

Great Ships Initiative Update

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GSI Research Services

- ▶ Independent/Transparent
- ▶ BWT Evaluation Scales:
 - ▶ Bench (Proof of Concept)
 - ▶ Land-Based (R&D, Certs)
 - ▶ Shipboard (STEP, Certs)
- ▶ BWT Testing Endpoints:
 - ▶ Biological Efficacy
 - ▶ Operational Efficacy
 - ▶ Residual Toxicity



Major Funders

- ▶ Great Lakes/St. Lawrence Seaway Public Ports
- ▶ U.S. Maritime Administration
- ▶ U.S. Coast Guard Research and Development Center
- ▶ U.S. Environmental Protection Agency
- ▶ Great Lakes Protection Fund
- ▶ Legislative Citizens' Commission on MN Resources
- ▶ St. Lawrence Seaway Development Corporation
- ▶ University of Wisconsin Superior (in kind)
- ▶ City of Superior, WI (In kind)
- ▶ Great Lakes Maritime Research Institute (In kind)



RELIABLE

**BALLAST WATER TREATMENT TESTING
FOR THE GREAT LAKES**



2012 GSI Activities

- ▶ Bench Testing BWTS (R/D, Screening)
- ▶ Land-Based Testing (R/D, Methods Dev, and Cert)
- ▶ Ship-Based Testing (ETV Protocol Validation, GSI Ship Monitoring System Validation)
- ▶ Risk-Release Project (Mesocosm Experiments, Ship and Harbor Surveys)



GSI 2012 Bench Testing

Ultrasound	June '10	Fall 2012
Evonik System	Feb '12	Underway
Sodium Hypochlorite	Feb '12	Fall 2012
Deoxygenation	Feb '12	Summer 2012
NaOH with CO ₂ Free Headspace	May '12	Underway
Electrostatic Charge	July '12	Fall 2012
Passive Filtration Netting System	Under Review	

GSI 2012 Land Based Testing

Mesocosm Experiments – Risk Release Project	GLPF	Underway
Unitor BWTS	A	Cancelled
Filtration + Peraclean Ocean +Catalase	A	Pending Early Sept 2012?
Filtration + UV	A	Mid August 2012?

GSI 2012 Ship Board Testing

Unitor	A	Cancelled
ETV Protocol Validation	C	Underway
GSI Ships Discharge Monitoring	G	Underway
Risk Release Survey Method Validation	G	Underway

Risk-Release Project

Based on NRC Study and Findings

Assessing the Relationship Between Propagule Pressure and Invasion Risk in Ballast Water

Committee on Assessing Numeric Limits for
Living Organisms in Ballast Water

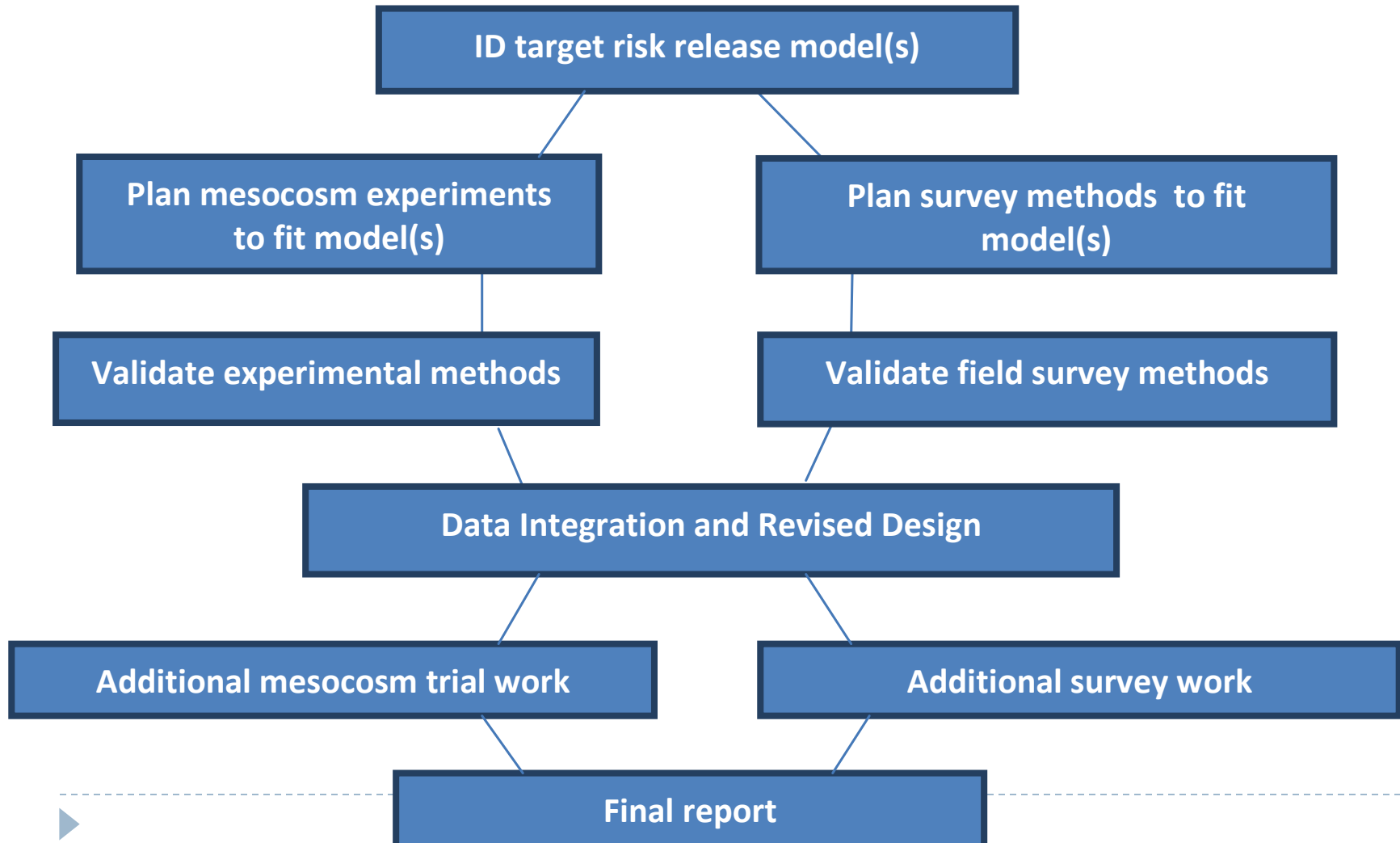
Water Science and Technology Board

Division on Earth and Life Studies

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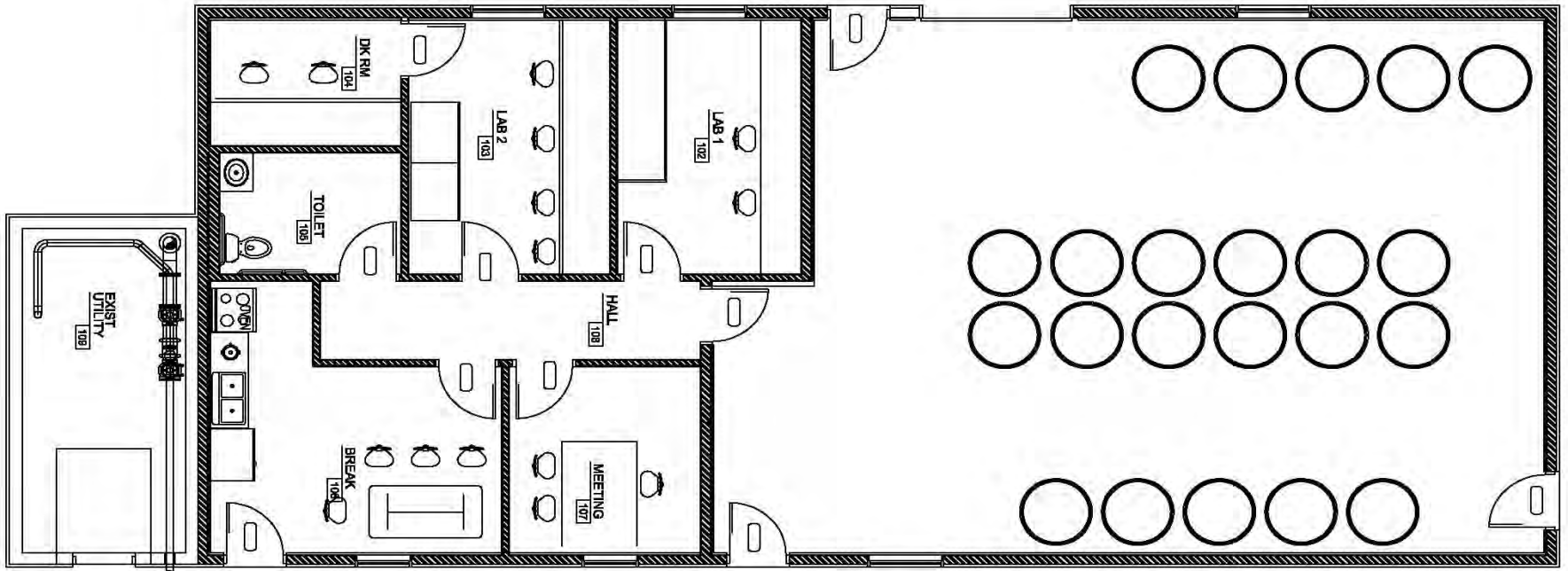
Project Approach and Plan



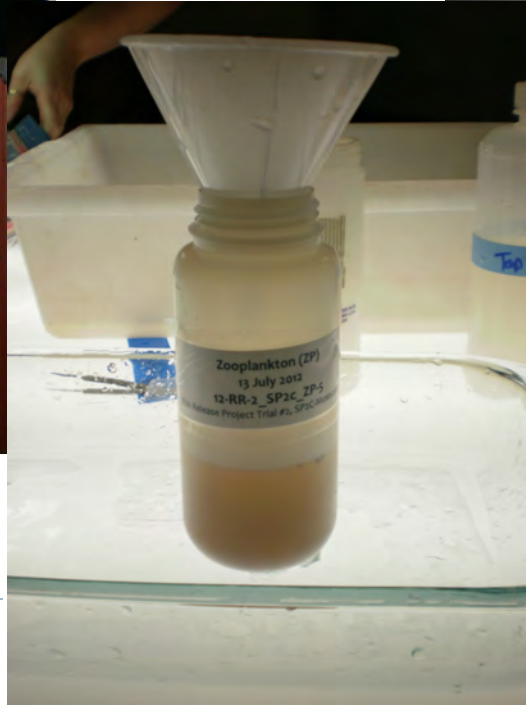
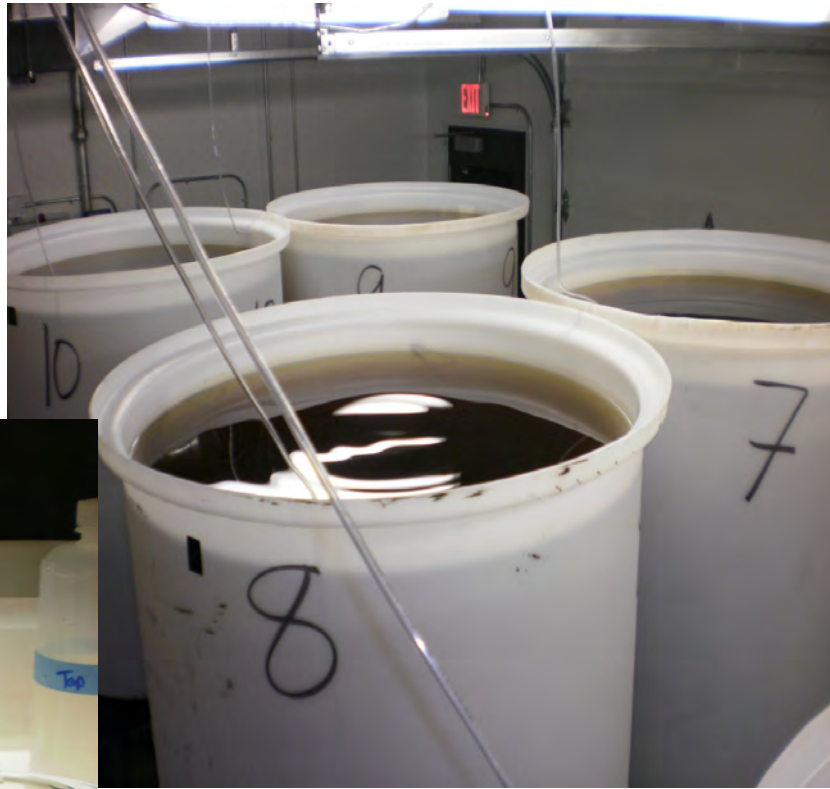
Projected Timeline

- ▶ Literature search, advisory group, model selection, initial test methods and protocols
 - ▶ Validation experiments, data analysis, review
 - ▶ Revised test methods and protocols
 - ▶ Additional validation experiments, analysis, findings
 - ▶ Report to GLPF
- ▶ December 2011- July 2012
 - ▶ July - February 2013
 - ▶ February - May 2013
 - ▶ May- December 2013
 - ▶ January 2014
-

Mesocosm Venue: GSI Laboratory 2



Mesocosm Experiments



Ship and Harbor Survey Approach

- ▶ Ship: Improve, validate and calibrate volume proxy approach for propagule pressure
- ▶ Harbor: Refine, and validate target species approach



Other:
Harmful Microbes Project Output

Independent Laboratory Status

THANK YOU!

greatshipsinitiative.org

