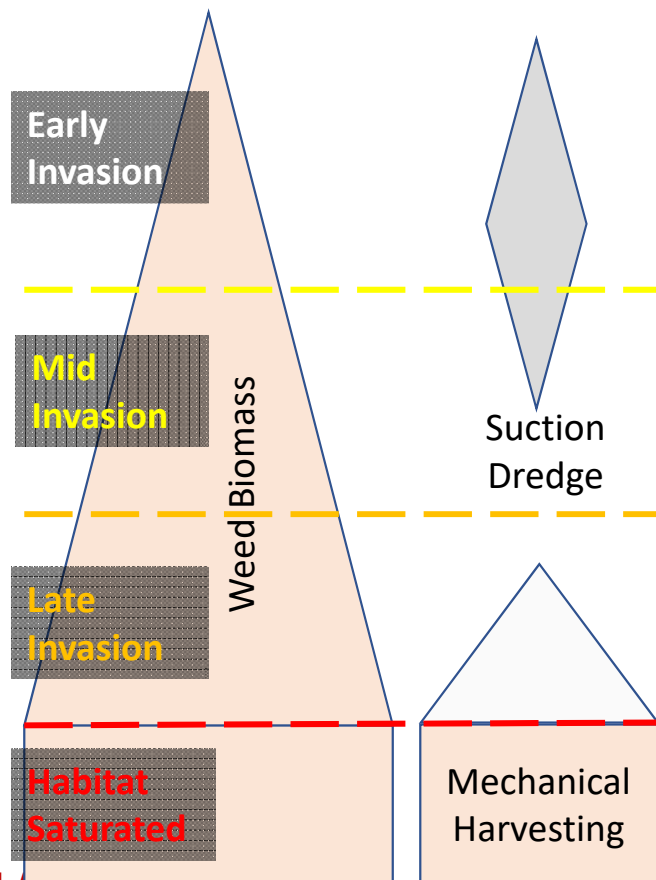
Handweeding

- Most common management form worldwide
- Generally for special situations with limited options or species easily pulled
- Highly labor intensive/inefficient
 - Aquatic plants may be up to 98% water
 - Divers can be precise, but are slow
 - Volunteers are cost effective, but limited
 - Liability: back injury, risk of heart attack or stroke
- Plants may reproduce quickly
- Pulling may disturb sediment and can bother native species

Selecting Control Options

Weed Growth

Control Options for Stage of Weed Growth



Mechanical Techniques

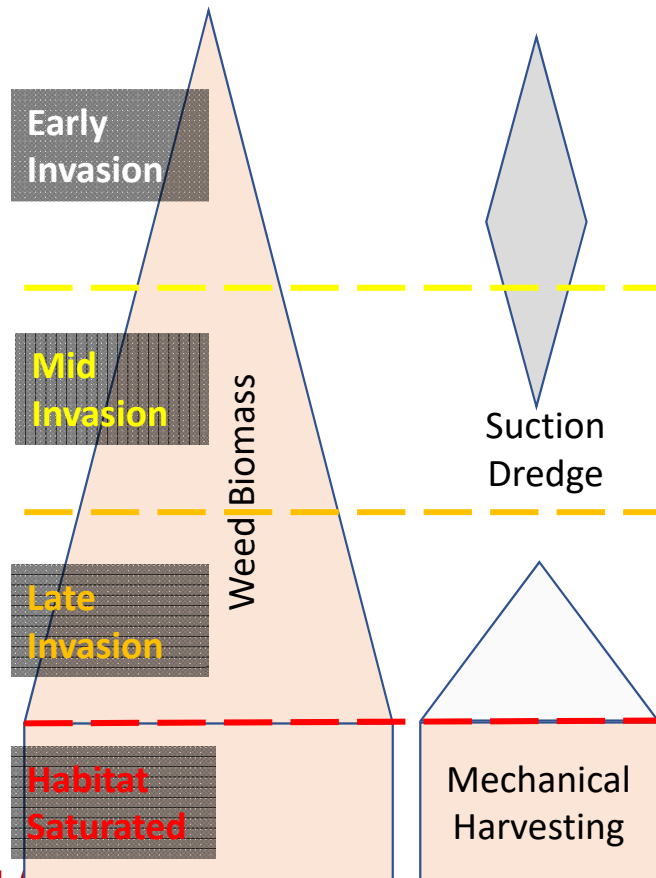
- Generally short term control only
- Produces many fragments that can spread infestation
- Can be very destructive to non-target species
- Requires equipment access
- Harvested material must be properly disposed



Selecting Control Options

Weed Growth

Control Options for Stage of Weed Growth



Mechanical Techniques

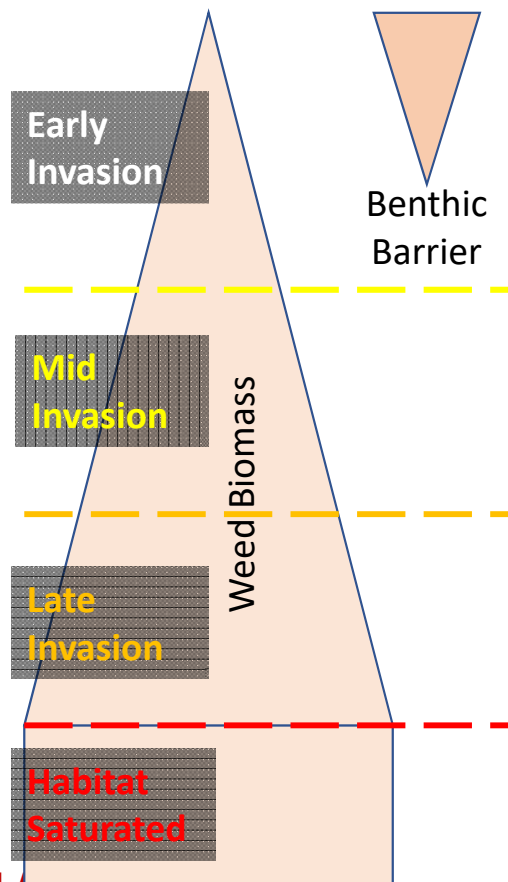
- Better for maintenance than control



Selecting Control Options

Weed Growth

Control Options for Stage of Weed Growth



Benthic barrier

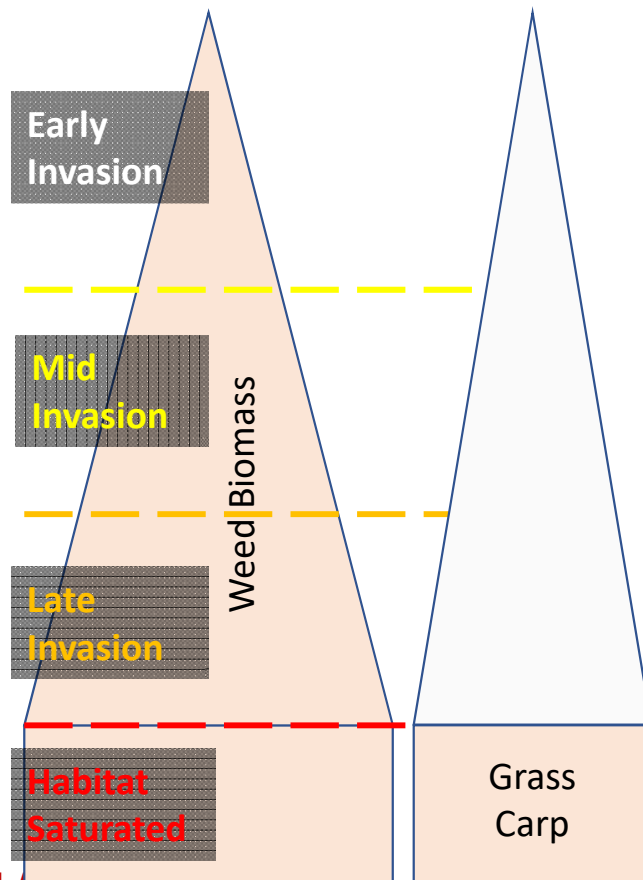
- Plastic or fabric placed along sediment
- Prevents weed growth from sediment
- Ineffective once sediment deposits on top
- Difficult to use in flowing systems
- Impacts to non-target organisms?
- Plastic based barriers are non-selective



Selecting Control Options

Weed Growth

Control Options for Stage of Weed Growth



Triploid Grass Carp

- Introduced from Asia
- Sterile version may be stocked where allowed
- Feeds on plants only
- Generally a non-specific herbivore although they do exhibit some preferences
- Concerns:
 - Will they stay in the system?
 - What are potential non-target impacts?
- Basic question: do you want submersed plants in the system?



Triploid Grass Carp

- Regulation is at state level
- Have been used extensively for hydrilla management in SE reservoirs
- Difficult to remove once released
- Potential impacts on water quality
- Tar River Reservoir:
 - Fluridone treated years 1-5
 - 1.5 triploid grass carp per hydrilla tuber bank acre stocked year 6

Tar River Reservoir Tuber Bank Attrition

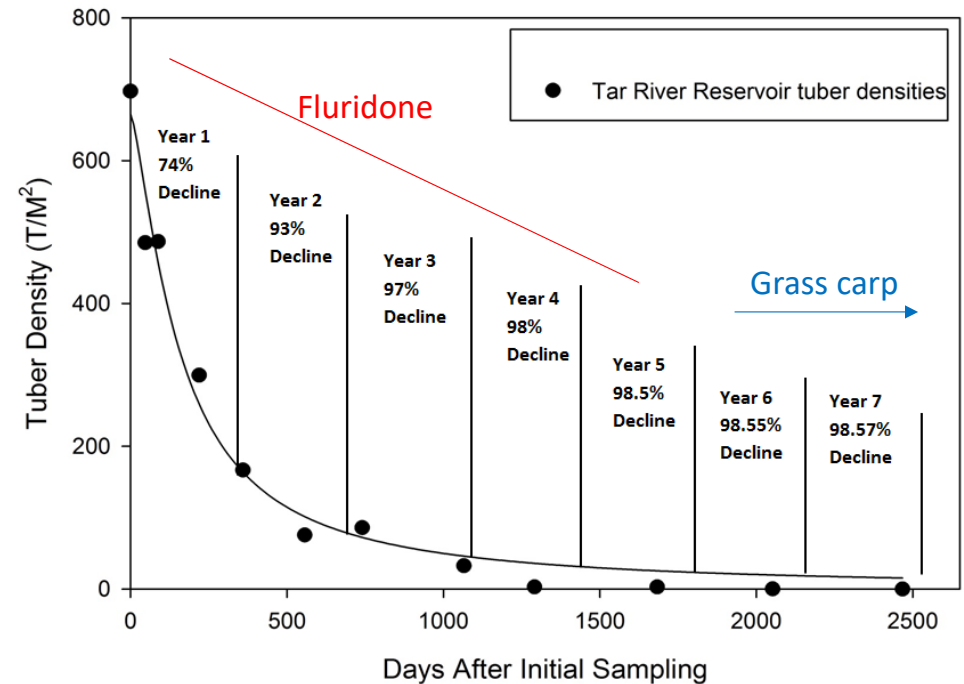


Figure 4. Observed and predicted decline of the averaged tuber bank density in the Tar River reservoir.

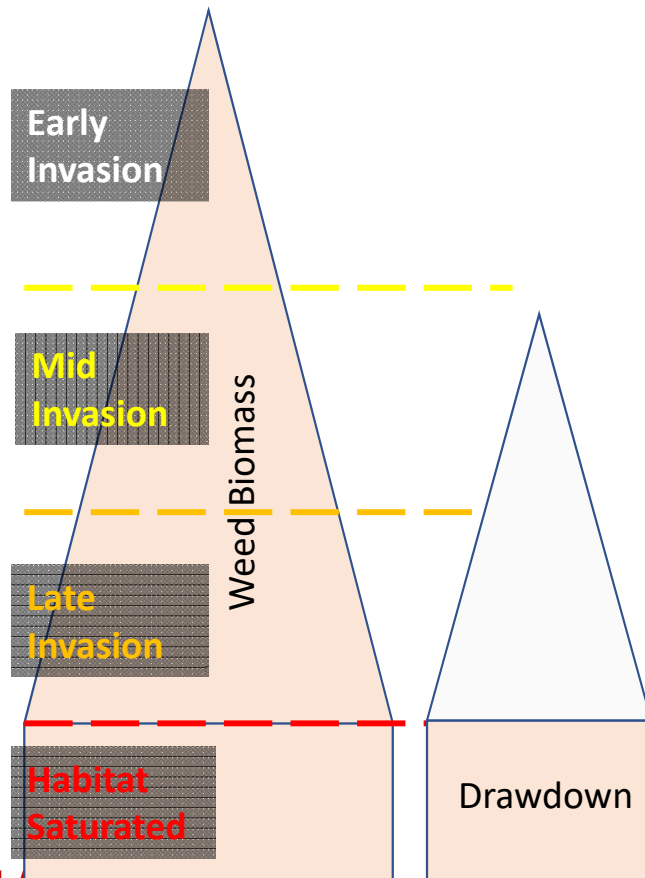
Monitoring Grass Carp Effect



Selecting Control Options

Weed Growth

Control Options for Stage of Weed Growth



Drawdown

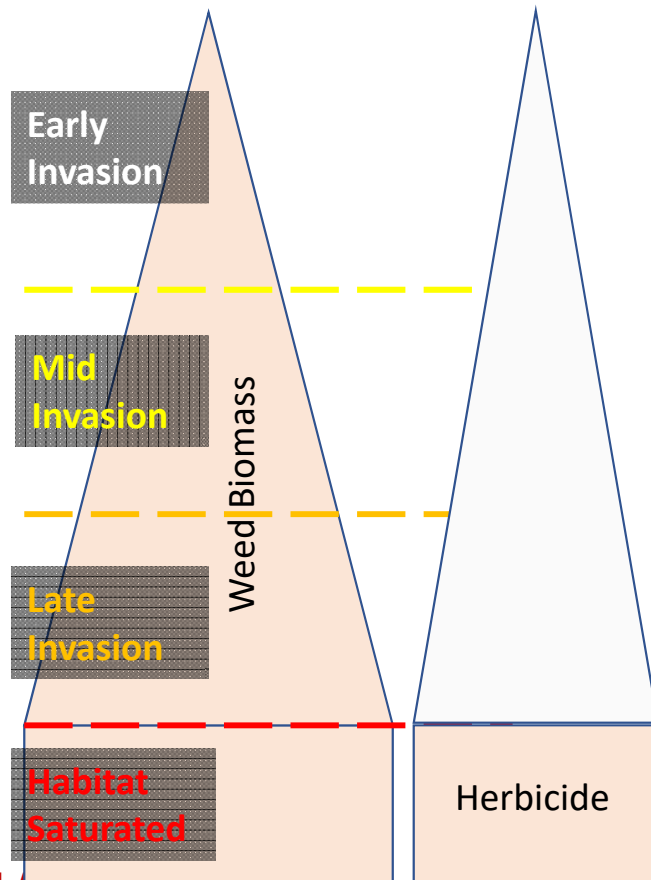
- Very effective on species that do not produce propagules (e.g. *Egeria densa*)
- Impacts to non-target species
- For hydrilla, needs to be in summer



Selecting Control Options

Weed Growth

Control Options for Stage of Weed Growth



Herbicides

- Specific products may be selective or non-selective to plants
- Usually plant-specific modes of action
- Can be used on small to large scale depending on system
- Aquatic herbicides do not bioaccumulate
- Registered by EPA and states



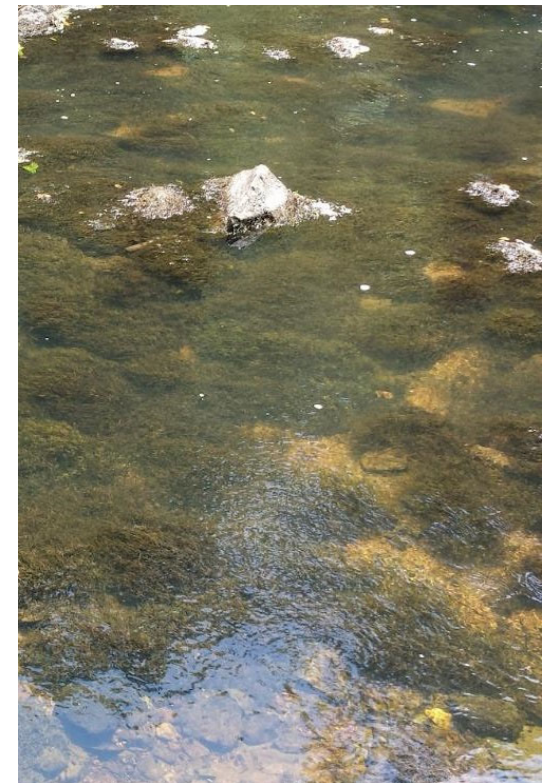
Eno River: Monoecious Hydrilla Management

- 44 Miles Long
- Drains into Falls Lake (reservoir)
- Has exceptional water quality
- Home to numerous rare species including the endangered Panhandle Pebble Snail
- Main attraction of 3,900 acre Eno River State Park
- Hydrilla spread raised concern about impact to native species



Pre-Management Activities

- Meetings, meetings, meetings....
 - State agency meetings since 2007
 - Plan course forward
- Research:
 - Herbicide impacts to riffleweed (primary native plant)
 - Herbicide impacts to non-plant species
 - Grass carp tagging and monitoring
 - River surveys
- Attempted hand removal – failed
- Spot herbicide application – failed
- Hydrilla management in nearby impoundments



Health Consultation

Public Health Evaluations for Potential Exposures to Fluridone or Endothal Used for Treatment of *Hydrilla verticillata* in the Eno River, Orange and Durham Counties, NC

ENO RIVER HYDRILLA MANAGEMENT PROJECT
ORANGE AND DURHAM COUNTIES, NC


Prepared by the
North Carolina Division of Public Health

MARCH 25, 2015

This report was supported by funds from a cooperative agreement with the Agency for Toxic Substances and Disease Registry, U.S. Department of Health and Human Services. This document has not been reviewed and cleared by ATSDR.

Environmental Assessment for Controlling the Growth and Spread of a Noxious Aquatic Weed, *Hydrilla verticillata*, in the Eno River Watershed.

February 2015



Above photo: Hydrilla infesting the Eno River at the Pleasant Green access, Eno River State Park, Orange County, NC. Photo taken by Erik Nygard, 2011.

Authored by: Eno River Hydrilla Management Task Force

Edited by:
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Journal of Freshwater Ecology
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Sensitivity of freshwater molluscs to hydrilla-targeting herbicides: providing context for invasive aquatic weed control in diverse ecosystems

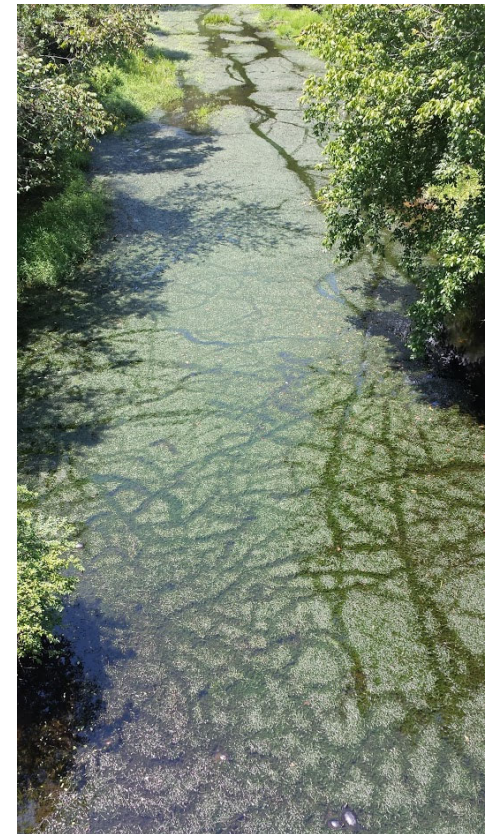
Jennifer M. Archambault^a, Christine M. Bergeron^a, W. Gregory Cope^a, Robert J. Richardson^b, Mark A. Heilman^c, J. Edward Corey III^d, Michael D. Netherland^e & Ryan J. Heise^f

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^f North Carolina Wildlife Resources Commission, Raleigh, NC, USA
Published online: 08 Aug 2014.

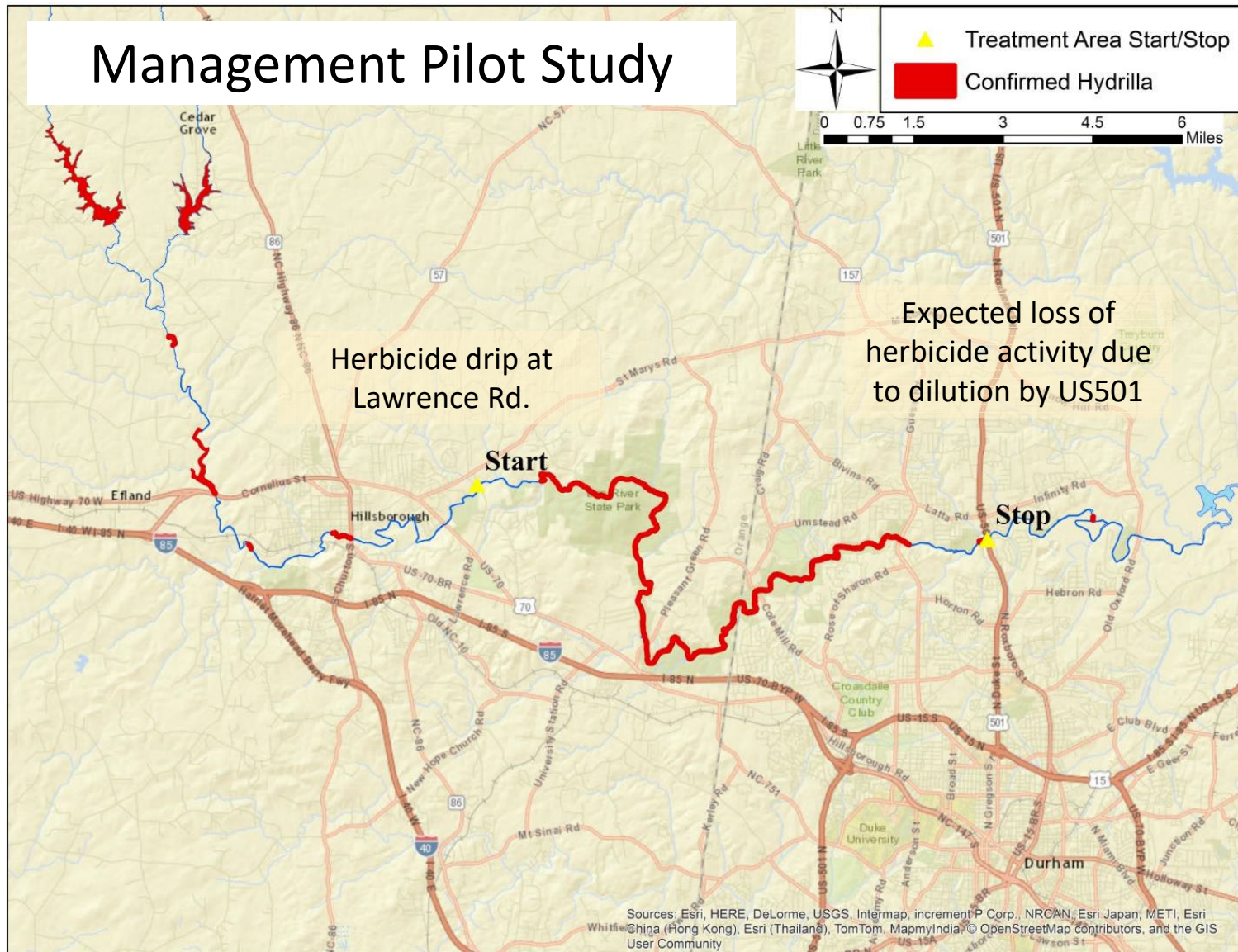
Public Health and Environmental Assessments for Eno River Hydrilla Management

Initial Objectives

- Goal: Reduce hydrilla biomass in the target area with no impacts to non-target species
- Objectives:
 - Determine effectiveness in controlling hydrilla in highly variable flow Eno River
 - Monitor non-target species for any impacts
- What is success?
 - Reduction of hydrilla biomass to non-problematic levels
 - Reduction of hydrilla turion bank is even better
- Evaluate plan annually to determine future efforts



Management Pilot Study



Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Monitoring of Study

- Herbicide concentration
 - Monitored weekly/biweekly
 - Sample sites
 - Adjacent to injection site, midpoint, downstream
- Biotic monitoring
 - NCSU: Hydrilla phenology, tuber density, riffleweed abundance
 - NCWRC: Sport fish, Roanoke bass, mussel, crayfish
 - Sample sites inside and outside treatment area
 - Fall vegetation (hydrilla) survey by state and local agency personnel



Treatment History

2015

- First year of demonstration program
- 16 miles treated with one Sonar Genesis injector
- Successful treatment (i.e. hydrilla vegetation was controlled)

2016

- Same mileage treated, but with two injectors to increase control of treatment concentrations
- NCSU measured reduced tuber bank in treatment area

2017

- First year of operational management stretching 22 miles of the Eno River (Lake Ben Johnson to Roxboro Rd, Durham)

2018

- Fourth year of successful treatment – same river stretch as 2017
- NCSU found some hydrilla vegetation and tubers in the upper portion of the treatment zone during winter that had only two years of treatment
- No hydrilla observed in area treated for 4 years

2019

- Management area will focused on the upper portion of the treatment area starting immediately below Lake Ben Johnson with one injector

2020

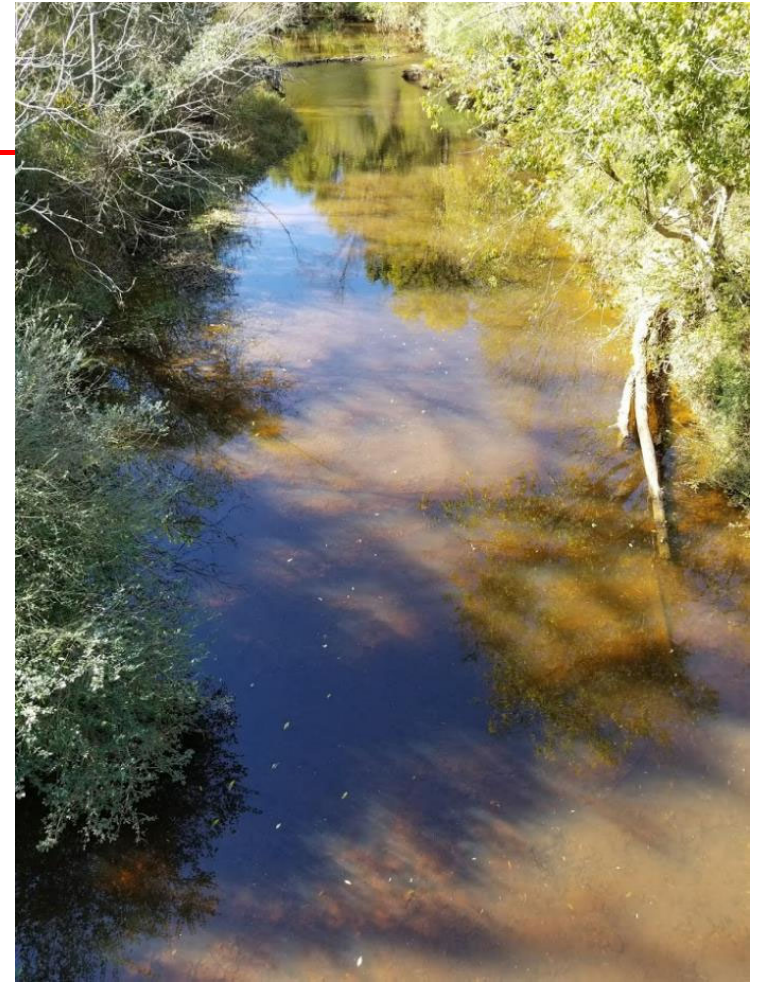
- No treatment due to very low hydrilla populations



August conditions at Pleasant Green: 2011 before management (top) and 2016 post two years of treatment (bottom)



Hillsborough:
before and
after
treatment



Native, Desirable Riffleweed



Eno Conclusions

- Hydrilla has been successfully controlled within the treatment area
- No negative impacts to non-plants have been observed
- No negative impact to native riffleweed was observed
- Transient chlorosis on native and common American waterwillow was observed in first year of treatment
- Treatment has been moved upstream



Presentation Summary

- Monoecious hydrilla is highly invasive and has numerous characteristics that give it a competitive advantage
- Management programs must be designed to interfere with the tuber bank
- Multiple management techniques are available; the “best” tool will depend on site parameters, human dimensions, and plant biology
- Hydrilla populations can be depleted over time, but programs must be designed for the long-term



Hydrilla Management and Human Dimensions – How Social, Cultural, and Economic Drivers Influence Regional Invasive Aquatic Plant Management

Brett Hartis, PhD

Lead Scientist - Aquatic Plant Management Program

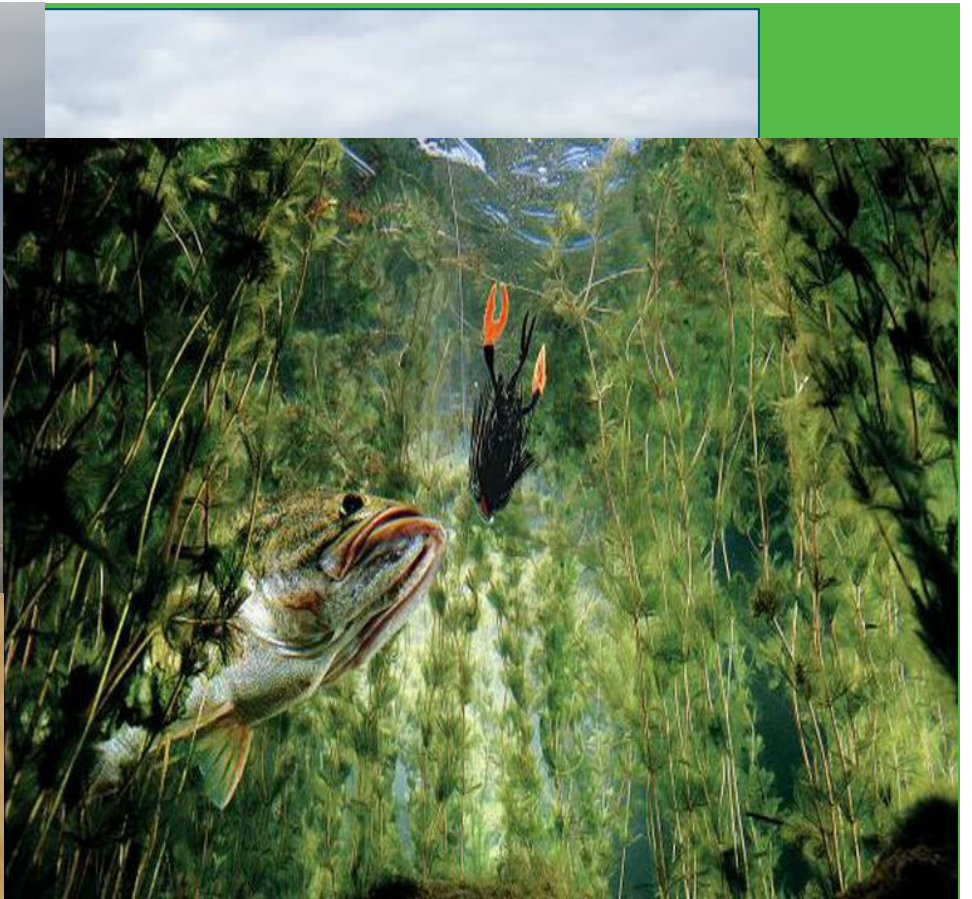


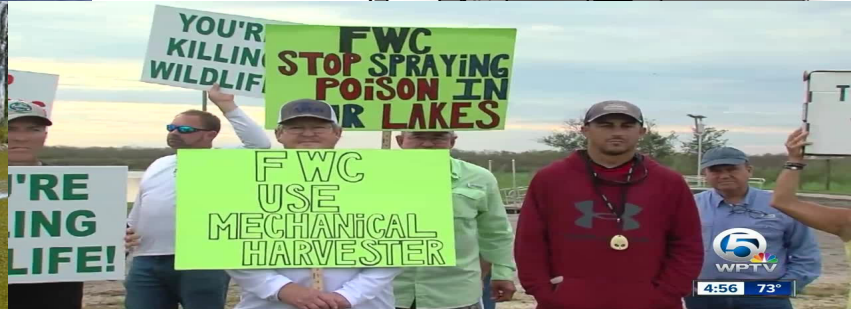
Remember to Manage People When You Manage Plants....

Brett Hartis, PhD
Lead Scientist - Aquatic Plant Management Program









A Tale of Two Rivers...

Tennessee River System



Catawba River System



Early Management Practices

Tennessee River System



Catawba River System



Economic Evolution

Tennessee River System



Catawba River System



The "Loudest Voice"

Tennessee River System

Chattanooga Fishermen Gear Up for Milfoil Battle (Again)

Thursday, February 3, 2011 - by Richard Simms

Some Chattanooga area anglers are up-in-arms and organizing a meeting to plan strategy for another meeting.

On Feb. 24 TVA will host a meeting of the Chickamauga Stakeholders Group. Until recently, this was an annual meeting held by TVA. The stakeholders group includes a cross-section of lakeshore landowners, fishermen, businesses and government representatives. It is an opportunity for the various factions to raise questions and provide input on various lake management issues. With few exceptions the focus is almost always on aquatic vegetation management.

OUTDOORS

Anglers planning a protest parade

From staff reports

A convoy of bass boats and concerned bass fishermen will form a protest parade on Saturday in an effort to stop the use of toxic chemicals by the Tennessee Valley Authority to kill aquatic vegetation in Lake Guntersville.

The protest is being organized by the 3,000-member Alabama B.A.S.S. Federation, which says it is against the use of any chemical poison until every non-toxic mechanical harvesting method is exhausted.

Bass anglers interested in joining the Scottsboro-to-Guntersville protest convoy will assemble at the Scottsboro Shopping Plaza prior to 9 a.m. on Saturday. Tickets, totaling

■ THE FAYETTE Bass Club held a tournament last week on the Tennessee River. A total of 60 fish were reeled in for a total weight of 87 pounds, 8 ounces.

The big fish in the 19-boat competition was caught by Gary Cannon — a 4-1 smallmouth. The top individual stringer was weighed by Tom Hankins at 8-6.

First place overall was won by James Cotton and Sonny Cotton, with a combination of 10 fish weighing 13-2. Second place went to Don May and Spooney Wicks for 10 fish at 9-5. Third place went to Hankins and Wayne Sudduth for six fish at 9-2.

■ ADRIAN SUAREZ and Brian Kemp claimed first place in last weekend's tournament.

Funeral held for Tennessee River

By Michelle Williams
Associated Press

CHATTANOOGA, Tenn. — About 700 anglers led a funeral dirge Saturday through downtown Chattanooga near the banks of the Tennessee River, which they say has been killed by TVA pesticide spraying.

A hearse pulling a boat led the procession. In the boat was a skeleton holding a fishing rod and funeral wreaths. A banner draped across read: "The Beautiful Tennessee River — Dead From Over Poisoning."

"We'll upset TVA's apple cart with this," said John Jones, who owns a tackle shop near Chattanooga. "If they weren't listening before, they're listening now."

Anglers contend pesticide spraying by the Tennessee Valley Authority is killing plant and fish life in the Ten-

nessee River, which can snag boats and slashers. TVA says it is spraying less than it has in years, but some control will always be needed.

Angler Harold Sharp said he and Chattanooga Bass Association President Ken Cross organized the river funeral after a meeting between TVA officials and anglers last month ended in a stalemate.

"We want them to stop spraying, but they won't. We're tired of talking, so we decided to take action," Sharp said.

More than 600 decorated boats were pulled by trucks along the dirge route — which included a pass by TVA's office complex downtown.

One group strapped a small aluminum boat on the hood of their car. Inside the boat were two fishermen wearing gas masks and heavy coats.

Slogans on banners read: "They

more than 25 fishing clubs, Sharp said.

TVA met with Cross and Sharp again last week to discuss ways to control water vegetation. Cross said at that meeting Herb Jones, manager of TVA's aquatic biology programs, tried to strike a bargain.

"He said 'if we (TVA) don't spray on Chickamauga Lake, will you call off the protest?' We said no. We said we wanted them to stop spraying on all the river, but he said he couldn't agree to that," Cross said.

Jones could not be reached for comment Saturday.

Sharp said anglers want people outside TVA such as the Tennessee Wildlife Resources Agency, the federal Environmental Protection Agency and the state Health Department to evaluate whether pesticide spraying is having an effect on

Catawba River System



Management Direction – Who's Right?

Tennessee River System



Catawba River System



Management Direction – Who’s Right?

Tennessee River System



• Head Cook, Maid, Shopper, Lender, Critic, Social worker, Manager, Plumer, organizer, lawncare, processor, auto inspector, at Self-Employed

Why do private land owners around lakes, rivers think, they come in build docks out over the waters and bam, they own the lake, fisherman buy licenses that money goes to conservation efforts on our water ways. Grass is essential for growth and health of our fisheries. These herbicides will take fish that weigh five pounds and within days it becomes two pounds. These herbicides make fish sick, they want eat, they loose weight and die. Yet the land owners(not all of them) the marina owners dictate what is and isn't ok. I know at Hail's Bar, they have their own private herbicide tank mounted on a pontoon boat, the keep it sprayed all summer long. How it that ok. Marina's do not own the water They just keep expanding, keep killing, Wonder how tva would feel if fisherman just stopped buying license, What is going to happen if large Bass clubs stop fishing the lake in this area. This stuff kills the larger fish we as fisherman see it all the time. Hey ASPCA where are you, these animals are dying too. TVA and private owners, you spray making fish sick, we catch the fish, our kids eat the fish, If our family get sick, do we send you and private owners the bill?

Reply · Like · Follow Post · August 2, 2014 at 7:29am



• Chattanooga State Community College
The Herbicides Poison, its amazing that we allow that crap in our drinking water.

Reply · Like · Follow Post · July 27, 2014 at 2:31pm



• Twin Springs High School
Spraying hydrilla

Reply · Like · Follow Post · May 9, 2014 at 5:20am



• Twin Springs High School
The ignorance of putting poison are so many drives for cancer, b

Reply · Like · Follow Post



what poison in water

Reply · Like · May 8



no one has heard of =spraying the air w

how nice.

Reply · Like · August



Catawba River System



1 day ago

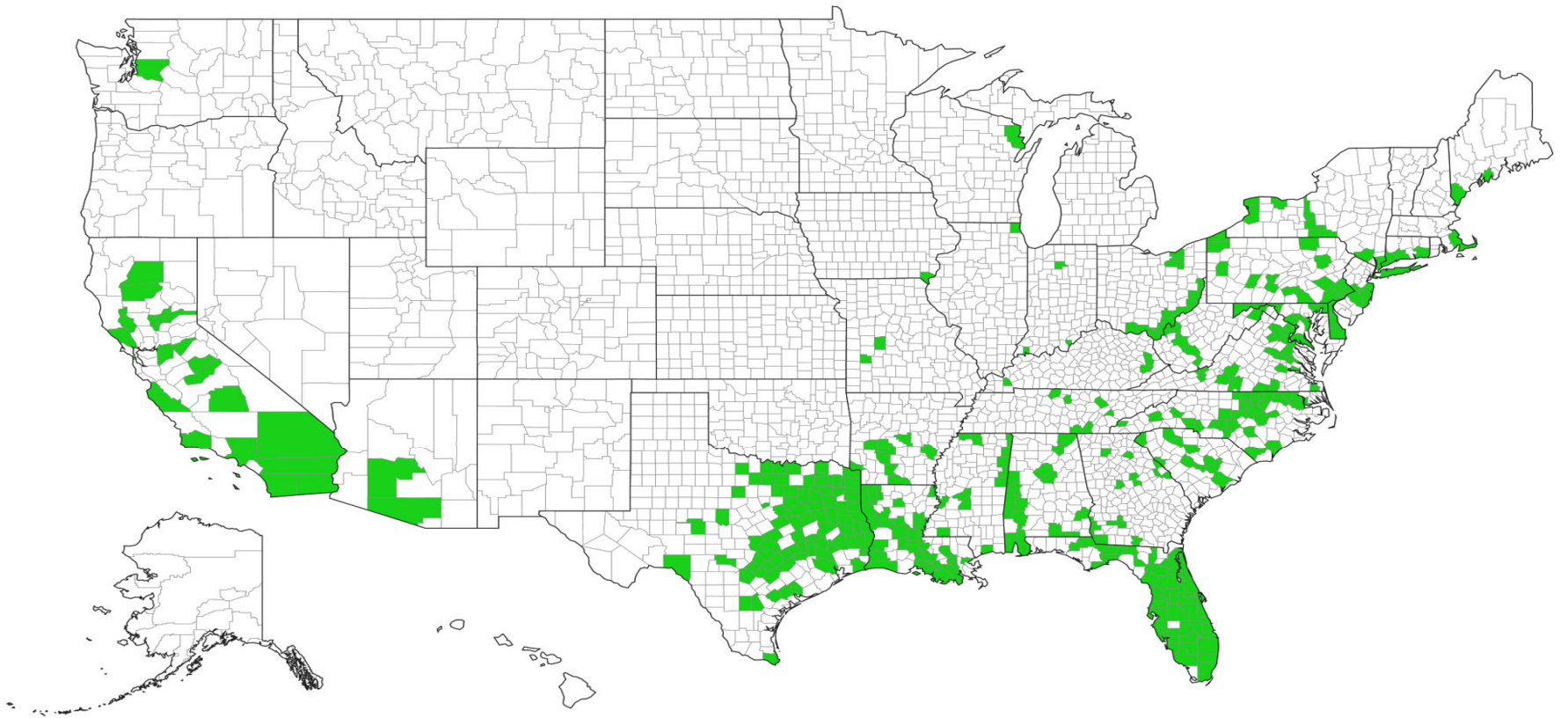
We bought sterile grass eating carp at the Co-op to eat our duck weed!!



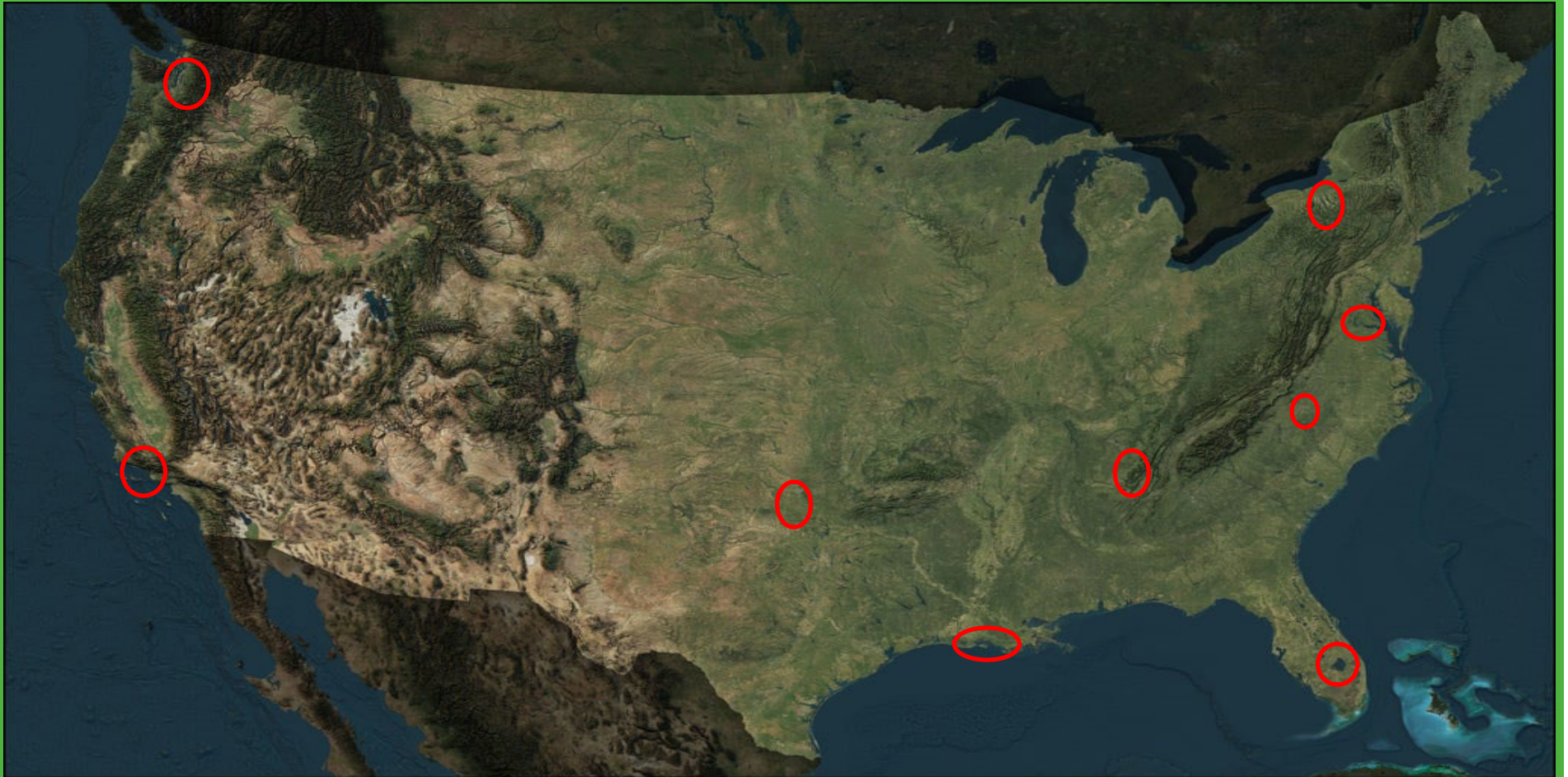
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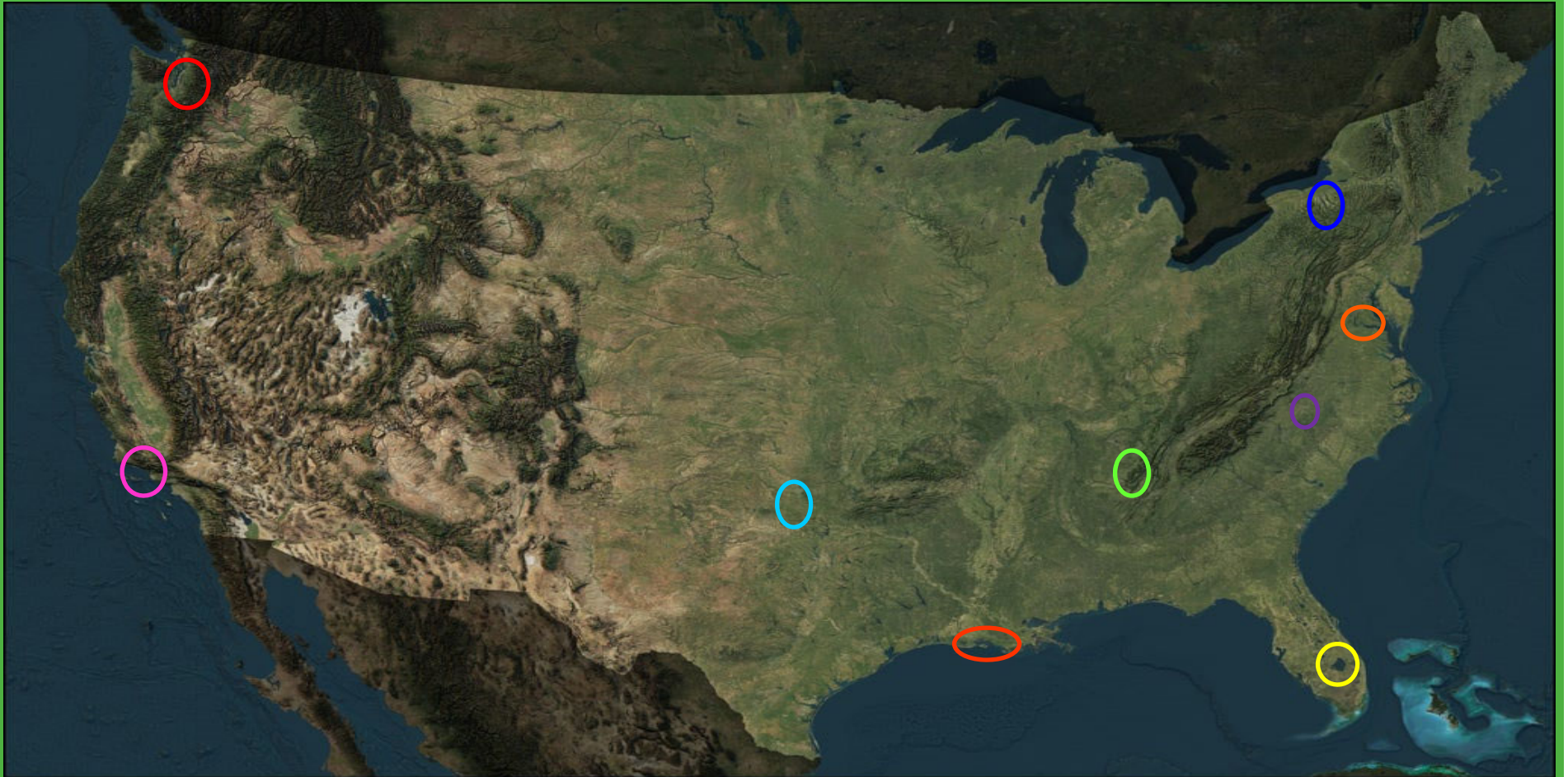
Management Direction – Who's Right?



Management Direction – Who's Right?



Management Direction – Who's Right?



The Inconvenient Truth

Management IS necessary for ALL uses

Cost and control

- No control alternative? - not sustainable
- Maintenance control vs. EDRR/Eradication
- So how do you fund?

Suitable (not easy) alternatives

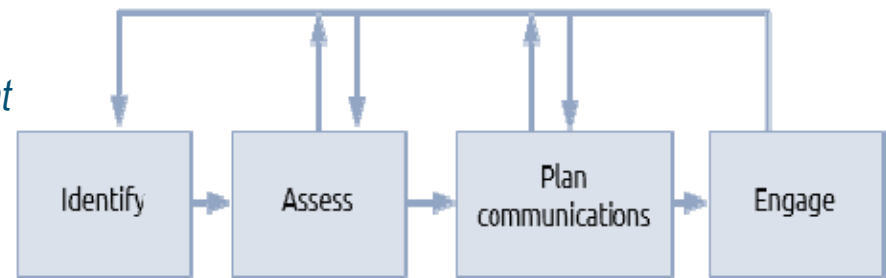
- Habitat vs. hydrilla
- Revegetation
- Artificial habitat



The Future of Aquatic Plant Management

- Stakeholder Driven Management

- Multi-use = Multi-needs*
- Incorporating all vested interests into management*
- Providing a “real” seat at the table*
- Finding common ground (“room for grey”)
- Reasonable** compromise



- Being consistent AND transparent

- Telling our story – goals and objectives
- Proactive vs. Reactive
- Perception vs. Reality...
- Improve and enhance critical relationships
- Informed stakeholders = Informed management*



Improve Existing Relationships

- Transparent with program goals and objectives
- Inviting of input and feedback
- Avoid “one-size-fits-all” discussion
 - ❑ Different Groups, often competing goals
 - ❑ Varying degrees of understanding
 - ❑ Tailor messaging to fit – Why should they care?

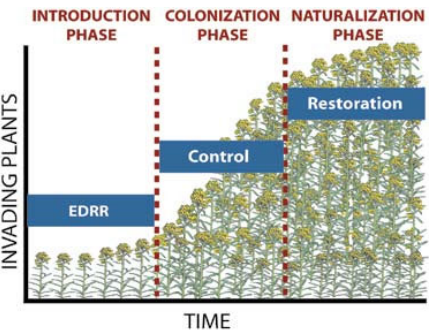
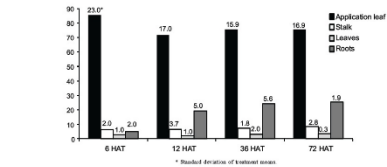


Diagram created by weedcenter.org

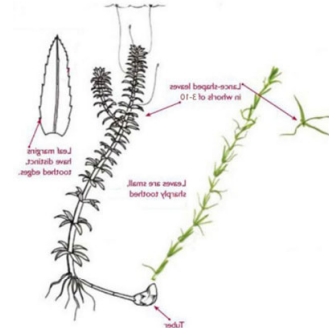
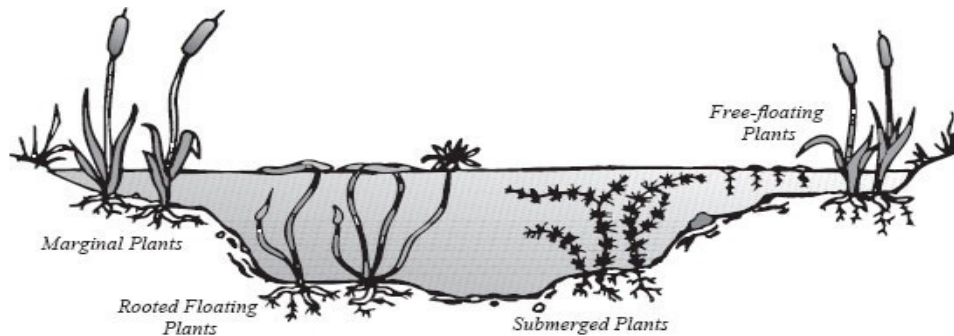
Science communication



scientists

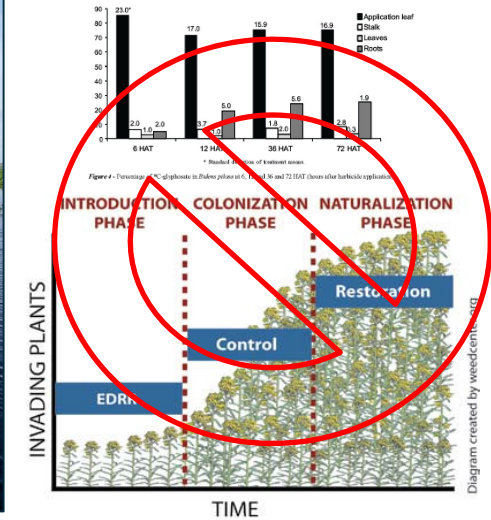
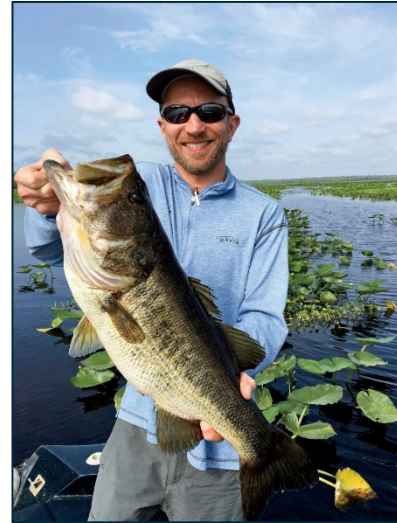


the public



Improve Existing Relationships

- Transparent with program goals and objectives
- Inviting of input and feedback
- Avoid “one-size-fits-all”
 - ❑ Different Groups, often competing goals
 - ❑ Varying degrees of understanding
 - ❑ Tailor messaging to fit – Why should they care?



News: Home / Environment / Environmental Stewardship / Angler's Aquatic Plant ID

Angler's Aquatic Plant ID

Want to be a better fisherman? Learn smart, season-based strategies for fishing the "weeds."

Across the country, they go by different names. Valley anglers often refer to them collectively as "weeds," "grass," or "trucks." Whatever you call them, aquatic plants are an integral part of the Tennessee River's ecosystem, whether providing habitats for the species at the bottom of the food chain, or cover and ambush areas for largemouth bass.

While many aquatic plants look the same, understanding the differences can make you a better bass fisherman. Whether you prefer to punch a jig, swim a spinnbait or fish a top, this guide to aquatic plants in the Tennessee Valley can help you fish the best angle you can be.

Developed by fishermen for fishermen, this guide gives you all the information you need to understand when these plants are most productive, where they grow and—most importantly—how to fish them. Whether you are a seasoned tournament angler, weekend warrior or new to fishing altogether, we invite you to learn more about aquatic plants and improve your catch.

Floating and Floating Leaf Plants

American Lotus
Submersed stems of this water species (Nelumbo lutea), provide excellent habitat and cover for both macroinvertebrates and the juvenile fish that eat them. The large canopy formed by American lotus is the perfect ambush opportunity for larger fish.

Common Salvinia
This invasive species (Salvinia minima) will apply from dense colonies in

Managing Aquatic Plants
Invasive plant species like hydrilla and reedbed can make for great edge fishing, but when found unthinkably in front of your favorite boat ramp can keep you and others from even being able to enjoy the reservoir at all. A "stratification" section within each plant species page highlights the need to manage these plants in certain situations, and provides a relative cost scale from low (\$) to high (\$\$\$\$).

You may encounter TVA or its contractors managing aquatic plants in and around developed public access areas (such as boat ramps) at the reservoir. TVA manages aquatic plants on an awarded basis to improve public access to its reservoirs. [Learn more about how TVA manages aquatic plants.](#)

Aquatic Weeds Treatment Schedule
Learn when TVA contractors will be in your area using herbicides or EPA-approved herbicides to control the overgrowth of invasive aquatic plants. [Click here to get the most recent schedule.](#)

Contact Us
We're always looking for more information.

Q&A: Grass and bass on Guntersville

April 7, 2015

The following was contributed by Dr. Brett Harris, program manager of TVA's Aquatic Plant Management Program.

Lake Guntersville, site of this week's Bassmaster Elite Series event, is well-known as

YouTube

Bass in the Grass Tips on Fishing Aquatic Vegetation

The Media...

Florida's war on weeds is killing fish and supercharging red tide, opponents say

By Bill Weir and Shelby Rose, CNN

Updated 2:35 PM ET, Fri February 7, 2020

Lake Okeechobee, Florida (CNN) — On any given day, helicopters and an armada of airboats fan out across Florida's fresh waters to spray tank after tank of poison. Without the millions of gallons of herbicide poured into rivers and lakes, officials say, the state would be choked with weeds.

But a growing chorus of fishermen and hunters, naturalists and activists disagree.

They are convinced that what started as sensible navigation and flood control turned into a million-dollar-a-month chemical addiction that is killing the natural state.



To gather evidence, a home builder named Mike Knepper has spent over a year chasing spray boats with a camera. He's a modern-day David taking aim at a Goliath.

When he captures a state contractor spraying a weed killer on live birds or baby alligators, he's illegally blowing herbicide across water.



August 25 · Dayton, TN · 🌐

Folks animals are dieing,,is it possible our water quality is not good,, question,,is it



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Related Content: CNN Climate

Proactively Telling Our Story


 apermsociety



Liked by weedsciaqua and 12 others

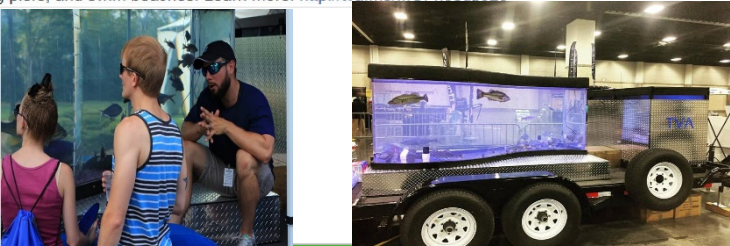
apermsociety "It's just another #MimicMonday 🌱🎵"
 #Torpedograss (*Panicum repens*) is an exotic plant, native to Africa/Asia. It was introduced to the USA in the mid-1800s for use as forage for livestock. It is



 Tennessee Valley Authority

July 7 · 🌐

Check out this cool 360° video! Our aquatic plant specialist uses airboats to survey and collect data on the distribution of aquatic plants in the reservoirs. Recent warm winters and dry, hot summers have helped aquatic plants grow at record rates in the past few years. Aquatic plants are a good thing in some cases, providing valuable habitat for certain species of fish and wildlife. On the other hand, nuisance vegetation can impede access to reservoirs by the millions who live in and visit the valley each year. To strike a balance between the two, we only manage vegetation in select public access areas like public boat ramps, fishing piers, and swim beaches. Learn more: <http://tva.me/MOFh30dpJ29>



Home About Events Photos Videos Co

 South Carolina Aquatic Plant Management Society

Posted by Brett Hartis
 February 20 at 10:30 PM · 🌐

 UNC-TV

February 18 at 10:20 AM · 🌐

Lake Waccamaw has been bombarded with threats over the years—rising waters, algal blooms, excess nutrients, etc.—but the invasive plant hydrilla is finally under control.

Find out more from our collaboration with the **UNC Hussman School of Journalism and Media**.



They go by different names: "weeds," "grass," or "moss." Whatever you call them, aquatic plants are an integral part of the Tennessee River's ecosystem, whether providing nutrients for species at the bottom of the food chain, or cover and ambush areas for bass.

The benefits of each species are unique despite the similarity in appearance, and understanding them can give you the advantage. Whether you prefer to punch a jig, burn a lipless crankbait or fish a frog, this guide to aquatic plants in the Tennessee Valley can help you be the best angler you can be.



WANT TO BE A BETTER FISHERMAN?

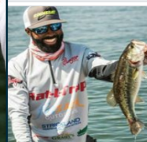
Learn smart, season-based strategies for fishing the weeds.



To learn more, visit tva.com/aquaticplants



People of Influence/Trusted Sources



Brian Latimer
brianlatimerfishing

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Community

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Brian Latimer shared Rat-L-Trap's video
September 23

Here's the segment on grass management with Brett Hartis and I on Bill Lewis Fishing Tv. Check it out!

2,648 Views

Rat-L-Trap
September 22

If you missed Bass and Weeds part 1 with Brett Hartis and Brian Latimer here it is in its entirety. #billlewis

Like Comment Share



Training Future Stakeholders

Teachers learn about Lake Guntersville ecosystem



Teachers learn about Lake Guntersville ecosystem

By Stephen McLamb | September 13, 2016 at 1:54 PM CDT - Updated September 13 at 5:14 PM

GUNTSVILLE, AL (WAFF) - Two dozen teachers are getting some hands on experience with TVA officials learning the ecosystem at Lake Guntersville. It's something these teachers can bring back to the classroom.



John Knox Center

September 21, 2017 · John Knox Center ·

Busy day of hands on learning about aquatic plants, educators from as far away as the Gulf participate in #TVAPlantCamp



UF IFAS
UNIVERSITY of FLORIDA

Plant Management in Florida Waters - An Integrated Approach
Center for Aquatic and Invasive Plants - University of Florida, Institute of Food and Agricultural Sciences & Florida Fish and Wildlife Conservation Commission, Invasive Plant Management Section

1. Why Manage Plants? ▾ 2. Overview of Florida Waters ▾ 3. Control Methods ▾ 4. Management Plans ▾ 5. Research & Outreach ▾



Section 1 - Why Manage Plants?



What we can do....

- Be proactive and transparent in delivering our story
 - What/ Why/ How/ When we manage
 - Provide targeted education and outreach opportunities (workshop, ride-along)
- Be open and inviting of input from all user groups
 - Facilitate active discussion (finding common ground)
 - Remain adaptive to changing needs
 - Be inclusive in decision making processes
- Make reasonable compromise
 - Social/ economic consideration
 - Hear and act on concerns
 - Use each other as a resource



Florida Aquatic Plant Management Society



What you can do....

- Proactively utilize those in APM as a resource for good information
 - Take advantage of opportunities to learn
 - Partner to meet goals and objectives of multi-user groups
 - Serve as a conduit for information transfer
 - Take your seat at the table and remain adaptive to drive decisions

- “People of Influence” = YOU



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Aquatic Plant
Management Society

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