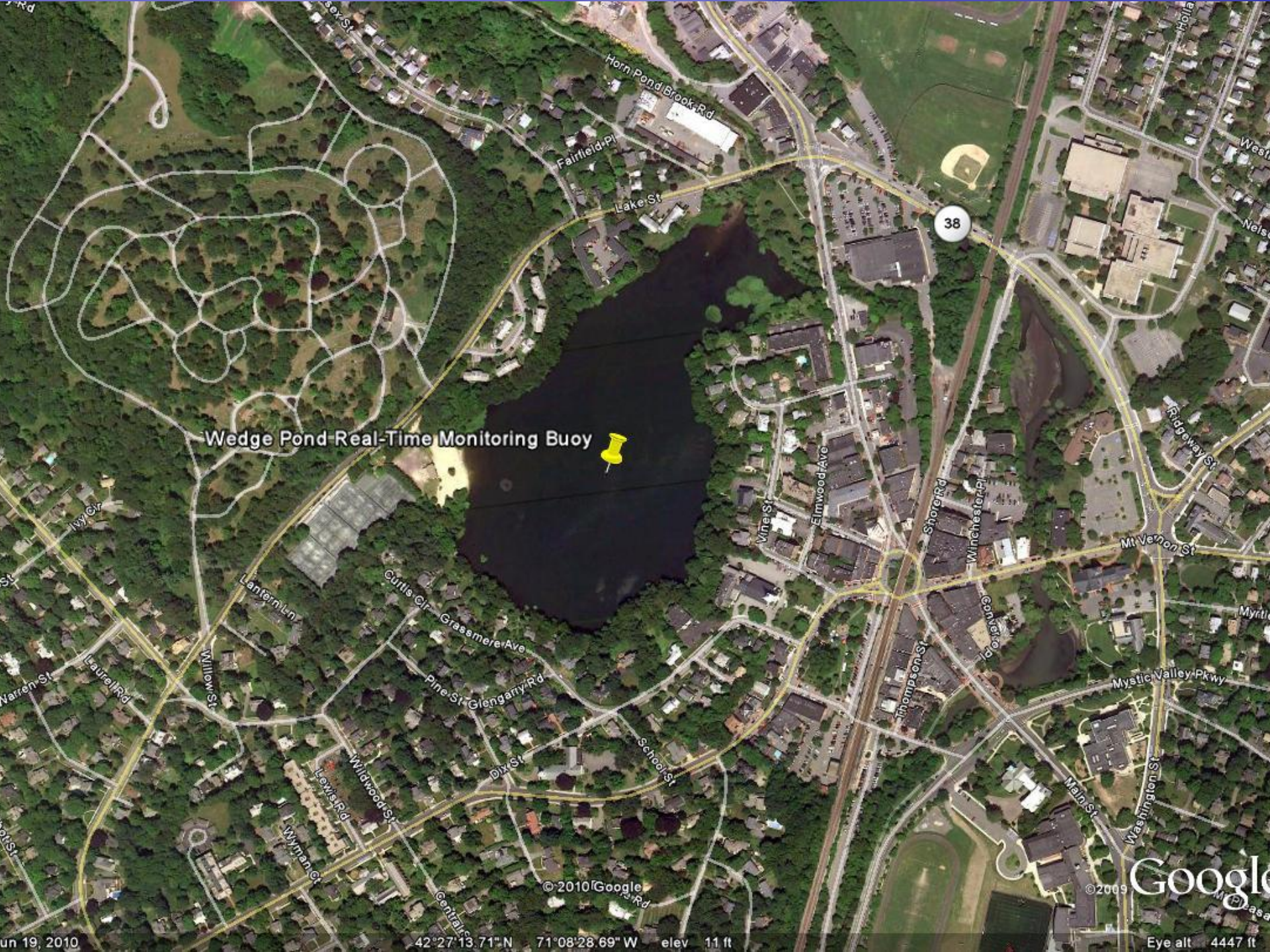
Using Real-Time Monitoring for Assessing Water Quality Conditions and Cyanobacteria Algal Blooms in the Mystic River Watershed.

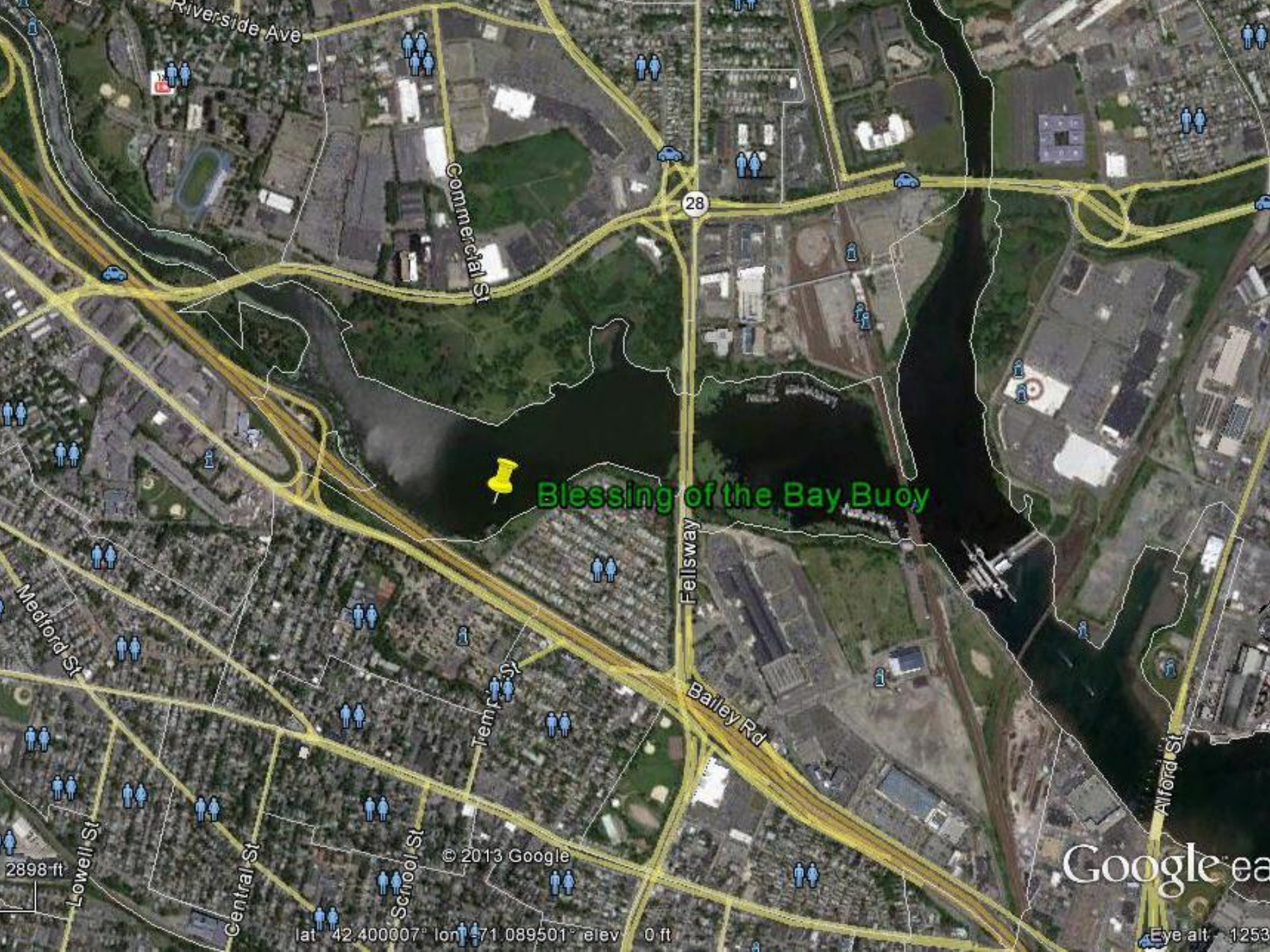
Tom Faber
US EPA New England Regional Laboratory

Scope and History

- Monitoring location were selected for high recreational use that have had historic algal blooms
- Data available real-time to project Partners
- 2010 - Wedge Pond Winchester
- 2011 - Spy Pond Arlington
- 2012 - Blessing of the Bay

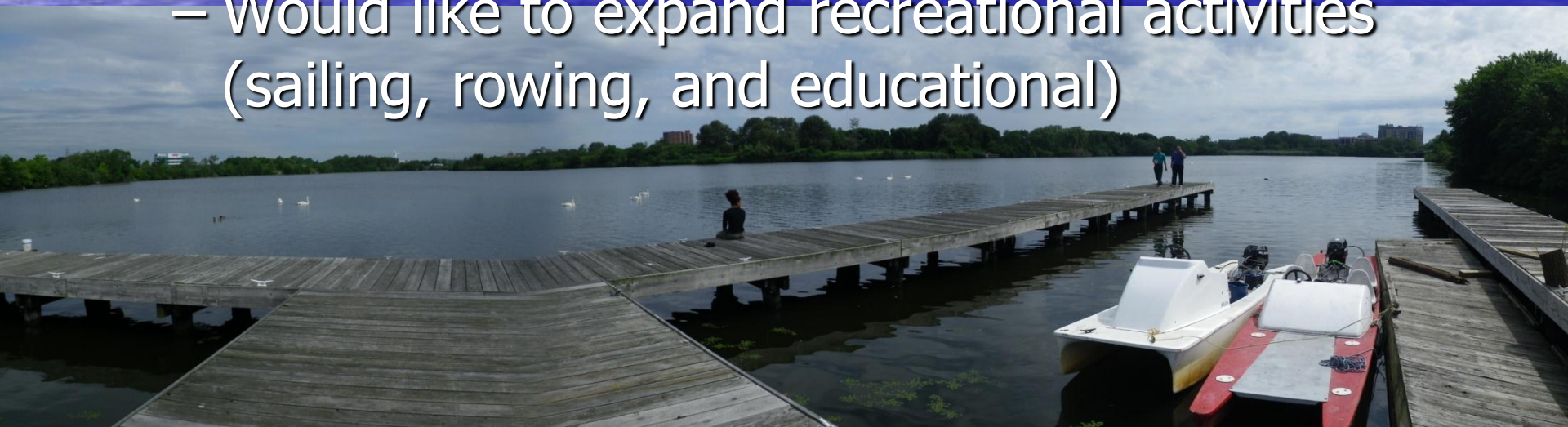

Wedge Pond Real-Time Monitoring Buoy
Horn Pond Brook Rd
Fairfield Pl
Lake St
38
Ridgeway St
Mt Vernon St
Mystic Valley Pkwy
Vine St
Elmwood Ave
Shore Rd
Winchester Pl
Converse Pl
Thompson St
Main St
Washington St
Lantern Ln
Curtis Cir
Grassmere Ave
Pine St
Glengarry Rd
Willow St
Laurel Rd
Warren St
Dix St
School St
Wildwood St
Lewis Rd
Wyman Ct
Ivy Cir
© 2010 Google
©2009 Google
un 19, 2010
42°27'13.71" N 71°08'28.69" W elev 11 ft
Eye alt 4447 ft

Spy Pond Real-Time Monitoring Buoy
Spy Pond
Arlington
Kelwyn Manor
East Arlington
Linwood St
Spy Pond Pkwy
Bay State Rd
Garrison Rd
Pioneer Rd
Roanoke Rd
Eliot Rd
Gabot Rd
Chesapeake Rd
Pondview Rd
Alfred Rd
Lakehill Ave
Hamilton Rd
Elmhurst Rd
Orvis Rd
Randolph St
Newcomb St
Freeman St
Marion Rd
Marion Ct
Everett St
Grafton St
Oxford St
Winter St
Cleveland St
Warwick St
Windsor St
Chandler St
Marlose St
Massachusetts Ave
Hebert Rd
Varnum St
Magnolia St
Lee Terrace
Amsden St
Mott St
Dorothy Rd
Margaret St
Parker St
White St
Littlejohn St
Concord Turnpike
Tobey Rd
Milton St
Albert Ave
Cross St
Gilmore Rd
Wildwood Ave
Windermere Ave
Maple St
Swan St
Swan Pl
Pelham Terrace
Oak Knoll St
Academy St
Lombard Rd
Lombard Terrace
Library Way
Irving St
Peabody Rd
Hopkins Rd
Addison St
Wellington St
Pond Ln
Lakeview St
Gray St
Jason St
Norfolk Rd
Gould Rd
Brantwood Rd
Medford St
Beldon St
Compton St
Alton St
Whittemore St
Avon Pl
Franklin St
Pannon Park
Webster St
Palmer St
Beacon St
Park St
Mystic Valley Pkwy
Fordham St
Exeter St
Dartmouth St
Cornell St
Bowdoin St
Amherst St
Warren St
Rawson Rd
Broadway
Wyman St
Allen St
Foster St
Tufts St
Bates Rd
Harlow St
River St
Yale Rd
Wellesley Rd
Regis Rd
University Rd
Ernest Rd
Purcell St
Heath Rd
Union St
© 2009 Google


Riverside Ave
Commercial St
28
Blessing of the Bay Buoy
Fellsway
Medford St
Temple St
Bailey Rd
Alford St
Lowell St
Central St
School St
© 2013 Google
2898 ft
lat 42.400007° lon -71.089501° elev 0 ft
Google ea
Eye alt 1253

Blessing of the Bay Boathouse

- Partnered with Somerville for boat use
- Owned by DCR operated by Somerville
- Somerville
  - First year for canoe rentals 2012
  - Would like to expand recreational activities (sailing, rowing, and educational)



Sonde Measurements

- Recorded every 15 minutes
- Blessing of the Bay measurement period 6/14 - 9/26/11
- Measurements collected at 1 meter depth
- Parameters
  - Temperature,
  - Conductivity
  - pH
  - Dissolved oxygen
  - Turbidity
  - Chlorophyll
  - Phycocyanin

Charles and Mystic River Real-Time Monitoring
EPA New England Regional Laboratory

Environmental Protection Agency (EPA) has established monitoring buoys in the Charles and Mystic Watersheds. These buoys collect and transmit water quality data that is available to the public. EPA has established these buoys to help with the tracking of cyanobacteria blooms and water quality conditions.

Note: **All water quality measurements are collected 1 meter below the water's surface**

Last Sonde verification: Charles 9/12/12 Mystic 9/12/12

Click here

Project Partners:

Community Boating Inc. Boston

CRWA

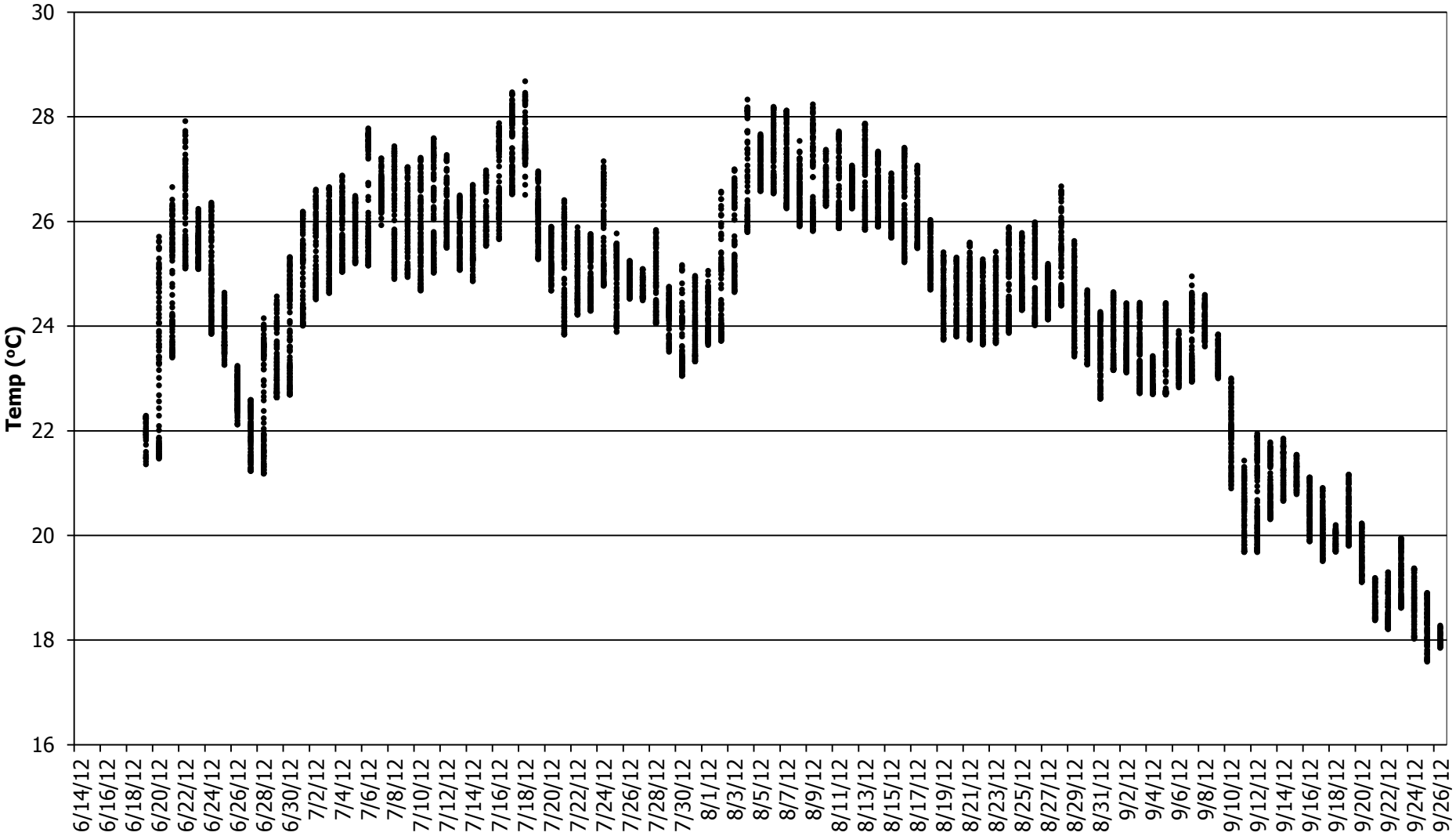
dcr

Somerville, MA
Mayor Joseph A. Curtatone

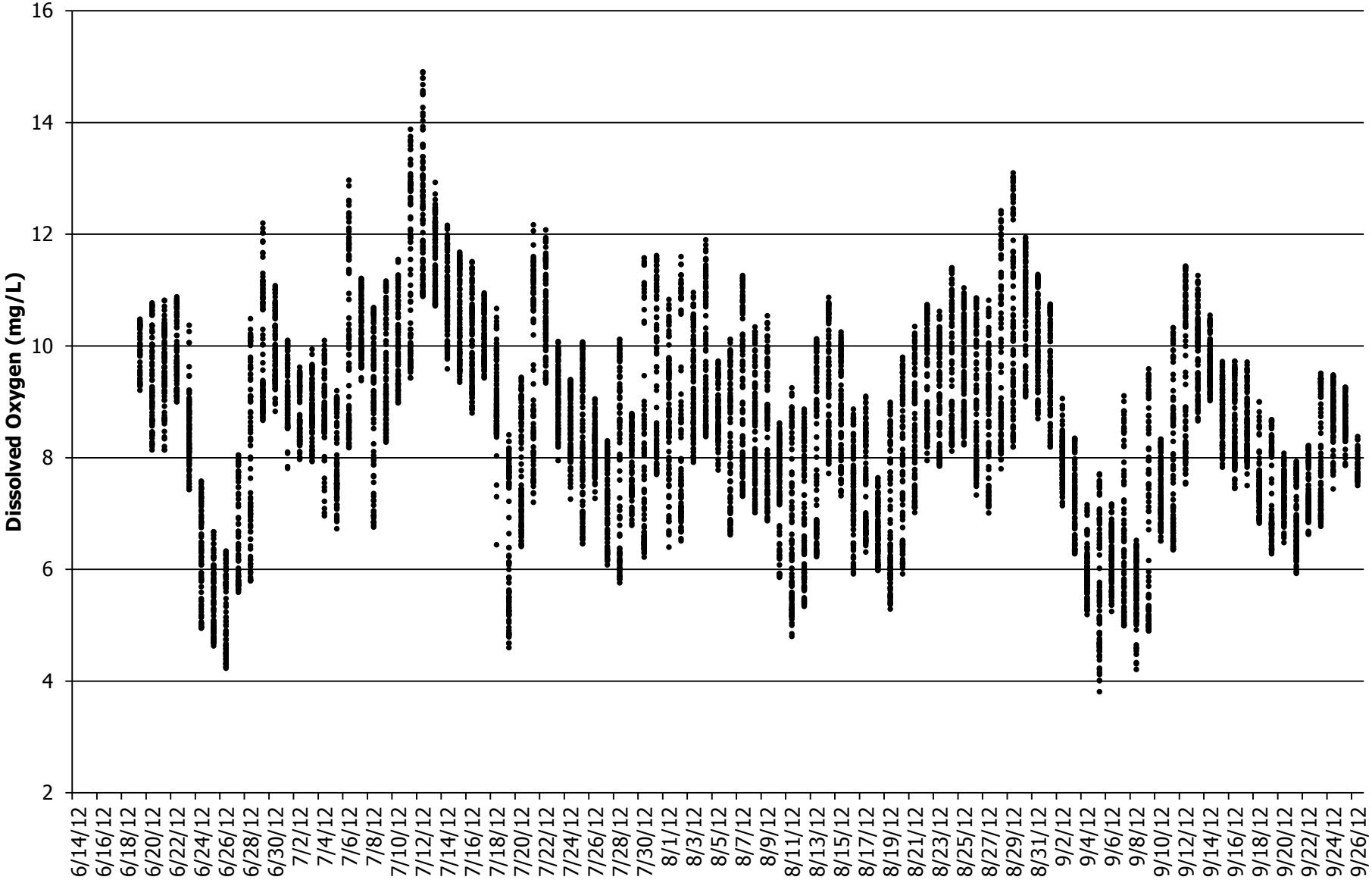
MyRWA
Mystic River Watershed Association
your community • your watershed

Disclaimer:
The data presented on this website is considered preliminary data and may be subject to future revision or qualifiers. The data from this site is transmitted directly from the instrument with no or little review. Inaccuracies may be presented because instrument malfunction or physical changes at buoy location.

Temperature

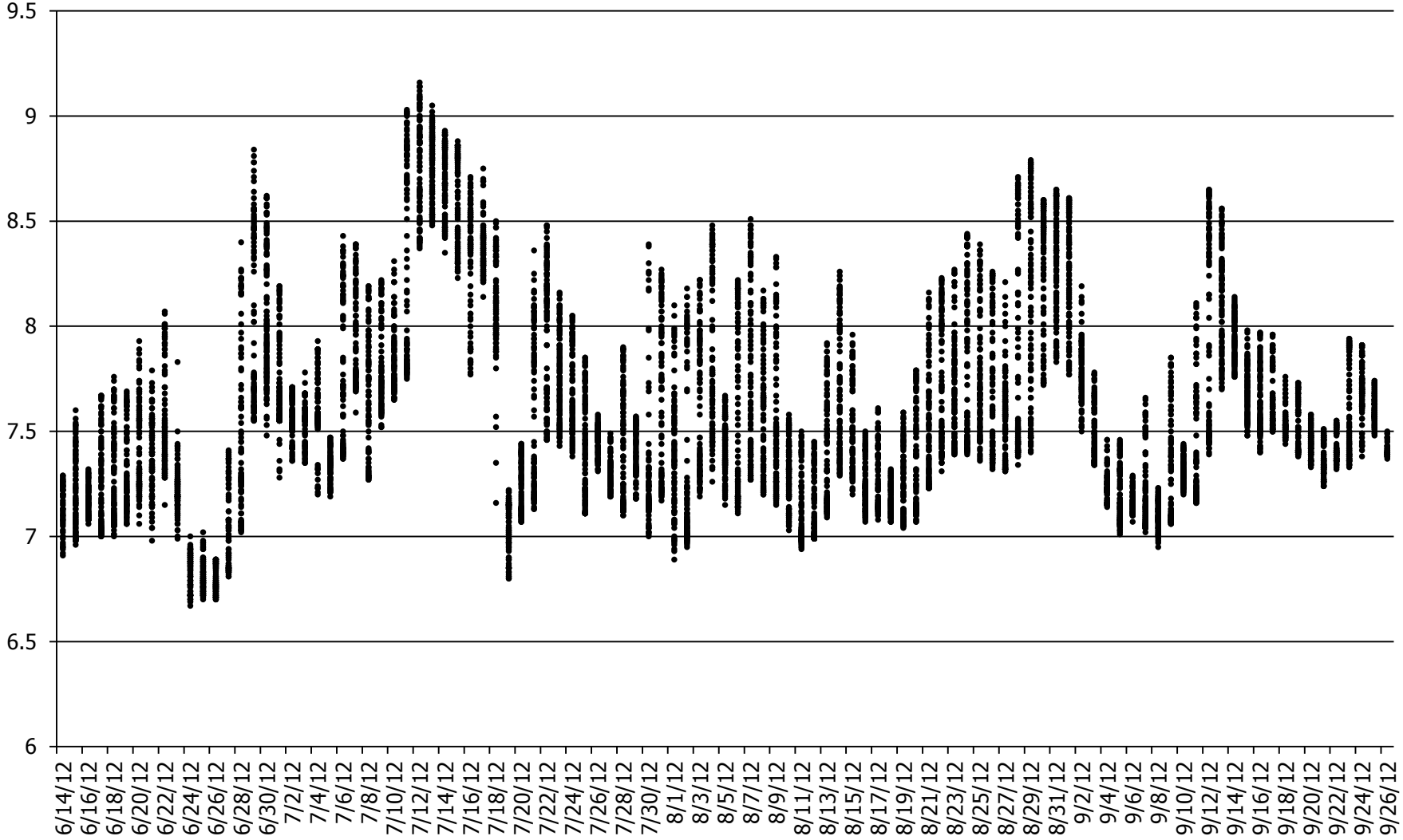


Dissolved Oxygen



Specific Conductance

pH


9.5
9
8.5
8
7.5
7
6.5
6
6/14/12
6/16/12
6/18/12
6/20/12
6/22/12
6/24/12
6/26/12
6/28/12
6/30/12
7/2/12
7/4/12
7/6/12
7/8/12
7/10/12
7/12/12
7/14/12
7/16/12
7/18/12
7/20/12
7/22/12
7/24/12
7/26/12
7/28/12
7/30/12
8/1/12
8/3/12
8/5/12
8/7/12
8/9/12
8/11/12
8/13/12
8/15/12
8/17/12
8/19/12
8/21/12
8/23/12
8/25/12
8/27/12
8/29/12
8/31/12
9/2/12
9/4/12
9/6/12
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9/12/12
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9/16/12
9/18/12
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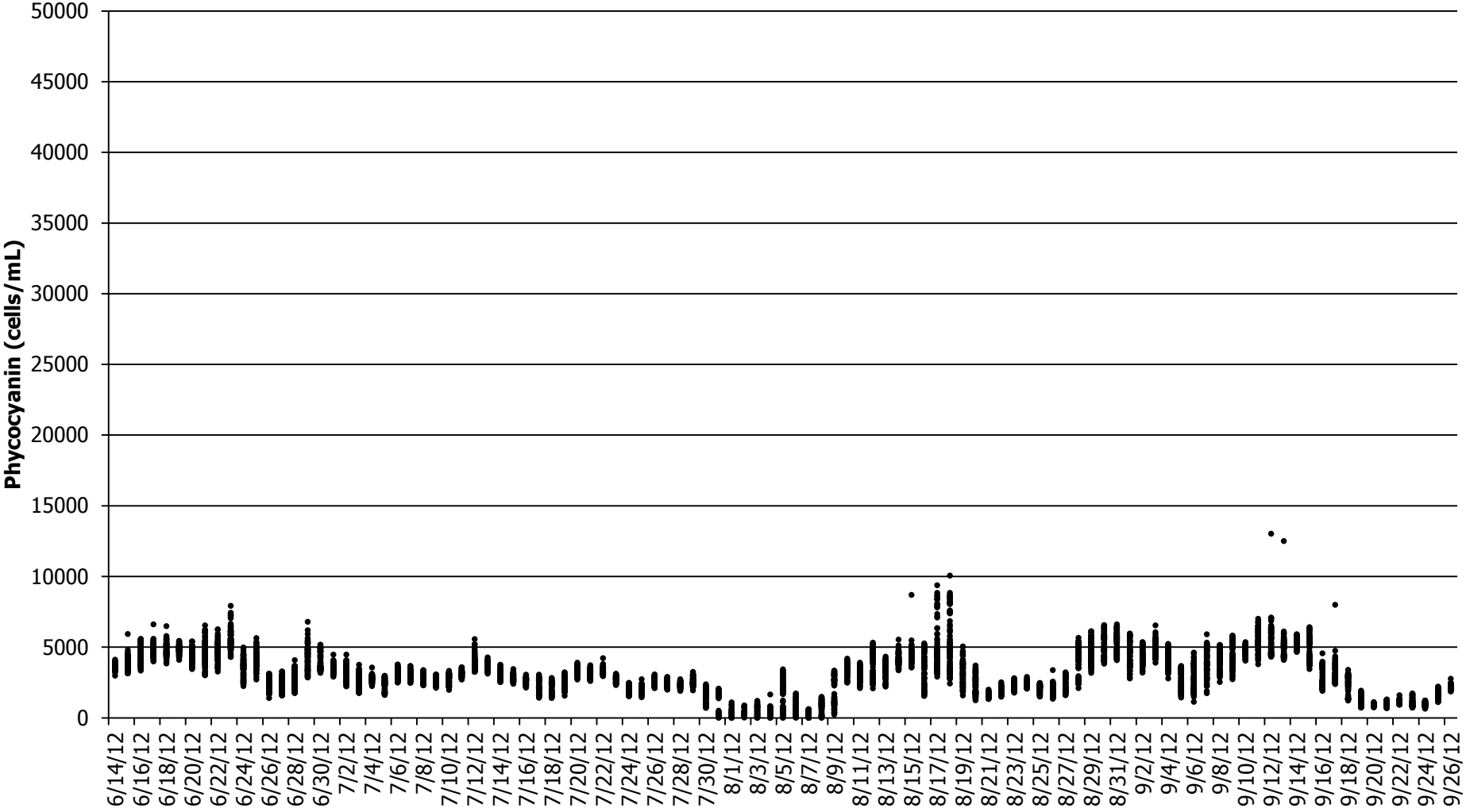
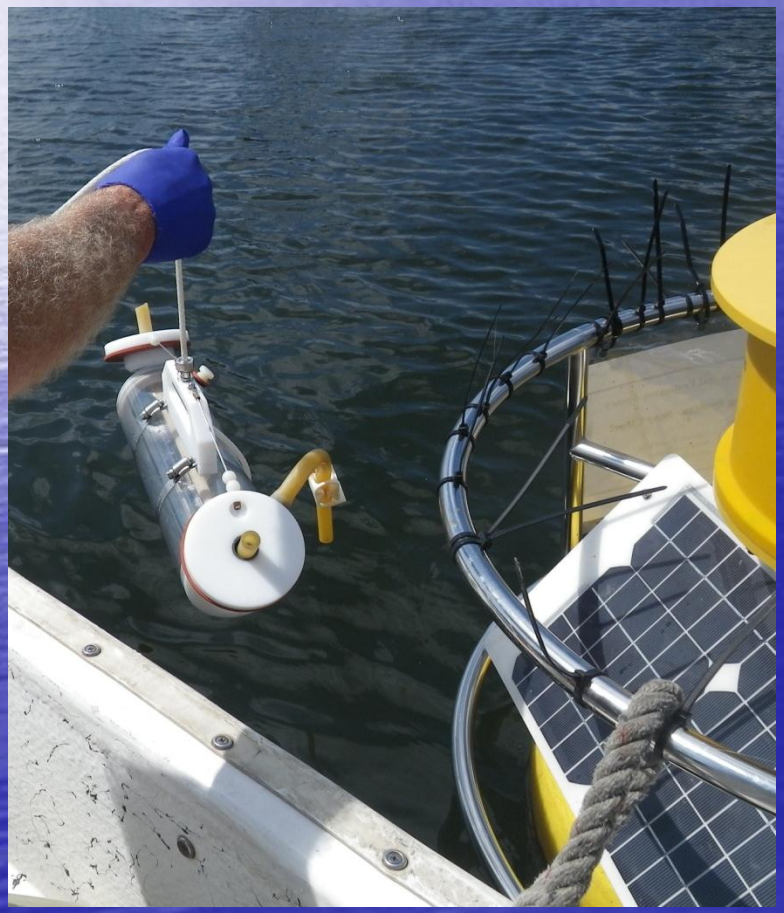
9/22/12
9/24/12
9/26/12

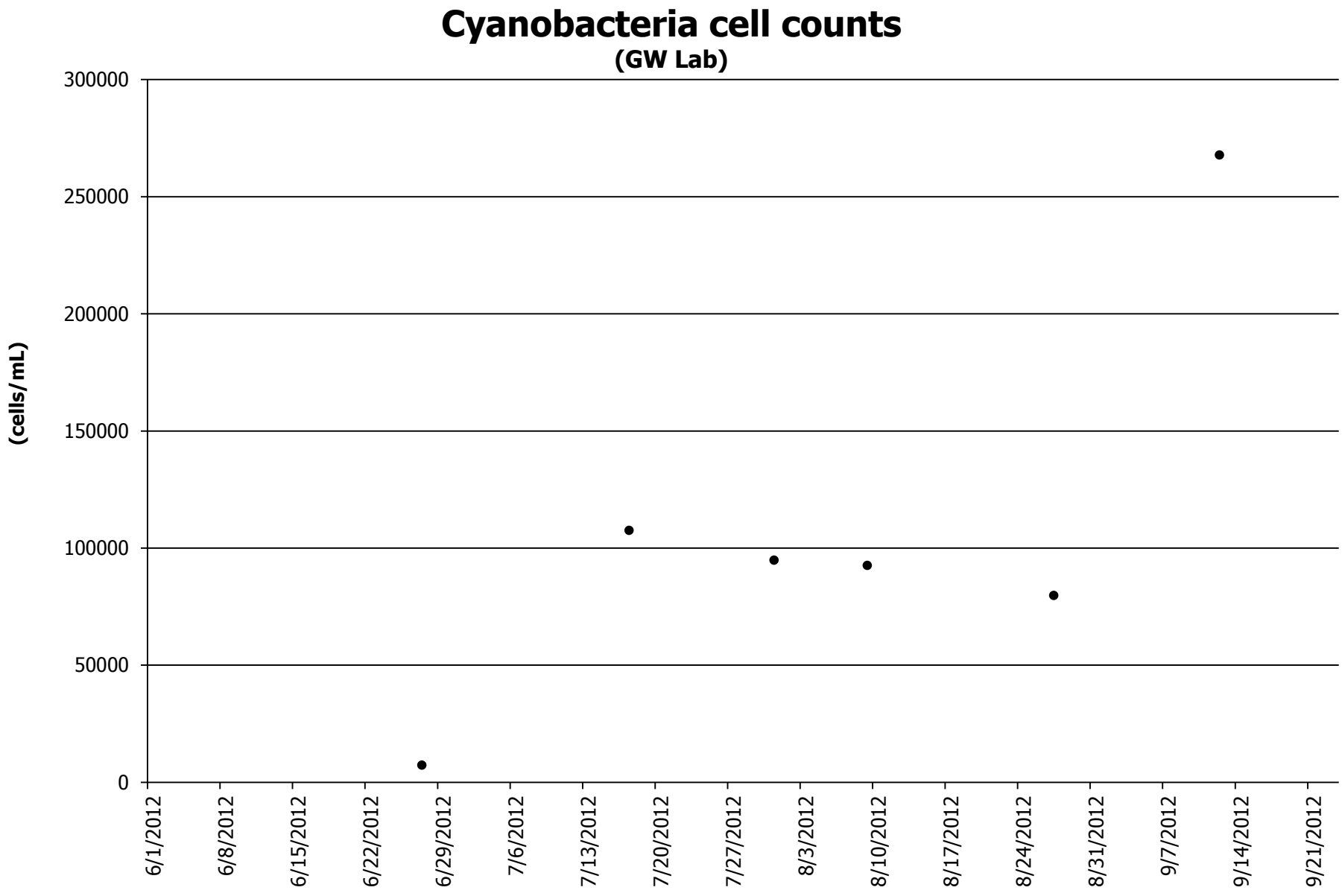
Blue Green Algae - Phycocyanin (Uncorrected)

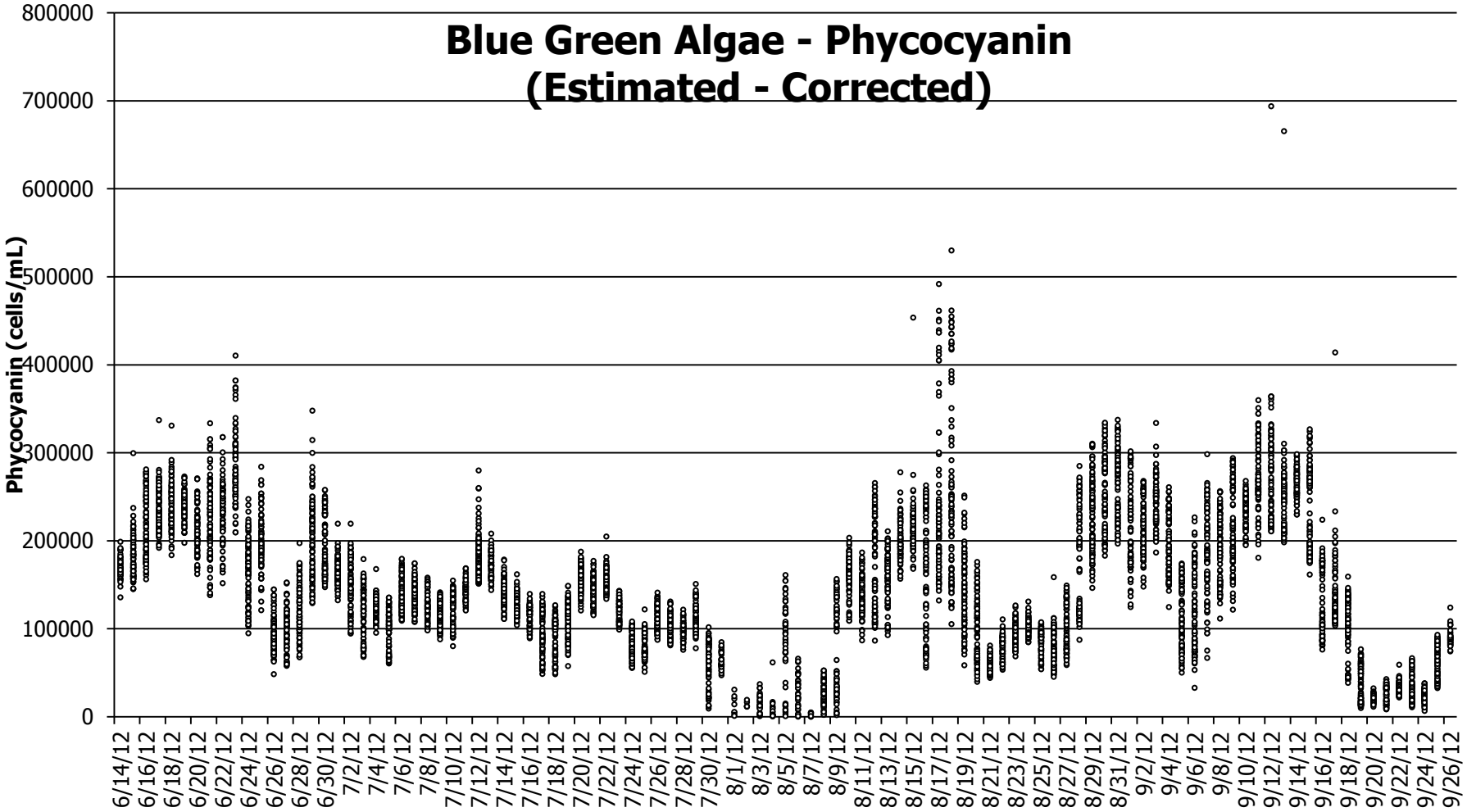


Note: Two high points truncated

Field Samples collected and processed for Chlorophyll a and Phycocyanin to correct and evaluate data




Cyanobacteria cell counts
(GW Lab)
(cells/mL)
300000
250000
200000
150000
100000
50000
0
6/1/2012
6/8/2012
6/15/2012
6/22/2012
6/29/2012
7/6/2012
7/13/2012
7/20/2012
7/27/2012
8/3/2012
8/10/2012
8/17/2012
8/24/2012
8/31/2012
9/7/2012
9/14/2012
9/21/2012



Note: two Points truncated

DPH Watershed data

Water Body	City/Town	Advisory recommended	Advisory rescinded
Ell Pond	Melrose	8/31/2012	11/2/2012
Horn Pond	Woburn	7/26/2012	8/16/2012
Spy Pond	Arlington	6/20/2012	7/20/2012
Wedge Pond	Winchester	7/26/2012	8/24/2012

Data courtesy of Vanessa Curran (DPH)

QUESTIONS?