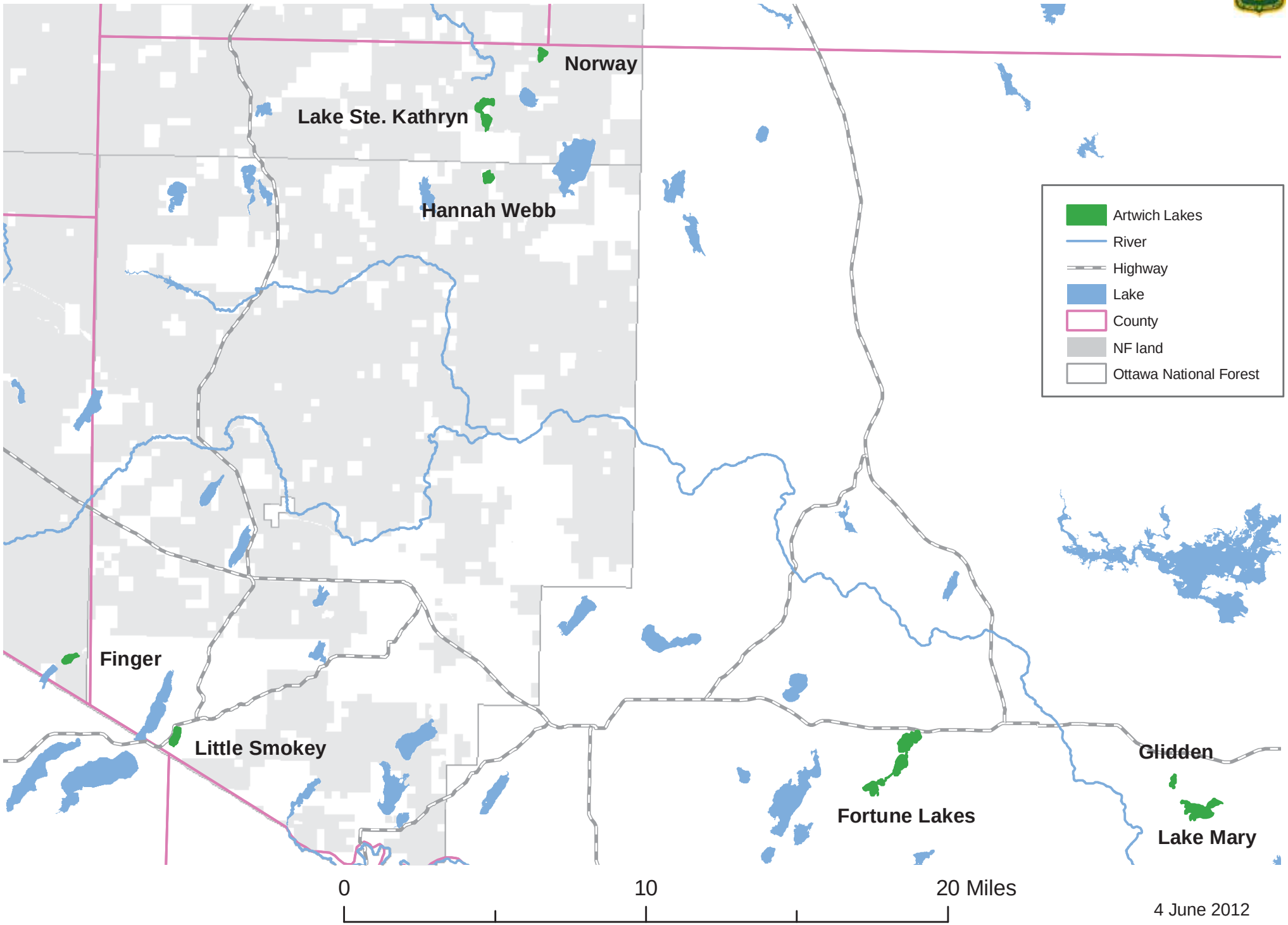
Lake	Area (Acres)	Perimeter (Miles)	County	Township & Range	Section	Date surveyed	Observations
Finger Lake	59.8	1.52	Gogebic	T43NR38W	13	8/27/2012	Low use. Doesn't seem to support much vegetation.
Fortune Lakes (First, Second, & Third Lake)	421.9	9.65	Iron	T43NR33W	27	8/13/2012 & 8/19/2012	Several sites of purple loosestrife. High potential for EWM & zebra mussel.
Glidden Lake	32.2	1.41	Iron	T42NR31W	6	8/19/2012	Low potential for AIS; low, very little vegetation and extra stained water.
Hannah Webb Lake	64.1	1.33	Iron	T46NR35W	30	7/30/2012	Low potential for EWM or CLP; very few large plants in lake, low nutrients.
Lake Mary	272.9	4.98	Iron	T42NR31W	5	8/19/12 & 8/20/12.	High potential for EWM, from adjacent waterbodies.
Lake Sainte Kathryn	165.8	3.57	Iron	T46NR35W	8	9/1/2012	Low-medium potential for AIS. Not much use and small boat usage and no adjacent AIS.
Little Smoky Lake	86.2	1.62	Iron	T43NR37W	33	8/27/2012	Low potential for AIS. Too hard to access and location of campers hinders use.
Norway Lake	51.9	1.27	Iron	T46NR35W	4	9/1/2012	Low potential for EWM or CLP. No AIS adjacent & moderate use.
Total:	**1154.8**	**25.35**					

2012 AIS Lake Survey Contract



4 June 2012

AIS Lake Survey Record

Surveyor(s) Bill Artwick Date 8/27/12 Time on survey 2 hrs

Lake Finger Lake Township ____ N Range ____ W Section ____

Weather Clear skies, low wind, no precip

Boat launch description/condition unimproved, sandy beach, high erosion

Dominant substrate (*circle one*) Mud Sand Rock Gravel (Muck) Debris Unknown Other ____

Present lake level relative to average (*circle one*) (Lower) Higher Average Don't know Very low

Survey area description (also sketch on topo map) GPS Track File Meander

Water color Clear Turbidity Clear

AIS observed *circle* (NONE) *or use lines below*

Species ____ Location (in lake) ____

Abundance ____ GPS ____

Sample taken (*circle one*) Yes No

Species ____ Location (in lake) ____

Abundance ____ GPS ____

Sample taken (*circle one*) Yes No

Species ____ Location (in lake) ____

Abundance ____ GPS ____

Sample taken (*circle one*) Yes No

Vulnerability assessment

Apparent usage of lake (low, medium, high, type) Low, poor road + launch condition

Shoreline development None besides 3 access sites

Connection to other waterbodies No

Potential for AIS establishment (low, medium, high, why, likely invaders) low use + doesn't seem to support much vegetation

Do you think an annual AIS check is needed or could the interval be less frequent? No annual survey

Explain low use + hard access

LAKE FLORA QUICK CHECK CARD

Observer(s) Bill Antwich Date 8/27/12 Time on survey 2 hrs

Lake Finger Lake Township ____ N Range ____ W Section ____ or County Iron

General description of lake (*setting, nutrient level, obvious concerns*):
low nutrients, remote setting undeveloped

Vegetation data- canopy cover (*extent of entire lake occupied by layer*) and species:
Floating leaved plants (>5 %) Emergents (>5 %) Submergents (90 %)

Check which species you see. If you can, assign D far dominant, C for common, O for occasional, T for trace. Circle one if multiple species listed an line.

___ yellow water lily (spatterdock)
___ white water lily
___ water shield
___ bur-reed
___ pondweed: ribbonleaf, largeleaf, floatingleaf, variableleaf, other
___ duckweed
___ water knotweed
___ water starwort
___ _____
___ _____
___ _____
___ _____

___ 3-way sedge
___ sedge (other than 3-way)
___ rush
___ wild rice
___ grass (other than wild rice)
___ arrowhead
___ spikerush
O water horsetail
___ iris
___ cattail
___ wild calla
___ pickerel weed
___ _____
___ _____
___ _____
___ _____

___ chara or nitella
___ watermilfoil : Eurasian, northern variable-leaf, other
___ coontail
___ water buttercup
___ bladderwort
___ elodea (waterweed)
___ pondweed: CLP, robbins, small, claspingleaf, flatstem, other
___ naiad
___ wild celery
O pipewort
___ quillwort (Isoetes)
___ shoregrass (Littorella)
___ water lobelia
___ water bulrush
___ water marigold
___ golden hedgehyssop
___ _____
___ _____
___ _____

Specimens collected? Yes (No) (give to Botany staff)

Water clarity (*circle one*) (Clear) Stained Turbid with sediment Turbid with algae
Dominant substrate (*circle one*) Mud Sand Rock Gravel (Muck) Debris Unknown Other _____
Present lake level relative to average (*circle one*) (Lower) Higher Average Don't know very low
Aquatic flora distribution (*circle one*): (Evenly distributed) Widely scattered Clumped in 1-few locations Nearshore only
INVASIVE SPECIES SEEN EWM CLP (Complete weed form) Other None, Marsh Thistle
Threats/concerns: _____

* No zooplankton found on Tows

AIS Lake Survey Record

Surveyor(s) Bill Artwich Date 8/13 + 8/19 Time on survey 6.5 hrs

Lake Fortune Chain Township ____ N Range ____ W Section ____

Weather Clear skies, Sunny, low wind, no precip, mornings

Boat launch description/condition gravel but deep @ US2 nice cement w/dock @ Bewabic

Dominant substrate (*circle one*) Mud Sand Rock (Gravel) Muck Debris Unknown Other ____

Present lake level relative to average (*circle one*) (Lower) Higher Average Don't know

Survey area description (also sketch on topo map) GPS Track File Meander

Water color Clear Turbidity Clear

AIS observed *circle* **NONE** *or use lines below*

Species Purple Loose Strife Location (in lake) 1st 2nd, both

Abundance patchy to sparse GPS Excel file for all locations

Sample taken (*circle one*) Yes (No)

Species ____ Location (in lake) ____

Abundance ____ GPS ____

Sample taken (*circle one*) Yes No

Species ____ Location (in lake) ____

Abundance ____ GPS ____

Sample taken (*circle one*) Yes No

Vulnerability assessment

Apparent usage of lake (low, medium, (high) type) Fishing + Rec

Shoreline development 1st + 2nd Developed 3rd + 4th little development

Connection to other waterbodies Chain

Potential for AIS establishment (low, medium, (high), why, likely invaders) EWM + Zebra mussels
High Nutrient load + adjacent EWM + zebra mussels

Do you think an annual AIS check is needed or could the interval be less frequent? Yes annual adjacent

Explain AIS and lots of boat Traffic

LAKE FLORA QUICK CHECK CARD

Observer(s) Bill Artwich Date 8/13+ 8/19/12 Time on survey 6.5 hrs

Lake Fortune Chain Township ____ N Range ____ W Section ____ or County Iron

General description of lake (*setting, nutrient level, obvious concerns*):
Campground and heavy fishing & recreational use. Mostly developed on 1st Fortune, 50% developed on 2nd Fortune >5% on third
High nutrient load

Vegetation data- canopy cover (*extent af entire lake occupied by layer*) and species:
Floating leaved plants (>5 %) Emergents (>10 %) Submergents (85 %)

Check which species you see. If yau can, assign D for dominant, C for common, O for accasianal, T for trace. Circle one if multiple species listed on line.

___ yellow water lily (spatterdock)
O white water lily
___ water shield
C bur-reed
O pondweed: ribbonleaf, largeleaf, floatingleaf, variableleaf, other
___ duckweed
___ water knotweed
___ water starwort
___ _____
___ _____
___ _____
___ _____

___ 3-way sedge
___ sedge (other than 3-way)
___ rush
___ wild rice
___ grass (other than wild rice)
___ arrowhead
___ spikerush
___ water horsetail
___ iris
___ cattail
___ wild calla
___ pickerel weed
___ _____
___ _____
___ _____
___ _____

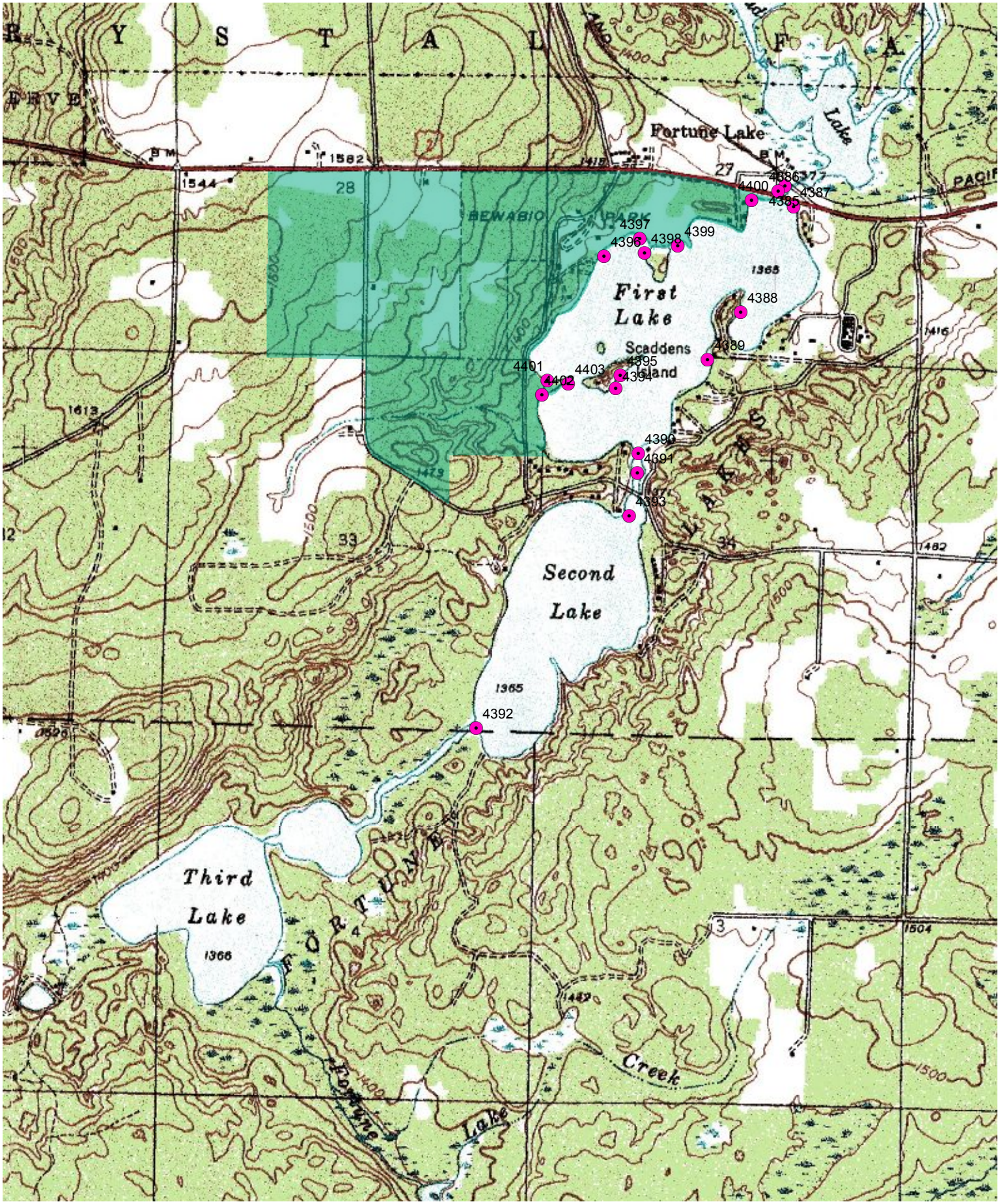
___ chara or nitella
D watermilfoil : Eurasian, northern variable-leaf, other
___ ~~coontail~~
___ water buttercup
C bladderwort
O elodea (waterweed)
___ pondweed: CLP, robbins, small, claspingleaf, flatstem, other
___ naiad
___ wild celery
___ pipewort
___ quillwort (Isoetes)
___ shoregrass (Littorella)
___ water lobelia
___ water bulrush
___ water marigold
___ golden hedgehyssop
___ _____
___ _____
___ _____

Specimens collected? Yes (No) (give to Botany staff)

Water clarity (*circle one*) (Clear) Stained Turbid with sediment Turbid with algae
Dominant substrate (*circle one*) Mud Sand Rock (Gravel) Muck Debris Unknown Other _____
Present lake level relative to average (*circle one*) (Lower) Higher Average Don't know
Aquatic flora distribution (*circle one*): (Evenly distributed) Widely scattered Clumped in 1-few locations Nearshore only
INVASIVE SPECIES SEEN EWM CLP (Complete weed form) Other Purple loosestrife
Threats/concerns: lots of use and adjacent to water bodies with zebra mussels + EWM

* No zooplankton Found on Tows

2012 AIS Lake Survey Contract: Fortune Lakes



Purple loosestrife (Artwich)

State Park

0 0.25 0.5 0.75 1 Miles

5 December 2012

Fortune Chain AIS Survey
Completed by Bill Artwich
8/13/12 and 8/19/12

Waypoint	Weedsite	Lat	Long	Acres	Cover	Count	Notes
FC01	4385	46.09397	-88.41618	0.004	>5	>10	Purple Loosestrife
FC02	4386	46.09378	-88.41656	0.004	>5	>10	Purple Loosestrife, 2 clumps on bank
FC03	4387	46.09319	-88.41569	0.004	>5	>10	Purple Loosestrife on shore
FC04	4388	46.08905	-88.41853	0.200	>5	>100	Purple Loosestrife throughout little bay
FC05	4389	46.08717	-88.42033	0.004	>5	1	Purple Loosestrife in yard
FC06	4390	46.08349	-88.42410	0.200	>5	>50	Purple Loosestrife on both sides of channel
FC07	4391	46.08274	-88.42413	0.200	>5	>50	50 yd area of shore with purple loosestrife mixed in
FC08	4392	46.07270	-88.43287	0.004	>5	>10	Small Patch of Purple Loosestrife
FC09	4393	46.08106	-88.42455	0.100	>5	>10	30 yd area of Purple Loosestrife
FC10	4394	46.08600	-88.42544	0.004	>5	>10	Small clump of Purple Loosestrife
FC11	4395	46.08651	-88.42518	0.004	25	>50	Small but dense clump of Purple Loosestrife
FC12	4396	46.09113	-88.42621	0.004	>5	>10	Purple Loosestrife mixed with cattail
FC13	4397	46.09183	-88.42422	0.004	>5	>10	Purple Loosestrife on shore
FC14	4398	46.09128	-88.42397	0.004	>5	>10	Purple Loosestrife on shore
FC15	4399	46.09159	-88.42210	0.004	>5	>10	Purple Loosestrife on shore
FC16	4400	46.09340	-88.41803	0.200	>5	>50	Purple Loosestrife on shore, some along US-2 as well
FC17	4401	46.08627	-88.42925	0.004	>5	1	Purple Loosestrife, one plant
FC18	4402	46.08569	-88.42953	0.004	>5	>10	Purple Loosestrife
FC19	4403	46.08615	-88.42809	0.004	>5	>10	Purple Loosestrife

AIS Lake Survey Record

Surveyor(s) Bill Artwick Date 8/19/12 Time on survey 1 hr

Lake Glidden Lake Township ____ N Range ____ W Section ____

Weather clear skies, low wind, no precip

Boat launch description/condition gravel launch but deep & easy to use

Dominant substrate (*circle one*) Mud Sand Rock Gravel Muck Debris Unknown Other ____

Present lake level relative to average (*circle one*) Lower Higher Average Don't know

Survey area description (also sketch on topo map) GPS Track. meander survey

Water color very stained Turbidity Slight

AIS observed *circle* **NONE** *or use lines below*

Species ____ Location (in lake) ____

Abundance ____ GPS ____

Sample taken (*circle one*) Yes No

Species ____ Location (in lake) ____

Abundance ____ GPS ____

Sample taken (*circle one*) Yes No

Species ____ Location (in lake) ____

Abundance ____ GPS ____

Sample taken (*circle one*) Yes No

Vulnerability assessment

Apparent usage of lake (low, medium, high, type) low

Shoreline development None except for campground

Connection to other waterbodies No

Potential for AIS establishment (low, medium, high, why, likely invaders) low, very little vegetation and extreme stained water

Do you think an annual AIS check is needed or could the interval be less frequent? No

Explain little use + very little aquatic vegetation

LAKE FLORA QUICK CHECK CARD

Observer(s) Bill Artwich Date 8/19/12 Time on survey 1 hr

Lake Glidden Lake Township ____ N Range ____ W Section ____ or County Iron

General description of lake (*setting, nutrient level, obvious concerns*):
Campground. Lake recieves very little use. Not much vegitation and very stained water

Vegetation data- canopy cover (*extent of entire lake occupied by layer*) and species:
Floating leaved plants (60 %) Emergents (30 %) Submergents (<10 %)

Check which species you see. If you con, ossign D for dominont, C for common, O for occosional, T for trace. Circle one if multiple species listed on line.

___ yellow water lily (spatterdock)
___ white water lily
D water shield
D bur-reed
___ pondweed: ribbonleaf, largeleaf, floatingleaf, variableleaf, other
___ duckweed
___ water knotweed
___ water starwort
___ _____
___ _____
___ _____
___ _____

___ 3-way sedge
___ sedge (other than 3-way)
___ rush
___ wild rice
___ grass (other than wild rice)
___ arrowhead
___ spikerush
C water horsetail
___ iris
___ cattail
___ wild calla
___ pickerel weed
___ _____
___ _____
___ _____
___ _____

___ chara or nitella
___ watermilfoil : Eurasian, northern variable-leaf, other
___ coontail
___ water buttercup
___ bladderwort
___ elodea (waterweed)
___ pondweed: CLP, robbins, small, claspingleaf, flatstem, other
___ naiad
___ wild celery
___ pipewort
___ quillwort (Isoetes)
___ shoregrass (Littorella)
___ water lobelia
___ water bulrush
___ water marigold
___ golden hedgehyssop
___ _____
___ _____
___ _____

Specimens collected? Yes (No) (give to Botany staff)

Water clarity (*circle one*) Clear (Stained) Turbid with sediment Turbid with algae Very Stained
Dominant substrate (*circle one*) Mud Sand Rock Gravel (Muck) Debris Unknown Other _____
Present lake level relative to average (*circle one*) (Lower) Higher Average Don't know
Aquatic flora distribution (*circle one*): Evenly distributed Widely scattered Clumped in 1-few locations (Nearshore only)
INVASIVE SPECIES SEEN EWM CLP (Complete weed form) Other None
Threats/concerns: _____

* No zooplankton found on Tows

AIS Lake Survey Record

Surveyor(s) Bill Artwick Date 7/30/12 Time on survey 2.5 hrs

Lake Harrett Web Township ____ N Range ____ W Section ____

Weather Clear Skies, low winds, high sun, afternoon survey

Boat launch description/condition gravel, very shallow hard to use, large rocks

Dominant substrate (*circle one*) Mud Sand Rock Gravel Muck Debris Unknown Other ____

Present lake level relative to average (*circle one*) Lower Higher Average Don't know Very low

Survey area description (also sketch on topo map) GPS Map Meander

Water color Clear Turbidity Clear

AIS observed *circle* **NONE** *or use lines below*

Species ____ Location (in lake) ____

Abundance ____ GPS ____

Sample taken (*circle one*) Yes No

Species ____ Location (in lake) ____

Abundance ____ GPS ____

Sample taken (*circle one*) Yes No

Species ____ Location (in lake) ____

Abundance ____ GPS ____

Sample taken (*circle one*) Yes No

Vulnerability assessment

Apparent usage of lake (low, medium, high, type) low, hard to launch

Shoreline development About 50% or less

Connection to other waterbodies No

Potential for AIS establishment (low, medium, high, why, likely invaders) EWM or CLP very few large plants, low nutrients

Do you think an annual AIS check is needed or could the interval be less frequent? No, annual check

Explain not nessary, low use from water level, no adjacent AIS

LAKE FLORA QUICK CHECK CARD

Observer(s) Bill Artwick Date _____ Time on survey 2.5 hrs

Lake Hannah Web Township ____ N Range ____ W Section ____ or County Iron

General description of lake (*setting, nutrient level, obvious concerns*):
largely underdeveloped, medium nutrient load. Boat launch is extremely shallow + hard to use

Vegetation data- canopy cover (*extent of entire lake occupied by layer*) and species:
Floating leaved plants (>5 %) Emergents (>5 %) Submergents (90 %)

Check which species you see. If you can, assign D for dominant, C for common, O for occasional, T for trace. Circle one if multiple species listed on line.

___ yellow water lily (spatterdock)
___ white water lily
___ water shield
___ bur-reed
___ pondweed: ribbonleaf, largeleaf, floatingleaf, variableleaf, other
___ duckweed
___ water knotweed
___ water starwort
___ _____
___ _____
___ _____
___ _____

___ 3-way sedge
___ sedge (other than 3-way)
___ rush
___ wild rice
___ grass (other than wild rice)
___ arrowhead
___ spikerush
___ water horsetail
___ iris
___ cattail
___ wild calla
___ pickerel weed
___ _____
___ _____
___ _____
___ _____

___ chara or nitella
___ watermilfoil : Eurasian, northern variable-leaf, other
___ coontail
___ water buttercup
___ bladderwort
___ elodea (waterweed)
___ pondweed: CLP, robbins, small, claspingleaf, flatstem, other
___ naiad
___ wild celery
___ pipewort
___ quillwort (Isoetes)
___ shoregrass (Littorella)
___ water lobelia
___ water bulrush
___ water marigold
___ golden hedgehyssop
D Dwarf milfoil
___ _____
___ _____

Specimens collected? Yes (No) (give to Botany staff)

Water clarity (*circle one*) (Clear) Stained Turbid with sediment Turbid with algae
Dominant substrate (*circle one*) (Mud) Sand Rock Gravel Muck Debris Unknown Other _____
Present lake level relative to average (*circle one*) (Lower) Higher Average Don't know
Aquatic flora distribution (*circle one*): (Evenly distributed) Widely scattered Clumped in 1-few locations Nearshore only
INVASIVE SPECIES SEEN EWM CLP (Complete weed form) Other None
Threats/concerns: _____

* No zooplankton found on Tows

AIS Lake Survey Record

Surveyor(s) Bill Artwich Date 8/19 + 8/20 Time on survey 4 hrs

Lake Lake Mary Township ____ N Range ____ W Section ____

Weather Clear Skies, low wind + no precip.

Boat launch description/condition Nice developed launch with cement pads + dock

Dominant substrate (*circle one*) Mud Sand Rock (Gravel) Muck Debris Unknown Other ____

Present lake level relative to average (*circle one*) (Lower) Higher Average Don't know

Survey area description (also sketch on topo map) GPS Track

Water color Clear Turbidity Clear

AIS observed *circle* (**NONE**) *or use lines below*

Species ____ Location (in lake) ____

Abundance ____ GPS ____

Sample taken (*circle one*) Yes No

Species ____ Location (in lake) ____

Abundance ____ GPS ____

Sample taken (*circle one*) Yes No

Species ____ Location (in lake) ____

Abundance ____ GPS ____

Sample taken (*circle one*) Yes No

Vulnerability assessment

Apparent usage of lake (low, medium, high, type) High – Fishing + Recreational Boating

Shoreline development Development almost around whole lake

Connection to other waterbodies ____

Potential for AIS establishment (low, medium, high, why, likely invaders) High, EWM from adjacent water bodies

Do you think an annual AIS check is needed or could the interval be less frequent? It would be good

Explain if it could be monitored annually

LAKE FLORA QUICK CHECK CARD

Observer(s) Bill Artwich Date 8/19 & 8/20/12 Time on survey 5H hrs

Lake Lake Mary Township ____ N Range ____ W Section ____ or County Iron

General description of lake (*setting, nutrient level, obvious concerns*):
Busy Campground and active fishing + Boating activity

Vegetation data- canopy cover (*extent of entire lake occupied by layer*) and species:
Floating leaved plants (>10 %) Emergents (20 %) Submergents (70 %)

Check which species you see. If you can, assign D for dominant, C for common, O for occasional, T for trace. Circle one if multiple species listed on line.

___ yellow water lily (spatterdock)
___ white water lily
___ water shield
___ bur-reed
D pondweed: ribbonleaf, largeleaf, floatingleaf, variableleaf, other
___ duckweed
___ water knotweed
___ water starwort
___ _____
___ _____
___ _____
___ _____

___ 3-way sedge
___ sedge (other than 3-way)
___ rush
___ wild rice
___ grass (other than wild rice)
___ arrowhead
___ spikerush
___ water horsetail
___ iris
O cattail
___ wild calla
___ pickerel weed
___ _____
___ _____
___ _____
___ _____

___ chara or nitella
___ watermilfoil : Eurasian, northern variable-leaf, other
___ coontail
___ water buttercup
___ bladderwort
___ elodea (waterweed)
D pondweed: CLP, robbins, small, claspingleaf, flatstem, other
___ naiad
___ wild celery
___ pipewort
___ quillwort (Isoetes)
___ shoregrass (Littorella)
___ water lobelia
O water bulrush
___ water marigold
___ golden hedgehyssop
___ _____
___ _____
___ _____

Specimens collected? Yes (No) (give to Botany staff)

Water clarity (*circle one*) (Clear) Stained Turbid with sediment Turbid with algae
Dominant substrate (*circle one*) Mud Sand Rock (Gravel) Muck Debris Unknown Other Muck covered Bays
Present lake level relative to average (*circle one*) (Lower) Higher Average Don't know
Aquatic flora distribution (*circle one*): (Evenly distributed) Widely scattered Clumped in 1-few locations Nearshore only
INVASIVE SPECIES SEEN EWM CLP (Complete weed form) Other None
Threats/concerns: EWM is in waterways in adjacent area

* No zooplankton found on Tows

AIS Lake Survey Record

Surveyor(s) Bill Artwick Date 9/1/12 Time on survey 3 hrs

Lake St. Kathryn Township ____ N Range ____ W Section ____

Weather Clear skies, sunny, low winds, no precip 45°F

Boat launch description/condition grave launch, deep + easy to use

Dominant substrate (*circle one*) Mud Sand Rock Gravel Muck Debris Unknown Other ____

Present lake level relative to average (*circle one*) Lower Higher Average Don't know

Survey area description (also sketch on topo map) GPS Track, meander

Water color Clear Turbidity slight

AIS observed *circle* **NONE** *or use lines below*

Species ____ Location (in lake) ____

Abundance ____ GPS ____

Sample taken (*circle one*) Yes No

Species ____ Location (in lake) ____

Abundance ____ GPS ____

Sample taken (*circle one*) Yes No

Species ____ Location (in lake) ____

Abundance ____ GPS ____

Sample taken (*circle one*) Yes No

Vulnerability assessment

Apparent usage of lake (low, medium, high, type) medium, campground was full but only 1 motor boat

Shoreline development 2 small cabins + campground

Connection to other waterbodies NO

Potential for AIS establishment (low, medium, high, why, likely invaders) Not much use and small boat usage and No adjacent AIS

Do you think an annual AIS check is needed or could the interval be less frequent? Every other year

Explain ____

LAKE FLORA QUICK CHECK CARD

Observer(s) Bill Artwich Date 9/1/12 Time on survey 3 hrs

Lake St. Kathryn Township ____ N Range ____ W Section ____ or County Iron

General description of lake (*setting, nutrient level, obvious concerns*):
F.S. Campground was full, soft sediment with lots of vegetation and large mud flats

Vegetation data- canopy cover (*extent of entire lake occupied by layer*) and species:
Floating leaved plants (>2 %) Emergents (>15 %) Submergents (40 %)

Check which species you see. If you can, assign D for dominant, C for common, O for occasional, T for trace. Circle one if multiple species listed on line.

___ yellow water lily (spatterdock)
___ white water lily
___ water shield
C bur-reed
D pondweed: ribbonleaf, largeleaf, floatingleaf, variableleaf, other
___ duckweed
___ water knotweed
___ water starwort
___ ____
___ ____
___ ____
___ ____

___ 3-way sedge
___ sedge (other than 3-way)
___ rush
T wild rice
___ grass (other than wild rice)
___ arrowhead
___ spikerush
O water horsetail
___ iris
O cattail
___ wild calla
___ pickerel weed
___ ____
___ ____
___ ____
___ ____

___ chara or nitella
___ watermilfoil: Eurasian, northern variable-leaf, other
___ coontail
___ water buttercup
D bladderwort
___ elodea (waterweed)
C pondweed: CLP, robbins, small, claspingleaf, flatstem, other
___ naiad
C wild celery
___ pipewort
___ quillwort (Isoetes)
___ shoregrass (Littorella)
___ water lobelia
___ water bulrush
___ water marigold
___ golden hedgehyssop
___ ____
___ ____
___ ____

Specimens collected? Yes (No) (give to Botany staff)

Water clarity (*circle one*) (Clear) Stained Turbid with sediment Turbid with algae slight stain but clear
Dominant substrate (*circle one*) (Mud) Sand Rock Gravel Muck Debris Unknown Other ____
Present lake level relative to average (*circle one*) (Lower) Higher Average Don't know
Aquatic flora distribution (*circle one*): Evenly distributed (Widely scattered) Clumped in 1-few locations Nearshore only
INVASIVE SPECIES SEEN EWM CLP (Complete weed form) Other None
Threats/concerns: Campground had one large motor boat and very few others, others were canoes + kayaks

* No zooplankton found on tows

AIS Lake Survey Record

Surveyor(s) Bill Artwich Date 8/27/12 Time on survey 2 hrs

Lake Little Smokey Lake Township ____ N Range ____ W Section ____

Weather Clear skies, low wind, no precip Fog quickly burned off

Boat launch description/condition sand/gravel very shallow difficult to use

Dominant substrate (*circle one*) Mud Sand Rock Gravel Muck Debris Unknown Other ____

Present lake level relative to average (*circle one*) Lower Higher Average Don't know Very low

Survey area description (also sketch on topo map) GPS Track File Meander

Water color clear Turbidity Clear

AIS observed *circle* **NONE** *or use lines below*

Species ____ Location (in lake) ____

Abundance ____ GPS ____

Sample taken (*circle one*) Yes No

Species ____ Location (in lake) ____

Abundance ____ GPS ____

Sample taken (*circle one*) Yes No

Species ____ Location (in lake) ____

Abundance ____ GPS ____

Sample taken (*circle one*) Yes No

Vulnerability assessment

Apparent usage of lake (low, medium, high, type) low, no boats & campground

Shoreline development 25% developed, most of lake has been subdivided

Connection to other waterbodies No

Potential for AIS establishment (low, medium, high, why, likely invaders) Too hard to access and location of Campers hinders use

Do you think an annual AIS check is needed or could the interval be less frequent? No annual

Explain check, low use, 14ft boat was very difficult to launch

LAKE FLORA QUICK CHECK CARD

Observer(s) Bill Artwich Date 8/27/12 Time on survey 2 hrs

Lake Little Smoky Lake Township ____ N Range ____ W Section ____ or County Iron

General description of lake (*setting, nutrient level, obvious concerns*):
Campground on lake but very poor boat launch & low lake levels. & mainly undeveloped at this point

Vegetation data- canopy cover (*extent of entire lake occupied by layer*) and species:
Floating leaved plants (>5 %) Emergents (>10 %) Submergents (85 %)

Check which species you see. If you can, assign D for dominant, C for common, O for occasional, T for trace. Circle one if multiple species listed on line.

___ yellow water lily (spatterdock)
___ white water lily
___ ~~water~~ shield
C bur-reed
___ pondweed: ribbonleaf, largeleaf, floatingleaf, variableleaf, other
___ duckweed
___ water knotweed
___ water starwort
___ _____
___ _____
___ _____
___ _____

___ 3-way sedge
___ sedge (other than 3-way)
___ rush
___ wild rice
___ grass (other than wild rice)
___ arrowhead
___ spikerush
O water horsetail
___ iris
___ cattail
___ wild calla
___ pickerel weed
___ _____
___ _____
___ _____
___ _____

___ chara or nitella
___ watermilfoil : Eurasian, northern variable-leaf, other
___ coontail
___ water buttercup
O bladderwort
___ elodea (waterweed)
___ pondweed: CLP, robbins, small, claspingleaf, flatstem, other
___ naiad
___ wild celery
___ pipewort
___ quillwort (Isoetes)
___ shoregrass (Littorella)
___ water lobelia
___ water bulrush
___ water marigold
___ golden hedgehyssop
___ _____
___ _____
___ _____

Specimens collected? Yes (No) (give to Botany staff)

Water clarity (*circle one*) (Clear) Stained Turbid with sediment Turbid with algae
Dominant substrate (*circle one*) Mud (Sand) Rock Gravel Muck Debris Unknown Other _____
Present lake level relative to average (*circle one*) (Lower) Higher Average Don't know
Aquatic flora distribution (*circle one*): (Evenly distributed) Widely scattered Clumped in 1-few locations Nearshore only
INVASIVE SPECIES SEEN EWM CLP (Complete weed form) Other None
Threats/concerns: Campground

* No zooplankton found on Tows

AIS Lake Survey Record

Surveyor(s) Bill Artwich Date 9/1/12 Time on survey 1.75 hrs

Lake Norway Lake Township ____ N Range ____ W Section ____

Weather Clear skies, no wind, fog burned off quickly

Boat launch description/condition gravel launch ~~very shallow~~ + hard to use

Dominant substrate (*circle one*) Mud Sand Rock Gravel Muck Debris Unknown Other ____

Present lake level relative to average (*circle one*) Lower Higher Average Don't know

Survey area description (also sketch on topo map) GPS Track, meander

Water color Clear Turbidity slight

AIS observed *circle* **NONE** *or use lines below*

Species ____ Location (in lake) ____

Abundance ____ GPS ____

Sample taken (*circle one*) Yes No

Species ____ Location (in lake) ____

Abundance ____ GPS ____

Sample taken (*circle one*) Yes No

Species ____ Location (in lake) ____

Abundance ____ GPS ____

Sample taken (*circle one*) Yes No

Vulnerability assessment

Apparent usage of lake (low, medium, high, type) medium, people camping but few boats

Shoreline development ~~[illegible]~~ + campground

Connection to other waterbodies No

Potential for AIS establishment (low, medium, high, why, likely invaders) ~~[illegible]~~ Low, EWM, CLP
No AIS adjacent + moderate use

Do you think an annual AIS check is needed or could the interval be less frequent? ~~Every other year~~

Explain ~~would work for here~~ No, no need for annual survey

LAKE FLORA QUICK CHECK CARD

Observer(s) Bill Artwich Date 9/1/12 Time on survey 1.75 hrs

Lake Norway Lake Township ____ N Range ____ W Section ____ or County ____

General description of lake (*setting, nutrient level, abvious cancerns*):
Quiet lake with F.S. Campground, medium nutrient load
Launch was very shallow. There was a dense carpet
of dwarf milfoil

Vegetation data- canopy cover (*extent of entire lake occupied by layer*) and species:
Floating leaved plants (>2 %) Emergents (>2 %) Submergents (95 %)

Check which species you see. If you can, assign D far daminant, C for camman, O for occasional, T far trace. Circle one if multiple species listed on line.

___ yellow water lily (spatterdock)
___ white water lily
___ water shield
C bur-reed
___ pondweed: ribbonleaf, largeleaf, floatingleaf, variableleaf, other
___ duckweed
___ water knotweed
___ water starwort
___ ____
___ ____
___ ____
___ ____

___ 3-way sedge
___ sedge (other than 3-way)
___ rush
___ wild rice
___ grass (other than wild rice)
___ arrowhead
___ spikerush
___ water horsetail
___ iris
___ cattail
___ wild calla
___ pickerel weed
___ ____
___ ____
___ ____
___ ____

___ chara or nitella
___ watermilfoil : Eurasian, northern variable-leaf, other
___ coontail
___ water buttercup
___ bladderwort
___ elodea (waterweed)
___ pondweed: CLP, robbins, small, claspingleaf, flatstem, other
___ naiad
___ wild celery
___ pipewort
___ quillwort (Isoetes)
___ shoregrass (Littorella)
___ water lobelia
___ water bulrush
___ water marigold
___ golden hedgehyssop
___ Dwarf watermilfoil
___ ____
___ ____

Specimens collected? Yes (No) (give to Botany staff)

Water clarity (*circle ane*) (Clear) Stained Turbid with sediment Turbid with algae
Dominant substrate (*circle ane*) Mud (Sand) Rock Gravel Muck Debris Unknown Other Mainly S
Present lake level relative to average (*circle one*) (Lower) Higher Average Don't know
Aquatic flora distribution (*circle one*): (Evenly distributed) Widely scattered Clumped in 1-few locations Nearshore only
INVASIVE SPECIES SEEN EWM CLP (Complete weed form) Other None
Threats/concerns: ____

* No zooplankton found on Tows