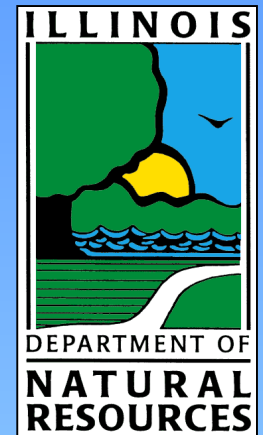




Acknowledgement

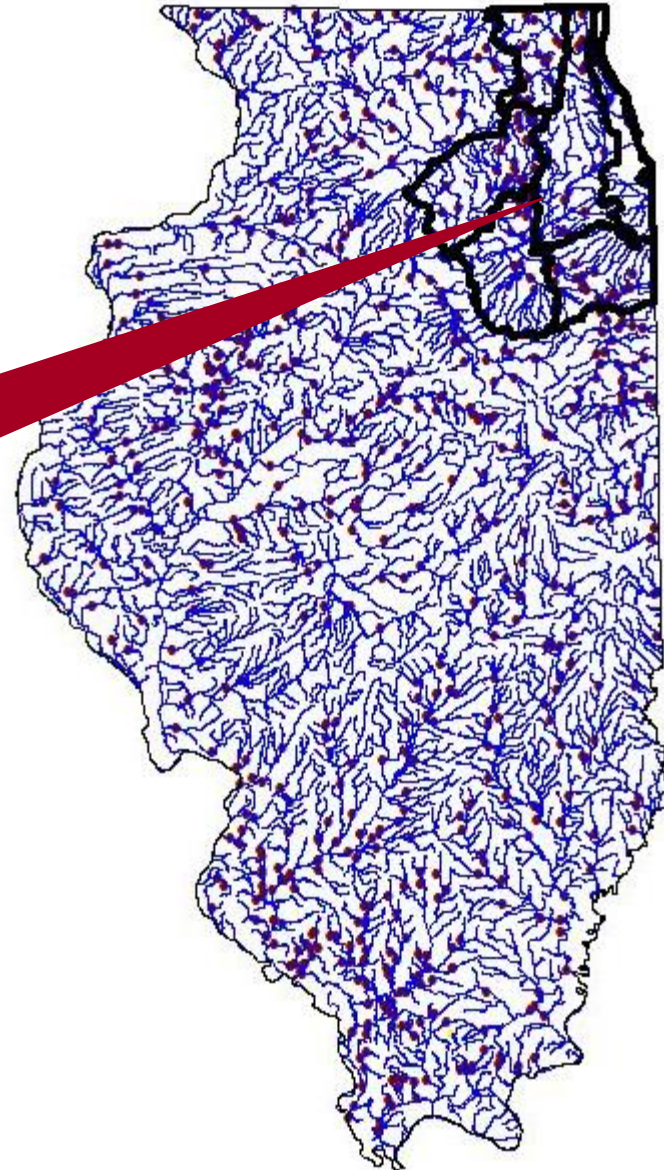


ILLINOIS STREAM RESOURCES

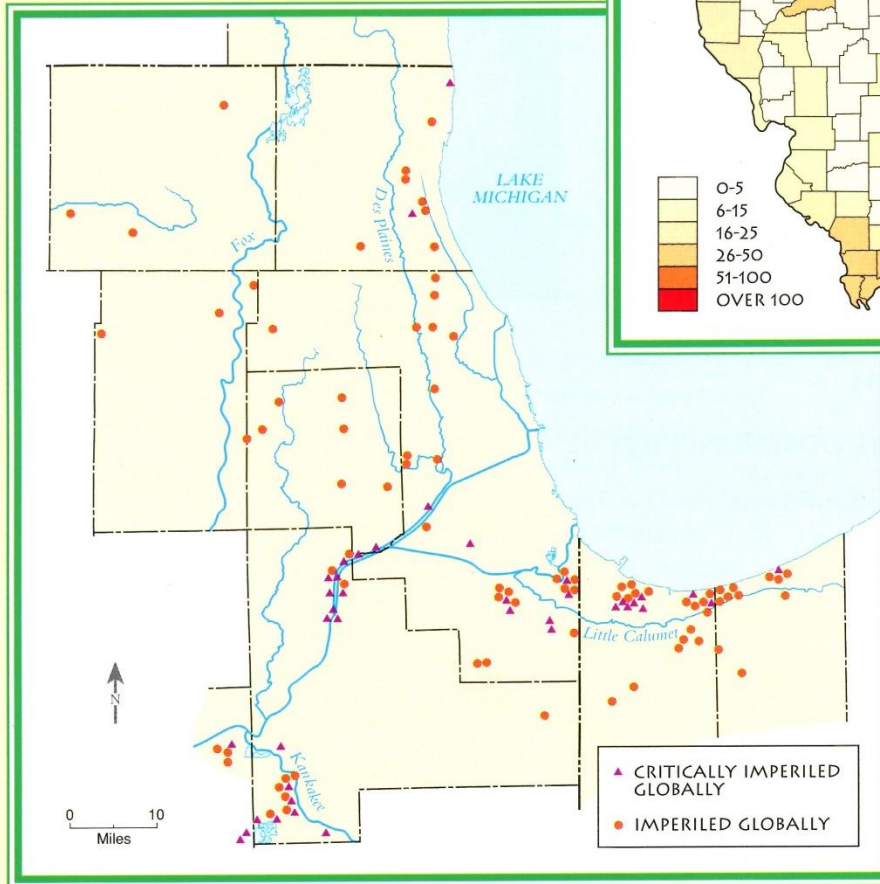
Over 32,000 miles
of perennial
rivers and streams

REGION 2

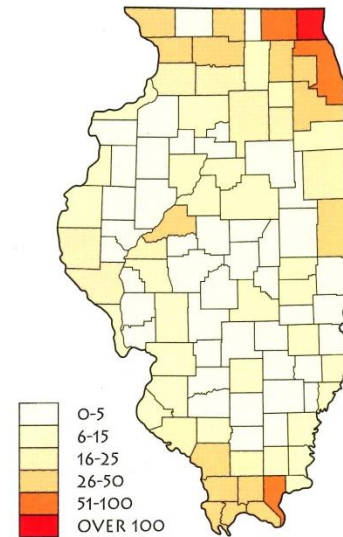
Fox
Des Plaines
Chicago
Kankakee
Mazon
Aux Sable



**RARE AND ENDANGERED
NATURAL COMMUNITIES IN
CHICAGO WILDERNESS**



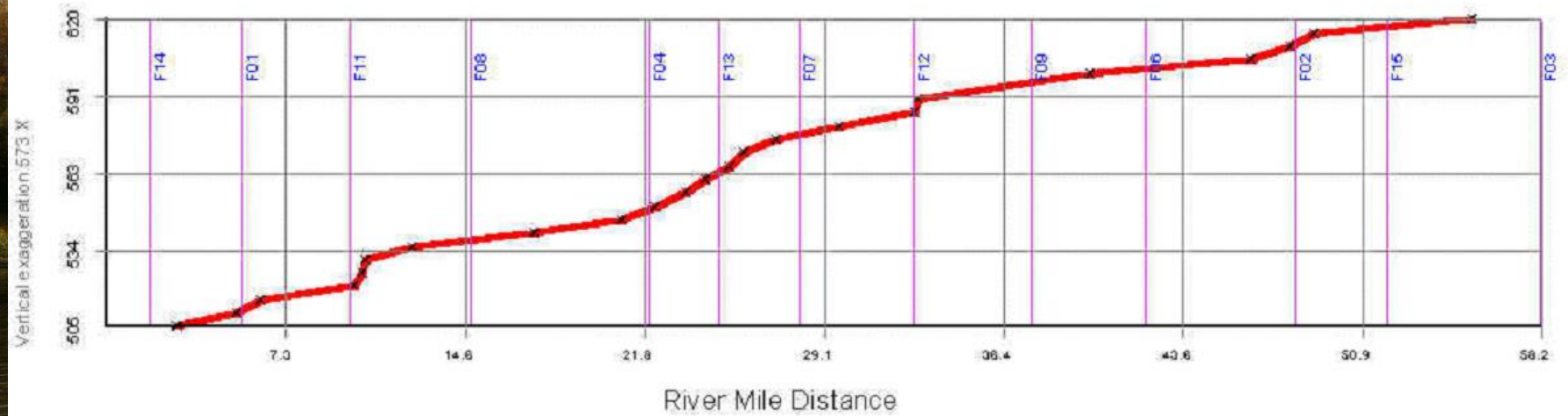
**ENDANGERED AND THREATENED
SPECIES IN ILLINOIS**





Elevation Profile of KANKAKEE R

Average % slope of selected segment: 0.041



Selected segment highlighted in Red





Blacknose dace



Largescale stoneroller



Central Mudminnow



Rainbow darter



Tadpole madtom



Starhead topminnow



Redbelly dace

Northern sunfish





Hornyhead chub



Highfin
Carpsucker



River Redhorse (T)

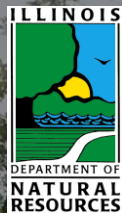


Quillback Carpsucker

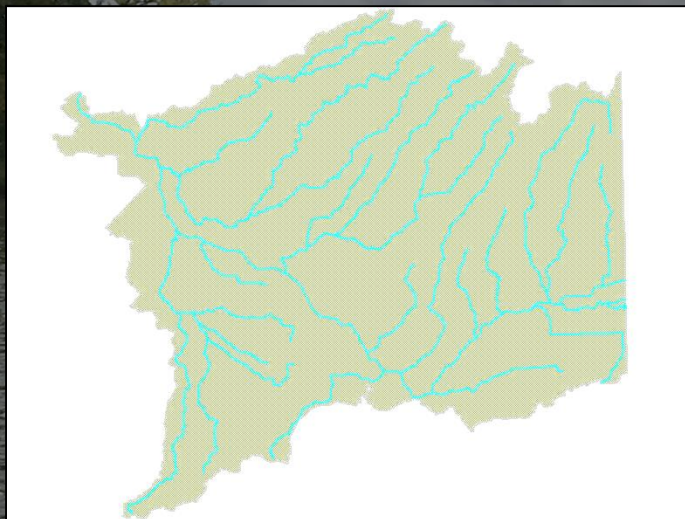
Sucker Family




Northern Hogsucker



Status of Fish and Mussels in the Kankakee River: Trends in Stream Quality and Sport fishery



**Division of Fisheries
Region II Streams Program**

- 
- A scenic view of a river, likely the Kankakee River, with autumn foliage reflected in the water. The trees on the banks are in various shades of green, yellow, and orange. The water is calm, showing clear reflections of the trees and sky. A small, dark, circular object is visible in the water in the foreground.
- **Fish Sampling Program**
 - **Kankakee Mainstem**
 - **2015 Survey**
 - **Quality trends 1994 – 2015**
 - **Sportfishery**
 - **Walleye Program**
 - **Mussels**
 - **Kankakee Tributaries**
 - **2015 Survey**
 - **Quality trends 1994 – 2015**
 - **Iroquois River**
 - **2015 Survey**
 - **Quality trends 1994 – 2015**



FISH COMMUNITY SAMPLING



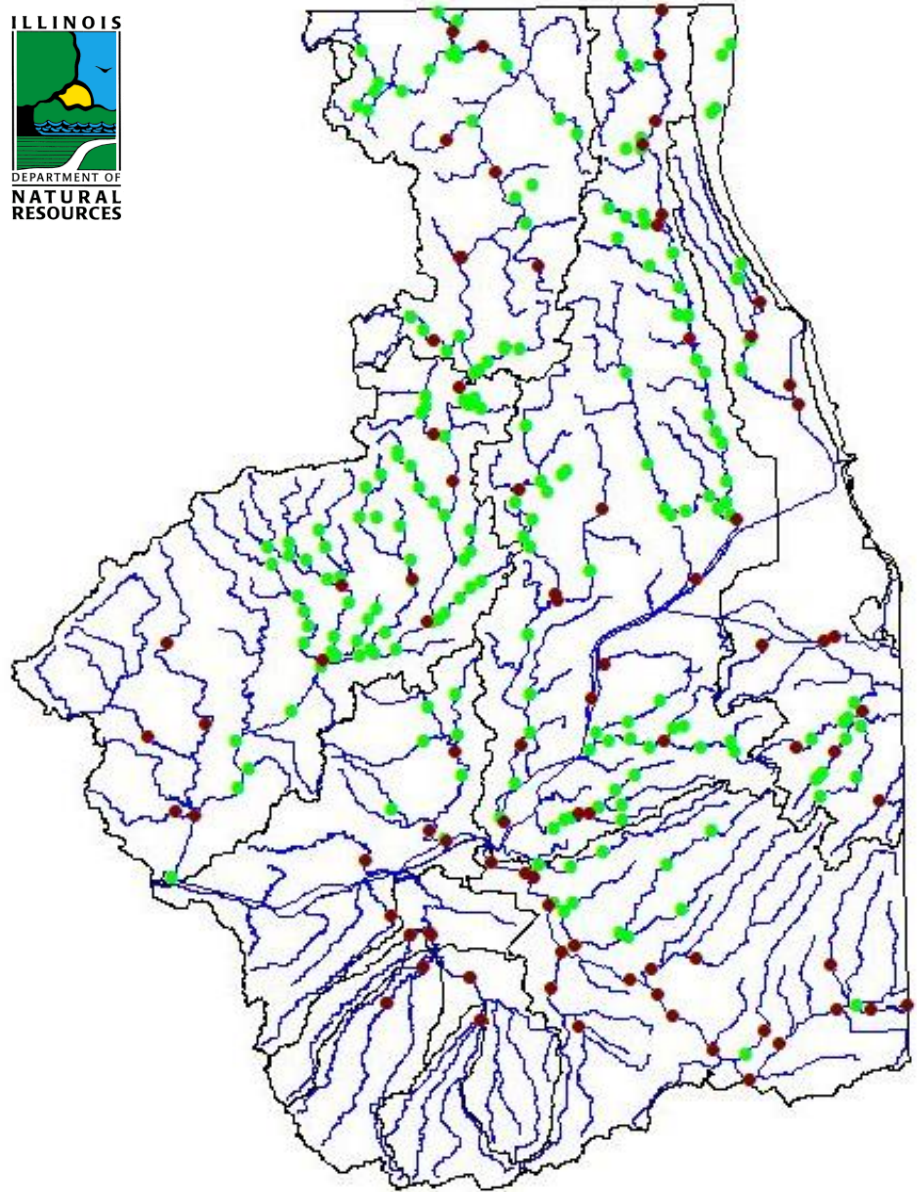
DATA APPLICATIONS

- Stream Ratings
- Fishery Management
- Watershed Planning
- Project Evaluation
- Permit Review



Region 2 Fish Sampling Program

- Basin Survey sites
 - large scale
 - five-year rotation
 - IEPA coop.
- Sub-basin sites
 - local scale
 - streams under threat
 - active watershed grps
 - stream projects

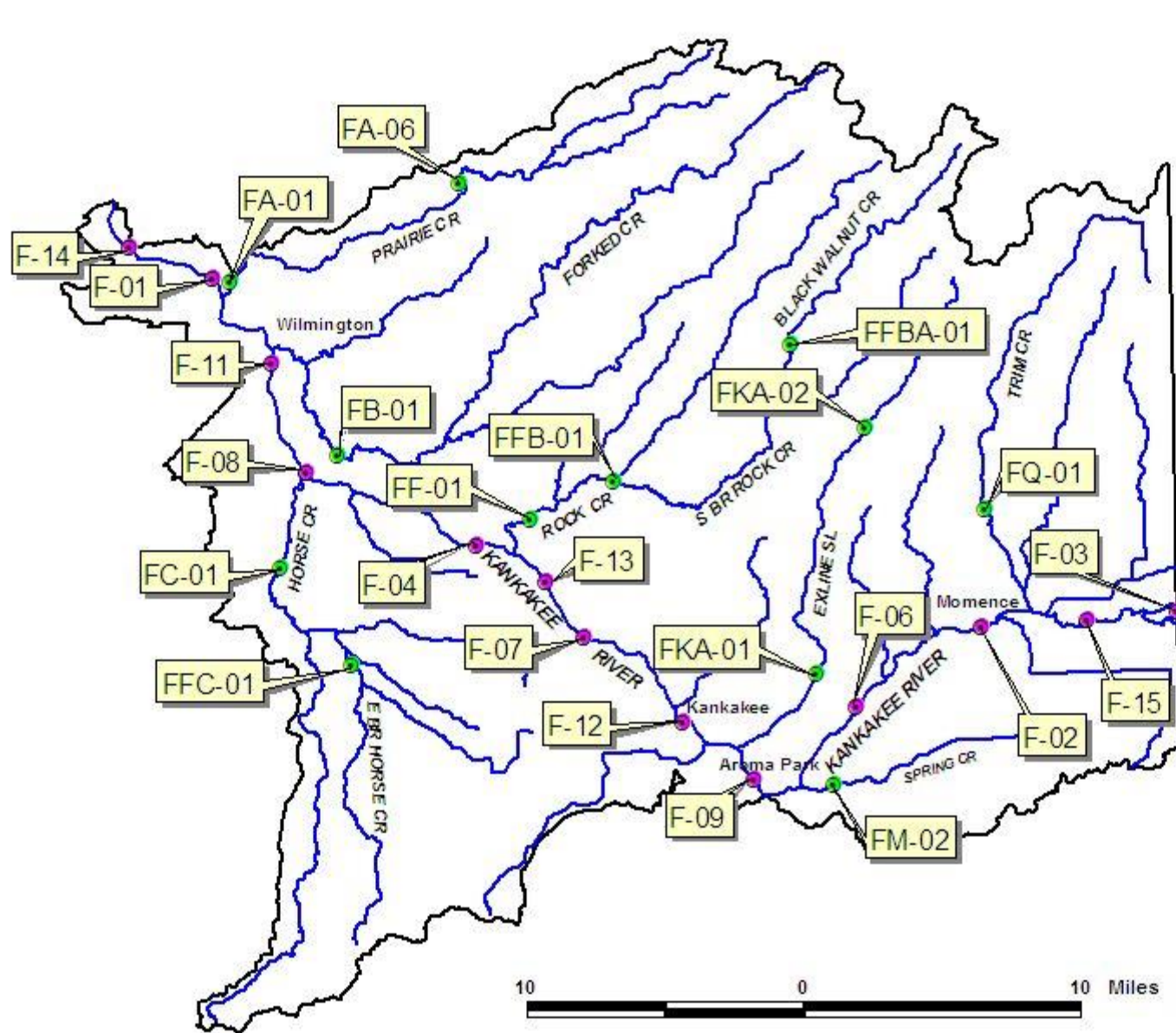




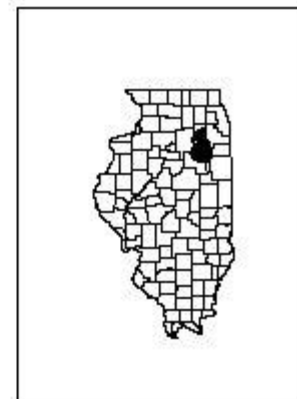
Kankakee River Basin Surveys

Number of stations sampled

	2015	2010	2005	2000	1994
Mainstem	15	13	13	13	13
Tributaries	11	12	11	9	10



-  Streams
-  Watershed Boundry
-  Kankakee Basin Tributary Stations
-  Kankakee Basin Mainstem Stations



2015 Kankakee River Basin Survey

Mainstem – 15 Stations

6,985 fish

68 species

66 native species

(No Bighead or Silver Carp)

3 State Listed Species:

River Redhorse

Ironcolor Shiner

Starhead Topminnow

Top 15 Fish Species

Spotfin shiner	2409
Bluntnose minnow	830
Shorthead redhorse	487
Sand shiner	381
Golden redhorse	359
Longear sunfish	201
Smallmouth bass	199
Channel catfish	186
Largemouth bass	175
Bluegill	113
Rosyface shiner	111
Mimic shiner	103
Northern hog sucker	99
Logperch	97
Gizzard shad	84

River redhorse



			3-Sep	25-Aug	25-Aug	18-Aug	18-Aug	17-Aug	17-Aug	14-Aug	14-Aug	13-Aug	13-Aug	12-Aug	12-Aug	11-Aug	11-Aug
			State Line	River Isle	Mom-ence	Rt. 17	Aroma Park	US Kank.	Dam	Kankakee	Davis Creek	Langham Isle	Werner Road	Horse Creek	US Wilms.	Wilmington	I-55
Scientific Name		Total	F-03	F-15	F-02	F-06	F-09	F-96	F-12	F-07	F-13	F-04	F-08	F-20	F-11	F-01	F-14
Lepisosteus osseus	42	48	0	0	0	0	0	0	4	1	2	6	0	1	25	4	5
Amia calva	4	4	1	0	1	1	0	0	0	0	0	0	0	0	1	0	0
Dorosoma cepedianum	84	84	1	0	0	0	1	0	0	0	1	0	0	0	18	6	57
Hiodon tergisus	2	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Esox americanus	39	39	7	1	4	8	0	1	0	0	0	0	1	15	0	0	2
Esox lucius	18	18	3	5	7	1	0	1	0	0	0	0	0	1	0	0	0
Ctenopharyngodon idella	3	3	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Cyprinus carpio	82	82	10	7	21	3	1	3	7	3	1	3	3	13	4	1	2
Notemigonus crysoleucas	12	12	1	0	0	1	0	0	0	0	0	0	0	2	0	1	7
Nocomis biguttatus	3	3	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Campostoma anomalum	19	19	0	8	0	0	0	0	0	0	0	0	0	11	0	0	0
Phenacobius mirabilis	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Rhinichthys atratulus	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Luxilus chrysocephalus	30	30	0	1	0	0	0	3	0	6	1	0	4	0	0	15	0
Lythrurus umbratilis	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Cyprinella spiloptera	2417	2409	80	360	46	32	21	27	2	60	9	25	74	83	153	97	1340
Pimephales promelas	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Pimephales notatus	830	830	21	26	9	24	58	15	0	4	10	3	1	420	18	4	217
Pimephales vigilax	53	53	1	23	0	0	0	1	0	0	0	0	0	26	0	0	2
Notropis atherinoides	53	53	0	0	0	0	0	0	0	0	0	0	0	6	21	24	2
Notropis rubellus	111	111	0	12	3	0	0	0	0	4	9	5	4	46	11	12	5
Notropis chalybaeus	36	36	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Notropis ludibundus	381	381	0	102	5	9	100	1	0	8	0	2	2	81	30	2	39
Notropis volucellus	103	103	0	0	2	0	0	0	0	36	0	7	5	5	33	15	0
Notropis hudsonius	14	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
Notropis buccatus	9	9	0	7	0	0	0	0	0	0	0	0	0	2	0	0	0
Ictiobus cyprinellus	27	27	10	7	0	1	2	6	0	0	0	0	0	0	0	0	1
Ictiobus bubalus	50	50	5	2	3	8	2	4	6	0	0	0	0	0	10	2	8
Ictiobus niger	9	9	4	5	0	0	0	0	0	0	0	0	0	0	0	0	0
Carpiodes cyprinus	47	47	7	6	2	6	5	1	7	4	2	0	0	3	2	1	1
Carpiodes velifer	7	7	2	0	0	4	0	0	0	1	0	0	0	0	0	0	0
Minytrema melanops	7	7	0	1	0	4	0	1	0	0	0	0	0	1	0	0	0
Erimyzon sucetta	36	36	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hypentelium nigricans	99	99	3	0	15	1	12	0	3	9	3	16	6	1	13	17	0
Moxostoma carinatum	48	48	0	3	10	3	1	0	15	3	0	0	5	0	5	3	0
Moxostoma macrolepidotum	523	487	23	13	83	10	37	2	59	89	51	31	13	1	34	39	2
Moxostoma duquesnei	19	19	0	0	0	0	0	0	0	6	3	2	2	0	6	0	0
Moxostoma erythrurum	358	359	18	6	15	31	20	0	21	23	21	73	15	19	18	71	8
Moxostoma anisurum	81	81	9	6	1	15	6	9	8	4	2	8	9	1	0	3	0
Ictalurus punctatus	185	186	5	4	48	14	16	0	17	3	11	19	3	6	25	14	1
Ameiurus natalis	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Pylodictis olivaris	29	29	0	1	1	4	3	5	1	4	0	1	0	0	2	1	6
Noturus flavus	2	2	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
Noturus gyrinus	14	14	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aphredoderus sayanus	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fundulus notti	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fundulus notatus	7	7	1	0	0	5	0	0	0	0	0	0	0	1	0	0	0
Labidesthes sicculus	60	60	16	0	0	1	1	6	5	0	1	2	0	5	6	17	0
Morone chrysops	3	3	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0
Pomoxis nigromaculatus	31	31	13	0	4	8	2	0	0	0	0	0	0	0	1	3	0
Pomoxis annularis	4	4	1	0	1	0	0	0	0	0	0	0	0	1	0	1	0
Ambloplites rupestris	77	77	11	2	8	22	0	0	1	0	0	8	14	10	0	1	0
Micropterus salmoides	175	175	35	5	9	15	21	15	10	2	3	2	7	13	9	14	15
Micropterus dolomieu	199	199	5	17	26	9	7	6	14	20	7	33	12	6	16	15	6
Lepomis cyanellus	36	36	0	0	4	2	1	6	1	3	3	3	1	3	0	9	0
Lepomis macrochirus x L. cyanellus	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Lepomis macrochirus	113	113	37	2	3	9	5	3	9	10	0	2	4	15	0	3	11
Lepomis microlophus	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Lepomis gibbosus	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lepomis megalotis	201	201	15	0	1	10	2	2	1	2	2	5	21	131	2	4	3
Lepomis humilis	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Stizostedion vitreum	29	28	0	0	0	0	3	0	1	0	1	5	0	0	10	8	0
Stizostedion canadense	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Percina maculata	16	16	2	2	2	1	5	0	0	0	2	1	0	1	0	0	0
Percina phoxocephala	15	14	0	0	0	0	0	0	4	1	0	0	0	0	5	4	0
Percina caprodes	105	97	2	0	1	0	1	0	0	0	0	0	0	0	38	53	2
Etheostoma nigrum	18	18	0	2	3	1	4	0	0	3	3	0	0	0	1	1	0
Etheostoma zonale	7	6	0	0	1	0	1	0	0	0	0	1	0	2	1	0	0
Aplodinotus grunniens	31	31	0	0	0	0	0	0	1	0	0	0	0	1	8	17	4
Total no. individuals		6985	446	638	340	264	339	117	198	310	148	265	206	935	529	483	1767
No. fish species		69	39	29	31	32	28	21	22	26	22	26	21	35	33	35	28

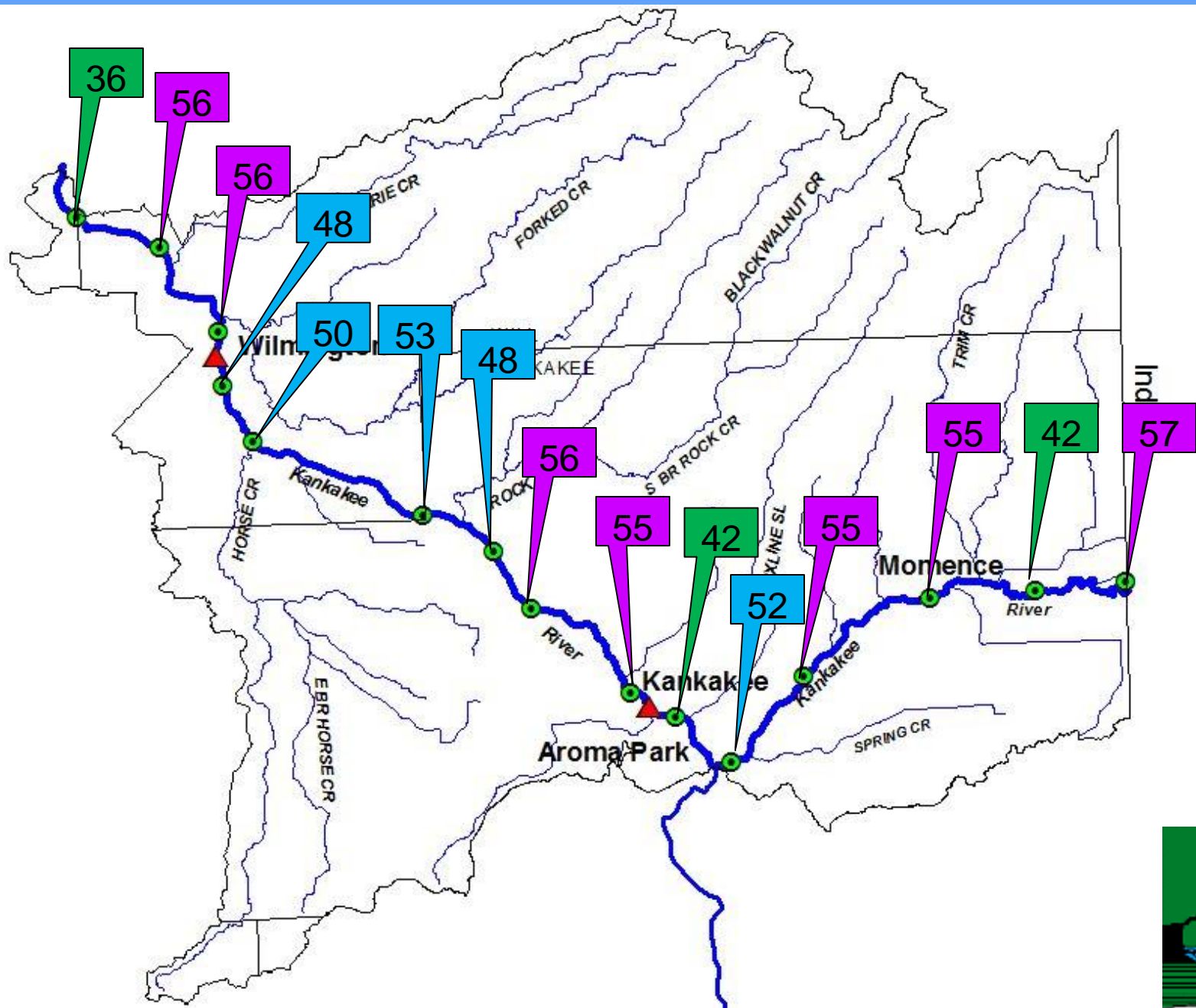


STREAM REPORT CARD

Index of Biotic Integrity - IBI

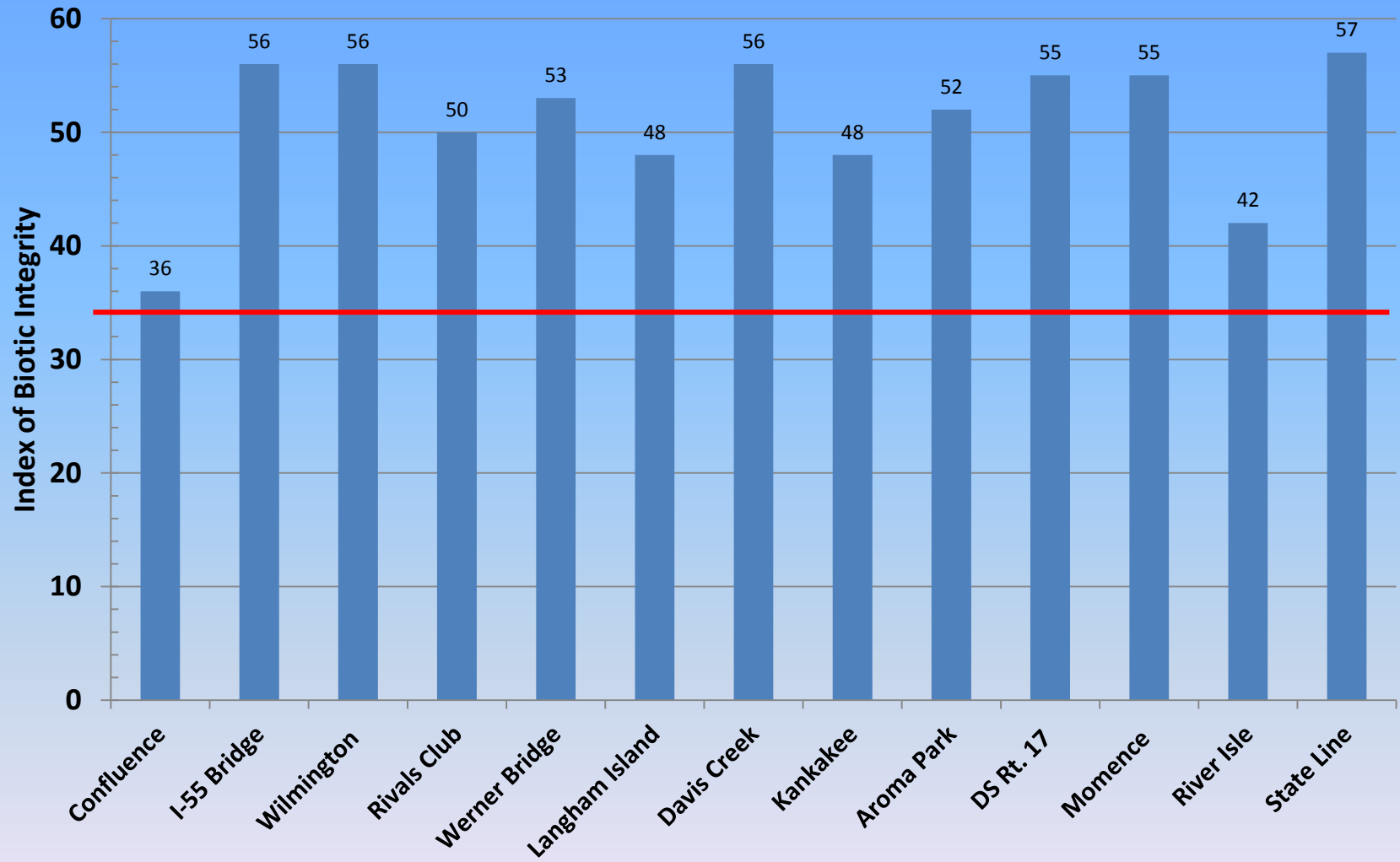
METRIC	SCORE
No. native fish species	0-6
No. sucker species	0-6
No. sunfish species	0-6
No. intolerant species	0-6
No. minnow species	0-6
No. benthic invertivore species	0-6
Prop. specialist benthic invertivores	0-6
Prop. generalist feeders	0-6
Prop. coarse mineral spawners	0-6
Prop. tolerant species	0-6
total	0-60

Difference > 10 points = Biologically meaningful change



Kankakee River Mainstem IBI's

IEPA Threshold for Full Support of Aquatic Life ≥ 41



1994, 2000, 2005, 2010, 2015 Basin Surveys

Mainstem – 13 Stations

27,872 fish

89 species

State Listed Species:

River redhorse

Ironcolor shiner

Banded killifish

Starhead topminnow

Pallid shiner

Bluntnose darter

Weed shiner



“Top 20 species”

Common name

Spotfin shiner

Shorthead redhorse

Smallmouth bass*

Golden redhorse

Bluntnose minnow

Gizzard shad

Bluegill

Sand shiner

Mimic shiner

Longear sunfish

Largemouth bass

Channel catfish

Carp

Rock bass

Silver redhorse

Northern hogsucker*

Bullhead minnow

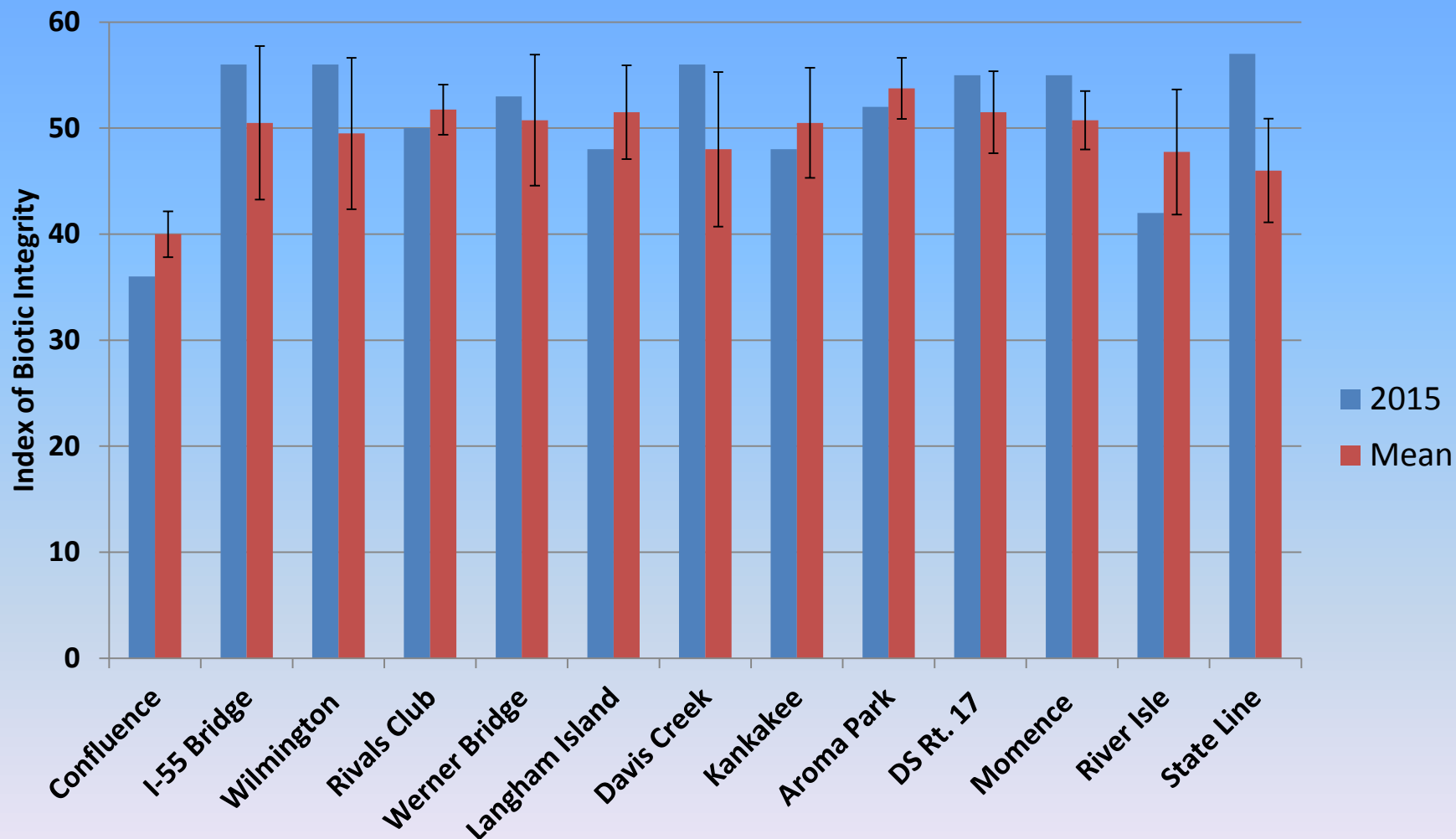
Rosyface shiner*

Freshwater drum

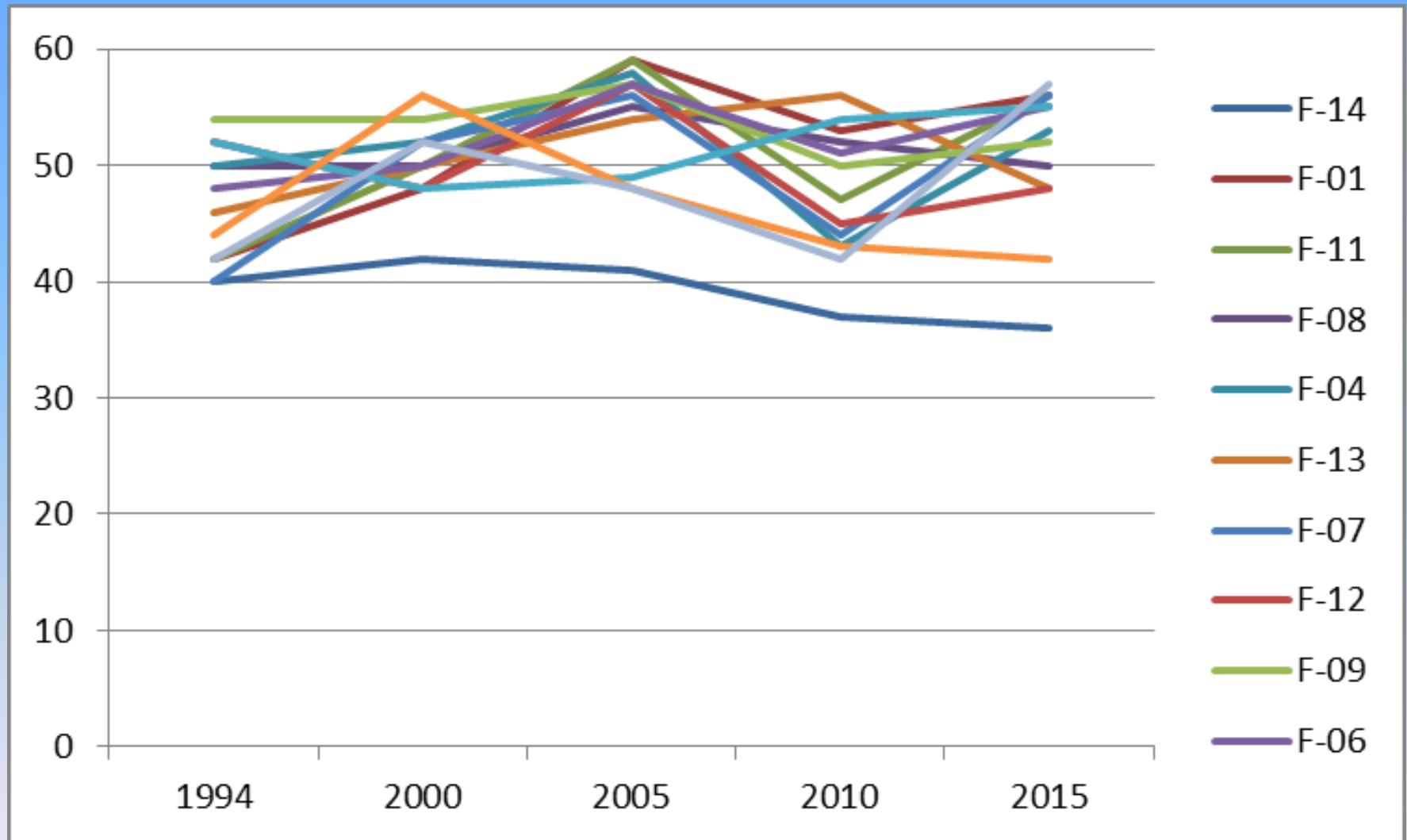
Striped shiner

River redhorse*

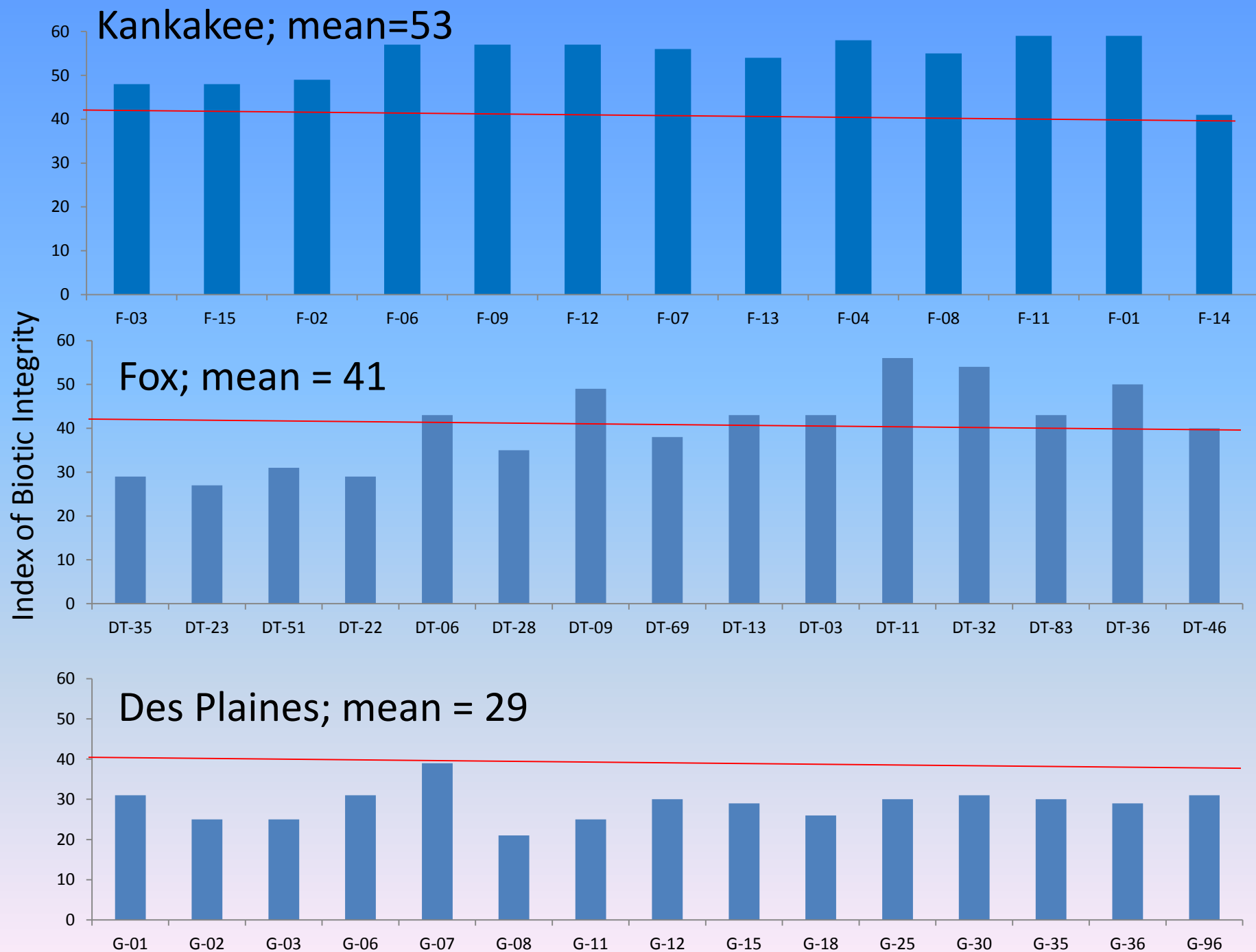
2015 Mainstem IBI vs. 1994 – 2010 Mean IBI (\pm one std. dev.)



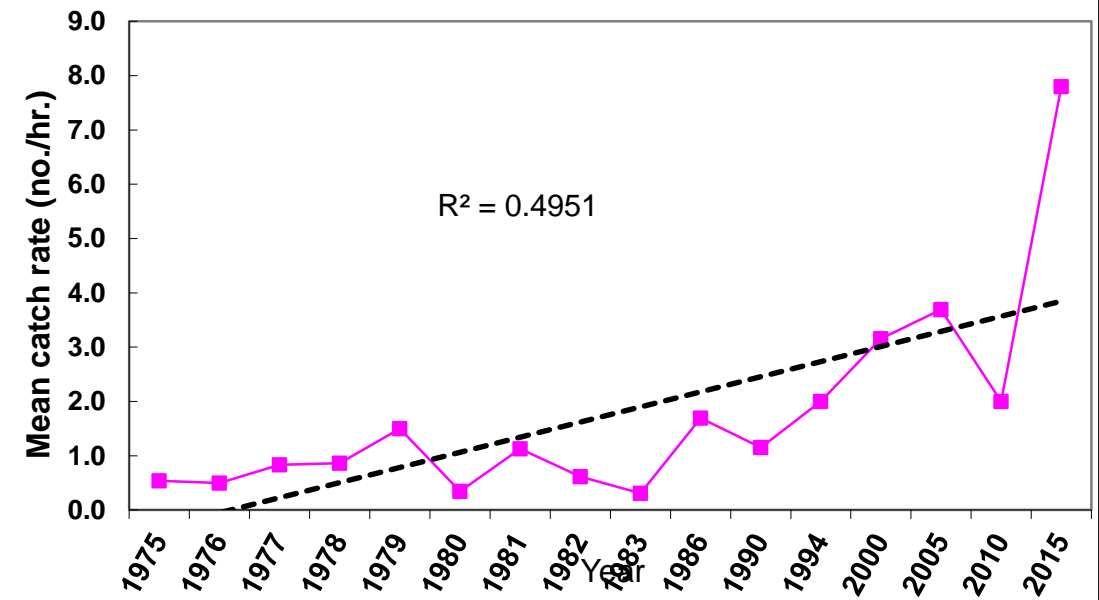
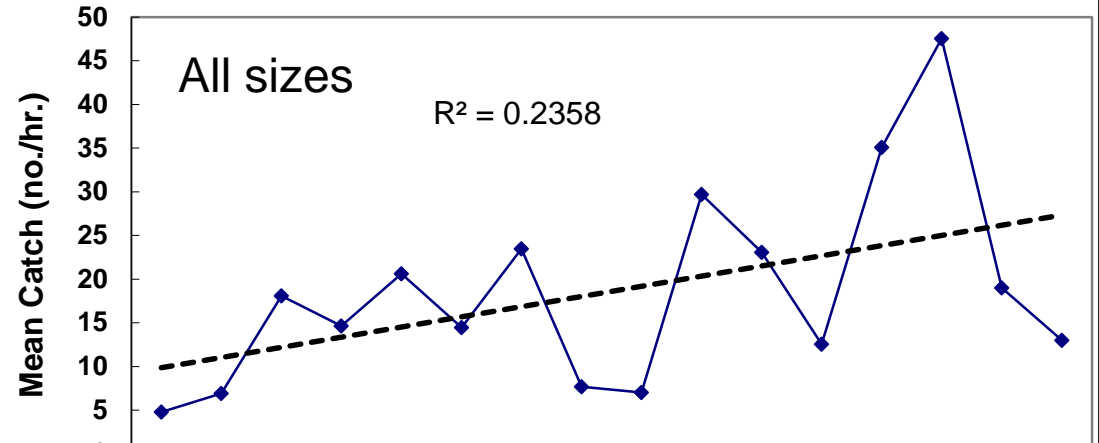
IBI Trends for Kankakee River Mainstem



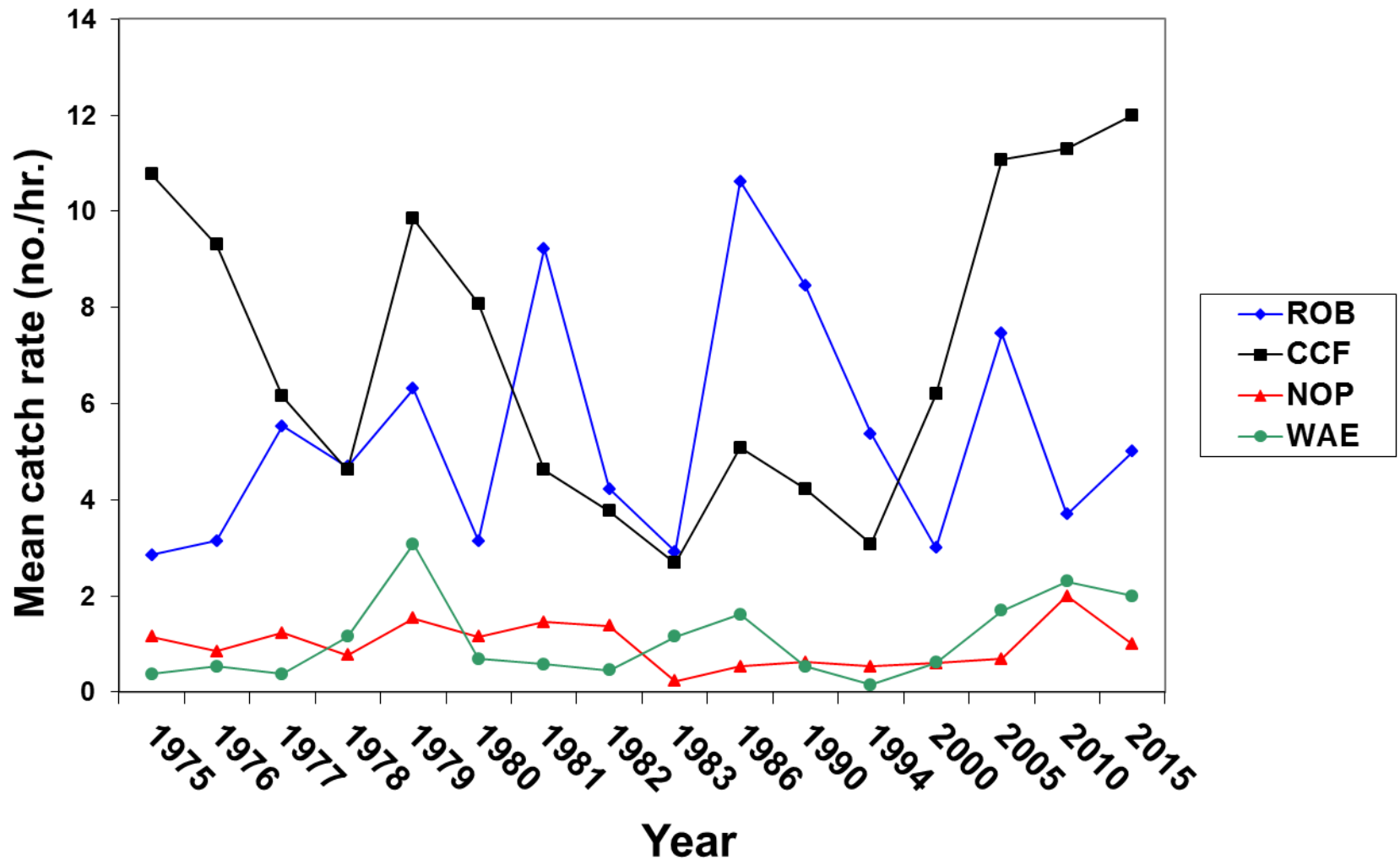
Difference > 10 points = Biologically meaningful change



Kankakee River Smallmouth bass – 1975 to 2015



Kankakee River Sportfish trends 1975 - 2015

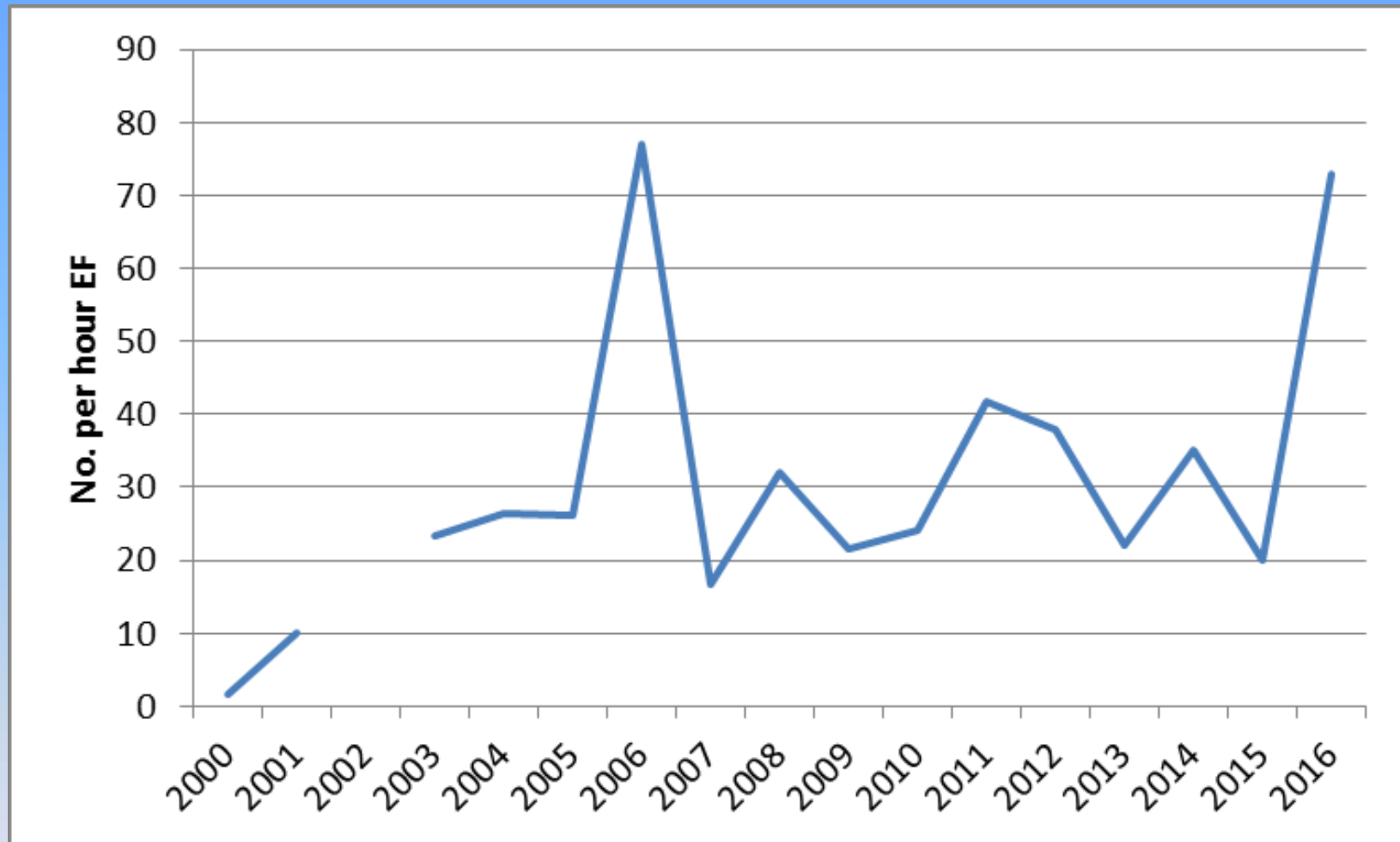




IDNR Walleye Stocking Program

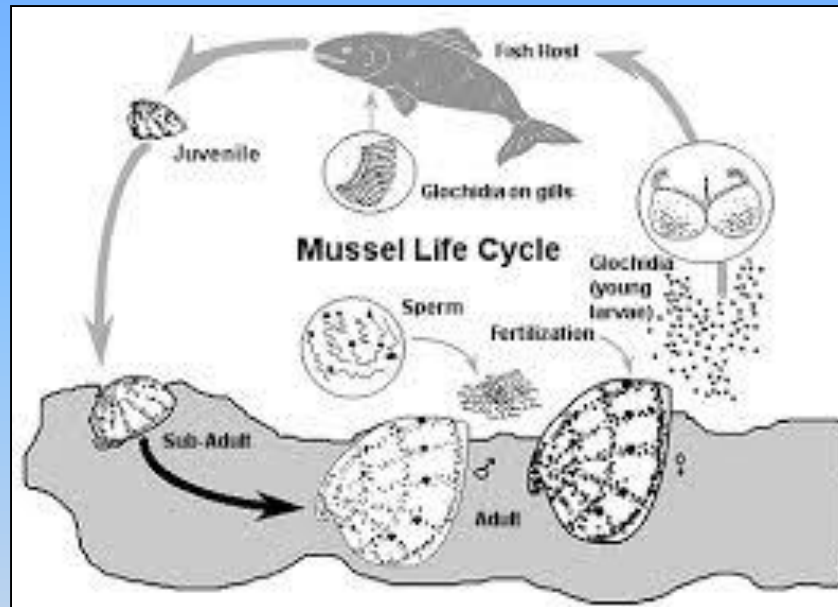
- Began in 2000
- Brood fish from native stock
- Spawned in hatchery
- Raised to 2" fingerlings in ponds
- Released in June
- 80,000 per year average

Spring catch rate of Walleye in the Kankakee River



Freshwater mussels

Cool critters - mean mothers



Pictures from MC Barnhart (Missouri State University)

2010 Mussel Survey



- 7 mainstem sites; (13 tributary sites)
- 27 live species, 30 extant (fresh dead)
- 1138 mussels collected at mainstem sites
- Recruitment on mainstem very low
- Kankakee River better than most in State

TOP FIVE SPECIES

Fat mucket
Fluted shell,
Plain pocketbook
Black sandshell
Threeridge



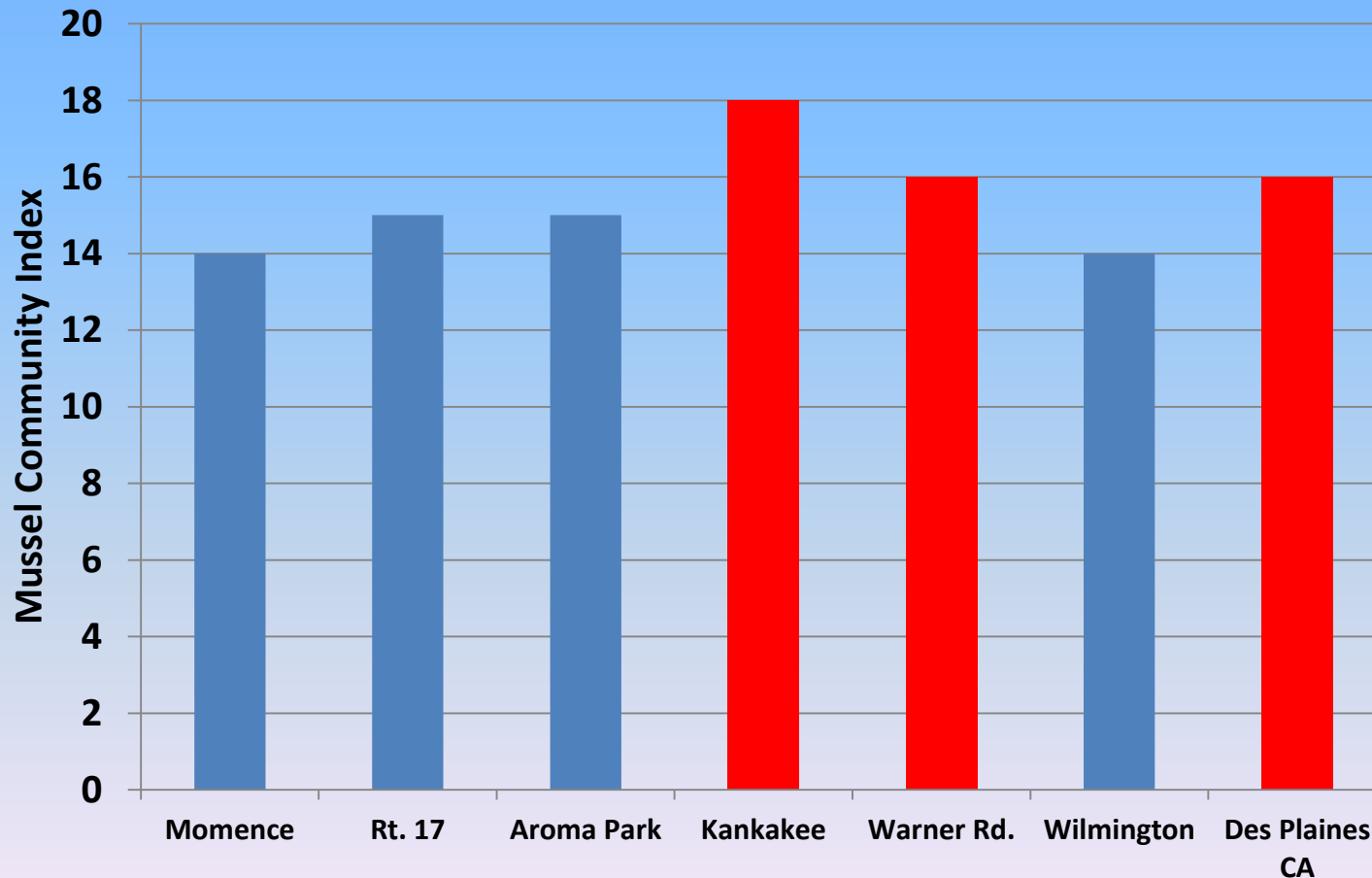
Illinois DNR Mussel Community Index

Table 4. Freshwater mussel resource categories based on species richness, abundance, and population structure. MCI = Mussel Community Index Score

Unique Resource MCI ≥ 16	Very high species richness (10 + species) &/or abundance (CPUE > 80); intolerant species typically present; recruitment noted for most species
Highly Valued Resource MCI = 12- 15	High species richness (7-9 species) &/or abundance (CPUE 51-80); intolerant species likely present; recruitment noted for several; species
Moderate Resource MCI = 8 - 11	Moderate species richness (4-6 species) &/or abundance (CPUE 11-50) typical for stream of given location and order; intolerant species likely not present; recruitment noted for a few species
Limited Resource MCI = 5 - 7	Low species richness (1-3 species) &/or abundance (CPUE 1-10); lack of intolerant species; no evidence of recent recruitment (all individuals old or large for the species)
Restricted Resource MCI = 0 - 4	No live mussels present; only weathered dead, sub-fossil, or no shell material found.

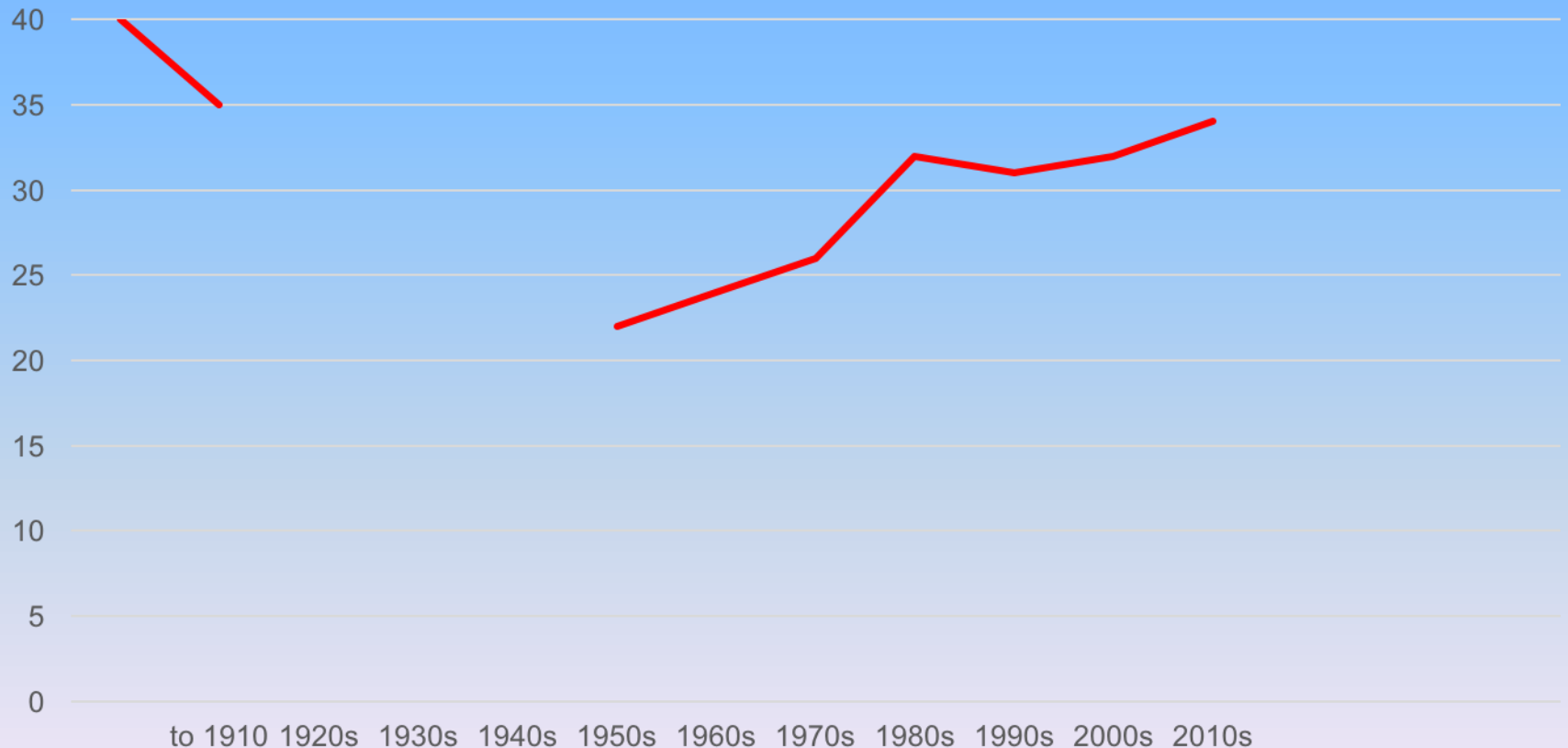
Kankakee River Mainstem – Mussel Community Index (0 to 20)

Unique ≥ 16 ; Highly Valued 12-15



History of the Kankakee River basin

40 species of mussels historically; 34 species extant today



2015 Kankakee River Basin Survey ***Tributaries – 12 Stations***

7,750 fish
39 species



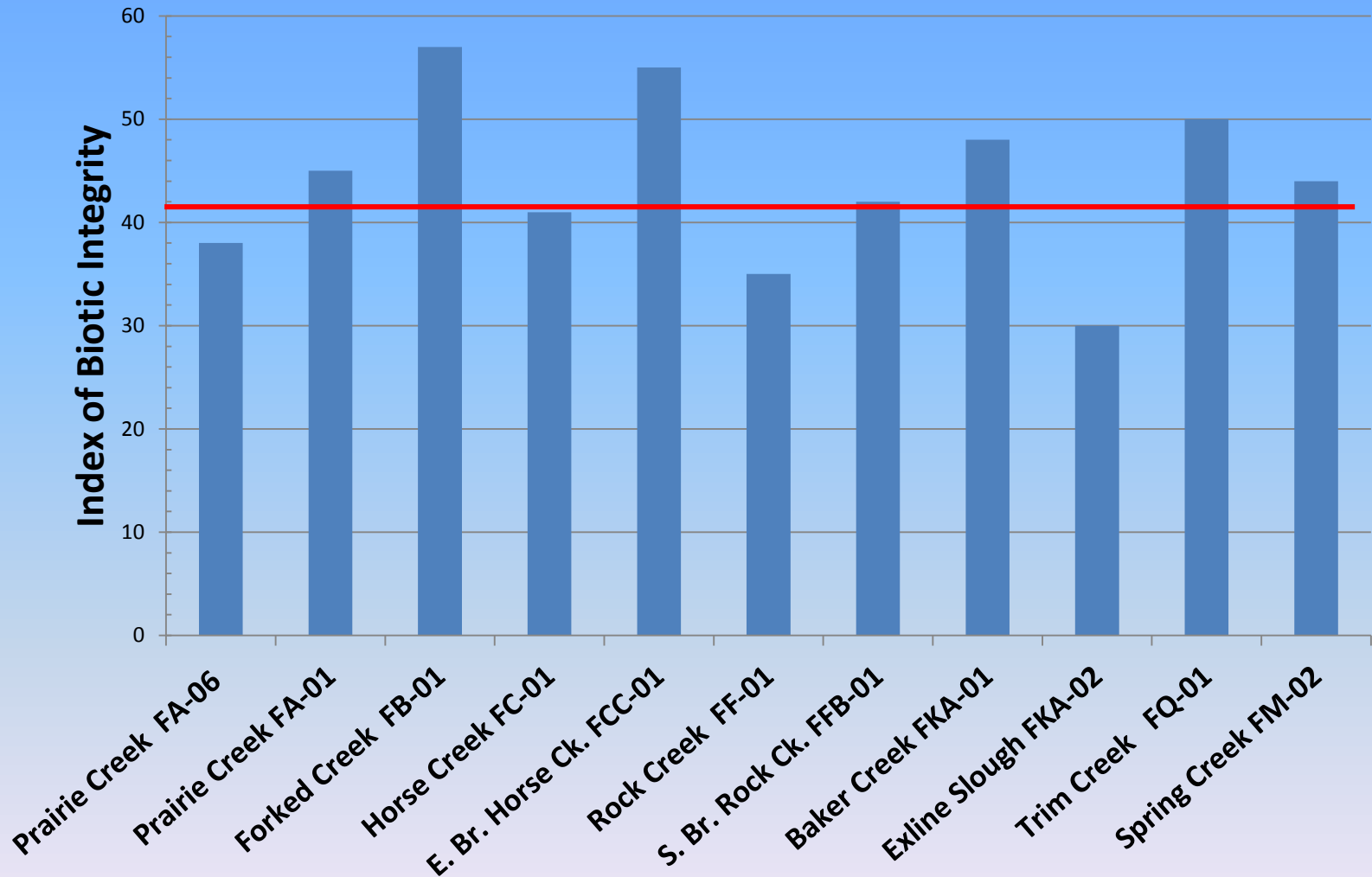
“Top 15 species”

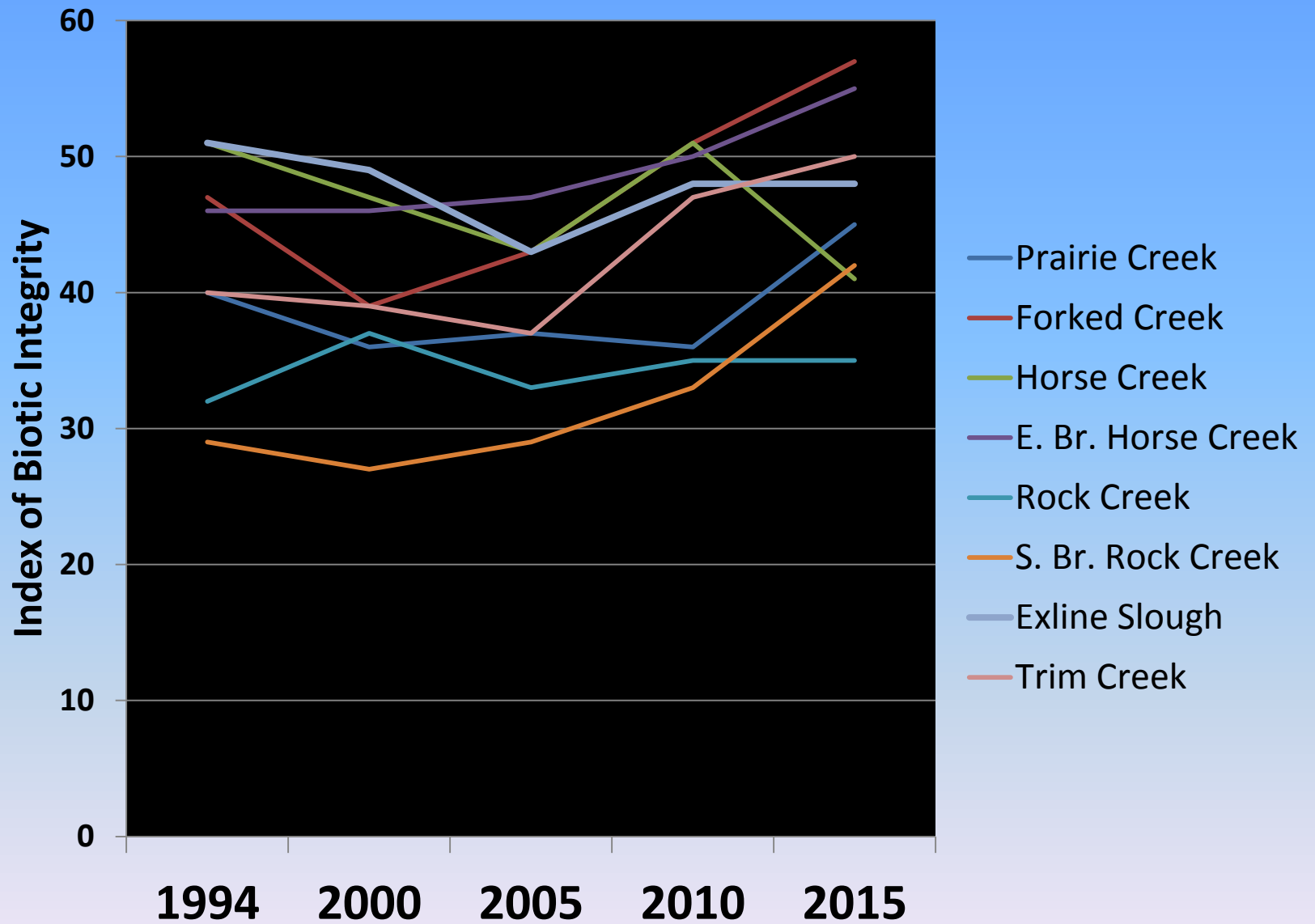
Common name	Total
Striped shiner	2409
Hornyhead chub	1086
Bluntnose minnow	700
Central stoneroller	495
Spotfin shiner	340
Rosyface shiner	340
Rainbow darter	271
Sand shiner	243
Longear sunfish	193
Rock bass	192
Johnny darter	177
Smallmouth bass	161
Banded darter	143
Green sunfish	142
Mimic shiner	134



Kankakee River Tributary IBI's

IEPA Threshold for Full Support of Aquatic Life ≥ 41





2015 Iroquois River Survey

Mainstem – 7 Stations

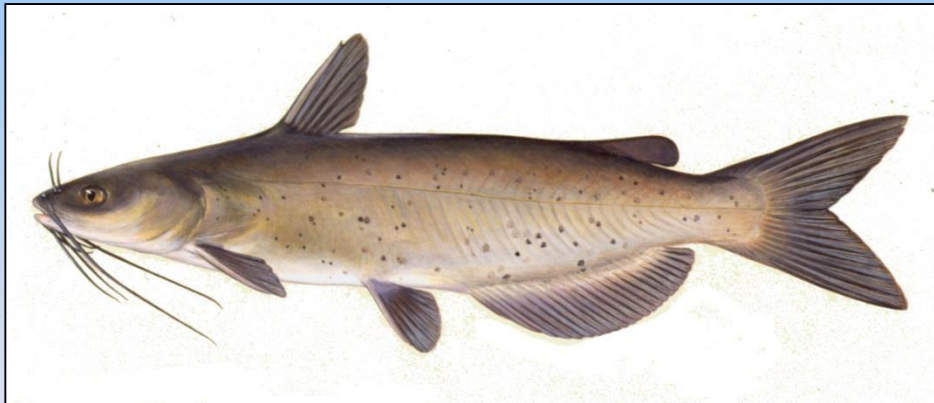
7,588 fish

61 species

Listed Species

Weed Shiner

River Redhorse

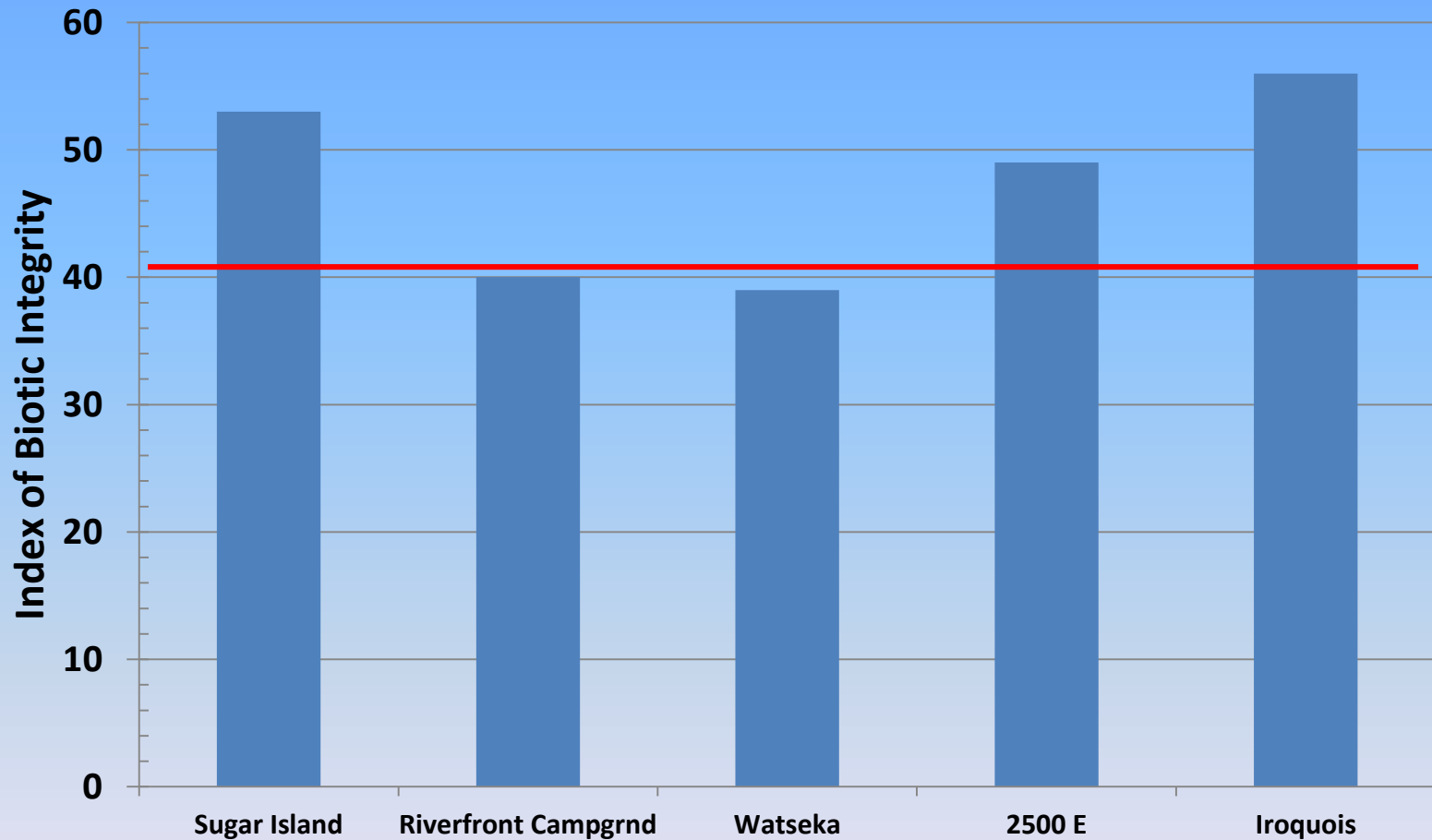


Top 15 Species

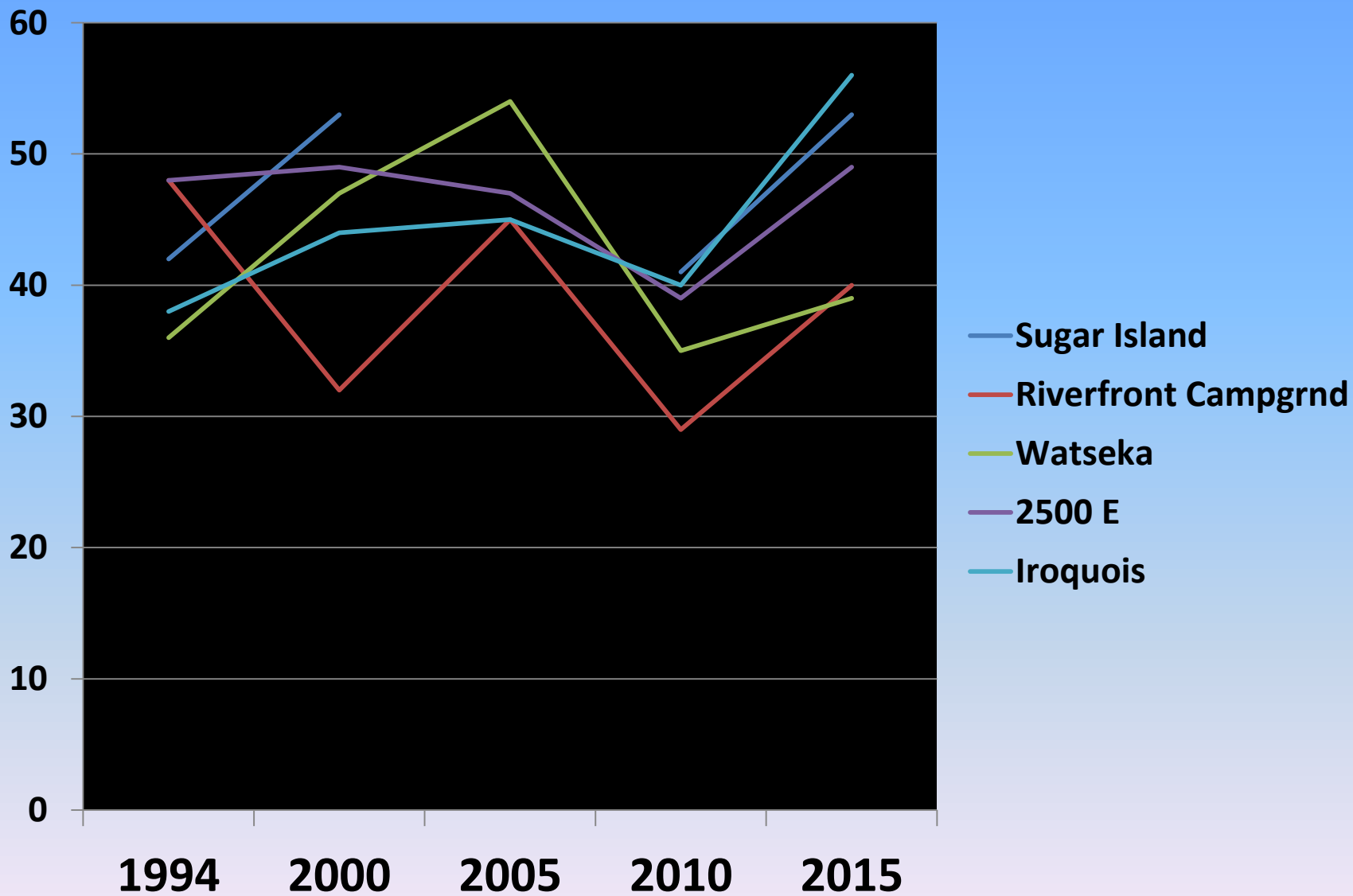
Spotfin shiner	1234
Carp	641
Shorthead redhorse	547
Channel catfish	534
Gizzard shad	447
Golden redhorse	394
Bullhead minnow	315
Sand shiner	315
Green sunfish	272
Silver redhorse	239
Quillback	237
Longear sunfish	186
Bluntnose minnow	177
Smallmouth bass	174
Orangespotted sunfish	172

Iroquios River IBI's – 2015 Mainstem

IEPA Threshold for Full Support of Aquatic Life ≥ 41



Iroquios River IBI's: 1994 to 2015






Summary


- Kankakee River is a species rich, high quality system, among best in Illinois
- No major trends in stream quality on mainstem since 1994
- Sportfish species, variable but relatively stable since 1975; Smallmouth Bass abundant and healthy
- Walleye stocking program = higher EF and angling catch rates
- Mainstem mussels comparatively high diversity/quality; poor recruitment; 6 species extirpated
- Kankakee tributary sites, more variable, lower quality than mainstem
- Iroquois River – high to moderate quality; stable IBI's; Channel Catfish very abundant




Other Sampling Effort in Kankakee River Watershed




ILLINOIS NATURAL HISTORY SURVEY


PRAIRIE RESEARCH INSTITUTE



Fish Survey: Kankakee and Iroquois Rivers






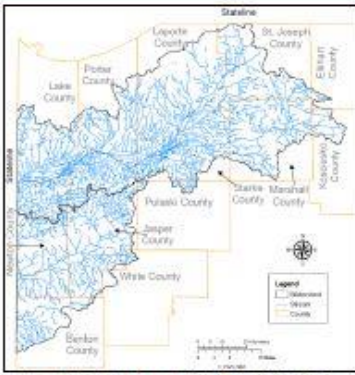
DNR
INDIANA DEPARTMENT OF
NATURAL RESOURCES

Kankakee River Watershed

Indiana Historic Surveys



INDIANA DIVISION OF
FISH & WILDLIFE



Mapped by Ernest L. Johnson II, IDEM Office of Water Quality

3,125

mi²

Drainage area in Northwest Indiana

1,763 mi² Kankakee River
935 mi² Iroquois River
427 mi² Yellow River

13

8 Kankakee
3 Iroquois River
2 Yellow River

Public access sites

88

61 Kankakee River
61 Iroquois River
67 Yellow River


Species

Kankakee River


- Over 80 river miles starting southwest of South Bend, IN
- 1971 DFW fish survey
 - 11 stations sampled (10 AC shore-based electrofishing and 1 rotenone)
 - 822 fish were collected representing 45 species
- 1981 DFW fish survey
 - 15 stations sampled with DC boat electrofishing (13 main river and 2 bayous)
 - 2,045 fish were collected representing 48 species and 13 families
- 2001 DFW fish survey
 - 15 stations sampled with DC boat electrofishing (13 main river and 2 bayous)
 - 1,410 fish collected representing 37 species and 12 families from the main river stations
 - In the bayous an additional 7 species were collected and 227 individuals
 - Common Carp comprised 20% of the catch
 - Habitat indexed as Quantitative Habitat Evaluation Index (QHEI) ranged from 31 to 50 with the upper sections containing poorer habitat characteristics

Percent of dominant taxa collected from the Kankakee River by year

	2001	1981	1971
Cyprinidae	35.5	31.1	13.4
Catostomidae	49.4	24.0	21.4
Sport fish	9.4	29.2	14.2



Walleye collected during a 2005 sport fish Kankakee River survey. Walleyes are a highly sought species especially during the spring.



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