

# Lake Champlain, Cyanobacteria and the Green Monster

Due to the runoff produced by large scale agricultural farming, Cyanobacteria (Blue Green Algae) blooms have rapidly grown in Lake Champlain. This impact causes significant damage to the water quality of Lake Champlain. We seek to find solutions that can help improve the water quality of Lake Champlain by presenting a cost-effective plan to the Vermont Agency of Natural Resources detailing ways to reduce pollution into the watershed.

## Why Should You Care?

- Blue Green Algae (Cyanobacteria) blooms cause significant damage to the Lake Champlain watershed.
- Damages result in limiting access to clean drinking water, wildlife and habitat loss and closes waterfront to recreational use which many residents rely on for employment.
- 45% of the population in Vermont and New York rely on the watershed for clean drinking water, nearly 500,000 residents.



Riparian Forest Buffer Winooski River



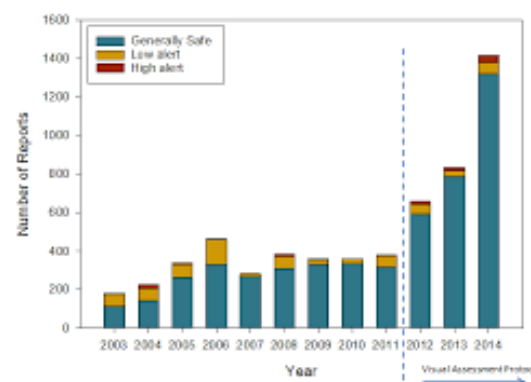
Lake Champlain waterfront Cyanobacteria bloom outbreak St. Albans Bay

## Nutrient Ritch Runoff

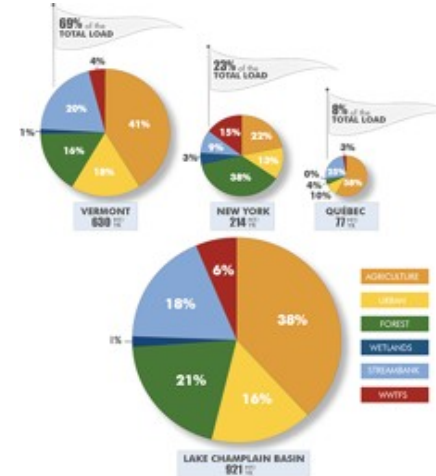
- Most cost-effective approach to mitigate inputs of Phosphorous into Lake Champlain is to focus on agriculture. (VAWQP)
- Riparian forest and grass buffers, crop rotations and manure injections all help reduce runoff.
- 38% of the Phosphorous load comes from Agriculture.
- Build Relationships between farmers and conservationists.

## What is Cyanobacteria? What does it do?

- Cyanobacteria forms as a result from the input of limiting nutrients i.e. Phosphorous and Nitrogen into the watershed and warmer temperatures.
- Eutrophication creates dead zones, allowing cyanobacteria to steal Oxygen, block sunlight from providing energy to plants, fish and wildlife.
- Blooms release cyanotoxins which can be harmful to humans and wildlife.



Cyanobacteria risk assessment graph 2003-2014  
Exponential growth pattern 2012-present

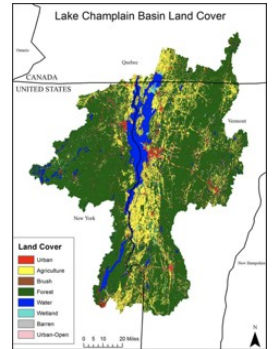


NOTE: Grass/Straw was included in the analysis but excluded from this graphic due to the comparatively low percentage of phosphorus.  
DATA SOURCE: Tetra Tech, 2015.

Phosphorous Input Total Loads

## What can we do ?

- Help small farmers create solutions to financial problems regarding mono-cropping.
- Encourage freshwater substitutes in the lake to dilute larger bloomed areas.
- Limit the use of fertilizers containing higher levels phosphorus and nitrogen chemicals.
- Vermont Phosphorous Innovation Challenge!



## (VPIC)

- A challenge designed to reduce the Phosphorous in the water
- Aims to give our waters relief from the high levels of phosphorous. This will allow the aquatic life to regenerate and thrive.
- 1-million-dollar fund to be distributed amongst innovative efforts to stop the inputs of P runoff into our waters.