Ham Lake

Towards a Common Understanding of Ham Lake

Why Plan:

1. Lakes Don’t Manage Themselves

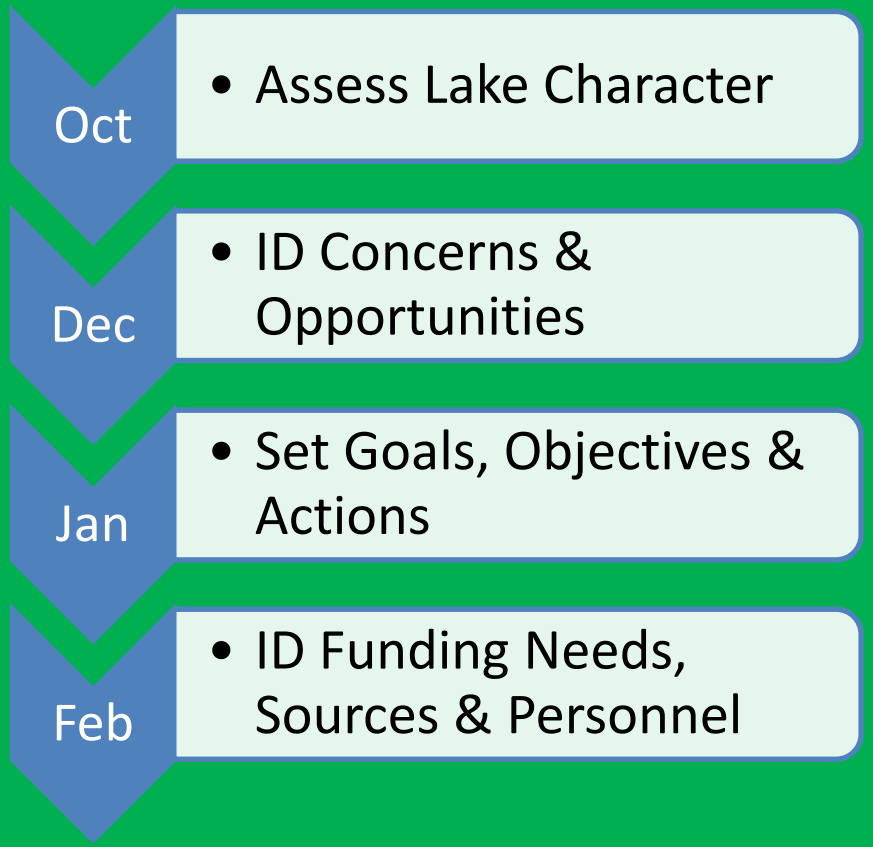
2. Ham Lake has some Problems & Opportunities

Planning Goals and Process

Goals

1. Facilitate a common understanding of the lake, how it works and the roles and goals of people and organizations involved with Lake Management
2. Identify concerns the lake users and agencies feel are important and need to be addressed
3. Set realistic goals, objectives and actions
4. Identify needed funds and personnel

Process



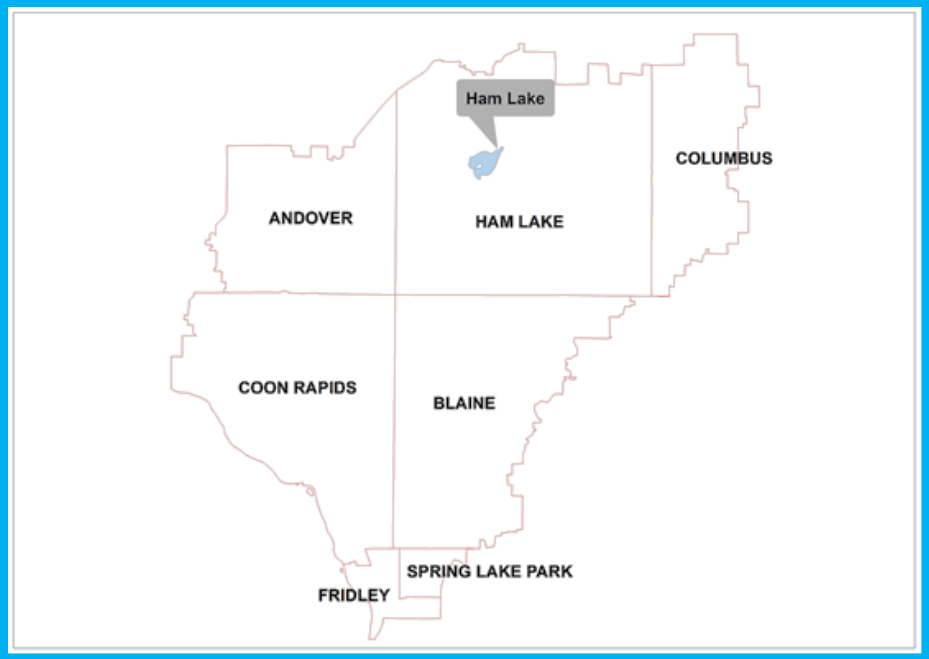
Step 1: Towards a Common Understanding of the Lake

Physical Characteristics

Geographic Characteristics of Ham Lake

1. Location
2. Landscape Setting
3. Soils & Slope
4. Lake Characteristics

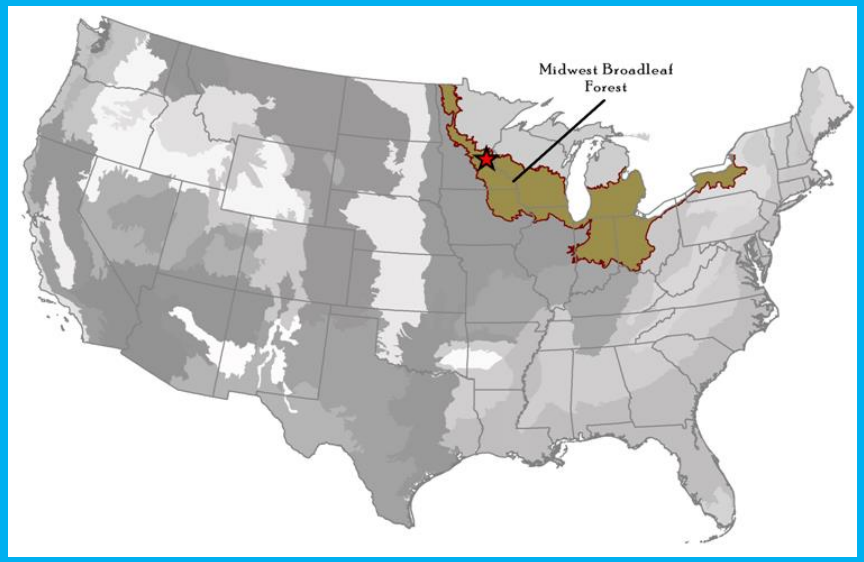
1. Location of Ham Lake



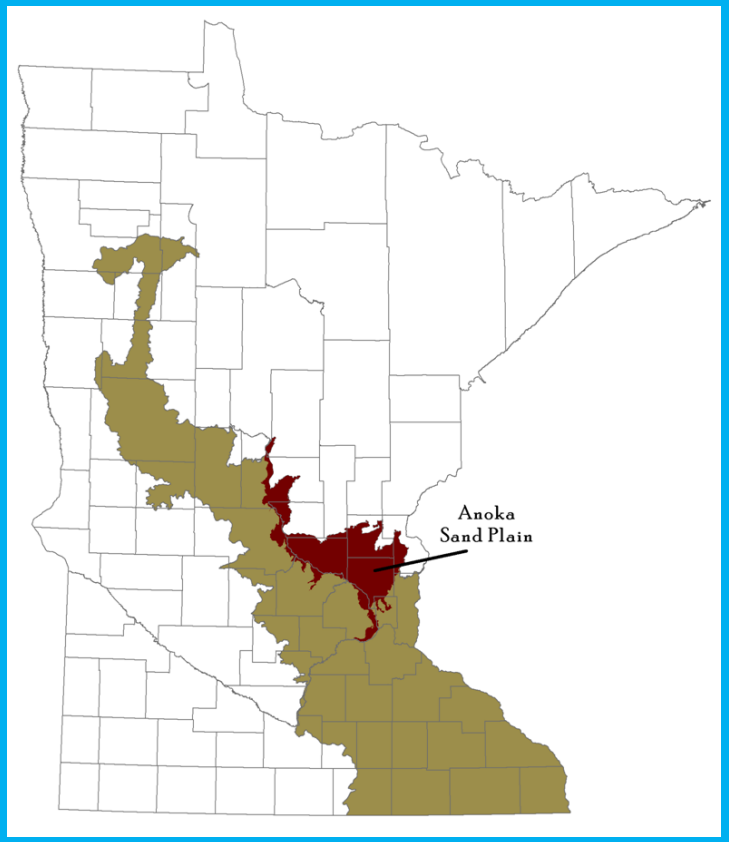
- Located in the central portion of Anoka County, approx. 25 miles North of the Minneapolis/St. Paul area.
- Lake is wholly contained within the City of Ham Lake and the Coon Creek Watershed District
- Designated as **Public Water 02-0053-00** by the Minnesota Department of Natural Resources (MNDNR).

2. Landscape Setting

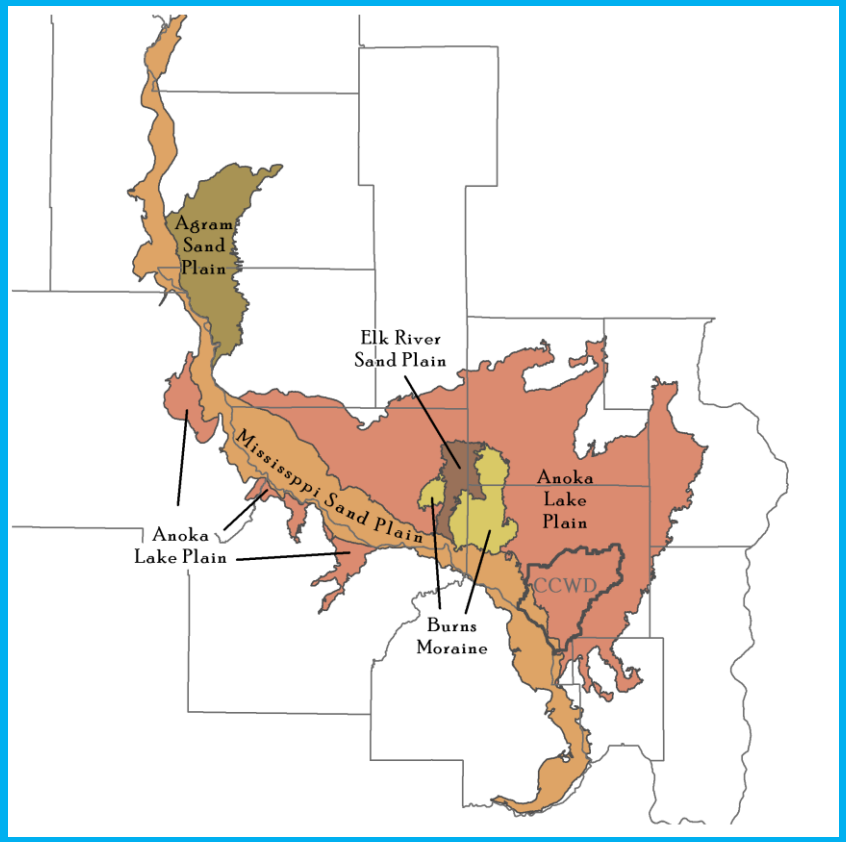
Midwest Broadleaf Forest



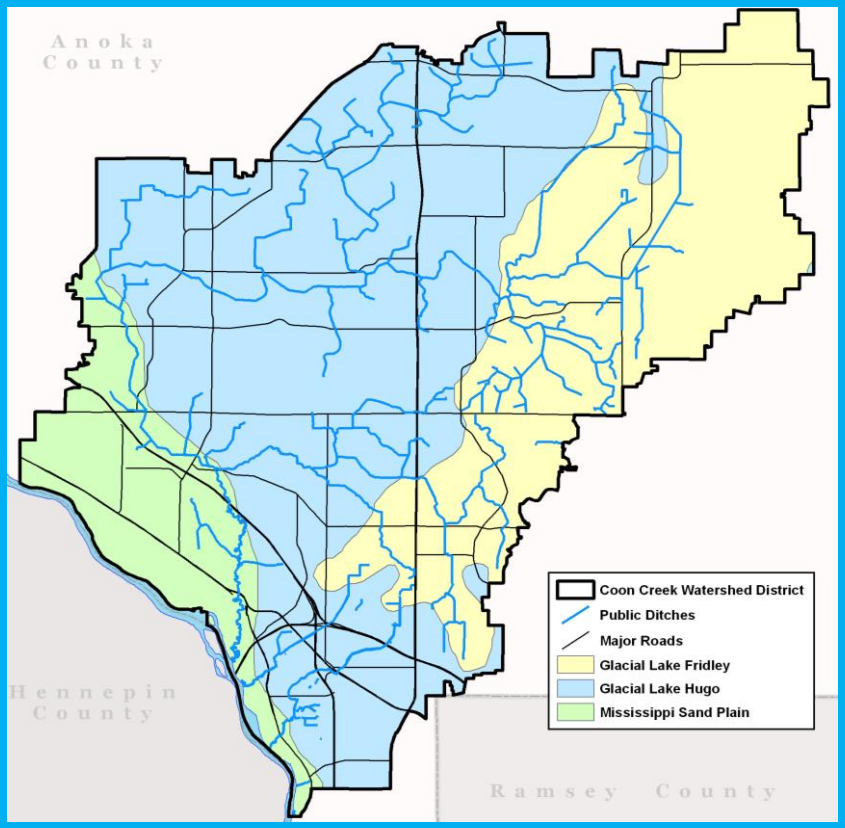
Subsection - Anoka Sand Plain



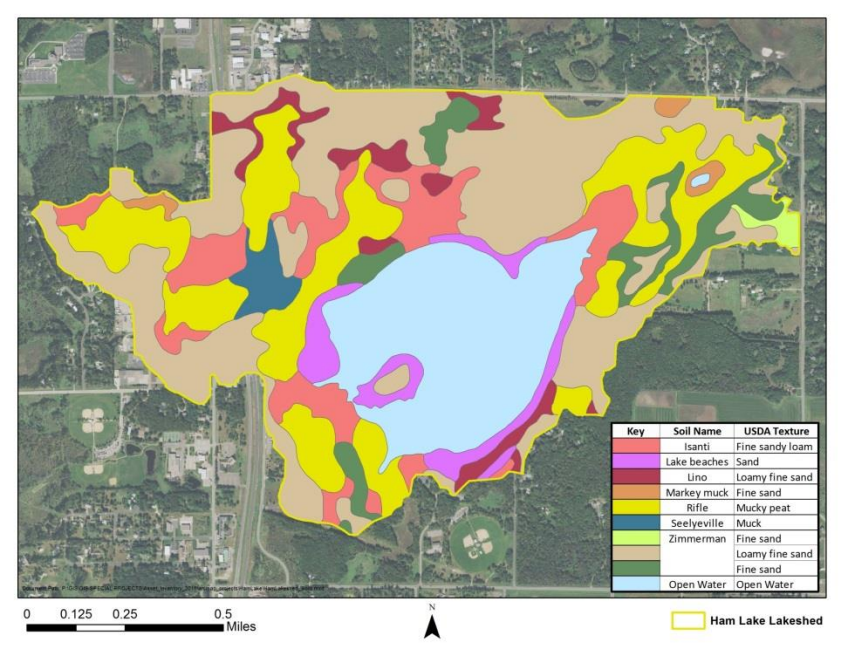
Land Type Association: Anoka Lake Plain



Land Types

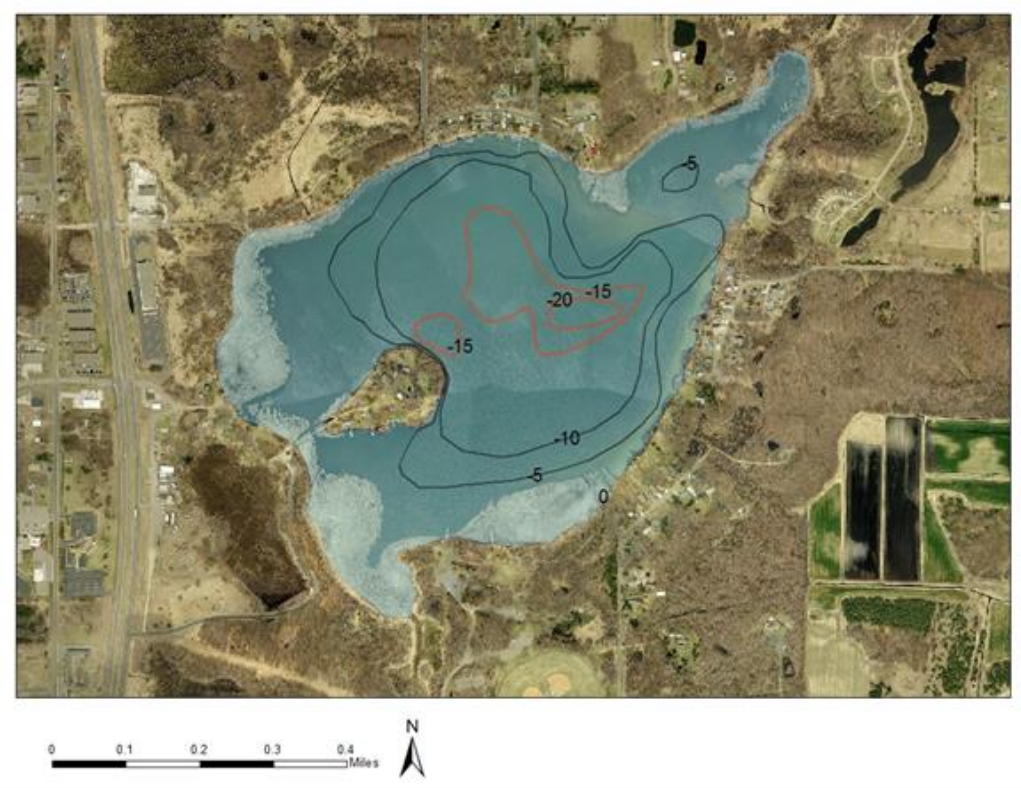


3. Soils and Slopes



- Glacial Lake Hugo geomorphic land type
- Undulating sand plain of rolling dunes and small flats in the upland, and low-lying depressions and flats.
- Elevation range from 930 to 840ft feet above sea level
- Average slope of 0.95%.
- 75% of soils are very well drained.

4. Lake Characteristics



- Surface Area = 206 Ac
- Average Depth = 6.6 ft
- Max Depth = 22 ft
- Volume = 1,353 ac-ft
  - 440,846,637 Gallons
- Littoral Zone = 191 Ac
  - 92% of Lake
- Shore Length = 3.4 mi

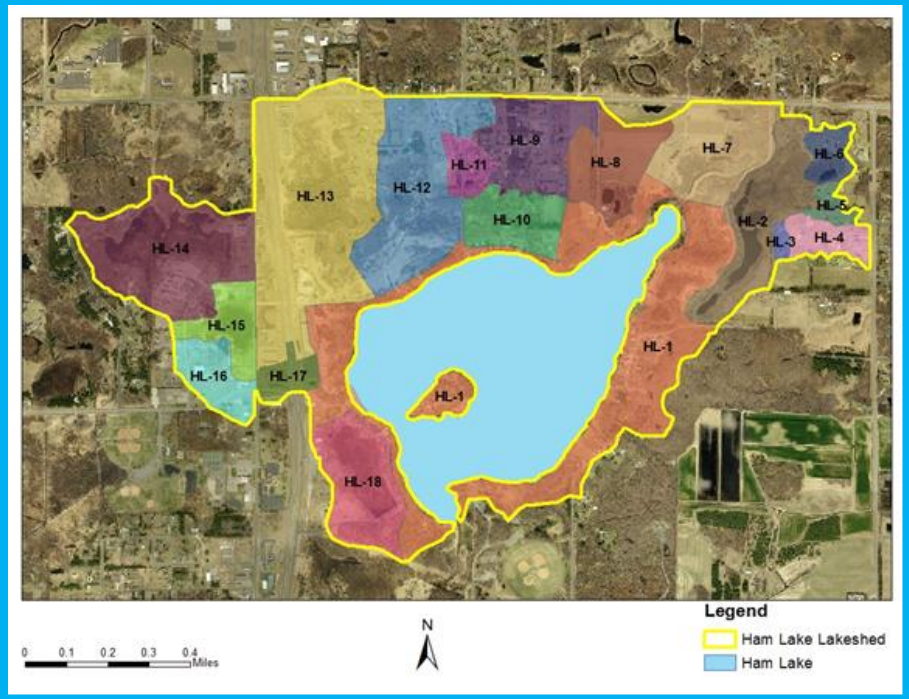
5. Substrate

- **Generally Sandy**
- **Small areas of muck & detritus**

Hydrological Characteristics

1. Watershed Boundary
2. Water Source
3. Water Courses and Surface Water Delivery to the Lake
4. Lake Outlet
5. Lake Water Levels

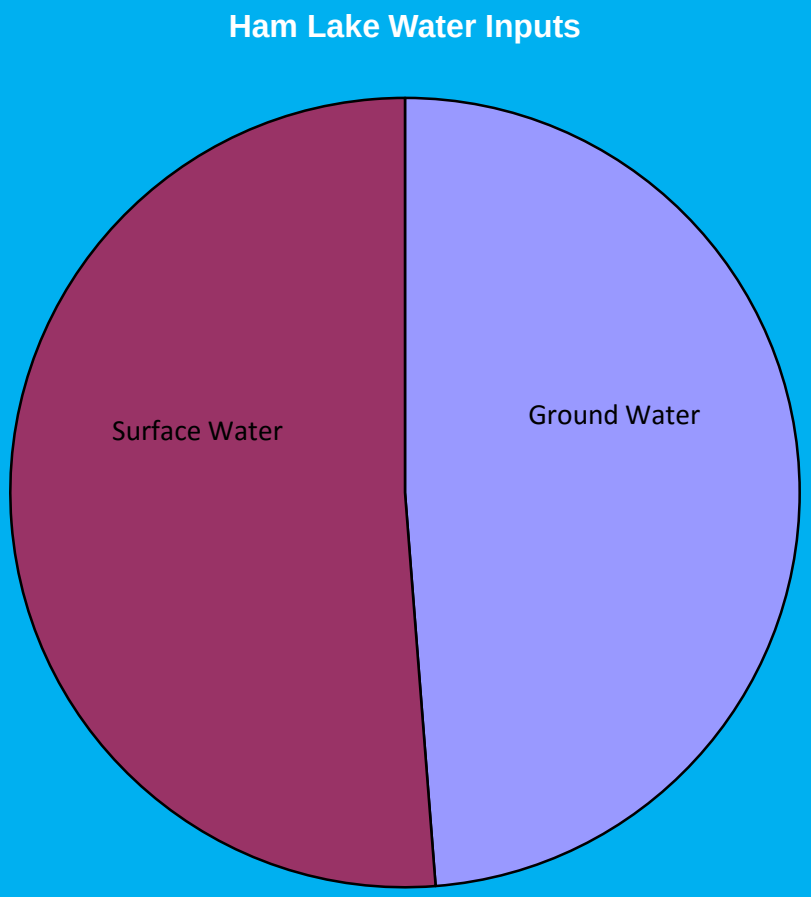
1. Watershed Boundary

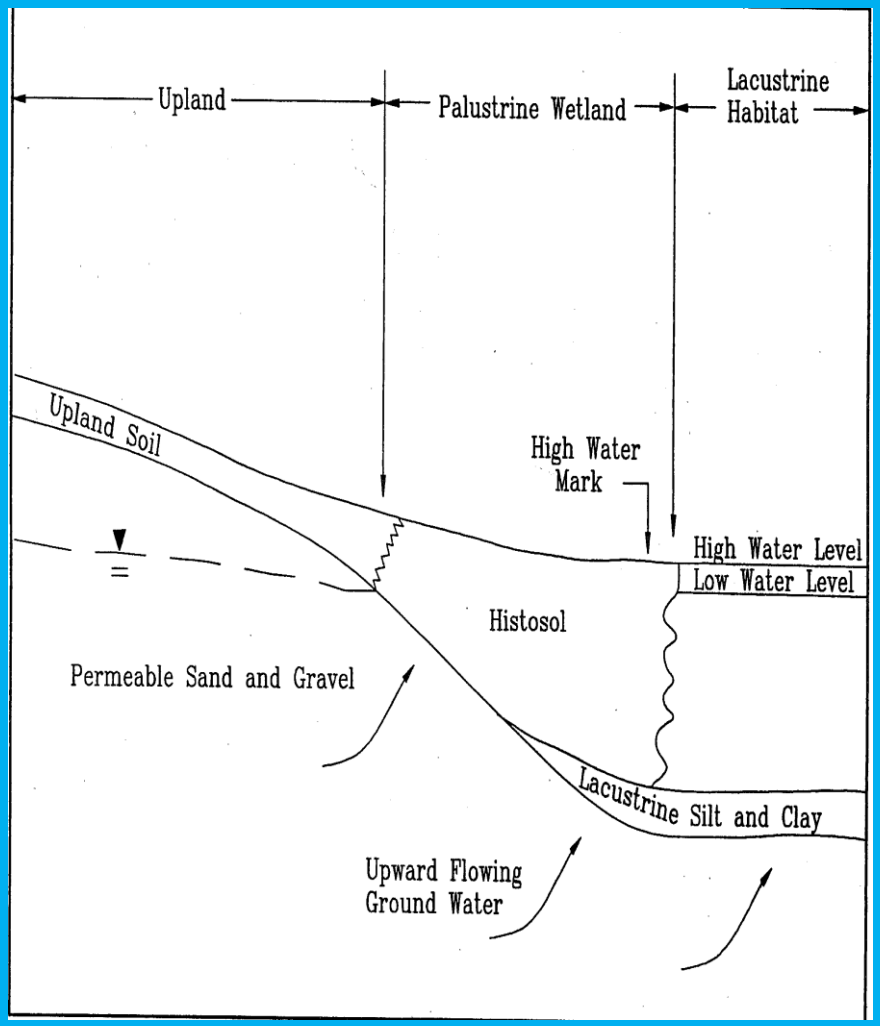


- Watershed is 633 acres in size
- Comprised of 9 subwatersheds

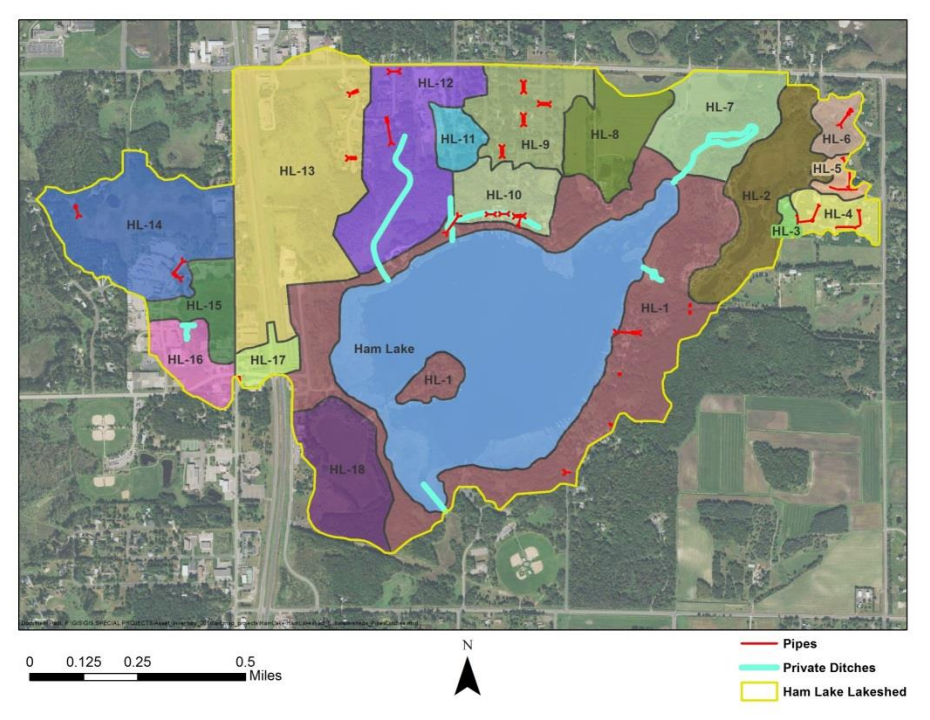
Subwatershed	Area acres	Subwatershed	Area acres
HL-1	132	HL-P12	70
HL-P2	68	HL-P13	201
HL-P7	37	HL-P17	9
HL-P8	27	HL-P18	35
HL-P10	54	**Total**	**633**

2. Water Source



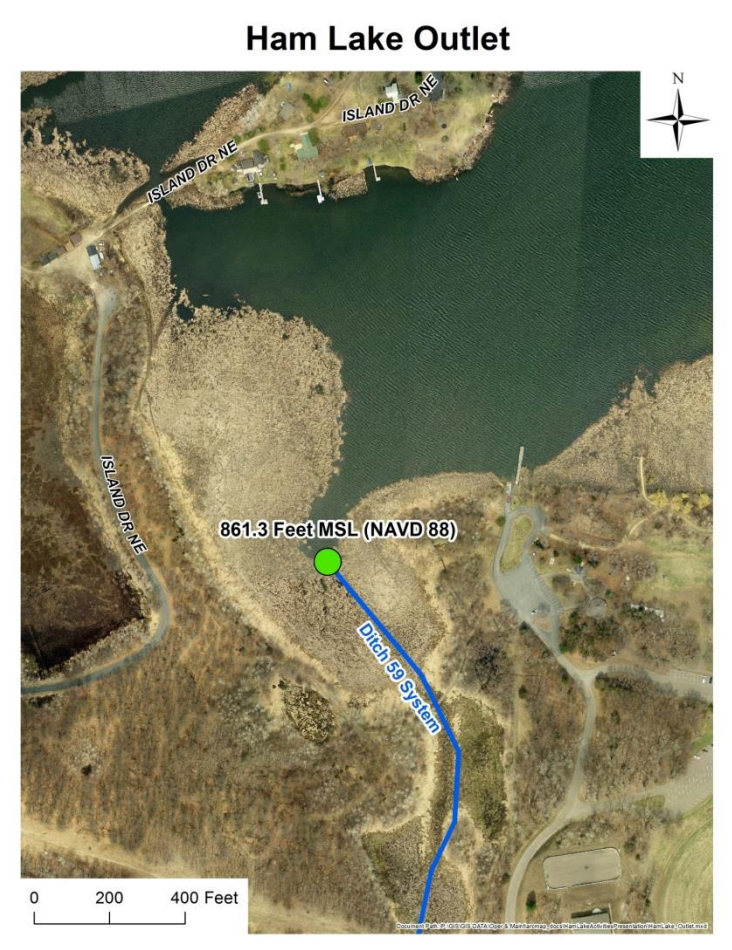


3. Inlets & Watercourses within Lake Drainage Area



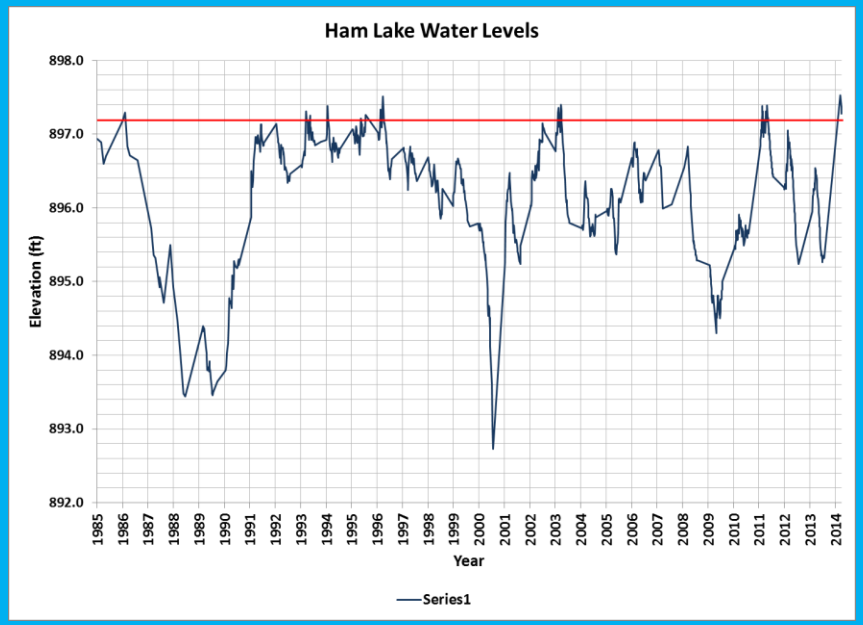
- Water runoff delivered by
  - 1.3 mi of private ditch
  - 1.6 miles of pipe

4. Lake Outlet



- Concrete with Stop logs
- Elevation = 861.3

5. Water Levels



- Highest recorded: 897.53 ft (06/20/2014)
- Lowest recorded: 892.73 ft (10/26/2000)
- Recorded range: 4.8 ft
- Last reported reading: 896.78 ft (04/25/2016)
- Ordinary High Water Level is 897.2 ft

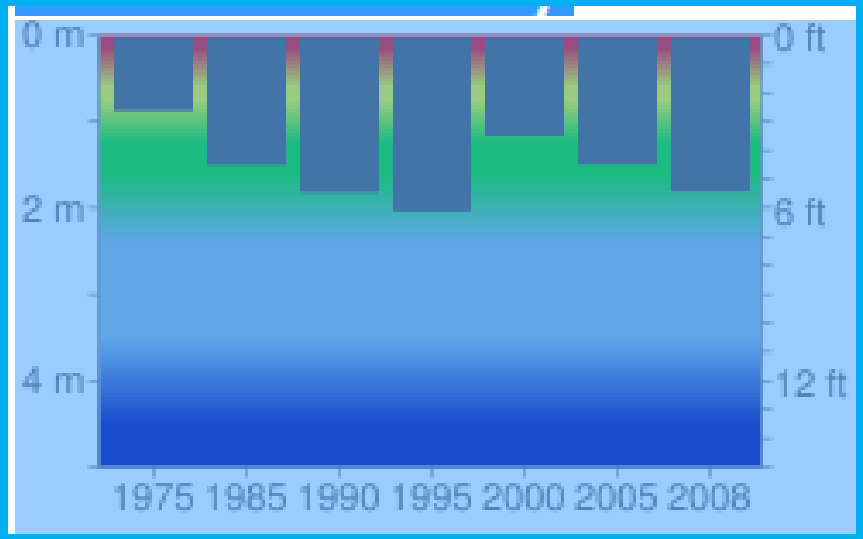
Runoff

	Acres	Pct of Tot	Pct Imperv	CN
Agricultural	32.94	4%	5%	85
Commercial	10.91	1%	85%	98
Industrial	46.04	6%	95%	98
Major Highways	24.57	3%	95%	98
Multifamily Residential	2.67	0%	70%	74
Parks/Recreation	118.65	14%	5%	84
Public/Semipublic	22.98	3%	5%	84
Single Family Residential	162.47	19%	25%	74
Vacant	233.47	28%	5%	60
Water	180.68		100%	100

Chemical Characteristics

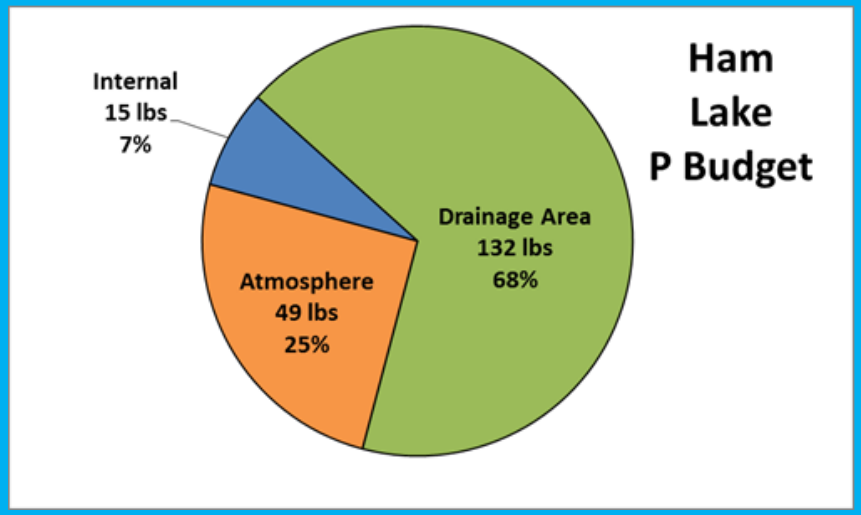
1. Water Clarity
2. Phosphorus Budget & Trends
3. Chlorophyll-a
4. Water Quality Report Card
5. Subwatershed Loadings

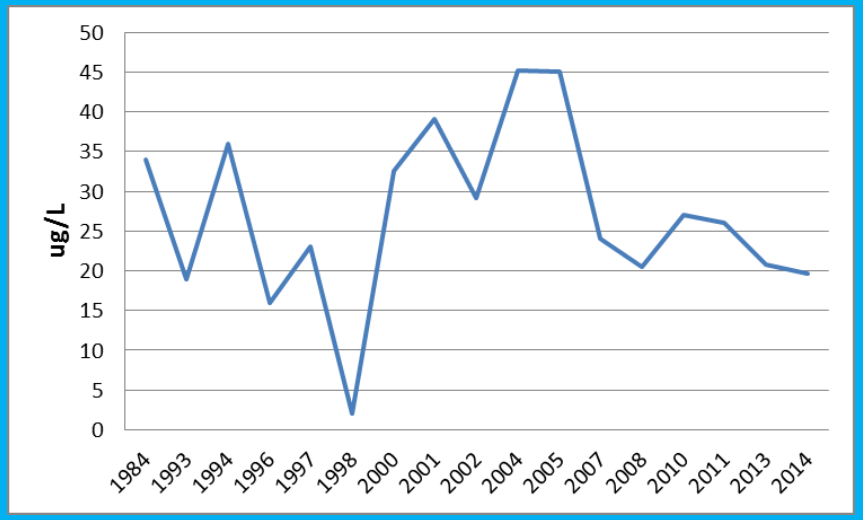
1. Water Clarity



- 1975: 0.86 m
  1985: 1.48 m
  1990: 1.8 m
  1995: 2.02 m
  2000: 1.15 m
  2005: 1.47 m
  2008: 1.79 m

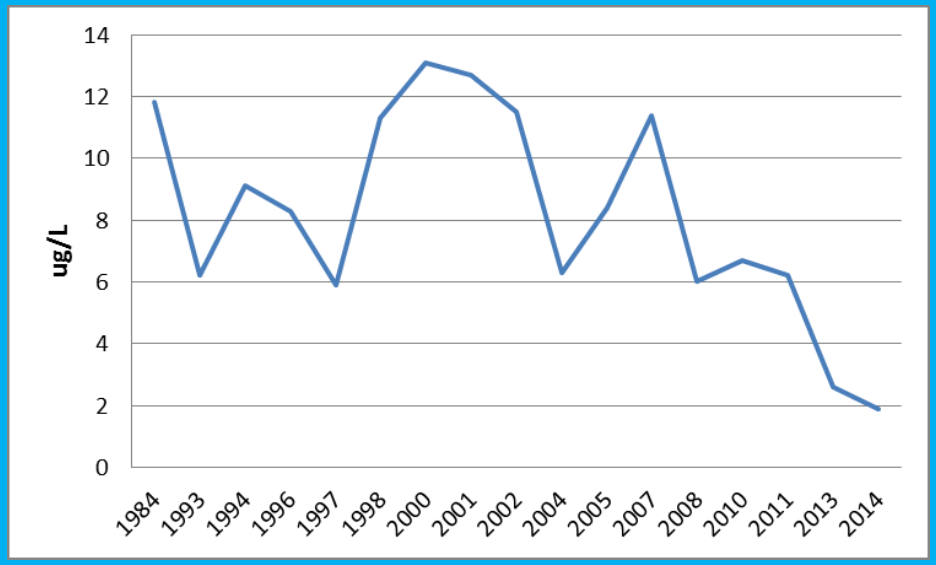
2. Phosphorus Budget & Trends



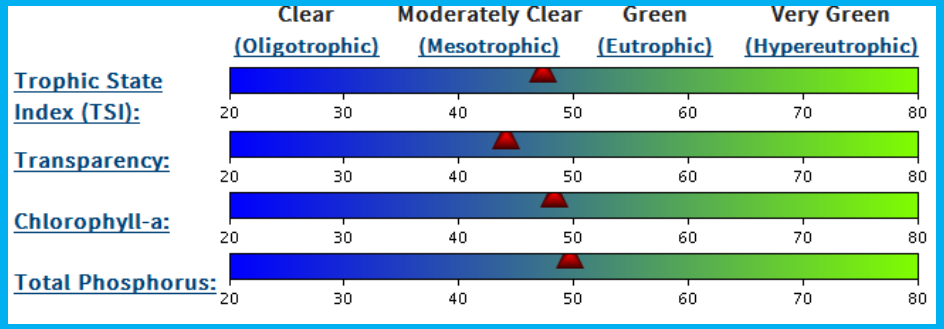


3. Chlorophyll – a (Cl-a)

- Long term trend of improvement



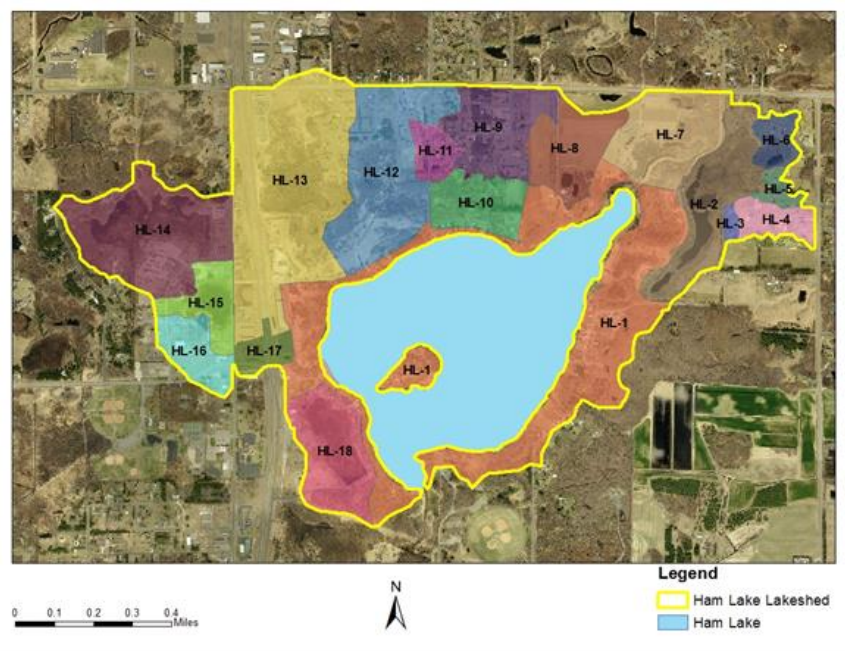
4. Water Quality Report Card



- Trophic State Index (TSI): A
- Transparency: = B
- Chlorophyll-a = A
- Total Phosphorus = A

5. Subwatershed Loadings

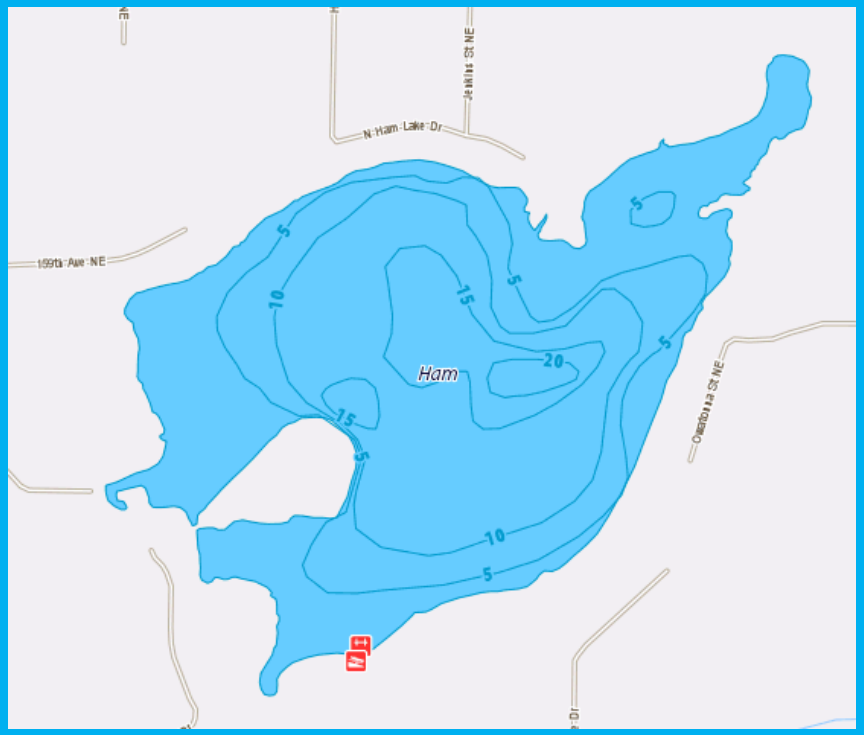
Subwatershed	Area acres	2007 TP [lbs]	2008 TP [lbs]	2010 TP [lbs]	2011 TP [lbs]	2013 TP [lbs]
HL-P2	68	5.4	4.2	9.5	11.8	5.5
HL-P7	37	2.0	1.6	4.3	7.4	2.4
HL-P8	27	1.0	0.7	2.1	3.4	1.2
HL-P10	54	7.6	6.0	12.1	14.2	7.0
HL-P12	70	7.1	5.5	12.3	15.3	7.3
HL-P13	201	34.4	26.9	55.8	67.0	33.6
HL-P17	9	4.2	3.2	6.2	6.7	3.6
HL-P18	35	3.2	2.4	5.6	7.0	3.4
HL-1	132	40.4	33.4	57.3	76.0	34.0
Total	633	105.3	83.9	165.2	208.8	98.0



Biological Characteristics

1. Fish Populations
2. Aquatic Vegetation
3. Exotic and Invasive Species
4. Threatened and Endangered Plants, Animals and Natural Communities

Fish Populations



Fish Species:

1. Black bullhead,
2. Black crappie,
3. Bluegill,
4. Brown bullhead,
5. Green sunfish,
6. Hybrid sunfish,
7. Largemouth bass,
8. Northern pike,
9. Pumpkinseed,
10. Yellow bullhead,
11. Yellow perch,
12. White sucker,
13. Banded killifish,
14. Golden shiner,
15. Iowa darter
16. Johnny darter

Fish Spawning Conditions

- Black Crappie
- Bluegill
- Largemouth Bass
- Northern Pike

- Fair to Good
- Generally firm sandy bottom with vegetation in north central and east shores

Aquatic Vegetation

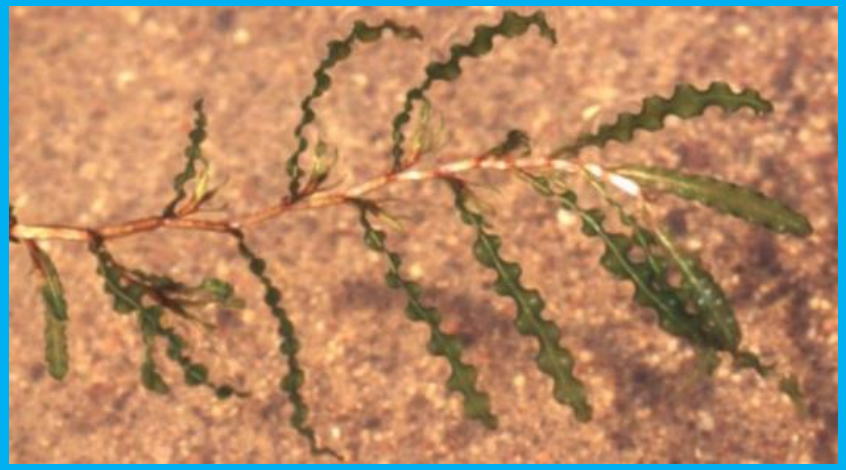
Common Name	Frequency of Occurrence in Littoral Zone July 2014	September 2015
NATIVE		
Coontail	67%	79%
Muskgrass/Stonewort	17%	21%
Canadian waterweed	13%	29%
Northern watermilfoil	22%	6%
Naiad	8%	4%
Large-leaf pondweed	9%	16%
Variable-leaf pondweed	2%	1%
Illinois pondweed	0%	6%
White-stem pondweeed	12%	3%
Small pondweed	18%	0%
Fern pondweed	3%	10%
Flat-stem pondweed	60%	49%
Whate water crowfoot	2%	2%
Sago pondweed	5%	6%
Comon bladderwort	32%	26%
Small bladderwort	0%	8%
Water celery	0%	9%
Bullhead pond lily	2%	2%
White water lily	11%	14%
NON-NATIVE		
Eurasian watermilfoil	22%	7%
Curlyleaf pondweed	2%	2%

Cattails (emergent) & Forked duckweed (free-floating) were also present. Needle spikerush, Water stargrass, and Clasping-leaf pondweed were observed in low numbers outside of sampling locations

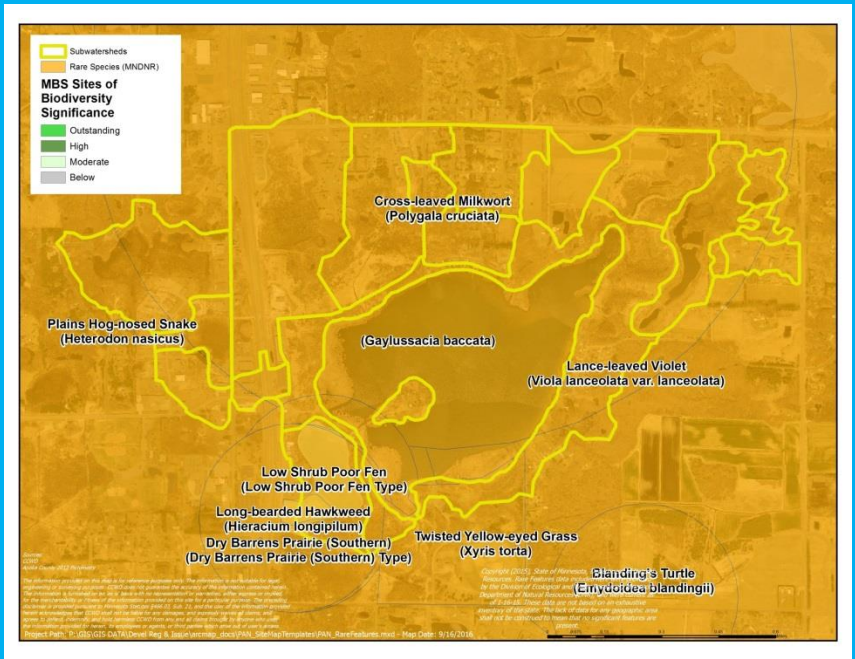
- Most recent survey & assessment: 9/14/2015
- Approx. 20 aquatic plant species present
- Good diversity

Exotic and Invasive Species

- Eurasian Water Milfoil
- Curly Leaf Pondweed



Threatened and Endangered Plants, Animals and Natural Communities



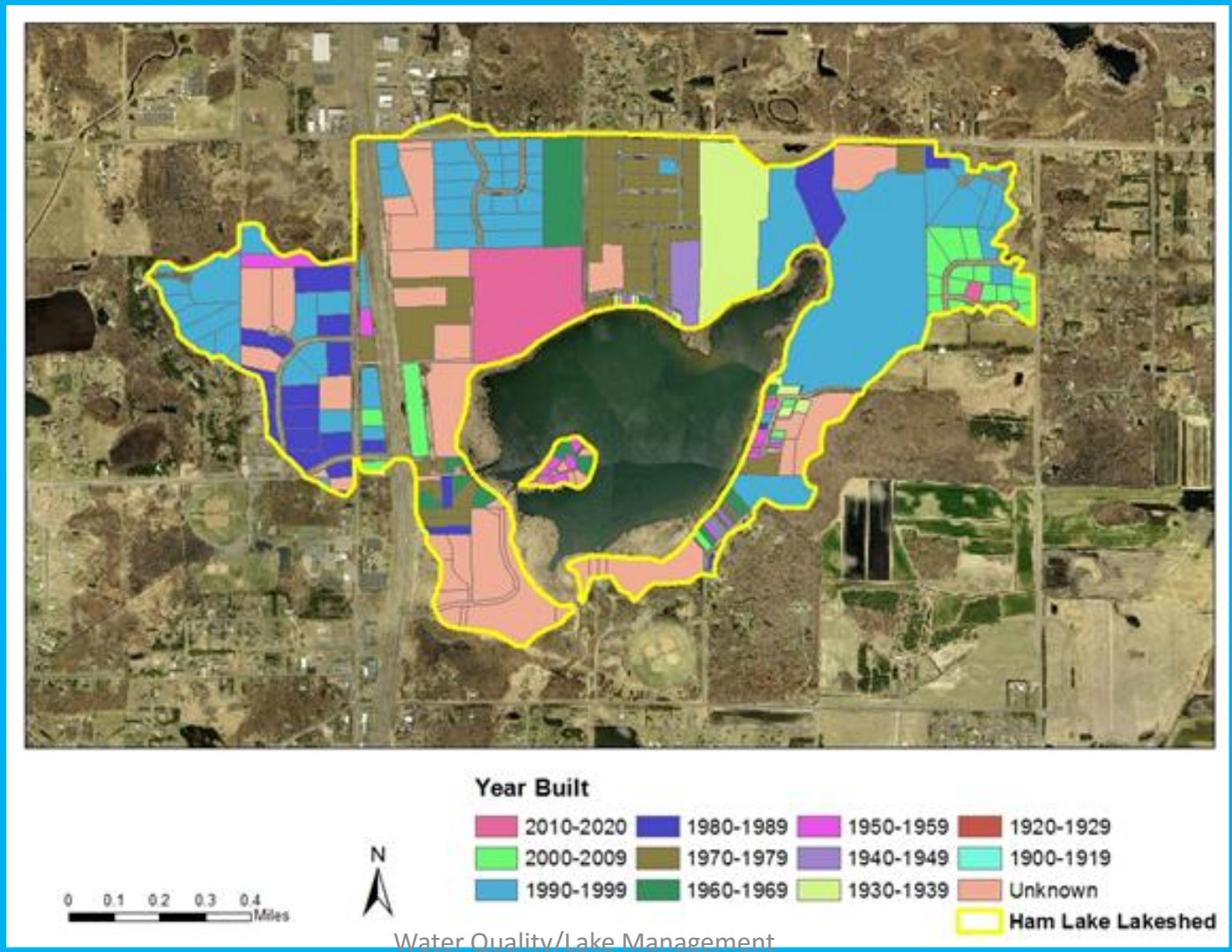
- Black Huckelberry
- Cross Leaf Milkwort
- Lance Leaf Violet
- Long bearded Hawkweed
- Twisted Yellow-Eye Grass

- Plains Hognose Snake
- Blanding's Turtle

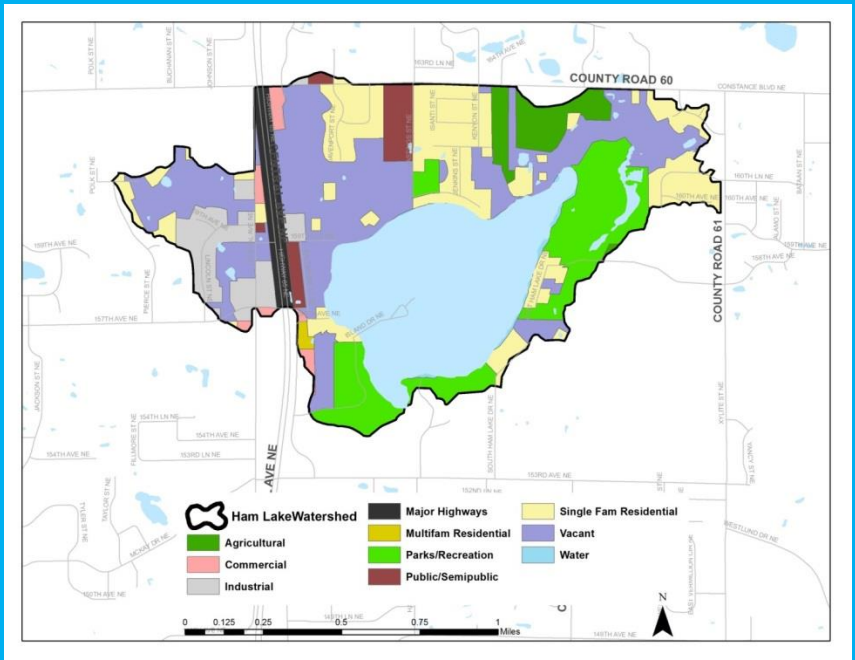
- Low Shrub Poor Fen
- Dry Barrens Prairie

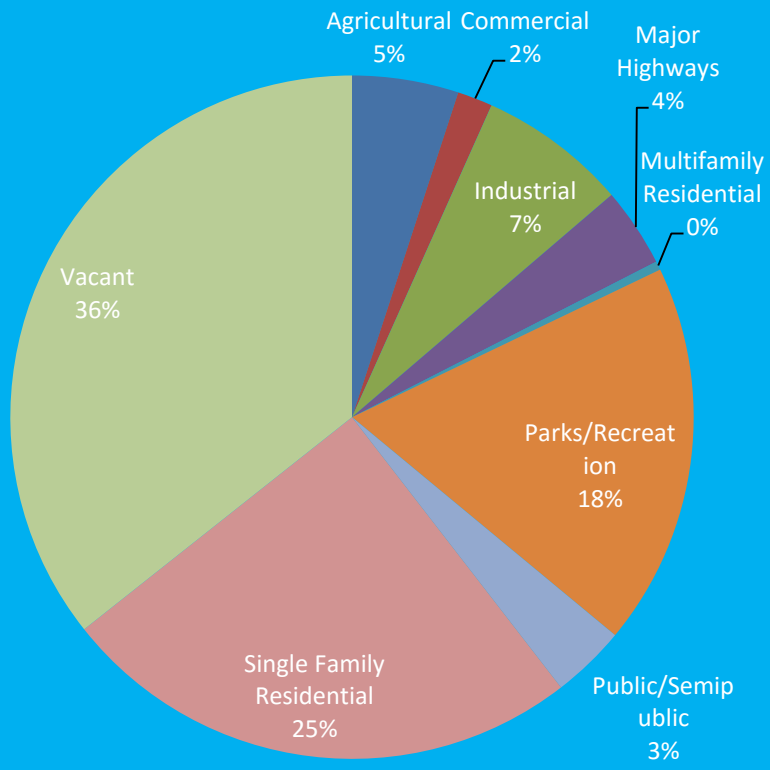
Land Use Characteristics

Historical Land Use Characteristics

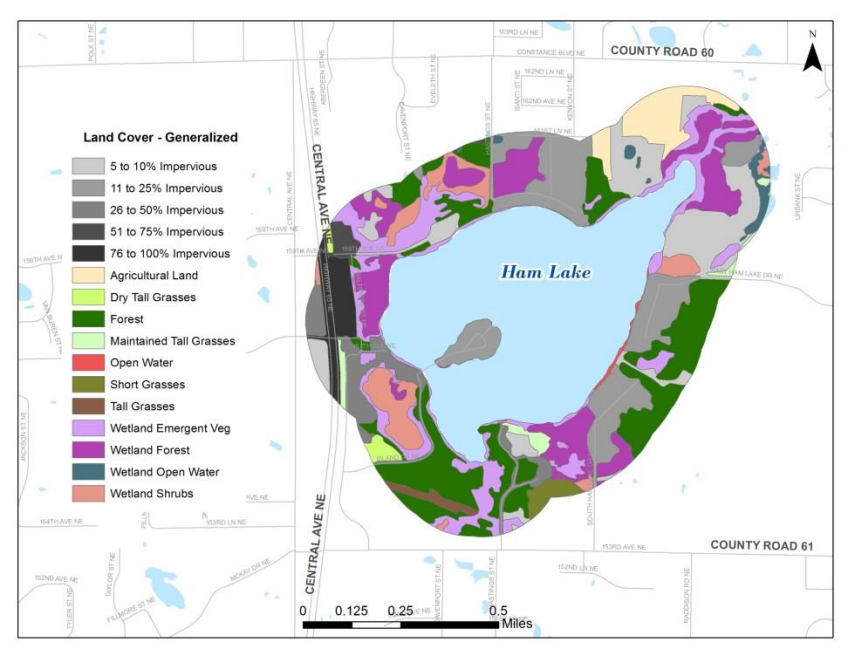


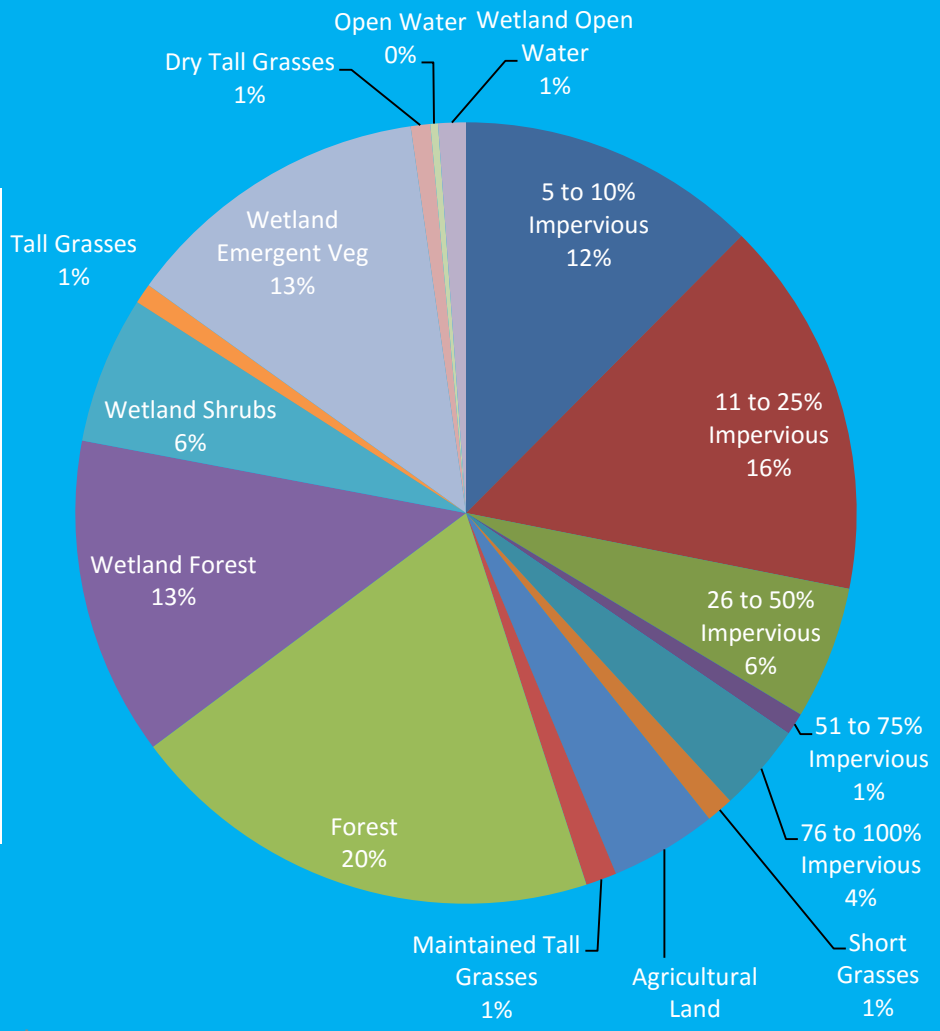
Current Land Use



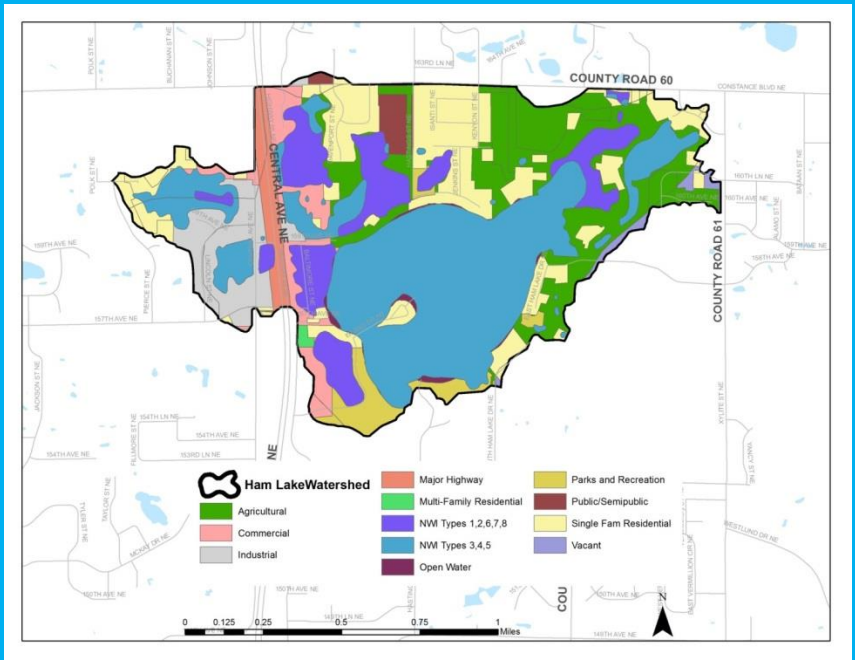


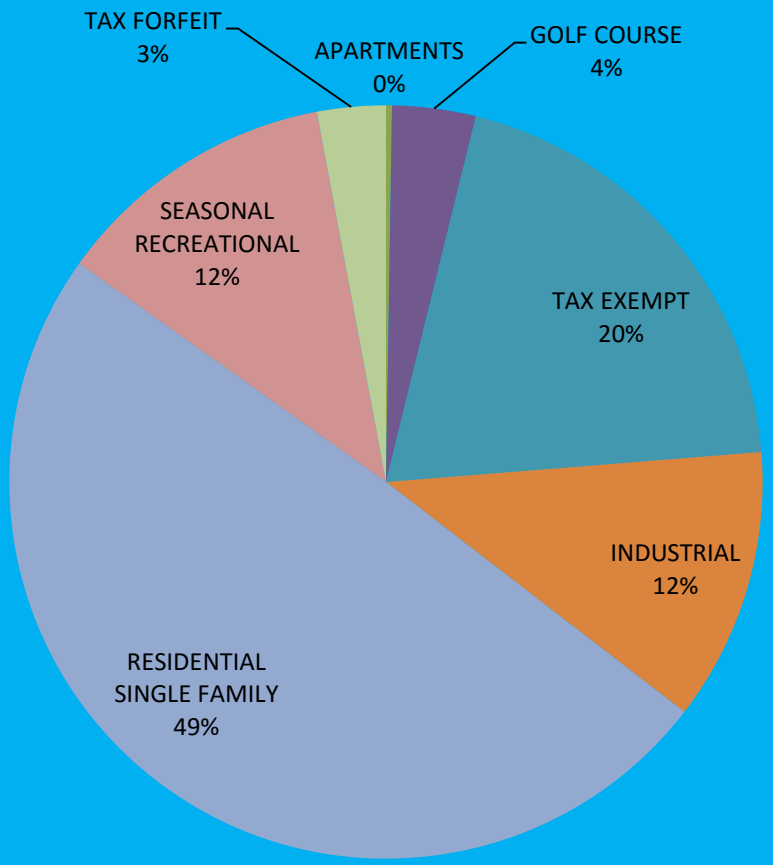
Shoreline Characteristics



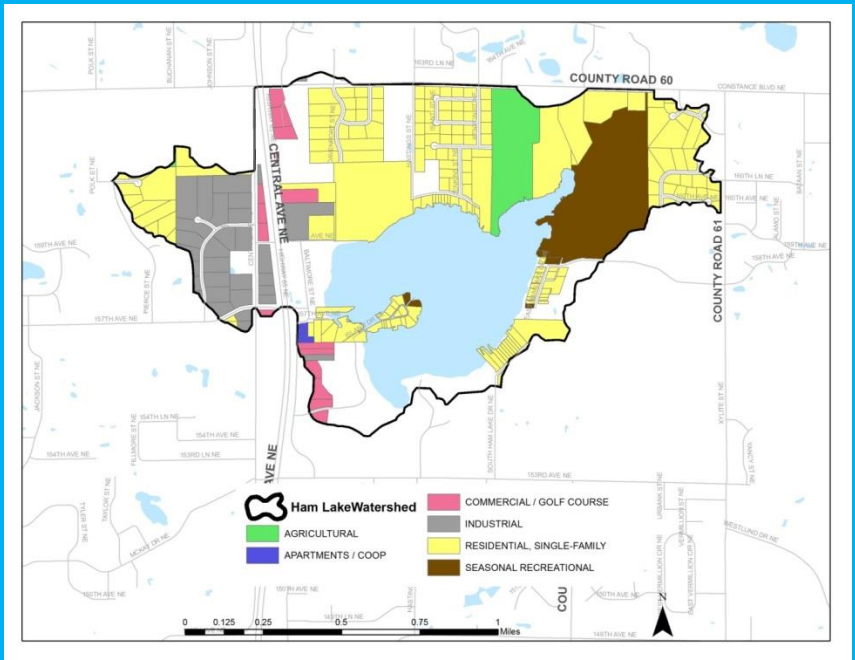


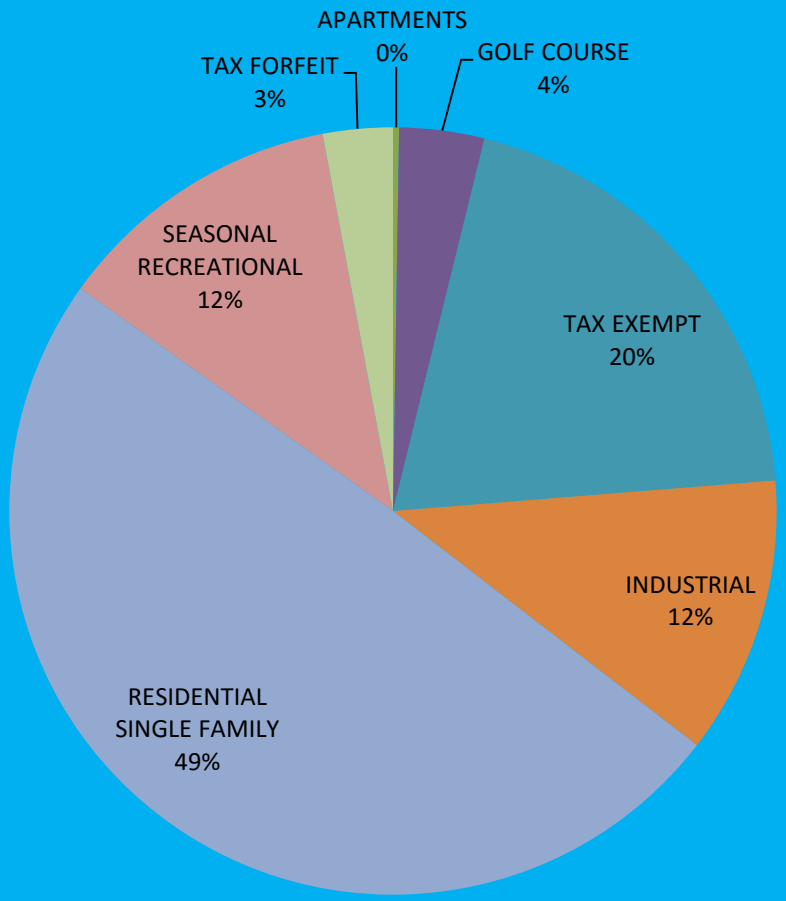
Future Land Use





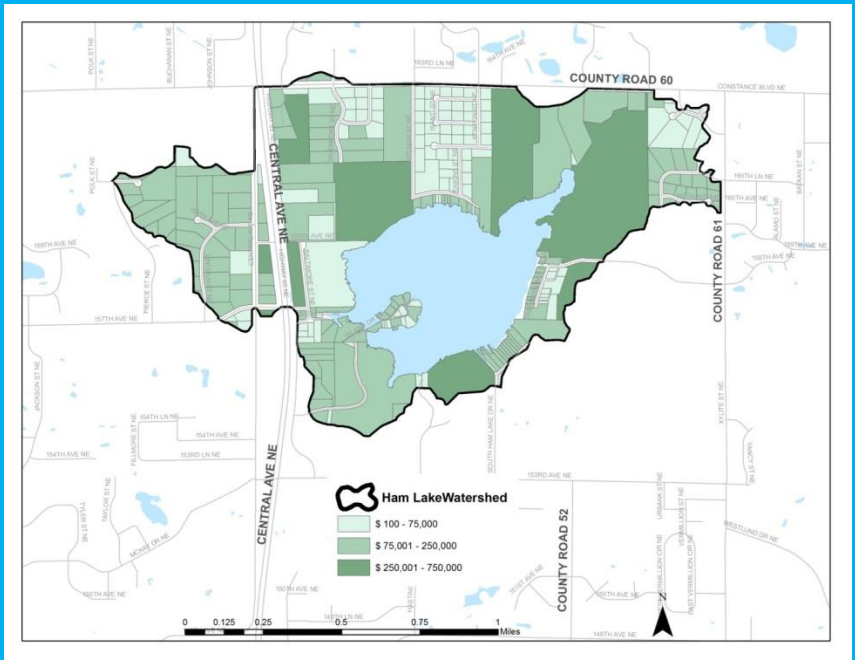
Zoning


COUNTY ROAD 60
CENTRAL AVE NE
COUNTY ROAD 61
Ham LakeWatershed
AGRICULTURAL
APARTMENTS / COOP
COMMERCIAL / GOLF COURSE
INDUSTRIAL
RESIDENTIAL, SINGLE-FAMILY
SEASONAL RECREATIONAL
0 0.125 0.25 0.5 0.75 1 Miles
N

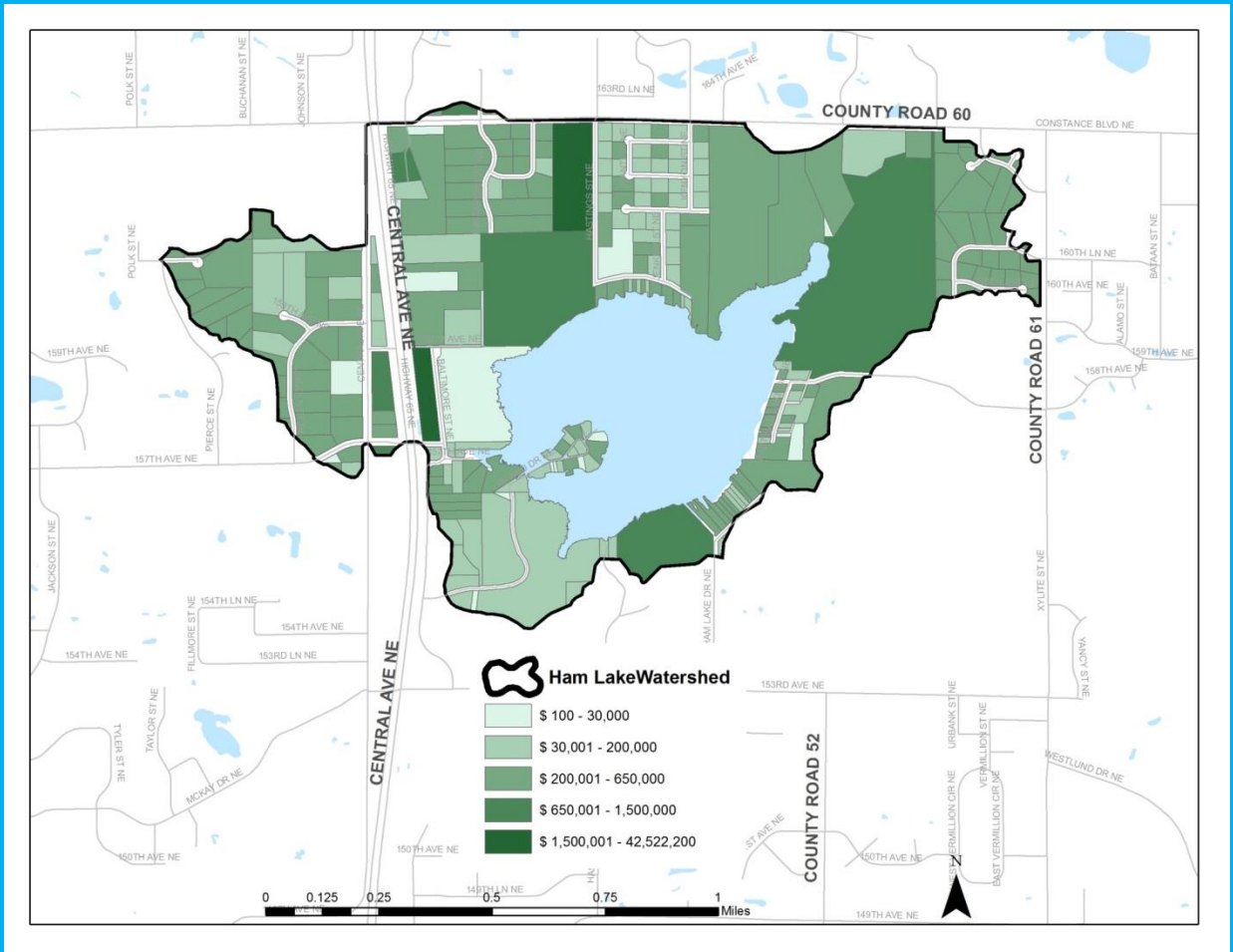

APARTMENTS
0%
TAX FORFEIT
3%
GOLF COURSE
4%
SEASONAL
RECREATIONAL
12%
TAX EXEMPT
20%
INDUSTRIAL
12%
RESIDENTIAL
SINGLE FAMILY
49%

Land Values

- Total Value = $43,656,600

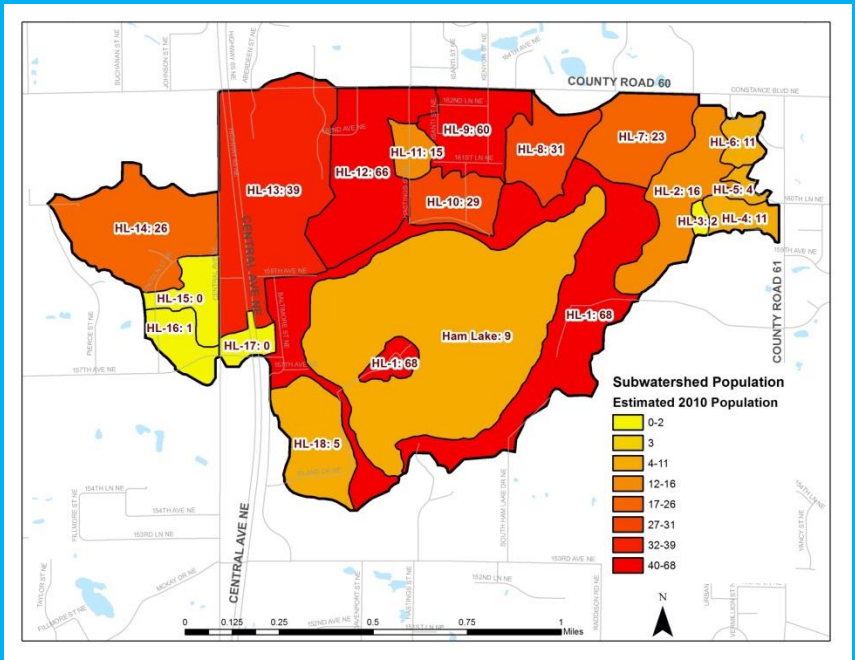


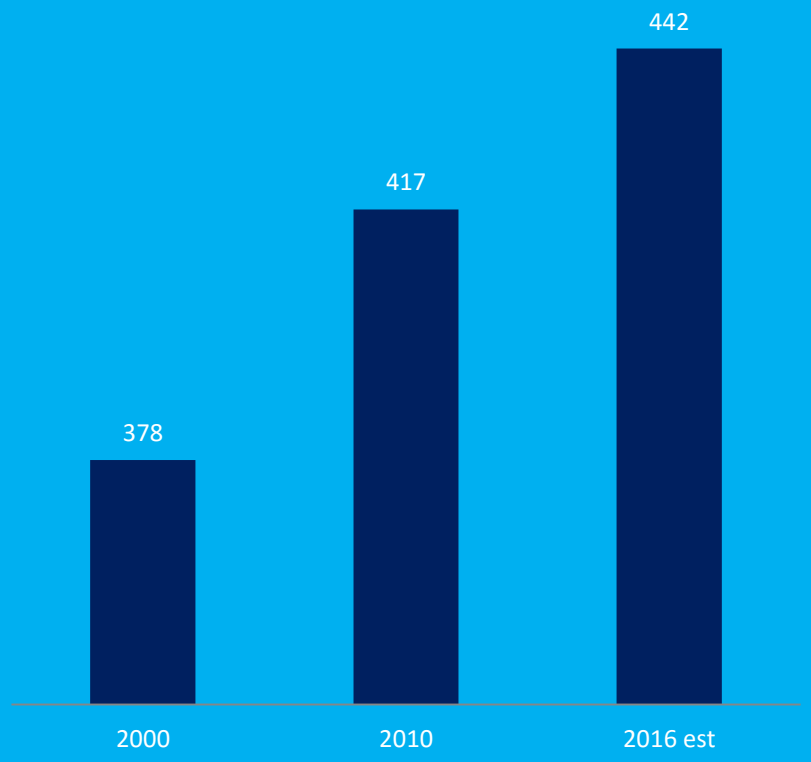
Market Values



Social Demographic Characteristics

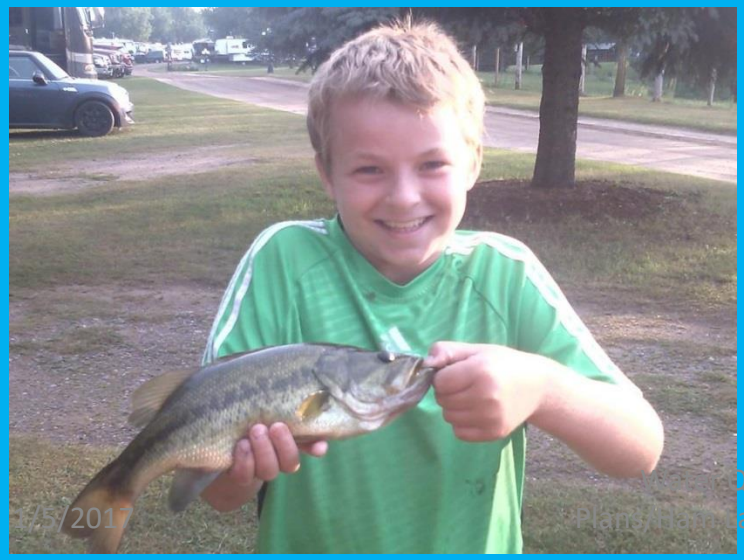
Population


COUNTY ROAD 60
COUNTY ROAD 61
CENTRAL AVE NE
HL-1: 68
HL-2: 16
HL-3: 2
HL-4: 11
HL-5: 4
HL-6: 11
HL-7: 23
HL-8: 31
HL-9: 60
HL-10: 29
HL-11: 15
HL-12: 66
HL-13: 39
HL-14: 26
HL-15: 0
HL-16: 1
HL-17: 0
HL-18: 5
Ham Lake: 9
Subwatershed Population
Estimated 2010 Population
0-2
3
4-11
12-16
17-26
27-31
32-39
40-68
N
0
0.125
0.25
0.5
0.75
1
Miles


Population
378
417
442
2000
2010
2016 est

Lake Dependent Economic Activities

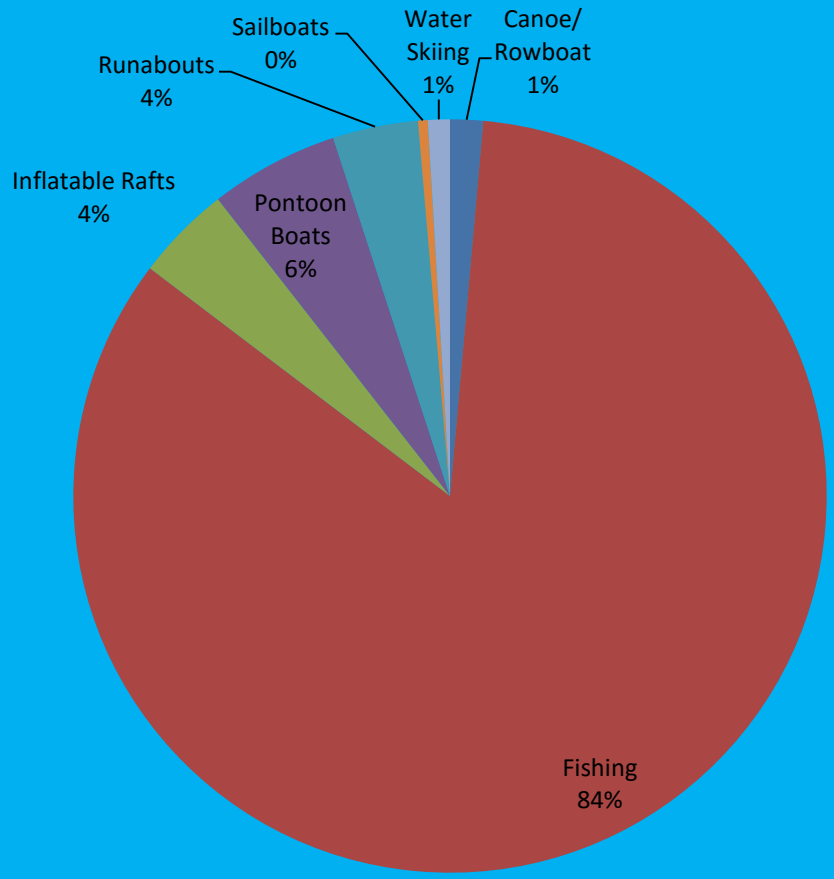
- Fishing
- Ham Lake Camp Ground
- Parks and Recreation



- Approx. 160 camp sites

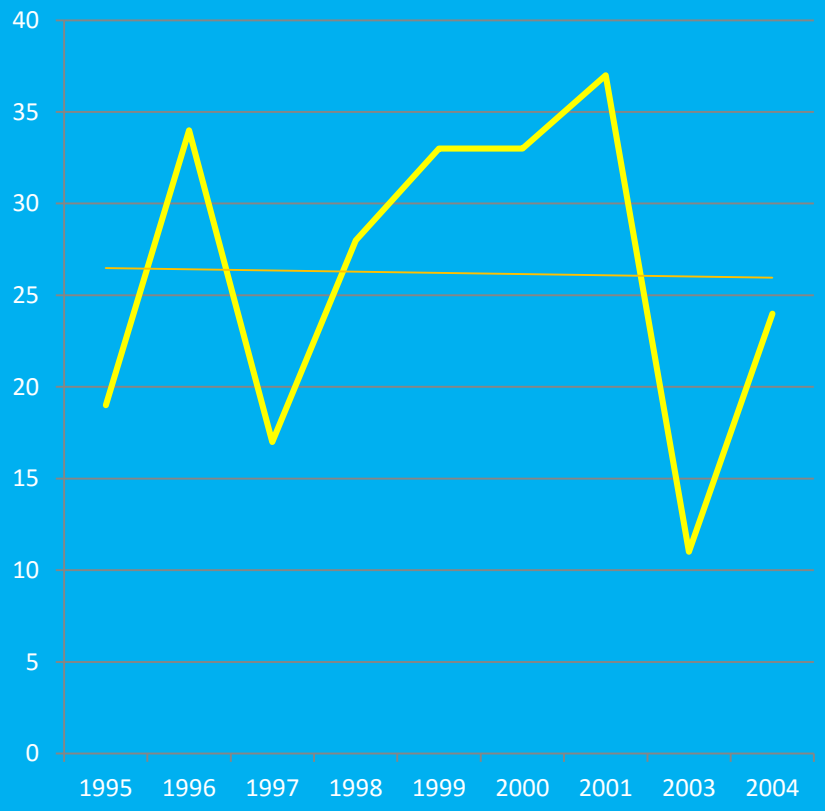
Recreational Uses

- Fishing
- Boating
- Camping
- Swimming

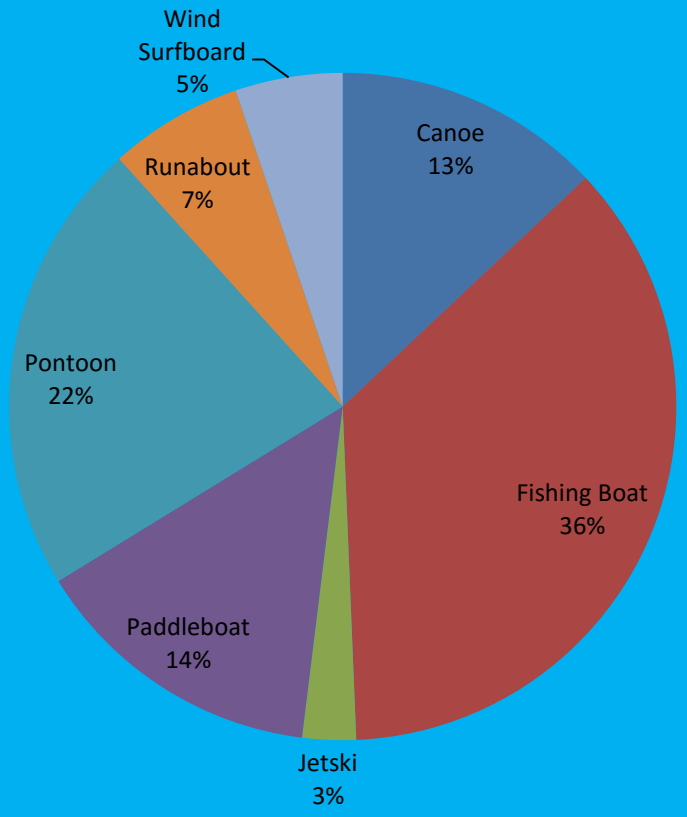


Recreational Uses

Fish Houses



Resident Watercraft



Lake User Attitudes & Perceptions

1. You like the abundant wetlands and attractive large lot rural character

2. You feel Connected to the Natural Environment of the Lake

3. You cherish autonomy, and independence

4. You like things small local, simple.

Management Characteristics

Aquatic Plant Management

Feature	Agency & Method
• Cattail Removal	• DNR Permit
• Aquatic Plant Management	• DNR (6280.0350) - Pesticide control of aquatic macrophytes on all public waters and watercourses
• Invasive Species Treatment (EWM, CLP)	• DNR Permit (Limited to 15% of littoral zone unless a LVMP on file + variance approved)

Fisheries Management

Feature

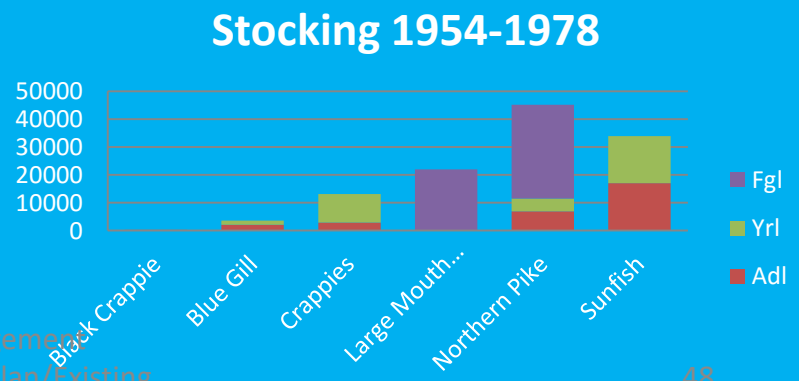
- Surveys & Investigations
- Stocking

Agency & Method

DNR

- Lake Surveys: 1948, 74, 84, 94, 2004, 2016
- Population Survey: 1979, 89, 99, 2010

DNR:



Lake Level

Feature

- Lake Elevation

Agency & Method

- DNR: Constructed dam
- Coon Creek WD & ACD: Monthly Lake level monitoring

Land Use

Feature	Agency & Method
• Planning & Zoning	• City of Ham Lake Planning Commission & City Council
• Stormwater/Water Quality Protection	• City of Ham Lake-Ordinance • Coon Creek Watershed District-Rules

Invasive Species

Feature

- Prevention
- Early Detection & Monitoring
- Rapid Response & Eradication
- Long-Term Control & Management
- Education & Outreach

Agency & Method

- Anoka County – Education
- DNR-Education + Inspection Program
- Coon Creek WD-Education
- Coon Creek/ACD- Early Detection Monitoring (2X/yr)
- DNR+Coon Creek WD- EDRR Program
- DNR Rapid Response Program
- Ham Lake Lake Assoc- Contract Treatments
- Anoka County – Education
- DNR-Education + Inspection Program
- Coon Creek WD-Education

Recreational Use

Feature

- Public Access

- Water Quality Classification

Agency & Method

- DNR - Access
- City of Ham Lake – Park

- MPCA: Ham Lake is a Class 2B shallow lake with the following standards for aquatic life/recreation:

Component	Standard
Phosphorus, Total	<60 mg/L
Chlorophyll-a	<20 mg/L
Secchi disk transparency	>1.0 meters

Shoreline

Feature

- Assessment of Condition

Agency & Method

- DNR-Fisheries: Done as part of a lake survey
- ACD: Done periodically or at the request of another unit of government or homeowners group

- Excavation Of Public Waters

- DNR-Waters (MR 6115.0200) Limit the excavation of materials from the beds of public waters

Storm Water

Feature

- Standards
- Planning, Regulation, Maintenance, Monitoring & Public Education

Agency & Method

- MPCA – NPDES Program
- City of Ham Lake – SWPPP
- Coon Creek WD - SWPPP

Water Quality

Feature

- Impairment for Hg
- Monitoring

Agency & Method

- MPCA – Water Quality Standards
- Metropolitan Council – TMDL development
- Coon Creek WD/ACD- Lake Monitoring
- MPCA – EQuIS Water Quality Data Base