Mismatch between sea lamprey behaviour and trap location explains low trapping success

Rob McLaughlin
University of Guelph

Andrew Rous
University of Guelph

Adrienne McLean
University of Guelph

Gale Bravener
Fisheries and Oceans Canada

Tom Pratt
Fisheries and Oceans Canada

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https://scholarworks.umass.edu/fishpassage_conference/2017/June20/5
Presenter Information
Rob McLaughlin, Andrew Rous, Adrienne McLean, Gale Bravener, Tom Pratt, Jess Barber, Istvan Imre, Chris Holbrook, and Ted Castro-Santos
Mismatch between sea lamprey behaviour and trap location explains low trapping success

Rob McLaughlin, Andrew Rous, Adrienne McLean University of Guelph
Gale Bravener, Tom Pratt, Fisheries and Oceans Canada
Jess Barber, USFWS
Istvan Imre, Algoma University
Chris Holbrook, Ted Castro-Santos, USGS

@McLResearchLab
Acknowledgements
Context: Control of Invasive Species
A BETTER MOUSETRAP

BY CATHERINE HARRELL
Context: Conceptual Framework

Bravener + McLaughlin. 2013. CJFAS 70:1438-1446
Component of trapping

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Encounter</td>
<td>0.06 – 0.08</td>
</tr>
<tr>
<td>Entrance</td>
<td>0.10 – 0.33</td>
</tr>
<tr>
<td>Retention</td>
<td>1.0</td>
</tr>
<tr>
<td>N</td>
<td>662</td>
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</table>
Questions:

Probability of encounter is low because individuals:

- stop before reaching the trap location?
  - wall of generating station
- reach the wall, but are located away from the traps?
  - widely dispersed and attached
  - aggregated away from the traps

Probability of encounter is influenced by discharge
Methods: Site
Methods: Discharge Experiment
Methods: Acoustic Telemetry
Methods: Experimental Design
Results: Horizontal Space Use

Rous et al. 2017. CJFAS in press
Results: Vertical Space Use

Low discharge

High discharge

Rous et al. 2017. CJFAS in press
Conclusions:

Probability of encounter is low because individuals:

• stop before reaching the trap location?
  - wall of generating station

• reach the wall, but are located away from the traps?
  - widely dispersed and attached
  - aggregated away from the traps (spatial mismatch)

Probability of encounter is weakly influenced by discharge
Conclusions:

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- stop before reaching the trap location?
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Probability of encounter is weakly influenced by discharge
Significance
Questions
Context: Earlier Observation

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Bravener + McLaughlin. 2013. CJFAS 70:1438-1446
MATURE PROGENY

REPRODUCTIVE STOCK

BEVERTON and HOLT type

RICKER type