

MEDFORD LAKES COLONY

—
2025

LAKES
&
LAKES LEADERS



Our Lakes

21 Lakes (in five chains)

Headwaters:

Upper Aetna

Algonquin

Meeshaway

Mescha

Sioux

2 Canals

Natchez

Wagush Levee

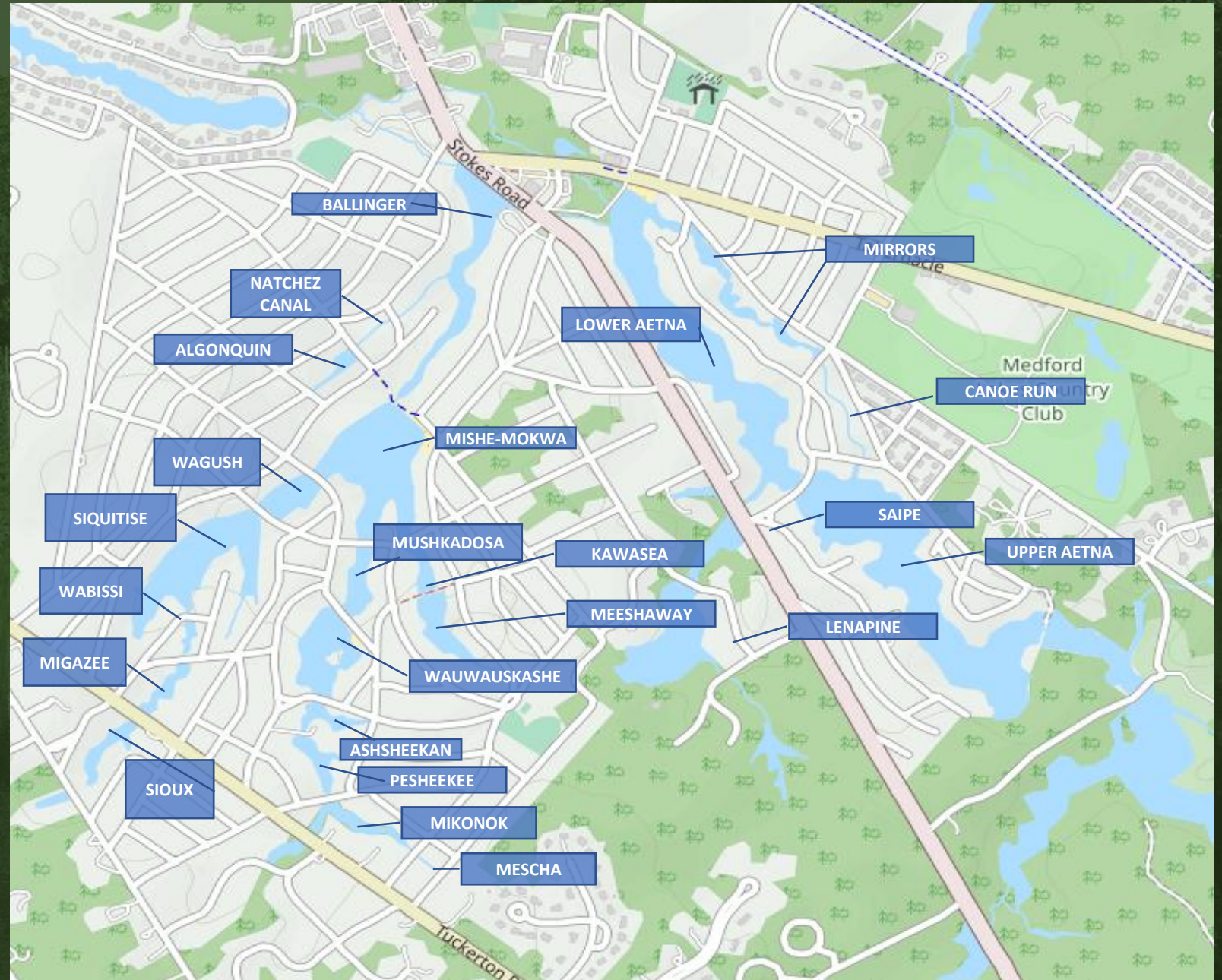
2 Lagoons

Ballinger

Siquitise

1 Run

Canoe Run
aka Mirror Run



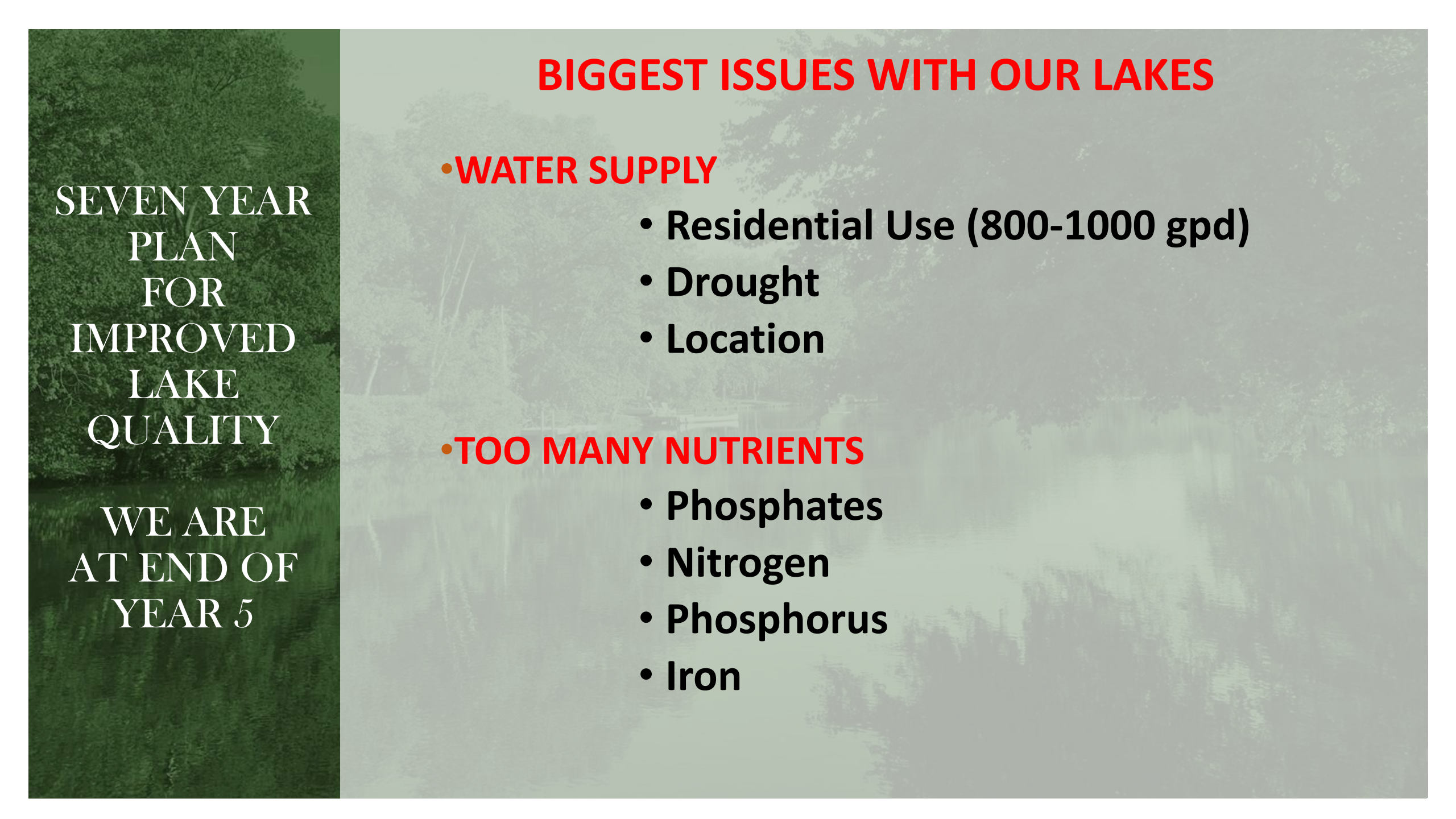
Drone View of Lakes



**SEVEN YEAR
PLAN
FOR
IMPROVED
LAKE
QUALITY**

**WE ARE
AT END OF
YEAR 5**

- **START WITH HEADWATER LAKES AND WORK DOWN THE CHAINS**
- **MANUAL CLEANING AND HYDRO-RAKING TO REMOVE LARGE AMOUNTS OF SEDIMENT (LM budget)**
- **INSTALL POWER CENTERS (LR budget)**
- **INSTALL AERATORS (LR budget)**
- **TREE TRIMMING AND SPOT CLEANING ON AN ANNUAL BASIS WITH MECHANICAL REPAIRS AND RELOCATIONS**
- **BIO-REMEDIATION TO CONTROL SEDIMENT WITHOUT MANUAL CLEANING OR HYDRO-RAKING (LR Budget)**
- **MECHANICAL ASSISTANCE FOR WATER VOLUMES**



SEVEN YEAR
PLAN
FOR
IMPROVED
LAKE
QUALITY

WE ARE
AT END OF
YEAR 5

BIGGEST ISSUES WITH OUR LAKES

- **WATER SUPPLY**

- Residential Use (800-1000 gpd)
- Drought
- Location

- **TOO MANY NUTRIENTS**

- Phosphates
- Nitrogen
- Phosphorus
- Iron

LAKES
NATURAL
ISSUES

2025

NATURAL ISSUES FOR THE LAKES

- **LOW WATER VOLUMES**

- Lower aquifer levels
- Reduced aquastatic pressure

- **RECURRING SEDIMENT LOADS**

- Trees
- Road Run-Off
- Fish, turtle, mallard, geese waste

- **WATER QUALITY**

- Geese and Mallards
- Naturally Occurring Chemicals like Phosphorus, Iron, Nitrogen

- **WEED GROWTH**

- Fertilizers and decaying materials

- **AQUATIC LIFE ENVIRONMENT**

- Oxygen Levels
- Water Temperatures
- Weed Controls

LAKES

DROUGHT

CONDITIONS

2025

Drought Conditions in New Jersey

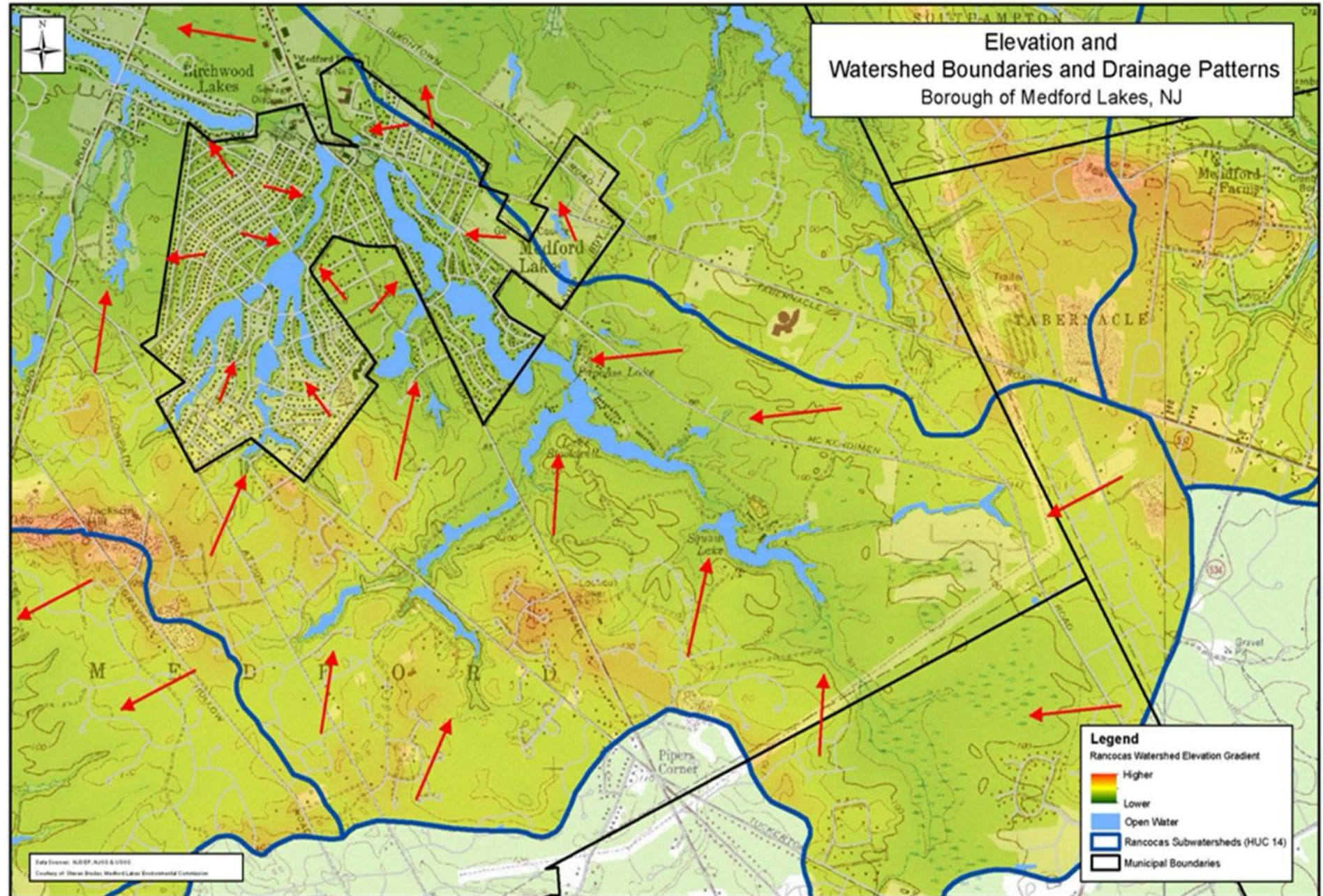
Most of South Jersey is classified as being in a severe or extreme drought.



Source: U.S. Drought Monitor

John Duchneskie / Staff Artist

MEDFORD LAKES DRAINAGE PATTERNS



LOW WATER
LEVELS
SIOUX LAKE



LOW WATER
LEVELS
MESCHA LAKE



TOO MANY
NUTRIENTS



LAKES
PREVENTABLE
“MAN-MADE”
ISSUES

2025

PREVENTABLE ISSUES FOR THE LAKES

- **FERTILIZERS**

- Illegal Applications
- Over-use

- **ROAD SALT**

- Snow Removal
- Residential Over-use

- **ROAD RUN-OFF**

- Driveways
- Abuse of site limitations

- **OVERGROWN TREES**

- Lack of Maintenance

SEVEN YEAR
PLAN
FOR
IMPROVED
LAKE
QUALITY

WE ARE
AT END OF
YEAR 5

LAKES RESTORATION PRIORITIES

- NJ DEP Dam Compliance
- Dam Maintenance
- Water Flow and Hydraulics
- Water Quality

LAKES MAINTENANCE PRIORITIES

- Weeds
- Geese
- Testing
- Cleanings
- Landscaping

LAKES
MAINTENANCE
2025

“LAKES MAINTENANCE”

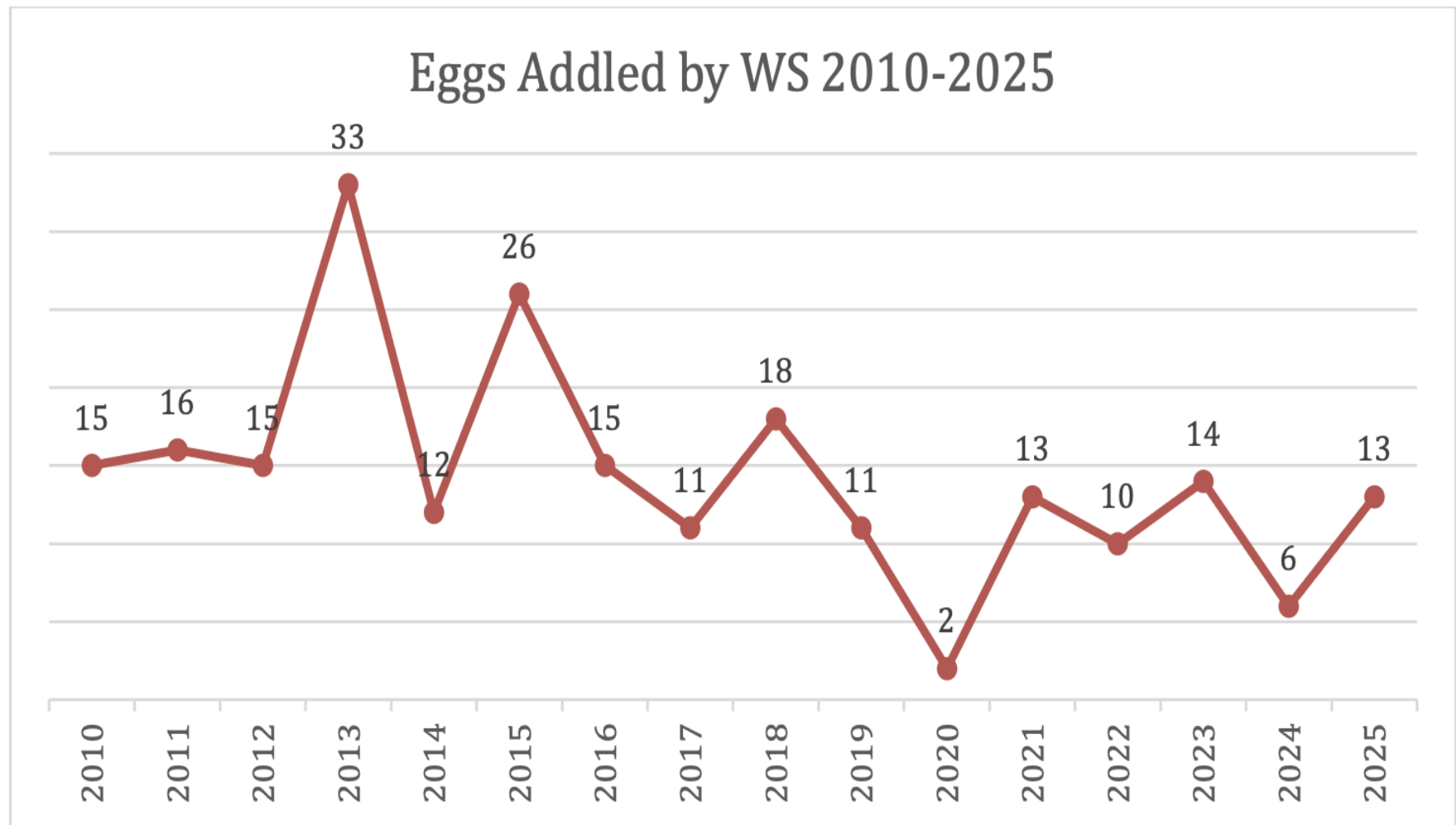
- Subject to *Annual Budgeting Process*
- Budgets are under authority of VP Property
- Four Specific Line Items
 - Geese Control (\$3,000) **ACTUAL COST: \$2,284.87**
 - Lakebed/Cove Cleaning (\$50,000) **ACTUAL COST: \$32,401.80***
 - Water Quality Testing (\$6,000) **\$20/sample by ML Sewer Dept**
 - Weed Treatments (\$16,000) **ACTUAL COST: \$15,975 + \$2,300**
- Shared Cost of Lake and Cove Cleaning between Colony and Lakefront Owners – 50/50 shared raking cost subject to \$750 limit for lakefront owner per Colony By-Laws ***\$57,912.50 - \$25,510.70 = \$32,401.80**
72 owners at average \$354.37 each

LAKES
MAINTENANCE
2025

- **RECAP OF MAINTENANCE ACTIVITY IN 2025**
- **BI-WEEKLY WEED TREATMENTS + PHRAGMITE REMOVAL**
- **GEESE CONTROLS – WEEKLY WATER TESTING**
- **MANUAL CLEANING**
 - CANOE RUN -- **ACTUAL COST \$1300**
 - BEACHES ONE– THREE – FOUR -- **ACTUAL COST \$3000**
 - AREAS TWO - FIVE
- **HYDRO-RAKING**
(Additional cost to move, spread, and cover sediment - \$4300)
 - KAWASEA
 - MUSHKADOSA
 - LOWER MIRROR
 - BALLINGER LAGOON
 - SIQUITISE

LAKE MAINTENANCE 2025

The graph below provides a summary of WS' egg addling for each year an agreement was established. Detailed annual data can be found in the Appendix.



LAKES
MAINTENANCE
2025

PHRAGMITES
ARE BAD!!!



LAKES
MAINTENANCE
2025

BRYOZOANS
ARE
GOOD!!!



2025 LAKE CLEANING STRATEGY

Canoe Run
pre-cleaning 3/10



2025
LAKE
CLEANING
STRATEGY

Canoe Run
Lagoon

Post Cleaning
3/10





LAKES MAINTENANCE 2025

Hydro-Rake
in action



LAKES MAINTENANCE 2025

Sediment pile
removed from Lake
Wabissi



LAKES MAINTENANCE 2025

Spreading wood
chips
to cover Wabissi
sediment



2026 PLAN FOR LAKE CLEANINGS

2026 LAKE CLEANING STRATEGY

- MANUAL RAKING (May)
 - BEACHES (All 3 Beaches and 2 Areas)
 - MEESHAWAY
 - PESHEKEE (Cheyenne end of lake)
- HYDRO-RAKING (May into June)
 - WAUWAUSKASHE
 - WAGUSH
 - MISHEMOKWA - COVES
 - ALGONQUIN
 - NATCHEZ CANAL (needs major tree trimming before raking)
 - UPPER AETNA -- COVES and BOAT RAMP AREA
 - LOWER AETNA -- COVES and AREA TWO (up towards the dam)
- **NOTE: 2026 is the end of the hydro-raking program**

2026
LAKE
CLEANING
STRATEGY
DISPOSAL

- **DISPOSAL OF ORGANIC MATERIAL**
- **COLONY OWNED PROPERTY**
 - Nokomis Woods
 - **Parcel at Narrangansett & Mudjeekeewis**
 - (Wauwaukashe, Wagush)
 - Parcel at Paupukkeewis and Migazee
 - Park on McKendimen
 - Park on Mohawk & Mishemokwa
 - Small Woodsy Area on Kihade Trail
 - **“Easi Property” Lenape & Stokes**
 - (Algonquin)
 - **Neeta School fields – *NEW LOCATION***
 - (Upper & Lower Aetna)



LAKES RESTORATION

- **RECAP 2025 ACTIVITY IN LAKES RESTORATION**
 - **DAM INSPECTIONS**
 - BALLINGER (FAIR – Minor Maintenance)
 - WAGUSH LEVEE (FAIR – Action TBD) **COST \$6,735.00**
 - SIOUX (GOOD)
 - **NEW SPILLWAY**
 - ALGONQUIN **COST \$22,000 + DESIGN \$2,621.60**
 - **SPILLWAY REPAIRS**
 - MEESHAWAY – **First One - \$9,061.00**
 - KAWASEA - **\$8,450.00**
 - MUSHKADOSA - **\$8,450.00**
 - SIQUITISE - **\$8,450.00**
 - PESHEEKEE - **\$8,032.00**
 - ASHSHEEKAN - **\$8,032.00**
 - MIKONOK - **\$7,822.00**
 - MIGAZEE - **\$7,822.00**
 - WABISSI - **\$7,822.00**

LAKES RESTORATION

New Spillway
Design & Build
Meeshaway
2024



LAKES RESTORATION

New Spillway
Design & Build
Meeshaway
2024



LAKE RESTORATION

New Spillway
Design & Build
Ashsheekan
2025



LAKES RESTORATION

New Spillway





LAKES RESTORATION

POWER CENTERS (power; meter; outlet; compressor)

- **SIOUX Trail** at Tontonova Trail
- **CHEYENNE Trail** between Migazee and Sitting Bull Trail
(Two Lakes)
- **MUDJEKEEWIS Trail** between Narragansett and Makosa T
- **MIGAZEE Trail** between Askoran and Paupukkeewis Trails
(Two Lakes)
- **MOHAWK Trail** at Kawasea Trail (walkway crossover)
- **MISHEMOKWA Trail** between Sitting Bull and Wagush
- **MISHEMOKWA Trail** between Kihade and Algonquin Trails
- **HIAWATHA Trail** between Setauket and Algonquin Trails
- **HIAWATHA Trail** (dead end) off Algonquin Trail
(Two Lakes)
- **McKENDIMEN Trail** near the Country Club pump house
- **McKENDIMEN Trail** across from Seneca Trail

LAKES RESTORATION

Power Center
&
Aerator
Compressor
Wabissi
2024





LAKES RESTORATION

AERATORS – BY LAKE

- SIOUX (5)
- MIKONOK (4) and PESHEKEE (3)
- ASHSHEEKAN (3) and WAUWAUSKASHE (not deployed yet)
- MIGAZEE (4) and WABISSI (3)
- KAWASEA (3)
- MUSHKADOSA (5)
- WAGUSH (3)
- ALGONQUIN (2)
- BALLINGER (5) and WAGUSH LEVEE (1)
- UPPER MIRROR (3)
- MIDDLE MIRROR (3) and LOWER MIRROR (3)

ULTRASOUND ALGAE KILLERS

- SIOUX Lake
- MIKONOK Lake



LAKES RESTORATION

- **PLAN FOR 2026 FOR LAKES RESTORATION**

- **POWER CENTERS**

- WAGUSH LEVEE
- BALLINGER LAGOON
- MOHAWK FIRE ROAD

- **AERATOR INSTALLATIONS**

- ALGONQUIN – add fountain or bubbler
- BALLINGER LAGOON*

- **CIRCULATORS**

- WAGUSH LEVEE*
- MEESHAWAY COVE*

*If, and it's a big if, we have power available



LAKES RESTORATION

2026 PLAN FOR LAKES RESTORATION

- WAGUSH TRAIL DRAINAGE PIPE REPLACEMENT
- WAUWAUSKASHE FLOOD PREVENTION BARRIER
- BIO-REMEDIATION INSTALLATIONS
 - EVALUATION OF THREE PRODUCTS
 - TARGET LAKES FOR POD PRODUCTS
 - *SIoux*
 - *WABISSI*
 - *PESHEEKEE*
 - TARGET LAKES FOR SPRAYING
 - *MIKONOK*
 - *MUSHKADOSA*
 - *BALLINGER*



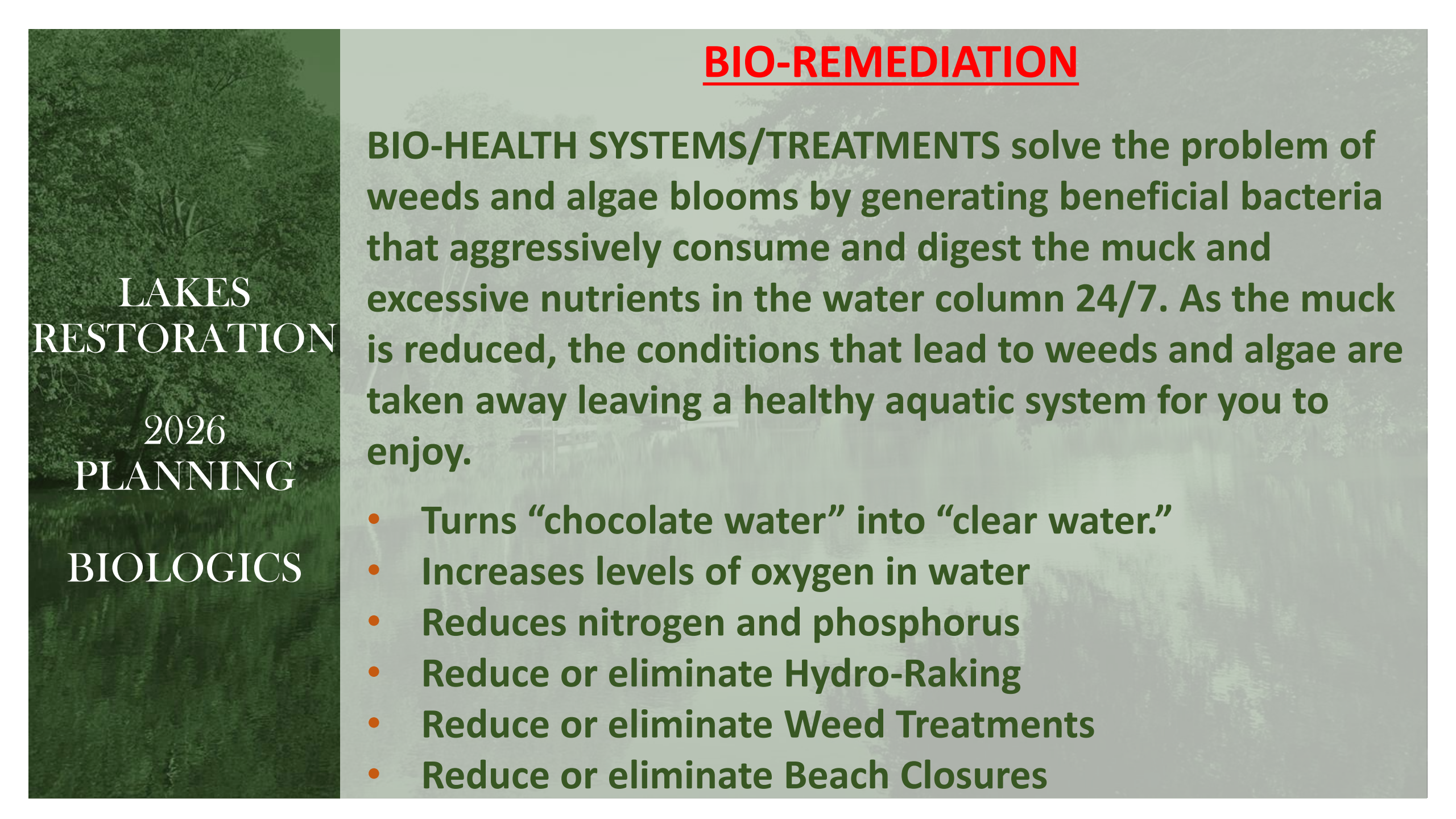
LAKES RESTORATION

2026
PLANNING

BIOLOGICS

BIO-REMEDIATION

- *Program postponed in 2025 – not quite ready!*
- Locations to be determined
 - **Smaller Lakes**
 - **Lakes with limited Hydro-Rake access**
 - **Contained area**
 - **Measurable results**
 - **Limited initial investment**
- Some products require either a tank or pod, and/or something in the water
- Some products require a larger upfront investment in equipment, but potential lower recurring costs
- All require Annual Maintenance or Replenishment



LAKES RESTORATION

2026
PLANNING

BIOLOGICS

BIO-REMEDIATION

BIO-HEALTH SYSTEMS/TREATMENTS solve the problem of weeds and algae blooms by generating beneficial bacteria that aggressively consume and digest the muck and excessive nutrients in the water column 24/7. As the muck is reduced, the conditions that lead to weeds and algae are taken away leaving a healthy aquatic system for you to enjoy.

- Turns “chocolate water” into “clear water.”
- Increases levels of oxygen in water
- Reduces nitrogen and phosphorus
- Reduce or eliminate Hydro-Raking
- Reduce or eliminate Weed Treatments
- Reduce or eliminate Beach Closures

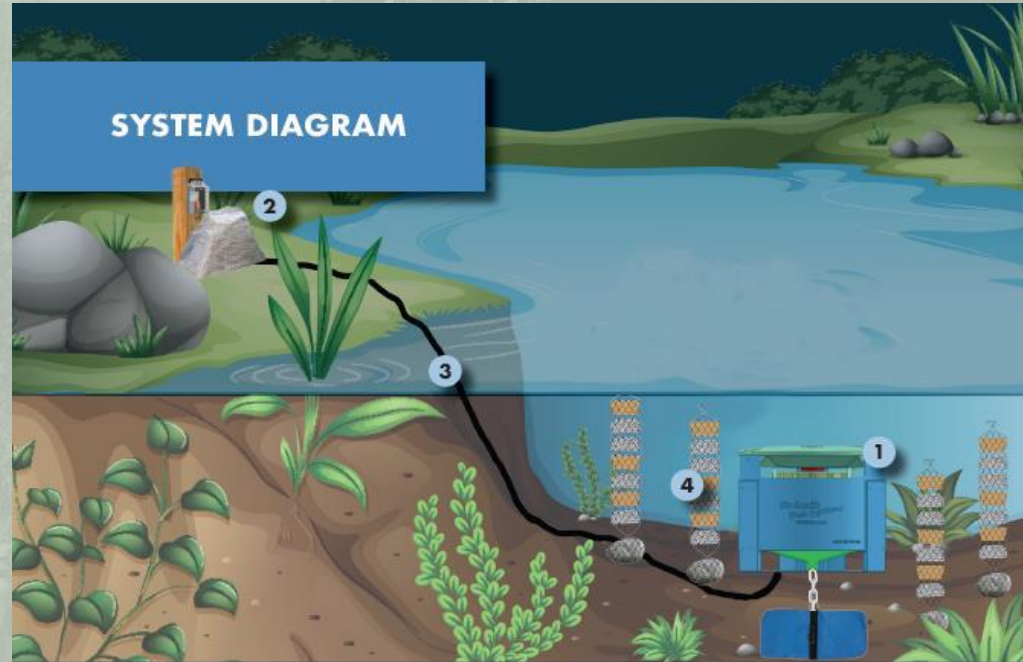
LAKES RESTORATION

2026 PLANNING

BIO-PODS



Pond System



- 1 **BHP:** Find a location where the Bio-Health Pod can project to all areas of the pond. Ideal depth is around 4 to 5 feet.
- 2 **Air Pump:** Locate the Air Pump near the 110 volt outlet that is closest to the BHP. Keep the pump at a high point so it will not get flooded in the event of a large storm. The pump is covered with the faux rock.
- 3 **Weighted Air Hose:** When running the hose to the Bio-Health Pod it is important to keep it away from deeper water. Deep water will significantly reduce air flow and system performance resulting in increased wear and tear on the pump. The recommended depth is less than 5 ½ foot of water.
- 4 **Nano Pods:** Place one Nano Pod every 25 feet around the edge of the pond. Distance from the edge is determined by depth. The ideal depth for the Nano Pods is between 2 ½ to 3 ½ feet. If the pond is shallow, Nano Pods can be shortened. In ponds that are wide, additional Nano Pods may be necessary for the center of the pond.

LAKES RESTORATION

2026
PLANNING

BIO -
TREATMENTS

TRI-MARINE THROUGH SOLitude

As fertilizers, septic waste, stormwater runoff, and other organic pollutants enter waterbodies, they settle at the bottom turning into slimy decaying muck. This consumes oxygen and disrupts the natural mechanisms that keep the water clean. TryMarine targets excess nutrients or “muck” stuck at the bottom to help restore water quality, improve sediment composition, enhance biodiversity, and turn back the clock, rejuvenating your lake.





LAKES
RESTORATION

2026
PLANNING

BIO –
TANKS + PODS

BIO-GENERATOR using BIO-ZYME BY TRM BIO-LOGICS

The Bio-Generator is the bacteria incubation station. It consists of a large tank where the Bio-Zyme product is added. An aerator in the tank variously agitates the bacteria multiplying it millions of times. A timer signals a pump to release the augmented bacteria product into the water body at precise intervals.

LAKES RESTORATION

2026
PLANNING
BIO-ZYME



LAKES
RESTORATION

2026-2027
PLANNING
&
ACTION

**SPRINGTIME MANUAL CLEANING
MOVE FORWARD FROM HYDRO-RAKING
TO BIOLOGICS**

**MECHANICAL SOLUTIONS
TO MAINTAIN WATER VOLUMES
WATER MANAGEMENT & DRAINAGE**

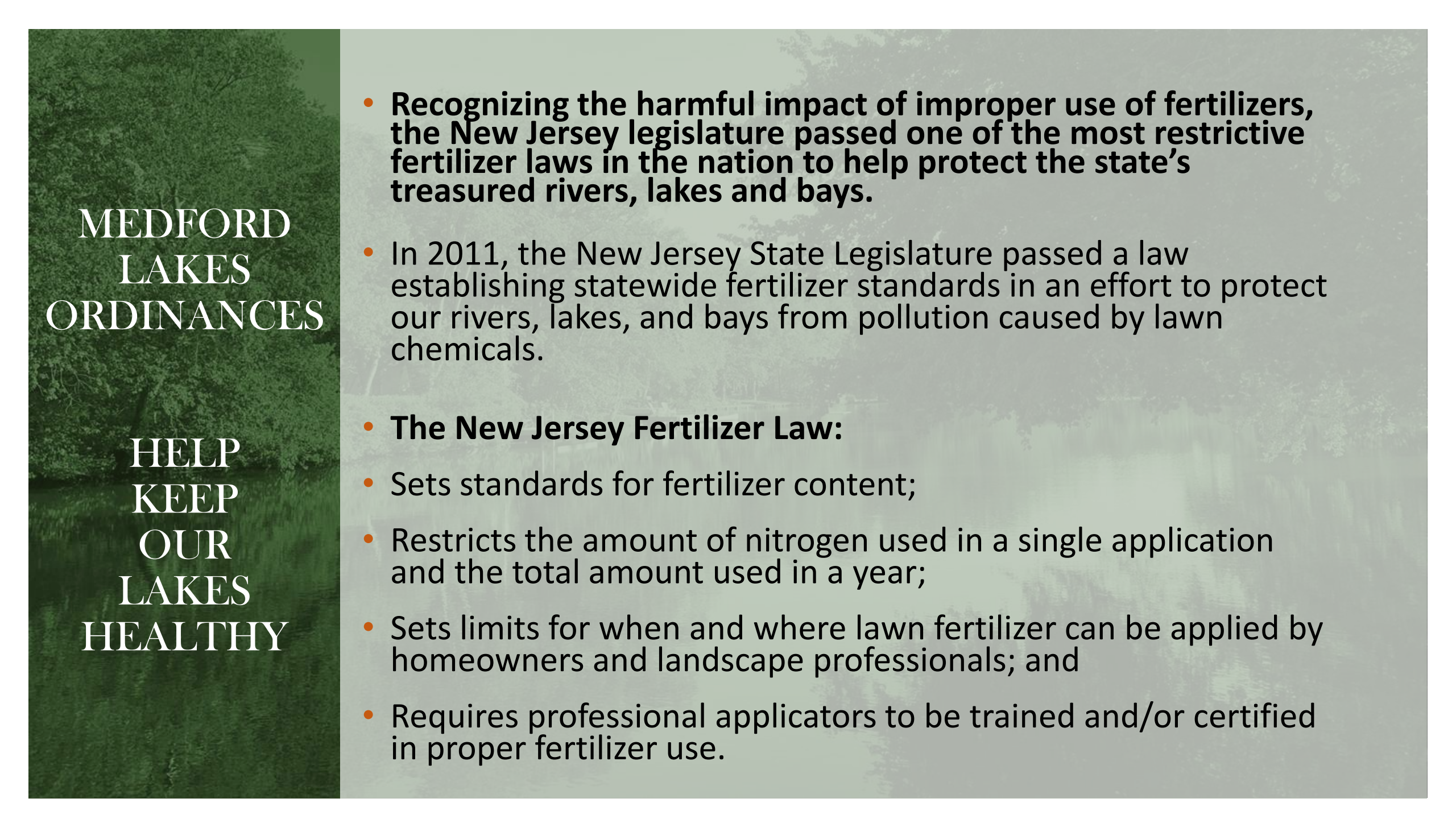
**ON-GOING AND FUTURE NJDEP
REQUIRED COMPLIANCE**

ORDINANCE ENFORCEMENT

MEDFORD LAKES ORDINANCES

HELP
KEEP
OUR
LAKES
HEALTHY

- **BE AWARE AND DO YOUR PART TO HELP ENFORCE OUR LOCAL ORDINANCES**
- **SITE COVERAGE LIMITATIONS**
- **YOU NEED A PERMIT TO PAVE OR REPAVE YOUR DRIVEWAY**
- **YOU NEED A PERMIT TO CUT DOWN A TREE OVER 4" TRUNK**
- **YOUR LANDSCAPER NEEDS A PERMIT TO SPREAD FERTILIZER**
- **IT IS A VIOLATION TO PUT LEAVES OR GRASS CLIPPINGS IN THE LAKE**
- **IT IS A BYLAW VIOLATION TO LEAVE YOUR FLOATS IN THE LAKE**
- **LIMIT USE OF ANY FERTILIZER (ORDINANCE)**
- **LIMIT THE SIZE OF YOUR LAWN**
- **USE PACHYSANDRA AND LOW HEDGES TO DETER GEESE**
- **CUT BACK YOUR TREES AND SHRUBS BY THE EDGE OF THE LAKE**



MEDFORD LAKES ORDINANCES

HELP
KEEP
OUR
LAKES
HEALTHY

- **Recognizing the harmful impact of improper use of fertilizers, the New Jersey legislature passed one of the most restrictive fertilizer laws in the nation to help protect the state's treasured rivers, lakes and bays.**
- In 2011, the New Jersey State Legislature passed a law establishing statewide fertilizer standards in an effort to protect our rivers, lakes, and bays from pollution caused by lawn chemicals.
- **The New Jersey Fertilizer Law:**
- Sets standards for fertilizer content;
- Restricts the amount of nitrogen used in a single application and the total amount used in a year;
- Sets limits for when and where lawn fertilizer can be applied by homeowners and landscape professionals; and
- Requires professional applicators to be trained and/or certified in proper fertilizer use.



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