Surveying Louisiana waterfowl hunters: Open web and random mail surveys produce similar responses to attitudinal questions

Pathways to Success

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Stakeholders want input!

- Commission meetings
- Public meetings
- Advisory boards

Above are non-probability “convenience samples”

_Scientifically-designed random surveys are generalizable and set the “gold standard”_
Challenges in survey research

• Personal interviews require specialized training and limit sample size
• Telephone surveys “decimated” by “do not call”, unlisted numbers, and “cell-only” users
• Response rates to mail surveys declining
• Potential for bias increasing
• Time and cost increasing
• Financial, logistical, and political constraints
Web surveys – potential advantages

1. Faster
2. Easier
3. Less Expensive
4. Better for certain objectives
Web surveys – potential problems

1. Coverage error

2. Non-response bias

3. Stakeholder bias
Hypotheses

• Respondents to random mail vs. open web surveys differ significantly in effort, success, satisfaction, and demographics

• Respondents to random mail vs. open web surveys do not differ significantly in attitudes about proposed regulatory actions
2010 Survey of Louisiana Waterfowl Hunters

• 2 formats
  – Random mail survey (2,500 of 71,724 HIP registrants)
  – Open web survey (hosted on LDWF website and promoted via public media and e-mails)

• 42 identical questions
  – Hunting effort and success
  – Satisfaction
  – Attitudes toward proposed regulatory actions
  – Demographics
# Survey Responses

<table>
<thead>
<tr>
<th>Survey Type</th>
<th>Hunted Last 5 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web survey</td>
<td>949</td>
</tr>
<tr>
<td>Mail survey</td>
<td>727*</td>
</tr>
<tr>
<td>Total</td>
<td>1,676</td>
</tr>
</tbody>
</table>

* 34% adjusted response rate
## Comparison of effort, success & satisfaction

<table>
<thead>
<tr>
<th>Category</th>
<th>Variable</th>
<th>Web Survey</th>
<th>Mail Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effort</td>
<td>Days hunted</td>
<td>19.3</td>
<td>12.6</td>
</tr>
<tr>
<td></td>
<td>Hunted on WMA</td>
<td>38%</td>
<td>23%</td>
</tr>
<tr>
<td></td>
<td>Seasons hunted waterfowl in past 5</td>
<td>4.6</td>
<td>4.1</td>
</tr>
<tr>
<td>Success</td>
<td>Waterfowl harvested</td>
<td>52.3</td>
<td>28.7</td>
</tr>
<tr>
<td></td>
<td>Days limited out</td>
<td>5.8</td>
<td>3.6</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>Quality of waterfowl hunting last season</td>
<td>2.6</td>
<td>3.2</td>
</tr>
</tbody>
</table>
Comparison of Demographics

<table>
<thead>
<tr>
<th>Category</th>
<th>Variable</th>
<th>Web Survey</th>
<th>Mail Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographics</td>
<td>Gender (% male)</td>
<td>99%</td>
<td>90%</td>
</tr>
<tr>
<td></td>
<td>LA resident</td>
<td>95%</td>
<td>88%</td>
</tr>
<tr>
<td></td>
<td>Age</td>
<td>42.4</td>
<td>42.6</td>
</tr>
<tr>
<td></td>
<td>Delta or DU member</td>
<td>58%</td>
<td>33%</td>
</tr>
<tr>
<td></td>
<td>Lifetime license holder</td>
<td>37%</td>
<td>11%</td>
</tr>
<tr>
<td></td>
<td>Waterfowling one of “most important” activities</td>
<td>85%</td>
<td>66%</td>
</tr>
</tbody>
</table>

Only age is similar!
Louisiana currently has an East and West zone, each with split seasons. Which of the following would you prefer for duck season?

- The current system of 2 (East and West) zones: 36% Web, 34% Mail
- A new system of 2 (North and South) zones with 2...: 17% Web, 23% Mail
- No zones (a statewide season) with 3 split seasons: 28% Web, 29% Mail
- No opinion: 13% Web, 20% Mail

Similar responses!
Which combination of season length and bag limit would you prefer for duck season?

- **60 day - 6 ducks w/ sub-limits**: 88% (Web Survey), 84% (Mail Survey)
- **40 day - 4 ducks w/o sub-limits**: 8% (Web Survey), 7% (Mail Survey)
- **No opinion**: 4% (Web Survey), 9% (Mail Survey)

Similar responses!
Please indicate whether you support or oppose the following policy actions:

Prohibiting use of electronic spinning-wing decoys.

Some differences at extremes!
Please indicate whether you support or oppose the following policy actions:

Ending waterfowl shooting hours at noon each day.

- **Strongly Support**: 17% (Web Survey), 11% (Mail Survey)
- **Support**: 16% (Web Survey), 15% (Mail Survey)
- **Neutral**: 15% (Web Survey), 12% (Mail Survey)
- **Oppose**: 23% (Web Survey), 22% (Mail Survey)
- **Strongly Oppose**: 35% (Web Survey), 34% (Mail Survey)

Very similar opposition!
Binary Logistic Regression

• Designed for analysis of large samples (>400)

• Tests the ability of the independent variables to accurately predict survey mode (web or mail)

• Tested 2 models with different independent variables – one with effort, success satisfaction and demographics; the other with attitudinal variables -- both significant \( (P = < 0.001) \)

• Evaluated predictive accuracy using the Maximum Chance Criterion \( (C_{\text{MAX}}) \)
Can we predict survey method by logistic regression of 13 variables representing effort, success, satisfaction, & demographics?

<table>
<thead>
<tr>
<th>Observed Survey Type</th>
<th>Predicted Survey Type</th>
<th>Percentage Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Survey</td>
<td>Web Survey</td>
<td>78.8</td>
</tr>
<tr>
<td>Mail Survey</td>
<td>Mail Survey</td>
<td>71.4</td>
</tr>
<tr>
<td>Correctly Predicted</td>
<td></td>
<td>75.5^a</td>
</tr>
</tbody>
</table>

^a Maximum Chance Criterion = 69.0%  
\[ R^2 = 0.41 \]  

YES!
Can we predict survey method by logistic regression of 10 variables representing attitudes toward proposed regulatory actions?

<table>
<thead>
<tr>
<th>Observed Survey Type</th>
<th>Predicted Survey Type</th>
<th>Percentage Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Web Survey</td>
<td>Mail Survey</td>
</tr>
<tr>
<td>Web Survey</td>
<td>304</td>
<td>93</td>
</tr>
<tr>
<td>Mail Survey</td>
<td>164</td>
<td>135</td>
</tr>
<tr>
<td>Correctly Predicted</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Maximum Chance Criterion = 71.2%

\(R^2 = 0.13\)

NO!
Practical significance – what’s the conclusion?  
(Likert scale collapsed to support vs. oppose)

<table>
<thead>
<tr>
<th>Policy Issue</th>
<th>Web Survey</th>
<th>Mail Survey</th>
<th>Direction</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hunt whistling ducks during early teal season</td>
<td>86% 14%</td>
<td>80% 20%</td>
<td>Same</td>
<td>Support</td>
</tr>
<tr>
<td>An early season for resident Canada geese</td>
<td>85% 15%</td>
<td>81% 19%</td>
<td>Same</td>
<td>Support</td>
</tr>
<tr>
<td>Ending waterfowl hunting at noon each day</td>
<td>37% 63%</td>
<td>31% 69%</td>
<td>Same</td>
<td>Oppose</td>
</tr>
<tr>
<td>Prohibiting use of electronic spinning wing decoys</td>
<td>30% 70%</td>
<td>16% 84%</td>
<td>Same</td>
<td>Oppose</td>
</tr>
<tr>
<td>Limiting hunters on WMAs daily</td>
<td>51% 49%</td>
<td>56% 44%</td>
<td>Same</td>
<td>Support</td>
</tr>
<tr>
<td>Conducting daily draws on WMAs</td>
<td>44% 56%</td>
<td>46% 54%</td>
<td>Same</td>
<td>Oppose</td>
</tr>
<tr>
<td>Legalizing commercial guides on WMAs</td>
<td>10% 90%</td>
<td>16% 84%</td>
<td>Same</td>
<td>Oppose</td>
</tr>
<tr>
<td>Designating “limited access areas” on WMAs</td>
<td>73% 27%</td>
<td>75% 25%</td>
<td>Same</td>
<td>Support</td>
</tr>
</tbody>
</table>
2010 Survey of Louisiana Waterfowl Hunters

Hypotheses

Respondents to random mail vs. open web surveys differ significantly in effort, success, satisfaction, and demographics

Respondents to random mail vs. open web surveys do not differ significantly in preferences for policy actions

Fail to Reject!
Conclusions

1. Open web surveys may not produce representative responses to questions about hunter effort and harvest

2. Web and mail survey responses to attitudes about waterfowl hunting were notably similar and would likely lead managers to the same policy conclusions
Similar findings!

Peterson and Messmer 2010, JWM

*Surveys conducted at public hearings and by random mail identified similar attitudes toward winter feeding of mule deer*

Cornicelli and Grund 2011, HDW

*Surveys of Minnesota deer hunters by random mail, public meetings, and open web revealed minimal differences in attitudes among respondents*
Similar findings!

Gigliotti 2011, HDW

Surveys of South Dakota turkey hunters by random mail and open web identified no significant differences in hunter attitudes by survey method, and management decisions based on either survey would likely be similar.
Management Implications of Web Surveys

- Easier, faster, less expensive, better for certain objectives
- Facilitate broader participation and inclusiveness
- Can be used to identify emerging issues and refine management alternatives
- When broad-based and widely promoted, open web surveys appear to provide generalizable information on *attitudes* to proposed regulatory actions
Acknowledgements

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• Delta Waterfowl Foundation
References


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