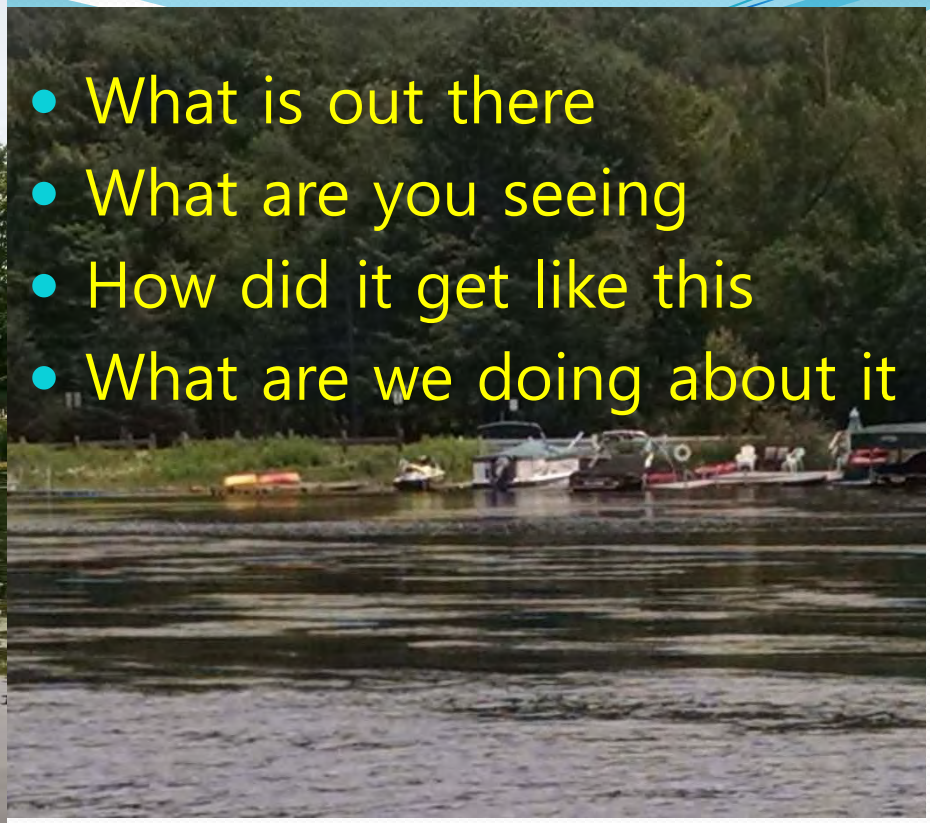
Copake Lake Annual Meeting

July 8, 2017

Northeast Aquatic Research
74 Higgins Highway
Mansfield Center, CT

Weeds & Algae



- What is out there
- What are you seeing
- How did it get like this
- What are we doing about it

Eurasian Milfoil
Curly-leaf pondweed
Stringy Pondweed
Elodea
Star Grass

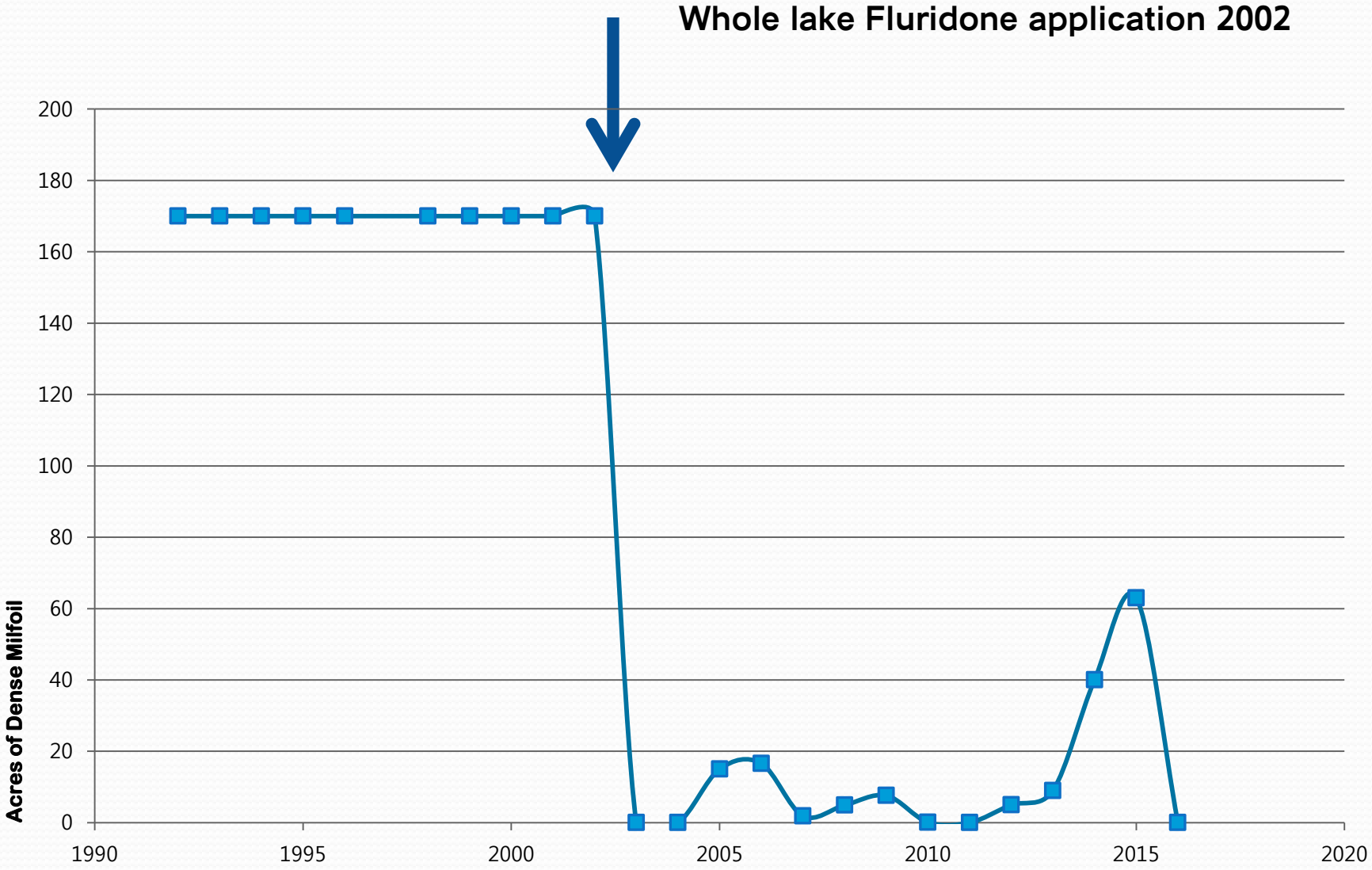
Eurasian Milfoil

Curly-leaf pondweed

Milfoil Coverage in 2000

Acres of Milfoil

Treat 40-55 acres annually with contact herbicide



Treatment History

- 2003 **no treatments**
- 2004 **no treatments**
- 2005 **Granular Sonar -7 ac, & Liquid Nautique -14 ac**
- 2006 **Granular Endotholl -17 acres**
- 2007 **Aquathol 40 acres**
- 2008 **Aquathol 45 acres**
- 2009 **Aquathol/Renovate 40 acres**
- 2010 **Reward (Diquat) 47 acres**
- 2011 **Reward (Diquat) 45 acres**
- 2012 **Reward (Diquat) 55 acres**
- 2013 **Reward (Diquat) 45 acres**
- 2014 **Reward (Diquat) 43 acres**
- 2015 **Fluridone (pellets) 45 acres**
- 2016 **Reward (Diquat) 55 acres**

(this page needs further verification)


Copake Lake
Myriophyllum spicatum
May 24th, 2017
0
1,000
2,000
3,000
Feet
N
Myriophyllum spicatum

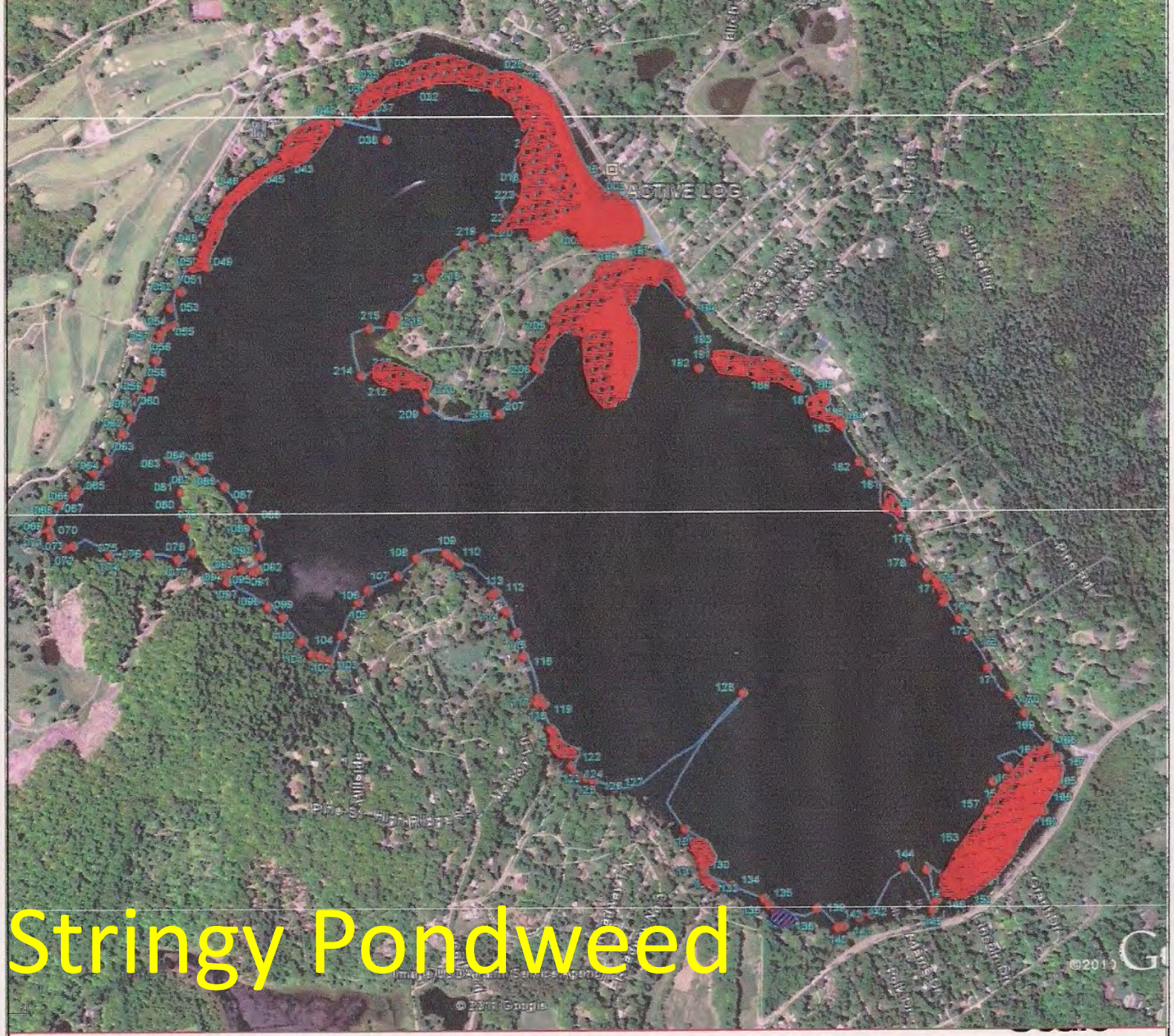
Copake Lake
Myriophyllum spicatum
June 22nd, 2017

0 1,000 2,000 3,000 Feet

Myriophyllum spicatum

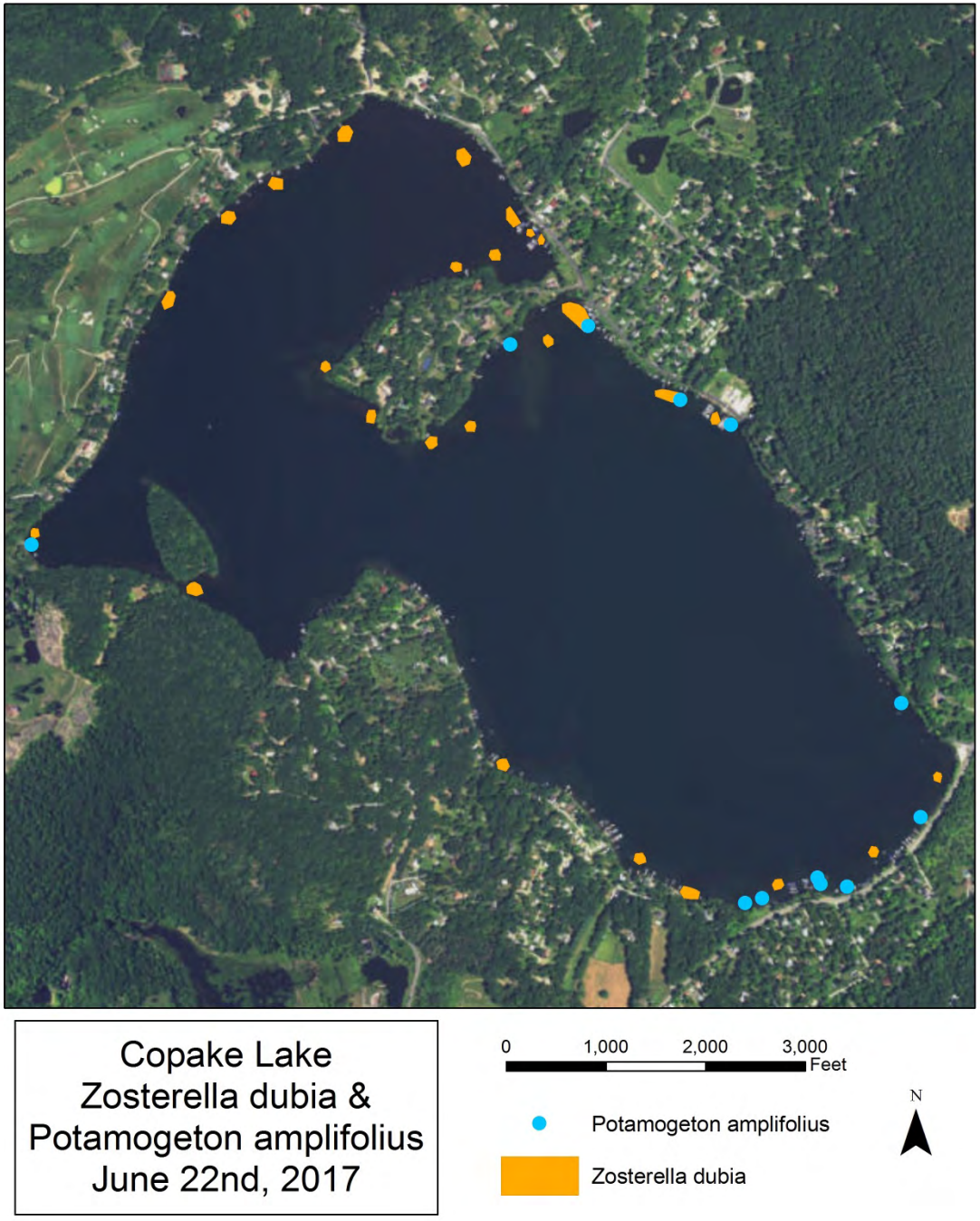
N

Stringy Pondweed
Potamogeton strictifolius


ACTIVE LOG
Stringy Pondweed

Native aquatic plants becoming problems

Yellow star-grass
Large-leaf pondweed



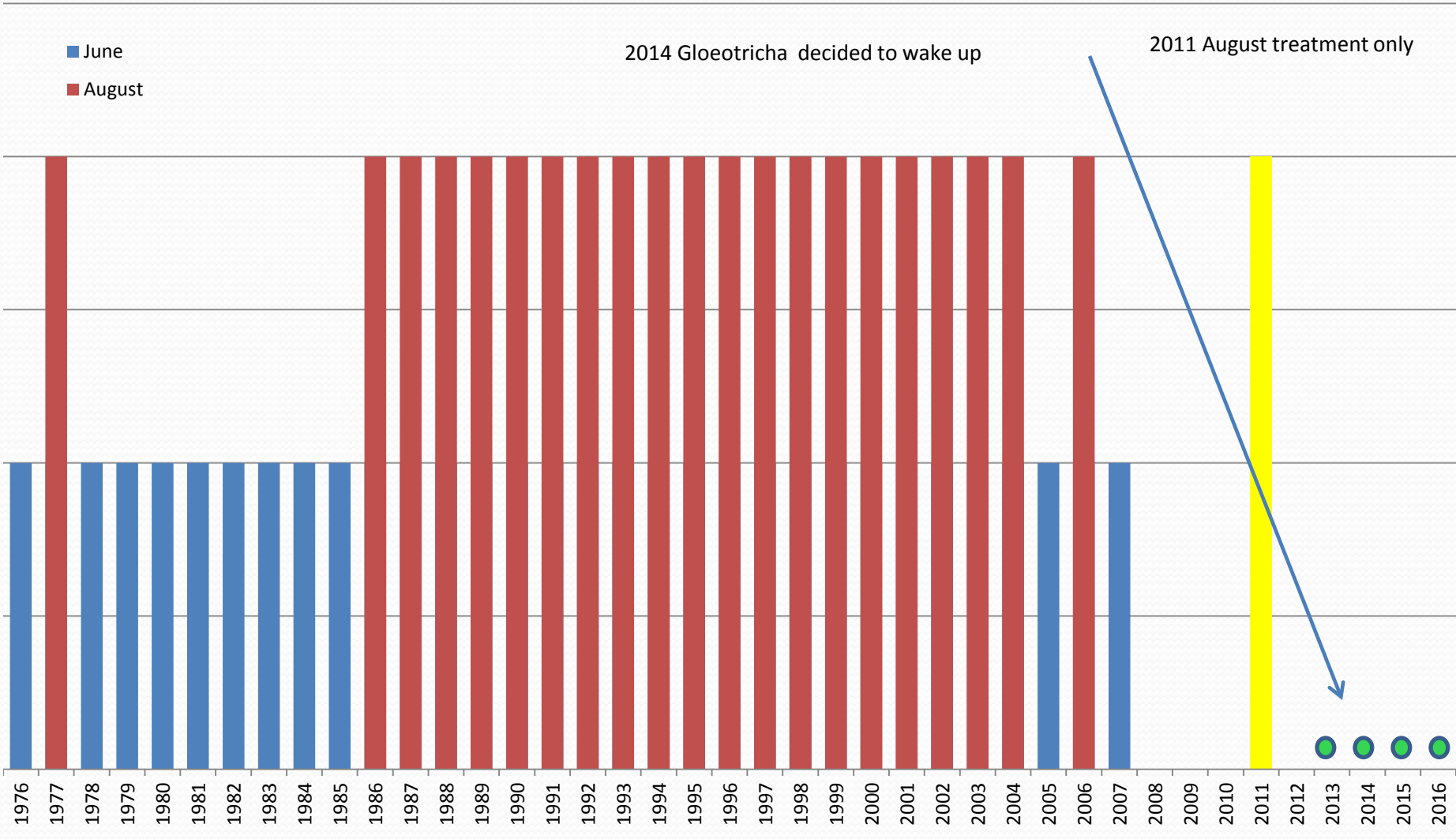
Yellow star grass

Large-leaf Pondweed

Filamentous algae

14 acres of dense filamentous algae

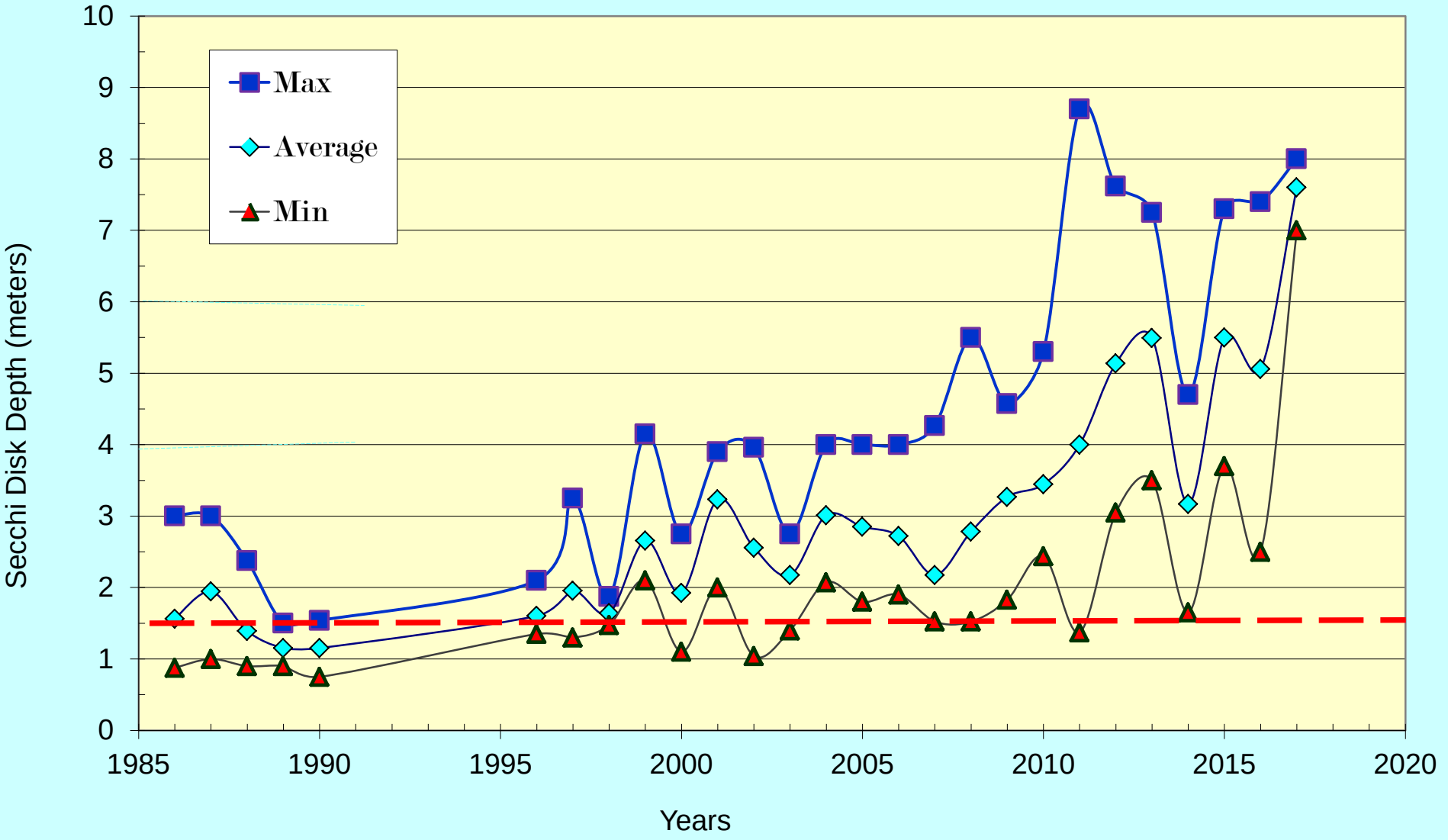
Trend in whole-lake copper sulfate treatments to control cyanobacteria



Gloeotricha was first noticed during our July visit as small spheres in the upper water column

Photo credit =Greenwater lab 8-25-14

Long-term trend in water clarity

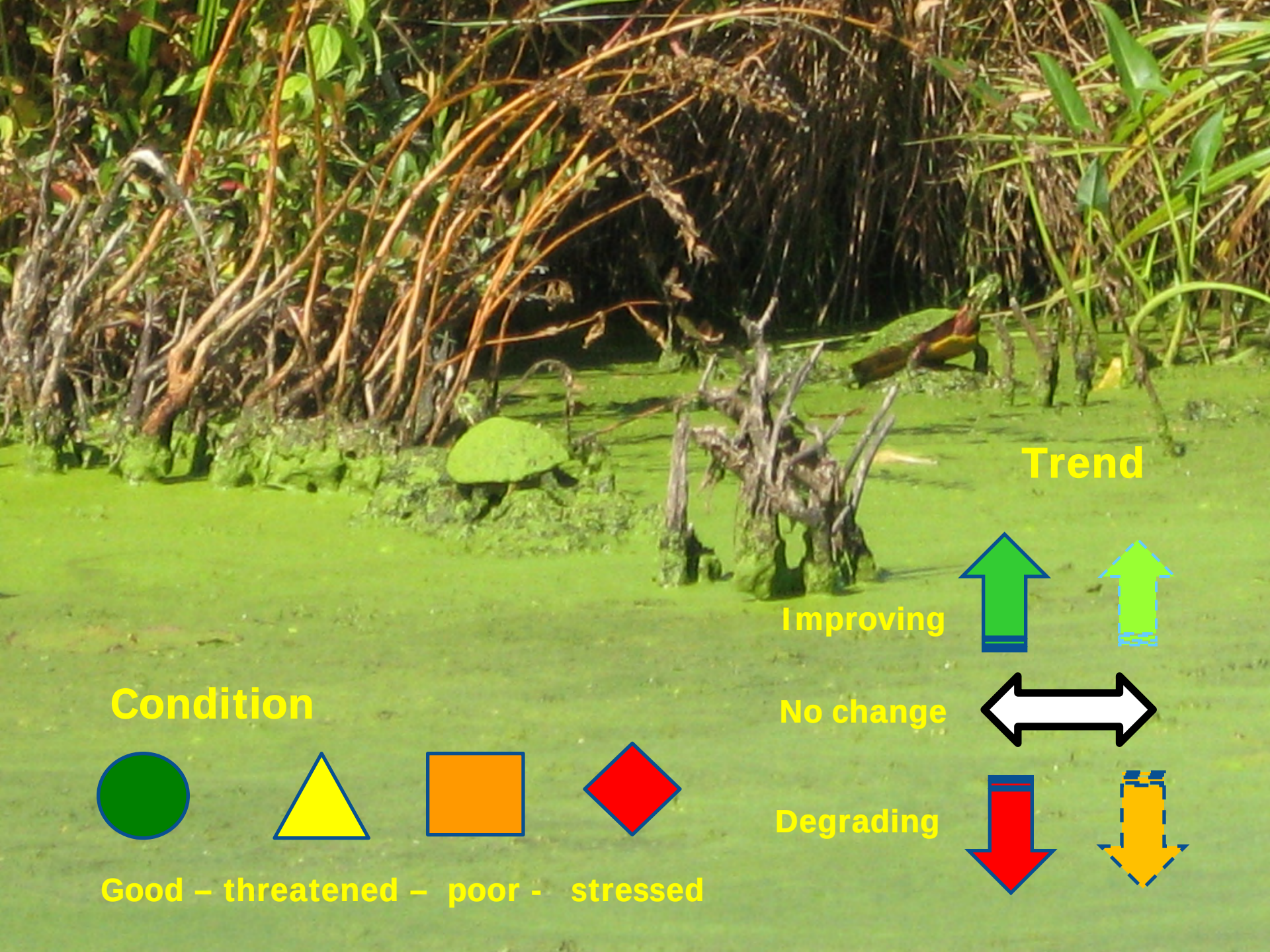


Microcystin results from 2014 Bloom and shoreline scum

Label	8-25-14	9-6-14	9-22-14
County Corner	1.0		
Lakeview/Bluebird		22.0	
Robin			0.33
East Side of Island			1.32
Dam		2.4	
Rusty Dock		4.1	
Mosquito Island East side		40.0	70.0

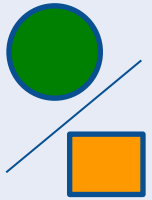
Microcystin results from October 4, 2012 shoreline scum

Site	Microcystin in ppb
Lighthouse	4.3
Bluebird	4.6
North Causeway	1.6
Dam	37.5
North Shore	2.5
Arrowwood	1.1
Cove Colony	49.0


Trend
Improving
No change
Degrading
Condition
Good – threatened – poor - stressed

Copake Lake Condition

Whole lake Fluridone application 2002

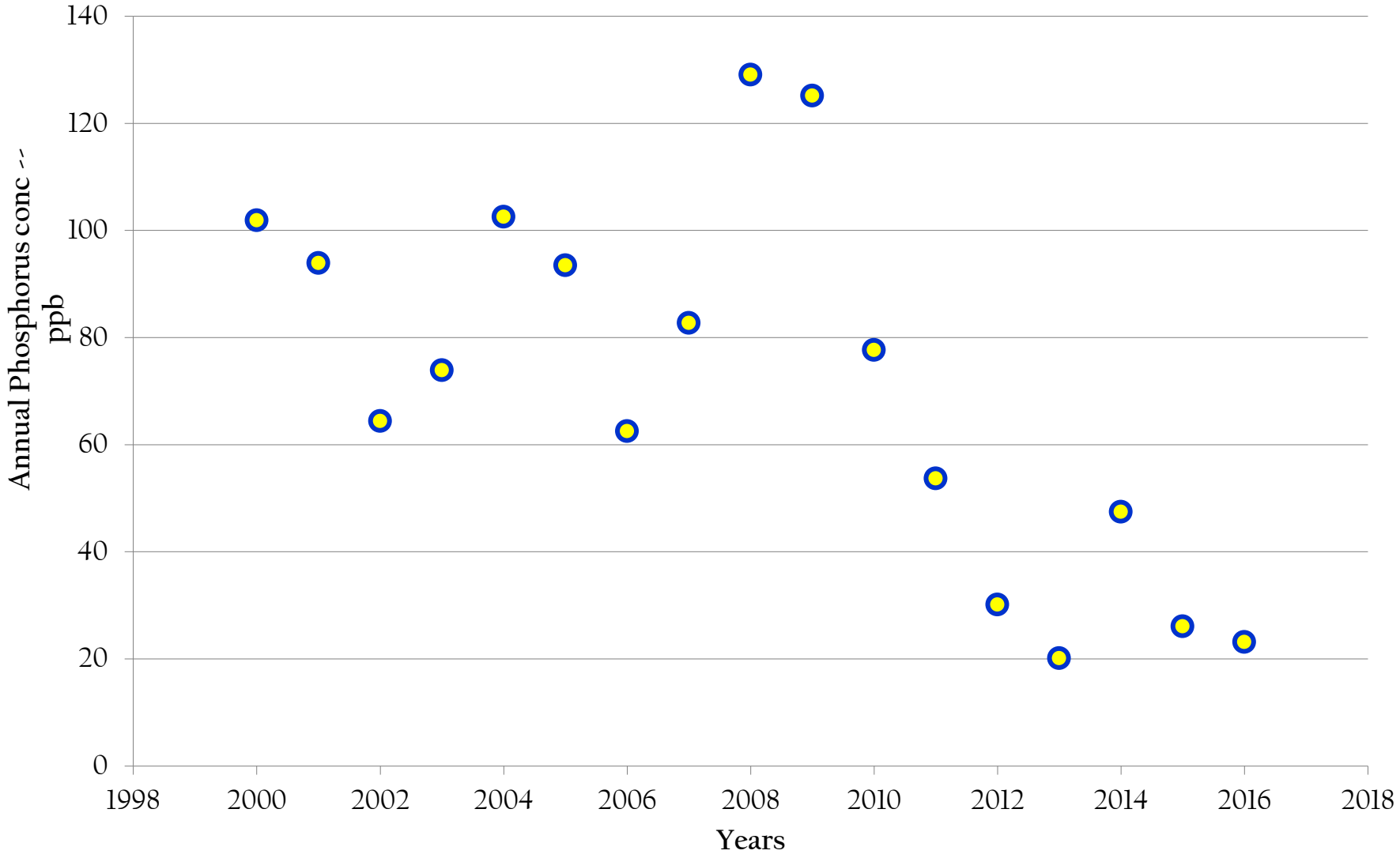
	2000	2005	2006	2007	2008	2009	2010	2011	2012
Milfoil & Curly									
Water clarity									
Native plant diversity									

Copake Lake Condition

	2013	2014	2015	2016	2017				
Milfoil & Curly									
Water clarity									
Native plant diversity									

There are now 11 species of native aquatic plants in Copake Lake

Long-term trend in phosphorus content



Summary 1

1. In 2017, we went back to using Diquat herbicide to treat aquatic plants. Diquat has proved very effective in the past for quick, early season control of milfoil.
2. During our June survey we saw very little milfoil and no curly-leaf pondweed. However a couple of native speces may provide to be dense this season, large-leaf pondweed, and Yellow-star grass.
3. Gloeotrichia so far has NOT been present in the lake this year. We will be watching this closely this year we will be attempting to control growth of this cyanobacteria with copper sulfate if need be.

Summary 2

4. Phosphorus concentration in the lake has been decreasing overall for the last several years with lowest values so far recorded this year.

5. Water clarity has been excellent this year so far.

6. Growths of filamentous algae are severe again this year and was targeted with a shoreline copper sulfate treatment.