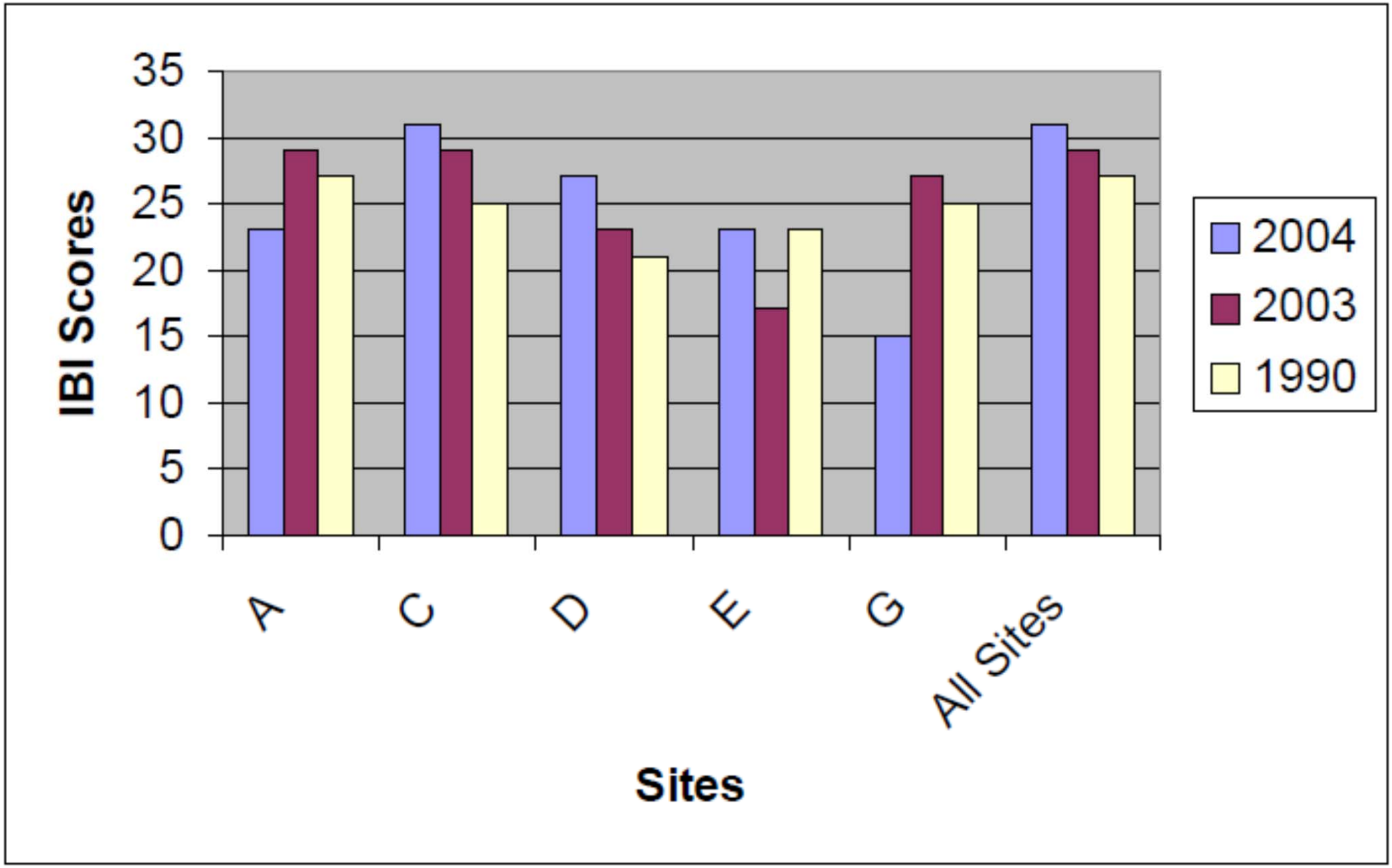
DFO HEC Sampling 2010

- Jason Barnucz, Field Biologist
- Nick Mandrak, Research Scientist
- Two main 2010 projects:
  - Benthic species-at-risk in HEC
  - Federal Contaminated Sites in Lake St. Clair and St. Clair River

Northern Madtom (*Noturus stigmosus*) END


IBI Scores
35
30
25
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All Sites
Sites
2004
2003
1990

2010 Species at Risk Trawling

Waterbody	Number of sites	Species at risk	*Noturus stigmosus*	*Notropis anogenus*	*Opsopoedus emiliae*	*Percina copelandi*
Lake St. Clair	13	0				
St. Clair River	24	1	5 (6)			
Chenail Ecarte	3	2		1 (23)	2 (4)	
Ruscom River	1	0				
Detroit River	8	2	2 (2)			5 (22)
Sydenham River	1	0				
Thames River	3	0				

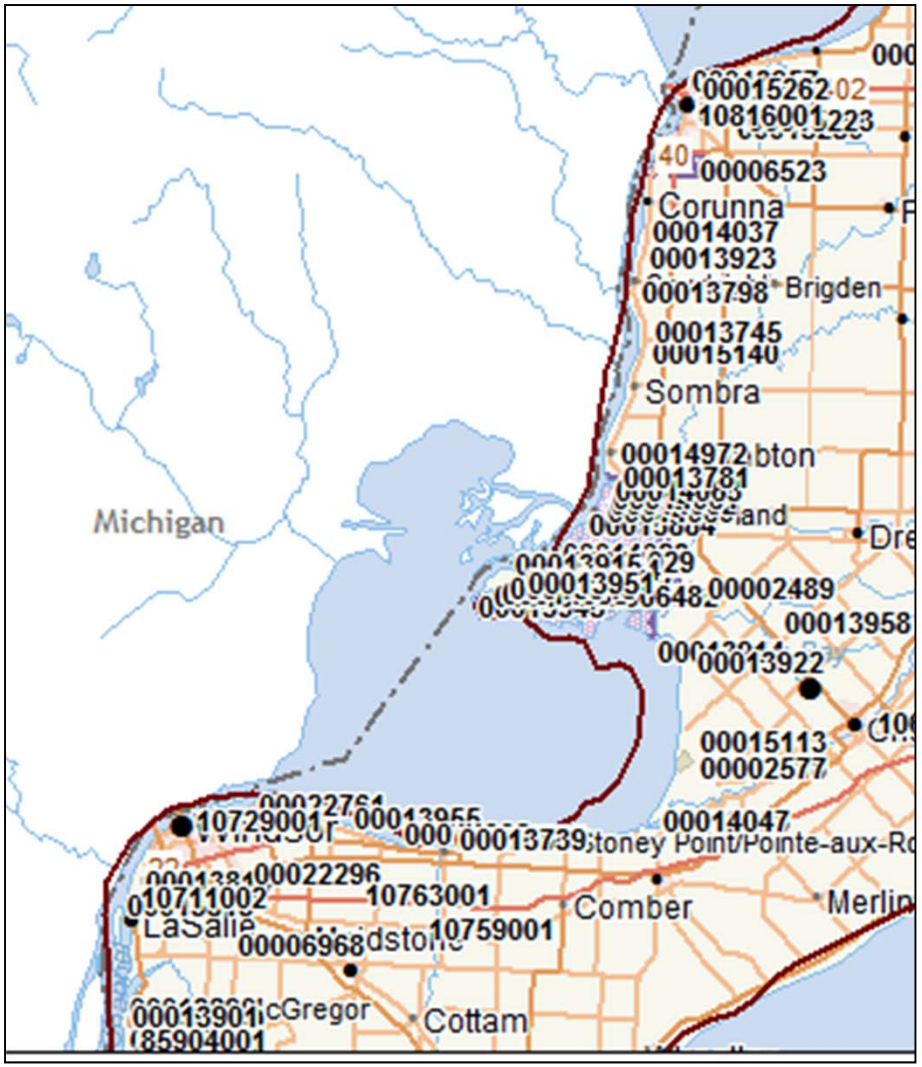
2010 Species at Risk Trawling

- Many Tubenose Goby in deeper waters

Waterbody	***P. semilunaris***
Lake St. Clair	9 (392)
St. Clair River	15 (22)
Chenail Ecarte	2 (12)
Ruscom River	1 (3)
Detroit River	6 (44)

Federal Contaminated Sites

- Sampled 12 federal contaminated sites and 12 reference sites in St. Clair River and Lake St. Clair
- Will compare fish communities using IBI



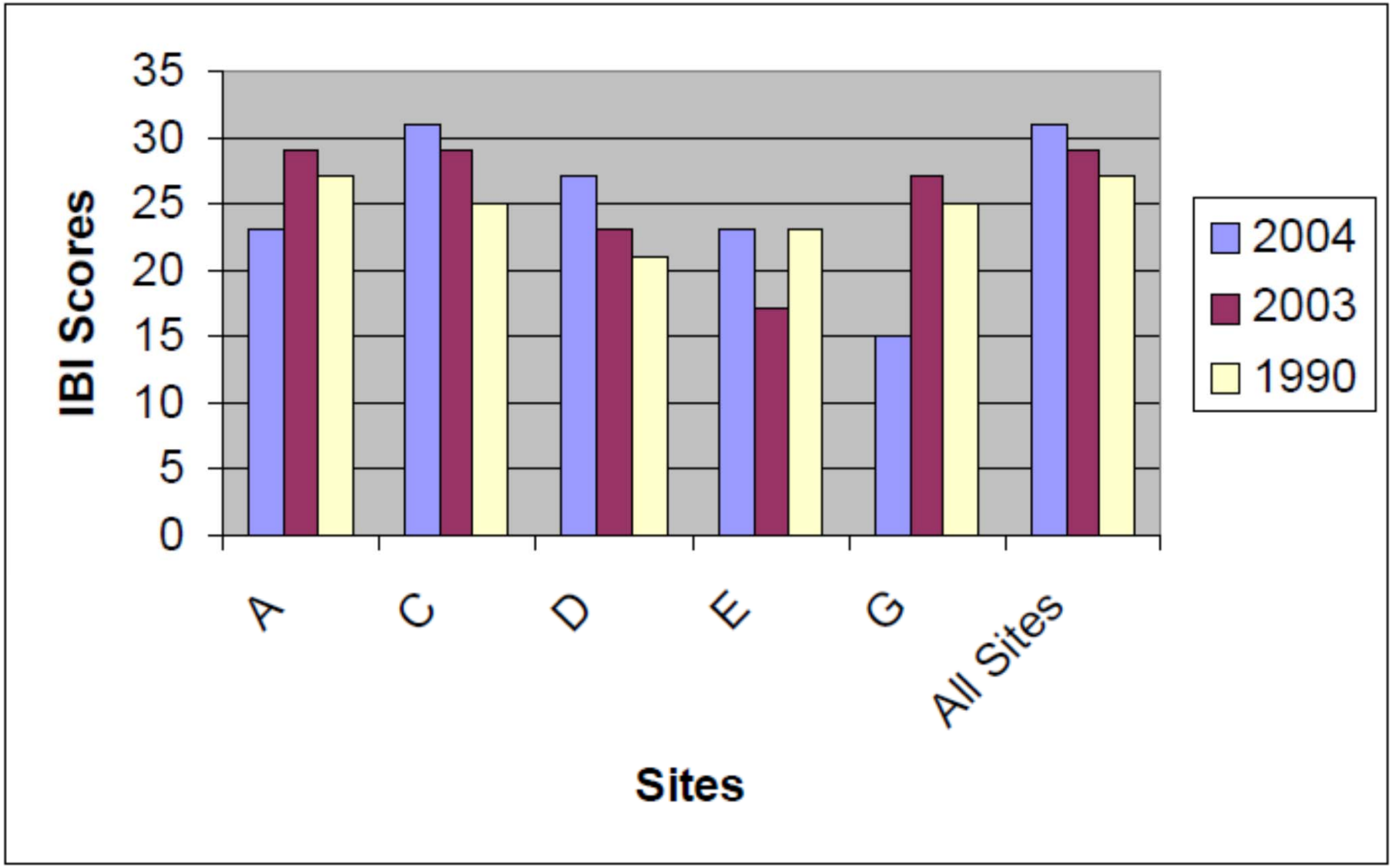
Future Work

Species-at-Risk

- Additional Channel Darter and Northern Madtom sampling

Great Lakes Action Plan

- Detroit River IBI efishing vs. trawling comparison (2011, 2013)
- St. Clair River IBI efishing vs. trawling comparison (2012, 2014)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Why has IBI Not Improved Over Time?

- The community hasn't responded to restoration activities.
- The IBI is not sensitive to community changes related to restoration activities.
  - Monica Granados, MSc 2010
    - Fish community is changing, IBI not sensitive to species replacement.
- Fish community is incompletely sampled.
  - 2011-2014 sampling: e-fishing vs. trawling

Future Work

MSc Student

- Benthic fish community-habitat interactions in HEC
- University of Windsor, co-supervised by L. Corkum and N. Mandrak

Asian Carp Spawning Predictions (Mandrak)

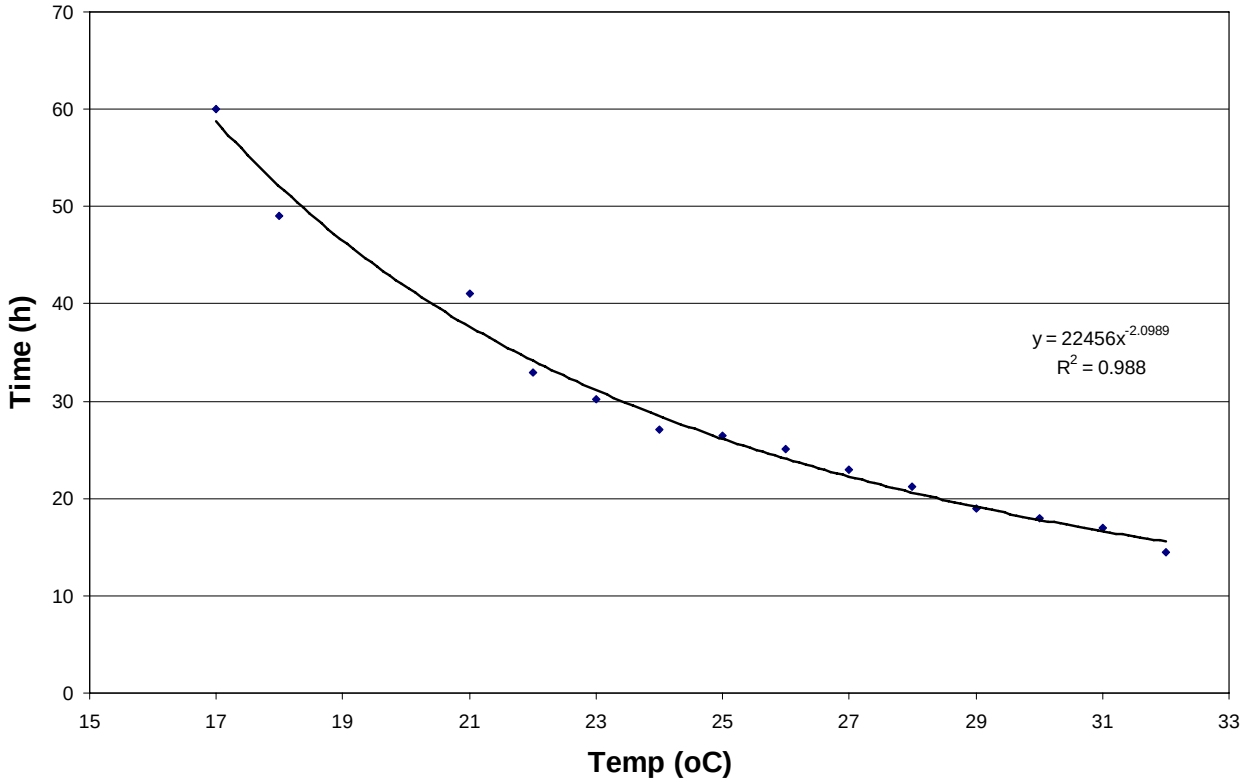
- Use particle tracking models and temperature to determine if HEC suitable for Asian carp spawning

Asian Carp Spawning Prediction

- Calculate hatching times based on HEC water temps
- Reverse 2-D particle tracking model from nursery habitat back upstream based on min/max hatching times

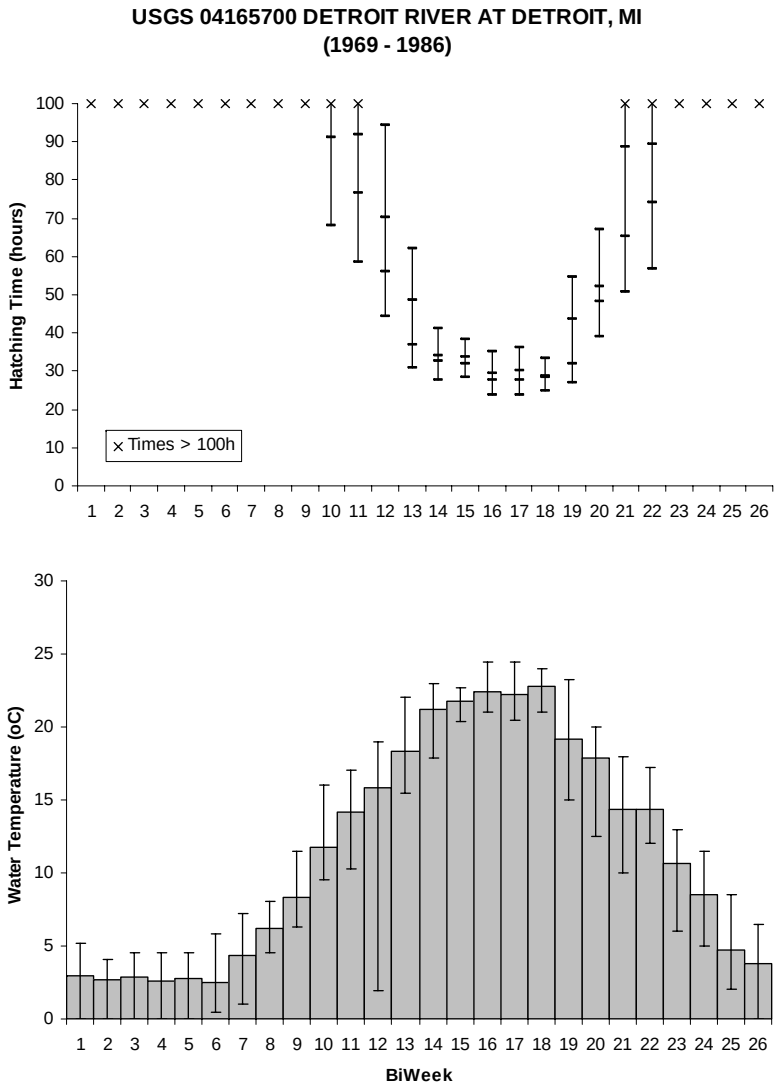
Asian Carp Spawning Prediction

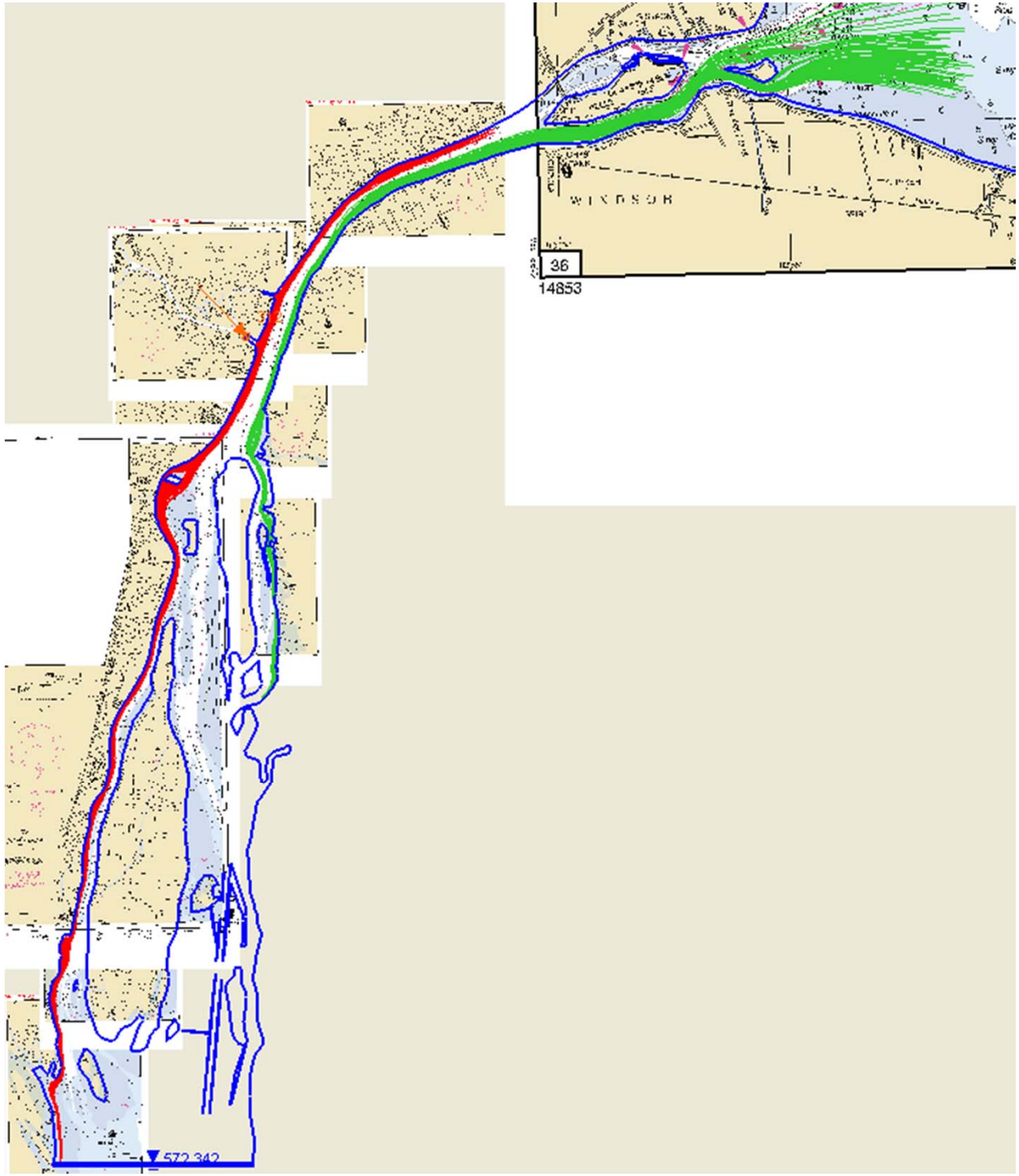
H. molitrix



Calculated from Guo

Asian Carp Spawning Prediction



Average Flow: 25 Hour Simulation

- Site 1 – Average Flow
- Site 2 – Average Flow