Great Lakes Mass Marking: *an Overview and Update*

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Great Lakes Mass Marking: an Overview and Update

Presentation outline:
• Goals, purpose, & methods
• Preliminary results
• Future plans
About 30 million salmon and trout stocked thought the Great Lakes annually.

Uncertainty:
- Movements?
- Growth rates?
- Natural reproduction?
- Stocking rates?
Various Methods for Tagging Studies

Why is Great Lakes mass marking unique?
Most Chinook salmon tagged, across the Great Lakes basin.
Great Lakes Mass Marking: 
*Marking Techniques*

Adipose Fin Clip  
Coded Wire Tag
Coded Wire Tag

This number tells us what hatchery, approximately where & when stocked?
Mass Marking: 4 Overlying Goals

1. Estimate levels of natural reproduction
2. Determine among- and within-lake movements
3. Measure growth & age at capture
4. Evaluate hatchery and stocking practices
Tagged at Hatcheries when Chinooks are small.
Tagged by U.S. Fish and Wildlife Service using Automated Trailers
Automated Tagging Trailers
Automated Tagging Trailers

Search: “Mass Marking in the Great Lakes”

Search: “Lake Michigan fish tagging machine”
Number of Chinook tagged & marked by USFWS for Lakes Michigan and Huron

<table>
<thead>
<tr>
<th>Year</th>
<th># Tagged &amp; Clipped</th>
<th>Efficiency (fish / hour)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>4,689,947</td>
<td>7,242</td>
</tr>
<tr>
<td>2012</td>
<td>3,931,206</td>
<td>8,288</td>
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Currently almost all hatchery Chinook and Lake Trout, eventually every hatchery fish?
Coded wire tags are recovered from:
Agency Surveys & Anglers

Length, weight, location, snout, etc.
Tags are extracted by USFWS

- Metal detector
- What hatchery, where & when stocked?
Chinook Natural Reproduction:  

CWT (newer study) vs. OTC (older study)
OTC Project Results...

OTC is fed to hatchery Chinooks, and it creates a mark on the vertebrate.
OTC Project Results

Year Sampled: 2007; 2008; 2009; 2010

Percent Wild (%)
Preliminary CWT Results, for movement...

Adipose Clip  Coded Wire Tag
Marinette / Menominee

N = 49 CWTs

Preliminary Results 2012:

★ = Sampling Location

● = Stocking Sites
Marinette / Menominee
N = 49 CWTs

Preliminary Results 2012:

4 States

★ = Sampling Location
● = Stocking Sites
Sampling Location = Stocking Sites

Preliminary Results 2012:

Marinette / Menominee
N = 49 CWTs

Lake Huron

★ = Sampling Location
● = Stocking Sites
Sturgeon Bay
N = 30 CWTs

Preliminary Results 2012:

★ = Sampling Location
● = Stocking Sites
Preliminary Results 2012:

Algoma
N = 14 CWTs

★ = Sampling Location
● = Stocking Sites
Preliminary Results 2012:

Kewaunee
N = 46 CWTs

★ = Sampling Location
● = Stocking Sites
Preliminary Results 2012:

Two Rivers
N = 11 CWTs

★ = Sampling Location
● = Stocking Sites
Manitowoc
N = 113 CWTs

Preliminary Results 2012:

★ = Sampling Location
● = Stocking Sites
Preliminary Results 2012:

Sheboygan
N = 7 CWTs

★ = Sampling Location
● = Stocking Sites
WI anglers catch Chinooks from many stocking locations!
CWT data will help us to evaluate growth rates & predator-prey balance.

slow growth?
CWT data will also help to evaluate hatchery and stocking practices for Chinooks. In the future, other species may also be evaluated using coded wire tags (depending on funds, etc.).
Possible Limitations

- A CWT number is assigned to each lot of stocked fish, not to each individual fish.
- $5.9 million annual operating budget.
Overall Conclusions

• Growth?
• Survival?
• Movement?
• Reproduction?

Use what we learn to guide management decisions!
 Acknowledgements

USFWS “Great Lakes Fish Marking Laboratory” in Green Bay – thanks!
Questions?

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