



NOAA
FISHERIES

Alaska Saltwater Sportfishing Economic Survey

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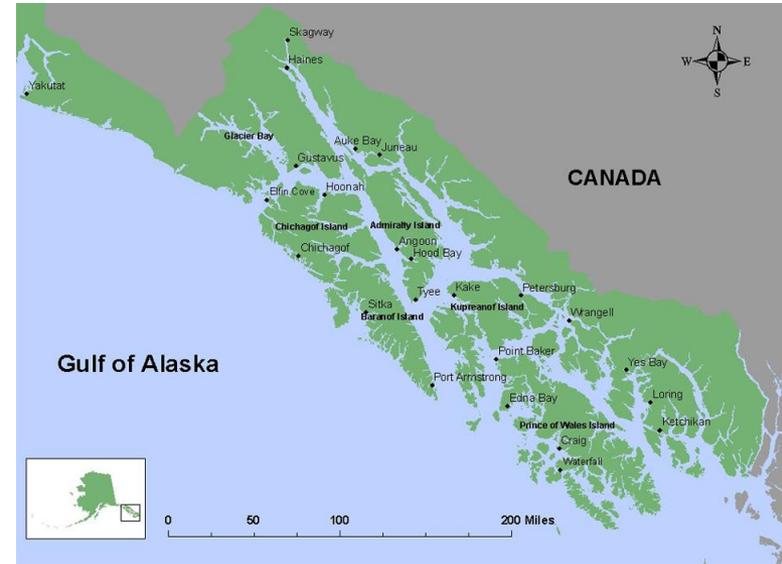
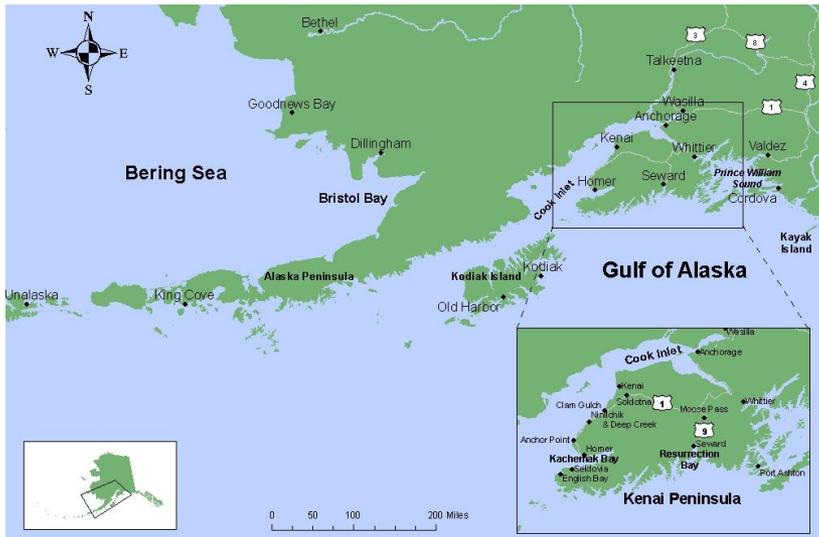
Project Overview

- Objective: To collect revealed preference (RP) and stated preference (SP) data for estimating the demand and value of saltwater sport fishing in Alaska
- Methods: Repeated mail survey with telephone follow-up sent to three sample strata
- Distinct angler populations
 - Non-residents
 - Southeast Alaska residents
 - Other (Southcentral) Alaska residents
- Developed with Doug Larson (UC Davis)

Saltwater Sport Fishing in Alaska

Two major regions

- **Southeast Alaska**
- **Southcentral Alaska**



Characteristics of sport fishery:

- In 2009, over 197,000 residents and 250,000 non-residents bought fishing licenses
- Each year, over 400,000 **halibut**, 80,000 **king salmon**, and 400,000 **silver salmon** are harvested in saltwater (about 60% of halibut caught on charter boats)
- Non-residents fish in both regions
- Alaska resident anglers almost entirely fish in the region in which they live

Why Project is Needed

- NMFS has responsibility for managing the Pacific halibut sport fishery off Alaska
 - International Pacific Halibut Commission (IPHC)
 - North Pacific Fisheries Management Council (NPFMC)
 - Alaska Department of Fish and Game (ADF&G)
- Allocation issues have led to the numerous policy changes in recent years
 - Guideline harvest limits (GHLs)
 - Changes to bag limits and minimum size restrictions
 - Limited entry of guided charter boat fishing
 - Catch sharing plan
- Little information on the value of saltwater sport fishing for halibut for individual areas of Alaska and by type of angler (resident/non-resident)

Reason for Special Study

- MRFSS/MRIP does not provide coverage of Alaska for regular collection of economic behavior and preference information
- ADF&G collects data on harvest and catch of species, but the data are insufficient for use in recreation demand modeling
- Collection of both SP and RP data make it possible to combine sources of information for more complete understanding of behavior and preferences

Survey Design and Testing

- 16 page mail questionnaire w/ maps that define Southcentral and Southeast AK
- 3 main versions based on residency (sample stratification)
 - Non-resident (NR)
 - Southeast Alaska (SE)
 - Rest of Alaska mostly Southcentral Alaska (SC)
- Different sub-versions of each survey version allow variation in the levels of each attribute in SP choice questions
 - 20 sub-versions each of NR and SC and 16 sub-versions of SE
 - Experimental design chosen to maximize statistical efficiency (D-efficiency)
- Survey development and testing (2004-2006)
 - Focus groups and cognitive interviews conducted in Alaska (Anchorage, Juneau, Fairbanks) and in the lower 48 (Portland, Seattle, Phoenix)
 - Small pretest implementation conducted in 2006

Survey Implementation

- Conducted from January-June 2007
- Modified Dillman mail-telephone survey
 - Advance letter
 - Initial mailing w/ \$1 incentive
 - Reminder postcard
 - Second full mailing
 - Follow-up telephone call
- Sampling frame
 - 2006 ADF&G fish license data file – non-residents and Alaskans <65
 - ADF&G Permanent ID database – Alaska residents 65+
- Initial mailing sample of 4,000 (3,680 deliverable)
 - 1,900 Non-resident anglers (1,115, rr = 61.9%)
 - 900 SE Alaska resident anglers (435, rr = 53.4%)
 - 1,200 other Alaska resident anglers (559, rr = 52.2%)

Description of the Data

- Revealed preference data for season and for most recent trip
 - Where do people saltwater fish in Alaska? (locations)
 - How often do people saltwater fish in Alaska (by mode)? (trips/days)
 - What do they fish for and how much do they harvest of each?
 - Travel cost-related questions (transportation modes used, length of trip, etc.)
- Stated preference data
 - Responses to four SPCE questions
- Trip-level expenditure data for most recent trip
- Demographics and labor market constraints

SPCE Question Example

D6 Consider the three choices in the table. Below the table, indicate which of these three choices you like best and which you like least.

	Choice A	Choice B	Choice C
Fishing location	Southcentral	Southeast	Do something other than Alaska saltwater fishing
Number of fishing days	2	2	
Fish targeted	Halibut	Halibut	
Daily bag (take) limit <i>Number of fish you can keep each day</i>	1	3	
Catch per day <i>If your catch is more than the limit, some fish are released</i>	2	4	
Average size of fish caught	80 lbs.	40 lbs.	
Fish targeted	King salmon	Silver salmon	
Daily bag (take) limit <i>Number of fish you can keep each day</i>	3	6	
Catch per day <i>If your catch is more than the limit, some fish are released</i>	1	1	
Average size of fish caught	50 lbs.	12 lbs.	
Fishing trip cost per person (ALASKA-ONLY COSTS) <i>Can include transportation, food, lodging, and other fishing-related costs in Alaska</i>	\$700	\$1000	

Which do you like **best**?
Check one box ----->

Choice A

Choice B

Choice C

Which do you like **least**?
Check one box ----->

Challenges

- General
 - Recall issues and survey timing
 - Non-response behavior
- Travel costs and primary purpose trip-taking
 - Inability to calculate individual-level non-resident travel costs (need more info)
- Sophisticated individual-level recreation demand models are data-intensive
 - Use of means instead of individual catch/harvest per site due to counterfactuals
 - Calculate individual travel costs for sites not visited
 - Calculating these things takes time, often requires making assumptions that introduce measurement errors

Challenges (cont.)

- Diversity of saltwater fishing trips by different angler types require different modeling approaches
 - Single-day Southeast Alaska private boat fishing trips for king and silver salmon
- Trip expenditures
 - Double-counting
 - Defining the number of people for whom the expenditure was made
- Stated preference questions
 - Defining the good (including the appropriate trip costs)
 - Changing regulatory landscape
 - Focus only on existing anglers, not potential ones

Current Products

- Technical memorandum
 - “Saltwater Sport Fishing in Alaska: A Summary and Description of the Alaska Saltwater Sport Fishing Economic Survey, 2007” (with J. Lee and D.M. Larson). U.S. Dept of Commerce, NOAA Technical Memorandum NMFS-AFSC-214, 229 pages, 2010.
- Recreation demand modeling papers
 - “A Repeated Mixed Logit Approach to Valuing a Local Sport Fishery: The Case of Southeast Alaska Salmon” (with D.M. Larson). In press at *Land Economics*.
 - “The Consequences of Value of Time Assumptions in Recreation Demand” (with D.M. Larson). Under review.
- Stated preference paper
 - “Angler Preferences for Saltwater Fishing in Alaska: A Stated Preference Analysis” (with D.M. Larson). Under review.
- Recreation demand and economic impacts
 - “The Economic Impact of Saltwater Sportfishing Harvest Restrictions in Alaska: An Empirical Analysis of Nonresident Anglers” (with C.S. Cheung). *North American Journal of Fisheries Management*, 30: 538-551, 2010.

Future Analyses

- Recreation demand modeling of resident anglers' saltwater fishing in Southcentral Alaska
 - Location choice, duration, fishing mode, etc.
- Further analyses of SP data to account for limit-specific marginal effects
- Combining RP/SP data

Future Study: Survey Update

- Some design changes to better facilitate calculation of non-resident travel costs in NR version
- Modified SPCE questions to address new regulatory tools being considered and implemented (fish size limits)
- Seeking OMB clearance under the Paperwork Reduction Act (PRA)
- Expected field start date: Dec 2011 or Jan 2012
- Regular updates are needed to assess changes in behavior and preferences by Alaska saltwater anglers