

Lake St. Charles Midge

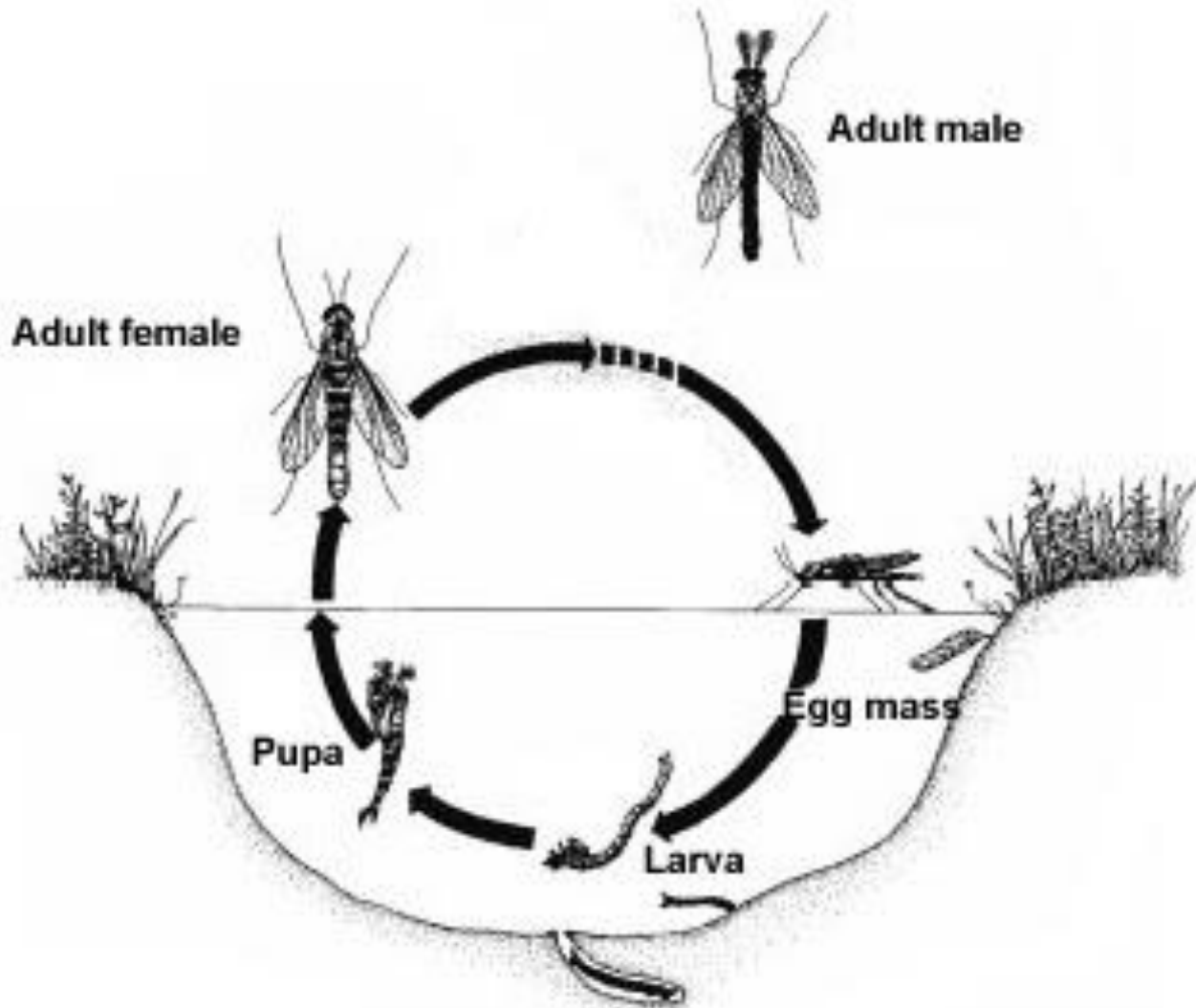
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Everything a Lake Should Be



Bathymetric Mapping

Provides a detailed contour map of the entire benthos.

Multiple (potentially thousands) depths.

Determines actual volume of lake as well as locates any deep holes.

Cost: \$830.00

Dissolved Oxygen Test

A Dissolved Oxygen test is important to determine if the site is stratified and needs aeration.

Stratification- A separation into layers within the water column.

No cost to community.

Midge Larvae Sampling



Why Sample?

Properly identify species.

Quantify amount of Larvae. Is it above the 1000/m² threshold?

No cost to community.

Midge Sampling Report

Midge Fly Assessment: South Fork East

Sample Location	Number of Larvae per m ²
15	1218
16	3348
25	2740
27	2131



Observations

A midge fly assessment was performed at Sites 15, 16, 25 and 27 at South Fork East in order to determine larvae density. In order to avoid nuisance levels, it is recommended that larval counts remain below 1000 larvae/m².

Elevated nutrient levels and anoxic bottom waters are favorable conditions for midge growth in a freshwater system.

It is evident that all four sites are experiencing midge fly densities above the nuisance level. It is recommended that an integrated management plan be implemented in these locations. Bluegill and Redear are two insectivorous sunfish that are commonly used in midge fly control. It is recommended that South Fork East utilize a variety of techniques in midge control including fish stocking, larvicides and setting up light traps to draw swarms away from populated areas.

Further water testing could confirm whether there is a serious water quality issue at hand, causing midge flies to proliferate.

Recommendations

- Aeration
- Light traps
- Fish stocking
- On-going Water Quality Analysis
- Larvicide Treatment

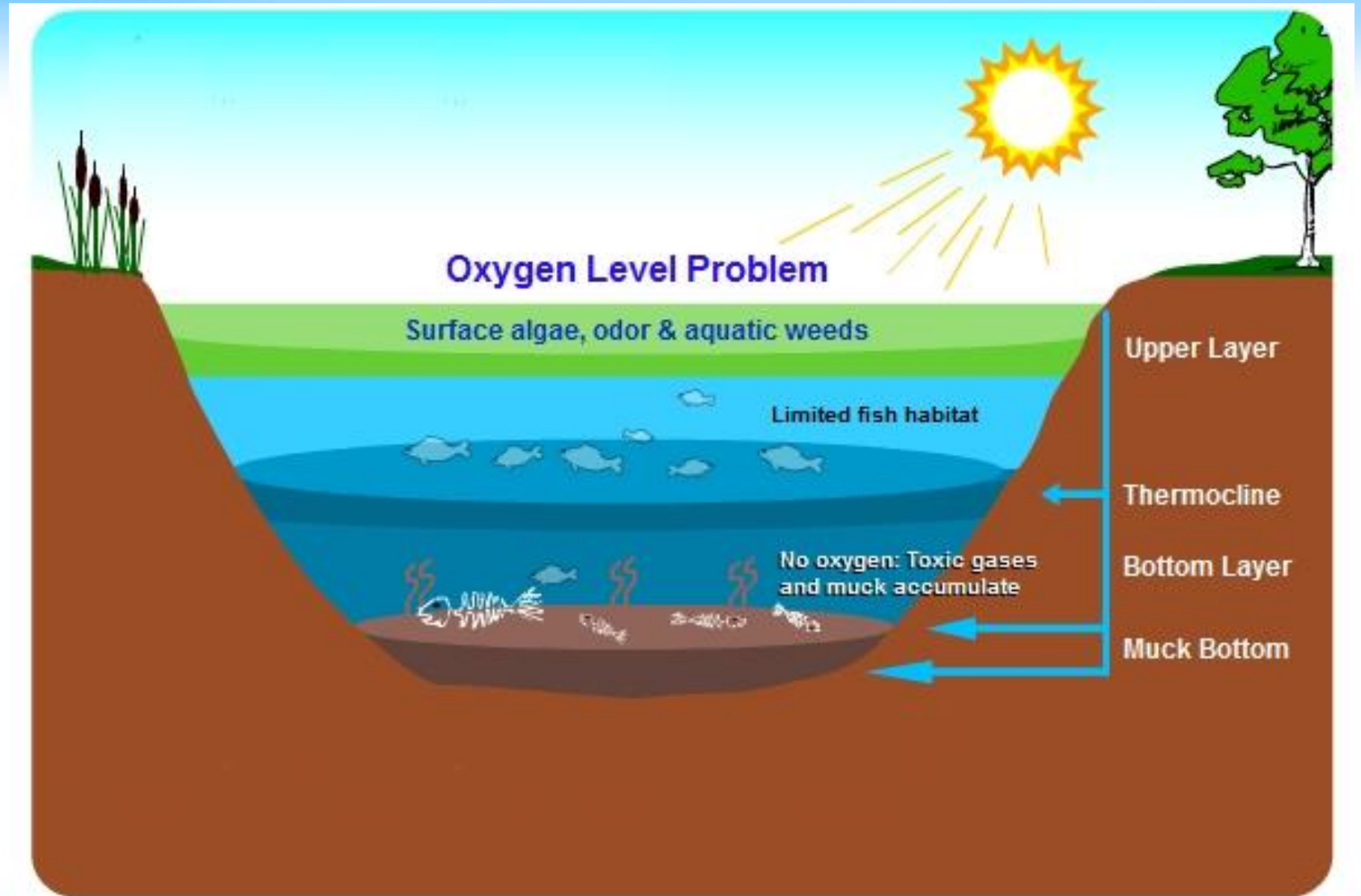
Tilapia Harvesting

- Not native to FL.
- Harvesting Tilapia will allow native fish (Bream & Bass) to thrive.
- Tilapia negatively effect Bream and Bass spawning.
- Overpopulate causing greater risk of fish kills.
- Harvesting is no cost to community.

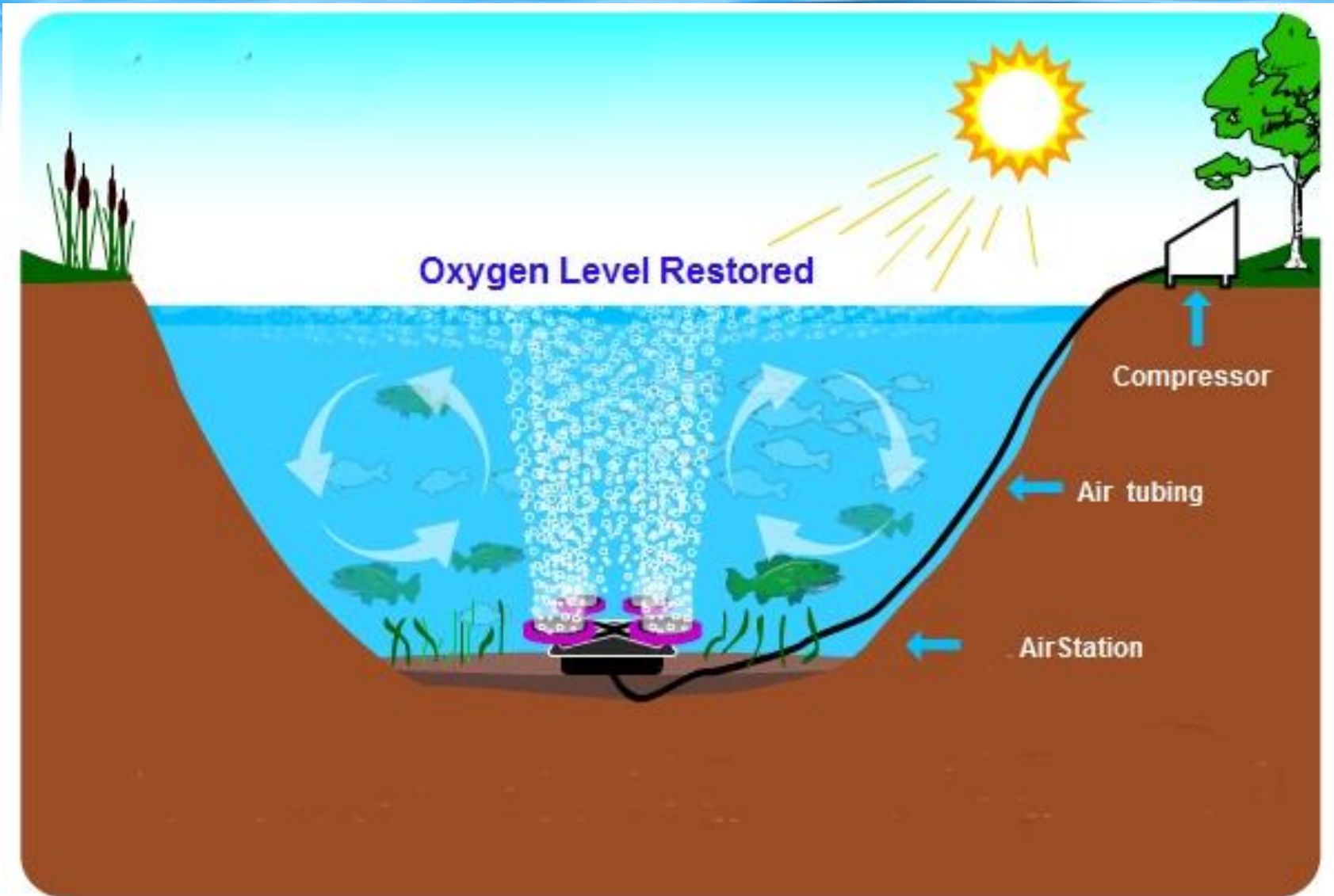
Aeration

A properly aerated site is required to enable predatory fish to get to target.

A healthy oxygenated pond is less prone to Midge infestations. Although some species of Midge Larvae do well in properly aerated environments.



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Aeration Costs

- **Conventional aeration- \$2K – 5K per Acre for aerator.**
- **Solar aeration- ~\$6K per acre**

Stocking Bream as a Biological Control

Blue Gill

Native to Florida

Natural Predator

Feed in water column

Target Phantom Midge's



Stocking Bream as a Biological Control

Redear Sunfish

Native to Florida

Natural Predator

Feed in Benthos (bottom)

Target Blood Midges



Stocking rates

Stock at 500 per Acre.

60-70% Bluegill

30%-40% Redear

Cost for Ponds 9, 14 & LSC is \$9,037.00 (42,185 fish)

Treatment program



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Treat

- Entire body of water needs to be treated.
- Specialized drop hose spray rig is utilized to get product to target.
- Combination of Insect Growth Regulator (IGR) and BTI is used to target different species of Midge Larvae.
- Series of 3-4 applications with 2 weeks intervals between each application.

Cost

Cost is \$390.00 per Acre for a 3 application series and \$520.00 per Acre for a 4 treatment series.

Total annual investment for Ponds 9, 14 & Lake St. Charles is \$76,776.00.

The billing would be \$10,968.00 per treatment.

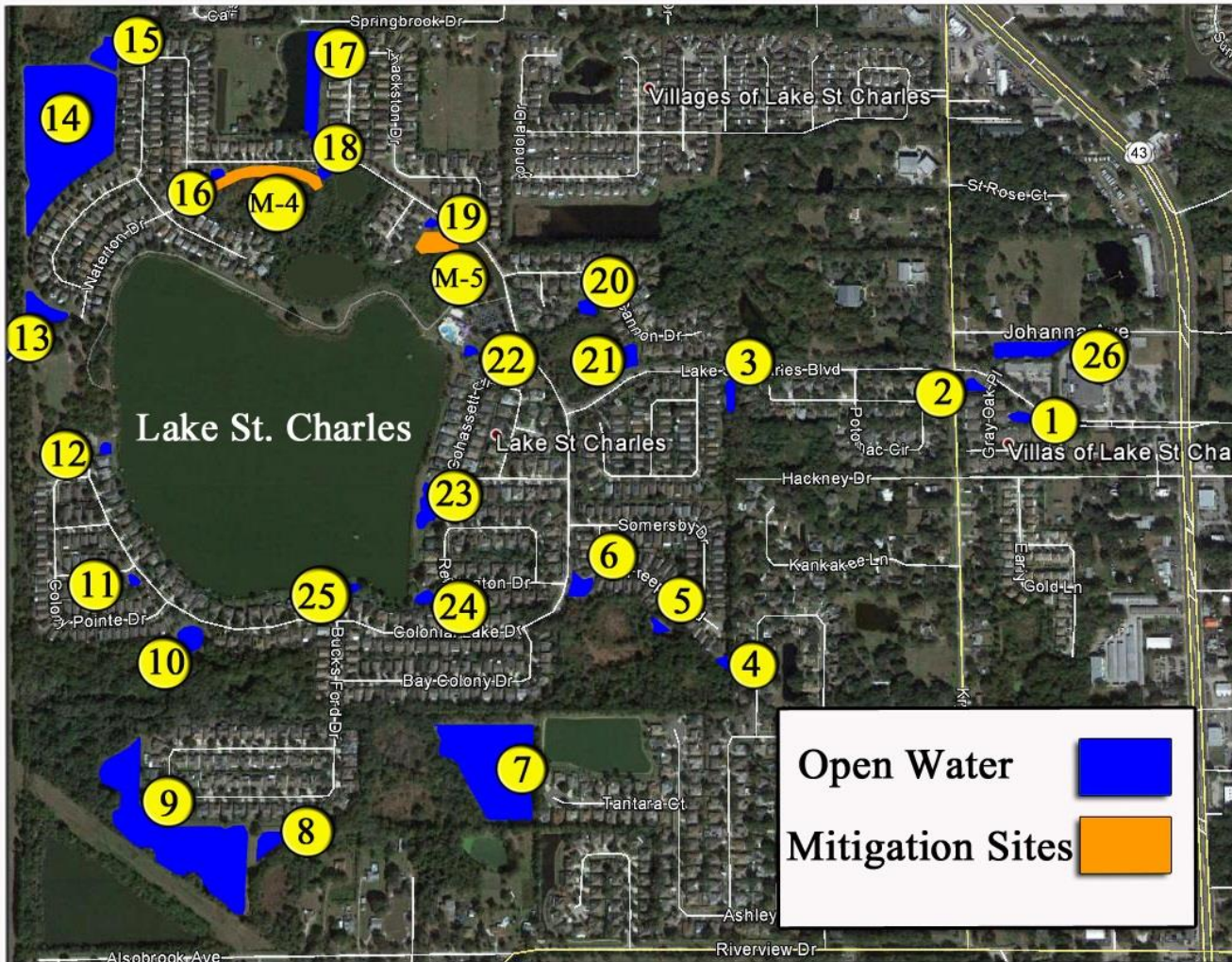
Summary of events

- **Bathymetric Mapping.**
- **Dissolved Oxygen test.**
- **Midge Larvae Sampling.**
- **Tilapia Harvesting.**
- **Potential Aeration.**
- **Bream stocking as a biological control.**
- **Treatment Series.**

ANY
QUESTIONS?



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Open Water	
Mitigation Sites	