

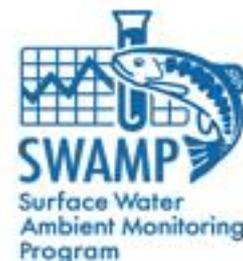
Cyanotoxins and Blooms Detected in Multiple Water Body Types Throughout the San Diego Region



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San Diego Regional Water Quality Control Board



Screening Studies

No statewide monitoring program

- 2011: Streams and Depressional Wetlands (P)
- 2012-2013: Depressional Wetlands (P)
- 2013: Lakes/Reservoirs and Coastal Wetlands (T)
- 2014: Lakes with High Recreational Use (T)
- 2015: Bloom Notifications (T)

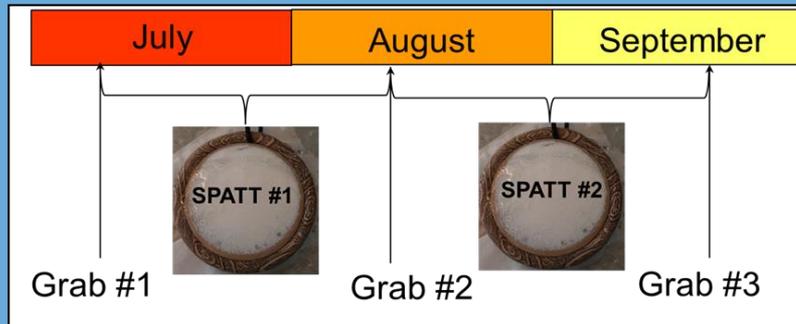
P = probabilistic, T = targeted



one-time grab



multiple grabs with SPATT



Data Collected

Varied by screening study and available funding

- Particulate Microcystins
- Dissolved Microcystins
- Total Microcystins
- Chlorophyll *a*
- Pigments
- Species Identification
- Nutrients
- pH, Conductivity, DO, Turbidity, Alkalinity, Salinity

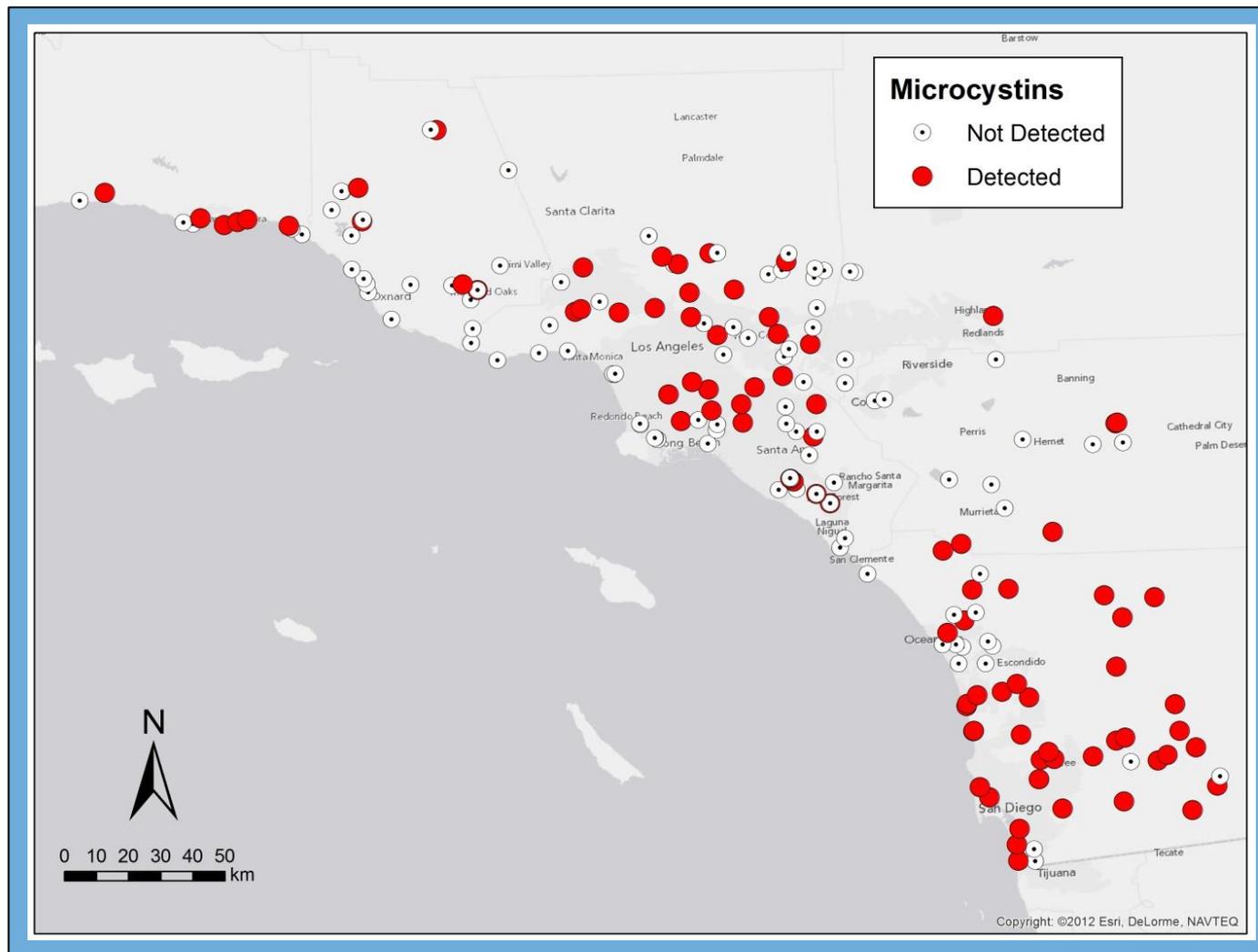


Solid Phase Adsorption Toxin Tracking
(SPATT) Samplers
Kudela, 2011



What did we learn?

1) Microcystins are widespread in southern CA water bodies.



(Howard et al., in progress)

What did we learn?

2) Grab samples can miss toxic events.



Grab samples

7/1/2013: **NO** microcystins detected
8/6/2013: **NO** microcystins detected
9/3/2013: **NO** microcystins detected

SPATT

Jul – Aug: **Microcystin-LA detected**
(1.59 ng/g)
Aug – Sep: **Microcystin-RR detected**
(1.27 ng/g)

What did we learn?

3) Looks can be deceiving.



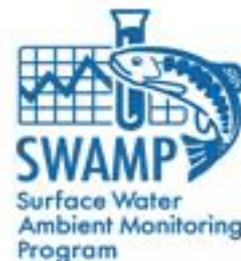
8/31/2012 (grab)

Cyanobacteria bloom obvious
NO microcystins detected



10/12/2012 (grab)

No obvious bloom
Microcystins detected
(0.03 $\mu\text{g/L}$ Microcystin-RR)



Thank you!



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