Regional Water Quality
Emerging Contaminants Scenario – Opportunistic Pathogens and Indicator Bacteria

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PROJECT: ASU-02-2014

Status: New X Continuation

Objectives

- To provide insight into the occurrence of conventional water quality parameters, algal-related contaminants and emergent contaminants such as *Mycobacterium, Legionella,* coliforms and Quagga mussel in source water in central Arizona.
- In addition, the levels of microbial metabolites such as MIB and Geosmin are also monitored.

Approach

- Microbial pathogens and indicator analyses, and measuring # of survivors, change in shell length
- Analyses includes taste and odor compounds, DOC, UV254, TDN, conductivity, nitrate/nitrite

Key Deliverables

- Monthly newsletters are distributed to over 70 recipients. The data is used by water suppliers to determine trends that impact both disinfection by-products and taste and odor compounds.

Key Findings

- This projects has contributed to:
- Spatial and temporal variation in the occurrence of *Mycobacterium, Legionella* and mussels
- Impact of temperature and dissolved oxygen on microbial quality of in Arizona lakes
  - In May the DOC concentrations in the Canals and WTPs were lower than the concentrations observed in April and groundwater pumping in the South Canal continued to lower DOC concentration
- In the last few months microbial concentrations for coliforms continued to increase moderately
  - Moderate increase in total coliforms concentrations with several samples above 1,000 cfu/100ml.
  - *Mycobacterium* samples for April were lower than the previous months with no levels exceeding 10 cfu/100ml.
  - Geosmin concentrations in Saguaro Lake Epilimnion ranged from 378-445 ng/l while the hypolimnion of Saguaro Lake had 21 ng/l.

Budget Requested

- $40,000

Project Duration

- January 2009 – December 2018