

St. Clair – Detroit River System Initiative *Science and Monitoring Committee Update*

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2017 SCDRS Annual Meeting
Weber's Inn
Ann Arbor, Michigan

Justin Chiotti and Edward Roseman



Priority Objective Update

Purpose

To help the **Steering Committee** coordinate partner efforts toward achieving a common agenda over the next decade

Common Agenda

Sustainable improvements via:

- physical, biological, and chemical features of habitats
- indigenous biodiversity and production
- reduced risks/impacts from AIS
- societal satisfaction



Development of Priority Objectives

- Working groups developed a list of 20 initial objectives
- 77 participants voted/ranked the 20 objectives
- Steering Committee chose nine key priority objectives

Themes

- ✓ **sources of nutrients, sediments, and pollutants**
- ✓ **protection, enhancement, and restoration of physical habitat**
- ✓ **connectivity of habitat features to fauna and society**
- ✓ **fish population status, production, and behavior**
- ✓ **sea lamprey control**
- ✓ **prevention of new non-native species threats**
- ✓ **human behavior and satisfaction**



SCDRSI Coordination: Process

Long-Term Goals and Levers for the Vision

Common Agenda

Management Themes

Management Priorities

(AOC's, water quality, biodiversity, fish production, AIS)

List of 20 Objectives

10-year ranked Objectives



10-Year Priority Objectives

1. Reduce loading from regulated and unregulated sources of total phosphorus and dissolved reactive phosphorus entering western Lake Erie
2. Identify contaminants of emerging concern (e.g., pharmaceuticals and personal care products, microplastics) determine sources, and develop load reduction strategies
3. Improve detection and assessment by developing surveillance monitoring for non-native species
4. Implement preventive strategies for non-native species through information/education programs and management of potential sources and pathways (e.g., ballast water, live release, etc.)
5. Complete habitat improvement projects in the St. Clair and Detroit rivers to remove loss of fish and wildlife habitat Beneficial Use Impairment (BUI)



10-Year Priority Objectives (continued)

6. Increase riparian complexity/connectivity through increased softened shorelines and native riparian vegetation
7. Increase the continuous area of ecologically functional wetlands and their connectivity to the SCDRS
8. Increase functional river spawning habitat for native lithophilic species in main channel and tributaries
9. Identify and protect critical habitat areas for rare native species in main channel and tributaries



Previous Workshops & Accomplishments

- **2013-2015 Viability Analysis (DeBruyne et al.)**
 - 2008 and newer data sources
- **30 September 2014**
 - Developed inventory of monitoring programs
- **13 November 2014**
 - Developed list of science objectives
- **4 February 2015**
 - Consensus on list of objectives
- **15 September 2015**
 - Development of indicators
- **11 February 2016**
 - Refined list of indicators for 9 priority objectives
- **2016 – present**
 - Develop and update database; develop status ratings for indicators



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Status Rating Development

- **We have indicators.....now what?**
 - What is considered good, what's bad, what should the system look like?
 - **How do we rate them?**

Example....

Goal

Improve detection and assessment programs for developing effective risk management actions



Status Rating Development

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Example....

Goal

Improve detection and assessment programs for developing effective risk management actions

Priority Objective

Improve detection and assessment by developing surveillance monitoring for non-native species



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- **We have indicators.....now what?**
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Example....

Goal

Improve detection and assessment programs for developing effective risk management actions

Priority Objective

Improve detection and assessment by developing surveillance monitoring for non-native species

Indicator

Number of programs implemented for and their distribution within the SCDRS targeting non-native species (mollusks, fish, amphibians, reptiles, plants)



Status Rating Development



Contemporary Assessment and Identification of Restoration Priorities to Inform Adaptive Management Decisions using a Viability Analysis in the St. Clair-Detroit River System

Robin L. DeBruyne*, Edward F. Roseman, Jason E. Ross, Kurt Newman, and Russell M. Strath, U.S. Geological Survey Great Lakes Science Center, Ann Arbor, Michigan; *rdebruyne@usgs.gov

As large-scale restoration plans for degraded aquatic habitats evolve, it is essential that multi-organizational collaborations have a common vision to achieve consensus on restoration goals. Development of restoration targets and post-restoration monitoring strategies can be focused using a viability analysis framework that supports an adaptive management process.

In the St. Clair-Detroit River System (SCDRS), we used a viability analysis framework to evaluate environmental parameters associated with fisheries and aquatic restoration efforts and to gauge the overall health of the aquatic environment. Steps to derive the viability analysis included: 1) establishing meaningful baseline metrics, 2) identifying information deficiencies, and 3) placing the context of current conditions into a usable format for managers and practitioners.

Table 1. Key elements of a viability analysis and definitions.

Contemporary target: Considerable number of specific ecological conditions and associated metrics required to understand and assess the current condition.
Key Ecological Attribute (KEA): Indicator: Current indicator Rating
 Measure of a system's ability to function. Measurement criteria: An assessment of the current state. Funding or address, associated with: Steps to a specific: health of the indicator based on the goal of the target state. Information used: Information used.

Table 2. Description and definitions of indicator ratings.

Indicator Rating	Description
Very Good	The indicator is functioning at an ecologically desirable status and requires little human intervention.
Good	The indicator is functioning within its acceptable range of variation. It may require some human intervention.
Fair	The indicator is outside its acceptable range of variation and requires human intervention or the target will be unachievable in the near future.
Poor	Human intervention is required to maintain this condition for an extended period will make restoration or preventing degradation more difficult.
Very Poor	Human intervention is required to maintain this condition for an extended period will make restoration or preventing degradation more difficult.

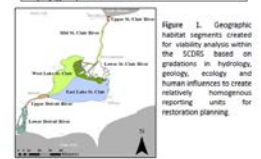


Table 3. Viability analysis results for the overall condition of the seven conservation targets assessed in each of the assessment units.

Assessment Unit	USCR	MSCR	USDC	MSDC	ESDC	ESDC	ESDC
Upper St. Clair River	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Middle St. Clair River	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lower St. Clair River	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Western Lake St. Clair	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Eastern Lake St. Clair	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Upper Detroit River	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lower Detroit River	2.0	2.0	2.0	2.0	2.0	2.0	2.0

Table 4. Main Channels.

Channel	Indicator	USCR	MSCR	USDC	MSDC	ESDC	ESDC
Upper St. Clair River	USCR	2.0	2.0	2.0	2.0	2.0	2.0
Middle St. Clair River	MSCR	2.0	2.0	2.0	2.0	2.0	2.0
Lower St. Clair River	USDC	2.0	2.0	2.0	2.0	2.0	2.0
Western Lake St. Clair	MSDC	2.0	2.0	2.0	2.0	2.0	2.0
Eastern Lake St. Clair	ESDC	2.0	2.0	2.0	2.0	2.0	2.0
Upper Detroit River	ESDC	2.0	2.0	2.0	2.0	2.0	2.0
Lower Detroit River	ESDC	2.0	2.0	2.0	2.0	2.0	2.0

Table 5. Lake St. Clair.

Indicator	USCR	MSCR	USDC	MSDC	ESDC	ESDC
USCR	2.0	2.0	2.0	2.0	2.0	2.0
MSCR	2.0	2.0	2.0	2.0	2.0	2.0
USDC	2.0	2.0	2.0	2.0	2.0	2.0
MSDC	2.0	2.0	2.0	2.0	2.0	2.0
ESDC	2.0	2.0	2.0	2.0	2.0	2.0

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Table 6. Coastal Wetlands, Native Migratory Species, Islands, Coastal Terrestrial Systems, and Aerial Migrants.

Indicator	USCR	MSCR	USDC	MSDC	ESDC	ESDC
USCR	2.0	2.0	2.0	2.0	2.0	2.0
MSCR	2.0	2.0	2.0	2.0	2.0	2.0
USDC	2.0	2.0	2.0	2.0	2.0	2.0
MSDC	2.0	2.0	2.0	2.0	2.0	2.0
ESDC	2.0	2.0	2.0	2.0	2.0	2.0

Many metrics were unable to be assessed or assigned condition status, which identified data gaps. Metrics associated with Native Migratory Fishes, Lake St. Clair, and islands are generally in better condition than metrics associated with the Coastal Terrestrial Systems, Aerial Migrants, and Coastal Wetlands. Resource managers in the corridor will use these results to prioritize research and restoration and to assess progress towards restoration goals.

Viability analysis is a robust and accommodating framework, adaptable to any restoration monitoring program and, through the determination of common desired endpoints, can aid consensus building and collaboration across jurisdictional boundaries.

Returning to a Healthy Lake

An International Biodiversity Conservation Strategy for Lake Erie

Technical Report

The Nature Conservancy
 Nature Conservancy of Canada
 Michigan Natural Features Inventory

Prepared by the Lake Erie Biodiversity Conservation Strategy Core Team

Lake Erie Biodiversity Conservation Strategy (Pearsall et al. 2012)



SCDRS Report Card 2016

Lake Erie Biodiversity Conservation Strategy (Pearsall et al. 2012)
SCDRS Viability Analysis (DeBruyne et al. *in review*)

Indicator Rating	Description	Points Assigned to Indicators	Target Range
Very Good	The indicator is functioning at an ecologically desirable status and requires little human intervention.	4.0	3.75 - 4.0
Good	The indicator is functioning within its acceptable range of variation; it may require some human intervention.	3.5	3.0 – 3.745
Fair	The indicator lies outside its acceptable range of variation and requires human intervention. If unchecked, the target will be vulnerable to serious degradation.	2.5	1.75 - 2.995
Poor	Allowing the indicator to remain in this condition for an extended period will make restoration or preventing extirpation practically impossible.	1.0	1 – 1.745
NA	Not determined; or data unavailable at this time.		



Discussion for Today.....

Goal → Increased biodiversity and fish production in wetland areas

Priority Objective → Increase the continuous area of ecologically functional wetlands and their connectivity to the SCDRS

Indicator	Time Frame	Status
Percent of accessible tributary habitat	Opportunistically	Good
Wetland area	Opportunistically	Fair
Marsh Bird IBI	Opportunistically	Fair
Invertebrate IBI	Opportunistically	Not determined
Amphibian Index of Biotic Integrity (AmphIBI) for Wetlands (Ohio EPA)	Opportunistically	Research and monitoring need
Wetland fish index (WFI) of wetland quality	Opportunistically	Poor
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Overall rating		Fair

