Fox River Study Group

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Fox River Study Group
2018 Annual Report

Background

For over a decade, a diverse coalition of stakeholders (see Directors sidebar and Supporters list below) has been leading a watershed-wide effort to understand and improve the water quality of the Fox River and its tributaries for the Fox River Study Group (FRSG). This undertaking has received wide-spread financial and in-kind support from watershed communities, water reclamation districts, environmental organizations and foundations. Our efforts have been backed by the USEPA, IEPA, Chicago Metropolitan Agency for Planning and engaged the scientific expertise of the Illinois State Water Survey (ISWS) and private consultants. Throughout 2018, the FRSG continued to meet on a monthly basis and the group's activities were supplemented by committee actions.

Modeling

To make informed decisions about how best to maintain and improve the quality of the Fox River in our urbanizing watershed, we have developed two computer models of the Fox River watershed – an HSPF model and a QUAL2K model. These models are currently being updated by Geosyntec Consultants to assess management scenarios to address the low dissolved oxygen and nuisance algae problems in the Fox River. Geosyntec's work was greatly assisted by Sierra Club volunteers who formatted data for input into the HSPF model. Accordingly, the HSPF model update was substantially complete in 2018.

The QUAL2k model relies on the HSPF model inputs. Geosyntec began calibration of the QUAL2k model in October 2018. The QUAL2k model was updated to QUAL2kw, a dynamic version of QUAL2k. The model update is scheduled to be completed by September 2019. Model results will be used to help evaluate and determine the most cost-effective measures to improve the overall health of the river with respect to these impairments.

Monitoring

2018 concluded the 16th year of all-volunteer water quality monitoring efforts of the FRSG. The data collection includes monthly monitoring of 7 mainstem locations and 7 tributary locations along an 80-mile stretch of the

Fox River from McHenry to Yorkville. Laboratory analysis and data management are donated as in-kind services by the City of Elgin, the Fox River Water Reclamation District, and the Fox Metro Water Reclamation District. Citizen volunteers and staff from other wastewater facilities participate in the data collection. These data have been utilized to support the modeling efforts over the years. The Illinois State Water Survey (ISWS) updates the FoxDB for the FRSG, which is a publicly available, online water quality monitoring database found at ilrdss.sws.uiuc.edu/fox/. The ISWS completed their most recent update in January 2019.

Additional monitoring is conducted in support of the modeling efforts. In 2016, the FRSG contracted the United States Geological Survey (USGS) to install and maintain a water quality monitoring station at the existing Algonquin gaging station (USGS Station #05550001) from spring through fall for three years. Dissolved oxygen, temperature, specific conductance, and pH were added to the existing stage and discharge measurements and provided real-time, publicly available data. The USGS contract ended in October 2018. After discussions with Geosyntec on data needed for their modeling updates, a new water quality monitoring station was installed by USGS in August 2018 at the Stratton Dam (USGS Station #05549501). All of the same parameters listed above plus chlorophyll *a* and turbidity are collected at the new station. The USGS is also collecting *in-situ* measurements at the Stratton Dam gaging station to characterize the upstream boundary condition. The discrete samples are collected on a monthly basis during station equipment calibration and are analyzed for chlorophyll *a*, Nitrogen-Ammonia, Nitrogen Nitrate + Nitrite, Total Nitrogen (includes filtered organics), Phosphate-Orthophosphate, and Total Phosphorus. This contract is for another spring through fall sampling and will conclude in September 2021.

Reports

FRSG was involved with three reports during 2018. First, the modeling work being conducted by Geosyntec will be utilized to amend the Fox River Implementation Plan (FRIP). This work is proceeding.

Second, the FRSG continued to work with the U.S. Army Corps of Engineers (Corps) to resume the Fox River Habitat & Connectivity Study that was placed on hold in August 2015 due to the lack of a State of Illinois budget. It is a priority for FRSG to restart this project. In March 2018, the FRSG met with the Corps and Illinois Department of Natural Resources (IDNR) to discuss the best path forward. It was agreed that the IDNR would remain the local sponsor for the study and that FRSG and IDNR could enter into a separate agreement to reimburse the IDNR for the local match on study costs. The Corps and IDNR have been meeting since this discussion to complete the agreement. In May 2018, the FRSG sent a letter to IDNR Director Rosenthal, urging the IDNR to help resume the study and again offer funding assistance. In March 2019 we also reached out to IDNR's new director Colleen Callahan about our desire to get this study underway again with funding assistance from the FRSG. Once the project is restarted, the timeline is one year to complete the original study, one year to complete the public outreach associated with the study, and one year to finalize the study and issue the final report.

Finally, the ISWS has evaluated the trends in water quality in the Fox River mainstem and a number of tributaries for our group. Based on all of the available data collected by the FRSG and other agencies since 1998, the purpose of this report is to assess if progress has been made to improve ambient conditions in the Fox River and to inform the public on the state of the Fox River. The Fox River Water Quality Trends report is a follow-up to the FRSG Phase I Report prepared by the ISWS in 2004. The ISWS draft report was completed in 2018 and finalized in February 2019. The final ISWS report—*Water*

Quality Trend Analysis for the Fox River Watershed: Stratton Dam to the Illinois River is available online at https://www.ideals.illinois.edu/handle/2142/103009. Over the last decade, the ISWS analysis found that most nutrient-related pollutants levels are declining or show no trend in the Fox River.

Public Outreach

We have continued our public outreach as we work to update the Fox River Implementation Plan (FRIP). The FRIP will detail specific steps to be taken to improve the quality of the Fox River. The outreach focuses on the direct impacts of Fox River water quality on the members of the public, specifically on the adverse impacts of high algae levels on drinking water, and on the efforts that the FRSG and wastewater treatment facilities are taking to reduce nuisance algae blooms. 2018 outreach efforts included:

- Display and FRSG Board Volunteers Outreach— One Earth Film Festival, Waubonsee Community College, Aurora Downtown Campus, March 5
- Presentation -- Illinois Pollution Control Board Brown Bag, Thompson Center, Chicago, March 8
- Presentation -- Illinois Nutrient Research & Education Council Forum, March 12
- Presentation -- Fox Valley Sustainability Network, April 3
- Presentation -- Illinois Pollution Control Board, April 12
- Presentation -- Central States Water Environment Association's Watershed Management Panel, May 14
- Presentation -- Aurora Mayor's Legislative Breakfast, July 26
- Presentation -- Fox River Ecosystem Partnership, September 12
- Four presentations - Fox River Study Group Annual Meeting, October 25
- Presentation -- Yorkville Chamber of Commerce, November 8
- Workshop – Bluestem Communications, December 13

Based on preliminary information received from the U.S. Army Corps of Engineers from the Fox River Habitat & Connectivity Study of the river's dams, a focus group was completed in December 2018 by Bluestem Communications (Bluestem) to assess public opinion on dam removal. The goal was to understand public thoughts and feelings about the Fox River and its dams in order to tailor future public outreach activities. The three focus groups consisted of: 1) community members with an interest in economic vitality, 2) community members with an interest in local history, and 3) residents with a property near a Fox River dam. On December 13, 2018, Bluestem provided their initial perceptions from the focus group sessions and offered a workshop to FRSG members. The workshop focused on answering questions from the general public about potential changes to the river and its dams and included ideas on creating messages that resonate with residents. Bluestem's final report was submitted to the FRSG on December 31, 2018.

The FRSG continued to work with entities throughout the Fox River watershed to build community support and to find the resources needed to implement key projects.

Point Source Nutrient Reductions

The major (discharge > 1 mgd) wastewater treatment facilities were issued permits with phosphorus reduction requirements during the previous permit cycle. In late 2018 and extending into 2019, the Fox River permits were issued with updated phosphorus compliance schedules. Most wastewater treatment facilities are on schedule to meet their phosphorus limit of 1.0 mg/l annual average by various dates in 2019 to 2022.

Phosphorus removal feasibility studies (PRFS) were completed during the previous NPDES permit cycle. Most major wastewater treatment facility permits contained a special condition that required the permittee to prepare a feasibility study on the treatment of phosphorus to meet monthly average effluent concentrations of 1.0 mg/l, 0.5 mg/l, and 0.1 mg/l. Some permits only contained the provision to study the 1.0 mg/l and 0.5 mg/l limits, so language was added during the 2018 permit cycle to study a 0.1 mg/l monthly average limit.

Phosphorus discharge optimization plan (PDOP) requirements were added to most major permits during this permit cycle, requiring a comprehensive study of potential phosphorus input reductions and operational improvements at the wastewater treatment plants. These PDOPs are proceeding.

Financial Solvency

FRSG is a 501c3 not for profit organization. Independent audits are performed annually to ensure proper financial management and a copy of the 2017 audit is available upon request. Our 2018 audit will be available in September 2019. FRSG continues to be funded by member agencies in the watershed at the rate of 25 or 50¢ (Elgin and Aurora) per capita. At the beginning of each year, a contribution request is sent to communities. The FRSG currently has two grants from the Kane County Grand Victoria Riverboat Fund that are also funding its activities. FRSG maintains a sufficient balance to fund activities and these funds are allocated to completing the action items described above: modeling, monitoring, public outreach, and the U.S. Army Corps of Engineers Fox River Habitat & Connectivity Study.

Financial and In-Kind Supporters

The Fox River Study Group receives the continued support from:

Financial Support
Village of Algonquin
City of Aurora
Village of Barrington
City of Batavia
Village of Cary
Village of East Dundee
Village of Elburn
City of Elgin
Fox River Water Rec. District
City of Geneva
Village of Gilberts
Kane County
Lake of the Hills Sanitary District
Village of Lakemoor
City of Plano
Village of Sandwich
City of St. Charles
Illinois EPA
USEPA
Village of Wauconda
City of Yorkville
Yorkville-Bristol Sanitary District

In-Kind Support
Village of Algonquin
City of Crystal Lake
City of Elgin
Deuchler Engineering Corporation
Environmental Defenders of McHenry County
Fox Metro Water Reclamation District
Fox River Water Reclamation District
Friends of the Fox River
Illinois EPA
Illinois State Water Survey
Northern Moraine Water Reclamation District
Sierra Club

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