A STAKEHOLDER-CENTERED APPROACH TO RESOLVING CONFLICT IN FISHERIES MANAGEMENT: REFLECTIONS ON THE LEPMAG PROCESS

Collaborative Modelling

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OVERVIEW

- History of percid management in Lake Erie
- Development of a stakeholder-centered approach
- Review of the LEPMAG Process
 - Walleye focus
- Updates: where we are
 - Walleye
 - Yellow Perch
- Looking forward



HISTORY OF WALLEYE MANAGEMENT IN LAKE ERIE

1970

Harvest moratorium

1976

International quotas introduced

2004

- Consensus among agencies over walleye harvest was reached & then breached
 - Varying degrees of contention among stakeholders & between stakeholders and managers



DEVELOPMENT OF STAKEHOLDER-CENTERED APPROACH

2005

Walleye Management Plan



2010

- LEC initiated Lake Erie Percid Management Advisory Group (LEPMAG)
 - Stakeholders, fishery managers, agency fishery biologists, stock assessment specialists, & modelers
 - Formally incorporates information provided by stakeholders into the decision-making process



THE LEPMAG PROCESS

- ~35 members
- Series of 14 meetings (2010 2014); full day discussions
 - Management objectives
 - Current assessment models
 - Potential refinements/results modeling team
 - Outside experts



Develop performance metrics



LEPMAG TERMS OF REFERENCE

VISION STATEMENT

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

RULES OF ENGAGEMENT



LAKE ERIE PERCID FISHERIES

• Primary objectives:

- Minimize economic risk to commercial fishers
- Maintain acceptable catch rates for recreational fishers
- Minimize risk of low spawning stock abundance

Primary approach:

Adjusting fishing rates for commercial & recreational fisheries



MANAGEMENT STRATEGY EVALUATION

- Process is based on objective evaluation of the management system
- Model of entire management system
- Evaluate performance of alternative "management procedures"
- Account for uncertainties



MANAGEMENT STRATEGY EVALUATION







LEPMAG HARVEST POLICY ANALYSIS

- Policy determines target fishing mortality
- Depends on assessed stock biomass
- Uses target & limit reference points
- Explicitly accounts for risk





Maximum F (% of Fmsy)



Maximum F (% of Fmsy)





Mean Commercial Yield















Emergent trade-offs







Emergent trade-offs



0.7 P(angler CPH < 0.4) 9.0 7.0 8.0 8.0 Target F as % F_{MSY} 90 40 0.3 0.1 0.2 0.3 0 0.4 0.5 P(commercial yield < 4 million lbs)



Emergent trade-offs



60% of MSY



WHERE THE PROCESS IS NOW: WALLEYE

- Based on LEPMAG recommendations:
 - Updated assessment model adopted
 - New HCR formally adopted
 - First applied during the 2014 quota-setting process for Lake Erie walleye
- 2015 Walleye
 Management Plan



THE LEPMAG PROCESS

- Facilitate the understanding among stakeholders of shared management goals
- Provide a forum for discussion of concerns & areas of risk for conflict
- Build trust in the fisheries management process

