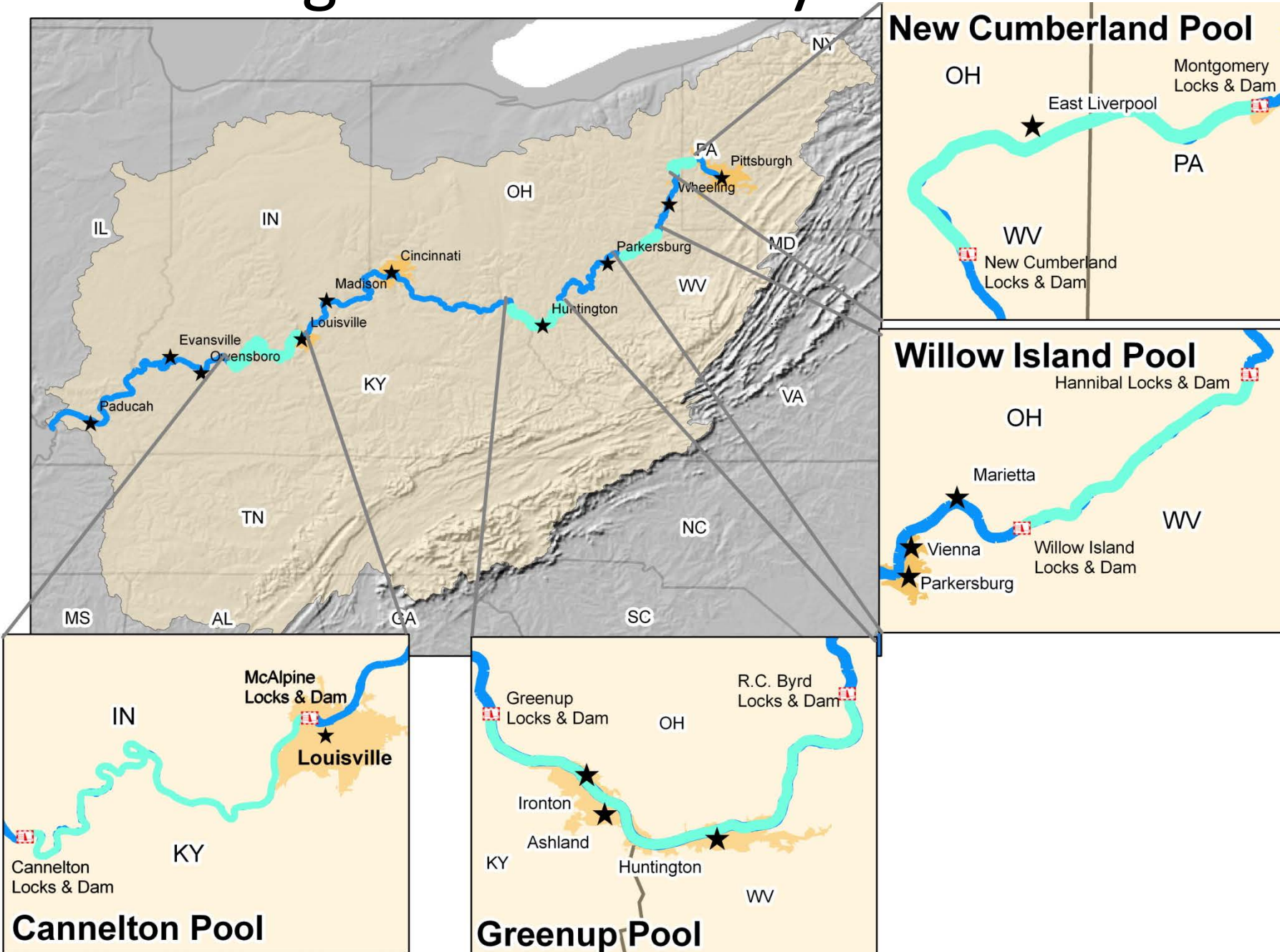
The background of the slide features a large, light blue watermark logo. It is a shield-shaped emblem with a double border. Inside the shield, there is a circular design containing a stylized fish or aquatic creature. The word "ORSANCO" is written in a serif font across the top of the shield. The words "BIOLOGICAL" and "PROGRAMS" are written in a serif font along the left and right sides of the shield, respectively. In the center of the shield, the letters "OBP" are prominently displayed in a large, serif font.

Report of the Biological Water Quality Subcommittee

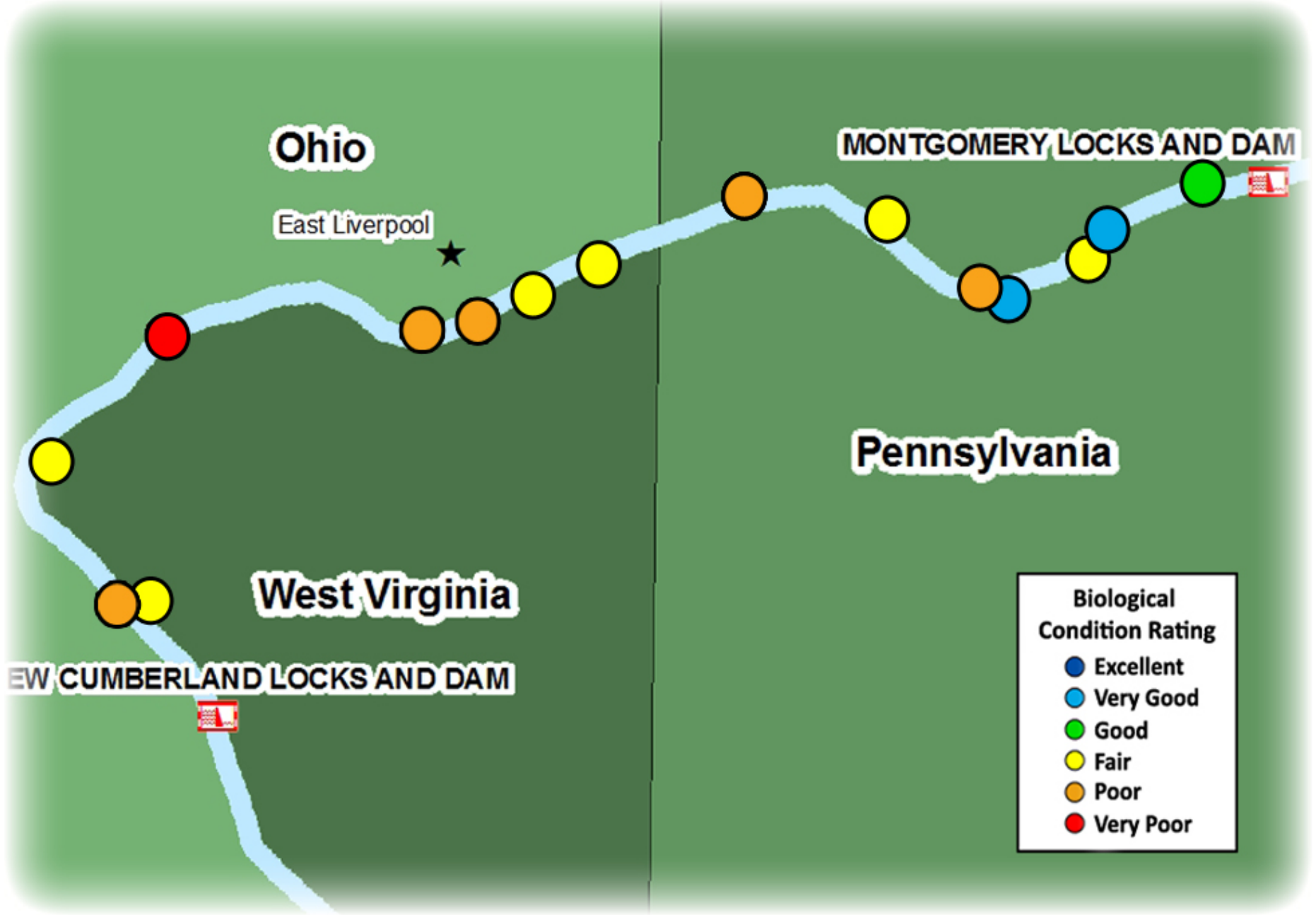
Jeff DeShon (OEPA), Chairman

**Technical Committee Meeting
February 7-8, 2012
Cincinnati, OH**

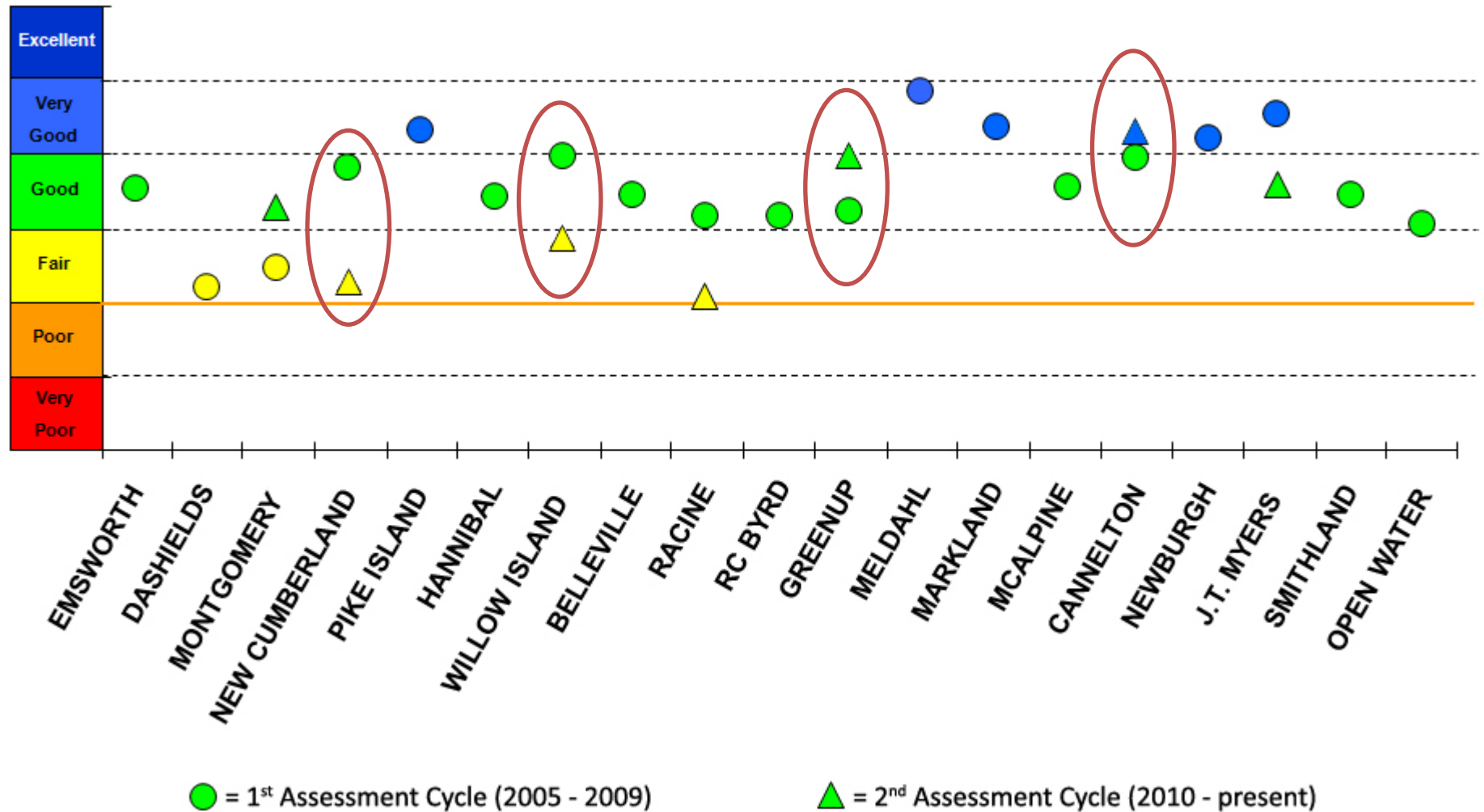
2011 Biological Pool Surveys



Sample Pool Survey (New Cumberland)



All Pool Assessments (2005-2011)



Multi- Year Comparisons

New Cumberland Pool (2011- 'fair' vs. 2005- 'good')

- normal stages in 2011 vs drought in 2005
- less compressed biological community

Willow Island Pool (2011- 'fair' vs. 2006- 'good')

- vast submerged aquatic vegetation at most sites
- could be causing shift in community composition?

Greenup Pool (2011- 'good' vs. 2006- 'good')

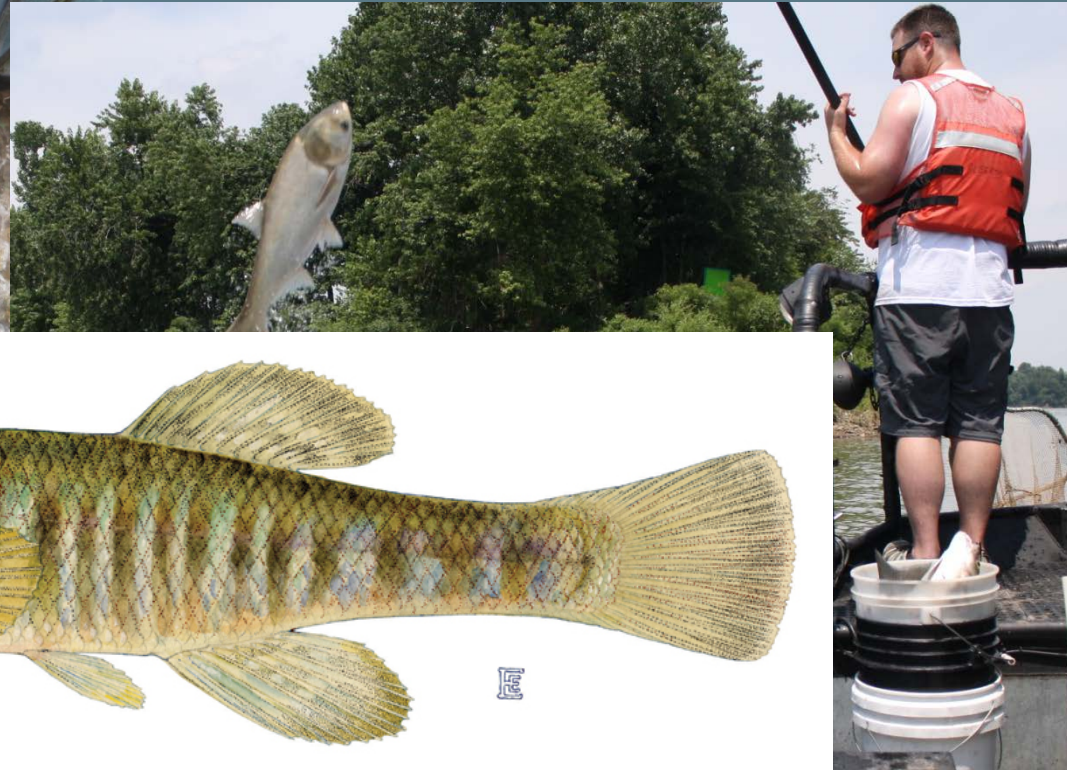
- slightly higher average score across sites
- no significant change

Cannelton Pool (2011- 'very good' vs. 'good')

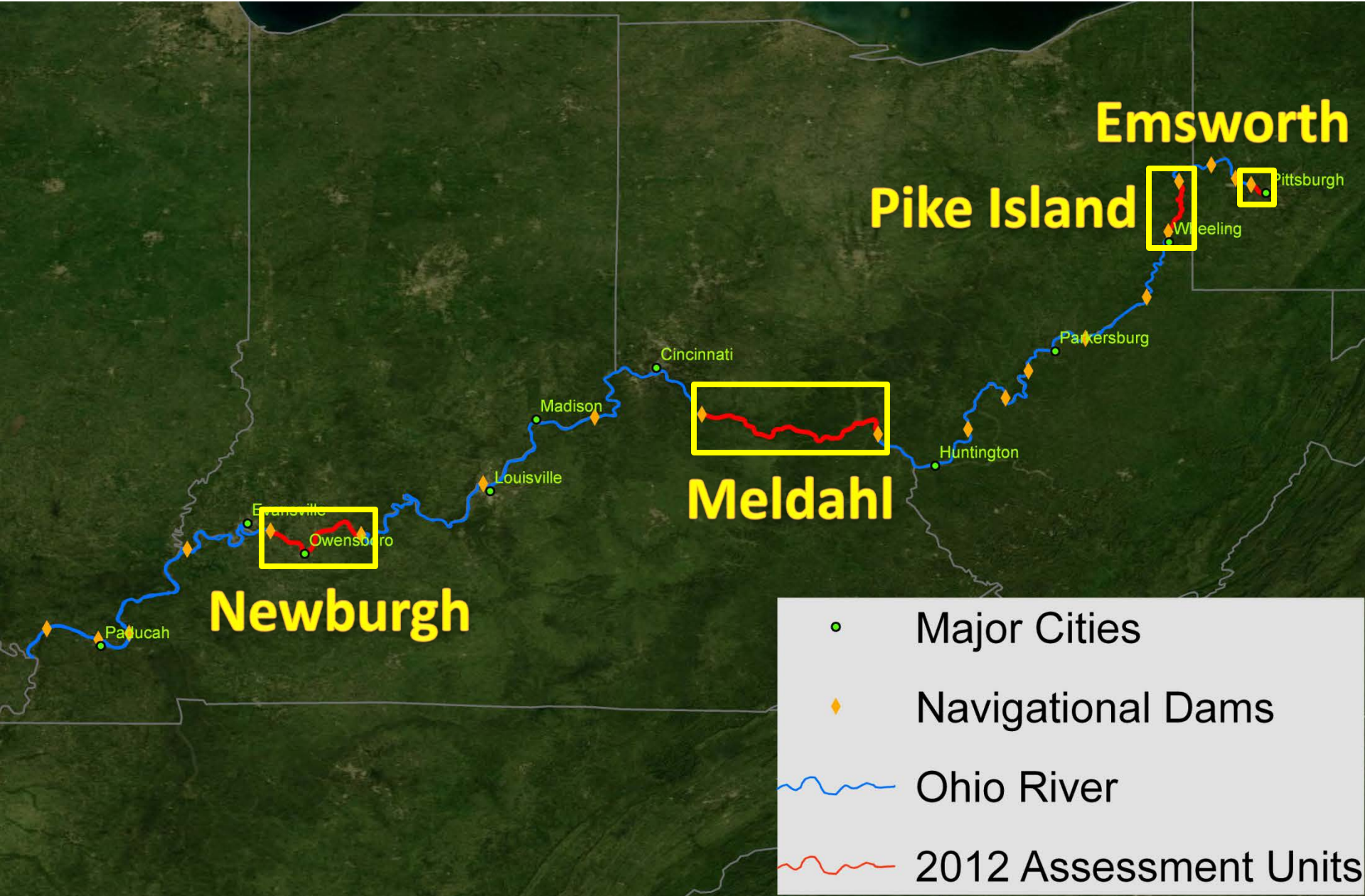
- slightly higher average scores and condition rating
- no significant change

Noteworthy Field Observations

- Striped Mullet (Marine species)
 - Multiple schools in front of Paducah riverfront



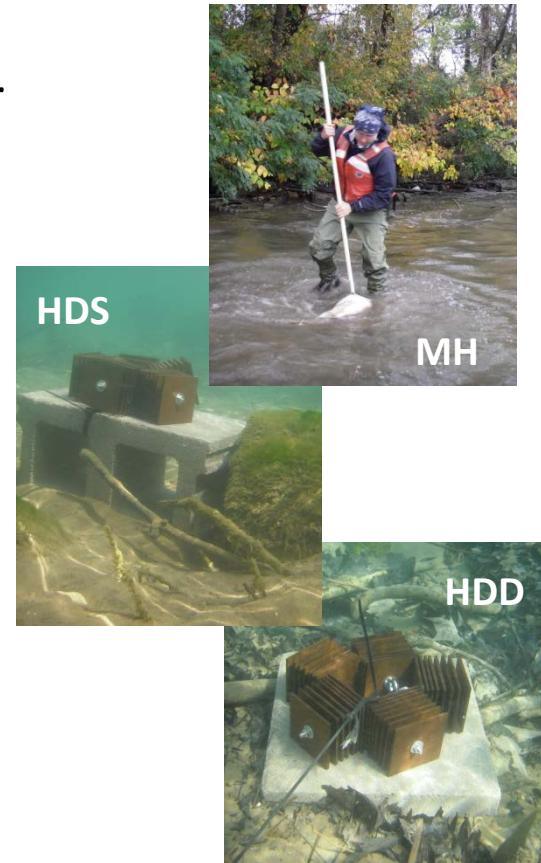
2012 Assessment Units



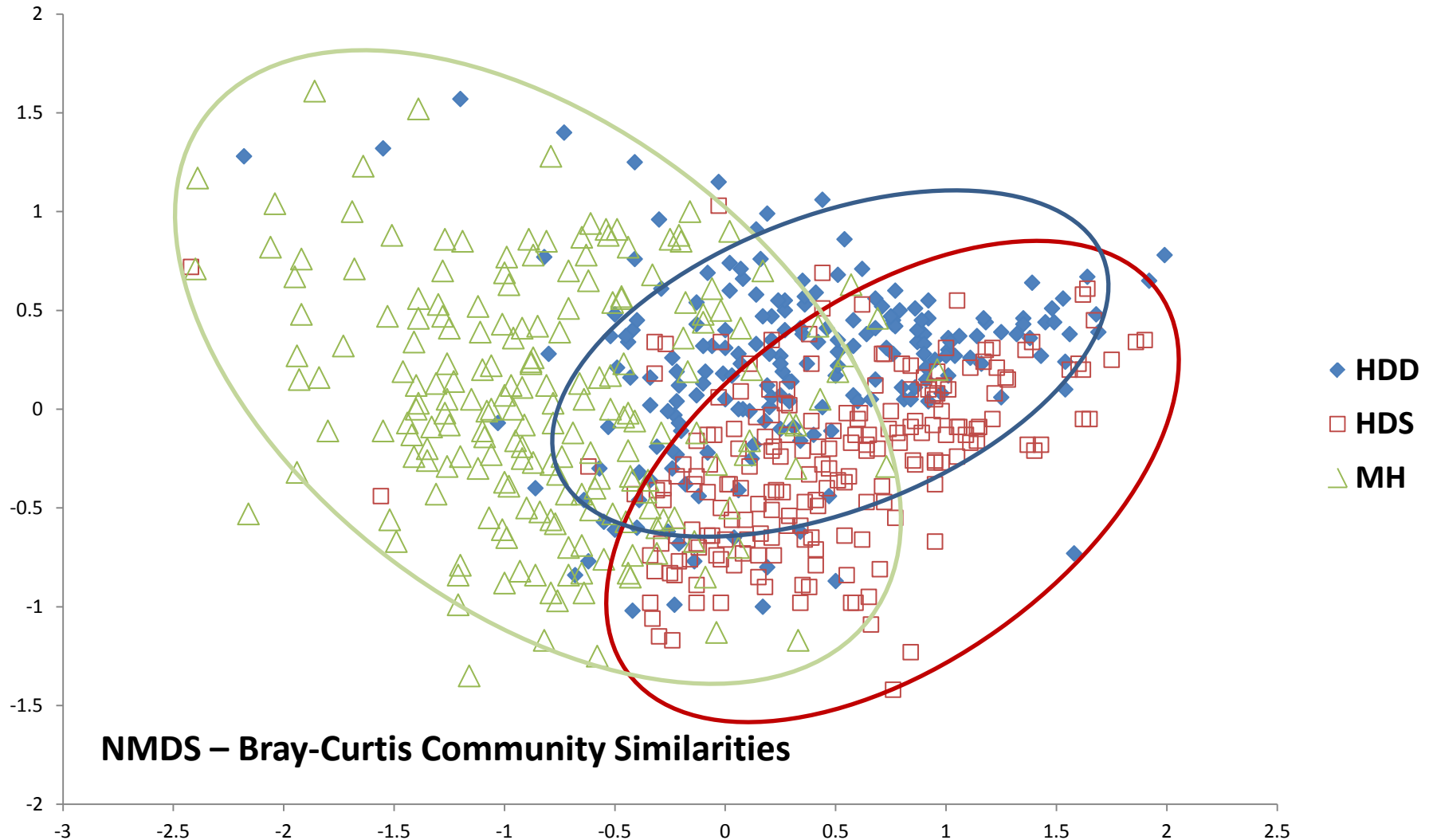
Macroinvertebrate Program

Goal: Develop macroinvertebrates as an additional indicator for evaluating aquatic life use

- Collected macros via 3 methods since 2004
 - Multi-Habitat (MH), Hester-Dendy Shallow (HDS), HD Deep (HDD)
- Have paired EMAP abiotic data since 2007
 - Water quality and sediment nutrients
 - Have all QA'd abiotic data as of **December 2011**



Each method provides slightly different results



Plan and Recent Progress

- **Plan**: Since each method provides different results, we will develop 7 separate indices
 - For each method and combination of methods
- Calculated 143 candidate metrics
- Narrowed lists based upon the viability of each metric
 - using common evaluation methods
 - e.g. excessive null values, range and redundancy

#Metrics	HDD	HDS	MH	HDD HDS	HDD MH	HDS MH	ALL 3	Totals
Kept	94	93	89	100	101	103	104	684
Eliminated	49	50	54	43	42	40	39	317

Next (Current) Steps

- Classify the relative disturbance of sampled sites using paired abiotic data
 - Select metrics based upon their ability to distinguish disturbed from *least* disturbed sites
- We know the economical benefits/costs

Method	Field Time	Supply Cost	Lab ID Cost	Collection Success
Multi-Habitat	1 wk	Low	High	High
HD's	2 wks	Moderate	Low	Moderate

- Must determine *scientific value* of the method(s)
 - i.e. which method(s) provides the most responsive index
- Determine which is the best for the Ohio River
 - Maximize responsiveness, minimize annual cost
- Draft Index - April 2012

Diatom Index Development - Update

- Samples collected per USEPA EMAP-GRE Co-op
 - 2007-2009 – ceased collection due to budgetary constraints
 - 193 sites on mainstem Ohio River from 12 different pools
- 351 taxa identified
- Calculated 73 candidate metrics
 - Candidate metrics will be correlated with WQ & Sediment chemistry parameters
 - A subset of metrics will be selected to comprise a diatom bioassessment index
 - Draft index - summer 2012

