CyanoHAB Spatial Extent, Android Mobile Application, and Inland Surface Water Temperature in the United States

Erin A. Urquhart
ORISE - US EPA
Quantifying Cyanobacteria Extent

- **Issue:** How do we quantify the spatial extent of cyanobacteria?
- **Action:** Time series analysis to evaluate overall trends.
- **Result:**
  - FL: Blooms are increasing due to high-risk blooms.
  - OH: Moderate-risk blooms may be increasing.
  - CA: State wide blooms are decreasing highly attributed to decreases in Northern CA.
- **Impact:** Each year EPA could report on status of HABs in the U.S. with new Sentinel-3 satellite.

*Modified satellite data is from Copernicus Sentinel data processed by ESA.*
CyAN Android Mobile Application

- **Issue**: How to effectively distribute satellite-derived cyanoHAB data?
- **Action**: CyAN app provides intuitive satellite data handling and engagement.
- **Result**: Currently beta testing with new Sentinel-3 data.
- **Impact**: Supports a comprehensive management strategy.

*Modified satellite data is from Copernicus Sentinel data processed by ESA.*
Surface Water Temperature in US Lakes and Estuaries

- **Issue:** Need for inland surface water temperature product.
- **Action:** Validation of Landsat 5/7 SWT across inland & estuarine waters.
- **Result:** SWT match-ups:
  - *Lake:* RMSE: 1.8°C
  - *Interface:* RMSE: 7.5°C
  - *Estuary:* RMSE 3.6°C
- **Impact:** Temperature product can inform forecast models for freshwater HABs in the US.

*Modified satellite processed by USGS EROS.*