Appendix A: Survey Descriptions And Questionnaires

Description of Surveys

ISER conducted three surveys in 1993 and 1994 for this study of sport fishing in Alaska: a telephone survey of resident sport anglers, a mail survey of non-resident sport anglers, and a mail-out telephone survey of guide and charter businesses.

Residents

ISER conducted a statewide telephone survey of Alaska resident sport fishermen collecting information on sport fishing expenditures and trip characteristics. ISER used the data from this survey to construct the resident travel cost model and measure sport anglers’ willingness to pay for sport fishing opportunities. The data was also used to calculate the level of resident expenditures associated with sport fishing activity in the state.

SAMPLE DESIGN

For sampling, the state was stratified into 11 regions based on ADF&G information about the distribution of fishing trips across the state. Target sample size for each stratum ranged from 50 to 300. For each strata, a sample of telephone numbers was selected using a procedure known as random digit dial. In this procedure, the sample frame contains all residential telephone prefixes in the state, including residential prefixes on military bases. ISER designed a computer program that selects a sample of phone numbers using two methods. In more populated areas, ones with more than 2,500 residential tie lines (i.e., assigned telephone numbers), random four-digit numbers within each prefix were generated. In areas where the prefix had fewer than 2,500 residential ties, the residential numbers contained in the most current telephone directories were entered directly into the computer. The samples were drawn in proportion to the number of residential ties in the prefix. Thus, within each stratum, a prefix with 5,000 residential ties had a sample size twice that of a prefix with 2,500 residential ties.

A selected telephone number could not be discarded and replaced unless: (1) it was a non-working number; (2) it was a business number; (3) an adult in the household declined to participate in the survey on two separate phone calls; (4) repeated attempts over at least a four-day period, including both daytime and evening hours, failed to reach anyone at the dialed number; (5) it was not an eligible household (e.g. a hospital room); or (6) no one in the household had sport fished within the past three years and did not anticipate fishing in the next year.

Once the interviewer determined that the number reached was a residence, the respondent was asked if a member of the household had sport fished in Alaska within the past three years or anticipated fishing in the next year. If a member of the household had fished or anticipated fishing, the interviewer asked to speak with the person who knew the most about
the household’s fishing activities. If no one had fished and didn’t anticipate fishing, no more
questions were asked. To ensure that each household heard the same definition of sport
fishing, all interviewers read the same description verbatim.

The finished sample contained 1,355 resident angling households—a large enough sample to
follow the anglers through the entire season, given the inevitable attrition associated with a
series of surveys.

**PRE-SEASON SURVEY**

The initial interviews were conducted in April and May of 1993. The 1,355 respondents
were asked about the number of fishing trips the household took in 1992, about winter
fishing trips (November 1992-April 1993), about the demographics of the household, and
questions about the equipment—including cars, trucks, campers, boats, or planes—used on
fishing trips. For each piece of equipment, the questions went into detail about the age,
purchase price, current value, fuel consumption, fixed and variable costs, and amount of use
on fishing trips in the previous year. We used all that information in developing the travel
cost model. In addition, respondents were asked about the reasons why they fish, their
sources of information for fishing locations, and the importance of different reasons in their
decisions about where to fish.

These respondents were also asked if they would be willing to complete a diary of their
fishing trips taken in the summer of 1993 (May through October). Those respondents who
said they would complete the diary were asked for their mailing addresses. There were four
monthly mailings between June and September. Respondents were asked to note the date and
location of each fishing trip they took and to provide detailed information logs about one
specific trip to each site they had visited since the last mailing. They returned the diaries
through the mail. Respondents gave detailed information about the target species and
expenditures while on fishing trips. Those respondents who didn’t complete diaries were
asked these questions when they were re-interviewed in the post-season survey.

**POST-SEASON SURVEY**

In October and November of 1993, the Sport Fish Division of the Alaska Department of Fish
and Game attempted to re-interview the respondents ISER had interviewed the previous June.
They were able to complete interviews with 918 of the previously interviewed 1,355
respondents. This post-season questionnaire asked if the household still owned the equipment
described in the June interview and about any equipment purchased since June. Respondents
were asked about various policy options for certain fisheries and whether anyone in the
household had fished in one of these fisheries in the past three years. Finally, those
respondents who had not completed diaries on their summer fishing trips were asked for the
information over the phone. All respondents were asked about their autumn fishing trips.
ISER used this detailed information about fishing trips in developing the travel cost model.

**RESPONSE RATES**

We called 2,301 households across Alaska in April and May 1993. Of these, 577 had not
sport fished in the previous three years; we were unable to reach 287, and 82 declined to
participate. Among households we couldn’t reach, or who refused to talk to us, we don’t
know whether any members of the household fish. We assumed that these households fish in the same proportion as those households we were able to contact. About 71 percent of households we contacted had sport fished within the last three years. We interviewed 1,355 households, representing about 83 percent of the fishing households we tried to interview. The estimated margin of error is +- 4 percent.

We mailed four sets of trip diaries and logs to 1,135 households (some households did not want to complete the mail portion of the survey and did not provide addresses), and 596 households provided at least some of their trip information in the mail survey. We didn’t calculate a response rate for the mail back component. Each mailing followed up on previous mailings, as well as asking for information about new trips. The mailings were followed up by the post-season survey, which filled in data that was incomplete or missing in the mail back returns. So a non-response for any one mailing did not necessarily reflect any loss of data. Of the autumn calls to the 1,355 households from the spring survey, 126 declined to complete the follow-up survey, we could not contact 311 households, and 918 completed post-season interviews. The response rate for the post-season sample was 68 percent of the households we had interviewed in the spring. The post-season interviews represent about 56 percent of the total fishing households we initially tried to contact (68 percent of the 83 percent we contacted for pre-season information). The margin of error is +- 5%.

We collected basic information on about 5,000 summer (defined as May through October) trips in the mail-back and post-season surveys, and 1,700 winter (November through April) trips in the pre-season survey. Respondents provided detailed expense information through trip logs for about 1,700 summer and 491 winter trips.

**Weighting**

In each stratum, we used screening information to estimate the proportion of households that had fished in the three previous years. We applied that proportion to the total number of resident households in the stratum, to estimate the total number of fishing households. The number of completed interviews is expressed as a proportion of the total number of fishing households in the region. The weight for each surveyed household is the inverse of that sampling fraction. Because the response rates differed across strata, we adjusted the weights for post-season questionnaires separately for each stratum. We expressed the total number of completed post-season surveys as a fraction of the total fishing households in each stratum, and the post-season weight is the inverse of that new sampling fraction.
## Table A-1. Weights of Resident Angling Households

<table>
<thead>
<tr>
<th>Strata</th>
<th>Survey Screened HH</th>
<th>Non Fishing HH</th>
<th>Fishing HH</th>
<th>Percent of HH Who Fish</th>
<th>Est.* Total Households</th>
<th>Est. Angling Households</th>
<th>Completed Postseason Surveys</th>
<th>Household Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Anchorage Municipality</td>
<td>483</td>
<td>149</td>
<td>334</td>
<td>69.2%</td>
<td>90,725</td>
<td>62,738</td>
<td>211</td>
<td>297.33</td>
</tr>
<tr>
<td>2. Fairbanks Borough</td>
<td>312</td>
<td>105</td>
<td>207</td>
<td>66.3%</td>
<td>28,310</td>
<td>18,738</td>
<td>140</td>
<td>134.16</td>
</tr>
<tr>
<td>4. Mat-Su Borough</td>
<td>198</td>
<td>41</td>
<td>157</td>
<td>79.3%</td>
<td>15,505</td>
<td>12,294</td>
<td>104</td>
<td>118.21</td>
</tr>
<tr>
<td>5. Kodiak</td>
<td>73</td>
<td>23</td>
<td>50</td>
<td>68.5%</td>
<td>4,605</td>
<td>3,154</td>
<td>35</td>
<td>90.13</td>
</tr>
<tr>
<td>6. Other Southcentral</td>
<td>60</td>
<td>10</td>
<td>50</td>
<td>83.3%</td>
<td>5,977</td>
<td>4,980</td>
<td>37</td>
<td>134.61</td>
</tr>
<tr>
<td>7. Juneau Borough</td>
<td>207</td>
<td>50</td>
<td>157</td>
<td>75.8%</td>
<td>10,669</td>
<td>8,092</td>
<td>107</td>
<td>75.62</td>
</tr>
<tr>
<td>8. Ketchikan Borough</td>
<td>158</td>
<td>50</td>
<td>108</td>
<td>68.4%</td>
<td>5,428</td>
<td>3,710</td>
<td>66</td>
<td>56.22</td>
</tr>
<tr>
<td>9. Sitka Borough</td>
<td>74</td>
<td>15</td>
<td>59</td>
<td>79.7%</td>
<td>3,098</td>
<td>2,470</td>
<td>31</td>
<td>79.67</td>
</tr>
<tr>
<td>10. Other Southcentral</td>
<td>78</td>
<td>25</td>
<td>53</td>
<td>67.9%</td>
<td>7,291</td>
<td>4,954</td>
<td>29</td>
<td>170.83</td>
</tr>
<tr>
<td>11. Rest of Alaska</td>
<td>159</td>
<td>71</td>
<td>88</td>
<td>55.3%</td>
<td>18,761</td>
<td>10,383</td>
<td>53</td>
<td>195.91</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1993</td>
<td>577</td>
<td>1416</td>
<td>71.0%</td>
<td>205,878</td>
<td>143,983</td>
<td>918</td>
<td></td>
</tr>
</tbody>
</table>

*Total households estimated by applying households sizes from the 1990 US Census to 1993 population estimates from the Alaska Department of Labor

**Of the 1993 households we screened, 577 had not fished in the previous three years and were not interviewed; 61 of those who had fished did not complete a preseason interview; 1,355 completed pre-season interviews

For several reasons, we believe that some households—particularly those that fish often—under-reported the number of fishing trips they took. Some households returned early-season mail surveys, but not a complete set, and were not contacted in the post-season survey. So we missed any trips they took after the mail survey they completed.

Also, respondents in the pre-season survey estimated they would take 2.4 million trips in the coming season, but in mail and post-season surveys they reported actually taking only 630,000 trips. By comparison, ADF&G’s 1992 harvest survey reported 1.865 million sport angler trips, with an estimated 70 percent of those trips, or 1.3 million, taken by residents.

We addressed this problem by using a sub-sample of our Southcentral anglers. We interviewed them again in 1994 and developed a model that relates the number of non-reported trips per month to trips each household actually reported in 1992 and 1993 and to other household characteristics. We don’t believe that underreporting of the number of trips produced a bias in the estimate of expenditures per trip, or in the distribution of expenditures across categories.
Table A-2. Weights for Resident Angler Trips

<table>
<thead>
<tr>
<th>Strata</th>
<th>Sample Summer Trips</th>
<th>HH Weight</th>
<th>Trips with/HH and Trip Weight</th>
<th>Inferred Average Trip Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Anchorage Municipality</td>
<td>831</td>
<td>297.33</td>
<td>373,871</td>
<td>1.51</td>
</tr>
<tr>
<td>2. Fairbanks Borough</td>
<td>435</td>
<td>134.16</td>
<td>82,643</td>
<td>1.42</td>
</tr>
<tr>
<td>3. Kenai Peninsula Borough</td>
<td>798</td>
<td>118.33</td>
<td>151,039</td>
<td>1.60</td>
</tr>
<tr>
<td>4. Mat-Su Borough</td>
<td>556</td>
<td>118.21</td>
<td>104,262</td>
<td>1.59</td>
</tr>
<tr>
<td>5. Kodiak</td>
<td>243</td>
<td>90.13</td>
<td>29,797</td>
<td>1.36</td>
</tr>
<tr>
<td>6. Other Southcentral</td>
<td>232</td>
<td>134.61</td>
<td>50,300</td>
<td>1.61</td>
</tr>
<tr>
<td>7. Juneau Borough</td>
<td>646</td>
<td>75.62</td>
<td>68,313</td>
<td>1.40</td>
</tr>
<tr>
<td>8. Ketchikan Borough</td>
<td>1,060</td>
<td>56.22</td>
<td>80,242</td>
<td>1.35</td>
</tr>
<tr>
<td>9. Sitka</td>
<td>155</td>
<td>79.67</td>
<td>17,414</td>
<td>1.41</td>
</tr>
<tr>
<td>10. Other Southeast</td>
<td>131</td>
<td>170.83</td>
<td>34,924</td>
<td>1.56</td>
</tr>
<tr>
<td>11. Rest Of Alaska</td>
<td>243</td>
<td>195.91</td>
<td>78,704</td>
<td>1.65</td>
</tr>
<tr>
<td>Total</td>
<td>5,330</td>
<td>195.91</td>
<td>1,071,511</td>
<td></td>
</tr>
</tbody>
</table>

Although the two-stage weighting procedure represents our best estimate of sport fishing households and fishing trips, there are several reasons why the weighted sample might not perfectly represent Alaska anglers:

*Households that refused to participate were not a random group.* The same is true of households that did not participate for other reasons. These include households we could not contact at all, households with no English-speaking adult, and households where no one was available during the survey period.

*Households that move frequently were more likely to drop out between the pre- and post-season surveys.* So, the post-season sample is a sample of households that move somewhat less frequently than the average across all households.

*In bush areas, many households have unlisted telephone numbers.* Our random-digit dialing method for contacting households normally would sample from unlisted as well as listed numbers. However, in prefixes with only a few active residential lines (generally less than 2,000) random-digit dialing becomes too costly, and we sample from a file of listed telephone numbers. So we miss all rural households with unlisted telephone numbers.

We don’t know how the fishing patterns of the households we didn’t talk to might differ from those who did participate, but we assume that the sample is fairly representative and that the differences are probably not significant.
Nonresident Survey

In the spring of 1994 ISER conducted a mailout-mailback survey of sport anglers who had fished in Alaska but live outside the state. Information collected in the survey included total expenditures of nonresident sport anglers visiting Alaska, as well as the composition of those expenditures. We also collected information on the number of specific fishing trips, species targeted, and harvests, as well as attitudinal information to measure the important factors influencing anglers’ decisions about fishing and preferred fishing locations.

We developed the sample of 7,000 from ADF&G’s 1993 nonresident sport license file and designed it to be large enough to get valid sub-samples for different categories of nonresident anglers—for example, those visiting relatives and those on expensive trips to remote fishing spots. We pre-tested the questionnaire on a sample of 50. Of these, 47 reached households (3 were returned as undeliverable) and 13 were completed and returned through the mail. We then telephoned the pre-test sample to discuss the questionnaire. As a result, we simplified the survey, hoping to increase the response rate.

The survey was mailed in March 1994, with two rounds of follow-up mailings to non-respondents in April and May. We ultimately achieved a response rate of 61 percent (with a margin of error of +/− 2%). Of the 4,278 responses, 4,123 actually fished in 1993.

ADF&G personnel did coding and data entry in the fall of 1994. Subsequent cleaning by ISER revealed a high rate of inconsistency in responses as well as in coding and data entry. With the support of ADF&G, ISER re-coded and re-entered all the site and trip origin information.

Weighting

Our weighted survey results project about 200,000 trips. This is lower than expected, both in comparison with resident trips (about 1,000,000) and in comparison with ADF&G estimates. Our estimate of non-resident angler days fished (980,000), however, exceeds the ADF&G estimate (810,000) by 20 percent. This leads us to believe that the survey respondents used a different definition of “trip” when answering our mail survey.

<table>
<thead>
<tr>
<th>Table A-3. Weights for Nonresident Angling Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Households (From ADF&amp;G)</td>
</tr>
<tr>
<td>Number of Household Survey Responses</td>
</tr>
<tr>
<td>Household Weight</td>
</tr>
</tbody>
</table>
Guide and Charter Survey

The universe for the sample was based on a list ADF&G provided of 1,983 businesses offering guiding and charter services in Alaska. The list included businesses that employed persons to accompany and direct anglers in sport fishing as well as businesses that provided transportation services to fishing locations; its coverage was slightly broader than the definition of “guide” used in the ADF&G guide registration program. ADF&G mailed each business a postcard to verify that it was operating in 1993 and offering guide and charter services. Of the 1,867 delivered (116 were undeliverable), 1,178 postcards were returned; 834 indicated they were in the guide and charter business and 344 said they were not.

In late December, 1993, we mailed a detailed questionnaire (pre-tested by mail with a telephone follow-up) to all 1,523 businesses on the ADF&G list, except those who had said they were not in the guide and charter business in 1993. The response rate was very low, even after a follow-up telephone contact by ADF&G.

Because of our concern over response bias, we drew a sample from the initial survey mailing list for a second mailing of the same instrument, to be followed by a telephone contact and interview by ISER personnel. The sample consisted of two strata: a) 461 firms identified by regional biologists as the “major” guide/charter businesses in their regions and expected to be a self-representing stratum; and b) a random sample of 148 businesses chosen from the 1,523 original mailing (with a few changes).2 Thirty-two of the businesses in this sample had already returned surveys from the initial mailing so the follow-up mailing in early February 1994 consisted of 162 surveys.

We completed interviews with 29 of the “major” guide and charter businesses and 64 of the random sample of remaining businesses. Along with the 238 completed questionnaires returned by mail, the finished sample included 331 businesses.

ADF&G entered data and ISER cleaned it.

WEIGHTING

There were two strata:

1. The self-representing big firms: Of the 46 in the initial list, we completed 29 interviews, 6 reported they weren’t in the guide and charter business, 9 didn’t respond, and 1 one was unknown, for a response rate of 29/40=72.5 percent. The weight for these firms is the inverse of the response rate, 1.38. (Table A-4).

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1There were 46 originally identified, but two were excluded before the mailing because they weren’t guide/charter operations; two more were excluded later.
2We excluded any firms for which the questionnaire was undeliverable and firms which we knew were not guide/charter businesses, based on the first mailing. We added a few firms that were missed on the very first list of 1,983.
2. Other firms: We compared the responses of the 238 from the initial survey mailing with the
64 from the intense follow-up group and found no significant differences in revenues or
expenditures. Consequently, we combined these two groups into a single stratum of 302
businesses for weighing. We had to estimate how many businesses in Alaska are involved in
guiding or chartering for sport anglers. We based this estimate on the results of the sample of
150 businesses. Of these, 64 provided interviews; 18 gave us enough information to believe
they’re in the guide and charter business; 4 gave last resort information; 12 refused, but did
not say they weren’t involved in guiding or chartering; 2 completed interviews that were lost;
28 were either not in business or not involved in guiding or chartering. Of the 110 businesses
we know something about, 82—or 74.5 percent— are in our universe. Our initial listing was
1,523; we added 13 businesses, but pulled 46 into the “big firms” group; that left 1,490. Of
these 1,490 businesses, we estimate that 1,111 firms provide guide and charter services to
sport anglers. The weight for the surveys is 1111/302=3.63.

Table A-4. Weights for Guide and Charter Survey

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Self Representing Firms</td>
<td>46</td>
</tr>
<tr>
<td>Not in G&amp;C Business</td>
<td>6</td>
</tr>
<tr>
<td>In Business</td>
<td>40</td>
</tr>
<tr>
<td>Completed Interviews</td>
<td>29</td>
</tr>
<tr>
<td>Weight (40/29)</td>
<td>1.38</td>
</tr>
<tr>
<td>Sampled Firms</td>
<td>1,490</td>
</tr>
<tr>
<td>Estimated Number in G&amp;C</td>
<td>1,111</td>
</tr>
<tr>
<td>Completed Interviews</td>
<td>302</td>
</tr>
<tr>
<td>Weight (1111/302)</td>
<td>3.68</td>
</tr>
</tbody>
</table>

Survey Questionnaires

See attached questionnaires for the pre- and post-season surveys of resident anglers and the
surveys of nonresident anglers and guide and charter businesses.