

## Rathbun Lake Water Quality Monitoring Program Outline

**Monitoring Program Purpose:** Acquire an understanding of water quality conditions in Rathbun Lake and watershed to support decision-making regarding the protection and management of the lake for its multiple uses including drinking water supply, recreation, fish and wildlife habitat, flood damage reduction, downstream water quality improvement, and storage for supplementing navigational flows.

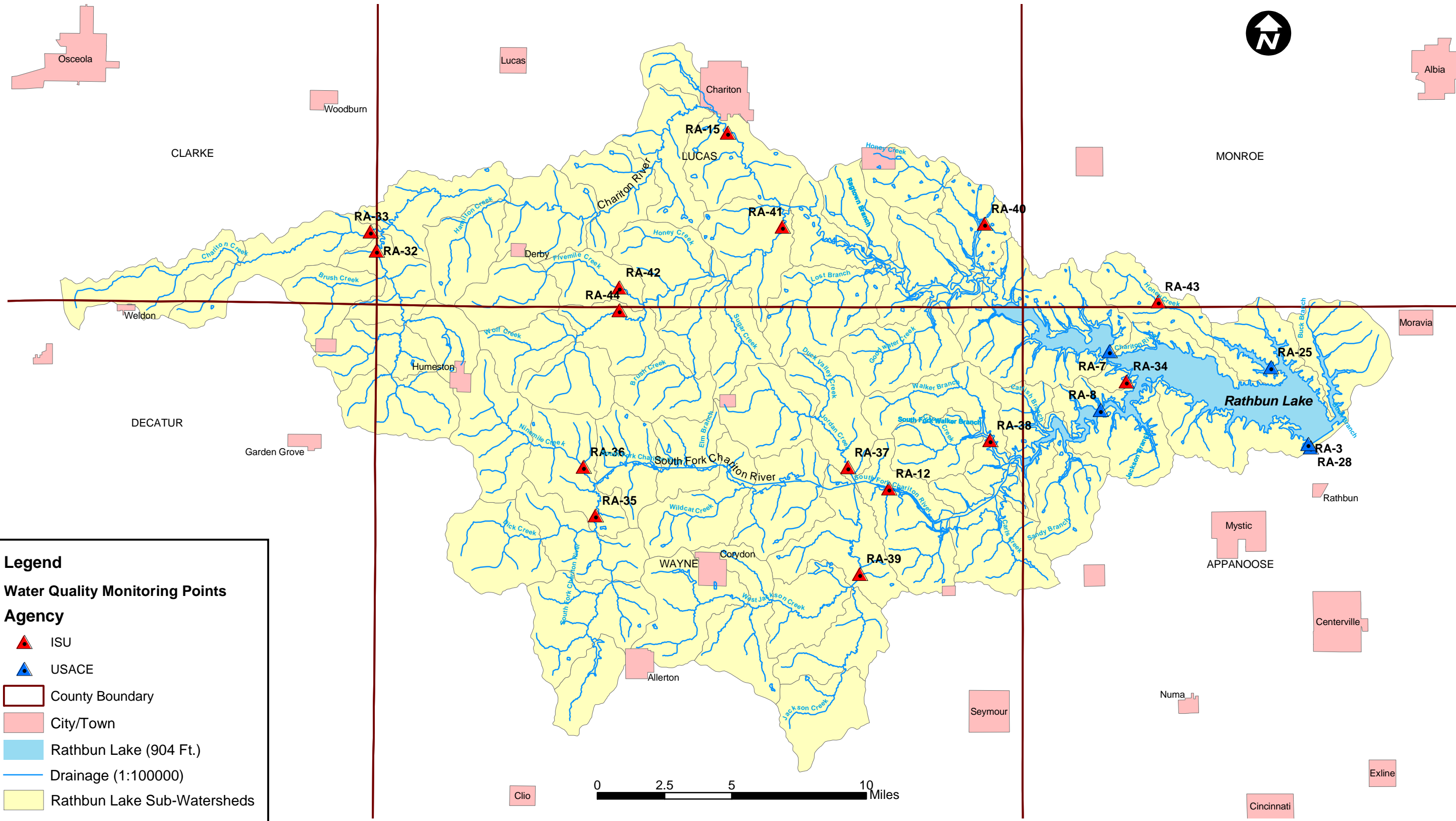
**Monitoring Sites:** Twenty (20) water quality monitoring sites have been established and are located in tributaries to Rathbun Lake (15), the lake itself (4), and at the lake outlet in the Chariton River (1). The accompanying map identifies the locations of the water quality monitoring sites.

**Monitoring Frequency:** Water quality samples are collected on a monthly basis at each of the fifteen (15) tributary monitoring sites. Samples are collected six (6) times annually on a monthly basis during the period April through September at each of the five (5) lake and outlet monitoring sites. Two (2) rainfall event samples are collected annually at each of the fifteen (15) tributary monitoring sites. Water quality samples are taken as grab samples only. Replicates for pesticides are collected at two (2) of the tributary monitoring sites each time samples are taken. Sediment samples are also collected at each of the monitoring sites during the monthly and rainfall event sampling.

**Measurements and Analyses:** Field measurements taken at monitoring sites include water temperature, dissolved oxygen, pH, conductivity, redox, secchi depth (lake), and photic zone (lake). Discharge measurements are taken at the fifteen (15) monitoring sites located on tributaries during the monthly and rainfall event sampling and loads calculated for all constituents. Laboratory analyses of the parameters listed are performed on the samples collected.

- suspended solids: used with discharge data to calculate sediment load
- turbidity
- pH
- conductivity
- ammonia
- alkalinity
- total kjeldahl nitrogen
- nitrite/nitrate
- total phosphorus
- total orthophosphorus
- chlorophyll a
- chloride
- caffeine: analyzed annually
- atrazine
- alachlor
- metolachlor
- cyanazine
- propachlor
- simazine
- diazinon
- metribuzin
- trifluralin
- bacteria: including fecal coliform, enterococci, and *E. Coli*

# Rathbun Lake Watershed Water Quality Monitoring Points



**Legend**

**Water Quality Monitoring Points**

**Agency**

- ISU
- USACE
- County Boundary
- City/Town
- Rathbun Lake (904 Ft.)
- Drainage (1:100000)
- Rathbun Lake Sub-Watersheds



Source: Rathbun Land and Water Alliance  
Iowa State University  
USACE  
Iowa DNR NRGIS

Prepared By: Rathbun Regional Water Association