



# Agency Cooperation and Sustainable Management of Lake Erie's Walleye Fisheries

**Matt Faust**

**Fisheries Biologist**

**Sandusky Fisheries Research Station**



# Walleye Capital of the World

**Sustainable  
Management  
Is Critical!**





# Today's Presentation

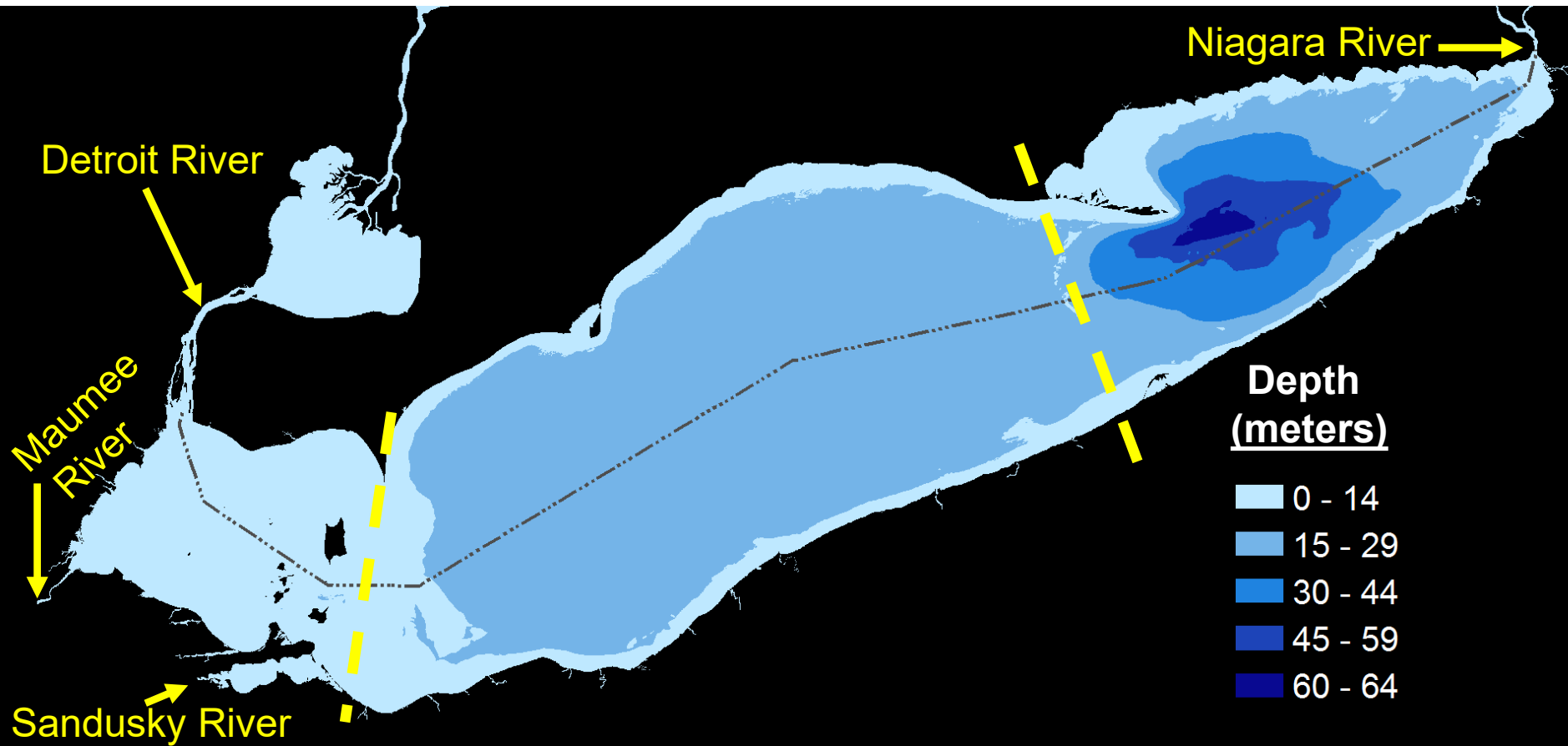


**1. Walleye Collapse**

**2. Walleye Recovery**

**3. Modern Management**

# Basics of Lake Erie





# Environmental Change



<https://undark.org/article/great-black-swamp-ohio-toledo/>

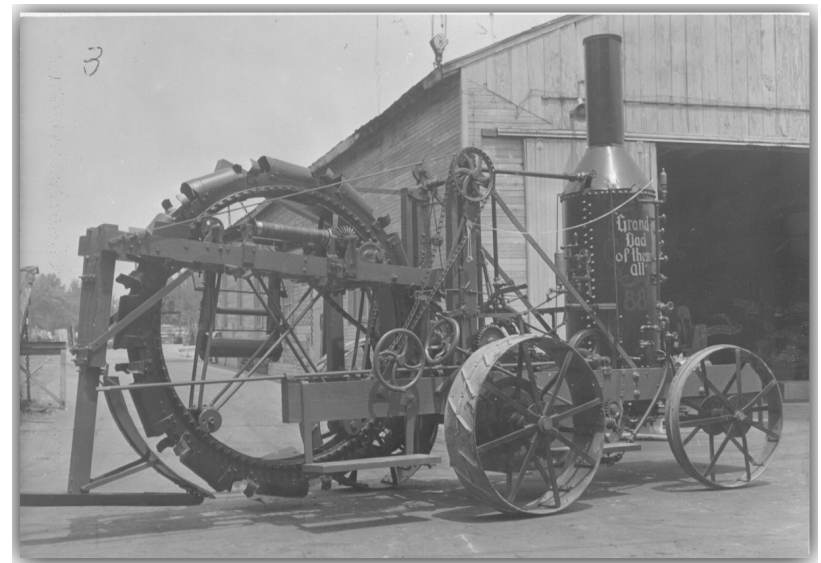
# Environmental Change

## Deforested



<https://undark.org/article/great-black-swamp-ohio-toledo/>

## Drained



Hancock Historical Museum, Findlay, Ohio

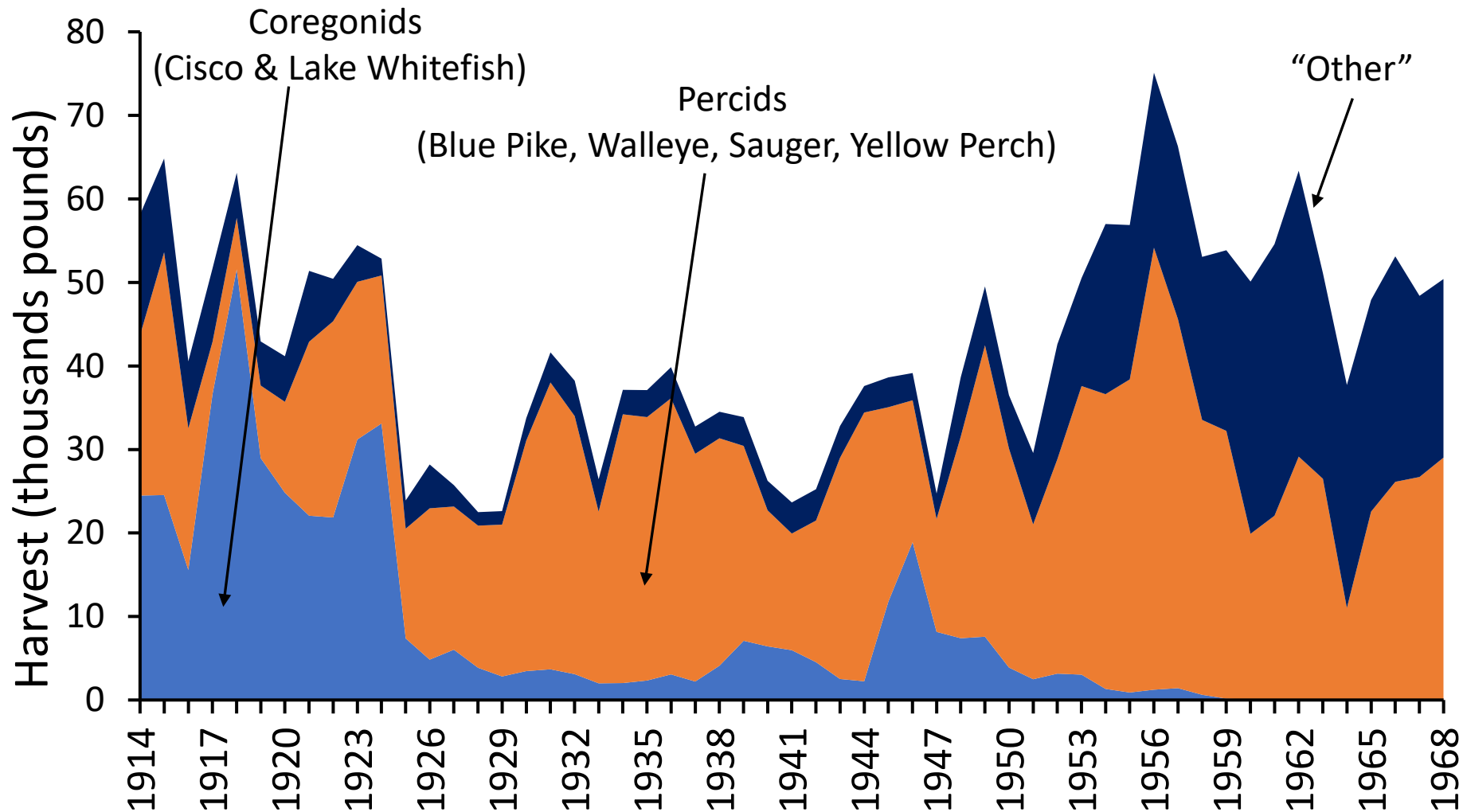
# Environmental Change



<https://undark.org/article/great-black-swamp-ohio-toledo/>



# Commercial Harvest

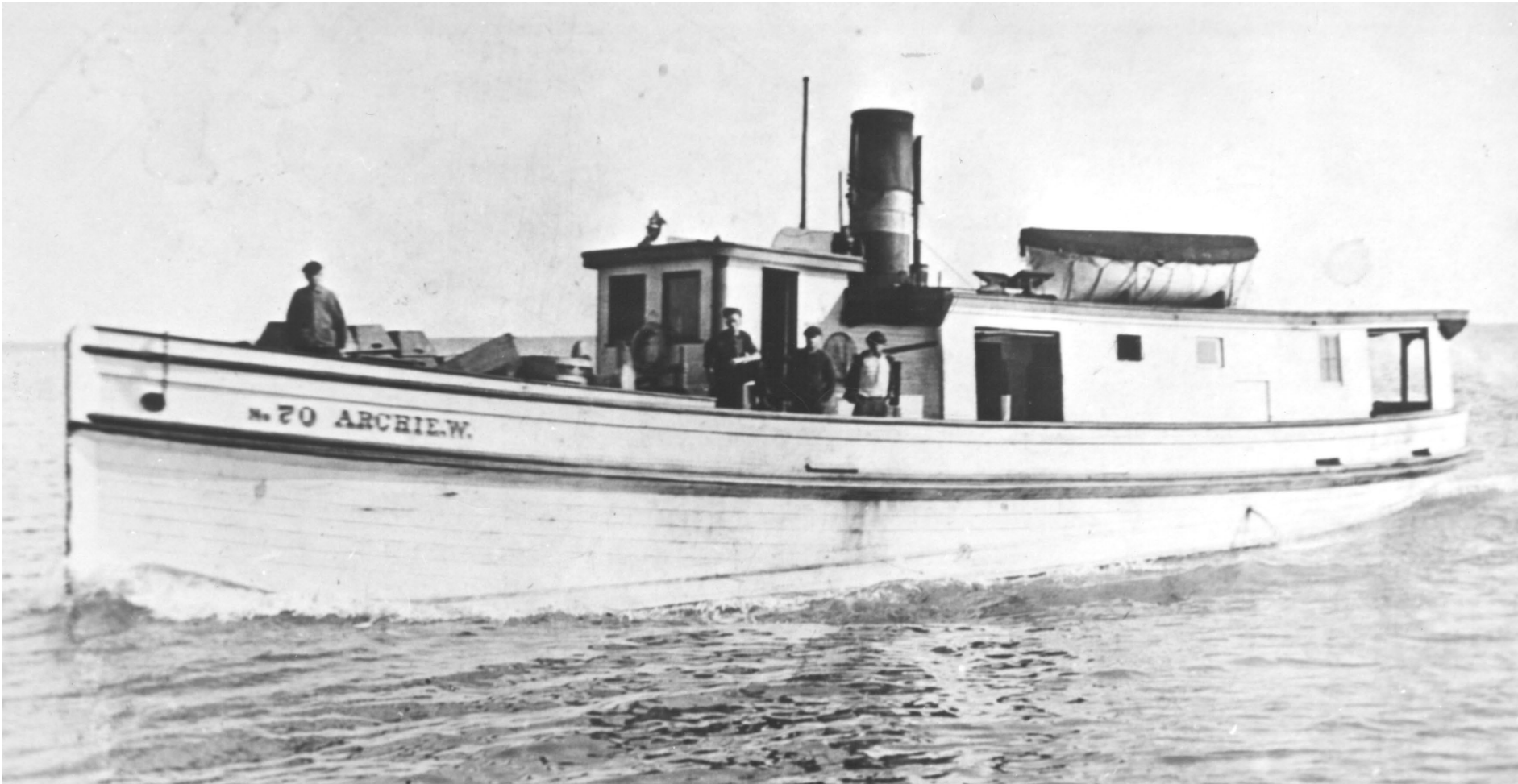


# Commercial Fishery



**Photo Courtesy of Toledo Blade**

# Commercial Fishery



**Photo Courtesy of Historical Collections of the Great Lakes,  
Bowling Green State University**



# Commercial Fishery





# Recreational Fishery



# (Failed) Cooperative Management

**1883**

First Great Lakes Interstate Conference  
13 recommendations agreed upon; none adopted.

**1884**

Second Great Lakes Interstate Conference  
Same issues as first conference, same result.

**1891**

International Fish and Game Conference  
Nothing came of several resolutions produced.

**1892**

**JOINT COMMISSION**  
Advised uniform regulations, a joint management plan, and a permanent international body with regulatory authority. Recommendations not widely appreciated.

**1896**

Interstate committee of IL, MI, MN, and WI  
Met to draw up a code of uniform regulations. No printed record of results.

**1897**

American Fisheries Society annual meeting  
Stressed need for uniform regulations. Nothing came of the meeting.

**1897**

**INTERNATIONAL COMMISSION**  
Recommended a treaty and permanent joint commission to supervise the fisheries, review science, and promulgate regulations. No treaty proposed immediately.

**1904**

Conference of State Officials  
Recommendations to state legislatures for uniform regulations. "Nothing accomplished."

**1906**

American Fisheries Society annual meeting  
No record.

**1908**

**TREATY**  
Agreement concerning the fisheries of all waters between Canada and the U.S. Established a permanent international commission. Failed to pass Congress and was withdrawn in 1914.

**1910**

**INTERNATIONAL COMMISSION**  
Commission formed to investigate border issues, including Great Lakes fishery management. Same recommendations of the 1897 commission, same results.

**1927**

Lake Erie International Conservation Council  
Council formed to coordinate action on Lake Erie. Resolutions adopted but no future meetings occurred.

**1928**

International Fisheries Conservation Council of the Great Lakes  
Met twice in 1928. Agreements on general measures for the Great Lakes fishery. "Nothing definite was achieved and the conference was soon forgotten."

**1929**

Meeting of Michigan and Ontario on Lake Huron  
Effort to form a code of uniform regulations. No action by either government.

**1931**

Conference of Lake Erie jurisdictions  
Resulted in the formation of the Lake Erie Advisory Committee and the Toronto Agreement of 1933.

**1933**

Toronto Agreement signed by each of the jurisdictions on Lake Erie  
Agreement covered all vital regulations on Lake Erie. However, implementation was a disaster.

**1933**

Meeting of IN, IL, MI, WI, and the U.S. Bureau of Commercial Fisheries  
Attempt to draw up uniform regulations for Lake Michigan, measures failed to be enacted.

**1936**

Meeting in Washington  
Attempt to resurrect the Lake Erie Advisory Committee

**1936**

Meeting in Chicago among IN, IL, MI, MN, OH, WI and U.S. Federal Government  
A few regulations for Lakes Huron and Superior were enacted by IL and MI.

**1936**

Meeting in Toronto between MI and ON  
Tentative agreement was reached on uniform regulations for Lake Huron, but held in abeyance.

**1938**

Council of State Governments Meeting  
Resulted in formation of International Board of Enquiry.

**1938**

Midwest Regional Assembly  
Goal to develop uniform regulations for Lake Michigan. Nothing accomplished.

**1938**

**INTERNATIONAL BOARD OF ENQUIRY**  
Formed to investigate fishing practices and government regulations.

**1942**

Board of Enquiry Report  
Rejected interstate compact; recommended treaty.

**1943**

Interstate conference, Madison, WI  
Established Lake Trout Committee.

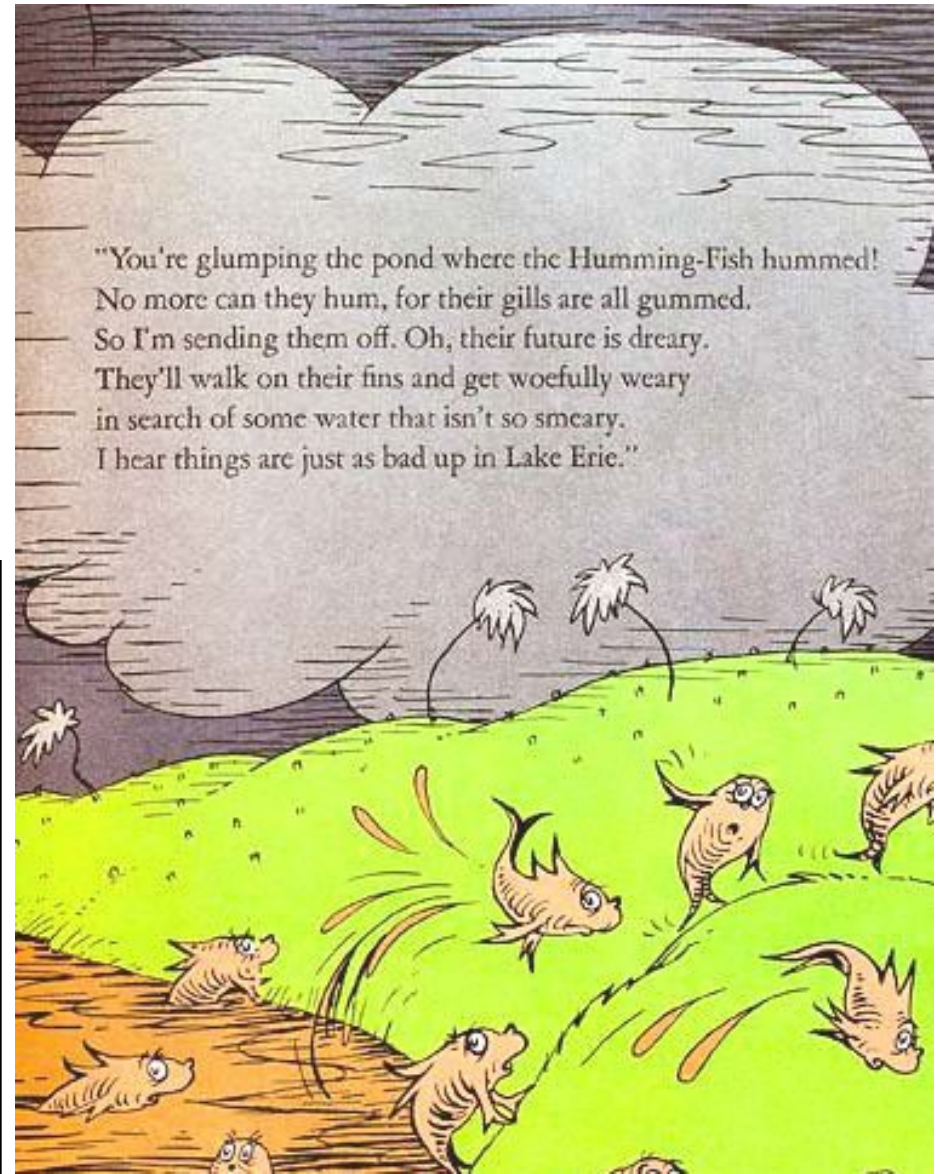
**1946**

**TREATY**  
Created bi-national committee to make regulations, subject to federal approval. Not ratified; withdrawn.

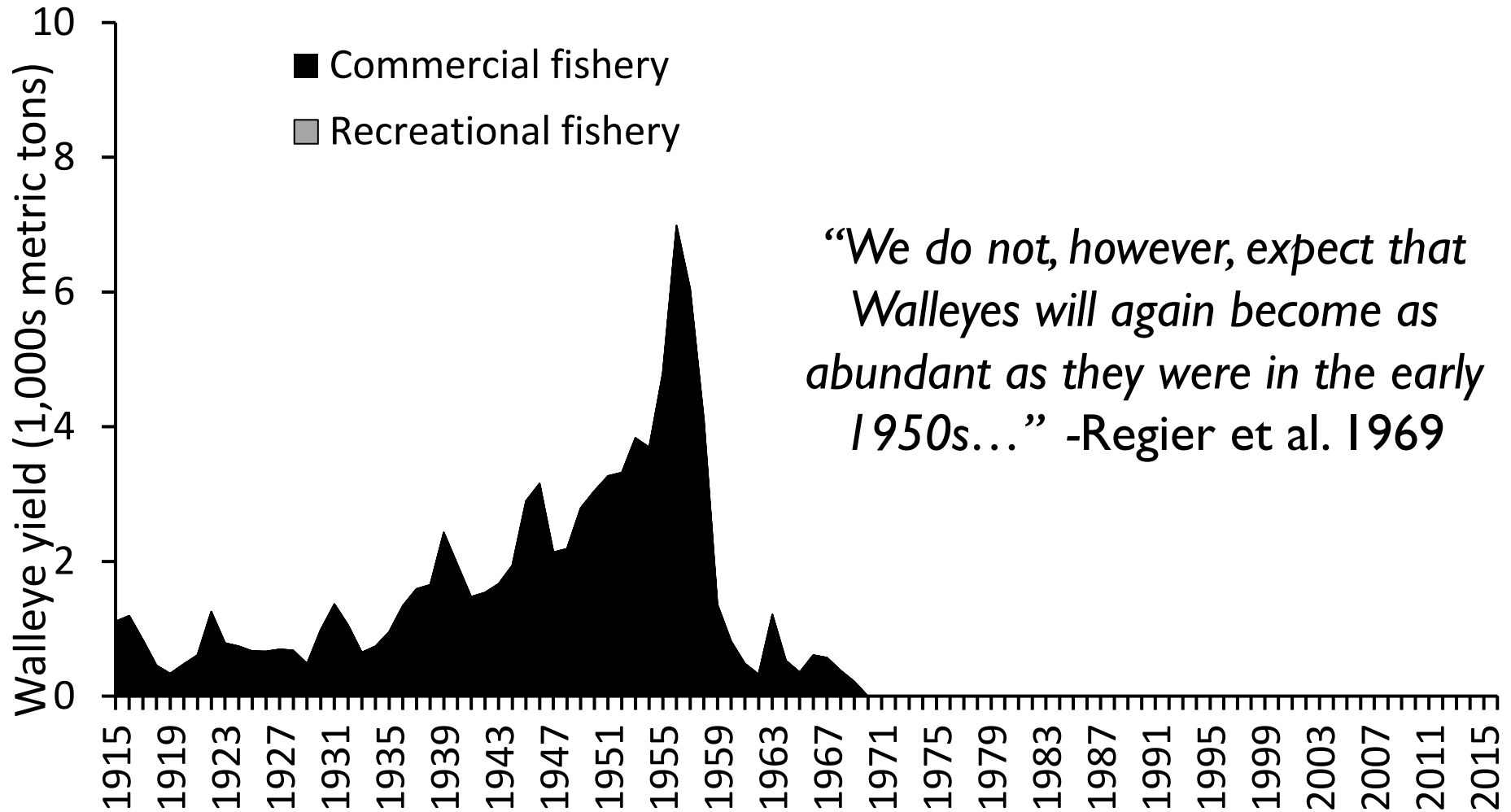




# Lake Erie Declared Dead



# Walleye Collapse



*“We do not, however, expect that Walleyes will again become as abundant as they were in the early 1950s...” -Regier et al. 1969*

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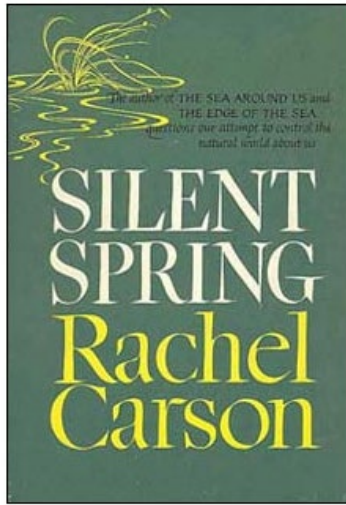
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**2. Walleye Recovery**

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# Improving Environmental Awareness



## Great Lakes Water Quality Agreement 1972

- reduce phosphorus loading
- reduction of visible pollution



# Fishery Closure During 1970-1973

## WARNING CONTAMINATED FISH

FISH IN THESE WATERS ARE  
CONTAMINATED WITH  
DANGEROUS LEVELS OF  
POISONOUS MERCURY  
DO NOT EAT FISH  
CAUGHT IN THESE WATERS





# Start of Coordinated Management



## 1954 Convention on Great Lakes Fisheries

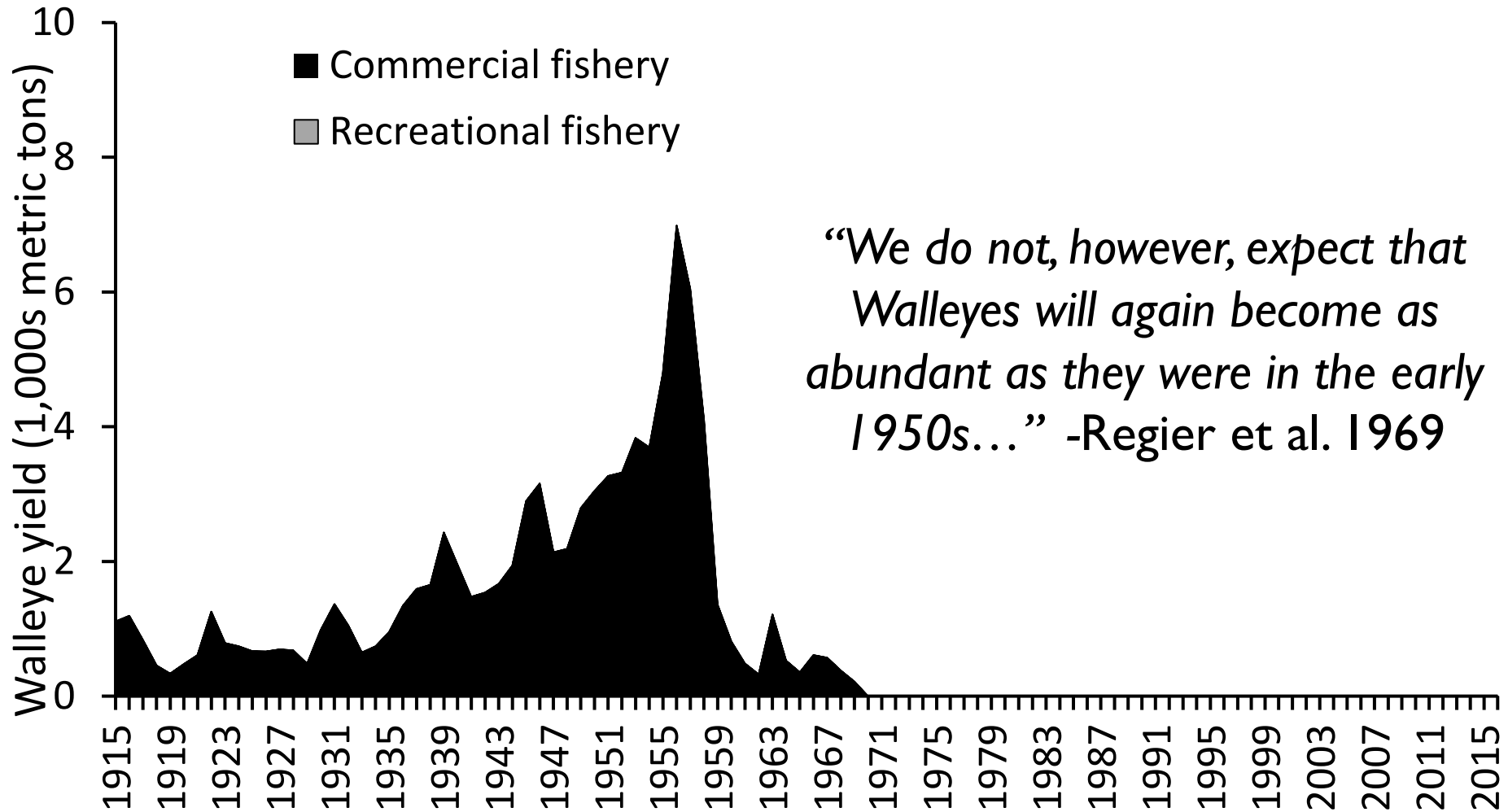
- Oversee sea lamprey control
- Coordinate fisheries research & management activities

## 1973 Lake Erie Committee discussed coordinated management

- Scientific Protocol Committee
  - federal, provincial & state fishery scientists & managers
  - developed framework for interagency assessments
  - proposed interagency quota management



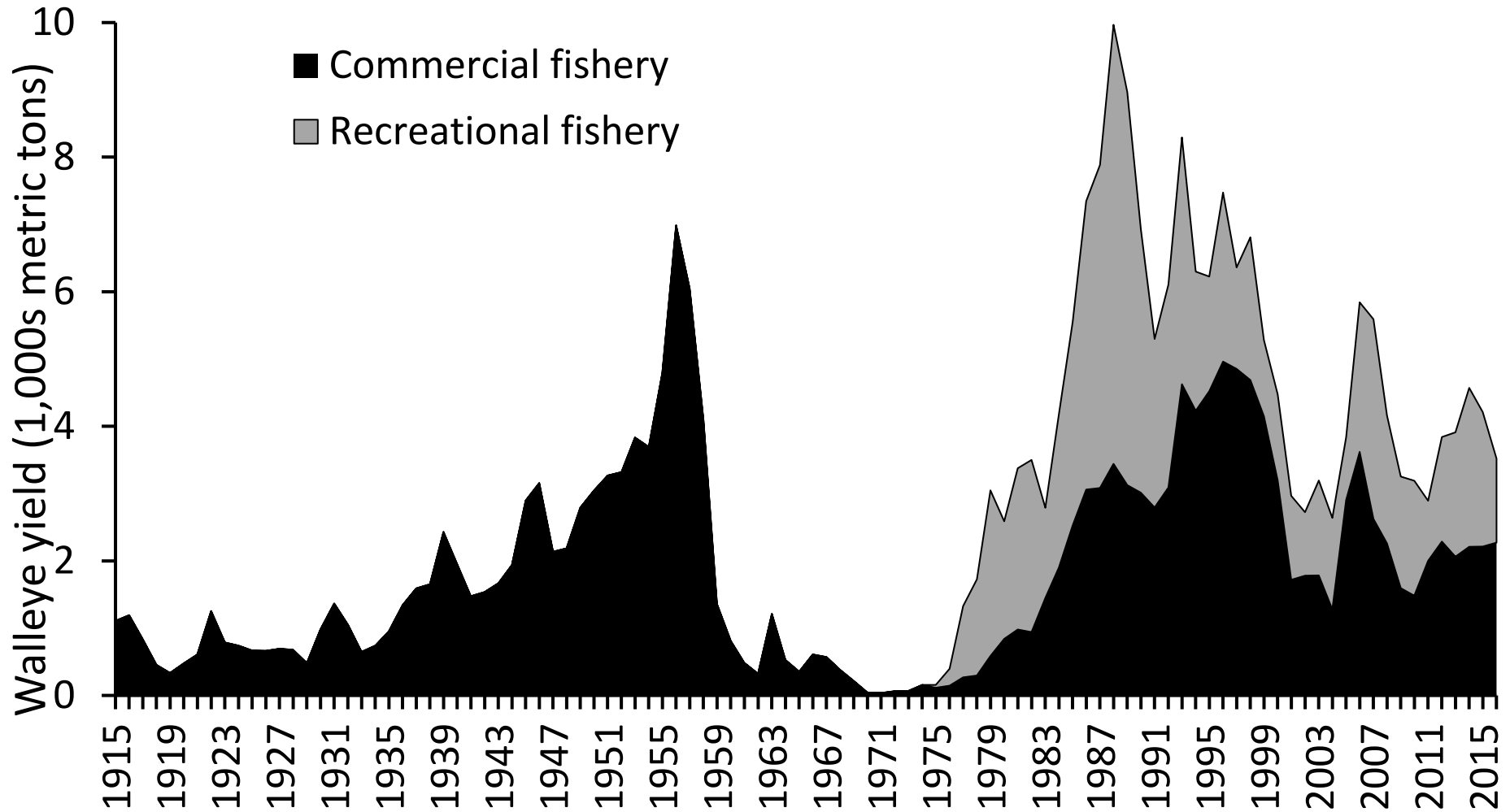
# Walleye Recovery



*“We do not, however, expect that Walleyes will again become as abundant as they were in the early 1950s...” -Regier et al. 1969*



# Walleye Recovery



# Today's Presentation



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# Harvest Assessment & Enforcement



## Commercial Fishery

- Occurs in Ontario waters of Lake Erie
- Fishers submit daily catch reports (location, harvest, & effort)
- Harvest sampled by dock-side observers

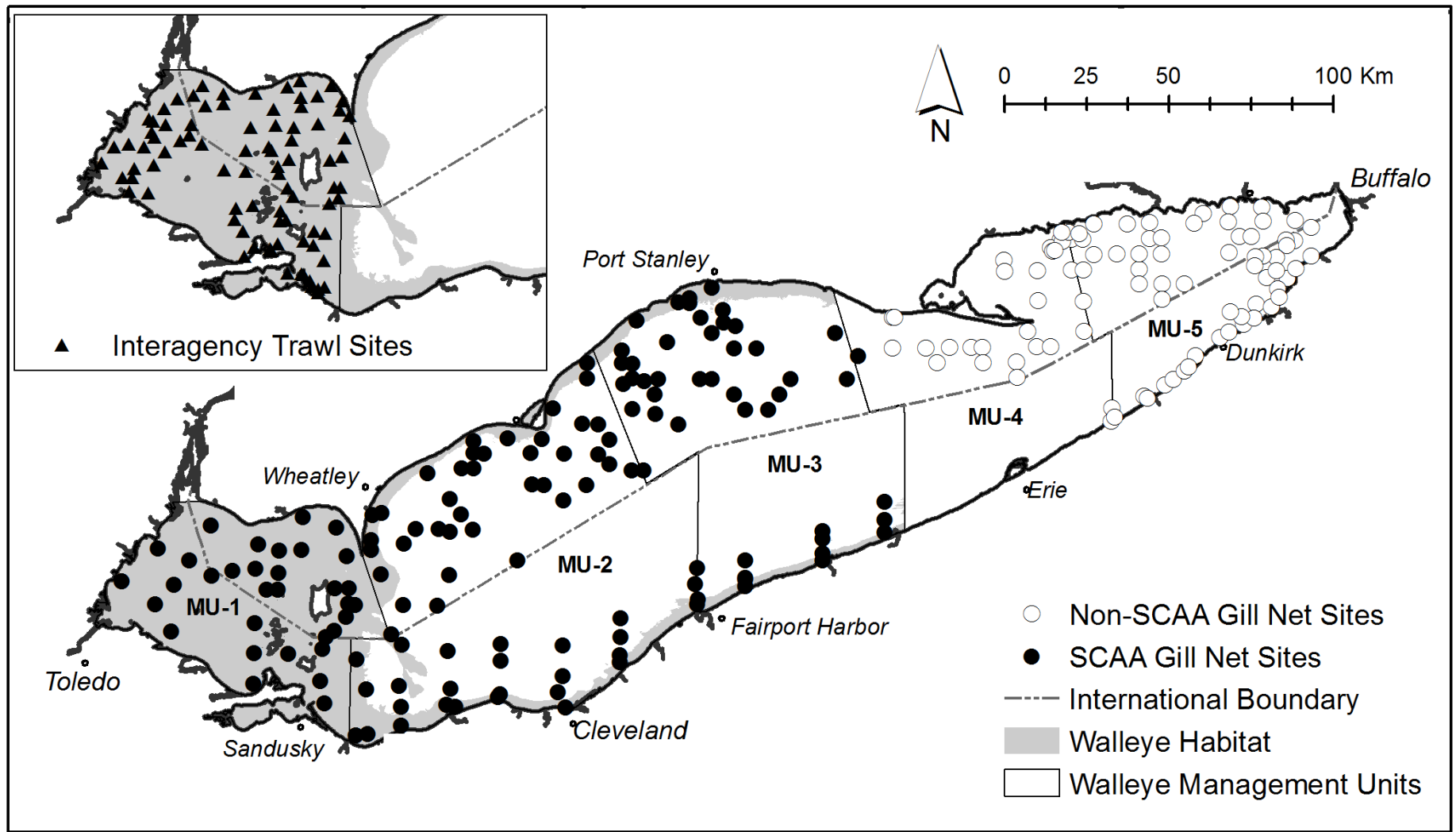
# Harvest Assessment & Enforcement

## Recreational Fishery

- annual creel surveys (location, harvest, & effort), biological information collected
- largest fishery exists in Ohio & Michigan, smaller fisheries elsewhere

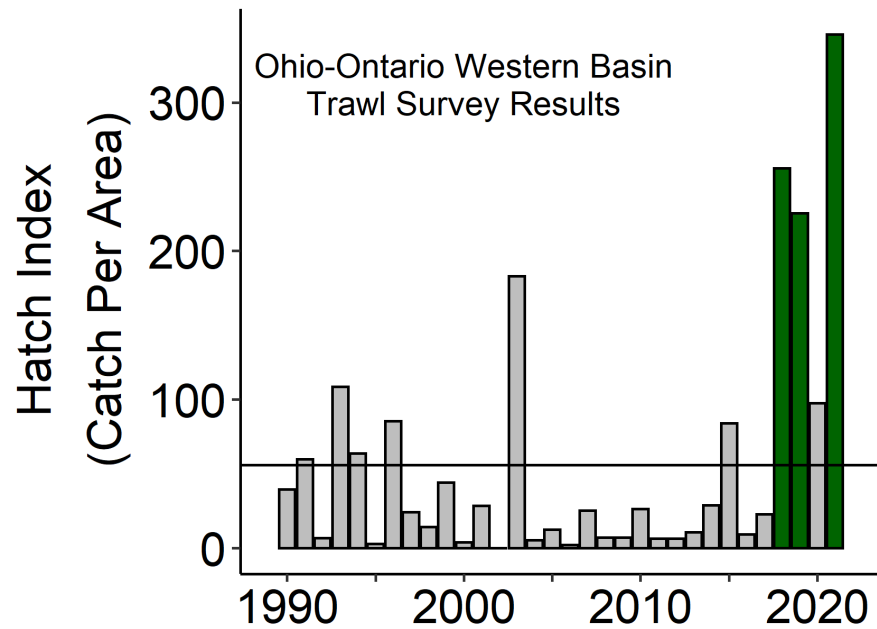


# Population Assessment



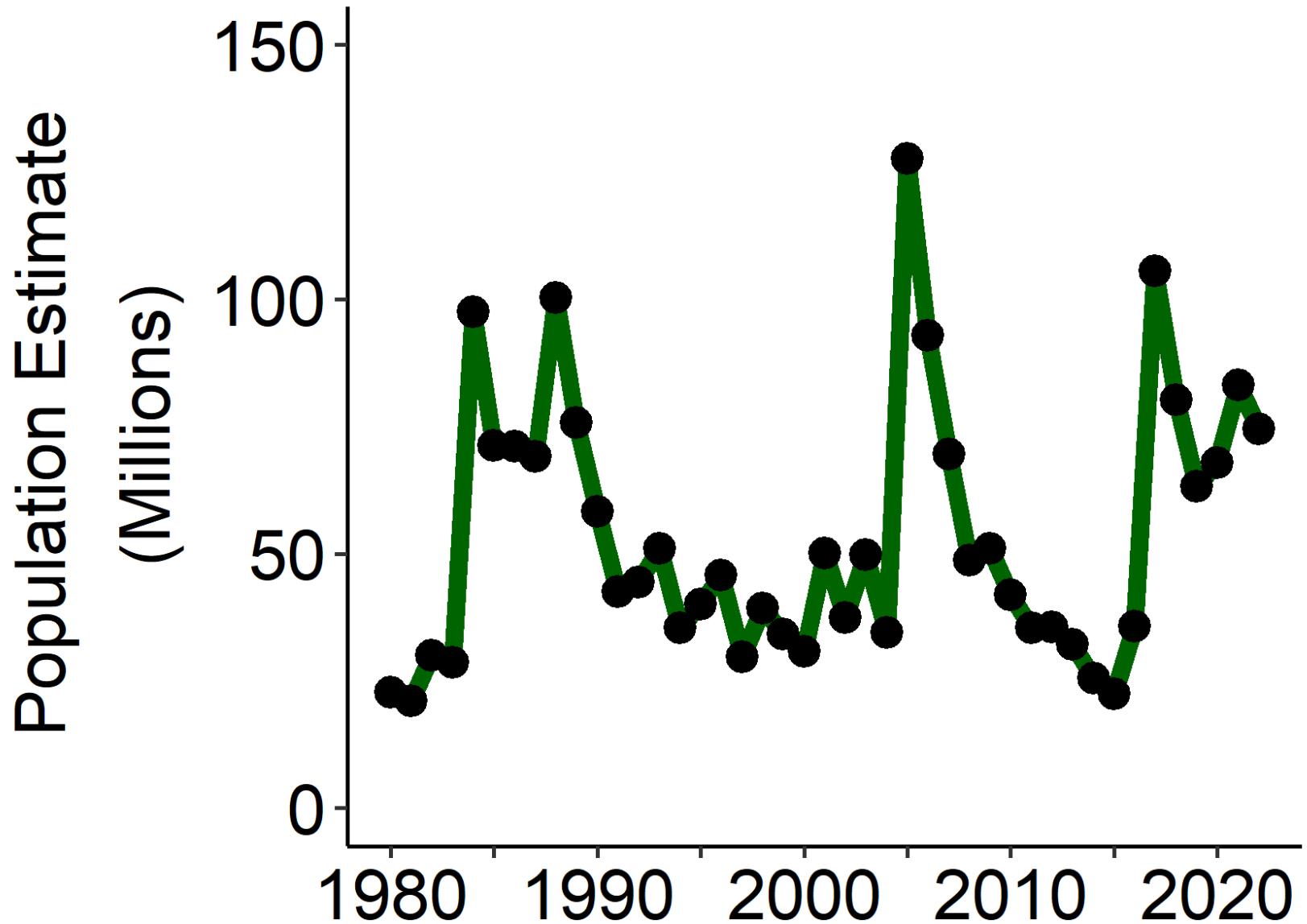


# Population Assessment



**How many young walleye  
might we expect in 2 years?**

# Population Assessment



# Today's Presentation



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# Walleye Management is Challenging

## Lake Erie is big

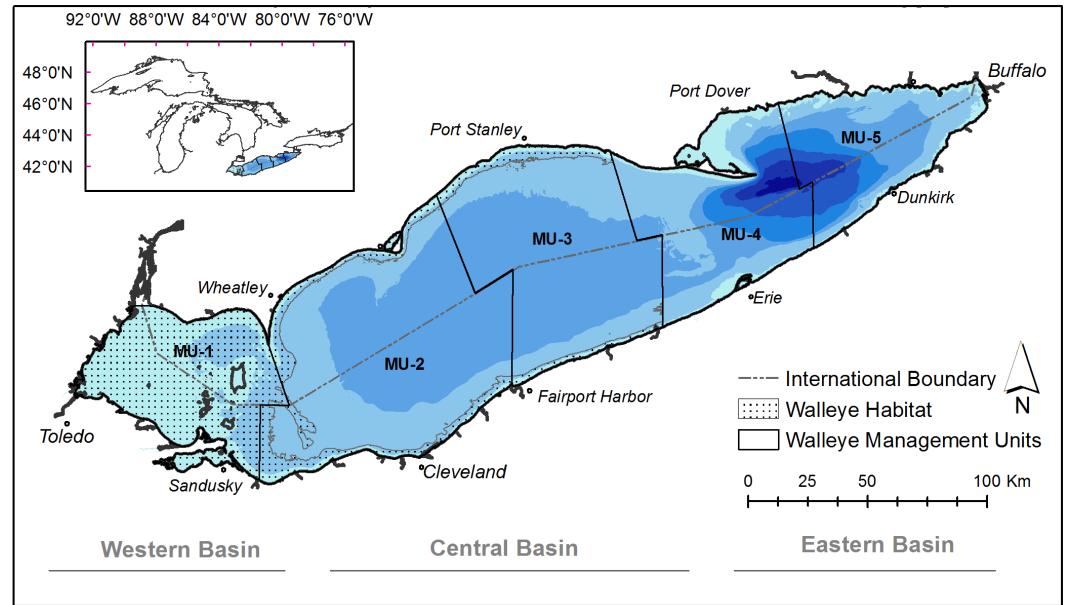
- Difficult to monitor populations and fisheries

## Multiple jurisdictions

- U.S. and Canada
- Ontario, Michigan, Ohio, Pennsylvania, and New York

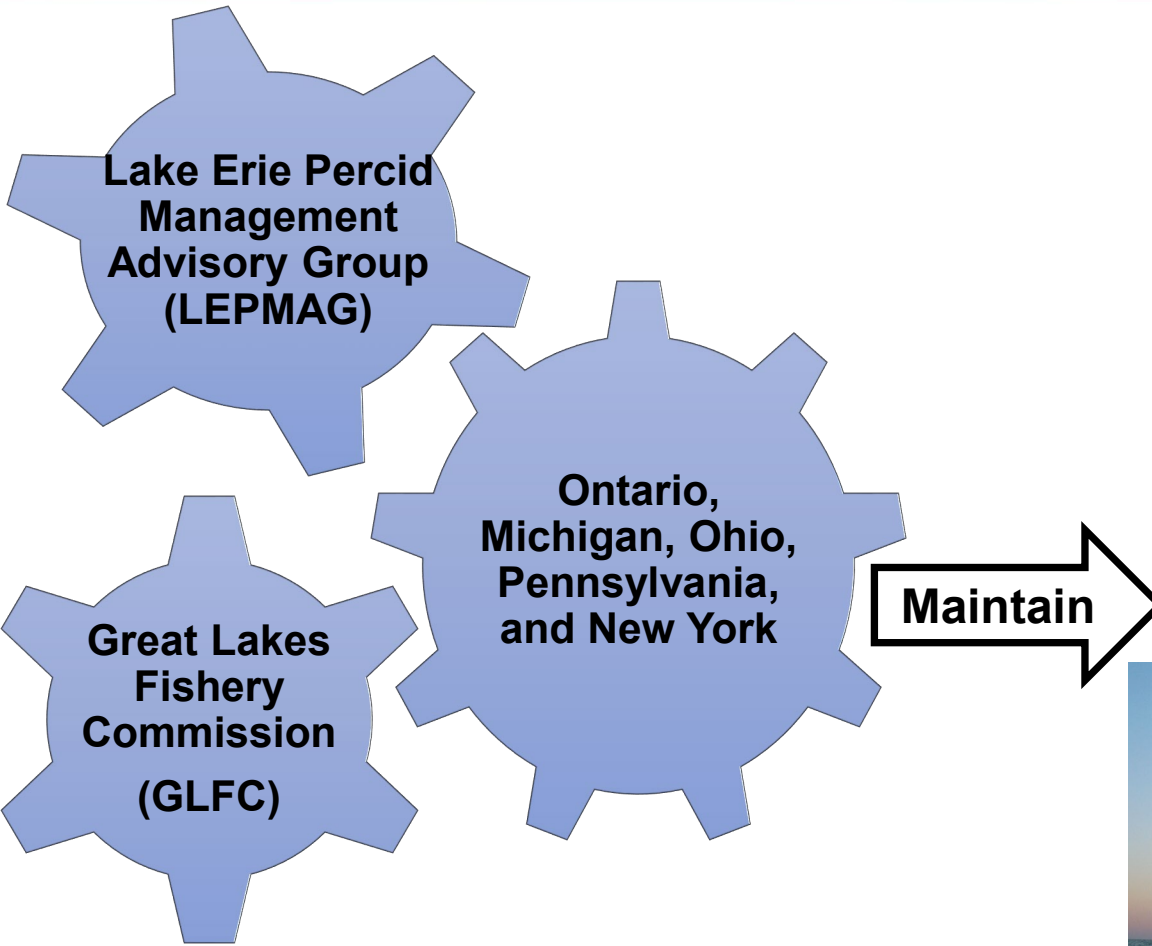
## Multiple stakeholders

- Commercial gill net fishers and processors (Ontario), recreational anglers, charter captains



**Balance multiple, competing interests to produce agreeable and sustainable harvest levels**

# Lake Erie Management Process



Healthy Populations



Satisfied & Informed Stakeholders

# Coordinated Fisheries Management





# Lake Erie's Management Process



Population surveys  
+  
Fishery harvest &

Task

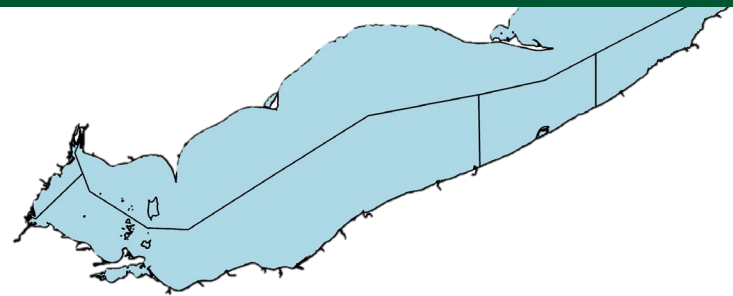


Missing  
stakeholder input!



Jurisdiction  
TAC

Agency  
quotas/bag limits



# Incorporating Stakeholder Feedback

## Structured Decision-Making Process

- Stakeholders and managers working together
- Initiated in 2010
- Goal to update walleye management plan
  - Transparency to management process
  - Accounts for stakeholder perspective
  - Builds trust

Lake Erie  
Walleye Management Plan

Lake Erie Committee  
November 2005

Lake Erie Committee  
Great Lakes Fishery Commission

Brian Locke<sup>4</sup>, Megan Belore<sup>4</sup>, Andy Cook<sup>4</sup>, Don Einhouse<sup>2</sup>, Roger Kenyon<sup>5</sup>, Roger Knight<sup>3</sup>, Kurt Newman<sup>1</sup>, Phil Ryan<sup>4</sup>, Elizabeth Wright<sup>4</sup>

<sup>1</sup>Michigan Department of Natural Resources

<sup>2</sup>New York State Department of Environmental Conservation

<sup>3</sup>Ohio Department of Natural Resources

<sup>4</sup>Ontario Ministry of Natural Resources

<sup>5</sup>Pennsylvania Fish and Boat Commission

# Percid Management Advisory Group

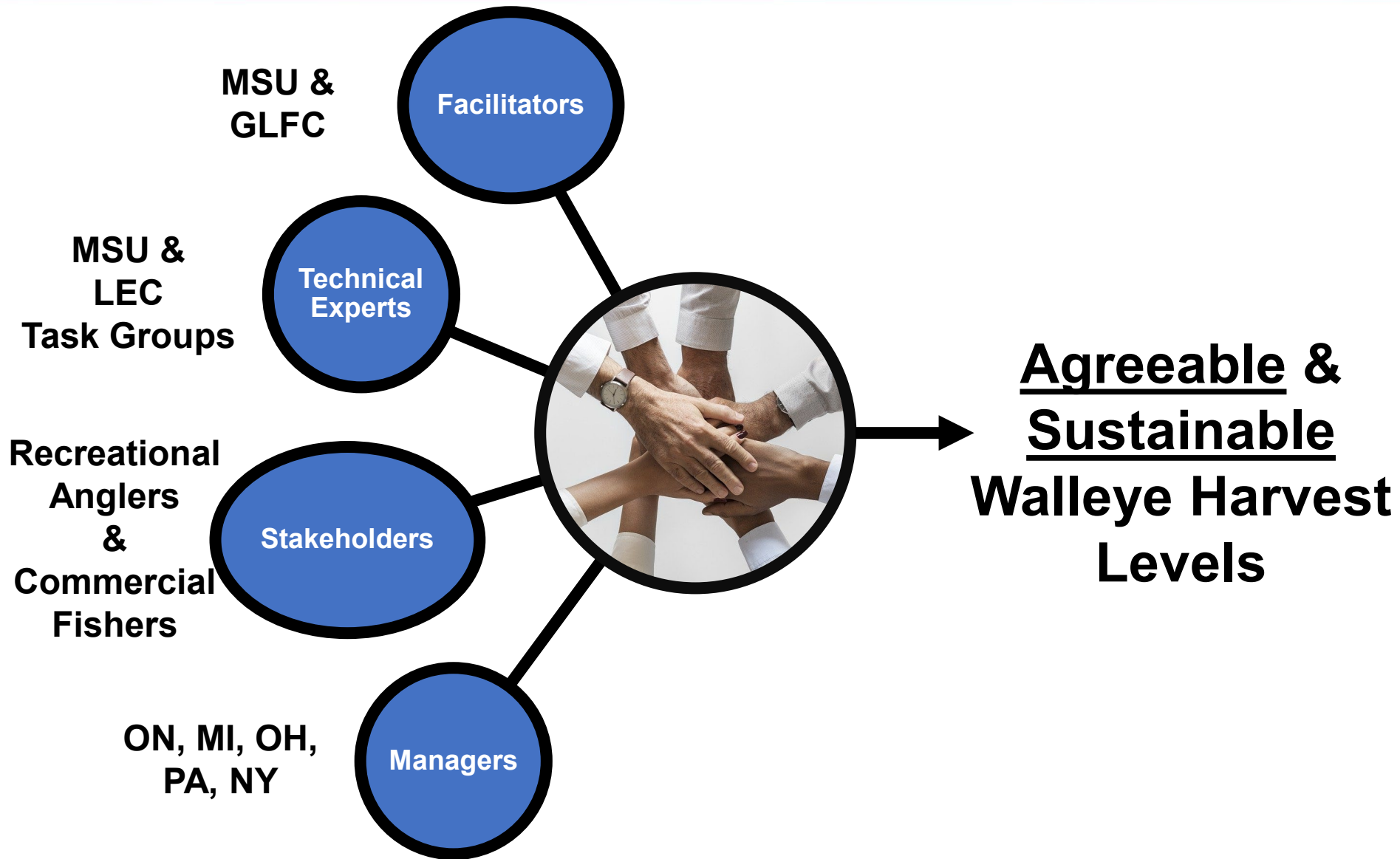
## VISION STATEMENT

*Lake Erie percid fisheries will be **transparently** managed using **sound science** and **partnerships** to achieve stable and sustainable harvests from shared stocks providing **broad and equitable benefits** for all jurisdictions.*





# LEPMAG Participants



# LEPMAG & Walleye Management

Lake Erie  
Walleye Management Plan  
2015-2019



Lake Erie Committee  
Great Lakes Fishery Commission

October 2015

Kevin Kayle – Ohio Department of Natural Resources  
Kurt Oldenburg – Ontario Ministry of Natural Resources and Forestry  
Chuck Murray – Pennsylvania Fish and Boat Commission  
Jim Francis – Michigan Department of Natural Resources  
Jim Markham – New York State Department of Environmental Conservation

Management plan defines  
Harvest Control Rule  
(HCR)



HCR developed via  
computer simulations of  
management process

LEPMAG helped guide  
evaluation of HCR

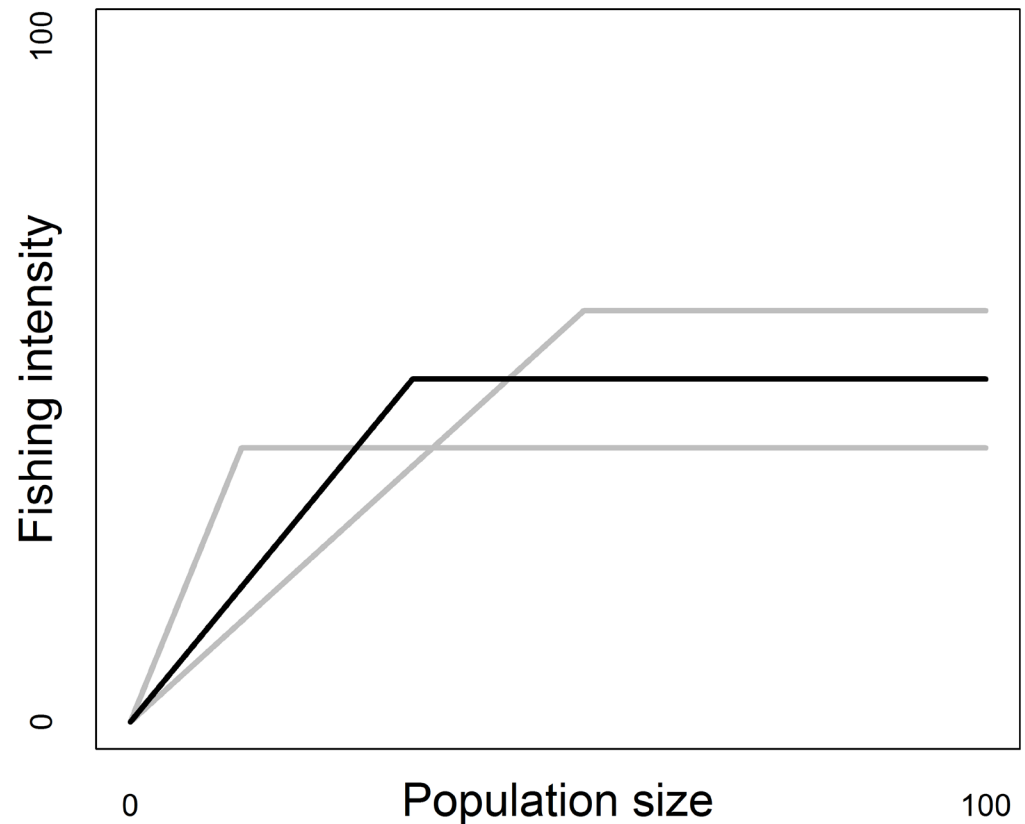
# Harvest Control Rule

Sets and adjusts fishing intensity

- Maintain sustainable harvest

Defined by 2 parts:

- How hard to fish a population?
- What is minimum population size to stay above?



**HCR unique for each population  
and its fisheries – agreeable  
and sustainable**

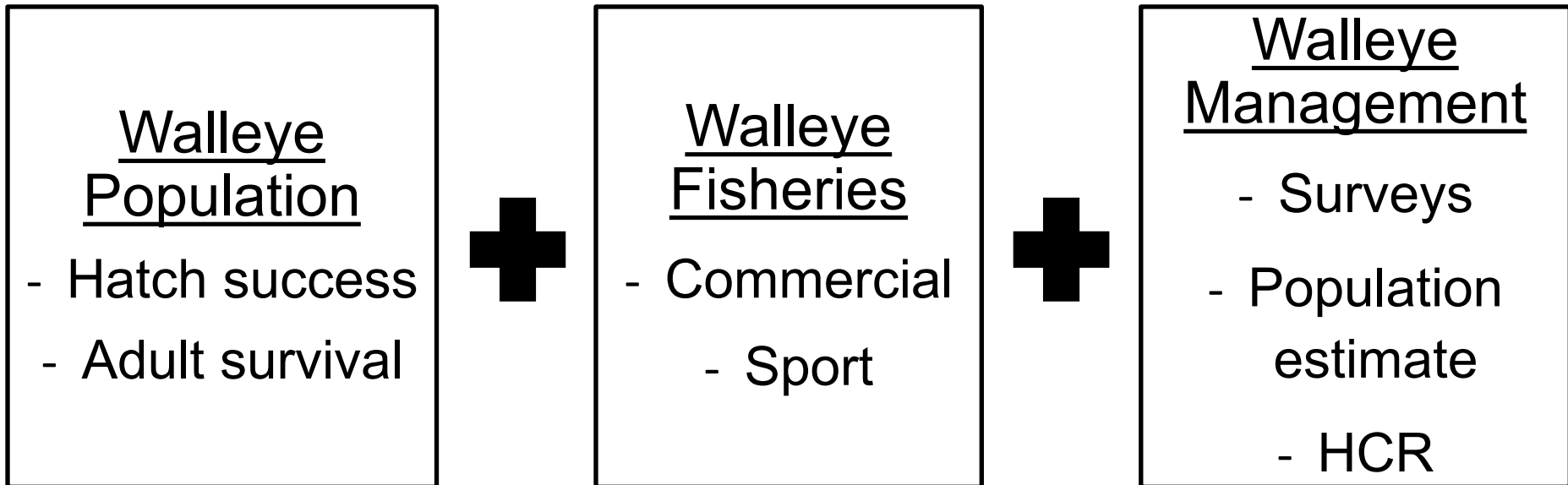


# Management Strategy Evaluation

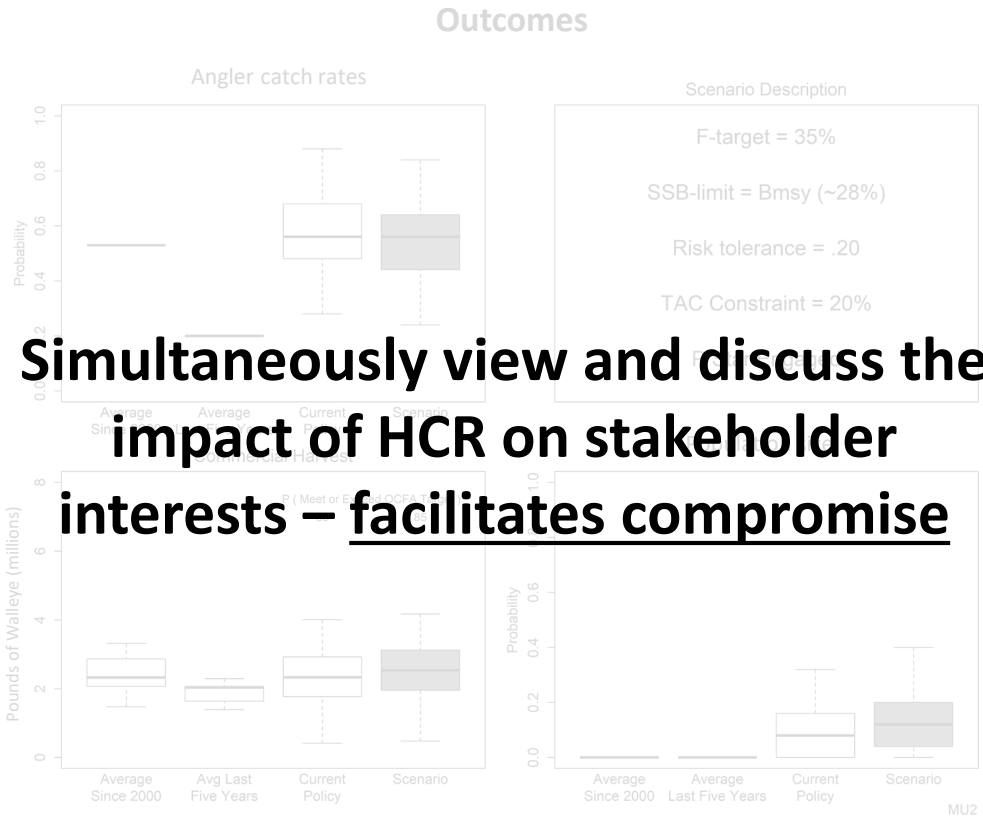
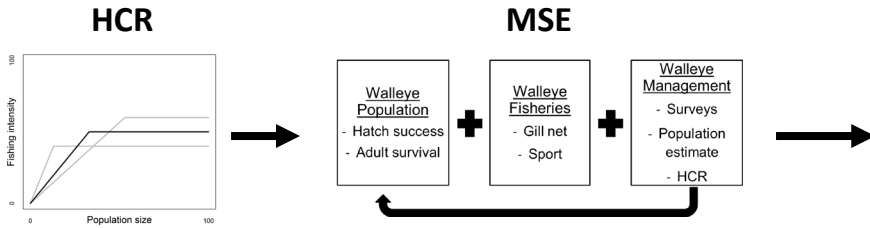
Virtual representation of Lake Erie's fisheries

Simulations include range of uncertainty

Quantify performance based on metrics relevant to stakeholders



# Evaluating Performance Metrics



## Performance metrics

- Angler catch rates
- Commercial harvest
- Population size

## Display output for each HCR

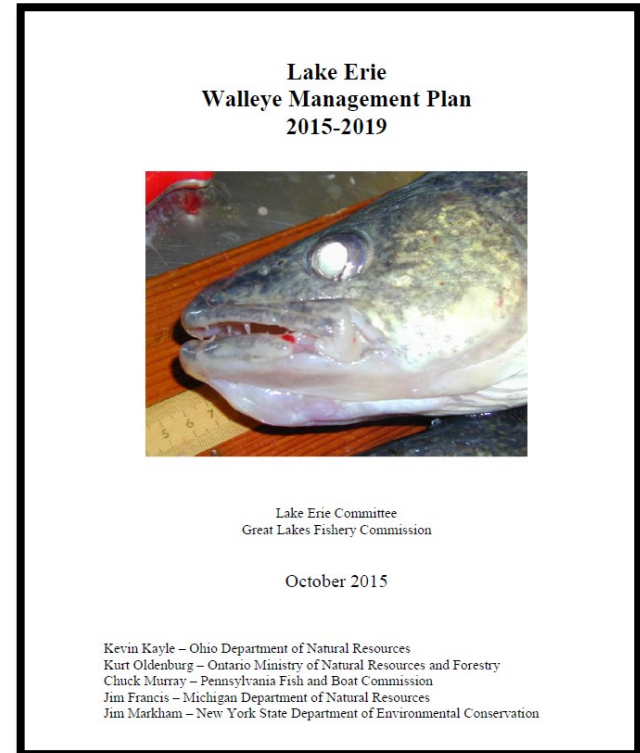
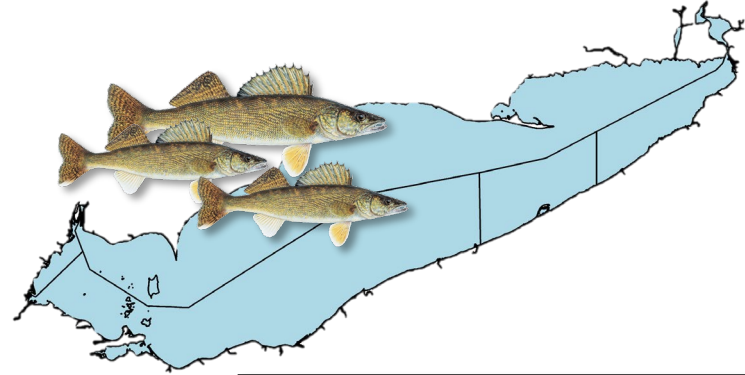
- Compare to stakeholder expectations/desires

# Walleye Management Plan

## Management Plan: 2015-2024

1. Revised harvest policy
2. Guidance to maintain sustainable fisheries into the future
3. Backed by rigorous science
4. Incorporated stakeholder input
5. Reviewed on a 5-year basis

LEPMAG was **essential** in developing Walleye Management Plan that was agreeable and sustainable





# Summary

**Walleye populations collapsed during mid-1900s due to overharvest, pollution, and lack of coordinated fisheries management.**

**Coordinated management by fisheries agencies around Lake Erie, along with improving water quality, helped fuel recovery beginning in 1970s.**

**Cooperative fisheries management has led to sustainable walleye harvest in Lake Erie since late 1970s.**