

# *What's at Stake?*

## The Problem

**Dr. Melodie Naja**

Chief Scientist

The Everglades Foundation



# *Widespread Water Crisis*

**Nutrient pollution is impacting lakes and rivers around the globe.**



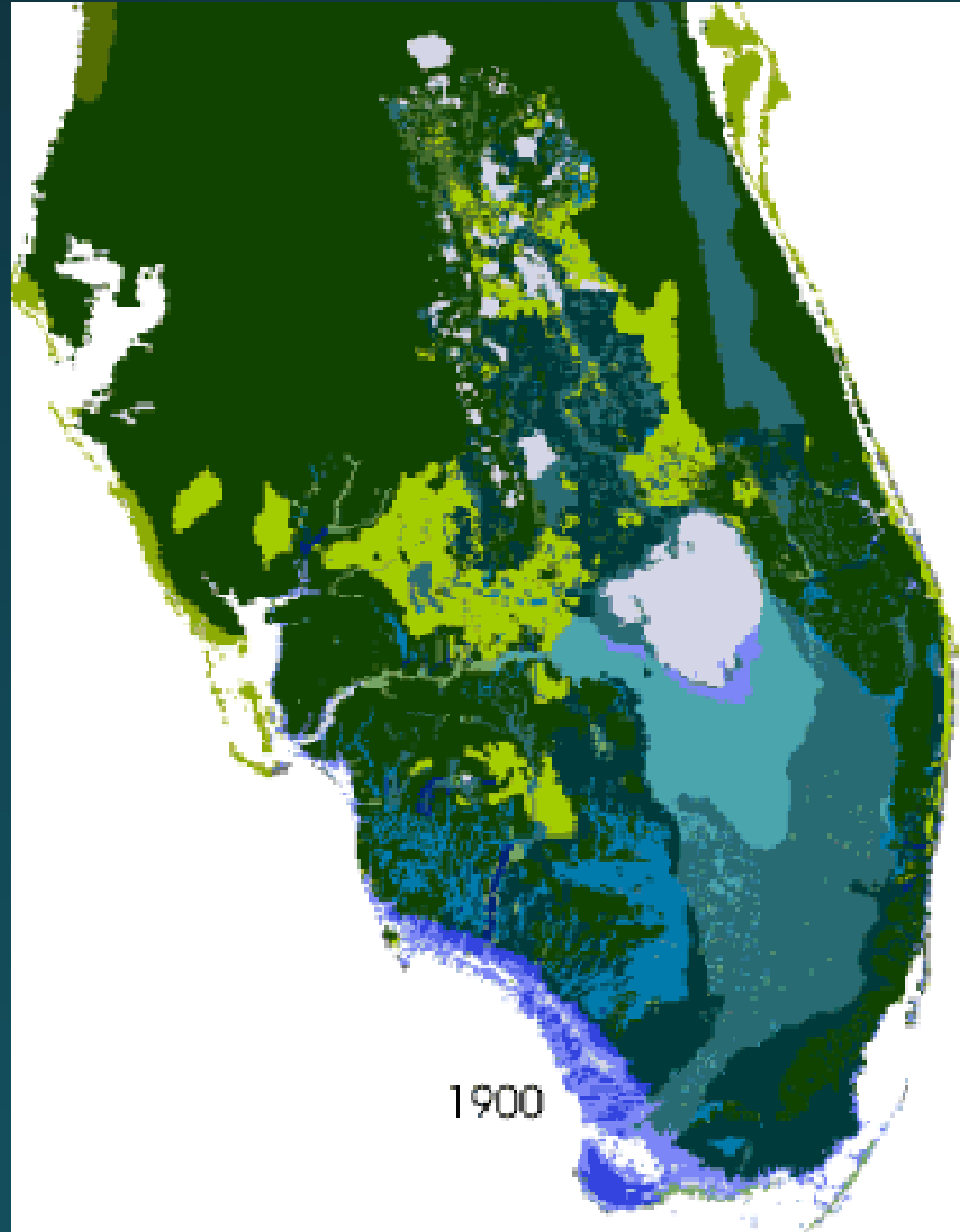
*China*



*Bangladesh*



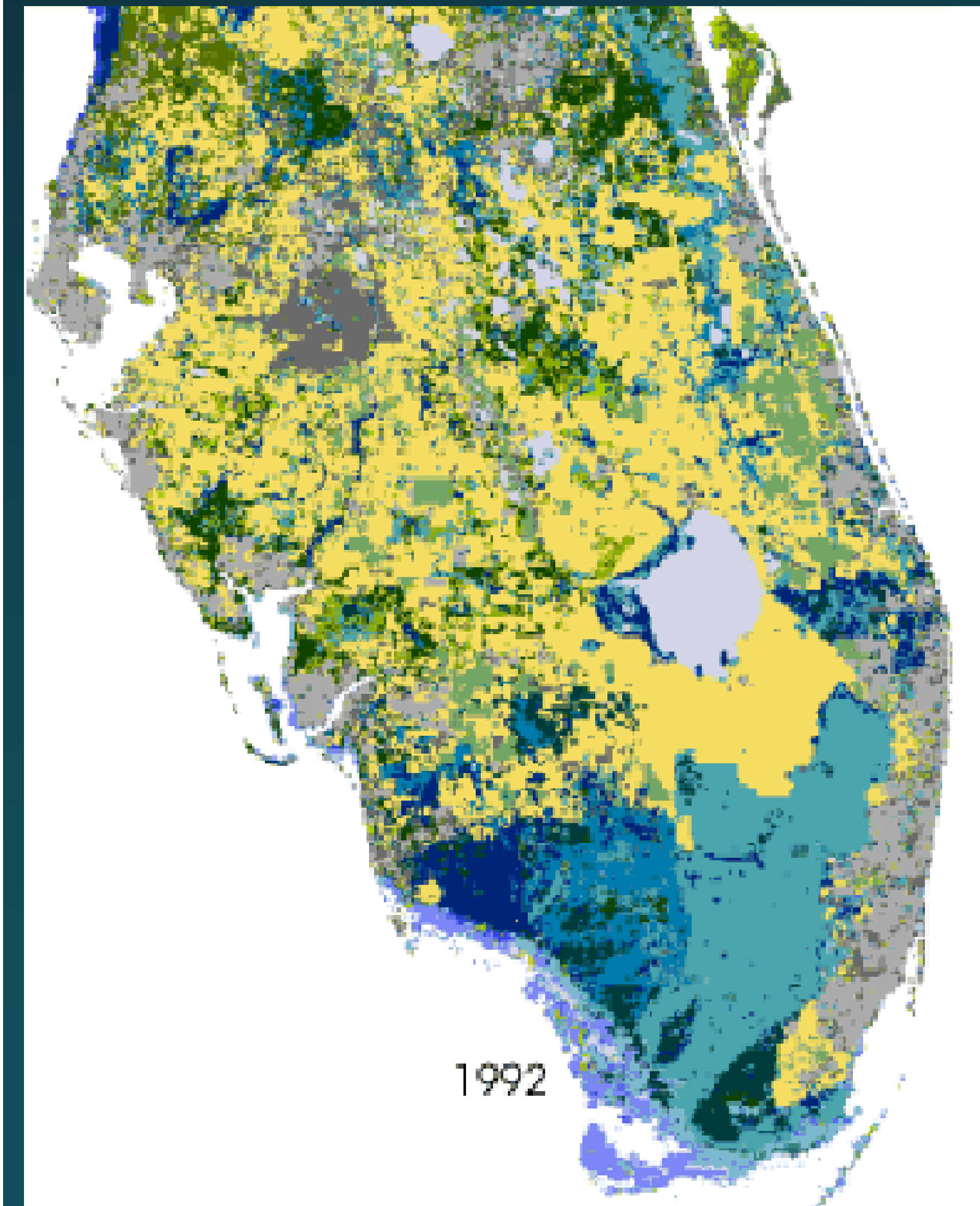
# *In Florida*



## landcover types

- open water
- mangroves
- saltwater marsh
- woody wetlands
- deciduous needleleaf/swamp (cypress)
- evergreen shrub wetland
- saw grasses/other marshes
- slough, bog, or marsh
- wet prairie, marsh
- evergreen needleleaf trees
- deciduous broadleaf trees
- evergreen broadleaf trees
- mixed woodland
- shrubs
- grasses
- crops/mixed farming
- mixed residential
- urban/roads, rock, sand

# *In Florida*



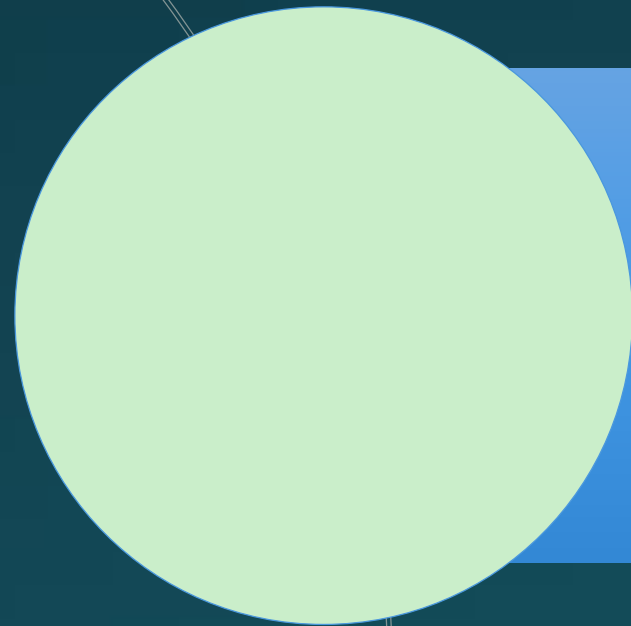
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# Lake Okeechobee



# Current Technologies



**Variability:** Difficult to remove P from water under different conditions (temperature, flows, etc.).



**High Costs:** Current technologies are prohibitively expensive, especially at low P concentrations.

# *Disruptive Innovation is Needed*

- Estimates to clean inflows to Lake Okeechobee exceed \$12 billion.
- Removing a fraction of the damaging phosphorus pollution using existing technology would cost more than \$3 trillion\* worldwide.
- We need innovation. We need creativity. We need competition. We need a breakthrough solution.



**The George Barley Water Prize seeks to incentivize the private sector to develop breakthrough technology that removes excess phosphorus from freshwater in a cost-effective manner.**

# The Vision



# *\$10 million Prize*

- Winning technology has to be resilient and work under variable conditions; different flowrates, different waterbodies, and different climates.
- 4 stages where technologies will be tested in a lab environment, at a pilot scale and full implementation.

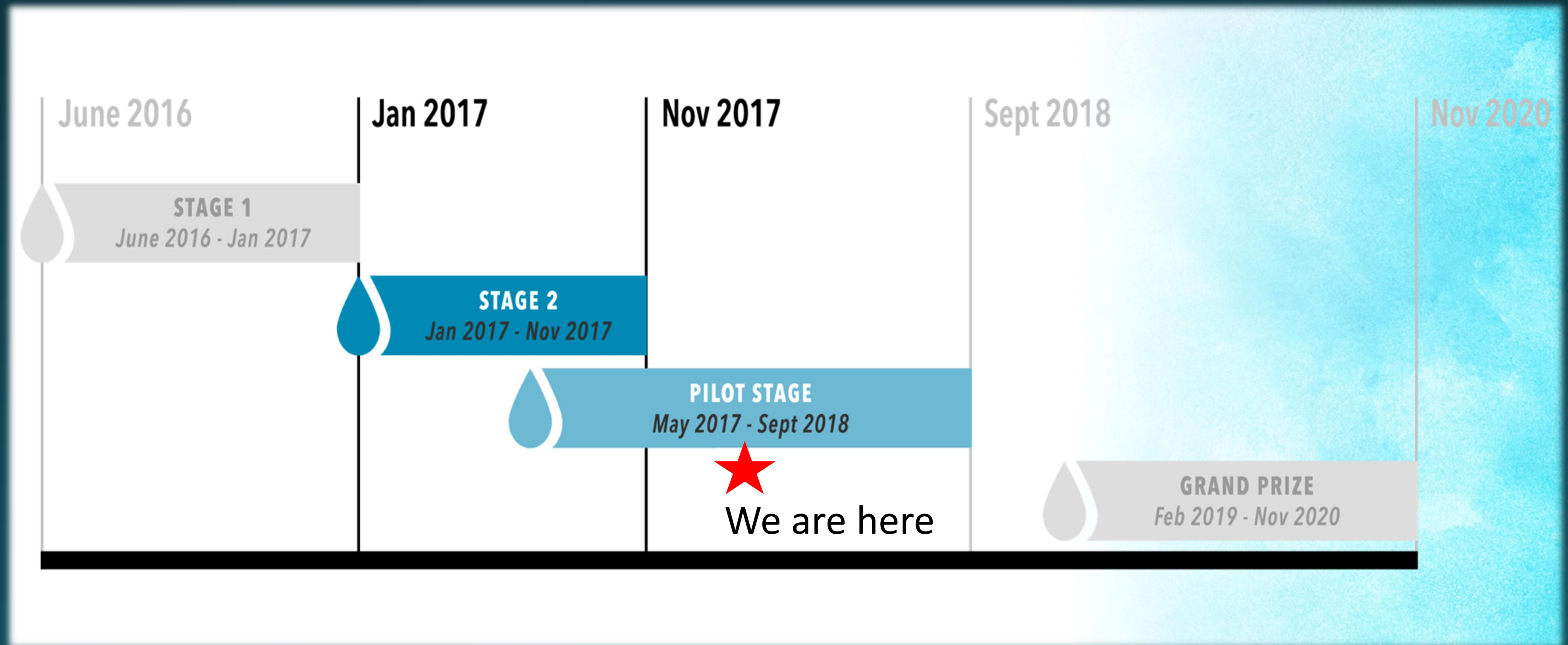
Cost

Scalability

Recoverable  
by-products

P outflow

Environmental  
Sustainability



# Prize Timeline & Structure

# *\$170,000 Phoenix Prize*

An additional \$170,000 will be given to the team demonstrating the greatest value of the by-products they produce. This is to incentivize and reward a broad range of solution to the problem of P recycling without preconceptions about how there might work (P recovered, algaem or heat generated, etc.).



# Competitor Geography

## **Stage 3 (Pilot Phase)**

The Pilot Phase will be hosted from February 20<sup>th</sup> through May 2018 in Bradford West Gwillimbury, Ontario. The Top 10 teams from Stage 2 will compete in this field test.

# Where We Are Now

# Art Janse Pumping Station

*Blue X green, University of Idaho, USA*

*ECONSE, Canada*

*ESSRE, RePleNish, USA*

*Global Phosphate Solutions, USA*

*GreenWater Solution, USA*

*MetaMateria Technologies, USA (Failure to launch)*

*Phosphex, University of Waterloo, Canada*

*USGS, Leetown Science Center, USA*

*Wetsus NaFRAd, Netherlands*

*ZeroPhos, China*

**10 TEAMS**



# *Acknowledgments and Partners*

**Loren Parra, Director of the Prize**

**Sabrina Ternier, MOECC**

**Nicole Gibson and Marvin Patani**

**All the teams**

**VERB**

**Town of Bradford West Gwillimbury**

**Frank Jonkam**



# Acknowledgments and Partners



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THE  
GEORGE BARLEY  
WATER PRIZE

# Thank You

[www.barleyprize.com](http://www.barleyprize.com)

## The \$10 Million George Barley Water Prize