Lower Straits Lake
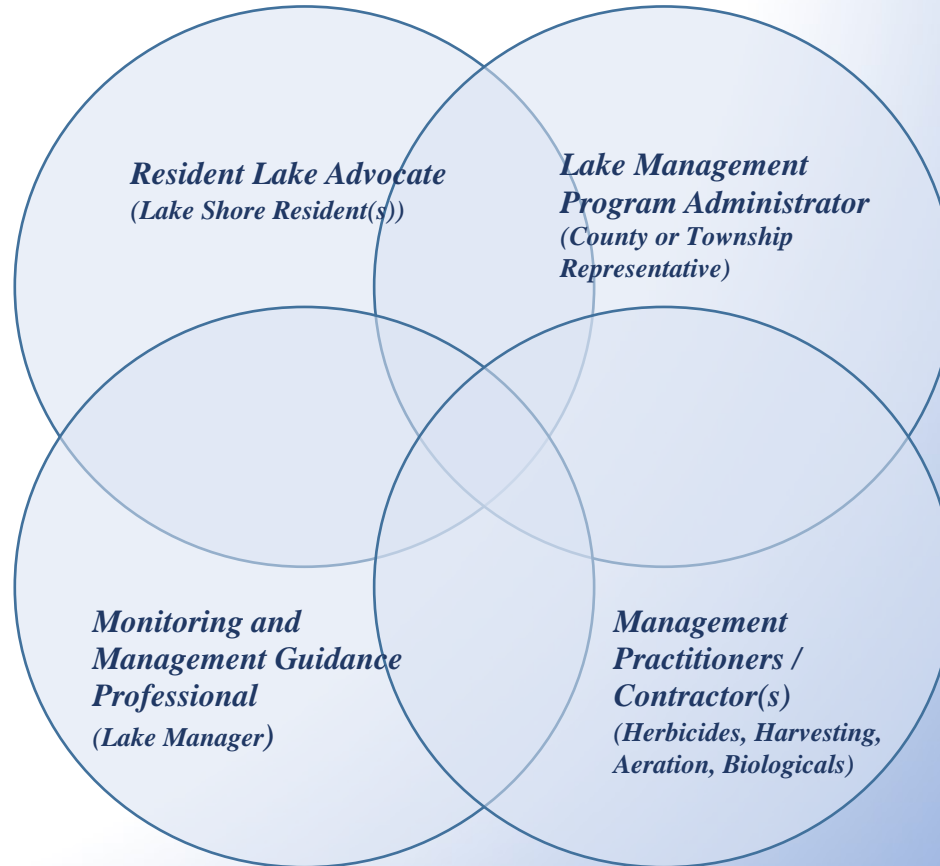
Improvement Program Update

G. Douglas Pullman, Ph.D.
Aquest Corp.

Monitoring and Management Team

Resident Lake Advocate
(Lake Shore Resident(s))

**Lake Management
Program Administrator**
*(County or Township
Representative)*

**Monitoring and
Management Guidance
Professional**
(Lake Manager)

**Management
Practitioners /
Contractor(s)**
*(Herbicides, Harvesting,
Aeration, Biologicals)*

Lower StraitsLake Management Goal

"To preserve, protect, and improve the habitat and biological diversity of the Lower Straits Lake aquatic ecosystem."

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Annual Reports

Lake Condition

Management Recommendations
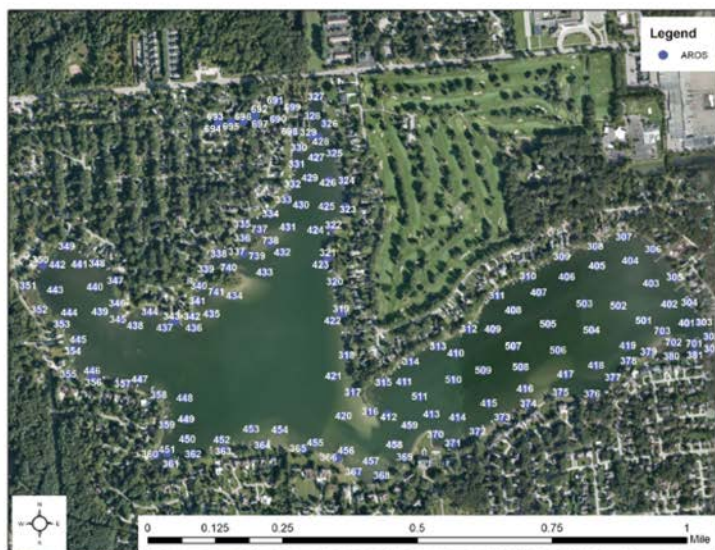
Lower Straits Lake

235 Acres

Oakland County

Commerce Township

T.2N, R.8E Sec. 1, 11, 12

42.582°N 83.460°W
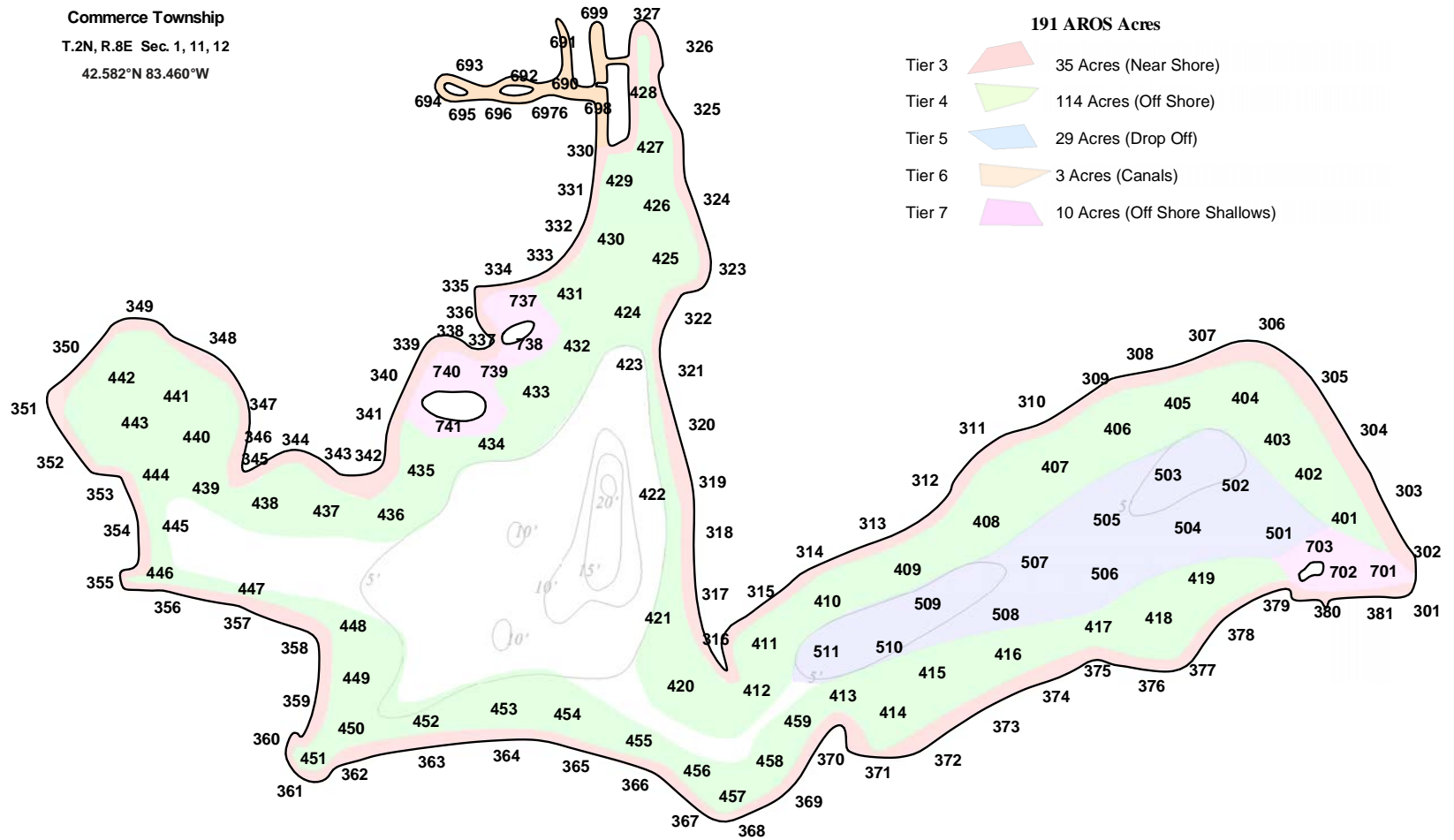
Biological Tiers

191 AROS Acres

Tier		Acres
Tier 3		35 Acres (Near Shore)
Tier 4		114 Acres (Off Shore)
Tier 5		29 Acres (Drop Off)
Tier 6		3 Acres (Canals)
Tier 7		10 Acres (Off Shore Shallows)

Aquatic Vegetation Management Objectives

Acquire Appropriate Data and

Metrics to Measure Success and Failure

~ Establish ~

Ecologically Considered Objectives

and

Aesthetic/Utilitarian Considered Objectives

Lower Straits Lake Condition

LakeScan™ Metric	Score Category	Useful in Describing Conditions For:	2020 Score	2021 Score	Management Goal
Species Richness	Biodiversity	Ecosystem Health	15	16	-
BioD60 T2+ Index	Biodiversity	Ecosystem Health	25	35	50
Morphological Richness	Structural Diversity	Fish Habitat	10	10	-
MorphoD26 Index	Structural Diversity	Fish Habitat	38	35	50
Vegetation Quality Index	Nuisance Condition	Ecosystem Health	43	38	50
PNL Index2	Nuisance Condition	Recreation	3	85	50

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Lower Straits Lake Condition

Year	Species Richness	BioD60 T2+	Morpho. Richness	MorphoD26	Veg. Quality Index	PNL Index2
2021	16	35	10	35	38	85
2020	15	25	10	38	43	3
2019	21	42	13	63	39	17
2018	8	12	7	16	36	3
2017	11	18	9	34	43	5
2016	11	19	8	23	44	83

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Lower Straits Lake
2022
Perceived Nuisance Analysis

% Total AROS Acres	PNL Level	Perceived Nuisance Level Description	Total AROS Acres
5%	PNL 0	No Nuisance	9
95%	PNL 1	Ecological Nuisance	183
0%	PNL 2	Equivocal Nuisance	0
0%	PNL 3	Obvious Nuisance	0

Aquatic Vegetation Management Objectives

Acquire Appropriate Data and

Metrics to Measure Success and Failure

Reduce impact and dominance of invasive species

Increase complexity of structural habitat

Encourage growth of desirable plant species

Lower Straits Lake
Ebrid Milfoil

Lower Straits Lake

Curly Leaf Pondweed

Invasive Species

What Can We Do?

What Are We Allowed to Do?

What Can We Afford?

What is the Best Value Strategy?

Nuisance Plant Management

What Can We Do?

Precisely Target Invasive Species

Sustain or Improve Lake Health Metrics

Sustain Recreational and Property Values

Make Guesses About Next Year

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Aquatic Plant Management

What Are We Allowed to Do?

Permit Policies – Area and Depth Restrictions

Invasive Species Targets

Native Species Protections

Use and Site Restrictions

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Aquatic Plant Management

What Should We Do?

Stewardship

Challenge Misinformation
(Reject Over-Simplification)

Stay Goal Focused

Monitor, Measure, Meaningful Assessments

It's about the Goal!
Not the Tools!

Management Challenges

New Invasive Species (Natives?)

Antagonistic Regulation

Management Agent Resistance

Cost of Products and Services

Lower Straits Lake Management Integrated Approach 2022

Pre-Memorial Day Harvesting

Extend Recreational Use Season

May Help Desirable Species

Selective Herbicide Application

Target Invasive Species Impairments

Help Desirable Species

Stabilize Ecosystem

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Lower Straits Lake Management Integrated Approach 2022

Pre-Memorial Day Harvesting

New for 2022

Can be messy - resident reactions

Evaluate rate of regrowth

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Lower Straits Lake Management Integrated Approach 2022

Selective Herbicide Application

Consider use of a relatively new herbicide

Use newer herbicide combo to improve CLP response

Lower Straits Lake Management Integrated Approach 2022

Monitoring

Look for continued improvements in all LakeScan™ metrics

Evaluate outcome of 2022 integrated management program

Assess lake user perspectives regarding program outcomes

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Lower Straits Lake Management Future

Look for continued improvements in all LakeScan™ metrics

Evaluate outcomes of previous year's management interventions

Assess lake user perspectives regarding program outcomes

Integrate biologicals into program (pending State approvals)

Consider use of new herbicide combos to improve value and impact