

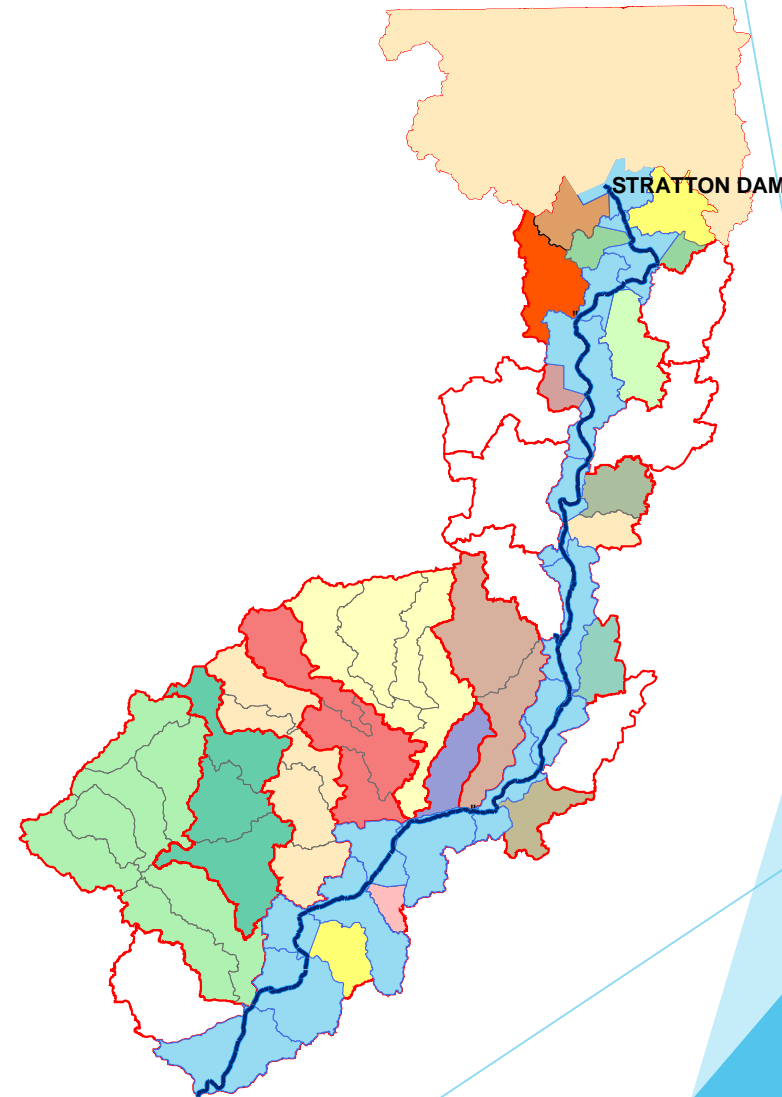


Fox River Study Group

Cindy Skrukrud
 Chair

Fox River Study Group

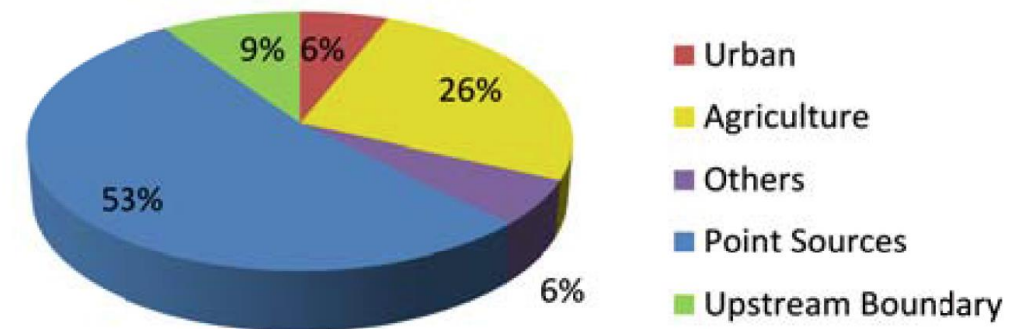
- ▶ Dissolved oxygen impairments identified in late 90's
- ▶ Fox River listed as 8th most endangered river in nation by American Rivers 20 years ago
- ▶ Fox River Study Group formed early 2000's
 - ▶ 501(c)(3) since 2003
 - ▶ Multi-stakeholder effort- wastewater treatment facility, municipal, county, watershed & environmental group reps/ Nine-member board
 - ▶ Study area covers 1405 mi² of 2658 mi² watershed
 - ▶ Annual funding at 25-50¢ per capita—> modeling (ISWS, consultants) & intensive monitoring efforts (ISWS, USGS, consultants)
 - ▶ In-kind monitoring program since 2002
 - ▶ No staff, board-led, volunteers take on tasks



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- ▶ Large river with high algae levels, low DO readings
 - ▶ Started with ISWS analysis of existing data in 2004
 - ▶ many sites: median ~90 µg/L chlorophyll a_{sestonic}
 - ▶ ½ river length in study area is pooled by 12 dams
 - ▶ Public water supply
 - ▶ 300,000 people drink Fox River water
 - ▶ Algae adds costs for treatment, additional \$0.5M for Elgin one year
 - ▶ Concerns for Harmful Algal Blooms & their toxins
- ▶ Steps underway
 - ▶ Major wastewater treatment plants upgrades underway
 - ▶ to reduce P to 1 mg/L annual average by 2022
 - ▶ resulting in summer phosphorus loads reductions of 75%
 - ▶ to reduce P to 0.5 mg/L annual geometric mean by 2030
 - ▶ Working on dam study with IDNR and Army Corps

Fox Total, long-term average annual TP load



Fox River Study Group

- ▶ (NARP) Fox River Implementation Plan (FRIP), completed in 2015
 - ▶ Relies on computer models of river and watershed
 - ▶ HSPF watershed model- what washes off land & from tributaries
 - ▶ Being used to develop watershed-based plans for tributaries
 - ▶ QUAL2K Fox mainstem model
- ▶ FRIP update underway, due December 2022
 - ▶ Iterative modeling and data collection (Deuchler Environmental, USGS)
 - ▶ QUAL2Kw model update & recalibration in 2018, scenario evaluation in 2019 (Geosyntec)
 - ▶ Computer modeling to evaluate scenarios of dam removal combined with phosphorus reductions to meet DO standards
- ▶ Funding
 - ▶ Avg Yearly Income \$285,000, Avg Yearly Expenses \$250,000 (2005-17: range \$28-480K)
 - ▶ Sources: Yearly municipal contributions, grants

Fox River Study Group

Our monitoring effort has allowed ISWS to identify trends over last decade (2006-2016)

► Trends in concentrations

Station ID	Station Name	Org-N	NH ₃ -N	NO ₃ -N	TKN	TP	DP	CHL-A
236	Nippersink Cr at Spring Grove	-	Decreasing	-	No Trend	No Trend	Decreasing	-
1	Nippersink Cr above Wonder Lake	-	-	-	-	No Trend	No Trend	-
184	Fox River at Johnsburg	Decreasing	Decreasing	Decreasing	Decreasing	No Trend	Increasing	Decreasing
23	Fox River at Rt 176	-	No Trend	Increasing	No Trend	Increasing	Increasing	-
258	Fox River at Oakwood Hills	No Trend	Decreasing	Decreasing	No Trend	Decreasing	No Trend	Decreasing
4	Flint Cr at Kelsey Rd-Lk Barrington	-	No Trend	-	No Trend	No Trend	No Trend	-
271	Crystal Cr at Rt 31	No Trend	No Trend	Increasing	No Trend	Decreasing	Decreasing	No Trend
24	Fox River at Algonquin	No Trend	No Trend	Decreasing	No Trend	No Trend	Increasing	Decreasing
268	Tyler Cr at Rt. 31-Elgin	No Trend	No Trend	No Trend	No Trend	Decreasing	Decreasing	No Trend
25	Poplar Cr near Mouth-Elgin	-	No Trend	-	Increasing	Increasing	Increasing	-
26	Fox River at South Elgin	Decreasing	Decreasing	No Trend	Decreasing	Decreasing	Decreasing	Decreasing
14	Ferson Cr at Rt 34	-	No Trend	-	No Trend	No Trend	No Trend	-
79	Ferson Cr near Mouth-Elgin	No Trend	Decreasing	Decreasing	No Trend	No Trend	Increasing	No Trend
40	Fox River at Geneva	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing
27	Fox River at Montgomery	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing
34	Fox River at Yorkville	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing	Decreasing
28	Blackberry Cr at Rt 47	-	No Trend	-	No Trend	No Trend	Decreasing	-
287	Blackberry Cr near Mouth	No Trend	Decreasing	No Trend	No Trend	No Trend	No Trend	No Trend

► Trends in annual loads at Fox River at Montgomery

Org N -11%, Ammonia -14%, Nitrate -16%, TKN -7.8%, TP -21%, DP -25%, TSS -6.3%, Chl-a -8.8%

Questions?

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