FISH CONSUMPTION SURVEY FOR TRIBES IN IDAHO

USEPA Region 10 Webinar

February 27, 2014

SPEAKERS: THE SURVEY TEAM

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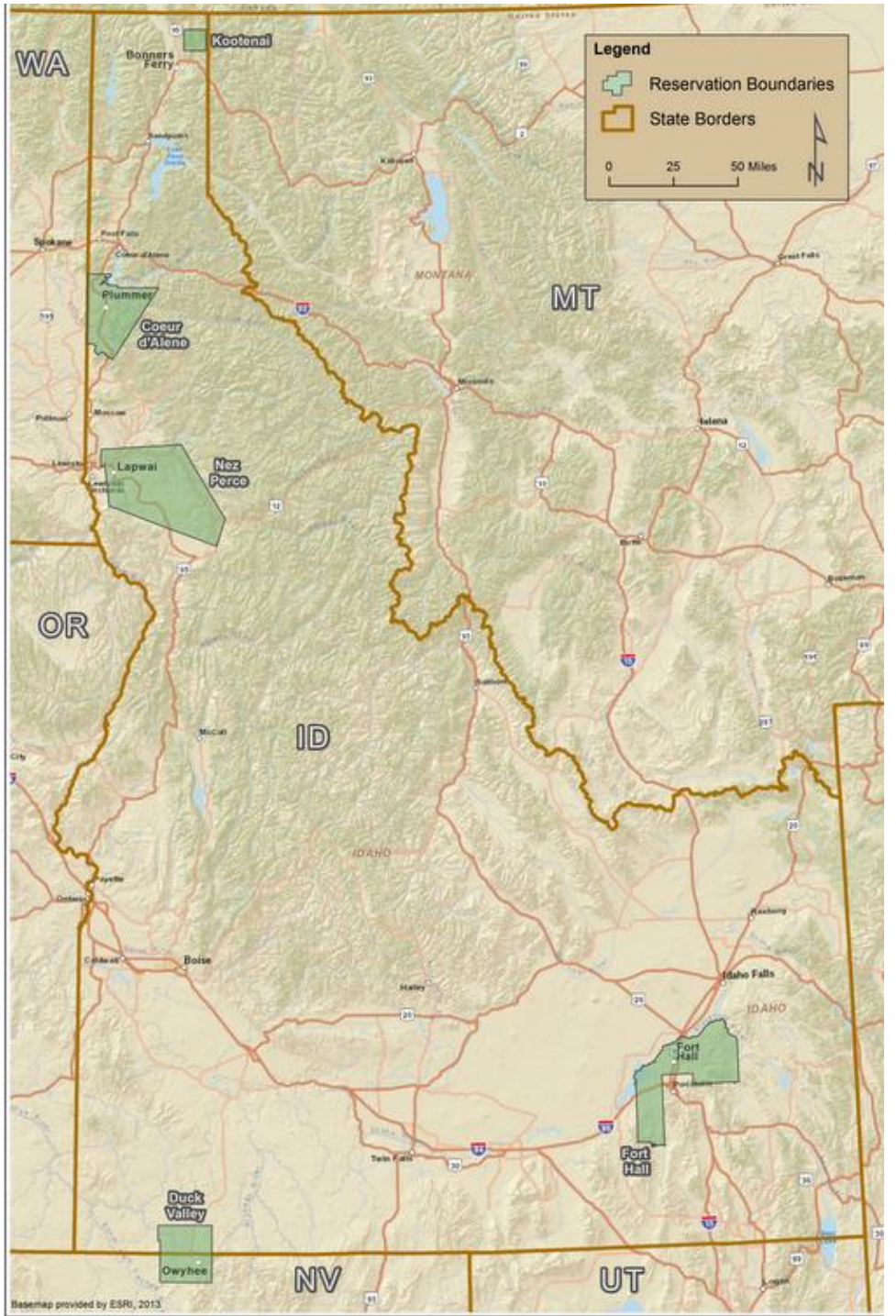
WEBINAR OVERVIEW

1. Background and Context
2. Tribal Survey Design Features
3. Current Status and Next Steps
4. Discussion/Questions & Answers

Prepared by TMWL, Ridolfi, and PMR for U.S. Environmental Protection Agency through SRA Contract EP-W09011, Task Order 125

TRIBES IN IDAHO

- Kootenai Tribe of Idaho
- Coeur D'Alene Tribe
- Nez Perce Tribe
- Shoshone-Bannock Tribes (Fort Hall)
- Shoshone-Paiute Tribes (Duck Valley)



BACKGROUND & CONTEXT

Purpose of the Tribal Surveys

- Determine current and heritage fish consumption rates (FCRs)
- Understand causes of and reasons for suppression and hopes for the future
- Potential use in development of Tribal water quality standards
- Potential use by Idaho DEQ

BACKGROUND & CONTEXT

Differences in Surveys across Tribes

- Some Tribes may elect not to conduct a current survey
- Others may conduct both a current survey and a heritage study
- Sample size for current survey varies according to Tribe

BACKGROUND & CONTEXT

Survey Design Process

- Collaboration with Tribes, EPA, and ID DEQ
- Research on other surveys
- Develop statistical methodology

Survey Review Process

- Tribal and EPA review and input; Tribal approval of design
- Institutional Review Board (IRB) and EPA human subjects approvals

BACKGROUND & CONTEXT

Tribal Schedule (12-month data collection)

4/30/15 – Preliminary FCR to ID (based on FFQ, not peer reviewed)

7/15/15 – Draft FCR to ID (based on all data, not peer reviewed)

9/30/15 – Final Tribal FCR
Report to ID

Idaho DEQ Schedule

5/20/ 15 – ID peer review begins

8/4/15 – ID Bulletin publication of proposed rule

10/4/15 – Close of ID public comment period

TRIBAL SURVEY DESIGN

Heritage Rate Study

- Evaluate historical and recent literature
- Develop range of rates

Current Rate Study

- Conduct interviews with Tribal members
- Food Frequency Questionnaire (FFQ)
- 24-hour dietary recall (NCI)

TRIBAL SURVEY DESIGN

Similarities with ID DEQ's Survey

- Sample of adults (18+)
- 24-hour dietary recall
- FFQ (12-month assessment)
- Inquiries of species types, portion sizes, cooking methods, and source of fish consumed
- Collects data on consumption rates of resident and anadromous fish

TRIBAL SURVEY DESIGN

Differences in Design from ID DEQ's Survey

- In-person interviews (plus screening and follow-up by telephone), including use of 3-D portion models
- Longer interviews (approximately 1 hour)
- No 7-day recall
- No separate Angler survey – Anglers are included in overall Tribal survey

Source: http://www.shopaitribes.org

TRIBAL SURVEY DESIGN

Differences in Inquiries from ID DEQ's Survey

- Consumption during high and low consumption periods, if applicable (according to respondent)
- Consumption during special events (e.g., feasts, celebrations)
- Fishing activities
- Opinions on changes in fish consumption and fishing over time

TRIBAL SURVEY DESIGN

Sample Size

- Sample size determined by combination of desired precision and budget
- Precision of rates was estimated using lognormal models
- Sample size varies per Tribe from under 100 up to hundreds
- To support NCI method, a larger sample will be drawn from Tribe(s) expected to have higher fish consumption
- Results reported per Tribe; no “all-tribes” rate

TRIBAL SURVEY DESIGN

Eligible Population

- Adults age 18+ will be identified from Tribal enrollment rosters in collaboration with the Tribes
- Eligible population limited to those residing within a reasonable travel distance of 1-2 Tribal population centers
- Potential respondents will be screened (by telephone) to identify non-consumers and frequent fish consumers

TRIBAL SURVEY DESIGN

Sample Stratification

- Sampling will be stratified by age and gender (from Tribal roster) and frequency of fish consumption (identified from telephone screening)
- Screening will include 4-5 times as many Tribal members as will be ultimately interviewed
- To support the NCI method, frequent fish consumers (e.g., = or > 2 days/week) will be oversampled
- Statistical weighting during analysis will be used to adjust for over-sampling and yield unbiased estimates; this is standard survey practice

TRIBAL SURVEY DESIGN

Data Collection

- Interviews will be carried out in waves spread across the duration of the survey to capture seasonal variation
- Each wave will approximately reflect the composition of the Tribe by age, gender, and frequency of consumption
- Tribal anglers will be included, as identified in the interviews (through the questionnaire)
- A separately identified sub-population of Tribal anglers may be available and interviewed for at least one Tribe
- Sub-sample of respondents will be re-interviewed by phone (selected FFQ questions) for consistency of response

TRIBAL SURVEY DESIGN

Analysis and Reporting

- FFQ rates and (if feasible) NCI-based rates will be reported per Tribe
- Key rates will be mean, median and various percentiles, including the 90th and 95th percentile
- Rates will be reported for all species and sub-groups of species and by demographic groups, anglers and other specified sub-populations—more limited reporting from NCI analysis
- Peer review (by various experts) will be carried out simultaneous with Tribal and other internal reviews
- Data analysis and reporting

TRIBAL SURVEY DESIGN

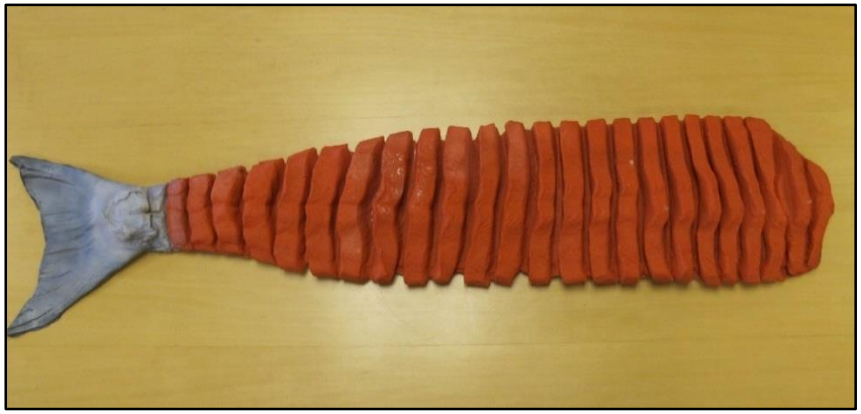
Uncertainty in Rates

- A confidence interval ("margin of error") provides a plausible range for a reported rate
- Example: fish consumption rate = 136 g/day; the 95% confidence interval = 95 g/day to 186 g/day
- Interpretation: best estimate of FCR is 136 g/day; we are 95% confident that the true rate is between 95 and 186 g/day
- Confidence intervals will be provided for key FCRs, such as mean, median, 90th percentile, 95th percentile
- Confidence intervals will be calculated using large-sample theory, the bootstrap or nonparametric methods

TRIBAL SURVEY DESIGN

Questionnaire Development

- Questionnaire (screening, 24-hour recall, FFQ)
- Photographs (species, portions)
- Portion displays (rubber model, measuring bowls)
- Tribal interviewers
- Pilot testing



Tribal Survey Questionnaire: Example questions

1. "Please think about the first time you ate yesterday; when was that (name the eating occasion)? Did you eat fish during that occasion (which includes finfish, shellfish, and seafood)? Consider all meals and snacks, including fish within dishes such as soups. Include fish bought from a store, from a restaurant, or caught by you or someone else. Did you eat fish?"

2. "What type of fish did you eat?" (See species display)

   2a. "How much of _(Species X)_ did you eat?" (See quantity display)

   2b. "How was _(Species X)_ prepared or cooked? (Check box in table)

   2c. "Where did _(Species X)_ come from? Was it from a market or store? From a restaurant? Or was it caught? If caught, was it caught in Idaho waters or outside of Idaho?" (Check box in table)

TRIBAL SURVEY DESIGN

Administering the Survey

- Interviewer recruiting and training
- Outreach / contact with respondents
- Interviews in homes and/or central locations
- Recording responses,
  re-interviews
- Confidentiality

TRIBAL SURVEY DESIGN

Data Management

- Data entry and coding
- Validity checks (QA/QC)
- Data storage, backup, transfer, archive
- Confidentiality of sensitive data

Source: http://www.nezperce.org

STATUS & NEXT STEPS

- IRB and human subjects approval
- Recruit and hire Tribal interviewers
- Pilot testing of Questionnaire
- Data collection/interviews

DISCUSSION QUESTIONS?