

APCC's Cyanobacteria Monitoring Program



Bryan Horsley, APCC Restoration Technician

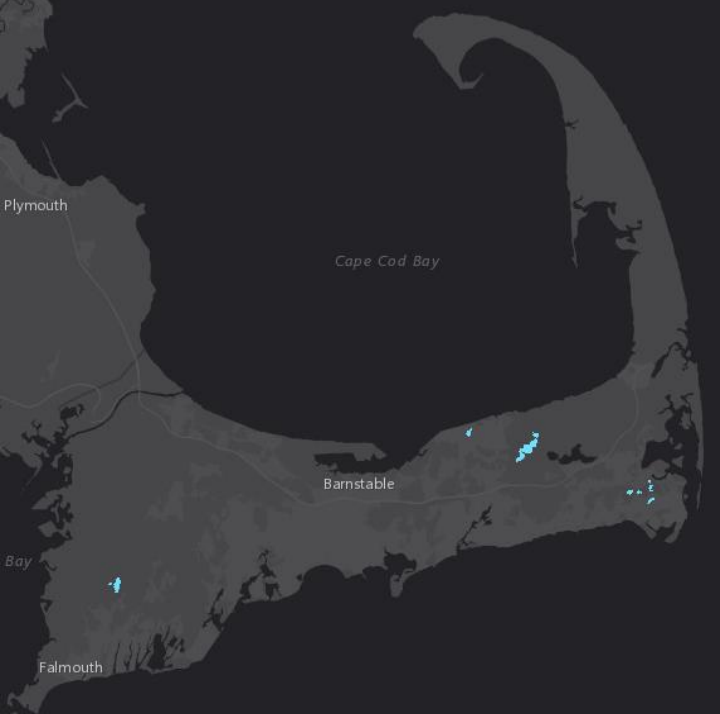


APCC PROGRAM BACKGROUND

Spring-Fall 2017:

- Karen Malkus, Barnstable
- Brewster Ponds Coalition
- Hilary Snook, EPA
- Cyano. Monitoring Collaborative
- APCC pilot test of methods
- Two advisory notices posted

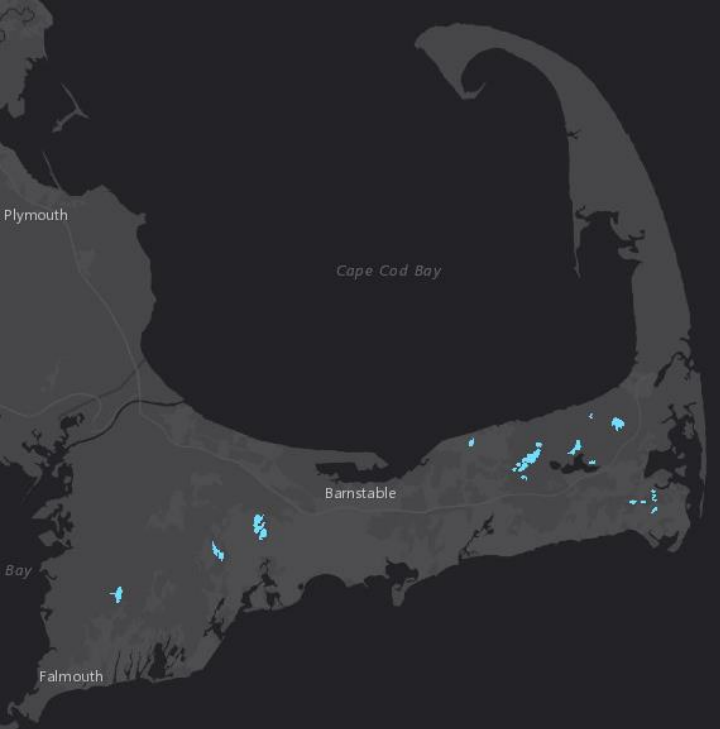




PROGRAM EVOLUTION

Spring-Fall 2018:

- Nancy Leland, Lim-Tex
- Dr. James Haney, UNH
- Enhanced methods:
 - Forecasting blooms
 - Estimating toxin concentrations
- Added more ponds:
 - Friends of Chatham Waterways
 - Town of Chatham
 - Coonamessett Pond Association



CURRENT PLANS

Spring-Fall 2019:

- Adding ponds for total around 20 sites
- Initial survey of lower/outer Cape
- Testing more efficient screening protocol
- Ongoing, education, outreach & advocacy
- Online map for results

CAPE COD CYANO MAP

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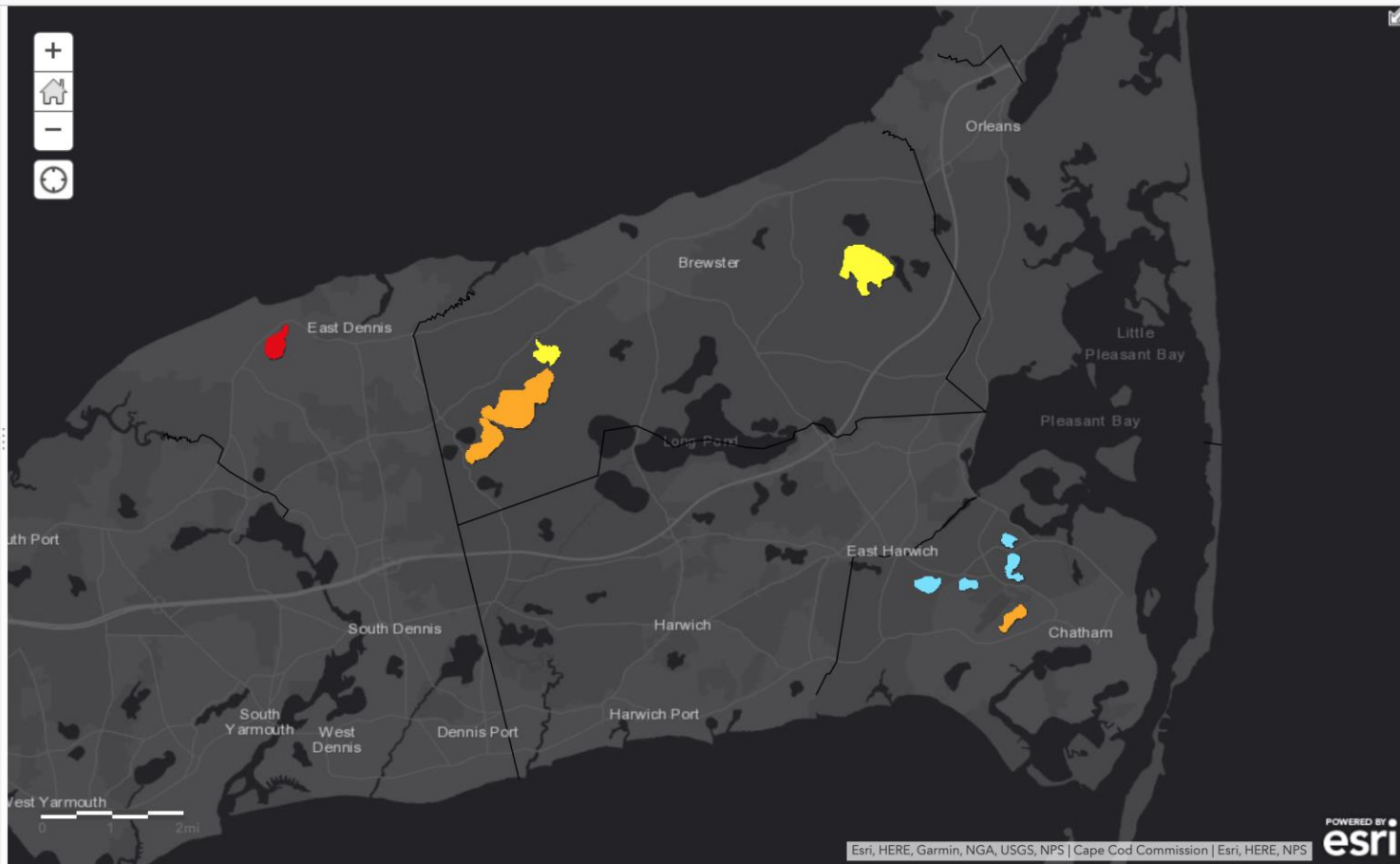
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Legend

Pond Cyano Status

-  No Cyanobacteria Detected
-  Cyanobacteria Present in Low Numbers
-  Pet Warning
-  Recreational Use Warning
-  Recreational Use Advisory

Town Lines



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Cyanobacteria Status

NAME	Scargo Lake
Town	Dennis
Sample Date	3/9/2019, 9:00 AM
Sample Location	East Shore
Status	Recreational Use Advisory
Scum	Dispersed
Cells_mL	30,000
Dominance	Microcystis
PC_ugL	152
CHLA_ugL	2
MC_ugL	15
AN_ugL	2

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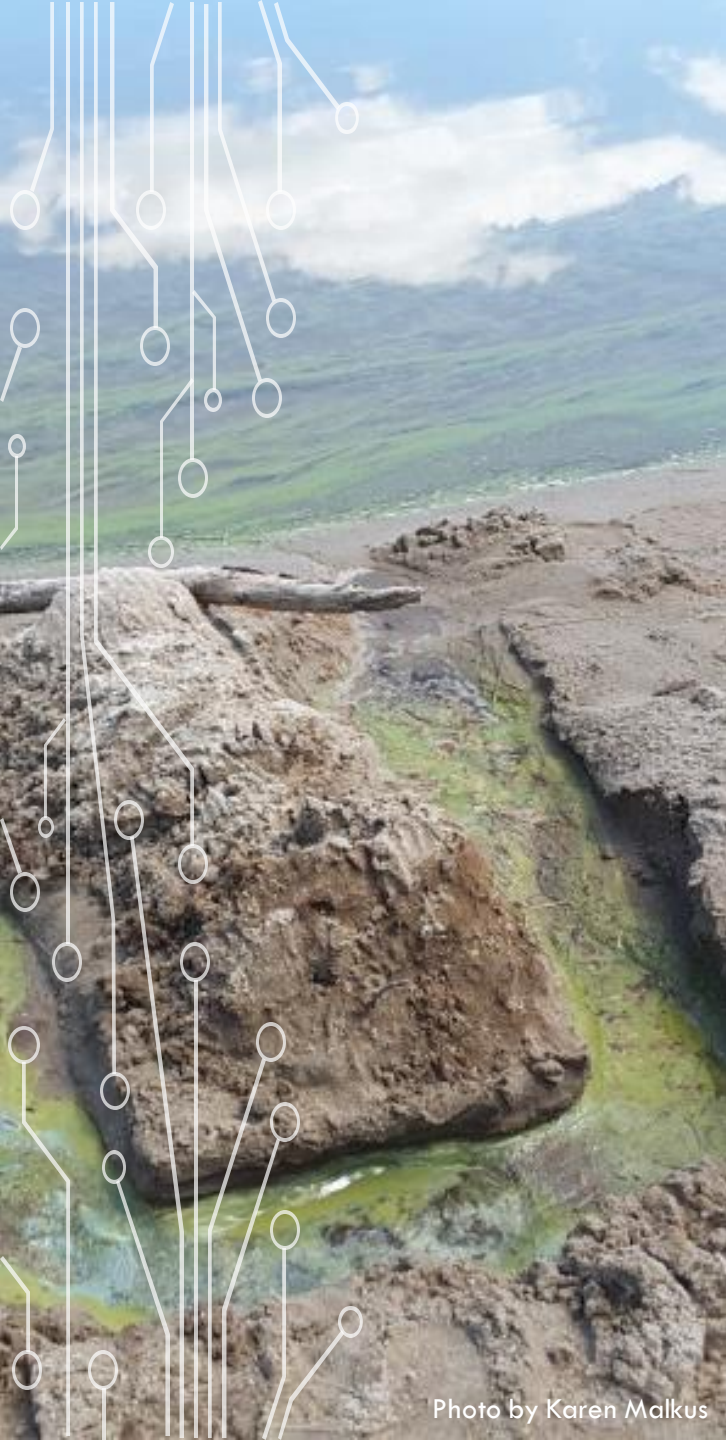


Photo by Karen Malkus

HEALTH HAZARDS

- Skin and eye irritation
- Respiratory symptoms
- Gastrointestinal symptoms
- Liver damage
- Neurological damage
- Dog illness and death

LIMITED PUBLIC KNOWLEDGE

- Knowing what to look for
- Understanding extent of hazard
- How to report sightings



IS CONVENTIONAL MONITORING SUFFICIENT?

- Minimal capacity for monitoring at both town/state levels
- Sampling limited to public beaches
- Sampling initiated only after visible blooms occur (reactive)
- Communication protocols not clear between town/state/public
- Sampling methods may miss areas of highest concentration
- Results often take multiple days



ARE EXISTING GUIDELINES ADEQUATE?

- Significant differences across states, federal, international agencies.
- MDPH = 14 ug/L microcystin
- EPA draft 2016 guideline = 4 ug/L microcystin
- Other harmful cyanotoxins not addressed (anatoxin, BMAA)
- Cell counts not good indicator of biomass or toxicity
- Should we have a lower guideline for pets? (different exposure profile)
- Exposure to toxins may peak before or after visible blooms



APCC PROGRAM ADVANTAGES

- Full warm season coverage (May-October)
- Track and forecast blooms using pigments
- Estimate toxin concentrations
- Fast results (<24 hours)
- Public engagement & awareness
- Supports town/state agencies
- Online map publicly accessible

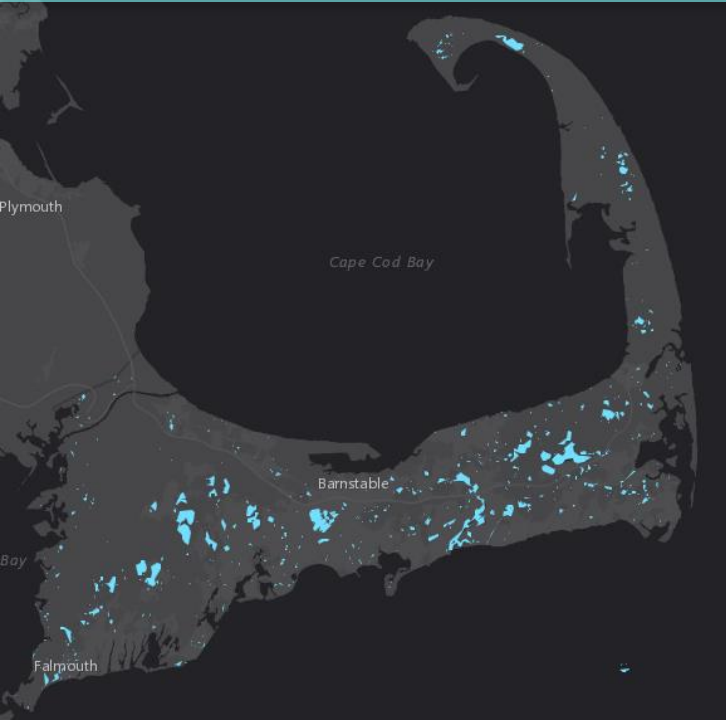
Photos by Gerald Beetham





APCC MONITORING PROGRAM MODEL

- Pond selection (priority ponds/interested groups/towns)
- Monitoring agreement (funding through pond group, town, grant)
- Volunteer training
- Monitoring



THANK YOU!



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