

# **2002 SURVEY OF BRISTOL BAY SALMON DRIFT GILLNET FISHERY PERMIT HOLDERS: A REVIEW OF SURVEY METHODOLOGY AND IMPLEMENTATION PROCEDURES**

CFEC Report 02-5N  
November 2002

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## Table of Contents

Defining the Survey Population.....	1
Sample Selection.....	2
Considerations in Selecting Sample Size.....	3
Sample Size Calculation.....	4
Sampling Process and Results.....	7
Survey Design.....	8
Survey Implementation Procedures.....	13
First Contact: Pre-notice Letter.....	13
Second Contact: Questionnaire Mail Out.....	13
Third Contact: Postcard Thank You/Reminder.....	15
Fourth Contact: First Replacement Questionnaire.....	15
Final Contact: Different Mode of Contact.....	16
Sources of Nonresponse.....	17
Survey Response.....	18
Nonrandom Expert Sample and Response.....	20
Sources of Possible Error.....	20
Coverage Error.....	21
Measurement Error.....	21
Nonresponse Error.....	22
Coding and Data Entry Error.....	26
Summary.....	27

## List of Tables

Table 1. Sample size ( <i>n</i> ) required to stay within a given level of relative error in the CFEC survey of Bristol Bay salmon drift gillnet permit holders .....	6
Table 2. Population versus survey sample by resident type for the 2002 survey of Bristol Bay salmon drift gillnet permit holders .....	8
Table 3. Survey sample and survey response by resident type for the 2002 survey of Bristol Bay salmon drift gillnet permit holders .....	18
Table 4. Comparison of 2001 Bristol Bay salmon drift gillnet fishery gross earnings and pounds landed between members of the population, members of the random sample, survey respondents, and nonrespondents .....	25

## List of Appendices

First Contact: Pre-notice Letter.....	Appendix A
Second Contact: Survey Cover Letter.....	Appendix B
Third Contact: Thank You/Reminder Post Card .....	Appendix C
Fourth Contact: Cover Letter for Replacement Questionnaire .....	Appendix D
Fifth Contact: Cover Letter for Priority Mailing .....	Appendix E
Questionnaire .....	Appendix F

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The Commercial Fisheries Entry Commission (CFEC or commission) conducted a survey of entry permit holders in the Bristol Bay salmon drift gillnet (S03T) fishery during 2002. The purpose of the survey was to collect data needed to determine an optimum number of permits for the fishery, including data on investments, operating costs, and net returns. The survey also obtained information on permit holders' outlook on the future of the fishery and attitudes toward permit buy-back. This report summarizes the methods used to design and implement the survey, the survey response rate, and potential sources of survey error.

## **DEFINING THE SURVEY POPULATION**

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CFEC sought information from current holders of Bristol Bay salmon drift gillnet entry permits. These are the persons who currently depend on the fishery and who define the population of interest in the optimum number study.

Defining current entry permit holders is complicated by significant turnover of permit holders on an annual basis due to permanent permit transfers. Thus to carry out the sampling, a time-specific sampling frame was needed. For purposes of this study, the population of entry permit holders was defined as all Bristol Bay salmon drift gillnet permanent permit holders as of December 31, 2001 (n=1855). The sampling frame consisted of this population with the following exclusions:

- Permits held by estates as indicated on CFEC files upon receipt of a death certificate (n=22).
- Permits held by persons who transferred their permit away (including foreclosures) between January 1, 2002 and March 27, 2002 (n=18).
- Permits held by persons who did not fish their permit in any of the years 1999-2001, *and* have not fished that or any other permit in the past (n=58).
- Permits held by the Commercial Fishing and Agriculture Bank or Department of Community and Economic Development (n=2).

Exclusions from the initial list of 1,855 current permit holders led to a sampling frame of 1,757 individuals. Note that new entrants into the fishery since January 1, 2002 were not included in the sampling frame. Most of these persons did not participate previously in the fishery.

## **SAMPLE SELECTION**

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To help determine an optimum number of permits in the Bristol Bay salmon drift gillnet fishery, the commission needed data on costs and investments from permit holders. Data on costs and investments were necessary to estimate historic “average rates of economic return” in the fishery and to forecast how these average rates of economic return would respond as harvests, ex-vessel prices, and the number of permits in the fishery change.<sup>1</sup>

Because of the large number of permit holders in this fishery, the research staff decided to survey a random sample of permit holders rather than attempt to do a census survey of all permit holders. Some previous attempts to do census surveys of all permit holders have resulted in very low response rates and raised concerns about possible nonresponse

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<sup>1</sup> The optimum number of entry permits for each fishery, defined under AS 16.43.290, shall be based upon three general standards. The first points to a number “sufficient to maintain and economically healthy fishery that will result in a reasonable average rate of economic return to the fishermen participating in that fishery, considering time fished and necessary investments in vessels and gear.”

bias.<sup>2</sup> Lengthy surveys that ask for detailed information on a person's private business records often have low response rates unless there are extensive follow-ups.

## Considerations in Selecting Sample Size

One sampling approach that was considered and ultimately rejected was to survey a small random sample of permit holders using in-depth personal interviews that included an examination of individual business records. This methodology achieved a high response rate in an earlier CFEC study.<sup>3</sup> While this approach was attractive, it was thought to be too expensive to carry out given the wide geographic dispersion of Bristol Bay permit holders across rural and urban Alaska as well as several other states. In short, it was felt that the in-person interview approach for this fishery would be too expensive given the sample size that would be needed to have confidence that the results were representative of the population.

Given the resources available for the study, the authors felt that it was best to draw a sufficiently large probability sample of permit holders and then work to achieve a high response rate by doing follow-ups with nonrespondents to encourage participation in the study. The methodology that CFEC chose for the study is based upon Dr. Don Dillman's "Tailored Design Method."<sup>4</sup>

To carry out the survey, the authors had to choose a single sample size that would apply to all questions on the survey. The authors felt that operating costs were the most important questions on the survey and wanted to choose a sample size that would provide assurance that the sample means were sufficiently close to the population mean. Prior to

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<sup>2</sup> For examples: See Baker, J., and Ben Muse. 1979. "Summary of Cost and Net Return Information for the Bristol Bay Drift Gill Net Fishery." Alaska Commercial Fisheries Entry Commission Report. Larson, Doug. 1980. "1979 Fisherman's Income Survey, Herring and Salmon Fisheries." Alaska Sea Grant Report 80-5.

<sup>3</sup> See Owers, James. 1974. "Costs and Earnings of Alaskan Fishing Vessels -An Economic Survey." Alaska Commercial Fisheries Entry Commission.

<sup>4</sup> See Dillman, D.A. 2000. *Mail and Internet Surveys: The Tailored Design Method*. New York: John Wiley & Sons, Inc.

the survey, there were no current data on the variability of operating costs in the population of S03T permit holders. However, CFEC had good estimates of the gross earnings of all permit holders in the sampling frame. The authors decided to use the available data on gross earnings for the population to help determine an appropriate sample size.

## Sample Size Calculation

A process described by Cochran (1977) was adopted to guide CFEC's choice of sample size.<sup>5</sup> To implement the process, CFEC needed to make three determinations: the level of accuracy desired from the survey data, an estimate of variability among members of the population, and the level of risk that error will exceed the amount determined to be tolerable.

The Cochran methodology calculates a sample size to control the relative error ( $r$ ) in the estimated population total ( $Y$ ) or mean ( $Y/N$  or  $\bar{Y}$ , where  $N$  is the population size). The population characteristic on which the appropriate sample size ( $n$ ) ultimately depends for a particular variable is the coefficient of variation ( $S/\bar{Y}$ , where  $S$  is the population standard deviation and  $\bar{Y}$  is the population mean). By using available gross earnings estimates from the population to estimate an appropriate sample size, the authors were hopeful that the sample size would be suitable for other variables in the survey for which population statistics were not available. This would be true if the coefficient of variations for key operating costs in the population were roughly similar to the coefficient of variation for the distribution of gross earnings in the population.

CFEC determined sample size using the variability of gross earnings per permit holder in the sampling frame as an indicator of variability among the population. Gross earnings

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<sup>5</sup> See Cochran, W.G. 1977. *Sampling Techniques*. 3rd ed. John Wiley & Sons: New York.

estimates are available for all permit holders, thus a standard deviation can be easily calculated.

In 2000, 1,534 of the 1,757 permit holders in the sampling frame recorded landings in the Bristol Bay salmon drift gillnet fishery. The average estimated gross earnings per permit holder was \$37,900, and the standard deviation was \$16,867. In 1999, 1,480 members of the sampling frame made landings. The average estimated gross earnings was \$50,870, and the standard deviation was \$21,569. Estimated gross earnings for 2001 were not yet available at the time the sample was drawn from the sampling frame.

CFEC chose a 95% confidence level ( $\alpha = .05$ ) and calculated sample sizes for three different levels of relative error using the equations that follow. The sample size calculations are based upon the distribution of estimated gross earnings per permit holder in the sampling frame. The equations detailing the steps CFEC took to calculate a range of possible sample sizes and the results are outlined below.

### Equation 1

For a simple random sample with a mean  $\bar{y}$ , the probability that the difference between the estimated and actual population mean divided by the actual population mean will be equal to or greater than a given level of relative error ( $r$ ) will be as follows:

$$\Pr(|\bar{y} - \bar{Y}| / \bar{Y}) \geq r = \Pr(|N\bar{y} - N\bar{Y}| / N\bar{Y}) \geq r = \Pr(|\bar{y} - \bar{Y}| \geq r\bar{Y}) = \alpha, \text{ where a small } \alpha \text{ value is desirable (0.01- 0.05)}$$

### Equation 2

Assuming the distribution of the sample mean ( $\bar{y}$ ) is normally distributed, the standard error of the sample mean is:

$$s_{\bar{y}} = \sqrt{((N - n) / N) * (S / \sqrt{n})}, \text{ where } S \text{ is the standard deviation of the population}$$

### Equation 3

$$r\bar{Y} = t s_{\bar{y}} = t \sqrt{((N - n) / N) * (S / \sqrt{n})}, \text{ where } t \text{ is the abscissa of the standard normal curve that cuts off an area of } \alpha \text{ at the tails}$$

#### Equation 4

Solving Equation 3 for  $n$  gives:

$$n = (tS / r\bar{Y})^2 / (1 + (1/N)(tS / r\bar{Y})^2)$$

Results are shown in the following table for two years of gross earnings data, 1999 and 2000. The variance in average gross earnings per permit holder changes from year to year, so CFEC looked across two years of data to determine a reasonable sample size for the 2002 survey of Bristol Bay salmon drift gillnet permit holders.

Using Equation 4, the following sample sizes would be required to estimate the true population mean within the relative error shown in the top row of the table, with a 95% confidence level ( $\alpha = 0.05$ ).

Table 1. Sample size ( $n$ ) required to stay within a given level of relative error in the CFEC survey of Bristol Bay salmon drift gillnet permit holders

Data Year	Maximum relative error ( $r$ )		
	.03	.05	.10
1999	508	234	67
2000	545	254	72

The sample size calculations assume that all persons surveyed will respond (more specifically, all surveys will be completed and returned) and they will answer the questions accurately. From previous experience, CFEC knew that there would need to be several follow-ups to achieve a high response rate. Pursuing all nonrespondents, in effort to persuade them to complete their survey, most effectively reduces the potential error introduced by survey nonresponse. However, the cost of the survey increases with the size of the sample and the number of follow-ups required to achieve a high response rate.

With this in mind, there was a tradeoff to consider with respect to sample size.

Sacrificing some precision by relaxing the maximum allowable level of relative error in

turn would allow CFEC staff to concentrate their efforts on obtaining a high response rate, thereby reducing the potential for nonresponse error.

CFEC decided to balance the desire for precision with the need to achieve a high response rate. The sample size that was selected for the Bristol Bay salmon drift gillnet survey was 440, equal to one in four members of the sampling frame. Using variation in gross earnings per permit holder in the fishery to calculate a sample size, a sample size of 440 (with 100% response) would assure that any relative difference between the sample and population mean would be less than 5% (with a 95% confidence level).

## Sampling Process and Results

Using SAS, a survey sample of 440 permit holders was drawn. The sample was randomly drawn from the population using Proc SurveySelect in SAS.<sup>6</sup> The sampling fraction was  $\frac{1}{4}$  and the seed used to generate the sample was 0011. The SAS code to draw the sample follows:

```
PROC SURVEYSELECT DATA=POPULATION METHOD=SRS SAMPRATE=0.25  
SEED=0011 OUT=SAMPLE;  
RUN;
```

Table 2, on the following page, lists the number of permit holders in the population and the number of permit holders selected in the random sample for each resident type. A comparison of the percent of population and percent of sample in Table 2 shows that each resident type was represented in the random sample at a rate within 2% of their make-up in the population.

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<sup>6</sup> Throughout the remainder of this report, the term population refers to the time-specific sampling frame from which the sample was selected.

Table 2. Population versus survey sample by resident type for the 2002 survey of Bristol Bay salmon drift gillnet permit holders

Residency <sup>7</sup>	Number of individuals in population	Percent of population	Number of individuals in sample	Percent of sample
Alaska residents by type:				
Local Rural	427	24.3%	103	23.4%
Nonlocal Rural	123	7.0%	30	6.8%
Nonlocal Urban	325	18.5%	78	17.7%
All Alaska residents	875	49.8%	211	48.0%
Nonresidents	882	50.2%	229	52.0%

Note: Residency later changed for some permit holders due to migration. The information provided here is a summary of the population and sample at the time the sample was drawn.

## SURVEY DESIGN

The method CFEC used to design and implement the survey is based on information presented in Don A. Dillman's *Mail and Internet Surveys: The Tailored Design Method*.<sup>8</sup> A questionnaire was drafted using elements of Dillman's "Tailored Design Method", a method which focuses on minimizing nonresponse and getting the most out of the time persons sampled take to read and respond to survey materials.

Several principles of writing survey questions were considered while drafting the questionnaire. First, all questions were drafted using complete sentences. Using complete sentences increased specificity while keeping language simple. Second,

<sup>7</sup> A permit holder was classified as a nonresident if their permanent mailing address was out of state, even if they paid in-state resident fees at the time of permit renewal. Alaska residents are broken out into rural and urban dwellers; and into those who are local to Bristol Bay and those who are nonlocal to Bristol Bay. 1990 US census population data are used to identify Alaskan communities as either rural or urban. At the time the survey sample was drawn, 2000 census data was not available in adequate detail. Urban includes all towns with population of 2,500 or more, and those towns that are on a road system and are in close proximity to urban centers. Local includes all communities in the Bristol Bay area, which extends inland up the Nushagak River and includes the Tikchik Lake system, Lake Iliamna, and Lake Clark.

<sup>8</sup> Dillman, D.A. 2000. *Mail and internet surveys: The tailored design method*. New York: John Wiley & Sons, Inc.

questions were designed to be inclusive, engaging everyone in the sample to the greatest extent possible. Responses to close ended scalar questions were balanced, providing an equal number of negative and positive response categories. In addition, a “no opinion” or an “uncertain” category was provided for most attitude questions to minimize item nonresponse. Third, a balance between precision and accuracy was considered in developing questions and response categories. The goal was to obtain as much information as possible without forcing respondents to go beyond the level of precision with which they were comfortable.

Another consideration in drafting the questionnaire was the use of cognitive design techniques to improve recall. The questionnaire begins with general questions related to recent years of fishing experience, and proceeds to focus in on the single most recent year. The latter part of the survey moves into an earlier year of experience in the fishery. A question asking for the first year they fished as a permit holder was placed at the start of the section as a transition, setting respondents up to recall information from another period in time. Though CFEC had that information on file, the question was asked to prepare respondents for the questions that would follow.

The final component of drafting the survey was question placement. The survey was organized using timeline and topic as groupings for questions. Once the most logical time and topic groupings were defined, they were arranged with motivation in mind. Keeping respondents motivated enough to go through the process of reading and comprehending each question, developing responses, and returning the questionnaire is essential. The questionnaire starts by asking for the permit holder’s views and experience in the fishery so to be made immediately aware that CFEC recognizes the person is knowledgeable about the fishery and would like to hear from him/her specifically. These questions are in a scalar format allowing respondents to check the most appropriate box. The survey moves into detailed open-ended questions, asking them to review their operating costs. A mix of close-ended and open-ended questions that are easily answered follows the difficult questions, serving as a break. The cycle is repeated, ending with another section of questions asking for the permit holder’s views and opinions. The

sections were ordered in this way so as not to overburden the respondent. In addition to question placement, section introductions and instructions were added just before the difficult sections and before placing the survey in the return envelope.

Many fishers helped the CFEC research staff draft questions for the survey, as well as edit and critique complete drafts of the questionnaire. Four face-to-face interviews, one fisher at a time, were conducted in October 2001. The interviews were as long as two and a half hours and covered several aspects of the fishery. Topics included the extent of their experience in the fishery, past and present partnership arrangements, in-season decisions that need to be made and the information that influences choices, fishing groups, crew and crewshares, vessels, supplies and operating costs, ex-vessel prices and product quality, fishery management, and the future of the fishery. From the interviews, CFEC research staff learned what terminology should be used in phrasing survey questions, what questions fishers may and may not be able to answer, what answer categories would be appropriate, and what costs needed to be considered in the optimum number study. Following interviews, the questionnaire was drafted and reviewed internally.

Feedback on the draft was solicited from three groups of fishers, serving as focus groups. Dan Barr and Scott Stevenson, both with the Bristol Bay Driftnetters Association, recommended individuals for the first focus group and helped to distribute a draft questionnaire to the group. They reviewed the draft independently and each member provided a set of comments. The second group met with CFEC research staff in Dillingham on March 13, 2002. Terry Hoefflerle, of the Bristol Bay Native Association, and Robin Samuelson, of the Bristol Bay Economic Development Corporation, helped organize the in-person focus group session. At the meeting, the overall study plan was discussed, the draft questionnaire was presented, and the group was asked to comment on the questionnaire generally and then page-by-page. Members of the third focus group included Alaska Independent Fishermen's Marketing Association board members. This final group also reviewed the draft independently and sent CFEC written comments, but then discussed the draft with CFEC research staff by teleconference on March 20, 2002.

David and Janis Harsila assisted in distributing the survey materials, compiling the group's comments, and setting up the teleconference. Many changes were made as a result of the recommendations from all three groups.

Changes resulting from the feedback included (but were not limited to) the following:

- A descriptive header was placed at the beginning of each section and the outline of the survey (provided inside the cover page) was reworded to more accurately represent the organization of the survey.
- Instructions that had been provided beneath section titles were repeated and inserted into each question.
- Answer categories were expanded to fit a wider range of situations.
- The section asking about damage to vessels and gear caused by congestion was reworked because several persons felt that as originally worded, the question might raise concerns among insurers.
- A question asking for gallons of fuel consumed in a season was struck because it was too difficult for many to answer.
- A question asking for depreciation expense was removed after one individual explained the difficulty CFEC would have in interpreting responses.
- Scalar opinion questions about alternative fleet consolidation scenarios were removed because some felt the scenario descriptions were too long and complicated to command the attention required for a meaningful response. Those who felt the questions were too long agreed that detailed descriptions would be necessary, so the questions could not be shortened. In addition, the Bristol Bay Economic Development Corporation was conducting its own study of fleet reduction alternatives and felt that CFEC's study should focus on the buyback option.

The final draft was again reviewed internally, but due to time constraints, a formal pre-test was not conducted. The Bristol Bay salmon fishery begins in June, and is preceded by a herring fishery in which several Bristol Bay fishers participate. Knowing that CFEC

likely would need to make multiple follow-up contacts in attempt to increase response rates, it was important that the survey be sent out well in advance of the fishing season.

There is a time cost to respondents for filling out a survey. The survey recipient must believe that this cost will be outweighed by the benefits they receive by responding. The benefits may be as simple as gaining knowledge about a subject of interest or feeling a sense of accomplishment from helping. Acknowledging this social exchange is an important component of the Tailored Design Method. CFEC took several of the steps recommended by Dillman in attempt to increase rewards survey recipients would receive through the survey process. Recipients were treated with respect. All correspondence was personalized with the recipients contact information and the sender's signature. Information was provided pertaining to the study, and recipients were encouraged to contact CFEC with any questions. In all correspondence, respondents were thanked for their time and response.

CFEC tried to reduce the concerns of permit holders and gain their trust by assuring confidentiality, informing survey recipients of how the data gathered from the surveys would be used and why an identification number was placed on the back of their survey, and enclosing return envelopes with postage stamps in each questionnaire mail out. An attempt was made to reduce costs to survey recipients by trying to make the questions easy to understand and to answer, organizing the questions to avoid confusion, and keeping white space on every page so as not to overwhelm the recipient.

## **SURVEY IMPLEMENTATION PROCEDURES**

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Most of the tasks related to developing the social exchange with the survey recipient are accomplished through a stream of contacts with each member of the survey sample. Each of the contacts CFEC made with survey recipients is described below, and all printed contacts are available in the appendices.

### **First Contact: Pre-notice Letter**

A pre-notice letter (Appendix A) was sent to the entire sample on April 11, 2002. The purpose of the letter was to introduce the Bristol Bay salmon drift gillnet fishery optimum number study to the persons in the sample and to let them know in advance they would be receiving a survey.

The letter was mailed in a business size envelope with a postage stamp. CFEC's Research Section Project Leader personally signed each letter.

### **Second Contact: Questionnaire Mail Out**

One week later, on April 18<sup>th</sup>, a packet containing a cover letter (Appendix B), questionnaire, and return envelope was mailed to persons in the sample. The cover letter re-introduced the study, explained how the recipient had become part of the sample, and addressed confidentiality. Each letter was signed.

The return envelopes were white (9 x 6") with the CFEC mailing address printed as the sender and recipient. They were hand stamped with 80-cent postage stamps. The packet was mailed out in a white 9 x 12" envelope with the CFEC mailing address printed as the sender and the recipient address printed on labels. None of the contact materials needed to be folded. The outgoing envelope was stamped with a postage meter.

The questionnaire (Appendix F) was a 20-page, 8 ½ x 11” booklet printed on ivory 20# paper. Sixteen of the 20 pages contained questions. The cover page included the title of the survey, a grayscale photo of the fishery, and the CFEC mailing address. The inside cover contained a list of three individuals working on the study, their titles, e-mail addresses, and phone and fax numbers. The first inside right-hand page introduced the survey and briefly described the four major parts of the survey. Sixteen pages of questions followed the introduction. The headings, subheadings, and number of questions within each section are listed below.

*Part One*

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- Section A: Current Condition of the Fishery (3 questions)
- Section B: Intensity and Congestion (2 questions)

*Part Two*

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- Section A: Your Most Recent Year With Landings (6 questions)
- Section B: Expenses in Your Most Recent Year (4 questions)
- Section C: Crew in Your Most Recent Year (4 questions)
- Section D: The Vessel You Used Most (14 questions)

*Part Three*

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- Section A: Your Expenses in an Earlier Year (7 questions)
- Section B: Crew in Earlier Years (4 questions)

*Part Four*

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- Future of the Fishery (5 questions)

The back cover of the survey thanked respondents and provided space for comments. A “fold here” dotted gray line was printed across the middle of the back page. The bottom of the back page contained instructions to fold the survey and return it to CFEC in the half page size “stamped and addressed” return envelope provided. The CFEC mailing address and phone number were provided again.

A survey identifier was placed in each of the lower corners on the back page. Each survey identification number was printed onto a clear label and placed in the lower left corner of the survey. Identification numbers were translated to barcodes, printed on clear labels, and placed in the lower right corner. A common problem when administering surveys is receiving some completed surveys with the identification number torn off or made illegible. Barcodes were placed on surveys as an additional method of identifying surveys, in case the number was removed. Almost all respondents seemed to understand CFEC's reasons for needing the identification number and did not damage or remove the identifier. The identification number allowed CFEC to know when a particular person had responded so that no more follow-ups were needed. The identification number also allowed CFEC to merge the survey information to CFEC's ancillary data on the fishing operation.

### **Third Contact: Postcard Thank You/Reminder**

On April 25<sup>th</sup>, a postcard was mailed to the sample (Appendix C). The postcard served as a thank you to those individuals who had completed and returned the survey and served as a reminder for those individuals who set the survey aside. The postcards were signed and hand stamped with postage. No labels were used on the postcards. Instead, both sides were printed onto white 4 x 6" index cards using a desktop printer.

### **Fourth Contact: First Replacement Questionnaire**

A second copy of the questionnaire was mailed to all non-respondents approximately two and a half weeks after the reminder postcard. The mailing was the same as that for the first copy, but with a modified cover letter emphasizing the importance of their response (Appendix D). This second questionnaire was mailed to 259 permit holders on May 13<sup>th</sup>, and to two individuals on May 20<sup>th</sup>.

## **Final Contact: Different Mode of Contact**

Non-respondents were contacted a fifth, and final, time using a different mode of contact. The week following the second questionnaire mail-out, phone calls were placed to all individuals who had not yet responded. The purpose of the phone call was to personalize the survey process, to let survey recipients know it was very important to hear from all individuals who received a survey, and to answer any questions they had about the survey or optimum number study.

Messages were left on answering machines at 59 of the households called. At 107 households, contact was made with either the permit holder or a person who knew the permit holder and was willing to take a message for them. Forty-eight of the permit holders either had not provided a phone number to CFEC, or listed a phone number that was no longer in service. There was no answer at 13 households, despite repeated attempts to reach someone.

Both leaving a message for the permit holder and speaking to them directly were considered to be the final contact in the survey process. For those individuals who could not be reached by phone and had not yet returned their survey, a final contact still needed to be made. On June 7<sup>th</sup>, a third copy of the survey with a modified cover letter (Appendix E) was mailed to the 52 nonrespondents who could not be reached by phone. The new cover letter, questionnaire, and return envelope were mailed in a US Postal Service priority cardboard mailer. The outer postage was \$3.50 stamps, and since postal service rates were to increase, a 3-cent stamp was placed along side the 80-cent stamp on the return envelope.

## Sources of Nonresponse

As of November 14, 2002, 130 individuals have not responded to the survey. Of those, two persons are deceased and one is unable to respond due to illness. An additional 11 of the 130 individuals contacted CFEC by mail or phone to communicate they would not be responding. Some indicated that they were too busy or that it would be difficult to access their records. Others did not specify a reason.

An additional source of nonresponse may be incorrect contact information. There is no way to find out how many of those persons who could not be reached by phone actually received the survey. Incorrect contact information could be due to data entry errors or out of date contact information in CFEC files. Before mailing the final contact, CFEC paper files were examined to obtain the most current and accurate address information available to the commission. A typo was found in one address, and a new address was found for another permit holder. As a result, two addresses were modified for the final mailing. The priority mailing may have been the only contact that reached these two individuals.

## SURVEY RESPONSE

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At this time, 310 of the 440 surveys mailed to the sample have been completed and returned for an overall response rate of 70.5%.<sup>9</sup> A view of respondents by resident type shows a range in response rates of 20.3% across four resident type categories.

Table 3. Survey sample and survey response by resident type for the 2002 survey of Bristol Bay salmon drift gillnet permit holders

Residency <sup>10</sup>	Surveys Mailed	Percent of Sample	Surveys Returned	Response Rate	Percent of Total Returned
Alaska residents by type:					
Alaska Local Rural	103	23.4%	60	58.3%	19.4%
Alaska Nonlocal Rural	30	6.8%	23	76.7%	7.4%
Alaska Nonlocal Urban	78	17.7%	47	60.3%	15.2%
All Alaska residents	211	48.0%	130	61.6%	41.9%
Nonresidents	229	52.0%	180	78.6%	58.1%
<b>Total</b>	<b>440</b>	<b>100.0%</b>	<b>310</b>	<b>70.5%</b>	<b>100.0%</b>

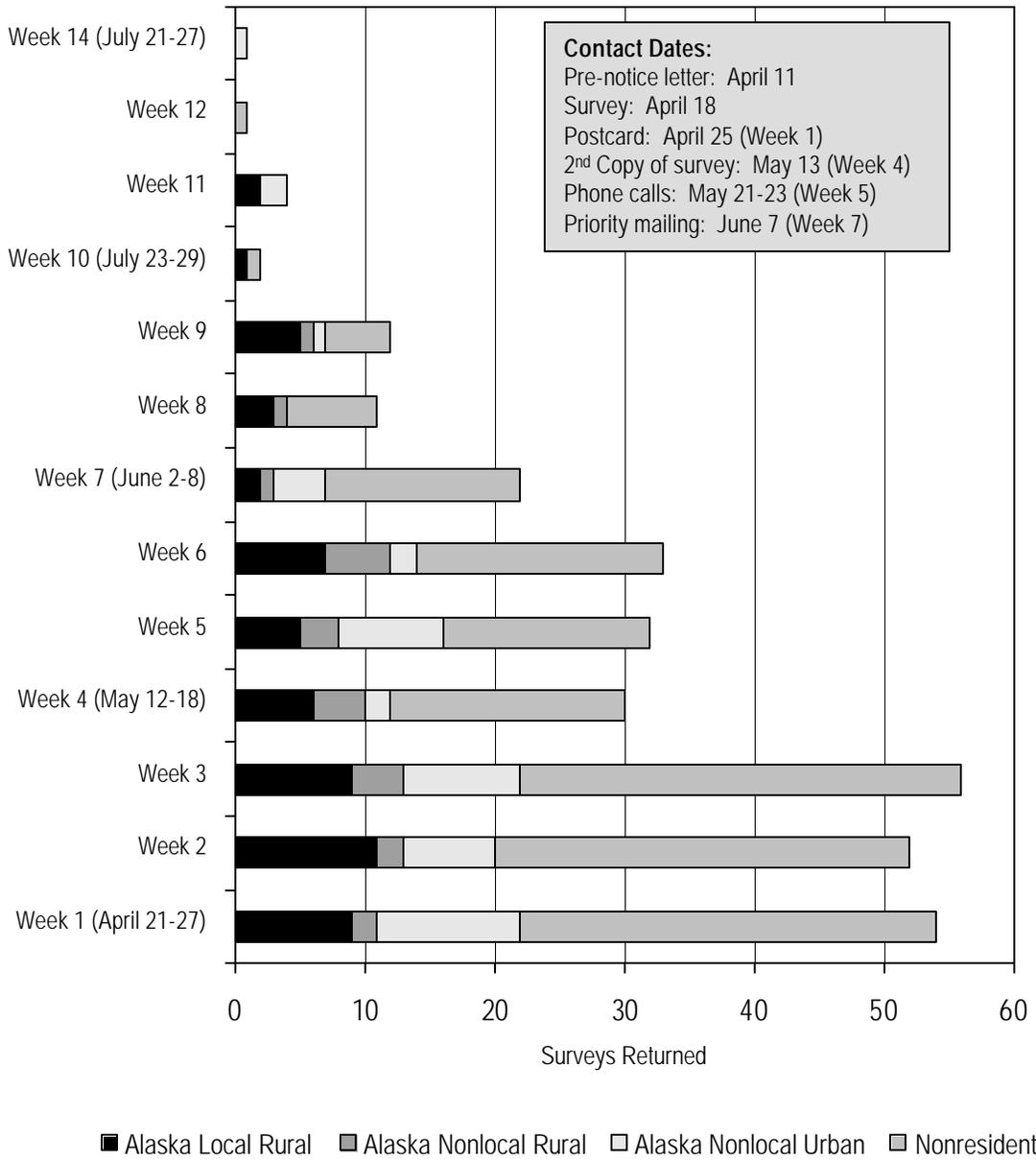
Figure 1, on the following page, shows the number of completed surveys CFEC received by week received and resident type. The chart starts with Week 1 (April 21-27), which was the week following the April 18<sup>th</sup> survey mailing. The latest survey was received in Week 14, July 21-27. The majority of respondents completed and returned their surveys in response to the initial survey mailing and the thank you/reminder postcard mailing. By the end of the third week following the survey mailing, CFEC had received 52.3% of the total response. Approximately 10% of the overall response was received in each of Weeks 4-6, for a cumulative total of 82.9% by the end of the sixth week. The number of

<sup>9</sup> Some late responses may still occur.

<sup>10</sup> Residency categories appear as assigned when the population and sample were identified. See footnote 2 for details.

responses decreased to 7.1% of all surveys in Week 7. The decline in responses and start of the Bristol Bay salmon season triggered the final contact attempt: a third copy of the survey sent through priority mail at the end of Week 7. Following the priority mailing, the final 10% of the total number of surveys was received over a seven-week period.

Figure 1. Bristol Bay Salmon Drift Gillnet Permit Holder Survey Responses by Resident Type and Week Received



## **Nonrandom Expert Sample and Response**

A second, nonrandom sample of experts was surveyed after the random sample had been contacted. This nonrandom sample was made up of 20 persons who have experience in the fishery and who helped or offered to help CFEC develop survey materials, but who were not drawn in the random sample. CFEC collected data from the nonrandom expert sample to use as ancillary data for comparative purposes. Sixteen members of the nonrandom sample have returned the survey, for a response rate of 80%. CFEC also intends to contact these persons for advice and additional background information as questions arise during the optimum number study. The nonrandom expert sample is not included in any presentation or discussion of survey responses elsewhere in this report (including Figure 1).

## **SOURCES OF POSSIBLE ERROR**

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In conducting a self-administered survey using a sample drawn from a larger population, there are at least three potential sources of error. Types of error include coverage error, nonresponse error, and measurement error. Each is briefly described in this section. CFEC took steps to reduce each potential source of error throughout the survey design and implementation process; however, with the exception of coverage error, each remains a concern. The degree to which nonresponse error might be a problem in CFEC's survey data can be examined by comparing characteristics of the sample (all individuals who were surveyed) and of the survey respondents to the population, or sampling frame from which the sample was drawn. Since CFEC has records of fishery participation for all Bristol Bay salmon drift gillnet permit holders, several attributes are available for the comparisons.

In addition to the sources of error introduced in survey design and implementation, error could be introduced in coding and data entering survey responses. The steps CFEC took to minimize this final source of error are discussed at the end of this section.

## **Coverage Error**

Coverage error results from all members of a population not having an equal chance of being included in the sample. Often, it is difficult to specify all members of a population, so a sampling frame must be generated as a proxy for the population. Drawing a sample from an incomplete sampling frame instead of the population introduces coverage error. In the case of the CFEC survey of permit holders, the population was defined as current Bristol Bay salmon drift gillnet permanent entry permit holders, of which CFEC had a complete listing. Permanent entry permits are transferable, so the list of current permit holders changes over time. The sampling frame was confined to year-end 2001 permit holders.

## **Measurement Error**

Measurement error results from respondents either failing to understand what a question is asking or from a respondent providing incorrect information. In designing and pre-testing the survey, efforts were made to minimize measurement error. Instructions were placed within most questions, effort was made to simplify language, and questions that were confusing to individuals who helped pre-test the survey were removed or restructured. The amount of measurement error occurring in completed surveys cannot be quantified, but evidence that some error exists occurs in the survey data. Preliminary exploration of the data has revealed an occasional misunderstanding of the term “gross earnings”, what to do if the permit holder did not make some of the expenditures listed on the questionnaire, and the importance of providing data for a single specific year.

Exploration of the survey data and CFEC fish ticket and licensing data should reveal many of the obvious inaccurate responses. Rules will be developed for analysis purposes

to treat inaccurate data as missing or to override the data with information obtained from other sources.

## **Nonresponse Error**

Nonresponse error results from individuals who respond to a survey being different from those who do not respond. Efforts were made to minimize nonresponse, and the associated nonresponse error, through repeated contacts with survey recipients. In each contact, an emphasis was placed on the importance of each person in the random sample returning the survey so that results would be representative of all permit holders in the fishery. The CFEC survey of permit holders resulted in a 29.5% rate of nonresponse.<sup>11</sup> Since CFEC has records of permit holders' participation in the Bristol Bay salmon drift gillnet fishery, levels of participation can be examined between members of the population, members of the random sample, survey respondents, and nonrespondents.

The data collected in this sample will be very useful for modeling purposes and the optimum number study. However, the 29.5% nonresponse rate raises the possibility that there could be some nonresponse bias. Thus the reader should be cautious about going directly from sample means to make statements about population means. Nonresponse bias may occur when persons who do not respond tend to be different, in some significant way, than persons who do respond. Nonresponse may mean that a portion of the population is inadequately represented in the sample.

CFEC has some ancillary data and information on all persons in the survey population and all persons in the random sample, including respondents and nonrespondents. One approach to evaluating the representativeness of the sample is to compare the survey population with the sample population using these ancillary data. In a similar fashion, sample respondents can be compared with sample nonrespondents to see if any substantial differences exist.

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<sup>11</sup> Some late responses may still occur.

Table 2 (page 8) provides a comparison of the percentage of persons in the population with the percentage of persons in the sample by resident type. In a similar manner, Table 3 (page 18) provides a comparison of the percentage of persons in the sample with the percentage of persons who responded by resident type. Table 3 also provides data on differential response rates by resident type.

Table 4 (on page 25) takes these comparisons further to look at performance in the fishery during 2001. Using Table 4, comparisons can be made between the average estimated gross earnings or the average pounds landed for members of the population, members of the population who were not sampled, members drawn in the sample, actual sample respondents, and nonrespondents. Within each category of persons, however, only permit holders who fished in 2001 are included in the summary data presented in Table 4.

When comparing the ancillary data for persons drawn in the sample versus the population, the difference is entirely the result of the random draw. Within the sample, differences between sample respondents and nonrespondents may be an indication of possible response bias.

Across all resident types, the average number of pounds landed per sample respondent in 2001 was 14.5% higher than the average pounds landed per nonrespondent; though, only 3.8% higher than average pounds landed per person drawn in the sample. Comparing sample respondents directly to the entire population shows an even smaller difference. The average number of pounds landed per respondent was only slightly higher than the average pounds landed for the entire population, 1.7% across all resident types.<sup>12</sup>

By resident type, the same comparisons show that the greatest differences between survey respondents and nonrespondents occur within the Alaska nonlocal rural and the

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<sup>12</sup> All percentages in this section are calculated as a percentage of the average pounds landed per *respondent* (except for comparisons between the entire sample and population).

Alaska nonlocal urban resident types. The average number of pounds landed by sample respondents is 43.3% and 27.1% higher, respectively, than the average pounds landed by nonrespondents for these resident types. Comparisons of the sample respondents to the entire population within each of the two resident types again reveal a difference that is much less severe. The average number of pounds landed per Alaska nonlocal rural sample respondent is 6.7% higher than that per member of the entire Alaska nonlocal rural population. For Alaska nonlocal urban residents, the average number of pounds landed per sample respondent is 11.1% higher than that per member of the entire Alaska nonlocal urban population.

Alaska local rural respondents and nonresident respondents have very similar 2001 poundage levels, on average, to the nonrespondents within each of these resident types. The sample drawn within each of these residency categories had a lower average number of pounds landed per permit holder than members of the entire population. The average number of pounds landed per Alaska local rural sample respondent is 7.1% lower than that per member of the Alaska local rural population. For nonresidents, the average number of pounds landed per sample respondent is 1.8% lower than that for the population.

With respect to earnings across all resident types, these data show that the average estimated gross earnings for the entire sample are slightly lower (2.3%) than average earnings for the population from which the sample was drawn. Average estimated gross earnings for nonrespondents, however, are approximately 15.8% lower than average earnings for respondents. The fact all persons drawn in the random sample had slightly lower average gross earnings than the population was offset in the actual sample of respondents by the larger response rate from individuals with higher gross earnings. Comparing respondents to the population reveals that average earnings for respondents are 1.9% higher than those for the population. As noted at the bottom of Table 4, not all permit holders in the population or sample fished in 2001. The rate of permit holders without landings in 2001 is similar between the population (21%) and the sample (20%).

Table 4. Comparison of 2001 Bristol Bay salmon drift gillnet fishery gross earnings and pounds landed between members of the population, members of the random sample, survey respondents, and nonrespondents

Resident type		Number of individuals with 2001 landings	Average estimated gross earnings	Average pounds landed
All resident types	Members of the population:	1387	\$21,182	52,540
	Not sampled	1036	\$21,345	52,925
	Members of the sample:	351	\$20,700	51,402
	Respondents	259	\$21,596	53,436
	Nonrespondents	92	\$18,178	45,677
Alaska local rural	Members of the population:	333	\$16,447	42,905
	Not sampled	245	\$16,859	43,937
	Members of the sample:	88	\$15,298	40,031
	Respondents	53	\$15,498	40,044
	Nonrespondents	35	\$14,995	40,011
Alaska nonlocal rural	Members of the population:	91	\$16,837	42,277
	Not sampled	72	\$16,854	42,547
	Members of the sample:	19	\$16,772	41,256
	Respondents	15	\$18,393	45,293
	Nonrespondents	4	\$10,694	26,117
Alaska nonlocal urban	Members of the population:	243	\$19,458	48,326
	Not sampled	184	\$19,358	48,068
	Members of the sample:	59	\$19,769	49,128
	Respondents	38	\$21,867	54,369
	Nonrespondents	21	\$15,972	39,645
Nonresidents	Members of the population:	720	\$24,503	59,716
	Not sampled	535	\$24,686	60,109
	Members of the sample:	185	\$23,971	58,578
	Respondents	153	\$23,956	58,641
	Nonrespondents	32	\$24,043	58,278

Note: Individuals who did not record landing in 2001 are not included in the table. According to CFEC records, 370 of 1,757 individuals in the population (21%) did not make landings in 2001. In the same year, 89 of 440 individuals in the sample (20%) did not make landings.

## Coding and Data Entry Error

After respondents completed and returned their questionnaires, the surveys were coded and data entered. Coding and data entering introduces additional potential sources of error, however, CFEC took steps to minimize each. Coding was performed by a small group of researchers, all of whom were familiar with the survey and the purpose of the study. To achieve consistency in coding, a booklet including a translation of all possible responses to data that could be used for analysis was prepared and distributed to all coders. The coded surveys were reviewed and edited by a single researcher as a final step to establish consistency and accuracy in the coding.

The coded surveys were data entered into an MS Access database using data entry screens built to resemble the questionnaire from which the data was being entered. The data entry screens included all questions, as printed on the survey, to minimize the possibility of entering an answer to one question into the blank of another. The use of validation rules and indexing by survey identification number (no duplicates allowed) also worked to reduce the possibility of typos.

Survey responses were reentered into a duplicate database and compared to the first set of data using a SAS procedure, Proc Compare. First both data files were converted to SAS data sets, and then compared using the following SAS code:

```
PROC COMPARE BASE = C1SRVYDATA  
    COMPARE = C2SRVYDATA    NODATE NOSUMMARY;  
    BY SRVY_ID;  
    RUN;
```

The resulting comparison report lists all discrepancies between copy one and copy two of the survey data, grouped by survey identification number. Where differences were reported, the paper copy of the survey was pulled and reviewed, and the incorrect data was revised in the appropriate database. After all data were edited, the comparison was made again. The process was repeated until all discrepancies were corrected. Almost all text fields were output on the compare report. Test entries were reviewed for consistency

of information, but spelling errors and differences in punctuation or abbreviations were overlooked.

## **SUMMARY**

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The 2002 survey of Bristol Bay drift gillnet permit holders conducted by CFEC's research staff permit holders produced data on investments, operation costs, and net returns for an optimum number study. The survey also obtained information on other fishery related topics including the outlook for the future and attitudes toward buyback. CFEC was pleased with a high response rate of 70.5% for such a complex survey and the data will be very useful for the optimum number study.

This paper has included a discussion of the sampling frame, the selection of a sample size, and the method of drawing members of the simple random sample. The paper presented a thorough overview of the survey materials as well as the implementation and follow-up procedures. To help evaluate representativeness of the sample, a discussion of the survey response rate, sources of potential error, and comparisons with ancillary data have also been provided. Appendices to this document include copies of all the survey materials that were utilized.



# STATE OF ALASKA

## COMMERCIAL FISHERIES ENTRY COMMISSION

8800 Glacier Highway, 109  
Juneau, Alaska 99801

(907) 789-6160 Phone  
(907) 789-6170 Fax

[www.cfec.state.ak.us](http://www.cfec.state.ak.us)

For Review Only

April 11, 2002

«First» «MI»«Last» «Title»  
«Street»  
«City», «State» «Zip»

A few days from now you will receive in the mail a request to fill out a questionnaire for an important research study being conducted by the Alaska Commercial Fisheries Entry Commission.

This study will help the Commission determine an optimum number of entry permits for the Bristol Bay drift gillnet fishery. By law, an optimum number determination is required before the state can consider establishing a voluntary buy-back program to reduce the size of the fishing fleet. Information provided by this study will be useful both to permit holders and to the state in making decisions about the future of the Bristol Bay salmon drift gillnet fishery.

I am writing in advance because we are aware that many people like to know ahead of time that they will be contacted. The questionnaire we are sending will ask for your views on the current situation in the Bristol Bay salmon drift gillnet fishery, on the future of the fishery, and on the possibility of reducing the number of entry permits in the fishery. It will also ask for information on your economic return in the fishery.

Thank you for your time and consideration. It is only with the help of permit holders like you that our study will be successful.

Sincerely,

*Signature*

Kurt O. Schelle  
Project Leader  
Research & Planning



# STATE OF ALASKA

## COMMERCIAL FISHERIES ENTRY COMMISSION

8800 Glacier Highway, Suite 109 • Juneau, Alaska • 99801

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Kurt Iverson ? (907)790-6947  
kurt\_iverson@cfec.state.ak.us

April 18, 2002

For Review Only

«First» «MI»«Last» «Title»

«Street»

«City», «State» «Zip»

I am writing to ask for your help in an important study being conducted by the Commercial Fisheries Entry Commission on the Bristol Bay salmon drift gillnet fishery. This study will help the Commission determine an optimum number of entry permits for the fishery.

We are contacting you as part of a random sample of Bristol Bay salmon drift gillnet entry permit holders. As a current permit holder in the fishery, you have the knowledge and critical information on economic performance that are needed to evaluate economic returns in the fishery. In order for the results to truly represent all participants in the fishery, it is important that each questionnaire be completed and returned. We know you depend on the fishery for your livelihood, and that you will be impacted by any change in the number of entry permits.

We are interested in your views on the current situation in the Bristol Bay fishery, on the future of the fishery, and on the possibility of reducing the size of the fleet. To help determine an optimum number of permits for this fishery, we also need information on your operating costs, investments, and earnings. Under Alaska law, the optimum number is based on a balance of standards related to resource conservation and the economic health of the fishery. The Commission is required to make an optimum number determination before the state can consider establishing a voluntary permit buy-back program.

A survey code is printed on your booklet to let us know when we have received a completed survey from you so that we do not bother you with unnecessary follow-ups. The number will also allow us to combine your information with fish ticket and licensing data. By law, your answers are completely confidential. Reports produced from this study will include only summary information so that no individual's answers can be identified.

If you have any questions or comments about this study, I would be happy to talk with you. Please feel free to call or e-mail me at the phone number or e-mail address shown above. Stefanie Carlson and Kurt Iverson are also working on this project and would be happy to answer your questions. Their e-mail addresses and phone numbers are also shown above. Thank you very much for helping with this important study.

Sincerely,

*Signature*

Kurt O. Schelle  
Project Leader, Research & Planning



For Review Only

April 25, 2002

Last week a survey was sent to you about the Bristol Bay salmon drift gillnet fishery. The survey seeks your views on the need for fleet reductions and information on your costs and net returns in the fishery.

If you already completed and returned the survey to us, please accept our sincere thanks. If not, please do so today. We are especially grateful for your help, because only with the cooperation of permit holders such as yourself will we be able to obtain the information and data needed to determine an optimum number of permits for the fishery.

If you did not receive the survey, or if it was misplaced, please call us at (907) 789-6160 and we will get another one in the mail to you today.

*Signature*

Kurt O. Schelle  
Project Leader  
Research & Planning



# STATE OF ALASKA

## COMMERCIAL FISHERIES ENTRY COMMISSION

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Kurt Iverson ? (907)790-6947

kurt\_iverson@cfec.state.ak.us

May 13, 2002

For Review Only

Permit Holder  
Street Address  
City, State Zip

About three weeks ago I sent a questionnaire to you on the Bristol Bay salmon drift gillnet fishery. The questionnaire seeks your views on the need for permit buy-back and asks questions about your fishing costs, investments in the fishery, and economic returns. To the best of our knowledge, your questionnaire has not yet been returned.

The information and opinions provided by the permit holders who have already returned their questionnaires have been very useful. We think the results will help the commission to determine an optimum number of permits for the fishery, and help permit holders make informed decisions about the future of the fishery.

We are writing again because of the importance that your questionnaire has for helping us get accurate results. It is only by hearing from nearly everyone who was sent a survey that we can be sure that the results are truly representative.

A few people have told us that they have not participated in the fishery recently, or they have just sold their permit and no longer have an interest in the Bristol Bay salmon drift gillnet fishery. If either of these situations apply to you, we still would greatly appreciate it if you would complete the questionnaire and return it to us. Your views and information are very valuable to this study.

We would like to add one more comment to assure you about our survey procedures. An identification number is printed on the questionnaire so that we can check your name off of our list when your completed survey is received and we don't have to bother you with additional follow-ups. Please be assured that answers and data you provide are protected by law from public disclosure. Protecting the confidentiality of people's answers is very important to us.

We hope you will fill out and return the questionnaire soon, but if for any reason you do not want to help with the study, please let us know by returning a note in the enclosed envelope.

Sincerely,

*Signature*

Kurt O. Schelle  
Project Leader  
Research & Planning



# STATE OF ALASKA

**COMMERCIAL FISHERIES ENTRY COMMISSION**  
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Kurt Iverson ? (907)790-6947  
[kurt\\_iverson@cfec.state.ak.us](mailto:kurt_iverson@cfec.state.ak.us)

June 7, 2002

For Review Only

«First» «MI»«Last» «Title»  
«Street»  
«City», «State» «Zip»

During the last few weeks, we have sent you several mailings about an important research study that we are conducting on the Bristol Bay salmon drift gill net fishery. As of this mailing, we have not yet received your response.

The purpose of the study is help the Commercial Fisheries Entry Commission determine an optimum number of entry permits for the fishery. The study will also provide information that will help permit holders and others make informed decisions about the future of the fishery.

You were selected in a random sample of Bristol Bay permit holders for this study. We have received completed surveys from the majority of the persons in the sample and those responses have been extremely helpful and informative. At this point, we are writing to those who have not yet responded to urge you to complete and return your survey as soon as possible. The sooner we get your response, the sooner we can begin to analyze the information and provide summary results from the study.

Your response and views are very important to the study. We have used priority mail for this mailing and we have included another copy of the survey with a postage-paid return envelope. We know that there are wide ranges of circumstances among permit holders and it is important that we hear from all permit holders in the sample so that the survey results will be as accurate and representative as possible.

Again, please be assured that your response is completely confidential by law. We will only report summary data and information in the results of this study.

We hope that you will help us with this study. If you have any questions about the survey or need help completing it, please contact Stefanie Carlson or myself. Our phone numbers and e-mail addresses are shown in the letterhead above. Thank you very much for considering our request.

Sincerely,

*Signature*

Kurt O. Schelle  
Project Leader  
Research & Planning



# Bristol Bay Salmon Drift Gillnet Fishery 2002 Survey of Permit Holders



State of Alaska

Commercial Fisheries Entry Commission

8800 Glacier Hwy, Suite 109, Juneau, AK 99801

---

If you have any questions about this survey or the optimum number study, please contact us at the research section of the Commercial Fisheries Entry Commission.

Kurt Schelle ? Research Section Project Leader  
kurt\_schelle@cfec.state.ak.us  
(907)790-6937 phone / (907)790-7037 fax

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Stefanie Carlson ? Economist  
stefanie\_carlson@cfec.state.ak.us  
(907)790-6938 phone / (907)790-7038 fax

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## Introduction

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This survey is divided into four parts. Each part is important to the optimum number study being conducted by the Commercial Fisheries Entry Commission. The four parts of the survey are described below.

### Part One: Current Condition of the Fishery

Part One asks for your views about the current situation in the Bristol Bay salmon drift gillnet fishery. It also asks about your experience with congestion in the fishery.

### Part Two: Your Most Recent Year in the Fishery

Part Two asks for information on the most recent year you fished in the Bristol Bay salmon drift gillnet fishery. There are questions about what you would have done with your time if you had not participated in that most recent year; the costs you incurred; the number of crew you used; the crewshare you paid; your earnings; your vessel; and the value of your fishery investments.

### Part Three: An Earlier Year in the Fishery

Part Three asks for information for a second (earlier) year you fished in the Bristol Bay salmon drift gillnet fishery. We would like to obtain information from the year you first began participating in the fishery as a permit holder, or from the earliest year that you can provide good cost and earnings information. The reason we are asking for an additional year of information is to get a better picture of how your costs have changed over time and changed with conditions in the fishery.

### Part Four: Future of the Fishery

Part Four asks your outlook for the future of the fishery and your views on the need for a permit buy-back program.

*Please keep in mind that we want to hear about your views and experience in the fishery. We ask that you provide the best information you have available, from memory and from your records. Please answer all of the questions.  
Your answers are completely confidential.*

Begin answering questions on the next page.

## Part One

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### Section A: Current Condition of the Fishery

As prices paid to fishermen and harvests have declined, Bristol Bay salmon fishermen have suffered reductions in income, entry permit values, and vessel values. In some cases, a permit holder's earnings may not have covered all costs. The following questions ask for your analysis of your fishing operation and the recent economic decline in the fishery.

1. How profitable was your operation in the most recent season you fished in the Bristol Bay salmon drift gillnet fishery? Did you make enough to pay all, some, or none of the following with your earnings from the fishery? (Check one box for each category.)

	All ▼	Some ▼	None ▼
I was able to pay my crew the amount I owed to them.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I was able to pay my operating costs (gear, fuel, food, insurance, etc.).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I was able to make my permit and/or vessel loan payments (Please leave these boxes blank if you did not have loans).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I made enough to earn a fair return on my investments in the fishery.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I made enough to pay myself a fair amount for the time I spent in the fishery.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I made enough to set aside money needed for future vessel or equipment upgrades.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. When returns in a fishery are declining, a permit holder often makes an effort to reduce expenses. To what extent have you taken steps to reduce your costs as earnings in the fishery decline? (Check one box for each category.)

	To A Great Extent ▼	To Some Extent ▼	A Small Extent ▼	Not At All ▼
I have reduced my insurance coverage.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I have reduced spending on new electronics and equipment.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I have reduced/postponed maintenance on my vessel, gear, or electronics.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I have reduced the time I spend at the fishery .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please specify): _____ .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. To what extent do you think each of the following have led to the recent decline in economic performance of the Bristol Bay salmon drift gillnet fishery? (Check one box for each category.)

	To A Great Extent ▼	To Some Extent ▼	A Small Extent ▼	Not At All ▼
Natural cycles in run size.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Changes in consumers' preferences.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inadequate marketing efforts .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Growth of farmed salmon production.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Harvester-processor relations.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fishery management.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Number of permit holders in the fishery.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interception fisheries.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please specify): _____.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Section B: Intensity and Congestion

The intensity of the Bristol Bay salmon drift gillnet fishery creates congestion in some areas. The following questions ask for your experience with damage resulting from congestion in the fishery.

4. How often have you experienced damage to your fishing gear or equipment as a result of congestion in the Bristol Bay salmon drift gillnet fishery? (Check the most appropriate answer.)

- Never
- Once
- Every few years
- Nearly every year
- Multiple times per year

5. Do you think reducing the number of boats would reduce the amount of congestion in the fishery? (Check most appropriate answer.)

- Yes
- No
- Uncertain

## Part Two

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### Section A: Your Most Recent Year with Landings

The following questions ask how much time you spent in the fishery during the most recent season you fished, and how you would have used your time if you were not busy with the fishery. If you have a permit loan, you are also asked to provide the annual amount due on your loan in the most recent year you fished.

1. What was the most recent season you fished in the Bristol Bay salmon drift gillnet fishery and made landings on your permit?

- 2001
- 2000
- 1999
- 1998
- Other (Please specify): \_\_\_\_\_

2. If you emergency transferred your Bristol Bay salmon drift gillnet permit at some time during 2001, how much did you receive in payment? (If you were compensated for the use of your permit and vessel, please estimate the amount you were paid for the permit only.)

\$ \_\_\_\_\_ for use of the permit

3. How much time did you spend on the Bristol Bay salmon drift gillnet fishery in the most recent year that you fished (selected above in Question 1)? Include time preparing vessel and gear, participating in the fishery, and storing your vessel and gear after the season.

- 2 weeks or less
- 3 to 4 weeks
- 5 to 6 weeks
- 7 to 8 weeks
- 9 to 10 weeks
- 11 to 12 weeks
- 13 to 14 weeks
- More than 14 weeks

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4. If you had not fished in the Bristol Bay salmon drift gillnet fishery during your most recent season, what would you have done during the time you spent on the fishery? (Check the most appropriate answer.)

- Participated in a different commercial fishery
- Worked at my regular job or business
- Worked at a part-time job
- Engaged in subsistence activities
- Engaged in non-work related activities
- Other (Please specify): \_\_\_\_\_

5. If you had not fished in the Bristol Bay salmon drift gillnet fishery during your most recent season, how much money do you think you would have earned doing something else during the time you spent on the fishery?

- None
- \$1 to \$1,000
- \$1,000 to \$2,500
- \$2,500 to \$5,000
- \$5,000 to \$7,500
- \$7,500 to \$10,000
- \$10,000 to \$15,000
- More than \$15,000

6. What were the annual principal and interest payments due on your permit in the most recent year that you made landings on the permit (the year you selected in Question 1, page 3)? (If the answer is zero or if you did not have a loan, please write 0.)

*Note that you will be asked about your vessel loan in Section D of Part Two.*

Total principle due on your permit loan for the year.....\$ \_\_\_\_\_

Total interest due on your permit loan for the year .....\$ \_\_\_\_\_

*If you cannot list your principle and interest payments separately, please provide the combined payment due for the year:*

Total principal and interest due on permit loan for the year.....\$ \_\_\_\_\_

## Section B: Expenses in Your Most Recent Year

This section is designed to gain a better understanding of operating costs in the Bristol Bay salmon drift gillnet fishery. We want to obtain information on your costs during the most recent year you fished (the year you identified in Question 1, page 3). The cost information that you provide will be combined with cost information received from other permit holders to construct a very important part of the optimum number study.

Please use tax returns, settlement sheets, personal records, and your expert judgment to fill out this section. If you participated in other commercial fisheries, *include costs for the Bristol Bay salmon drift gillnet fishery only.*

7. Which one of the following best describes your role in the Bristol Bay salmon drift gillnet fishery during the most recent season you made landings on your permit (the year you identified in Question 1, page 3)?

- A. I was the permit holder, skipper, and vessel owner.
- B. I was the permit holder and skipper, but was not the vessel owner.
- C. I was the permit holder, but was not the skipper or vessel owner.

(If C) If you have access to cost and earnings information for the fishing operation you spent most of your season with, please continue. If you do not have cost and earnings information for the fishing operation, please skip to Question 15, page 8.

8. What were the total operating costs for your fishing operation in the Bristol Bay salmon drift gillnet fishery in the most recent year you fished (the year you identified in Question 1, page 3)? Please give your best estimate of what was paid in each category for the Bristol Bay salmon drift gillnet fishery only. (If the answer is zero, please write 0.)

Food for you and your crew.....\$ \_\_\_\_\_

Transportation expenses to and from the fishery.....\$ \_\_\_\_\_

In-season ground transportation expenses  
(taxi/shuttle service or expenses for personal vehicle).....\$ \_\_\_\_\_

Telephone services directly related to the fishery.....\$ \_\_\_\_\_

Fuel, oil, filter, and lubricant expenses for your vessel.....\$ \_\_\_\_\_

Net hanging, net repair, and net web expenses.....\$ \_\_\_\_\_

Routine maintenance and repair expenses for vessel,  
electronics, and gear (excluding net expenses).....\$ \_\_\_\_\_

Extraordinary or unexpected maintenance and repair  
expenses (from breakdowns, accidents, etc.).....\$ \_\_\_\_\_

Miscellaneous fishing gear and supplies.....\$ \_\_\_\_\_

Freight and shipping for gear and supplies  
(if not already included in the categories above).....\$ \_\_\_\_\_

Vessel and gear storage, moorage, and haulout fees.....\$ \_\_\_\_\_

Property tax on vessel/fishery related property.....\$ \_\_\_\_\_

State and local fisheries taxes.....\$ \_\_\_\_\_

Insurance (protection & indemnity, hull, lay-up, etc.).....\$ \_\_\_\_\_

Bookkeeping or accounting services.....\$ \_\_\_\_\_

Other (please describe):

*Please do not add your crew and vessel expenses here. You will be asked for them in the next two sections.*

\_\_\_\_\_ .....\$ \_\_\_\_\_

\_\_\_\_\_ .....\$ \_\_\_\_\_

9. How much did you spend on new equipment for the Bristol Bay salmon drift gillnet fishery in the most recent year you fished (the year you identified in Question 1, page 3)? New equipment includes major purchases such as engines, electronics, communication devices, and major vessel modifications. New equipment does not include the purchase of a vessel.

- Nothing
- \$1 to \$1,000
- \$1,000 to \$2,500
- \$2,500 to \$5,000
- \$5,000 to \$10,000
- \$10,000 to \$20,000
- \$20,000 to \$30,000
- More than \$30,000

10. Did anything unexpected happen with your fishing operation that caused you to have unusually high costs or low earnings for the year (the year you identified in Question 1, page 3)?

Yes, (Please explain): \_\_\_\_\_

\_\_\_\_\_

No

## Section C: Crew in Your Most Recent Year

Crewshares are a major expense for any Bristol Bay salmon drift gillnet fishing operation. Please provide crew information in this section for the most recent year you fished in the Bristol Bay salmon drift gillnet fishery (the year specified in Question 1, page 3). Since crewshares are generally dependent on earnings, you are also asked to provide your earnings for the same year.

11. How many persons, **not including yourself**, were usually working onboard your vessel during your most recent season (the year you identified in Question 1, page 3)? (Check the most appropriate answer.)

- One persons
- Two persons
- Three persons
- Other (Please specify): \_\_\_\_\_

12. What was the total amount you paid in crewshares to crew other than yourself during the most recent year you fished (the year you identified in Question 1, page 3)? Please exclude any crewshare you paid to yourself.

Total crewshares.....\$\_\_\_\_\_

13. Of the persons working onboard your vessel (reported above in Question 11), **not including yourself**, how many were unpaid family members or unpaid helpers? (Check the most appropriate answer.)

- None
- One persons
- Two persons
- Three persons
- Other (Please specify): \_\_\_\_\_

14. In your most recent Bristol Bay salmon drift gillnet season (the year you identified in Question 1, page 3), what was the total amount of gross earnings you received for the sale of your fish? Include any post-season adjustments and bonuses.

Gross earnings in this fishery.....\$\_\_\_\_\_

## Section D: The Vessel You Used Most

Vessel characteristics and values vary widely in the Bristol Bay salmon drift gillnet fishery. As profits from the fishery have declined, many vessels have dropped in value. This section asks you for vessel characteristics and estimated values specific to the vessel you used most in the Bristol Bay salmon drift gillnet fishery during the most recent season you fished (the year you specified in Question 1, page 3).

15. Do you own or do you have an ownership interest in the vessel you used most in the Bristol Bay salmon drift gillnet fishery during the most recent season you fished (the year you identified in Question 1, page 3)?

Yes  
 No ——— (If No) Skip to 20

16. (If Yes) What year did you purchase this vessel?

\_\_\_\_\_ year

17. What was the purchase price of the vessel?

\$ \_\_\_\_\_ purchase price of the vessel

18. What is the estimated value of this vessel now as presently equipped? Please provide your best estimates.

Most recent marine survey estimated market value .....\$ \_\_\_\_\_

Estimated current market value (in your own opinion) .....\$ \_\_\_\_\_

19. What were the annual principal and interest payments due on this vessel in the most recent year you fished? (If the answer is zero or if you did not have a loan, please write 0.)

Principle payment due on vessel for the year .....\$ \_\_\_\_\_

Interest payment due on vessel loan for the year .....\$ \_\_\_\_\_

*If you cannot list your principle and interest payments separately, please provide the combined payment due for the year:*

Total principal and interest due on vessel loan for the year .....\$ \_\_\_\_\_

If **NO** to Question 15, restart here and continue.

20. If you did not own or have an ownership interest in the vessel you used in the most recent year you participated (the year you identified in Question 1, page 3), how much did the vessel owner receive as a boat share?

Amount paid to vessel owner.....\$ \_\_\_\_\_

Whether you did or did not have an ownership interest in the vessel you used, please fill out the remaining questions in this section. The following questions are for everyone.

21. Is the vessel you fished most during your most recent season in the fishery a bow picker, stern picker, or both?

- Bow picker
- Stern picker
- Both

22. What type of propulsion does the vessel have?

- Propeller
- Jet

23. What is the horsepower?

\_\_\_\_\_ horsepower

24. Does this vessel have a refrigerated seawater system?

- Yes
- No \_\_\_\_\_ (If No) Skip to 26

25. (If Yes) What year was the refrigerated seawater system installed in the vessel? Please approximate if unsure.

Please specify year: \_\_\_\_\_

26. How many pounds of salmon can this vessel safely hold on board? (Check the most appropriate answer.)

- Less than 5,000 pounds
- 5,000 to 10,000 pounds
- 10,000 to 15,000 pounds
- 15,000 to 20,000 pounds
- 20,000 to 25,000 pounds
- 25,000 to 30,000 pounds
- More than 30,000 pounds

27. Was this vessel built only for use in the Bristol Bay salmon drift gillnet fishery?

- Yes
- No
- Uncertain

28. Do you think this vessel could be used for any of the following? (Please check the most appropriate box for each.)

	Easily ▼	Possibly ▼	Unlikely or Impossible ▼
Togiak, Security Cove, or Goodnews Bay roe herring gillnet fishery.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other roe herring gillnet fisheries.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Togiak roe herring purse seine fishery.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Halibut or Pacific cod longline or jig fishery.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other salmon drift gillnet fisheries.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Convert to private recreational vessel.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Convert to commercial hunting, sport fish, or sightseeing charter vessel.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other fisheries/activities the vessel could be used in (Please list):

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## Part Three

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### Section A: Your Expenses in an Earlier Year

The following questions are designed to gain a better understanding of how much it cost to operate in past years of the Bristol Bay salmon drift gillnet fishery. In this section, please provide information for the *earliest year you can*. If you fished before 1983 as a permit holder, however, please only go back as far as 1983.

This section is a very important part of the optimum number study. Please do your best to complete all of the questions using past tax returns, settlement sheets, personal records, and your expert judgment. If you participated in other commercial fisheries, please *include costs for the Bristol Bay salmon drift gillnet fishery only*.

1. What was the first season you fished in the Bristol Bay salmon drift gillnet fishery as a permit holder?

Please specify year: \_\_\_\_\_

2. What is the earliest season of participation (as a permit holder) for which you can provide accurate cost and earnings information? Please select a year for which you can provide accurate information, but do not go further back than 1983.

Please specify year: \_\_\_\_\_

3. Is the year you selected above, in Question 2, the same year you reported in Part Two as your most recent year in the fishery (the year specified in Question 1, page 3)?

Yes ——— (If Yes) Skip to Question 1 on page 15

No

4. (If No) Which one of the following best describes your role in the Bristol Bay salmon drift gillnet fishery during the earliest season for which you have accurate cost and earnings information (the year you selected above in Question 2)?

I was the permit holder, skipper, and vessel owner.

I was the permit holder and skipper, but was not the vessel owner.

I was the permit holder, but was not the skipper or vessel owner.

5. What were the total costs for your fishing operation in the Bristol Bay salmon drift gillnet fishery in the earliest season for which you have accurate information (the year you selected in Question 2, page 11)? Please give your best estimate of what was paid in each category for the Bristol Bay salmon drift gillnet fishery only. (If the answer is zero, please write 0.)

Food for you and your crew.....\$ \_\_\_\_\_

Transportation expenses to and from the fishery.....\$ \_\_\_\_\_

In-season ground transportation expenses  
(taxi/shuttle service or expenses for personal vehicle).....\$ \_\_\_\_\_

Telephone services directly related to the fishery .....\$ \_\_\_\_\_

Fuel, oil, filter, and lubricant expenses for your vessel.....\$ \_\_\_\_\_

Net hanging, net repair, and net web expenses.....\$ \_\_\_\_\_

Routine maintenance and repair expenses for vessel,  
electronics, and gear (excluding net expenses).....\$ \_\_\_\_\_

Extraordinary or unexpected maintenance and repair  
expenses (from breakdowns, accidents, etc.).....\$ \_\_\_\_\_

Miscellaneous fishing gear and supplies .....\$ \_\_\_\_\_

Freight and shipping for gear and supplies  
(if not already included in the categories above) .....\$ \_\_\_\_\_

Vessel and gear storage, moorage, and haulout fees.....\$ \_\_\_\_\_

Property tax on vessel/fishery related property.....\$ \_\_\_\_\_

State and local fisheries taxes.....\$ \_\_\_\_\_

Insurance (protection & indemnity, hull, lay-up, etc.).....\$ \_\_\_\_\_

Bookkeeping or accounting services.....\$ \_\_\_\_\_

Boat share paid to vessel owner (if leased).....\$ \_\_\_\_\_

Other (please describe):

*Please do not add your crew expense here. It will be asked in the next section.*

.....\$ \_\_\_\_\_

.....\$ \_\_\_\_\_

6. How much did you spend on new equipment for the Bristol Bay salmon drift gillnet fishery in the first year for which you have cost and earnings information (the year you selected in Question 2, page 11)? New equipment includes major purchases such as engines, electronics, communication devices, and major vessel modifications. New equipment does not include the purchase of a vessel.

- Nothing
- \$1 to \$1,000
- \$1,000 to \$2,500
- \$2,500 to \$5,000
- \$5,000 to \$10,000
- \$10,000 to \$20,000
- \$20,000 to \$30,000
- More than \$30,000

7. Did anything unexpected happen with your fishing operation that caused you to have unusually high costs or low earnings for the year (the year you selected in Question 2, page 11)?

- Yes, (Please explain): \_\_\_\_\_  
\_\_\_\_\_
- No

## Section B: Crew in Earlier Years

The number of crew persons and the total crewshare paid out has changed through time for many Bristol Bay salmon drift gillnet fishing operations. In this section, you are asked to provide crew and crewshare information for the year you selected in Question 2, page 11 (the earliest year that you have accurate cost and earnings records). You are also asked to provide your earnings in the fishery for that same year.

8. How many persons, not including yourself, were usually working onboard your vessel during the earliest year for which you are providing information (the year you selected in Question 2, page 11)? (Check the most appropriate answer.)

- One person  
 Two persons  
 Three persons  
 Other (Please specify): \_\_\_\_\_

9. What was the total amount you paid in crewshares to crew other than yourself during the earliest Bristol Bay salmon season for which you are providing information (the year you selected in Question 2, page 11)? Please exclude any crewshare you paid to yourself.

Total crewshares.....\$ \_\_\_\_\_

10. Of the persons working onboard your vessel, not including yourself, how many were unpaid family members or unpaid helpers in the earliest year for which you are providing information? (Check the most appropriate answer.)

- None  
 One person  
 Two persons  
 Three persons  
 Other (Please specify): \_\_\_\_\_

11. What was the total amount of gross earnings that you received for the sale of your fish in the earliest Bristol Bay salmon drift gillnet season for which you are providing information (the year you selected in Question 2, page 11)? Please include any post-season adjustments and bonuses.

Gross earnings in this fishery.....\$ \_\_\_\_\_

## Part Four

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In this section, please provide your outlook for the future of the fishery and your views about the use of a buy-back program to reduce fleet size in the Bristol Bay salmon drift gillnet fishery.

**1. Salmon prices paid to fishermen have fallen dramatically in the past three seasons. Prices are likely to fluctuate in the future; but a key question is whether they will, on average, be higher or lower in the future. What do you think?**

- I think future prices will, on average, be much higher than in 2001.
- I think future prices will, on average, be slightly higher than in 2001.
- I think future prices will, on average, be about the same as in 2001.
- I think future prices will, on average, be lower than in 2001.
- No opinion

**2. Given your recent experience in the fishery and your outlook for the fishery, what are your plans for the near future?**

- I will continue to participate in the fishery.
- I will keep my permit but I will not participate until the economics of the fishery improve.
- I will try to permanently transfer my permit and exit the fishery.
- I will default on my permit and/or vessel loan and forfeit my permit to the lender.
- Uncertain

**3. Alaska's limited entry law has a provision for a fisherman-funded buy-back program. How would you feel about a buy-back program to reduce the number of entry permits in the Bristol Bay salmon drift gillnet fishery if permit holders were taxed a percentage of their earnings from the fishery to fund the buy-back program? For purposes of this question, assume the buy-back program would be for permits only and would not include vessels. (Check the most appropriate answer.)**

- Strongly opposed
- Somewhat opposed
- Somewhat favorable
- Strongly favorable
- No opinion

- 
4. Permit buy-back programs are sometimes funded through sources other than taxes on fishermen. How would you feel about a buy-back program to reduce the number of entry permits in the Bristol Bay salmon drift gillnet fishery, if special funding was available to pay for it? As in Question 3, assume this buy-back program would be for permits only. (Check the most appropriate answer.)

- Strongly opposed
- Somewhat opposed
- Somewhat favorable
- Strongly favorable
- No opinion

5. Imagine that there is a one-time permit buy-back program (permits only) for the Bristol Bay salmon drift gillnet fishery. The goal of the program is to purchase and retire as many limited entry permits as possible, given the available funds. Permit holders will submit "Offers to Sell" their permits to the program. The buy-back program will only occur if the offers to sell are low enough to remove the desired number of permits with the funds that are available.

What minimum price would you be willing to sell your Bristol Bay salmon drift gillnet permit for if this buy-back program was asking for "Offers to Sell" today? (Check one box.)

- I would be willing to sell my permit in a permit buy-back program for:

\$\_\_\_\_\_ (Please write in dollar amount)

- I would not sell for any amount.

Thank you for taking the time to complete this questionnaire. Your assistance in providing this information is appreciated. If there is anything you would like to tell us about this survey or about your thoughts on the Bristol Bay salmon drift gillnet fishery, please do so in the space provided below.

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Fold here

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Fold here

Thank you for completing the survey!

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**Please fold your completed questionnaire in half and return it  
in the stamped envelope provided and addressed to:**

Commercial Fisheries Entry Commission  
8800 Glacier Highway, Suite 109  
Juneau, AK 99801  
(907) 789-6160

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|||Barcode|||