Economic Evaluation of Catch Share Program:  
Rhode Island Fluke Fishery Sector Pilot Program

Christopher M. Anderson  
(cma@uri.edu)  

Hirotugu Uchida  
(uchida@uri.edu)  

Andrew M. Scheld  
(ascheld@mail.uri.edu)

Department of Environmental and Natural Resource Economics  
University of Rhode Island

Poster prepared for presentation at the Agricultural & Applied Economics Association 2010  
AAEA, CAES, & WAEA Joint Annual Meeting, Denver, Colorado, July 25-27, 2010

Copyright 2010 by Anderson, Uchida, and Scheld. All rights reserved. Readers may make  
verbatim copies of this document for non-commercial purposes by any means, provided that this  
copyright notice appears on all such copies.
**Introduction: Fluke Fisheries in RI**

Current management scheme
- Federal government allocates TAC to the states.
- RI Department of Environmental Management (DEM) allocates quota to three sub-periods.
  - Winter (Jan-April), Summer (May-Oct), Winter II (Nov-Dec).
- Daily landings were restricted by the "possession limit" (aka daily trip limit).
- Varies from 500 to 1,200 lbs/week.
- Fishery closes when the sub-period quota is reached, and reopens the next sub-period.

**Inefficiencies of current scheme**
- Regulatory discards due to low possession limits.
- Forced to go out almost everyday due to low possession limits (safety issues).
- Derfishing.

**Fluke Sector Pilot Program**

**Main Research Questions**

- Are sector members better-off?
- Are non-sector members made worse-off?

<table>
<thead>
<tr>
<th>Location choice</th>
<th>Max catch/strip efficiency</th>
<th>Species targeted</th>
<th>Timing choice</th>
<th>Nearer &gt; fresher?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nearer, Weather conditions</td>
<td>Minimize Cost</td>
<td>Avoid bycatch = immature closure</td>
<td>Supply in response to market demand</td>
<td>Avoid market glut</td>
</tr>
</tbody>
</table>

**Evaluation of the Pilot Program**

Focus on the Revenue of Sector and Non-sector Vessels for 2009
- Fluke is divided into four market categories (jumbo, large, medium, other).
- Cost analysis is in progress.

**Challenge 1: Estimating Counterfactual**
- Need to estimate what the 2009 season would have been without the sector program.

**Challenge 2: Estimating Effects on Other Targeted Species**
- Based on the landing history of sector vessels, we included 20 other non-fluke species.

**Methodology Overview**
- Used SAFIS data from 2005-09 (price, species, market grade, vessel, dealer, day, etc).
- Reduced form estimation of 24 demand functions (4 fluke categories & 20 species).
- Ex-vessel price is a dependent variable.
- Estimated functions were used to predict the actual daily prices of sector vessels.
- For counterfactual, each sector vessel was matched to three non-sector vessels based on landing shares by species and number of fished days in 2008, and vessel attributes.
- Main assumption is that non-sector vessels did not alter their behavior in response to sector pilot program.
- Sector vessels 2009 counterfactual landings were calculated using the actual landing data of matched non-sector vessels.
- Plugged into estimated demand functions to generate counterfactual revenues.

**Matching “Fit” Using 2008 Data**

**Estimation Results**

- Actual, predicted, and counterfactual average revenues of 2009

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluke</td>
<td>$92,697</td>
<td>$31,208</td>
<td>$2,161</td>
<td></td>
</tr>
<tr>
<td>Predicted factual</td>
<td>$89,151</td>
<td>$32,024</td>
<td>$2,032</td>
<td></td>
</tr>
<tr>
<td>Counterfactual</td>
<td>$76,856</td>
<td>$30,689</td>
<td>$2,038</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>$285,775</td>
<td>$220,979</td>
<td>$6,159</td>
<td></td>
</tr>
<tr>
<td>Predicted factual</td>
<td>$287,234</td>
<td>$213,813</td>
<td>$6,968</td>
<td></td>
</tr>
<tr>
<td>Counterfactual</td>
<td>$277,135</td>
<td>$211,056</td>
<td>$6,686</td>
<td></td>
</tr>
</tbody>
</table>

- All non-sector boats included made at least 10 trips in 2009 and had less than 10% of their landing volume made up by lobsters.

**Distributive effect of changes in revenues among non-sector boats**

**Conclusion**

- Are sector members better-off? YES.
  - Fluke could benefit from sector program through reduced total landings when the fishery is open.
  - Other fisheries could be adversely affected as sector vessels landed other species while fluke is open to non-sector boats.

**Are non-sector members made worse-off?**

- Smaller scale state license boats did not gain much, but also did not lose much.
- Need more analysis on distributional effects.
  - Preliminary results show that for both non-sector types about half of them were better-off and the other half made worse-off.
  - The magnitude of change, however, was much larger for those who were made better-off.

**Contact Information:**
- Chris M. Anderson, Associate Professor (cma@uri.edu)
- Hiro Uchida, Assistant Professor (uchida@uri.edu)
- Andy M. Scheld, Graduate Research Assistant (ascheld@mail.uri.edu)