# Lakeshore Buffer Plantings

**Lower Hudson Lakes**

**NYS Federation of Lake Associations**
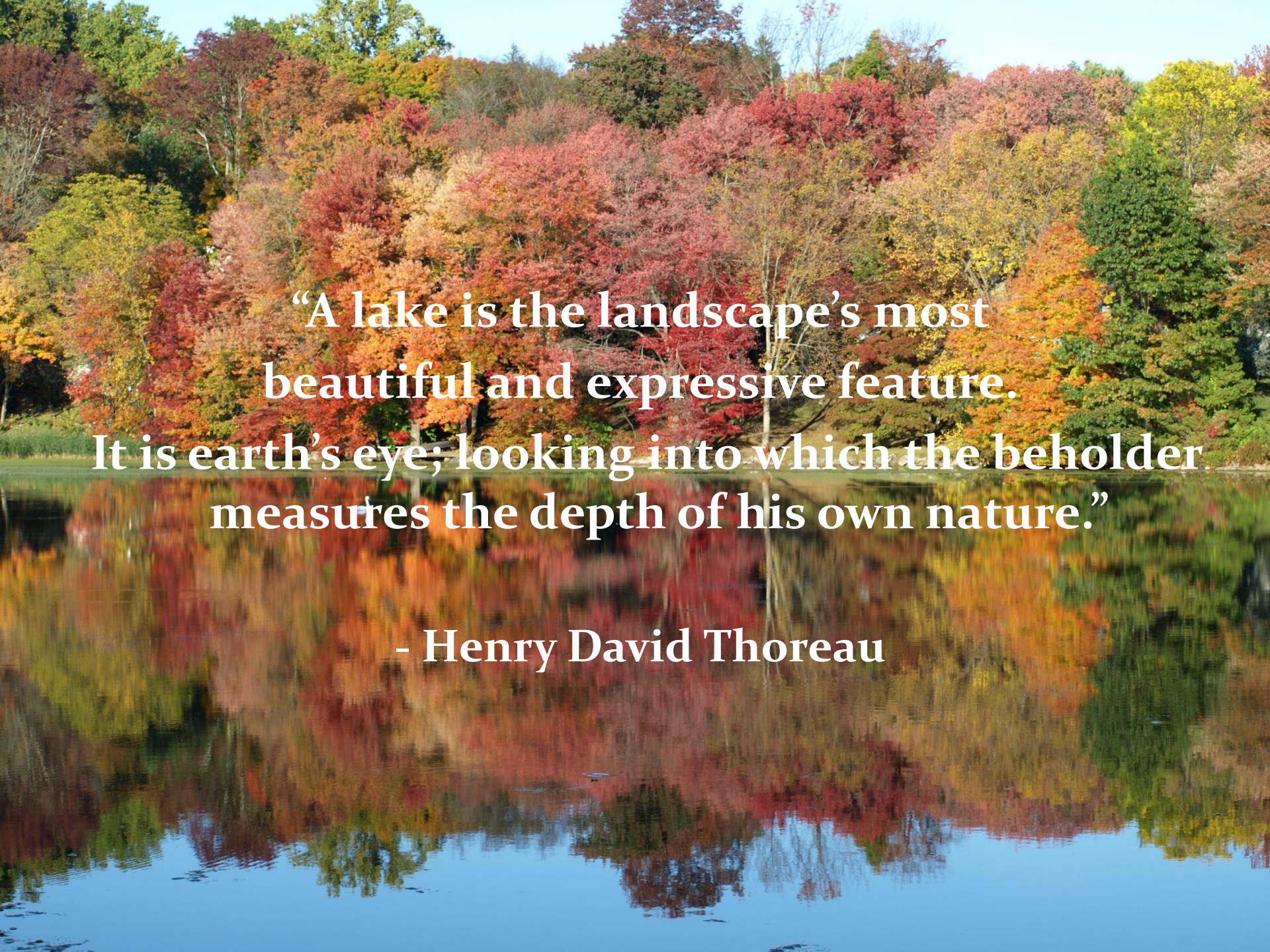
**Regional Conference**

**June 14, 2019**

# Lakeshore Buffer Plantings

## Promote Healthy Lakes

**PUTNAM COUNTY CORNELL COOPERATIVE EXTENSION**

**Maureen Galway-Perotti, Master Gardener Volunteer**

"A lake is the landscape's most beautiful and expressive feature.
It is earth's eye; looking into which the beholder measures the depth of his own nature."

- Henry David Thoreau

# Lakeshore Buffer Plantings



## Promote Healthy Lakes

## OBJECTIVES:

➢ Explain the Importance of Lakeshore Buffer Plantings

➢ Identify Best Management Lakeshore Buffer Practices

# Clean Water and Healthy Ecosystems:



Living in Kent, N.Y.

Kent, N.Y., a rural community 60 miles north of New York City, is characterized by an abundance of pristine lakes and affordable real estate. It's also home to the Chuang Yen Monastery, a Buddhist center.

Katherine Marks for The New York Times

- Enhance our recreational experiences
- Provide fish and wildlife habitat
- Protect lake property values
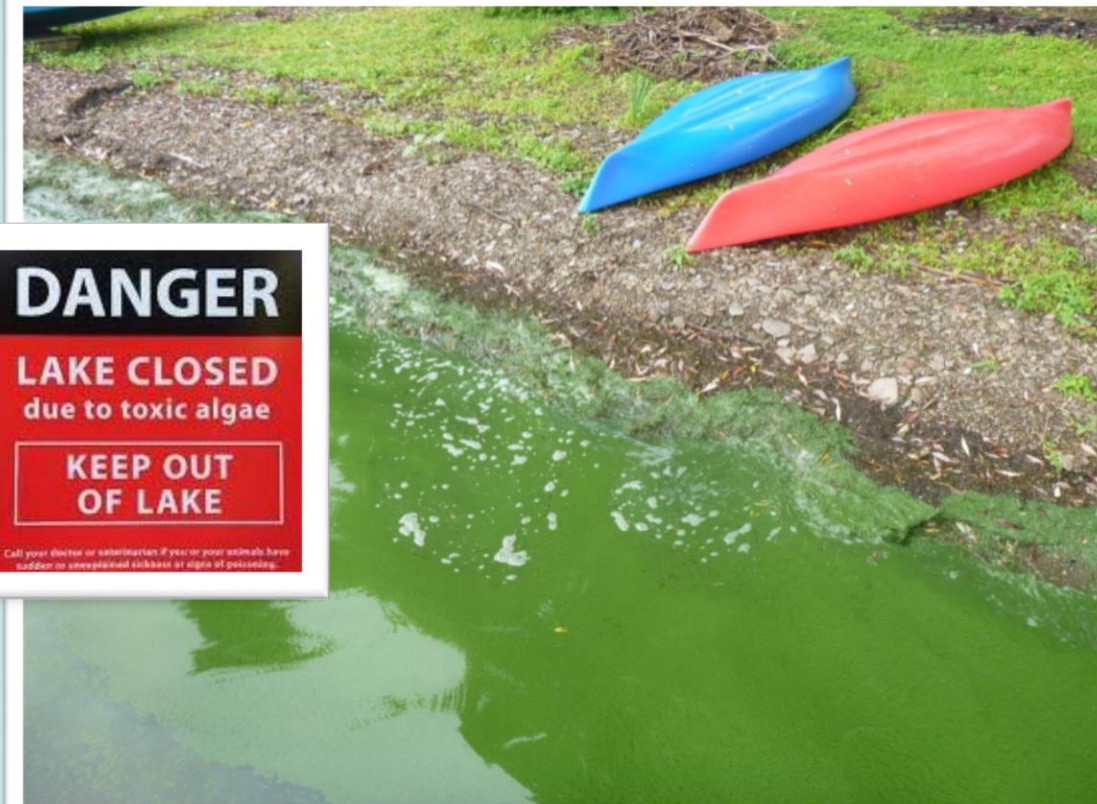
# Clean Water and Healthy Ecosystems:

Reduce

costs

for

drinking

water

systems

# Safeguarding New York's Water

2017: $2.5 Billion
Clean Water
Infrastructure Act

2018: $65 Million
Harmful Algae Bloom
Initiative

Cayuga Lake
Chautauqua Lake
Conesus Lake
Honeoye Lake
Lake Carmel
Lake Champlain
Lake George
Monhagen-
Middletown Reservoir
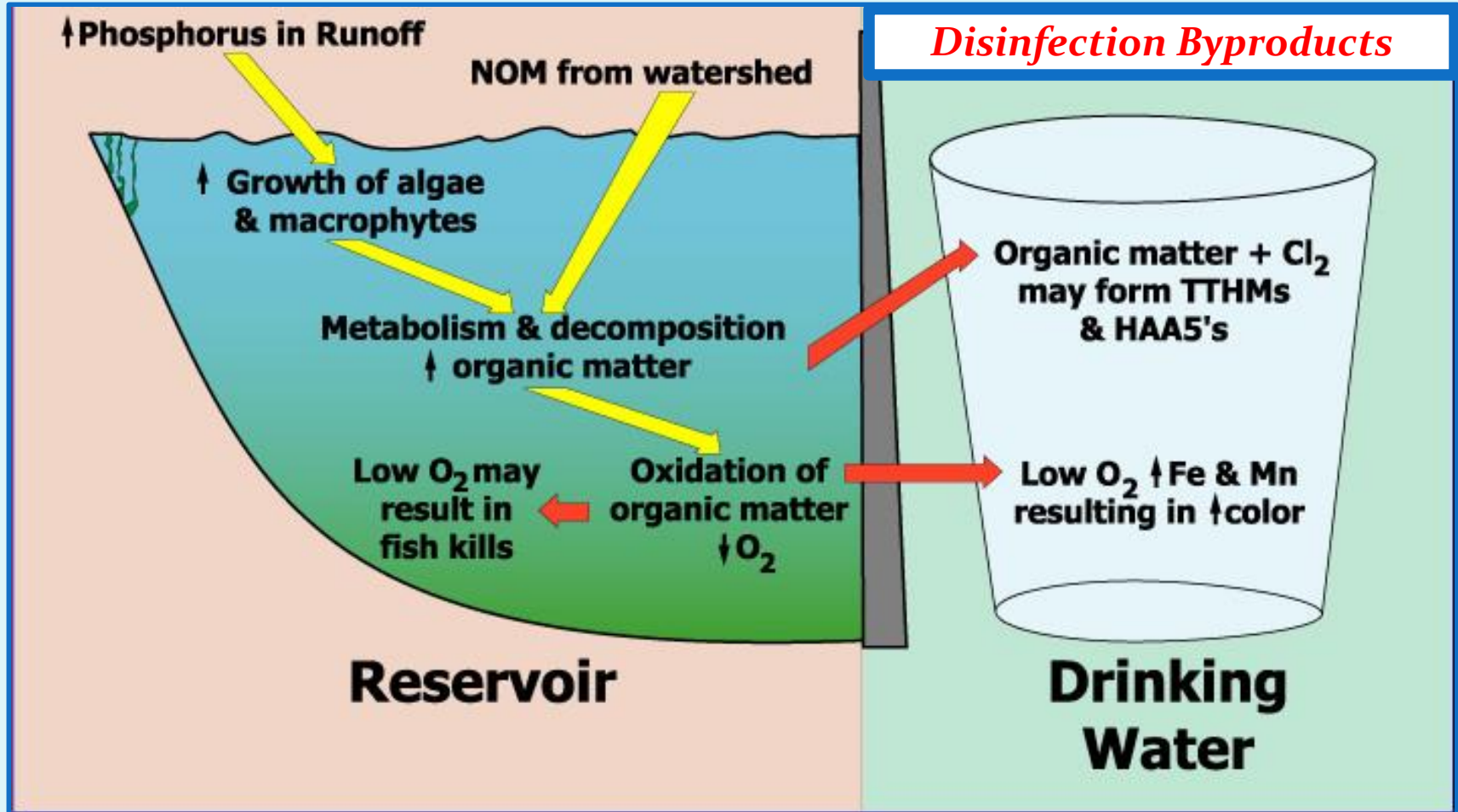System
Owasco Lake
Palmer Lake
Putnam Lake
Skaneateles Lake

(Source: NYSDEC Harmful Algae Action Plans)

# Cause of Impaired Waterbodies

**Phosphorus Pollution: <span style="color:red">ENEMY NUMBER ONE</span>**

# Safeguarding Reservoirs from effects of Phosphorus & Natural Organic Matter
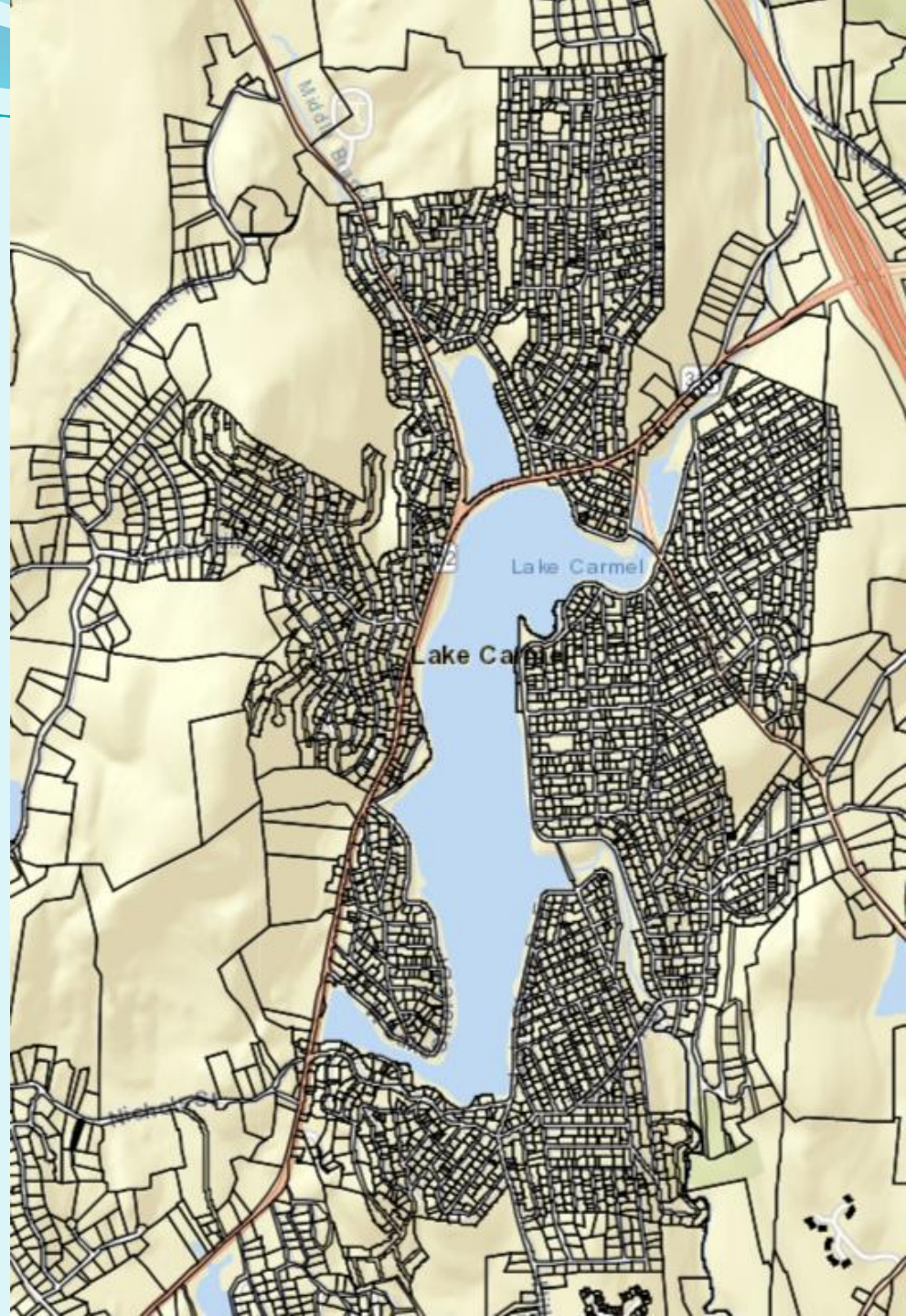
# Phosphorus Pollution

- Septic system discharges

- Nutrient-enriched storm water runoff



RUNOFF FROM ROOF

SEPTIC & LAWN RUNOFF

GUTTER RUNOFF

STREET RUNOFF

STREET RUNOFF

BARE SHORELINE

STORMWATER RUNOFF ENDS UP IN LOCAL STREAMS, CREEKS, RIVERS AND LAKES.

# Phosphorus Pollution

- Septic system discharges

- Nutrient-enriched storm water runoff

# Where do Buffers fit into all this?



The Federation of Vermont Lakes and Ponds

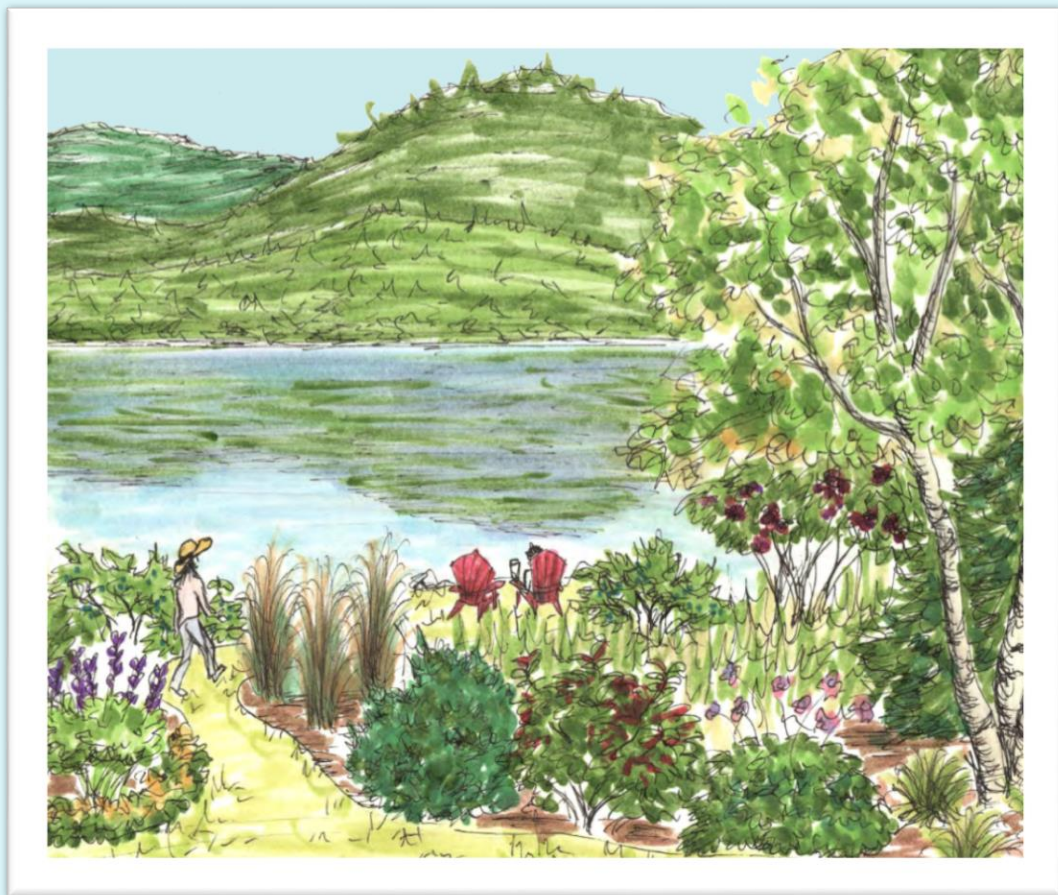# Buffers are Crucial



**SINGLE MOST EFFECTIVE PROTECTION**
for

- Water Quality

- Lake Ecosystems

- Essential Wildlife Habitat

# How do Vegetative Buffers Work?

Protect Water Quality by:

✓**Filtering Run Off**

✓**Absorbing Excess Nutrients** (Phosphorus & Nitrogen which cause eutrophication)

✓**Slowing Eutrophication** by reducing nutrients and sediments



The Federation of Vermont Lakes and Ponds

# Buffers Benefits

❑Filter Run Off

❑ Absorb Excess Nutrients

❑ Slow Eutrophication

❑Stabilize Shoreline

❑Preserve Habitat

❑Screen Noise

❑Enhance Aesthetic Value



Deep-rooted native trees and shrubs stabilize the shoreline, provide a buffer against pollution, and improve habitat for lake fish and wildlife.

U.S. Environmental Protection Agency

# What is a Buffer?



University of Wisconsin Extension Lakes – Native Plantings

# The Buffer Concept


Illinois Environmental Protection Agency

- **Strips of Vegetation**
  - ground covers
  - herbaceous plants
  - shrubs
  - trees
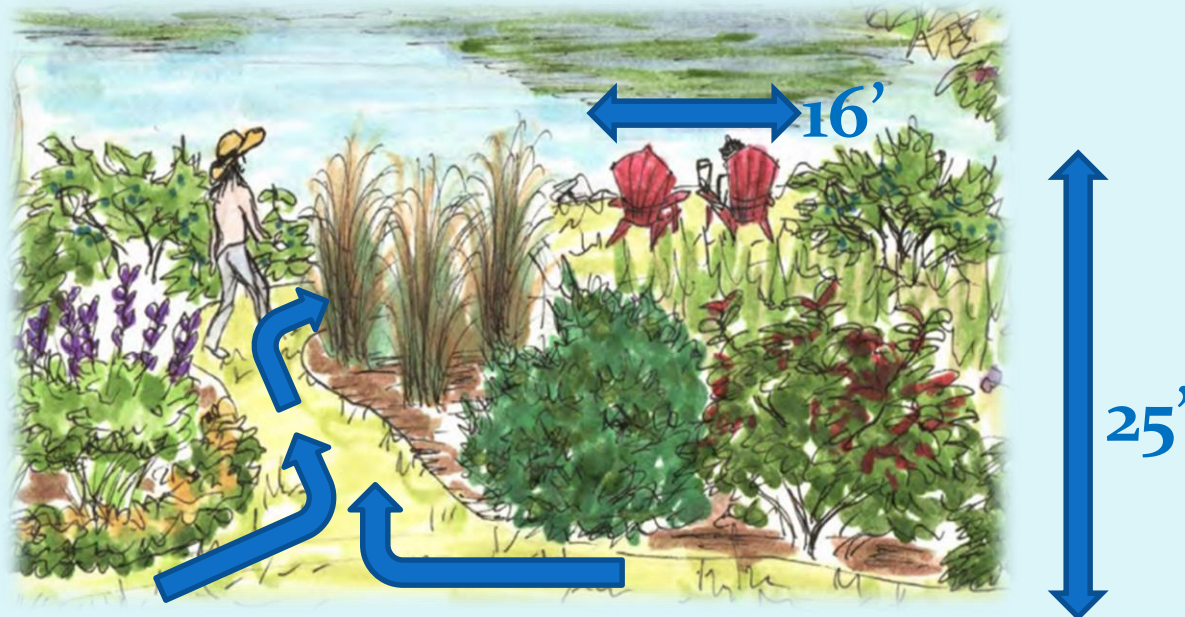  - organic matter that accumulates on the ground

- **Transitional Areas**
  - where land and water meet
  - creates unique and highly productive ecosystems
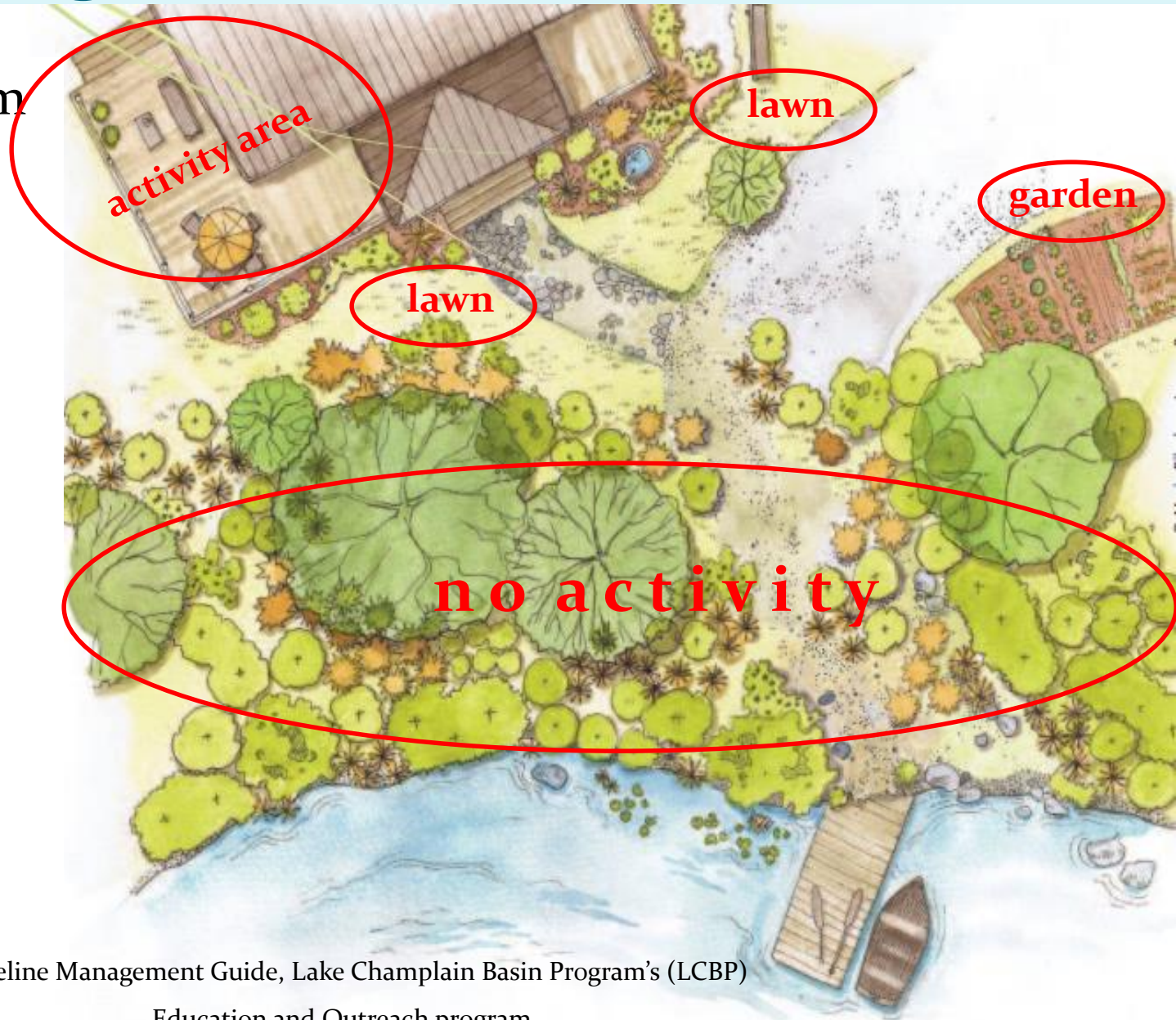
# Best Management
# Lakeshore Buffer Practices

- Minimum 25' vegetated buffer at the shore
- Multi-layered lakescape gardening with native plants
- No-mow zones and native wildflower meadows
- Meandering paths & infiltration steps to reduce erosion
- Water access no more than 16' wide

16'

25'

The Federation of Vermont Lakes and Ponds

# Observing the Golden Rules: Land

- Strict minimum use of riparian strip

- Activities away form water

- Less, and low maintenance lawn
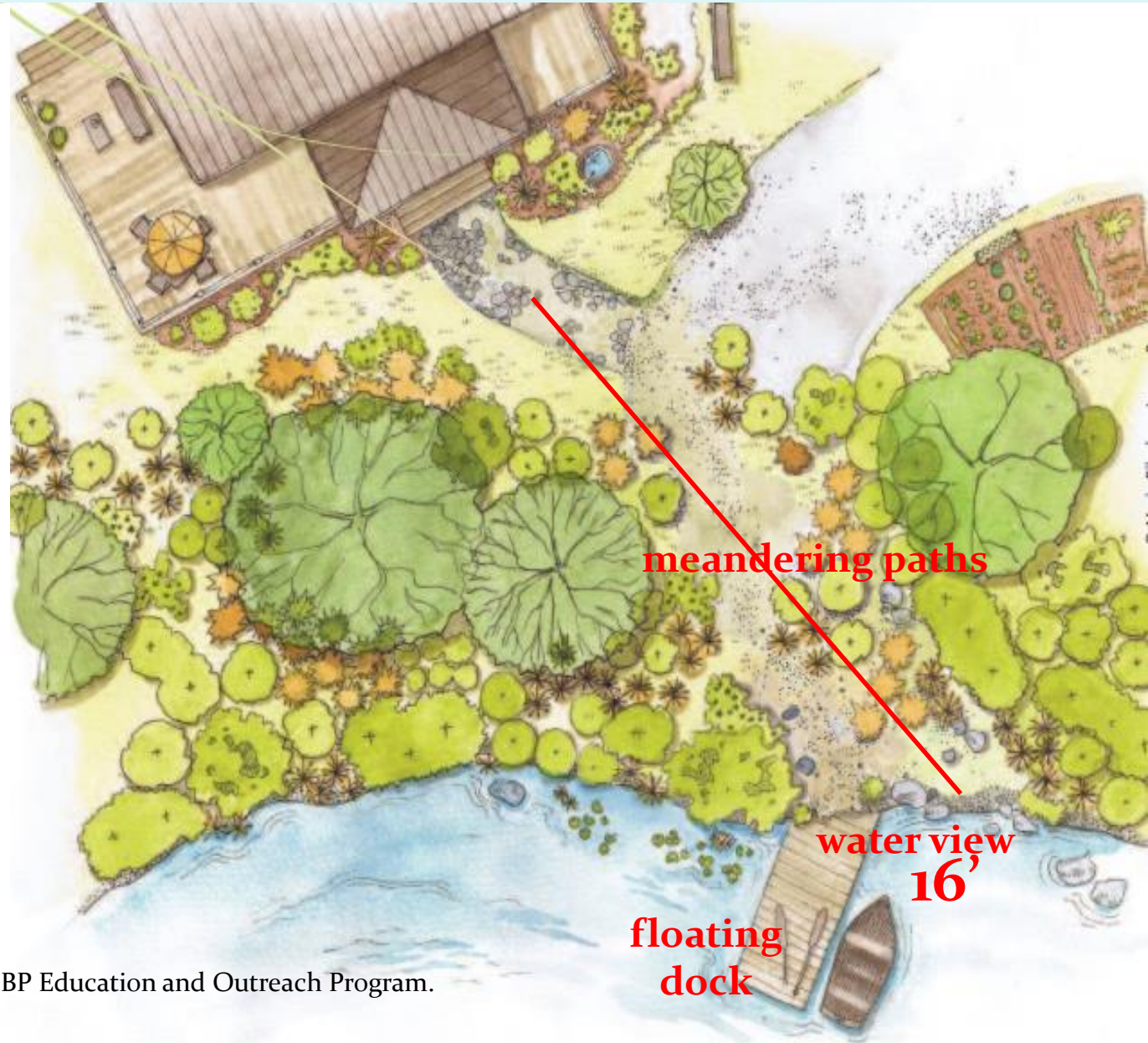
- Vegetable garden outside riparian strip



activity area

lawn

lawn

garden

n o   a c t i v i t y

Shoreline Management Guide, Lake Champlain Basin Program's (LCBP)

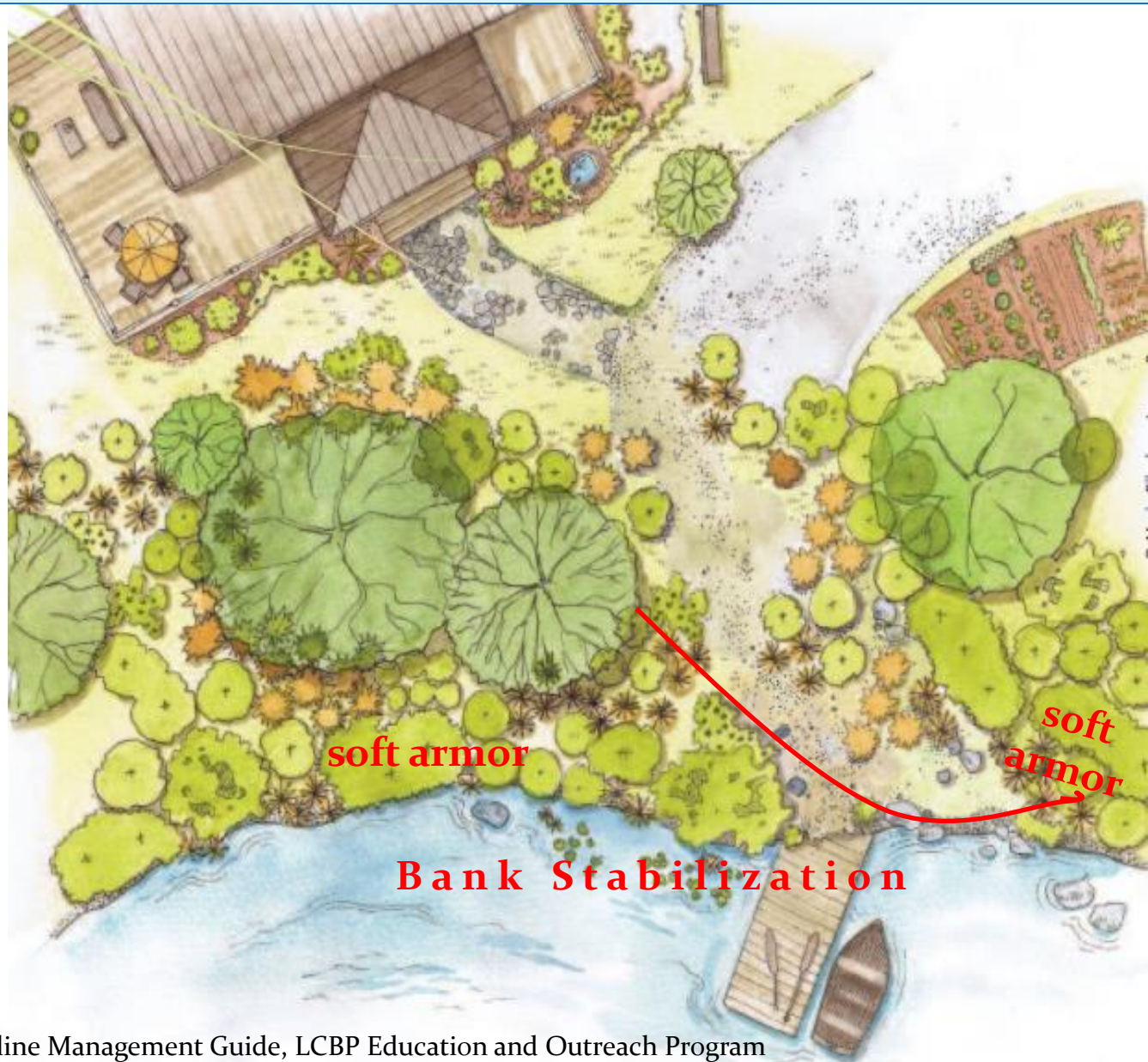Education and Outreach program.

# Water Views and Access

- Diagonal water access

- Use of porous materials and replanting along border

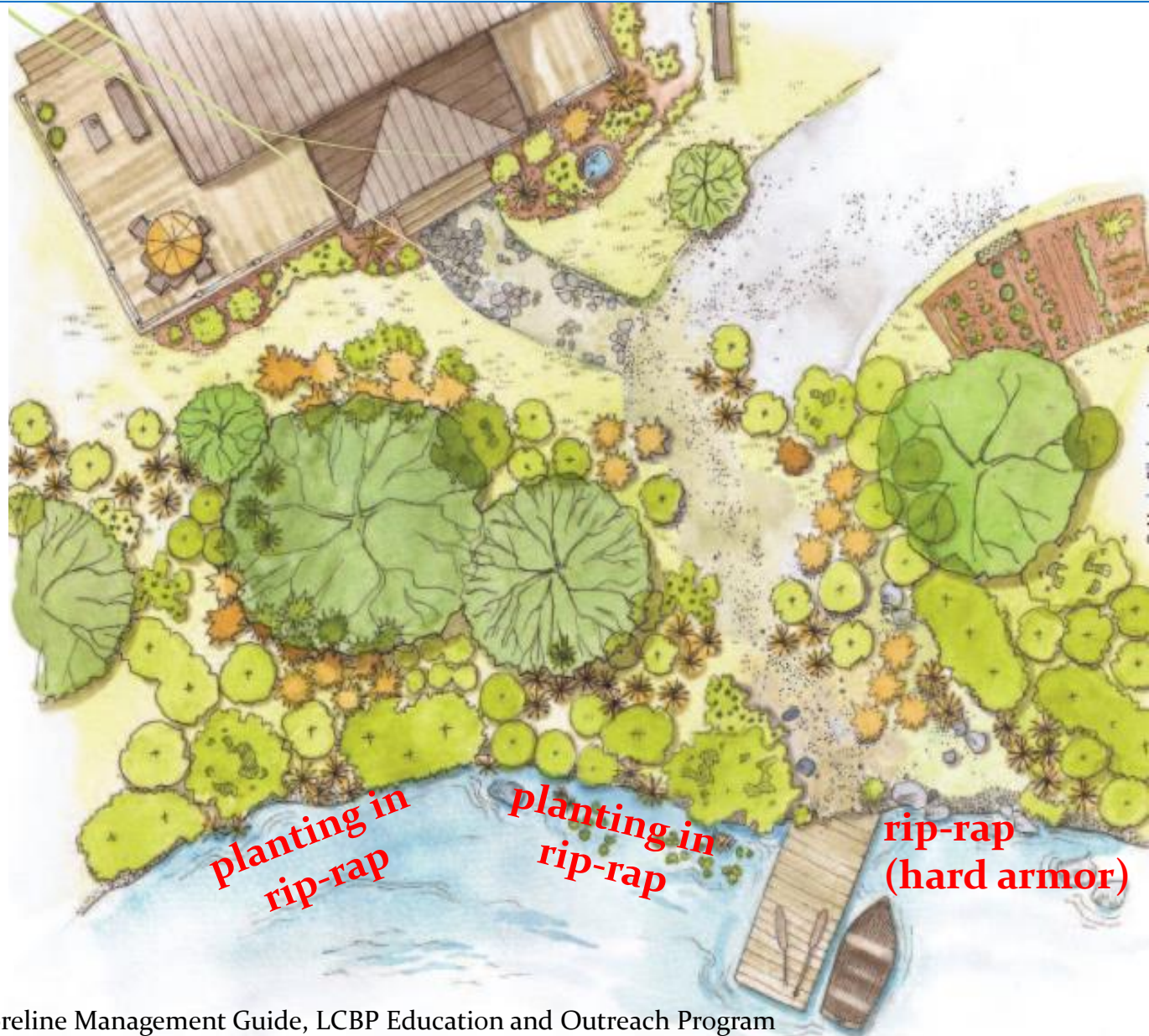- Water view no more than 16 feet wide

- Floating Dock



meandering paths

water view 16'

floating dock

Shoreline Management Guide, LCBP Education and Outreach Program.

# Bank Stabilization

- Gently graded bank slope

- Natural stabilization methods – "*Soft Armor*"

✓ Easier on environment
✓ Imitates natural systems
✓ Last longer and cost less
✓ Alive, adapts to changes in environment
✓ Reproduces & multiplies
✓ Provides habitat
✓ Trimmed to keep view

soft armor

soft armor

**B a n k   S t a b i l i z a t i o n**

Shoreline Management Guide, LCBP Education and Outreach Program

# Bank Stabilization

• Restrict structural methods - "*Hard Armor*" to problematic bank areas

• Planting in hard armor to reduce water warming

• Never use wood treated with toxic substances



planting in rip-rap

planting in rip-rap

rip-rap (hard armor)

Shoreline Management Guide, LCBP Education and Outreach Program

# Successful Planting:
## When & How



- When to plant:

  Spring to mid-June, or in the fall at the end of August.

- How to plant:

  Preferable do not modify the soil texture so plants can adapt to the natural surrounding conditions.

- Caring for plants:

  Do not fertilize!

  Introduction of nutrients (nitrogen & phosphorus) contributes to eutrophication.

  Prune shrubs

# Choosing Suitable Plants

- Choose native species
- Sun exposure and soil type
  - Generally, native shoreline species like a variety of conditions (sun, partial shade, shade)
  - Able to withstand the natural conditions
  - Determine its texture (clay, silt, sand, loam, gravel)
- Water level and roots
  - Tolerate wet or dry soil?
  - Top of slope - Trees (deep spreading roots)
  - Bank - Shrubs (combination of deep & superficial intertwined roots)
    Herbaceous plants (fine surface roots)

# What to Plant?

**Cornell University Cooperative Extension Putnam County**

Terravest Corporate Park
1 Geneva Road
Brewster NY 10509
p. 845-278-6738
f. 845-278-6761
e. putnam@cornell.edu
putnam.cce.cornell.edu

## Lakeshore Buffer Plantings

So often you hear of the importance of creating a lakeshore buffer planting: a strip of foliage, plant material, and mulched soil that intercepts runoff from driveways and lawns before it reaches the lake.

But if you live on a lakeshore, chances are you also want to maintain a view of the water. This leads many homeowners to mow right up to the water's edge which provides a fast track for surface-water contaminants, and easy access for waterfowl to graze in the lawn.

**You can create a dense and beautiful waterside buffer planting** that catches run off before it reaches your lake, and also helps to deter Canada geese from grazing on your lawn!'
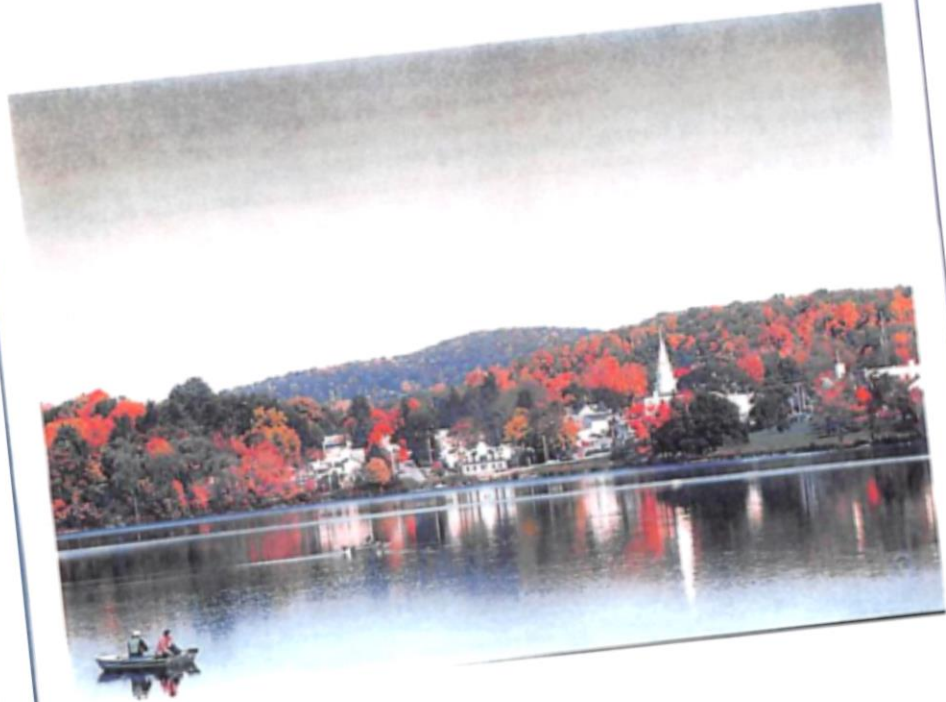
## What to Plant:

<u>Woody Shrubs:</u> These shrubs are under four feet and ideal for lakeshore buffer plantings.

- *Clethra alnifolia* 'Hummingbird', Hummingbird Summersweet, 3'. This dwarf selection is a fragrant summer bloomer with bright yellow fall color.

- *Fothergilla gardenii* 'Mt Airy', Dwarf fothergilla, 3', Blooms early, remains small. Clear yellow fall color.

- *Ilex verticillata* 'Red Sprite', or 'Maryland Beauty' 3-4' Are dwarf varieties of our native Winterberry Holly. They sparkle with berries in late fall and early winter

- *Ilex glabra* 'Shamrock', 'Nana,' or 'Densa' 3' These dwarf varieties of the native Inkberry Holly provides some evergreen interest in your landscape.

- *Itea virginiana* 'Little Henry', Little Henry Sweetspire, 3'. This dwarf variety grows to three feet, blooms profusely in summer months and has spectacular scarlet fall color.

- *Rhododendron viscosum*, Swamp Azalea. 4-5' Though taller, is airy in form. Fragrant pink flowers grace this welcome spring bloomer.

- *Rhus aromatica* 'Grow Low' 2-3' Fragrant Sumac, Widely adaptable: will tolerate areas of compacted soil and drought as well

# What to Plant?



Putnam County Lake Gleneida Vegetation Restoration and Management Plan

October 2013
Prepared by the
Putnam County Highway, Facilities, and Parks
Putnam County Soil & Water Conservation District
Cornell Cooperative Extension of Putnam County

DEVELOPED in
cooperation with:

- NYCDEP
- Putnam County

Along with the Partners:

- Cornell Cooperative
Extension
- Putnam County Soil
and Water Conservation
District



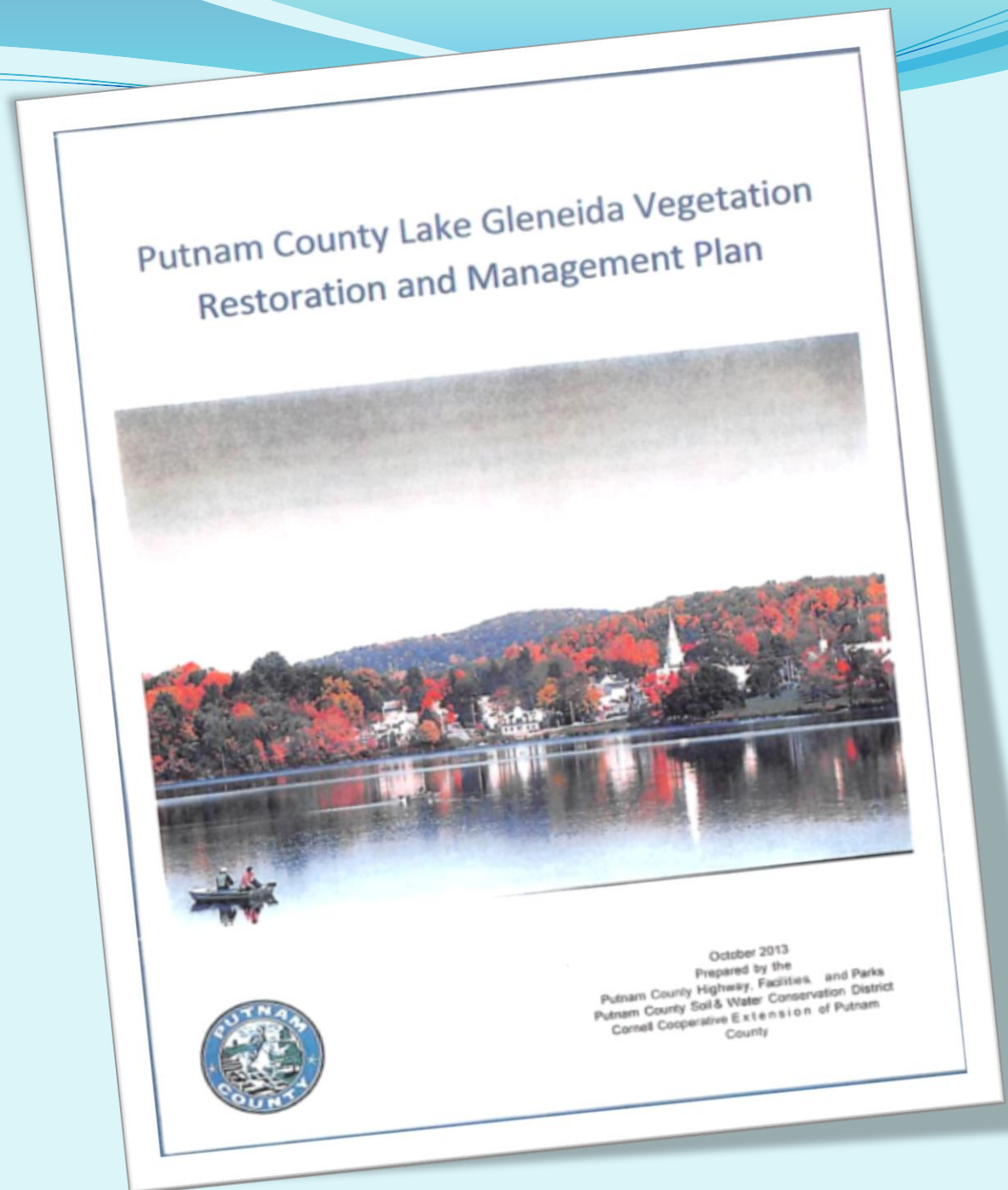Putnam County Lake Gleneida Vegetation Restoration and Management Plan

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What
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Plant?

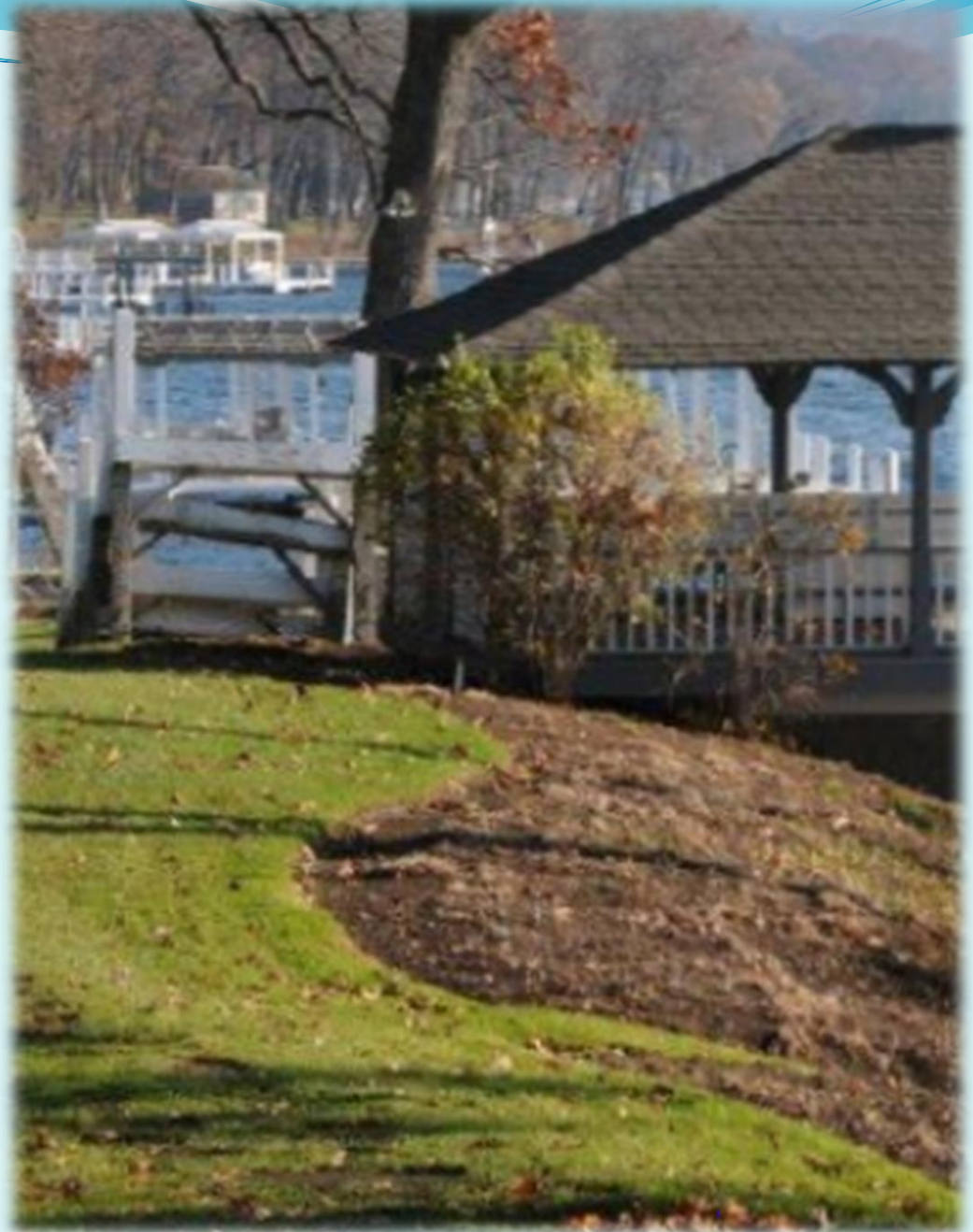**PLANT LISTS**

**Scientific Name**
**Common Name**

**Woody Shrubs**

**Herbaceous Plants**

**Chosen for adaptability**
**to both**
**Upland and Wetland settings**

# Before …

Geneva Lake, Wisconsin

# Addition of Native Plantings



LIATRIS SPICATA (blazing star)

ALLIUM CERNUUM (nodding wild onion)

ASTER OBLONGIFOLIUS (aromatic aster)

SPOROBOLUS HETEROLEPIS (prairie dropseed)

PANICUM VIRGATUM (switchgrass)

Herbaceous Plants                    Grasses

# … After



ASTER OBLONGIFOLIUS

PANICUM VIRGATUM

LIATRIS SPICATA

ALLIUM CERNUUM

SPOROBOLUS HETEROLEPIS

Shoreline planting designs by Roy Diblik, Northwind Perennial Farms.
Native Shoreline Planting Photos and Garden Grids by Samantha Carlson.

# Before and After



Lakes

Like

Less

Lawns !

Source: Westchester County

Source: Westchester County

Before and after photos of pond/lake buffer restoration. The restored shoreline buffer stabilizes the shoreline and lessens erosion potential, provides more diverse habitat, reduces the maintenance burden, and helps filter out some pollutants; Town Park Pond, Pound Ridge.

# Questions?

Find the CCE office in your community at:
**cce.cornell.edu/localoffices**