Evaluating the Internet for Collection of Scientific Data (Use, Harvest, and Attitudes)

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Mail Surveys

• $3 per survey (printing, mailing & encoding)
• 3,200 mail surveys (2011)= $9,600
• 2 months required
Internet Surveys

Cheaper & Faster
Objective

Identify inexpensive way to correct two major biases in Internet surveys:

1) Incomplete coverage: everyone in population must have equal chance of participating
2) Low response rates vs. mail surveys
2011 Internet Biases

The graph shows the percentage of internet biases for different categories:

- Resident Annual
- Resident Combination
- Resident Senior Combination
- Nonresident Annual
- Nonresident Family
- Nonresident One-Day
- Nonresident Three-Day

The bars are color-coded:
- Blue: Without E-mail
- Red: Non-Respondents
Mail Samples

No E-mail
- Without Internet
- Not in database
- 48% in 2011

Internet Non-Response
- Choice
- Could not access
- 66% in 2011
All License Holders \((n=180,654)\)

- **E-mail Provided**
  - E-mail Surveys Sent \((n=66,978)\)
    - E-mail Response Sample \((n=23,025)\)
    - Non-Respondents
      - Mail Surveys Sent \((n=1,600)\)
        - Internet Non-Response Sample \((n=776)\)
  - E-mail Not Provided
    - Mail Surveys Sent \((n=1,600)\)
    - No E-mail Sample \((n=744)\)

E-mail Sample \((n=23,025)\)

Mail Surveys Sample \((n=1,600)\)

No E-mail Sample \((n=744)\)
Survey Questions

• Harvest estimates
• Resource use
• Customer service
• Access quality
• Satisfaction
Significant 21%
Not Significant 79%

Internet (E-mail) vs. No E-mail (Mail)

93% of significant analyses had small effect size
95% of significant analyses had small effect size.
Resident Senior License

Internet vs. No E-mail
Cramer’s V: 0.155
P<0.001

Internet vs. Non-Response
Cramer’s V: 0.104
P<0.001

![Bar Chart]

- Internet: 88.9
- No E-mail: 74.2
- Internet Non-Response: 76.6
Resident Junior License

Internet vs. No E-mail
Cramer’s V: 0.144
P = 0.005

Internet vs. Non-Response
Cramer’s V: 0.116
P = 0.024
No E-mail (Mail) vs. Non-Response (Mail)

93% of significant analyses had small effect size.
Resident Junior License

Cramer’s V: 0.262

\[ P = 0.014 \]
Resident Annual License

Cramer’s V: 0.210
P=0.025
Nonresident Family License

Cramer’s V: 0.212

\[ P = 0.002 \]
2011 Summary

• No E-mail & Internet Non-Response different
• Few significant differences between samples
• Effect sizes mostly small
• Effect sizes for estimates of entire population multiplied
• Biased data collected & not corrected= unrepresentative data
Pending Research

• Will observed biases remain stable?
  – Fished/Fished by location
  – Gender
  – Boat fishing

• Use Internet surveys in conjunction with known population characteristics?
  – Previous survey data
  – Demographics
  – Abbreviated correction surveys
Angler Comments

• “In case you missed it, there was flooding on the Missouri river.”
• “Minnesota allows 90 year-olds to fish for free.” (89 year old South Dakota angler)
• “Keep up the good work GF & P!”
• “Fishing was excellent last summer. Thanks!”
• “I bought a license because my kids want to fish.”