



Ecological Perspective: Evaluating benefits of dam removals in Northeastern Illinois

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Dam Project Evaluations

Brewster Creek

- YWCA 2004
- DeSantos 2006

Ferson Creek

- Creek Bend 2010

Des Plaines River

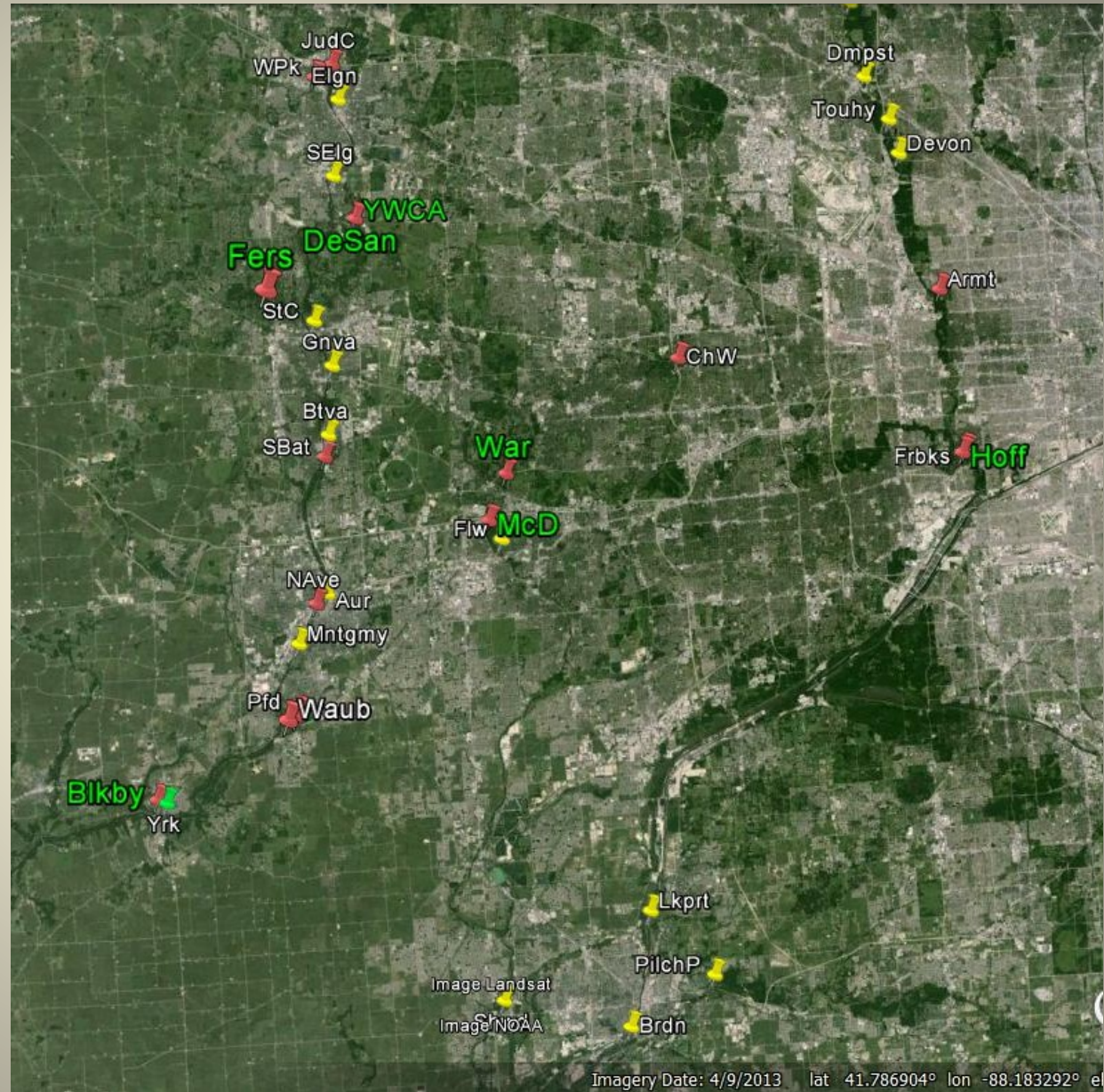
- Hoffman 2012

W. Br. DuPage River

- Warrenville 2011
- McDowell 2012

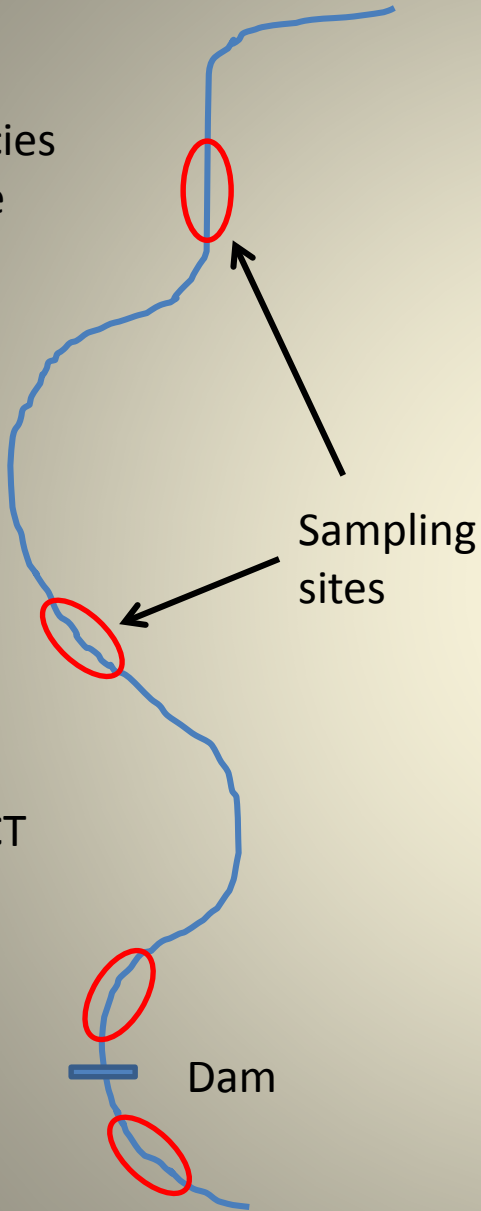
Blackberry Creek

- River Road 2013



Criteria:

- No. of species
- Abundance
- IBI

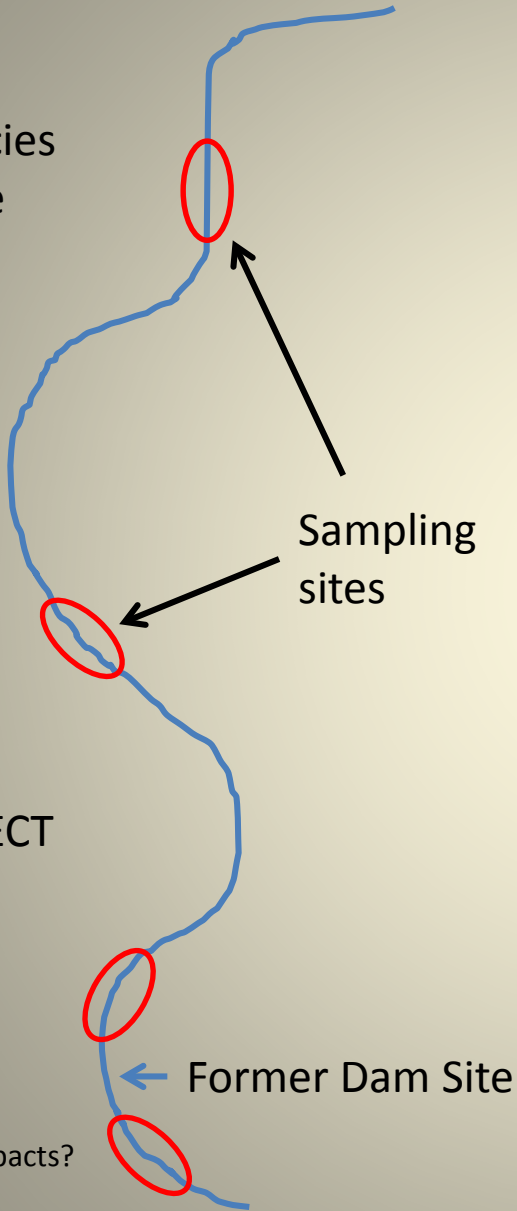


PRE-PROJECT



Criteria:

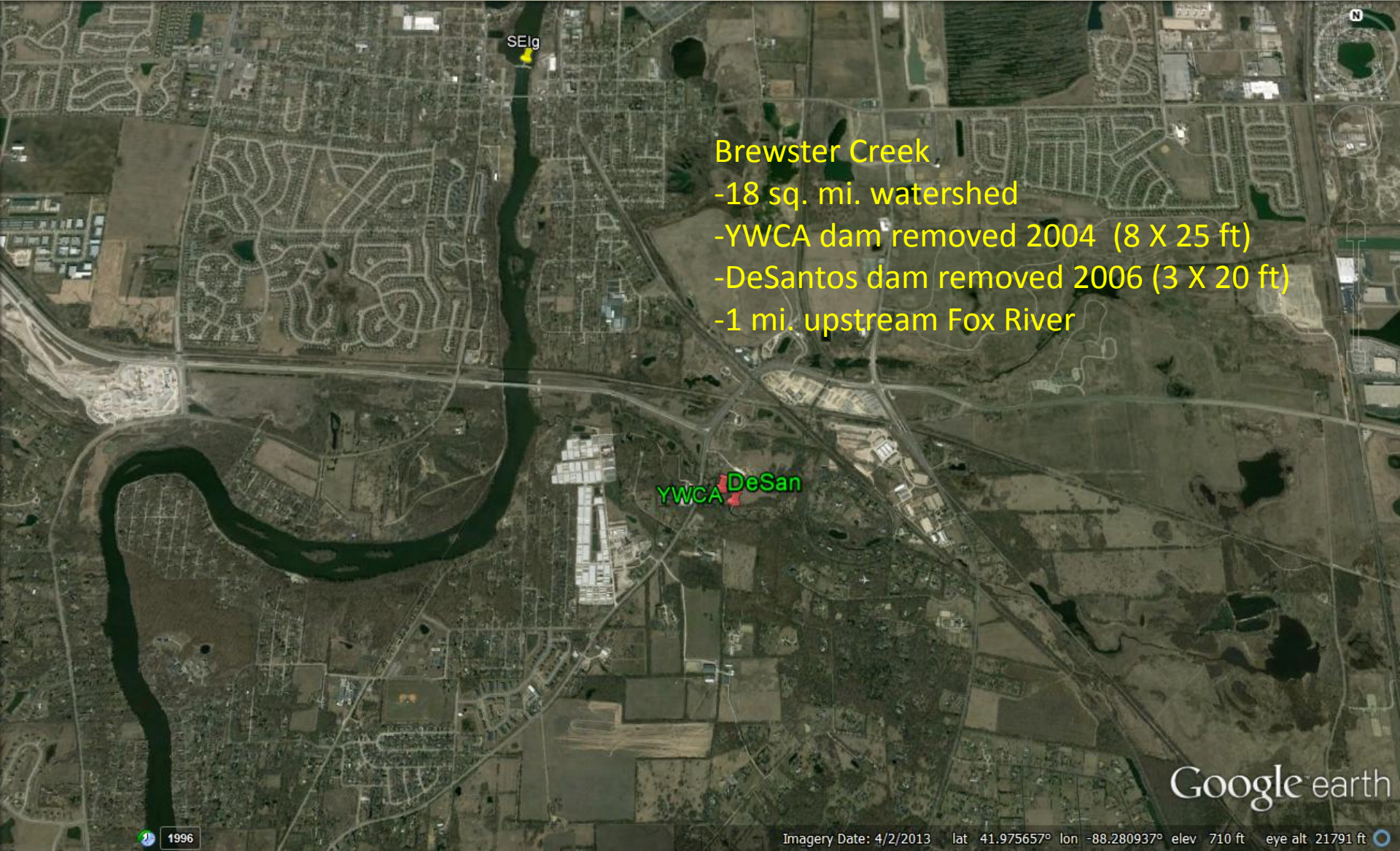
- No. of species
- Abundance
- IBI



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 of >10 = biologically meaningful change



Brewster Creek
-18 sq. mi. watershed
-YWCA dam removed 2004 (8 X 25 ft)
-DeSantos dam removed 2006 (3 X 20 ft)
-1 mi. upstream Fox River

YWCA DeSan

Brewster Creek – YWCA dam Removed 2004



**BREWSTER CREEK
Before**



**BREWSTER CREEK
After**





**New channel in former lake bed
2004 - 4 months post removal**

**New channel in former lake bed
2008 - 4 years post removal**





BREWSTER CREEK DeSantos Dam

BEFORE REMOVAL

AFTER 2006 REMOVAL



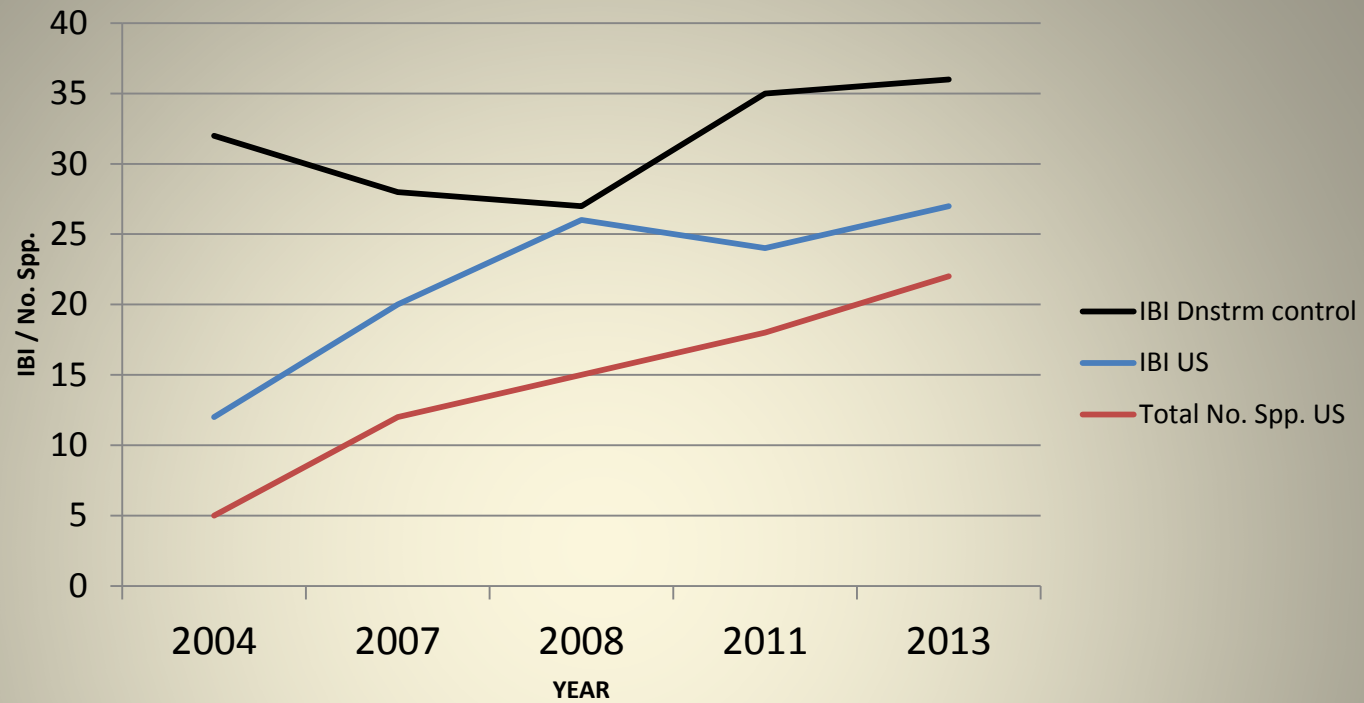


DeSan

YWCA



Brewster Creek Dam Removal



Year	IBI Dnstrm control	IBI US	Total No. Spp. US
2004	32	12	5
2007	28	20	12
2008	27	26	15
2011	35	24	18
2013	36	27	22



Smallmouth bass upstream of dam sites – 2007
Not collected previously upstream of dam



Quillback migration into restored stream channel

**2011: 2 flathead catfish
captured in former lakebed**



15 New Species in former dam pool

Banded darter

Bluntnose minnow*

Central mudminnow*

Central stoneroller

Channel catfish

Common shiner

Creek chub*

Flathead catfish

Golden shiner

Johnny darter*

Quillback carpsucker

Sand shiner

Smallmouth bass

Spotfin shiner

Stonecat

White sucker*

*occur upstream



11 species not previously collected above former dam

Ferson Creek – Creek Bend Dam Removal

- Watershed area 54 sq. mi.
- Height = 4 ft; width = 60 ft
- completed 11/2010
- 3 mi. upstream of Fox River

Fers

SIC

Google

1996

Imagery Date: 5/23/2013 lat 41.929081° lon -88.345209° elev 755 ft eye a



Ferson Creek Dam Removal

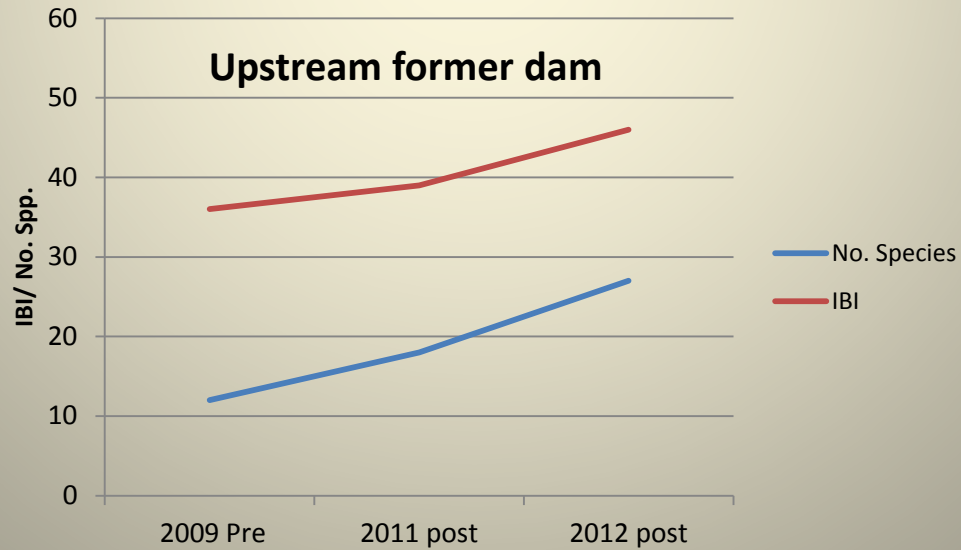
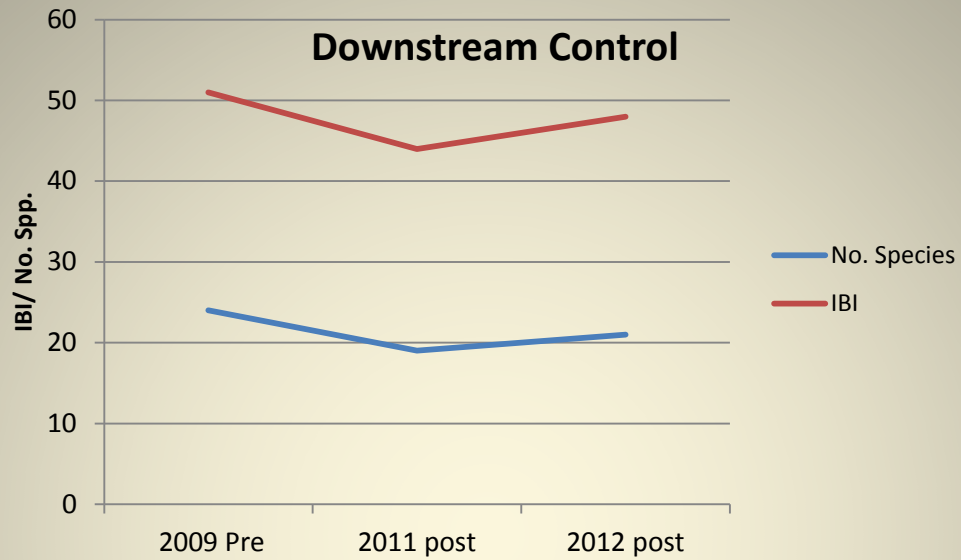




Evaluation of Ferson Creek Dam Removal

	Downstream			Upstream		
	Pre	Post		Pre	Post	
	2009	2011	2013	2009	2011	2013
Total no. fish	575	165	414	47	386	636
No. Species	24	19	21	12	18	27
IBI	51	44	48	36	39	46

Person Creek Dam Removal Evaluation





New Species above former dam

Central stoneroller

Sand shiner

Spotfin shiner

Golden shiner

Common shiner

Bluntnose minnow

Mottled sculpin*

Channel catfish *

Stonecat

Smallmouth bass*

Fantail darter

Banded darter

* Not collected upstream



Des Plaines River Dam Removals
-500 sq. mi. watershed US
-Armitage Jan 2012
-Fairbanks April 2012
-Hofmann Sep 2012

Image © 2014 TerraMetrics
Image NOAA

Imagery Date: 4/2/2013 lat 41.903114° lon -87.833404° e

Des Plaines River Ecosystem Restoration Project

Dam	Height	Width	Condition	Ownership
Armitage	4.0	106	good	Cook Co. FPD
Fairbanks	2.0	158	poor	Cook Co. FPD
Hofmann	12.0	259	good	IDNR

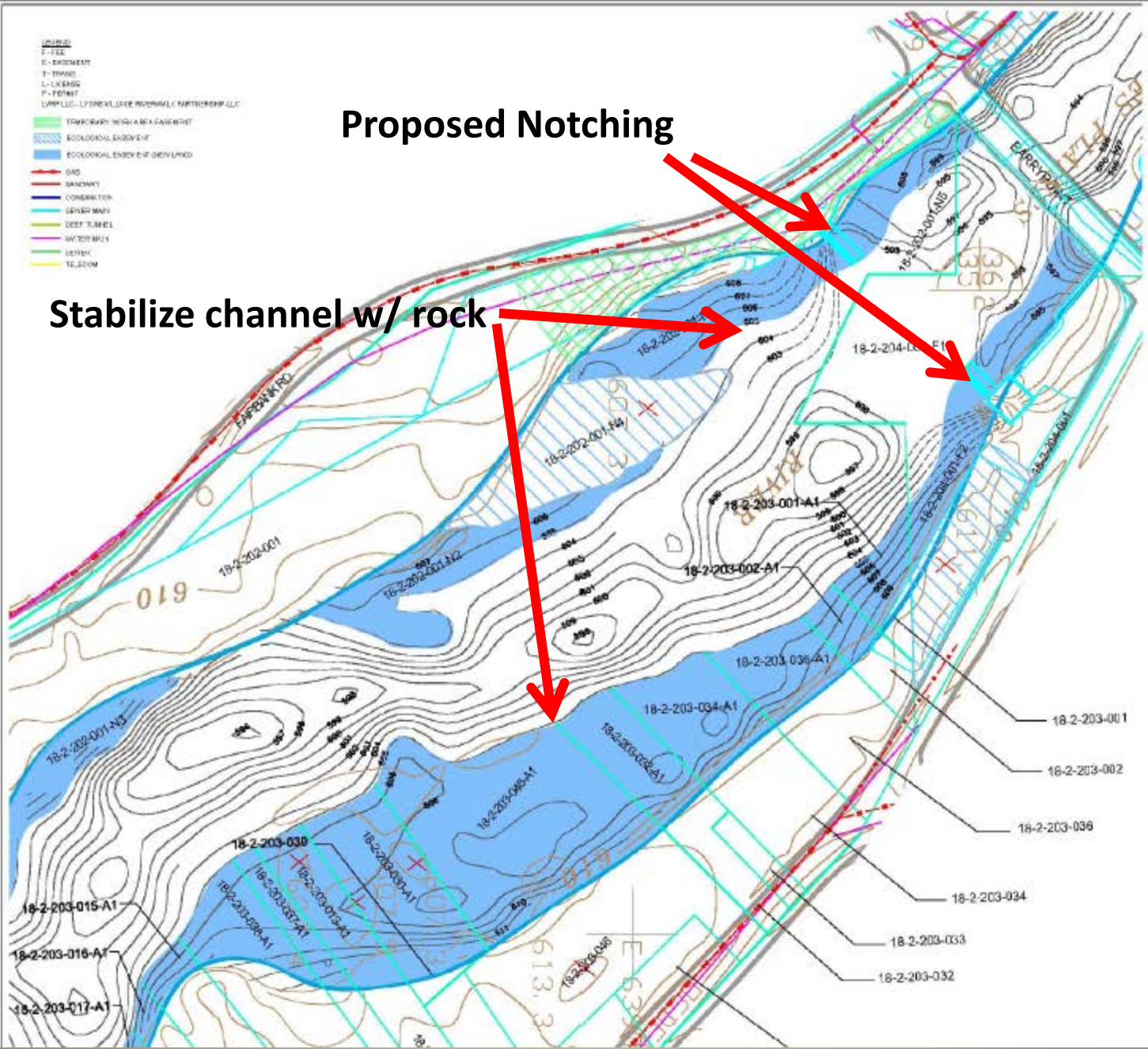


- URRUG
- P - PIPE
- E - EASEMENT
- T - TRAIL
- L - LK BRG
- P - PDRBT
- UNPLUG - UNPLUGGED PROPOSED PARTITIONER LLC

- TEMPORARY WORK AREA CASHEMPT
- ECOLOGICAL EASEMENT
- ECOLOGICAL EASEMENT OF OPEN LAND
- GAS
- BOUNDARY
- CONSTRUCTION
- SEWER MAIN
- DEEP TRENCH
- WATER MAIN
- SEWER
- TELECOM

Proposed Notching

Stabilize channel w/ rock



Hoffman Dam removal

Day One
6/19/12



6/19/12



6/21/12 - Day 3



6/26/12 – Day 8



7/17/12 – day 29





Hoffman Dam pre- and post- removal 2012



EF sampling in former dam pool – day 64



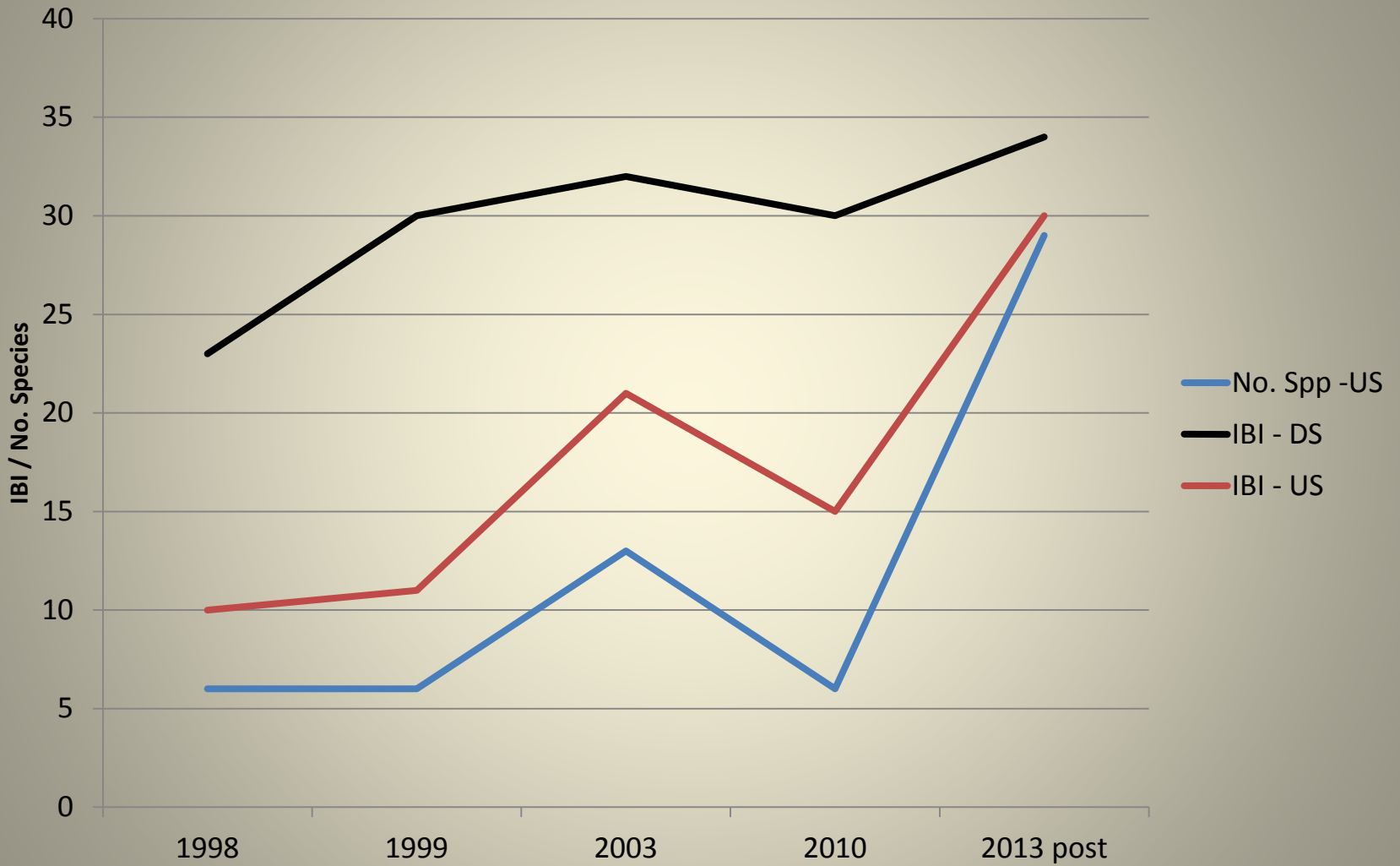


Table 4. Number of species and Index of Biotic Integrity (IBI) upstream (US) and downstream (DS) of the Hoffman Dam (t-test:*P=0.006; P=0.003))

Year	No. Species		IBI	
	<u>US</u>	<u>DS</u>	<u>US</u>	<u>DS</u>
1998	6	17	10	23
1999	6	25	11	30
2003	13	25	21	32
2010	6	17	15	30
mean	7.8 (a)	21(b)*	14.3 (a)	28.8 (a)**
Post -removal				
2013	27	26	30	34

Hoffman Dam Removal Evaluation

IBI and No. species Downstream (DS) v. Upstream (US)



Species not previously collected in dam pool

Northern pike

Channel catfish*

Rock bass

Black crappie

Creek chub

Rosyface shiner*

Sauger*

Hornyhead chub

Orangespotted sunfish

Blackside darter

Black bullhead

Yellow bullhead

Muskellunge*

