City of Minnetonka – August 13th

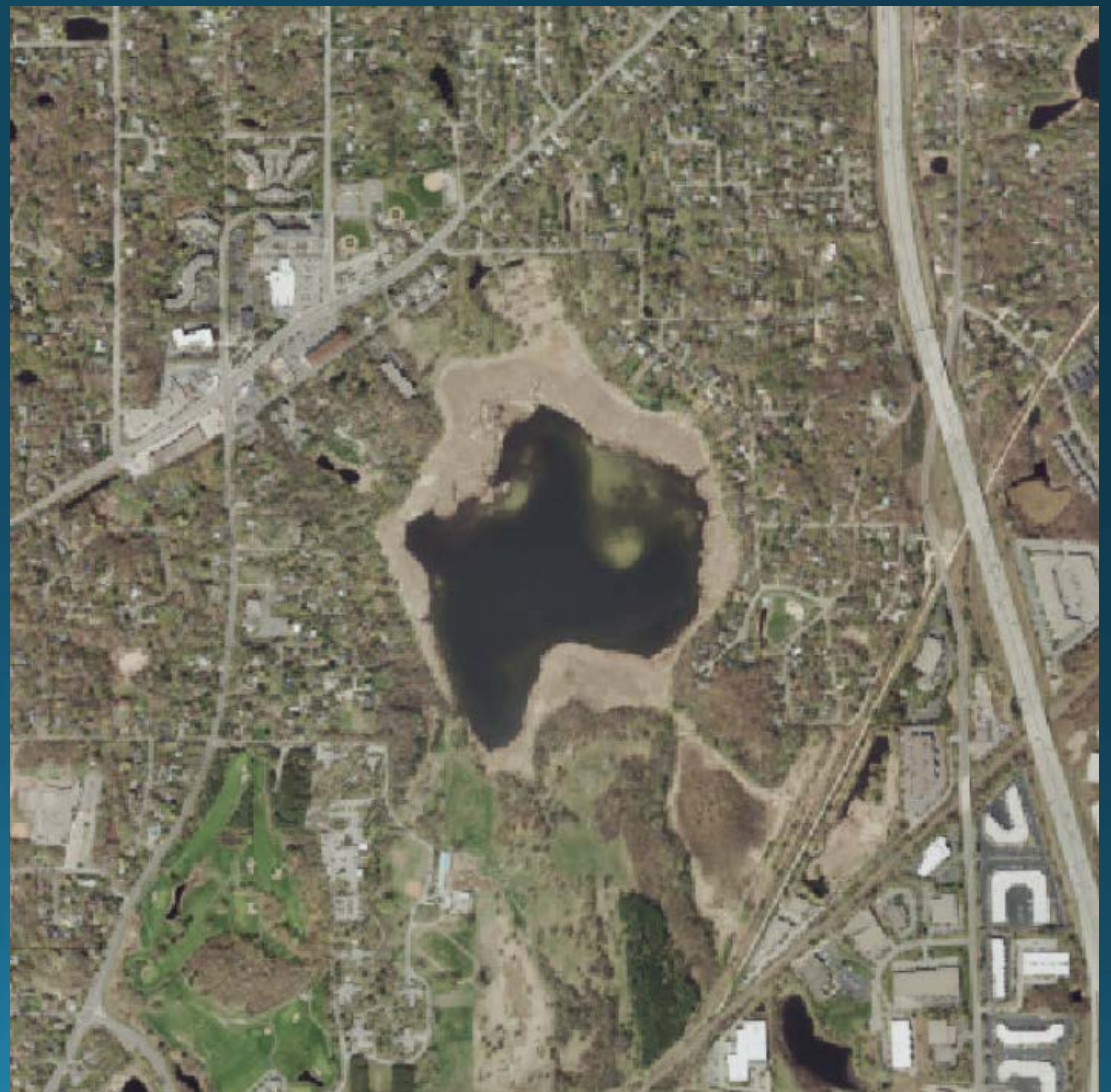
Glen Lake – The Lake Story

Overview

- Lake History
- Water Resources
- Water Quality
- Roles and Responsibilities
- What You Can Do!
- Resources


2006

Lake History - 1946 to 2012



Water Resources - Fisheries

Fish Sampled up to the 2005 Survey Year

Species	Gear Used	Number of fish per net		Average Fish Weight (lbs)	Normal Range (lbs)
		Caught	Normal Range		
Black Bullhead	Gill net	17.0	7.7 - 104.7	0.14	0.2 - 0.5
	Trap net	0.2	1.5 - 58.0	0.16	0.2 - 0.5
Black Crappie	Gill net	0.5	1.7 - 17.5	0.11	0.1 - 0.3
	Trap net	1.0	2.1 - 24.1	0.16	0.2 - 0.4
Bluegill	Gill net	1.0	N/A - N/A	0.09	N/A - N/A
	Trap net	57.2	3.5 - 57.1	0.09	0.1 - 0.3
Brown Bullhead	Gill net	0.5	0.8 - 7.0	0.71	0.3 - 0.8
	Trap net	0.7	0.4 - 5.1	0.61	0.4 - 0.9
Green Sunfish	Trap net	0.2	0.3 - 2.8	0.03	0.1 - 0.2
Hybrid Sunfish	Trap net	0.5	N/A - N/A	0.16	N/A - N/A
Largemouth Bass	Gill net	0.5	0.3 - 0.6	1.74	0.5 - 1.5
	Trap net	0.3	0.2 - 0.8	1.15	0.3 - 1.5
Northern Pike	Gill net	7.0	2.0 - 10.8	2.07	1.7 - 3.1
	Trap net	0.2	N/A - N/A	2.07	N/A - N/A
Painted Turtle	Trap net	10.8	N/A - N/A	ND	N/A - N/A
Snapping Turtle	Trap net	2.3	N/A - N/A	ND	N/A - N/A

Normal Ranges represent typical catches for lakes with similar physical and chemical characteristics.

Water Resources - Fisheries

- Compared to similar lakes:
  - Heavily influenced by occasional winterkill events
  - Small panfish dominate the community; mostly bluegills
  - Northern pike were present above median levels
  - http://www.dnr.state.mn.us/lakefind/index.html

Water Resources – Aquatic Plants

- Diverse NATIVE aquatic plant community

  Floating Leaf Vegetation:

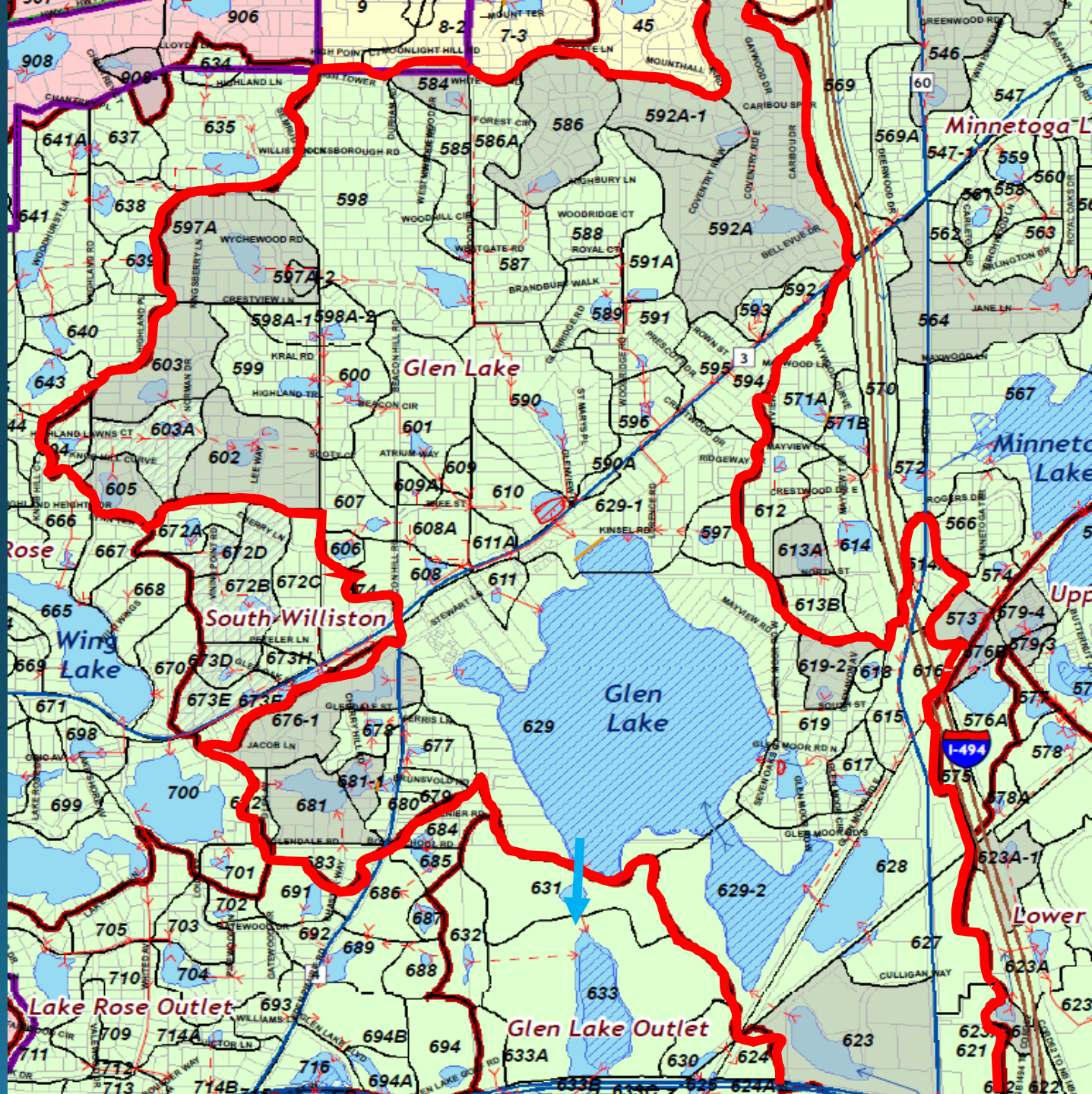
  white waterlily, yellow waterlilly, and watershield

  Submerged Vegetation

  Coontail, Canada waterweed, flat stem pondweed, and northern water milfoil

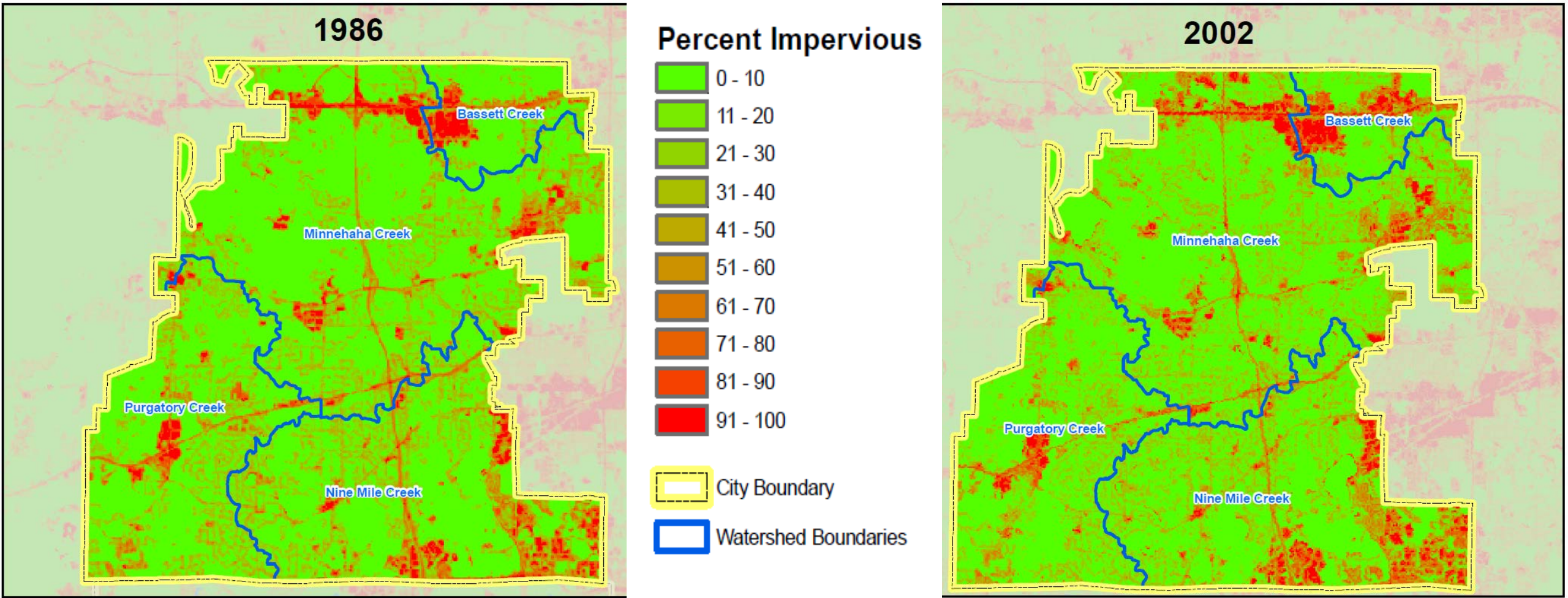
Lake Characteristics

- Total Watershed:
  - 1,100 Acres
- Lake Area:
  - 98 Acres
- Mean Depth
  - 8 feet
- Maximum Depth:
  - 25 feet



Lake Characteristics

- Impervious surface



Impervious Surface

- Why this matters:
  - More impervious surfaces means more stormwater runoff
  - More impervious surface means less groundwater recharge
  - More stormwater runoff means greater flows into our lakes and creeks which can lead to flooding

  - AND more stormwater runoff means more pollutants into our waters

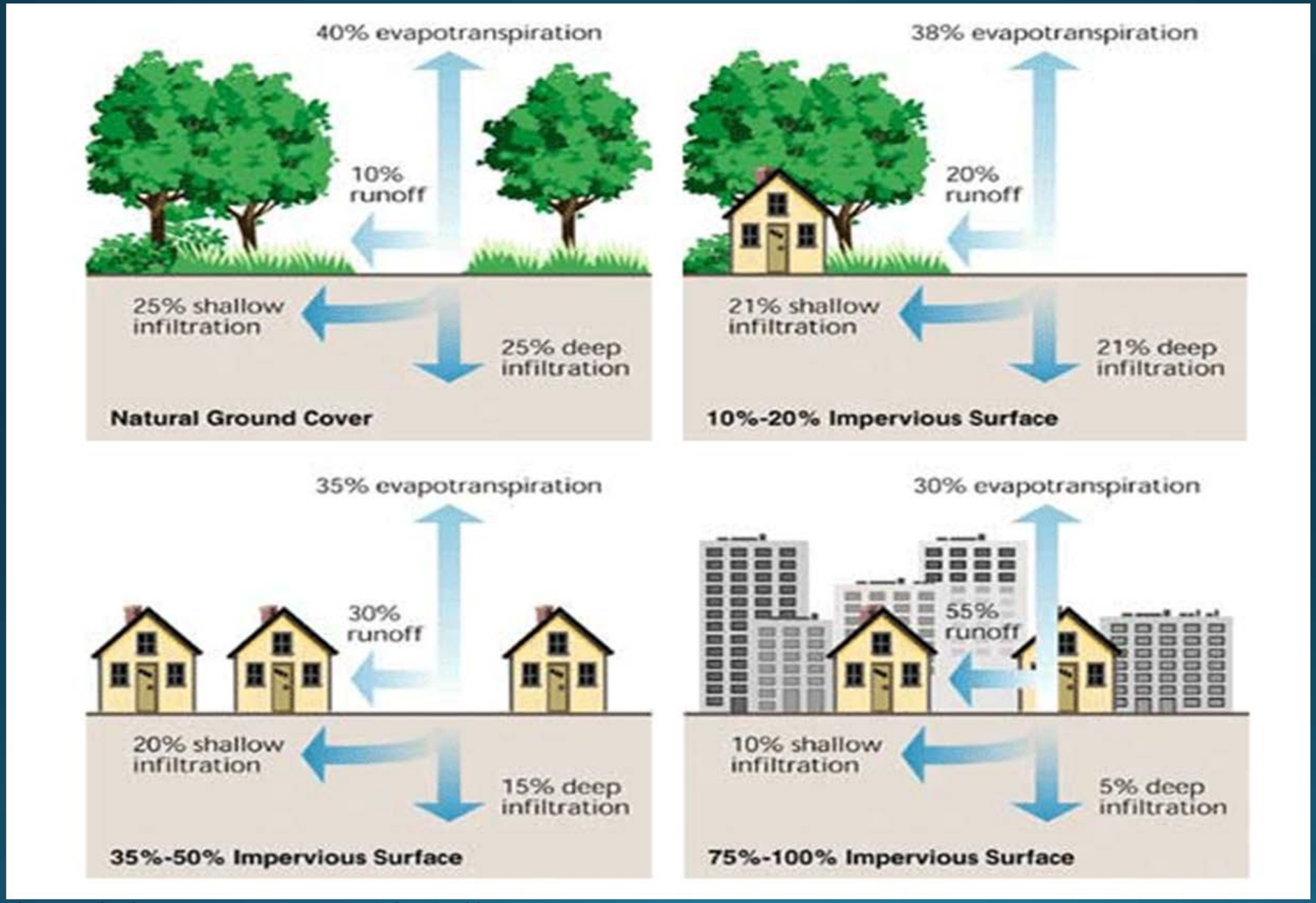
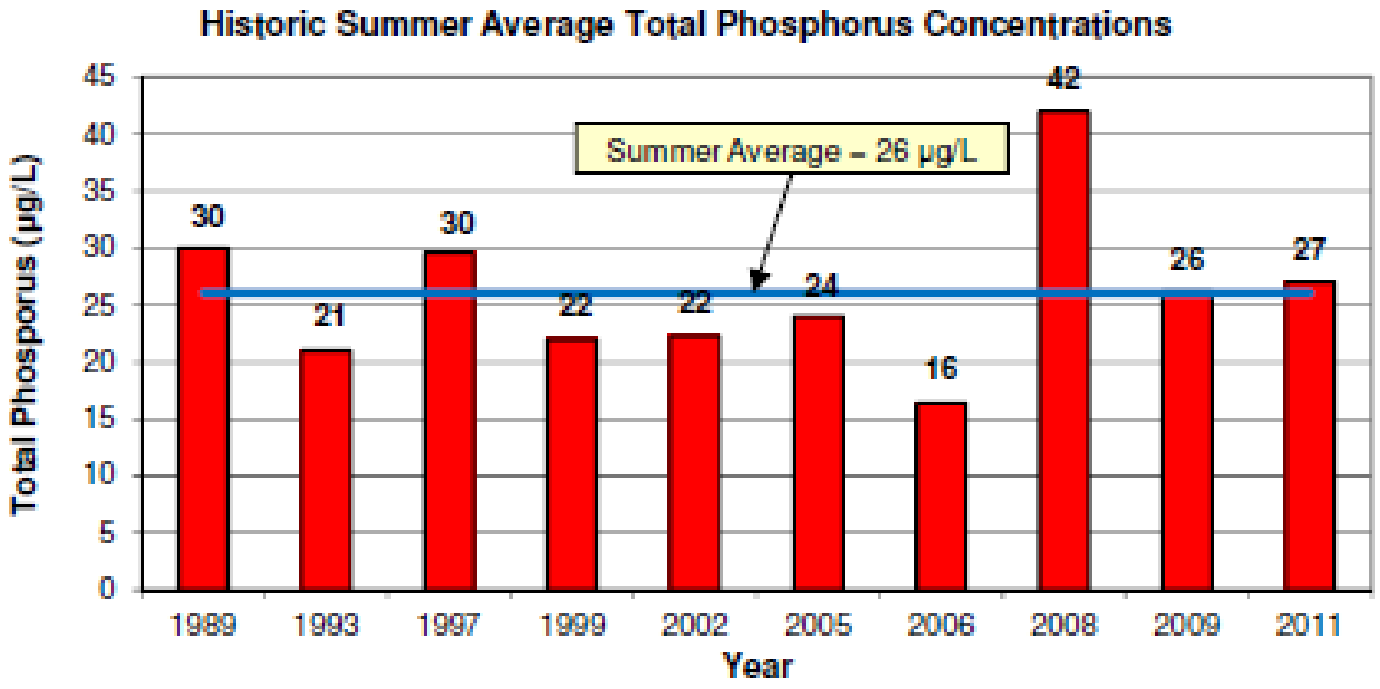


Figure: Federal Interagency Stream Restoration Working Group

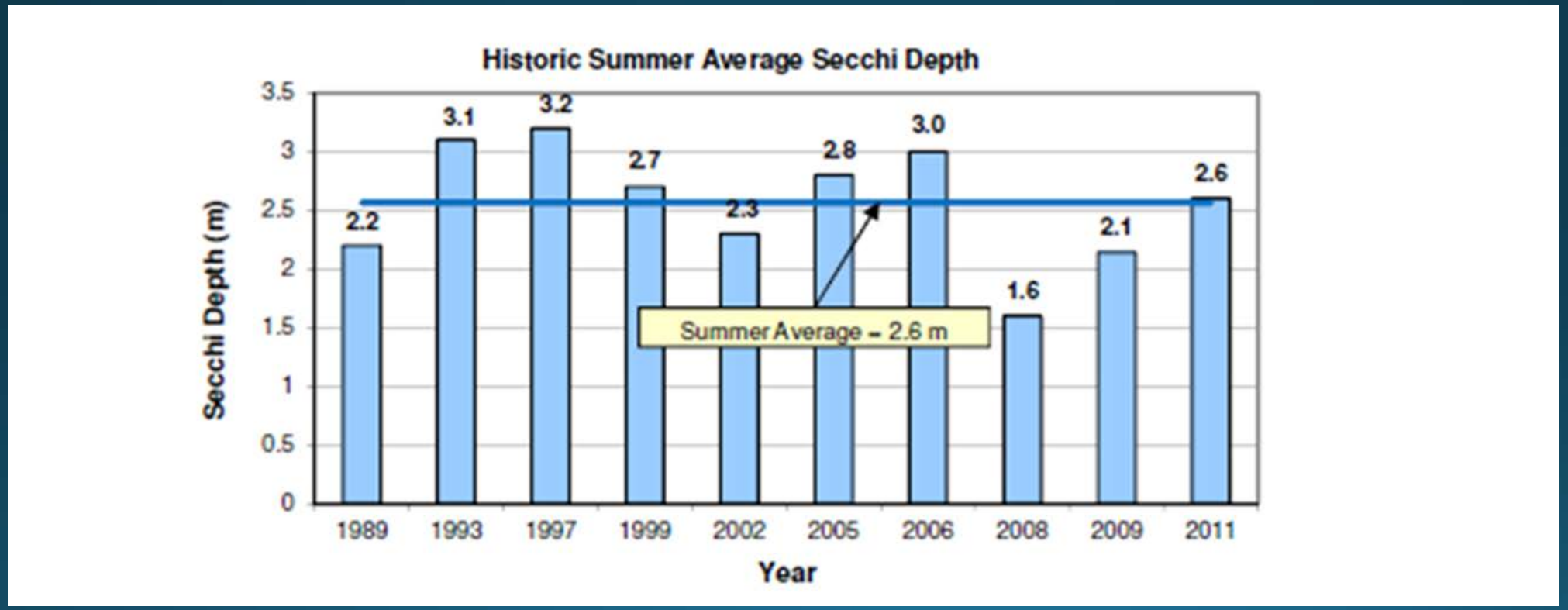
Water Quality – Glen Lake

- Total Phosphorus



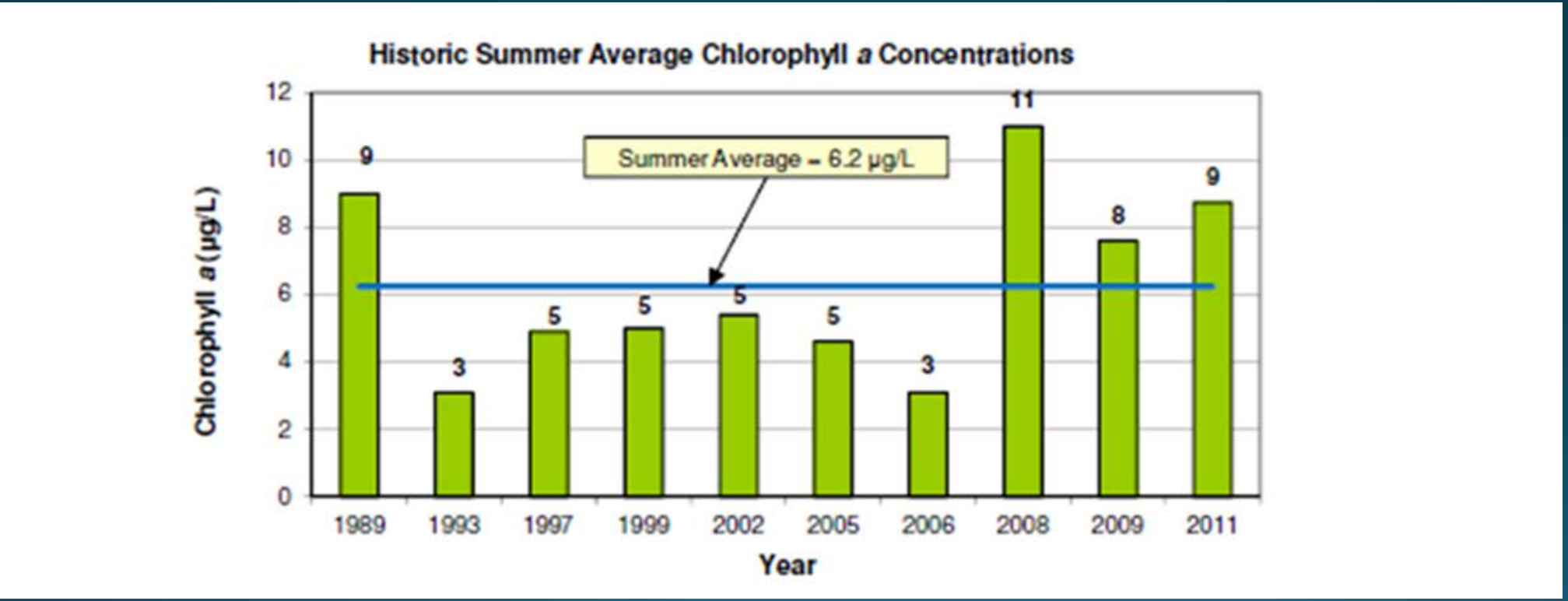
Water Quality – Glen Lake

- Clarity – Secchi Depth



Water Quality – Glen Lake

- Algae Content – Chlorophyll *a*



Water Quality

For Comparison:

- Lake Minnetonka –Libb's Lake/Gray's Bay
  - TP – 26 ug/L
  - Clarity – 1.7 meters
  - Chlorophyll *a* – 6.4 ug/L
- Shady Oak Lake
  - TP - 17 ug/L
  - Clarity – 3.1 meters
  - Chlorophyll *a* – 4.1 ug/L
- MPCA Lake Criteria
  - TP – 40 ug/L
  - Clarity – 1.4 meters
  - Chlorophyll *a* – 14 ug/L

Water Quality

- Completed Studies
  - 1989-2011 – Surface Water Quality Study (city of Minnetonka)
  - 1999 – Glen Lake Use Attainability Analysis (Barr, NMCWD)
  - 1999 – City of Minnetonka Water Resources Management Plan
  - 2008 – Impervious Surface Study
  - 2010 – City of Minnetonka Water Resources Management Plan

- Upcoming Studies
  - 2015 – Surface Water Quality Study and Watershed Assessment
    - New program

Water Quality

- Completed Projects:
  - 2005 – NMCWD Water Quality Improvements
    - Lorence Road Pond
    - Kinsel Park Pond
    - Dickson Road Pond
  - 2008 - Glen Lake Station Water Reuse project
  - Glen Lake Redevelopment – provided new stormwater treatment

Roles and Responsibilities

The Players

- **Department of Natural Resources (DNR)**
  - Aquatic Plants and Fisheries
  - Really anything that happens within the lake itself
- **Mn Pollution Control Agency (MPCA)**
  - Regulates upland areas that run into the lake
- **Nine Mile Creek Watershed District (NMCWD)**
  - Regulations – floodplain, stormwater, wetlands, dredging, sand blankets, etc
  - Capital Improvement – Projects like the 2005 Water Quality Improvements
  - Grant opportunities

Roles and Responsibilities

- The Players (con't)
  - **The City**
    - Land Use Authority – development and redevelopment
    - Regulations: Floodplain, Wetland, Tree preservation, Shoreland
    - Stormwater Design Guidelines and Standards
    - Capital Improvement Projects
    - Storm Sewer Maintenance – including pond dredging
    - Road Salt Management
    - Sediment and Erosion Control

What Can You Do To Help?

- Water Conservation
  - Rain Barrels
  - Watch for irrigation overspray
  - Moisture sensors for irrigation systems
- Lawn Care practices
  - Don’t overuse chemicals (pesticides, herbicides, fertilizer)
- Rain Gardens
  - Native plants
  - Infiltrates stormwater
  - Collects pollutants before they get to the lake

What Can You Do To Help?

- Lakeshore Buffers
  - Keep lawn chemicals from the lake
  - Stabilizes shoreline
- Salt Management
  - Shovel first
  - Less salt is better – sweep up excess

Resources:

- http://www.dnr.state.mn.us/lakefind/index.html
- http://www.ninemilecreek.org/
- http://www.bluethumb.org/
- http://masterwaterstewards.org/
- http://www.eminnetonka.com/departments/engineering-department/surface-water-quality

Questions?

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