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Binational Grass Carp Risk Assessment

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Asian Carp Risk Assessments

- Provide science advice for management in terms of prevention and control
- **All Asian carps:** high risk to Canadian waters in previously conducted risk assessment (RA) (Mandrak & Cudmore 2004)
- **Silver and Bighead carps:** Kolar et al. 2007, binational risk assessment (2011)
- **Grass Carp:** binational risk assessment for the Great Lakes launched April 2014
- **Black Carp:** Nico et al 2005, launched Sept. 2015





Why do we need a Grass Carp RA?

- Grass Carp consume large amounts of vegetation. This can change plant, invertebrate and fish communities, as well as water quality
- Current proximity to, and occurrences of Grass Carp in, the Great Lakes basin represents a potential threat to Great Lakes fisheries
- Evidence of reproduction in Lake Erie (American waters)
- Economic and ecological costs of prevention are less than managing Grass Carp after introduction
- Direction for effective prevention, monitoring and control actions is needed = **Ecological Risk Assessment**



Grass Carp RA: Background

Organizations involved in the risk assessment:

- Initiated by DFO's Asian Carp Program
- Coordinated by the Great Lakes Fishery Commission
- Endorsed by the Asian Carp Regional Coordinating Committee
- In partnership with the U.S. Geological Survey & the U.S. Fish and Wildlife Service
- Numerous other government and academic groups in Canada & US



Grass Carp RA: Background

- **April 2014:** Binational RA writing team established.
- **June 2014:** Scoping Meeting to bring researchers & managers from Canada and the U.S. together to identify management concerns, research needs and knowledge gaps.
- **June 2014 – April 2015:** Data collection & research to address identified management & research needs assigned & carried out.
- **Dec. 2014:** Progress Meeting to provide mid-project update and identify issues.



Grass Carp RA: Project Purpose

- Incorporate existing, ongoing, and new research results on Grass Carp from Canada and the United States.
- Use results to evaluate the current state of knowledge with respect to Grass Carp arrival, survival, establishment, spread and ecological consequences in the Great Lakes basin.
- Do so using risk assessment in a peer-reviewed format to provide science advice to managers and decision-makers based on best available information.



Risk Assessment Process

Purpose

Process

Provide a binational, science-based assessment of the current level of risk to the Great Lakes and transfer that information to inform decisions around the management and prevention of Grass Carp.

PROBABILITY OF INTRODUCTION

LIKELIHOOD OF

ARRIVAL

SURVIVAL

ESTABLISHMENT

SPREAD

MAGNITUDE OF CONSEQUENCES

ECOLOGICAL
CONSEQUENCES

OVERALL RISK



Probability of Introduction

- Arrival:
 - entry routes (physical connections, human-mediated release), detection limits
- Survival:
 - Food resources, thermal tolerance
- Establishment:
 - # individuals needed to establish, suitable spawning & nursery habitats, survival of early life stages
- Spread:
 - Natural dispersal, canals, human-mediated dispersal



Expected Deliverables

- Government Reports (Annotated Bibliography of Russian-language literature; Biological Synopsis – up to date collection since 2003)
- Advisory documents:
 - Proceedings (document peer review meeting discussions, consensus process)
 - Science peer reviewed Risk Assessment Document (technical details & supporting information)
 - Science Advisory Report (summarize key conclusions & advice developed from risk assessment)
- Primary publications, communication reports, fact sheets



Expected Outcomes

- Binational ecological risk assessment on Grass Carp arrival, survival, establishment, spread and impact in the Great Lakes basin to better inform managers and decision-makers, and specifically:
 - Help focus prevention efforts on all high risk entry points
 - Identify vulnerable areas for early detection and surveillance
 - Inform rapid response
 - Identify of key control points
 - Understand relative risk compared to bigheaded carps



Next Steps

- **April 2015:** drafting of RA document and send out for scientific peer review.
- **June 2015:** Scientific peer review meeting where invited participants (scientific experts in a relevant field e.g., Grass Carp biology, risk assessment) review the RA document & supporting research documents.
- **~Sept. 2015:** release of peer-reviewed RA document.



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Thank you!



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