A Policy Tool for Evaluating Investments in Public Boat Ramps in Florida: A Random Utility Model Approach

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Recreational Boating

- 12 million registered recreational boats in US
- Florida has about 932,000 (8% of US)
- 25% of Florida boat trips are trailered boats launched at publically accessible ramps
- 588,000 trailered boats launched at publically accessible ramps in Lee County in 2007
Objectives

• Estimate demand for public boat ramps with marine access in Lee County, Florida
  – Link demand to ramp characteristics and
  – Link to characteristics of on-the-water sites

• Value ramp access & ramp characteristics

• Assess present value of social benefits of ramp investment opportunities facing planners
Parts

• Demand model for trailered boat sites
  – “RUM” Random Utility Model
  – Demand for sites and value of sites

• Using the models
Recreation Demand Model

- Random Utility Model
- Travel Cost Model
- 2-level Nested Logit
  - 35 Ramps
  - 71 Water sites
“RUM” Travel Cost

Assume an economist goes boating...

Which site is better?

10 miles

50 miles
RUM Travel Cost

Ramp attributes
parking
lanes
facilities
water sites from ramp

10 miles

50 miles
RUM Travel Cost

- 10 miles
- 50 miles
Trailer Boating Trip to Lee County

- Ramp 1
- Ramp 2
- Ramp k
- Ramp 34
- Ramp 35
Trailered Boating Trip to Lee County

Ramp 1

Ramp 2

......

Ramp k

......

Ramp 34

Ramp 35

Water Destinations from k
Survey and Trip Data

• Web panel survey of registered boaters
• 12 monthly interviews
  – Number of trips and location, etc.
• For model, use trips where boat was trailered to a publically accessible, marine access, ramp in Lee County, FL
Ramp and Water Sites Chosen

• Clickable mapping system for ramp and water sites used on trip
  – Also text info on site name and some other ramp info (govt, privat ramp)
• Locate/correct/code sites
• Link to ramp inventory data
For “launch site”
• From state map,
  – Click a county
• From county map,
  – Click a quadrant
• From quadrant map,
  – Click spot where boat was launched (a ramp)

For “water site”
• From map of water grids near launch site,
  – Click area on water
• From water area,
  – Click location spent most time or was most important
• End up with map like this that they selected a water site from

• Geo-referenced clicks
Travel Costs

• Travel costs = Driving cost per mile * miles + value of travel time + fees (bridges & entrance)

  – Time valued at household wage rate
  – Round trip distance computed using road network from home to kept location to ramp
  – Driving cost per mile for towing includes gas, maintenance & depreciation; excludes insurance

• Travel costs on water depend on boat size and distance
Other Data

- Water site data from FWC
- Ramp data from inventory
<table>
<thead>
<tr>
<th>Marine Water-Site Characteristic</th>
<th>Beta</th>
<th>$p&lt;0.01$</th>
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<tbody>
<tr>
<td>Navigational Aids</td>
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<td>Artificial Reefs</td>
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<td>Marine Protection/Conservation Zone</td>
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<tr>
<td>Mean Depth</td>
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<tr>
<td>Nearest Boat Ramp</td>
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<tr>
<td>Manatee Zone Present</td>
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<tr>
<td>Travel Cost</td>
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<td>Marine Access, Ramp Characteristic</td>
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<tr>
<td>Size of Parking Lot (1000’s)</td>
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<td>Condition of Parking Lot</td>
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<td>Number of Launch Lanes</td>
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<td>Water Sites Inclusive Value Index</td>
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<td>Travel Cost</td>
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</table>
Illustrate Model Uses

• Some realistic examples from Lee County
Ostega Dr. Ramp

- Ramp exists next to existing public ramp
- Not open due to regulatory constraint
- Worth it to pursue?
Value of adding public access to Ostega Dr.

- $16,856,000 from:
  - CS per trip for this site = $0.86 per trip
  - 588,000 countywide trailered boat trips to public access
  - Annual value = $505,680
  - Perpetuity (3% discount rate): PV = $16,856,000

Cost of ramp (fiction)

- $3,100,000 from:
  - $3,000,000 land (2 acres @ $1,500,000/acre)
  - $100,000 design, permitting and construction cost

Net present value = $13,756,000

BC ratio = 5.44
Hickory Bait & Tackle at Weeks Landing

• Private ramp that has public access, but

• potential for public access to be closed

• What the loss?
Hickory Bait & Tackle at Weeks Landing

– Value of keeping public access at Week Landing
  • $7,066,000 from:
    – CS per trip for this site = $0.36 per trip
    – 588,000 countywide trailered boat trips to public access
    – Annual value = $212,000
    – Perpetuity (3% discount rate): PV = $7,066,000

– Cost of ramp (fiction)
  • $1,225,000 from:
    – $1,125,000 land (.75 acre @ $1,500,000/acre)
    – $100,000 design, permitting and construction cost

– Net present value = $5,841,000
– BC ratio = 5.77
Outcomes

• Spatially explicit demand
  • Policy tool
  • Forecasting tool
  • Value of boating access and site features

• Can help planners evaluate investment opportunities
Acknowledgements

Conducted for:
Florida Fish and Wildlife Conservation Commission
myfwc.com

Funded by:

Thanks to: Jack Wiggin, Dan Hellin, Ed Mahoney, Dan Stynes, Steve Boutelle, and especially the many good folks at FWC