



NOAA
FISHERIES

The Value of Saltwater Recreational Fishing in Massachusetts: Separating Truth from Fiction

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In cooperation with the Massachusetts Division of Marine Fisheries and QuanTech, Inc.

Stated Preference Approach

- Elicit individual valuations through hypothetical surveys
 1. Maximum willingness to pay (wtp)
 - for a recreational fishing permit
 2. Minimum willingness to accept (wta)
 - to relinquish a recreational fishing permit

Valuation Issues

- Research generally indicates hypothetical WTA > WTP
- Difficult to determine if stated hypothetical responses are consistent with what a respondent would do if actually given the opportunity

Marine Recreational Fishing in Massachusetts

- Conducted a nonmarket valuation study in 2012 to compare angler values estimated from responses to hypothetical questions with values based on actual cash transactions

MA Recreational Fishing Permits

1st Mail Sample (HWTA)

- 700 anglers that purchased an early season 2012 MA fishing permit received hypothetical offers for their 2012 fishing permit (\$15 - \$500)

2nd Mail Sample (HWTP)

- 700 anglers received surveys that offered matched but hypothetical willingness to pay values (i.e., buy)

3rd Mail Sample (AWTA)

- 500 anglers received matched but actual cash offers for their 2012 permits
- Checks were mailed along with instructions that each angler should return either the check or their fishing permit
- Anglers in all samples were also asked to complete a short survey

Response Rates

Sample Type	Completed Survey (%)
Sample 1 (HWTA)	69
Sample 2 (HWTP)	68
Sample 3 (AWTA)	61
All	66

Weighted Acceptance Rates (Samples 1 & 3 - WTA)

Amount of Offer (\$'s)	Hypothetical Offers Acceptance Rate (%)	Cash Offers Acceptance Rate (%)
15	1	8
25	10	0
40	10	8
55	26	13
75	10	32
100	16	30
125	25	41
160	18	41
200	31	55
250	21	34
300	24**	63**
350	21***	83***
400	39	52
450	38*	67*
500	62	67

* Significance at 10% Level
 ** Significance at 5% Level
 *** Significance at 1% Level

Weighted Acceptance Rates (Sample 2 - HWTP)

Hypothetical Price (\$'s)	Acceptance Rate (%)
15	71
25	55
40	33
55	15
75	14
100	15
125	13
160	5
200	6
250	5
300	0
350	15
400	9
450	19
500	16

Logit Model

$$P(\text{AcceptOffer}) = 1 - \left\{ \begin{array}{l} 1 + \exp[\beta_0 + \beta_1(\text{\$offer}) \\ - \beta_2(\text{boatown}) \\ - \beta_3(\text{dayswillfish2012})] \end{array} \right\}^{-1}$$

Actual WTA Logit Model

	Coefficient	Standard Error	z
Constant	-1.01343***	0.28595	-3.54
Offer Amount	0.00782***	0.00117	6.66
Boat Ownership (1=owns, 0=does not)	-2.57596***	0.45603	-5.65
Days Will Fish 2012	-0.01861***	0.00692	-2.69

Note: *** = Significance at 1% level

McFadden Pseudo R-squared = 0.3180521

Value Comparisons

	Mean Value per Angler (\$'s)	95% Confidence Interval (\$'s)	Total Value (\$'s)
HWTA - sample 1	593	423 - 762	91.4 million (65.2 - 117.5 million)
HWTP - sample 2	80	53 - 106	12.3 million (8.2 - 16.3 million)
AWTA – sample 3	317	262 - 372	48.9 million (40.4 - 57.4 million)

Confidence Intervals: Krinsky-Robb method using 50,000 draws

154,167 angler permits issued in 2012

Questions?



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Publicity

- Boston Globe article
 - “In experiment, US offers up to \$500 for fishermen not to fish”
- Six other newspapers covered the study
- Letter to NOAA from U.S. Senator Scott Brown
- Study mentioned by a Congressman on the floor of the House Chamber during NOAA budget discussions
- Science Magazine printed a story about the study
- NOAA & MA DMR released press releases and had informational meetings with recreational fishing constituents

- Primary concerns
 - Results will be used to raise permit fee
 - NMFS buyback under the guise of research
 - Results will be biased because of publicity (12 obs deleted)

Sample 1 – Checks Cashed

- \$73,690 in checks mailed to anglers
 - \$26,290 cashed (36%)
 - \$47,400 returned (64%)
- 4 anglers cashed check, kept license, and did not complete survey
- 12 anglers cashed check, kept license, and completed survey
(3% of the total sample frame)