

# Vegetation Dynamics in a Glacial Lake in Northeastern Illinois



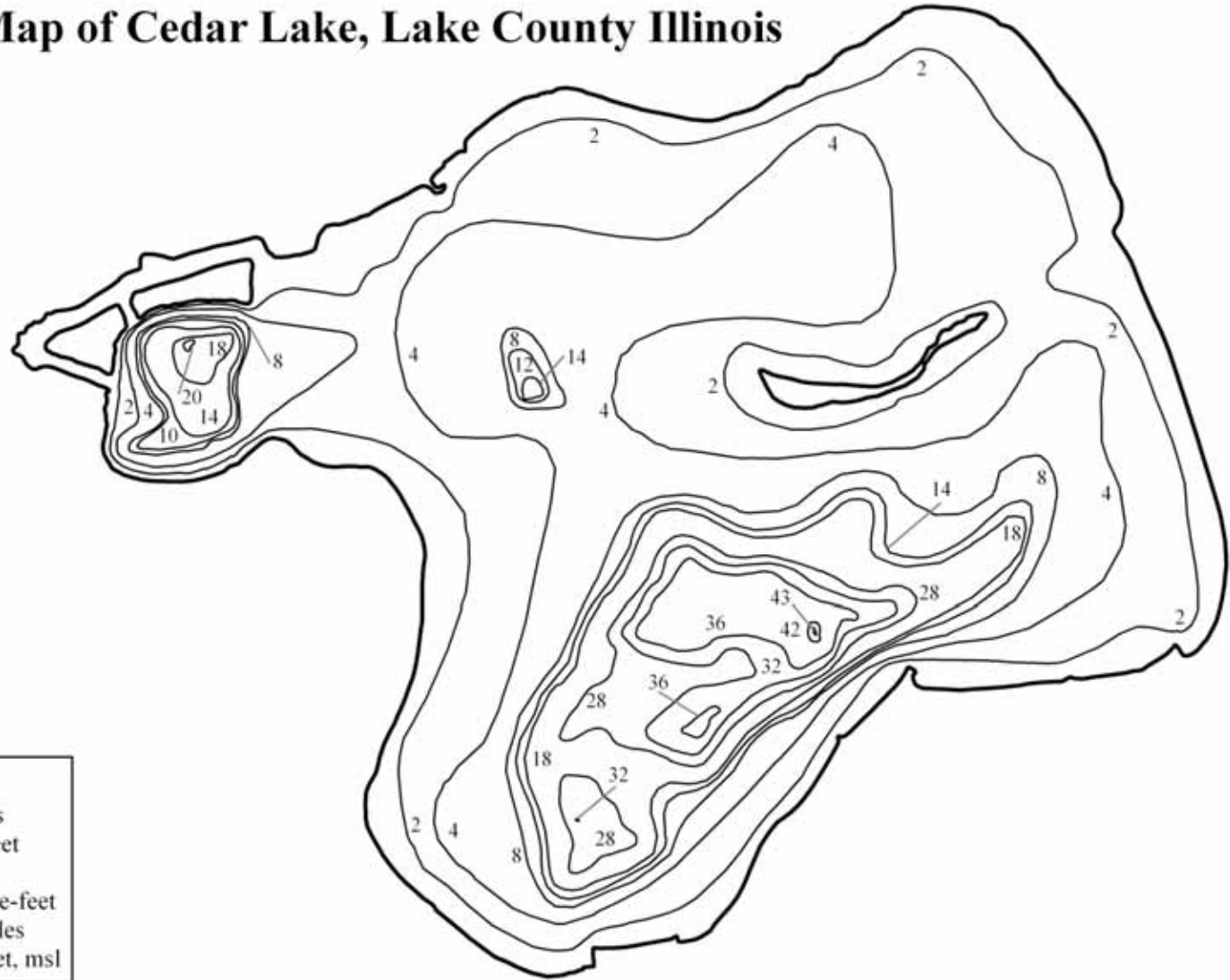
**LakeCounty**  
Health Department and  
Community Health Center

**Mike Adam**  
**Environmental Services**

# Cedar Lake, Lake County, IL

- Village of Lake Villa (pop. ~8,700)
- Only one boat launch in Lehman Park
- Village has an ordinance restricting boat motor to 10 HP
- Bottom Ownership: Village, private, IDNR, unincorporated

# Bathymetric Map of Cedar Lake, Lake County Illinois



## Morphometric Data

Surface Area: 301.96 acres  
Maximum Depth: 43.24 feet  
Average Depth: 7.51 feet  
Lake Volume: 2267.69 acre-feet  
Shoreline Length: 4.31 miles  
Lake Elevation: 793.90 feet, msl

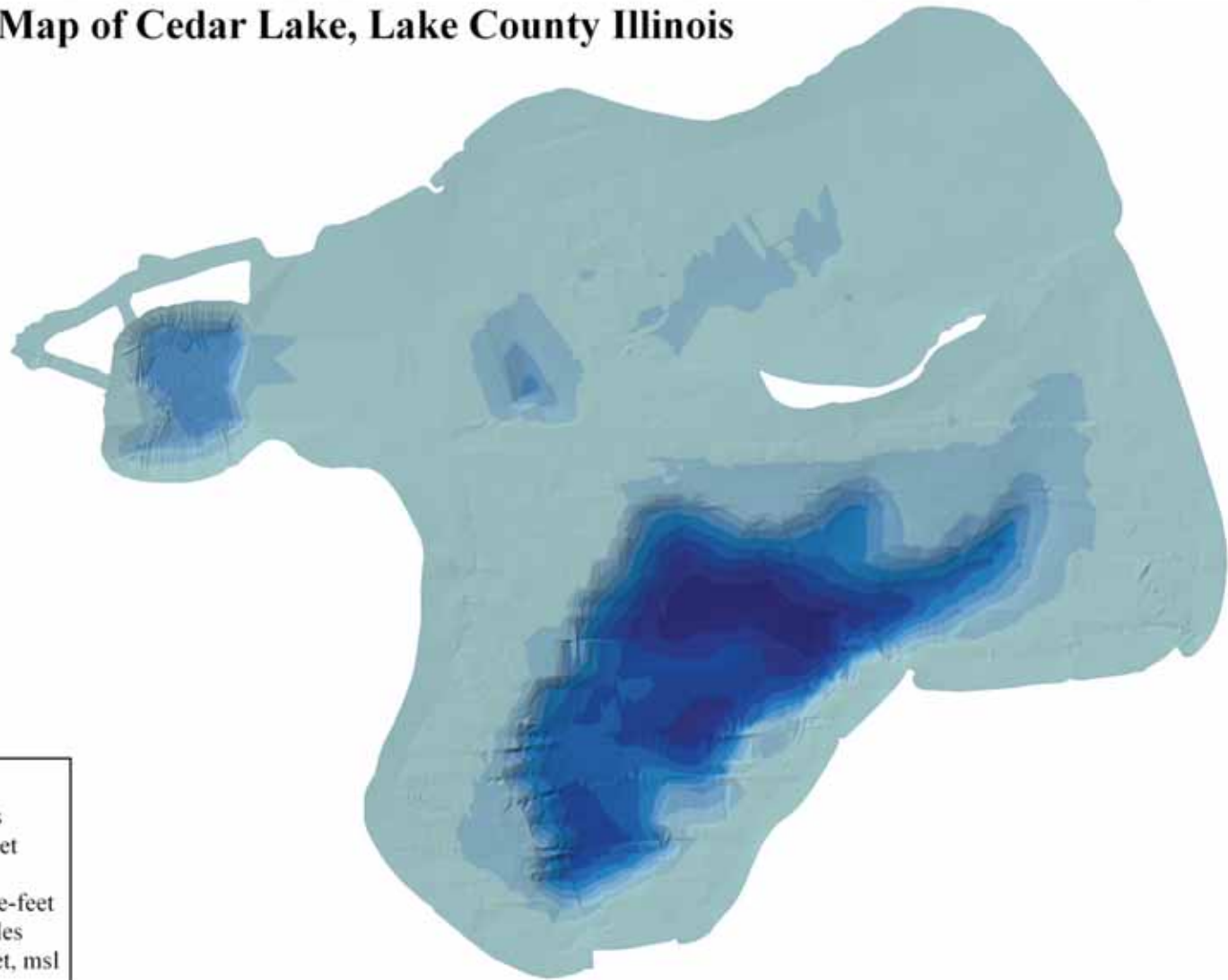
Survey data collected September 23, 2008

This map is intended for water quality reference only, not intended for navigational, swimming, or diving purposes.



Environmental Services  
Product Number CED.BM08  
Revised 10/2009

# Bathymetric Map of Cedar Lake, Lake County Illinois



## Elevation

Lightest Blue	-4.805 - 0
Light Blue	-9.609 - -4.805
Medium-Light Blue	-14.414 - -9.609
Medium Blue	-19.218 - -14.414
Dark Blue	-24.023 - -19.218
Very Dark Blue	-28.828 - -24.023
Dark Blue	-33.632 - -28.828
Very Dark Blue	-38.437 - -33.632
Darkest Blue	-43.241 - -38.437

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# Gem of Lake County

- State Threatened and Endangered fish species
  - Iowa Darter
  - Banded Killifish
  - Blackchin Shiner
  - Blacknose Shiner



# State of Illinois Threatened and Endangered Fish



Blacknose Shiner



Iowa Darter

# State of Illinois Threatened and Endangered Fish



Blackchin Shiner



Banded Killifish



# Gem of Lake County

## ■ State Threatened and Endangered aquatic plant species

- Whitestem Pondweed
- Water Marigold
- Fern Pondweed
- Variable Leaf Pondweed

## ■ Only lake to have all four



# State of Illinois Threatened & Endangered Plants



White-stem pondweed



Water marigold



Fern pondweed



Variable leaved  
pondweed  
State Threatened



## Cedar Lake Water Quality

- Secchi: 4<sup>th</sup> of 153 lakes (11.54 feet in 2010)
- Total Phosphorus: 6<sup>th</sup> of 153 lakes (0.015 mg/L; 2010)
- Total Suspended Solids: 1.92 mg/L (2010)

# Cedar Lake Plant Diversity

- Ranked #1 in Floristic Quality (154 lakes)

- FQI = 38.0 (Lake County mean = 15.3)

- However....



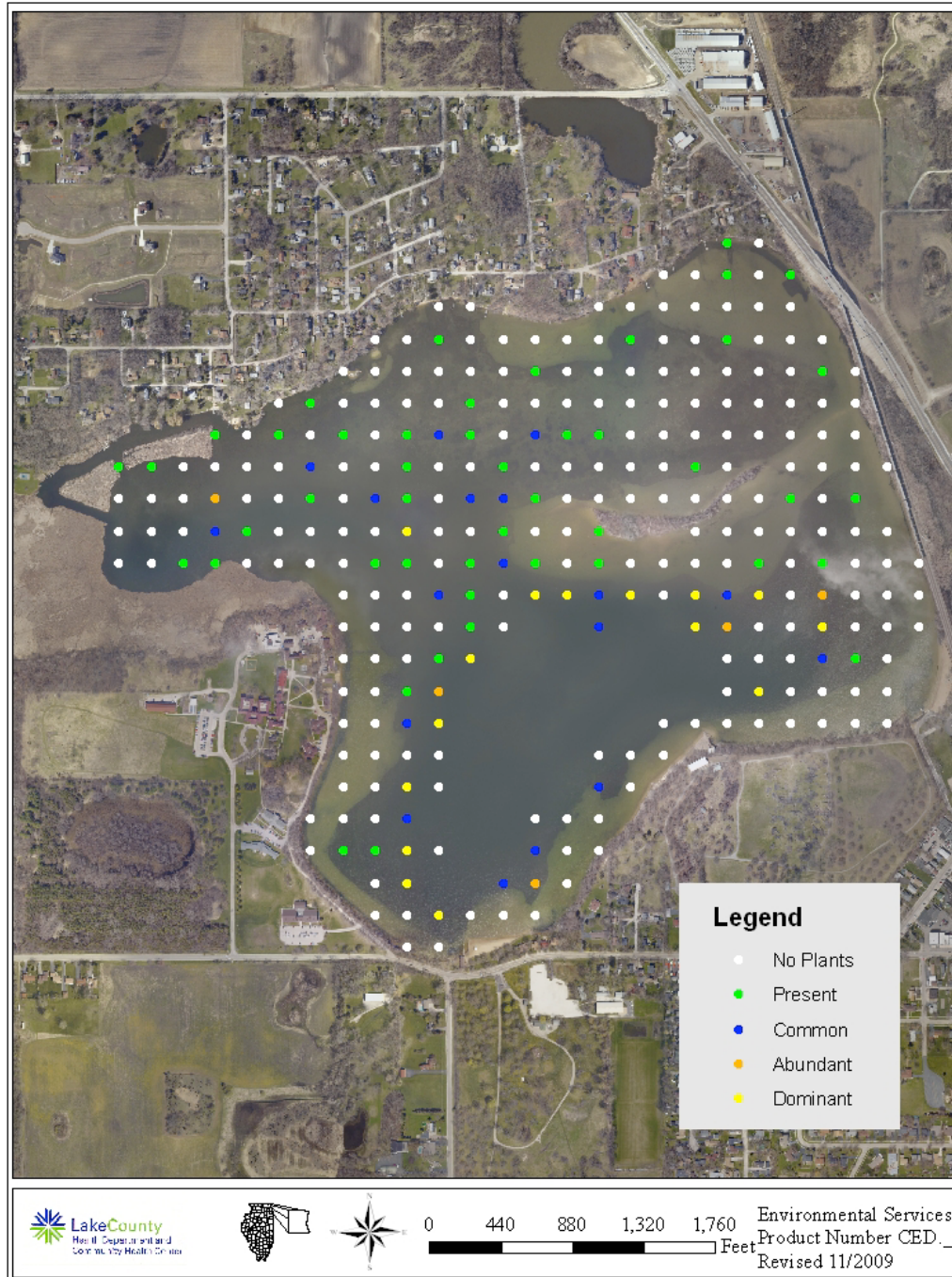


# Lake County Sentinel Lake Program

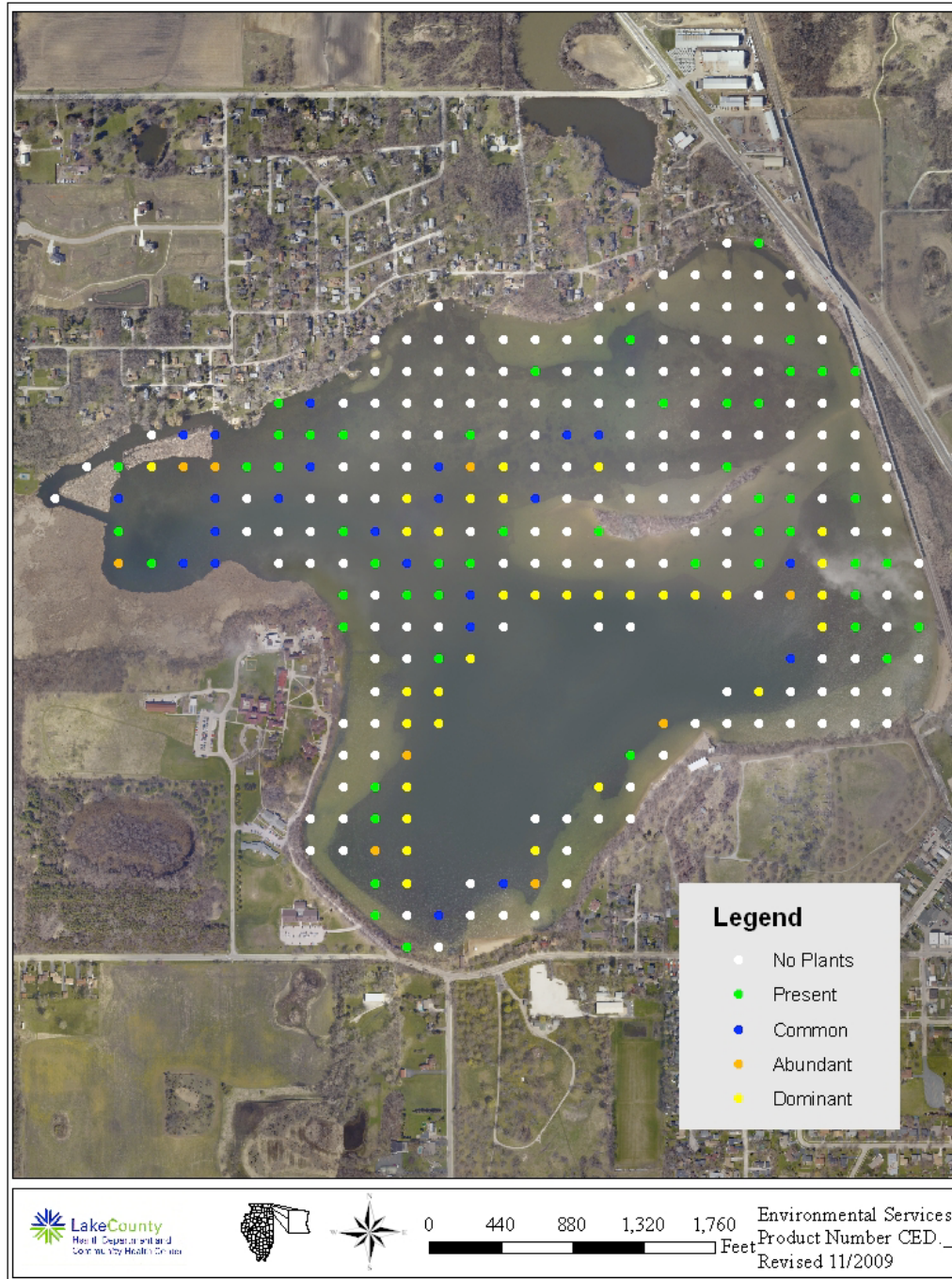
- Cedar Lake one of seven lakes
- Monitored annually for lake water quality and aquatic plant diversity
- Aquatic macrophytes surveys, 2x/year



2005

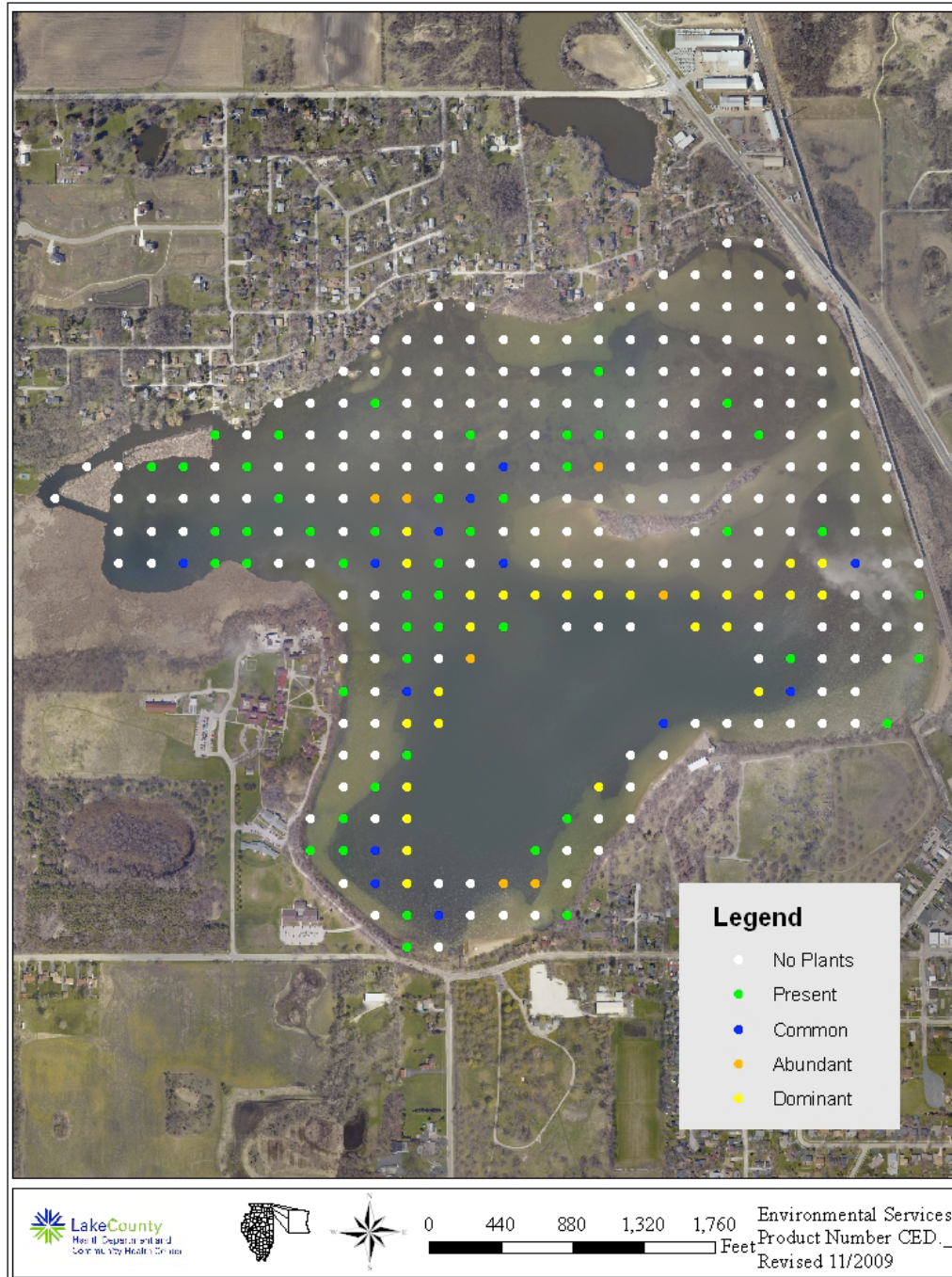


2006

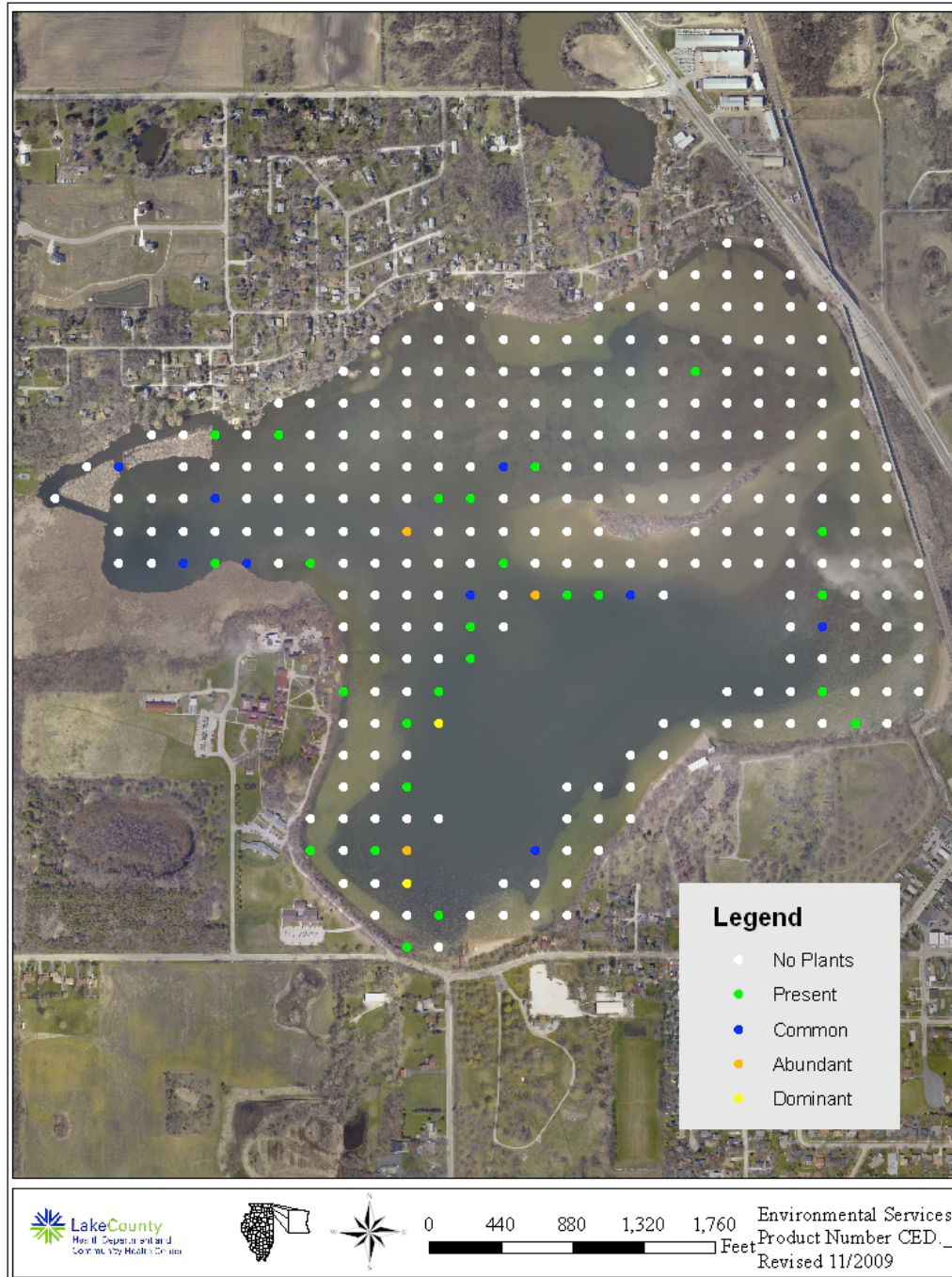




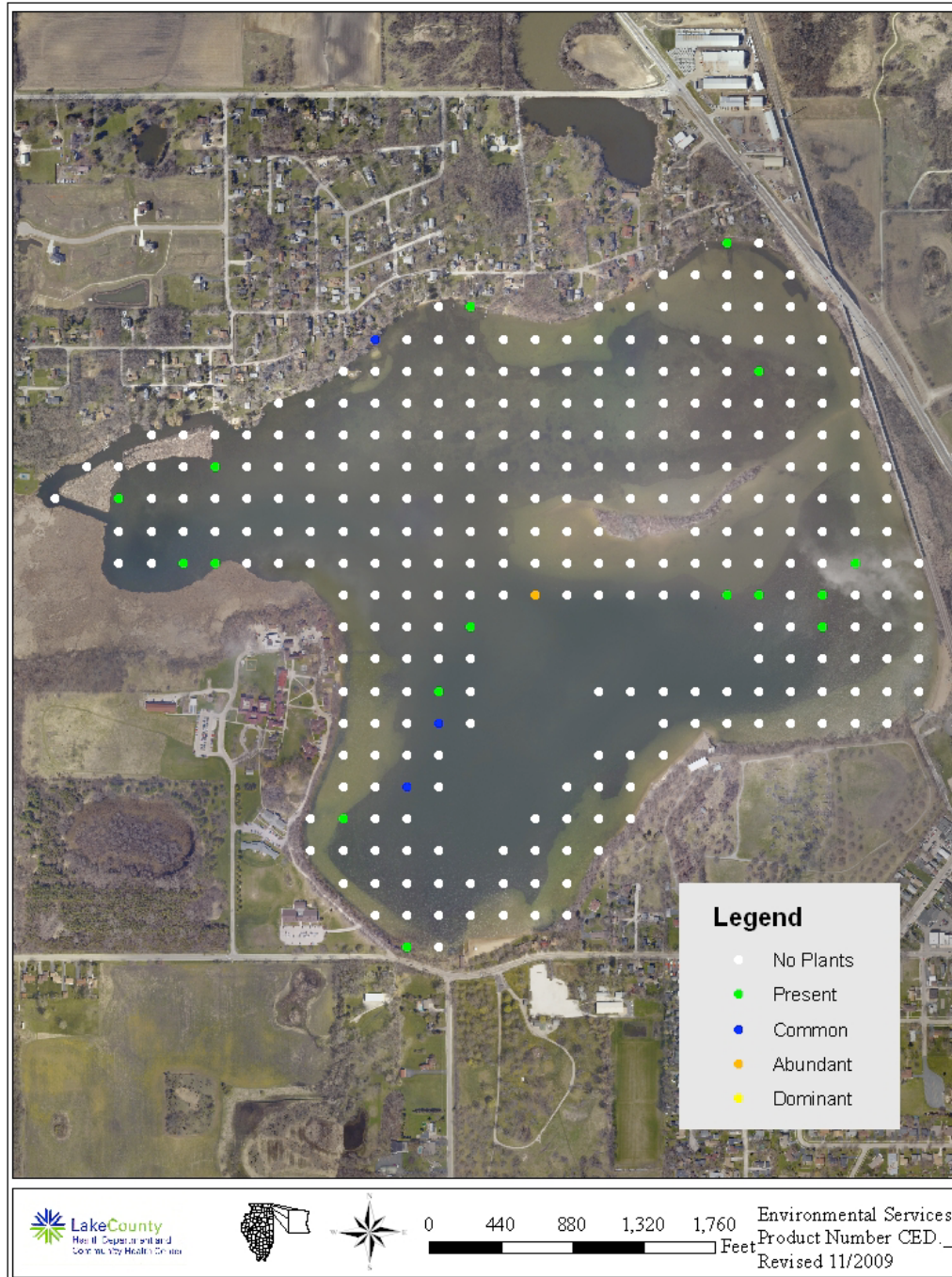
2007



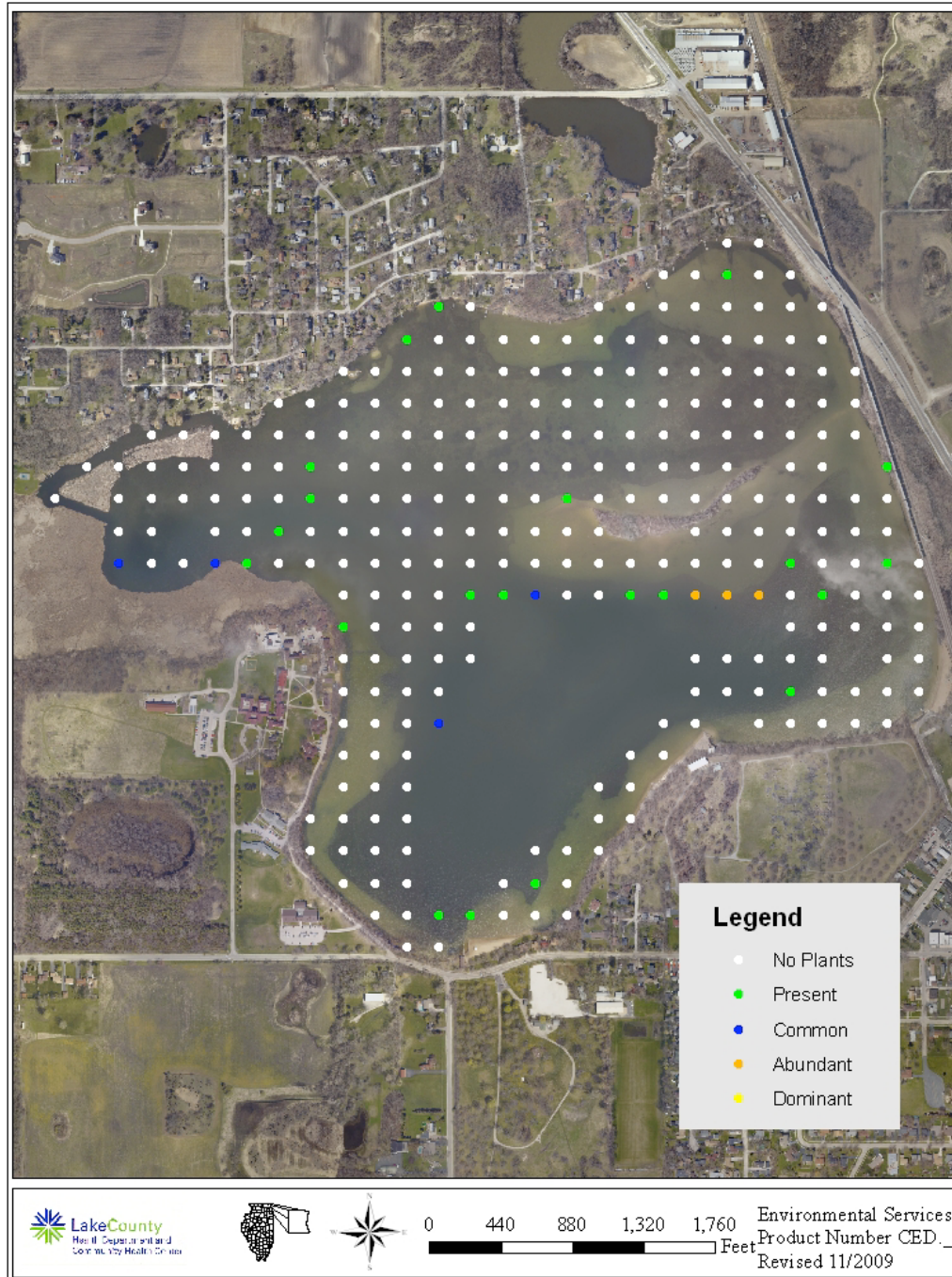
2008

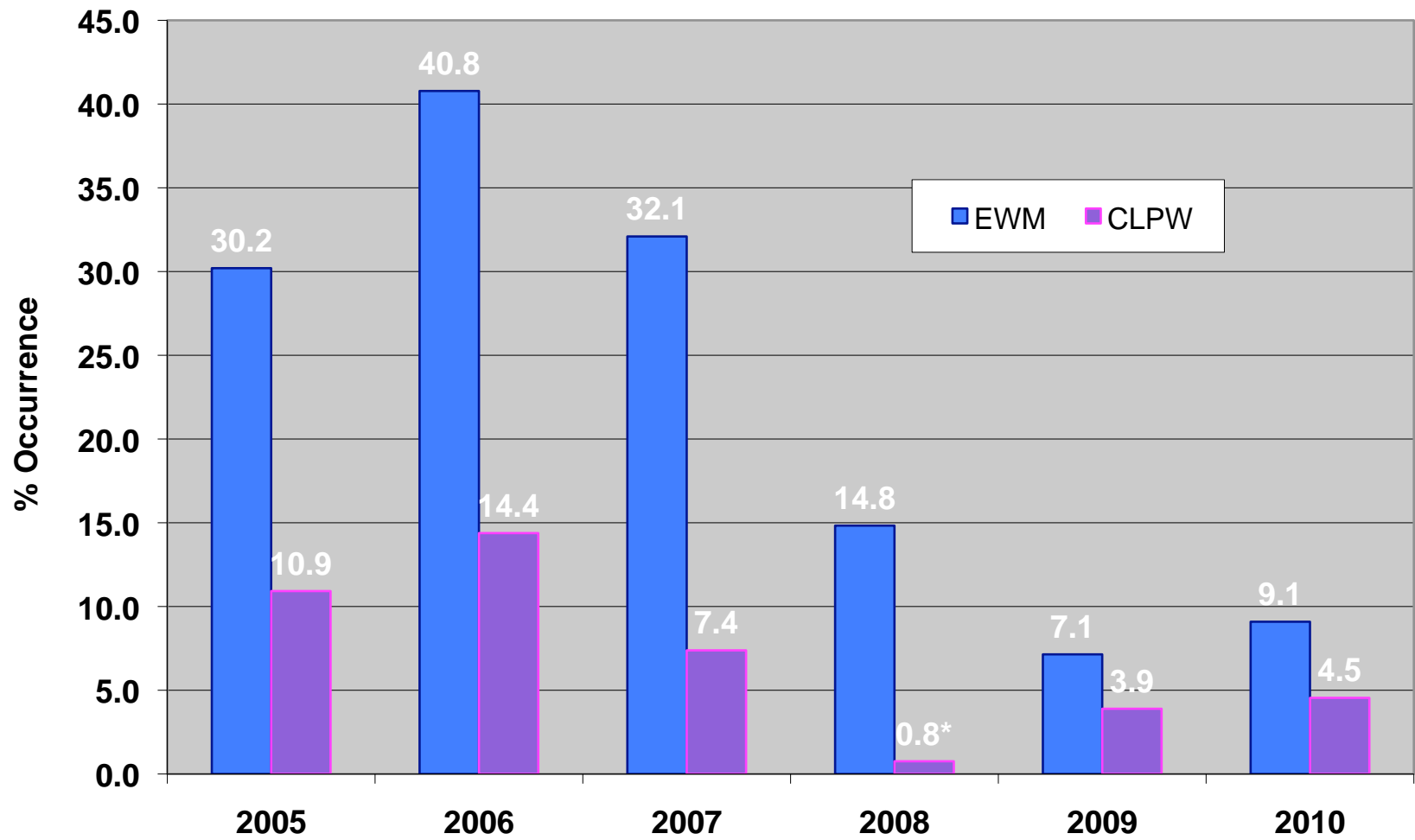


2009

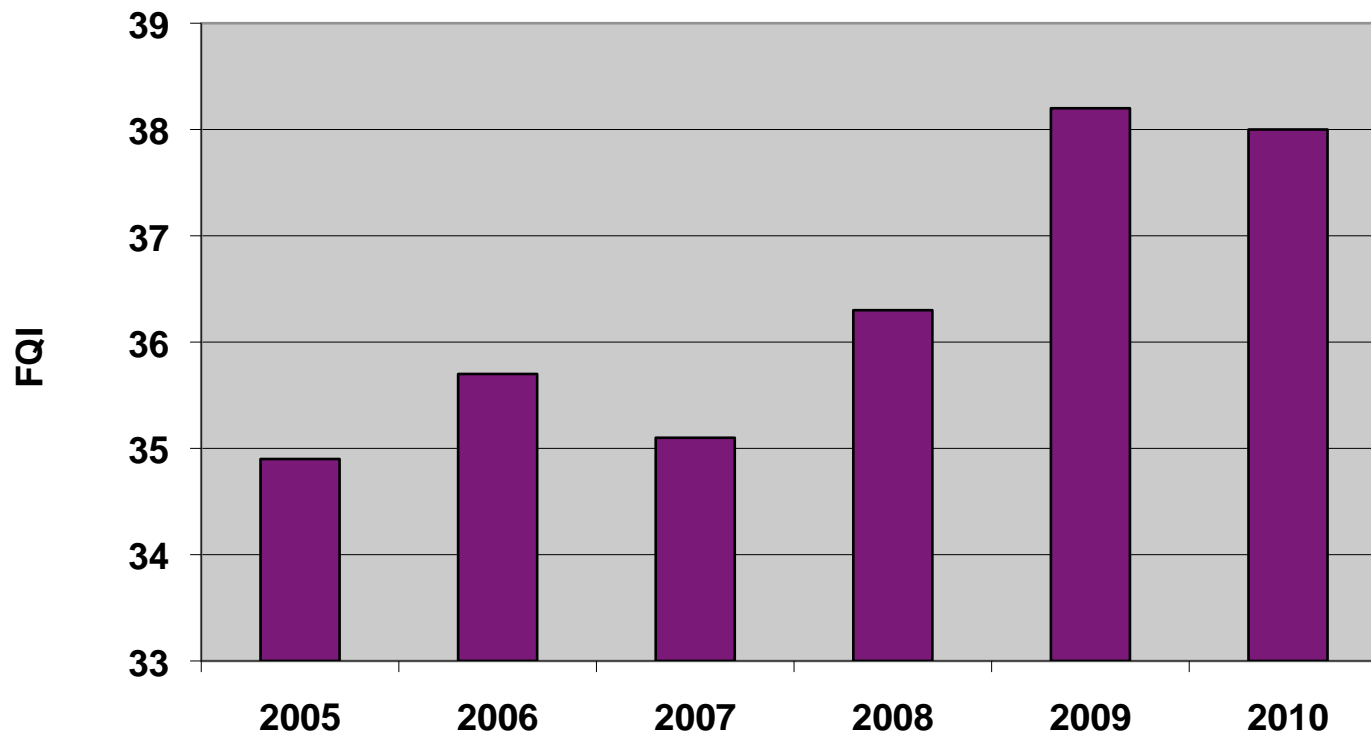


2010





## Floristic Quality Index - Cedar Lake

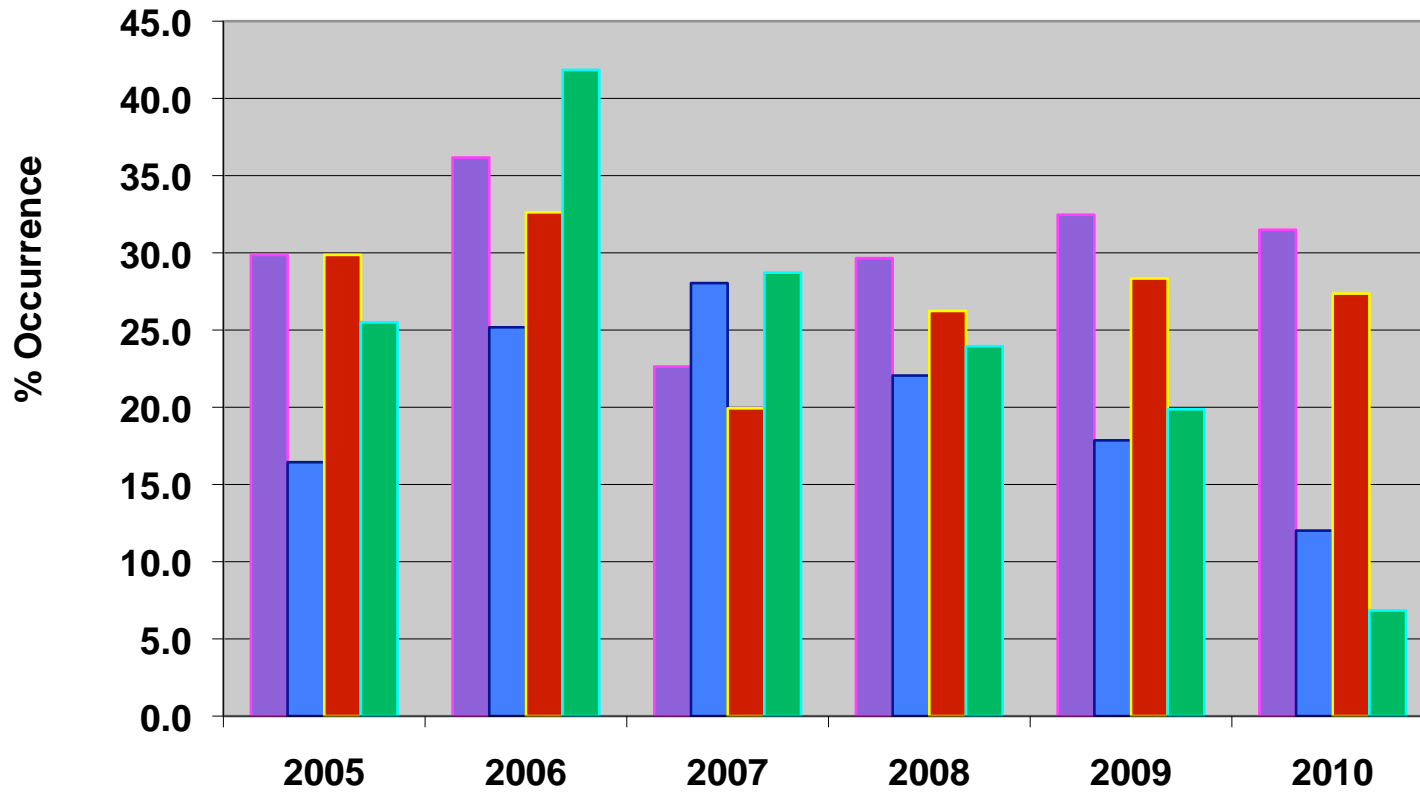


# Decline in EWM

## ■ WHY?

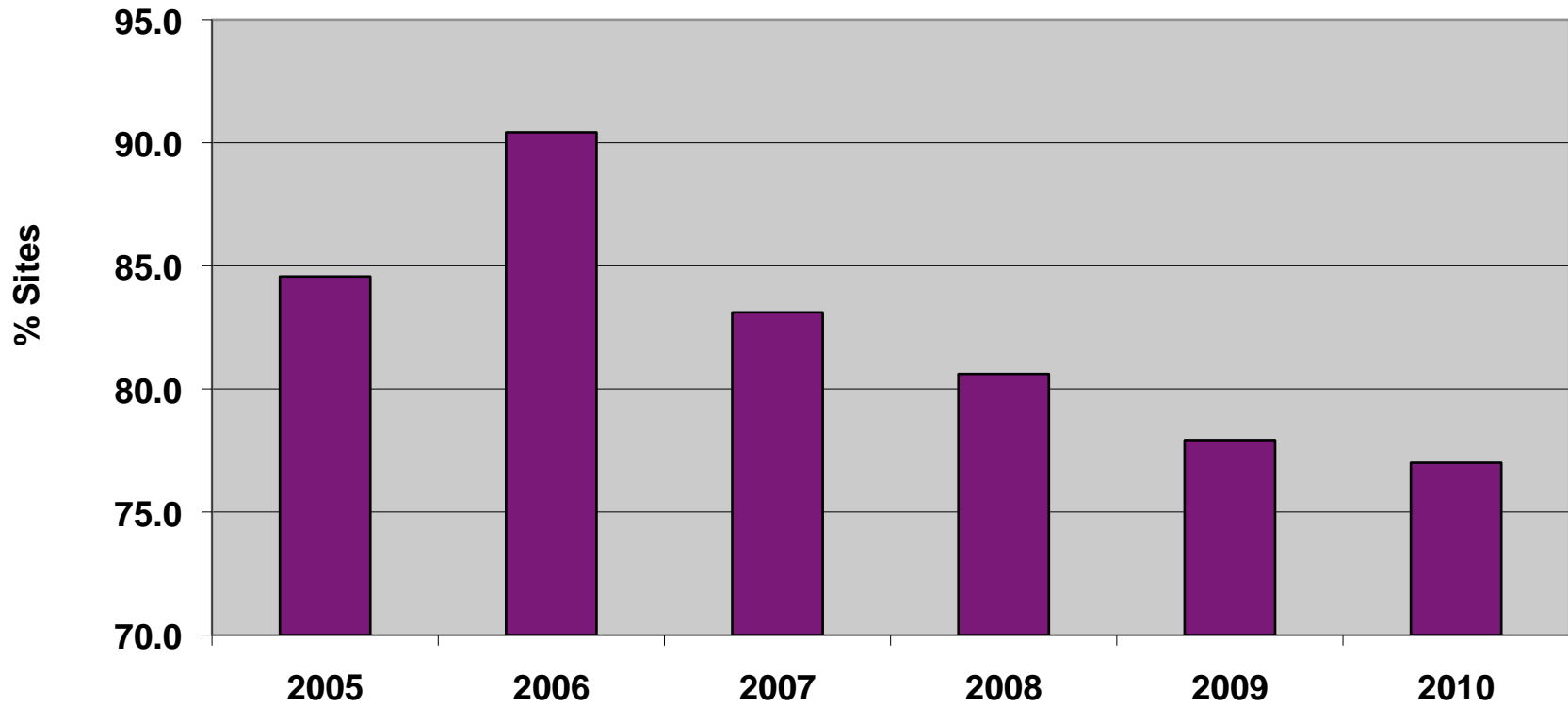
- Herbicide treatments...NO
- Annual variation
  - Competition
  - Weather
- Biological control







# Total Sites with Plants



# Decline in EWM

## ■ Weather?

– Increase precipitation, 2007-2010

## ■ Water Quality

WQ Year	Avg TSS	Avg Secchi	Avg TP
2003	2.2	12.16	0.021
2005	2.4	8.58	0.018
2006	1.9	13.07	0.015
2007	2.1	11.35	0.016
2008	2.6	7.04	0.022
2009	2.2	9.39	0.017
2010	1.9	11.54	0.015

# Decline in EWM

- Natural or Biological Control

- Milfoil Weevil (*Euhrychiopsis lecontei*)



# Milfoil Weevil

- Natural shorelines for overwintering
- Limited boat activity
- Cyclic



## Decline in EWM

### ■ Other insects

- *Cricoptopus myriophylli* (midge)
- *Acentria ephemerella* (pyralid moth)

### ■ Pathogens

- *Mycoleptodiscus* (fungus)

### ■ US Army Corps currently studying 7 pathogens

## Decline in EWM

- Milfoil weevil may have played a role
- However, other species declined, pointing toward other factors
  - *Competition, weather*
- More to come....