

- **Natural Causes:**

- Stratification of fresh water over saltwater
- Warming ocean waters
- Increased concentrations of CO<sub>2</sub> in the ocean
- Dinoflagellate red tide
  - Warm ocean temperatures, low salinity, high nutrient content, calm seas, and rain
  - produce natural potent neurotoxin-harming both marine life and humans
    - PSP, DSP, ASP

- **Anthropogenic:**

- Agricultural and municipal causes by human sources
- Waste deposition and wastewater treatment

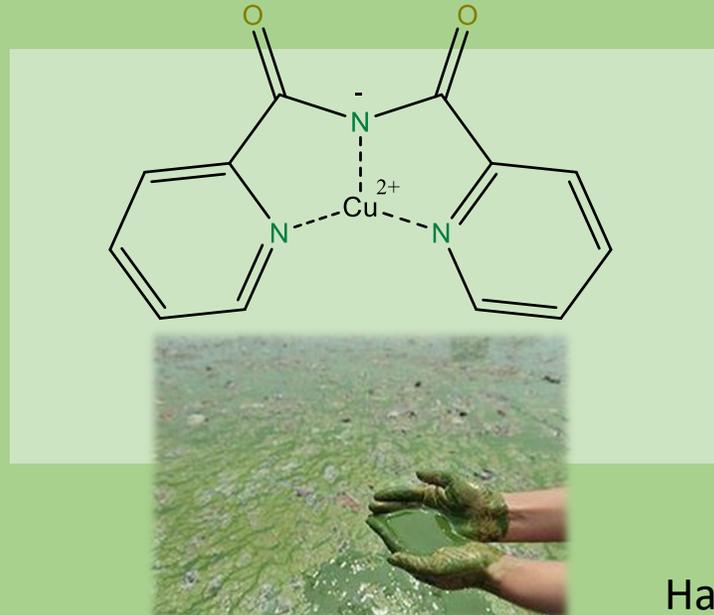
- **What are Phytoplankton**

- Microscopic, single-celled organisms found in all types of water
- **Aquatic & Photosynthetic**
- Come in many forms, but main cause of dead zones: Cyanobacteria
- When in nutrient-rich environments, cyanobacteria multiply quickly creating blooms that span across the water's surface
- Once they die, the microorganisms float to the bottom and use up all the dissolved oxygen killing all surrounding marine life

## Algal Blooms: Lake Hopatcong

- **What we can do:**

- Educate
- Inform
- Implement better sustainable systems



- **Solutions:**

- Chemical additives- CuSO<sub>4</sub> or Copper Chelates
  - can cause the release of toxins into the water supply
- Aeration- Adding O<sub>2</sub> to the system
  - very expensive to maintain
- Mixing- Breaking up the stratified layers
  - time consuming and physically laboring

# Works Cited

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