The Economic Value of Marine Recreational Fishing on the West Coast

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MRFSS economic add-on data analysis

- Southeast region (1997, 2000)
- Pacific region (1998)
- MRFSS benefits transfer project estimates and compares demand models for all other years of data
Objectives

• Estimate a demand model for the Pacific region (WA, OR, CA) with the 1998 MRFSS economic add-on

• Demonstrate how the model can be used for fishery policy analysis
West Coast 1998 (Valuation Round)

- Randomly chosen intercept anglers
- 96% intercept anglers responded to the economic add-on questions
- 76% of those responding agreed to be contacted for the telephone follow-up survey
- 7745 day trippers available for analysis
Nested Random Utility Model

Species/Mode Choice (15 combos)

- 13 WA Sites
- 7 OR Sites
- 12 NCA Sites
- 6 SCA Sites
Mode Choice
Shore: 21%
Private/Rental Boat: 58%
Charter/Party Boat: 21%
Species Choice
Big Game: 2%
Small game: 45%
Bottom Fish: 25%
Flat Fish: 7%

Halibut - *Hippoglossus hippoglossus*
Up to 200 cm
Site Choice
Washington: 17%
Oregon: 18%
Northern CA: 17%
Southern CA: 47%
Two-Stage Nested RUM
First Stage Nested RUM

Site Choice

- Travel and time costs
- Harvest rates
- Number of interview sites within county
Second Stage Nested RUM

Species/Mode Choice

Inclusive value:
Index of utility for species/mode
Independent Variables

Trip cost $439
Travel time 28 minutes
Number of interview sites in county 9

• Average over trips × sites: n = 36,554
Independent Variables: 5 year targeted historic mean harvest rates per trip

<table>
<thead>
<tr>
<th>Category</th>
<th>Rate</th>
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<tbody>
<tr>
<td>Big game</td>
<td>0.00064</td>
</tr>
<tr>
<td>Small game</td>
<td>0.11</td>
</tr>
<tr>
<td>Bottom fish</td>
<td>0.09</td>
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<tr>
<td>Flat fish</td>
<td>0.002</td>
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- Average over trips × sites: $n = 36,554$
<table>
<thead>
<tr>
<th>Variable</th>
<th>$\beta &lt; 0$</th>
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<tbody>
<tr>
<td>Trip cost</td>
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<tr>
<td>Trip time</td>
<td></td>
<td>$p &lt; .01$</td>
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<tr>
<td>Number of sites</td>
<td></td>
<td>$p &lt; .01$</td>
</tr>
<tr>
<td>Big game</td>
<td></td>
<td>$p &lt; .01$</td>
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<tr>
<td>Small game</td>
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<td>$p &lt; .01$</td>
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<tr>
<td>Bottom fish</td>
<td></td>
<td>$p &lt; .01$</td>
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<td>Flat fish</td>
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<td>$p &lt; .05$</td>
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<tr>
<td>Inclusive value</td>
<td>$0 &lt; \theta &lt; 1$ ($p &lt; .01$)</td>
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Willingness to Pay
WTP for a Day Trip (2000 $)

The graph illustrates the WTP for a day trip across different states and waves. The x-axis represents the states: WA, OR, NCA, SCA. The y-axis represents the WTP in 2000 dollars, ranging from 0 to 300. The different colors correspond to different waves: Wave 2 (green), Wave 3 (purple), Wave 4 (cyan), Wave 5 (yellow), and Wave 6 (brown).
WTP for a One-Fish Harvest Increase per Trip (2000 $)

- WA
- OR
- NCA
- SCA

Legend:
- Big
- Small
- Bottom
- Flat
Examples of Policy Analysis
WTP to avoid a 10% decrease in the number of trips

- WA: $8
- OR: $2
- NCA: $15
- SCA: $59
WTP for actual change in CA halibut catch

Thousands

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<tr>
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<th>2001 to 2002</th>
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<tr>
<td>NCA</td>
<td>$77</td>
<td>$42</td>
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<tr>
<td>SCA</td>
<td>$(17)</td>
<td>$24</td>
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Conclusions

• The MRFSS add-on data can be used to estimate demand models
• The demand models can be used to estimate monetary values for trips and harvest changes
• West coast MRFSS was discontinued in 2002.
• 1998 add-on data is the last available.