

# **CFEC Commercial Fishing Permit Holders Among ADF&G Commercial Crewmember License Holders**

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## **Abstract**

It is commonly believed that some participants in commercial fishing begin as crewmembers then work their way up to holding permits and acting as skippers for commercial fishing operations. Very little is known about crewmembers beyond the fact they have obtained a license from the Alaska Department of Fish and Game. The information that is collected each time a crewmember license is issued was used to estimate the unique individuals in historic crewmember license data and to identify those who have also held a Commercial Fisheries Entry Commission (CFEC) commercial fishing permit. A total of 30,225 individuals were identified as having held a commercial crewmember license between 1988 and 2007 as well as a CFEC commercial fishing permit between 1975 and 2007. The permit holding trends of crewmember license holders were analyzed by residency, region of the state, Alaskan census area, and the rural or urban designation of license holders' communities. Because a more complete picture of commercial fishermen's combined license and permit history was determined, the length of commercial fishing careers were estimated and compared for license holders with and without CFEC permits. As a result of identifying permit holders among the crewmember license holders, and the accompanying demographic and longevity analyses, additional information is available about crewmember license holders not previously known.

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## 1.0 Introduction

The commercial fisheries of Alaska are diverse. They encompass groundfish, shellfish, herring, and salmon species, and range from the tip of Southeast Alaska north to the Chukchi Sea. Individuals from across the state, the nation, and from around the world contribute to the success of Alaska's commercial fisheries as permit holders, crewmembers, vessel owners, seafood processing industry workers, management biologists, and workers in the support service industries.

A variety of data are collected, analyzed, and reported on for the different segments of the population associated with commercial fishing. The Alaska Department of Fish and Game (ADF&G) collects harvest and effort data for permit holders, the Commercial Fisheries Entry Commission (CFEC) gathers economic and demographic data for permit holders and vessel owners, and the Department of Labor and Workforce Development collects wage and labor information for employees in the seafood processing industry.

The primary source of information about crewmembers arises from the commercial crewmember licenses issued by ADF&G. According to ADF&G regulations, a person is required to obtain a commercial crewmember license in order to participate in commercial fishing in any waters of Alaska, if they do not already hold a valid CFEC interim-use or limited entry permit card (5 AAC 39.110). With the issuance of each license, certain data are collected about the license holder. Participation data are not currently collected for crewmembers, so it is only possible to identify those who have obtained a crewmember license, rather than those who have participated in one of Alaska's fisheries as a crewmember with their license or with their CFEC permit card.

It is commonly believed that crewmember license holders participate in fisheries as crewmembers and sometimes work their way up to skippering commercial fishing operations over time. Because participation data for crewmembers are not collected, it is not possible to substantiate this belief through existing participation or fish ticket data. However, an effort was recently made by CFEC to estimate the unique individuals in historic crewmember license data and to identify those which have also held a CFEC commercial fishing permit. This cannot definitively identify crewmembers that advance to skippering commercial fishing operations, but it can link individuals from within the two data sources that contain the potential participants of Alaska's commercial fisheries.

It would seem that identifying individuals in both data sources should be a straight forward endeavor. However, due to the variability of responses found in the crewmember license data and potential discrepancies between the information in the two sources it was not an easy task. An earlier CFEC report discusses the sources of variability in the crewmember license data and explains some of the complications encountered when estimating unique individuals in the historic crewmember license data.<sup>1</sup> Those same complications exist when trying to match individuals in the ADF&G crewmember license data and the CFEC permit holder data. As such, all results presented in this report should be viewed cautiously and considered estimates.

This report explains how individuals in the ADF&G commercial crewmember license data were identified within the CFEC permit holder data, then proceeds to summarize the permit holding trends revealed for crewmember license holders. Factors such as year, residency, region of the state, and rural or urban designation were considered. The types of CFEC permits held by crewmember license holders were also examined, and the length of time holding permits contributed to a crewmember's commercial fishing career was estimated.

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<sup>1</sup> Tide, Cathy. 2008. *A Unique Identifier for Commercial Crewmember License Data*. Commercial Fisheries Entry Commission, CFEC Report 08-1N, Juneau, AK.

Several of the key points identified through this study include:

- 30,225 of the 181,056 estimated crewmember license holders between 1988 and 2007 have held a CFEC commercial fishing permit between 1975 and 2007 (16.7%).
- The number and percentage of crewmember license holders that have held CFEC permits has declined over time. This decline may simply reflect data constraints but may also be due to decreases in entry level opportunities and/or the consolidation of numerous commercial fisheries. The pattern is seen for both resident and nonresident crewmember license holders.
- Alaska residents account for 72.1% of the crewmember license holders that have held a CFEC permit. Individuals from Western Alaska account for 40.1% of the Alaska resident crewmember license holders that have held a CFEC permit (28.9% overall). Individuals from rural Alaskan communities account for 55.7% of the Alaska resident crewmember license holders that have held a CFEC permit (40.1% overall).
- 59.4% of the crewmember license holders that were the holder of record for a CFEC permit, rather than an emergency transfer holder, held a permit in a limited entry fishery. Salmon permits were, by far, the most commonly held type of permit.
- Crewmember license holders that have held a CFEC permit tend to have held crewmember licenses in more years than crewmembers that have not held a CFEC permit. Crewmember license holders that have held a CFEC permit also appear to have longer commercial fishing careers than crewmembers that have not held a CFEC permit.

## 2.0 Identification of Unique Crewmember License Holders

Individuals who obtained commercial crewmember licenses in the past did not necessarily have a reliable unique identification number in the crewmember license data. Crewmember licenses were issued annually by ADF&G and as such each crewmember had a different license number each year. There was no definitive information linking a license holder from one year to licenses held by the same individual in another year. Information such as social security number, birth date, first name, and last name were collected with the issuance of crew licenses, but unfortunately, none acted as a completely reliable unique identifier in the crewmember data because any of these fields could be missing, contain inaccurate data, or contain data in different forms (e.g., Catherine, Cathy, C.).

### 2.1 Initial Assignment of Identification Number

CFEC attempted to identify distinct individuals found within the license data and then assigned an identification number to each license associated with that individual. Information found in the social security number, birth date, first name, and last name fields were used in combination to identify the distinct individuals. This initial assignment of a unique identification number was performed on crewmember license data from 1988 through 2006. An in-depth description of this process can be found in the CFEC report entitled *A Unique Identifier for Commercial Crewmember License Data*.<sup>2</sup> Through this initial effort, a total of 202,795 unique identification numbers were assigned to 512,432 valid commercial crewmember licenses between 1988 and 2006.

Unfortunately, the assignment of a unique identification number was far from perfect. Despite attempts to assign identification numbers to unique individuals, this process sometimes resulted in different people receiving the same identification number or an individual receiving more than one identification number. Both situations arose due to the nature of the data and the semi-automated process used to identify individuals.

### 2.2 Updated Assignment of Identification Number

After receiving 2007 and updated 2006 license data from ADF&G, CFEC chose to repeat the process of identifying distinct individuals within the license data and assigning an identification number to each license associated with that individual.<sup>3</sup> Using experience gained from the initial assignment, the process was adapted in hopes of reducing the number of instances where more than one person received the same identification number or a single person received more than one identification number. The basic principles of the first identification number assignment were followed; individuals were identified and identification numbers were assigned to license records that contained identical information in certain combinations of the SSN, birth date, first name, and last name fields.<sup>4</sup>

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<sup>2</sup> Tide, Cathy. 2008. *A Unique Identifier for Commercial Crewmember License Data*. Commercial Fisheries Entry Commission, CFEC Report 08-1N, Juneau, AK.

<sup>3</sup> When this project began the 2008 licensing year was still in progress, so 2008 crewmember license data were incomplete and not included in the analysis.

<sup>4</sup> With 4 fields (SSN, birth date, first name, and last name) there are 15 possible combinations which take into account 1, 2, 3, or 4 of the fields. The 15 combinations are: 1. SSN, birth date, last name, first name; 2. birth date, last name, first name; 3. SSN, last name, first name; 4. SSN, birth date, first name; 5. SSN, birth date, last name; 6. SSN, birth date; 7. SSN, last name; 8. SSN, first name; 9. birth date, last name; 10. birth date, first name; 11. last name, first name; 12. SSN; 13. birth date; 14. last name; 15. first name. Nearly every combination was used during the process to identify the different licenses held by individuals. The single field combinations of birth date, last name, and first name were the only 3 combinations of the 15 not used in this process. Used singly, it was believed they were not reliable in identifying a unique individual.

The execution of the process differed because each potential match between license records was reviewed. In the original process, only a subset of the license records that matched was reviewed. For each combination of fields, if most of the matches that were reviewed appeared to be the same person, then all the matches based on that combination of fields were accepted as an individual. This likely resulted in some cases where different people erroneously received the same identification number. If an unsatisfactory number of matches that were reviewed appeared to reflect different people, then none of the matches based on that combination of fields were accepted as an individual. As a result, some individuals probably received more than one identification number. In this second attempt at identifying unique individuals in the crewmember license data, each potential match between license records was reviewed. While this in-depth review was time consuming, it improved the accuracy of identifying individuals and permitted potential matches by more of the field combinations. Through this effort, 181,056 unique identification numbers were assigned to 533,219 valid commercial crewmember licenses between 1988 and 2007.

### **2.3 Future Identification of Unique Individuals**

Crewmember license holders are now assigned a customer service number (CSN) by ADF&G which acts as a unique identifier on their crewmember and other ADF&G issued licenses. This identification number will tie license data for an individual within a year and from year to year. No after-the fact assignment of a unique identification number will be necessary. There are no current plans to 'back-fill' these CSN identifiers on older years of crewmember license data, so for historical license information a unique identification number will still need to be assigned. Unfortunately, there is no correlation between the unique identification numbers assigned to individuals in the historic data by CFEC and the CSN assigned to individuals in the current data by ADF&G. A special project would need to be undertaken to bridge the two datasets.

### 3.0 Comparison of Crewmember License Holders to CFEC Permit Holders

Individuals and their permit history are easily identified in the CFEC permit data. Each individual has a unique identifier and every permit held by that individual can be linked using the unique identifier. In historic ADF&G commercial crewmember license data an individual was not issued a unique identifier so estimating all the licenses held by an individual was difficult. With the assignment of unique identifiers to the commercial crewmember license data it is possible to identify crewmember license history. This section explains the process used to identify individuals that have held both a commercial crewmember license and a CFEC commercial fishing permit. By identifying individuals with both a permit and crewmember license, a more complete picture of an individual's combined license and permit history can be seen.

#### 3.1 ADF&G Crewmember License Data

For this project, crewmember license data from 1988 through 2007 were used.<sup>5</sup> The information contained in the crewmember license data for an individual during that time period may or may not be constant across time. Due to the nature of ADF&G's crewmember license data, there may be a variety of responses on different licenses for an individual in a given field. The variety of responses may arise for several reasons: the applicant may provide different or incorrect information, ADF&G staff may misinterpret handwritten information, and an error may be introduced during data entry despite measures in place to prevent mistakes. A CFEC report entitled *Preliminary Examination of Commercial Crewmember License Data* addresses these issues more in-depth.<sup>6</sup> The potential variety of responses for an individual in the crewmember license data or lack of response in some fields complicates the comparison to CFEC permit data, but does not prevent it. This very problem was overcome during the assignment of unique identification numbers.

#### 3.2 CFEC Permit Data

CFEC's permit data contains State of Alaska commercial fishing permit information from 1975 until present. Because this project began while the 2008 licensing year was still in progress, 2008 permit data were incomplete. As such, permit data from 1975 through 2007 were used for this project.

Each individual in the system has a unique identification number designated as their CFEC file number. This identification number links each permit held by an individual within a year and across all years. Information about an individual is held constant across all of their permits and across all years. As such, the SSN, birth date, and name are the same on every permit held by an individual. It is possible that data errors exist in the CFEC permit data, however, personal information is reviewed each year that a permit is renewed or issued to an individual. Any corrections that are made are applied to all associated permit records. A record is kept of all historic SSNs or names previously used by an individual.

#### 3.3 Comparison Process

The process used to identify individuals that have held both a crewmember license data and a CFEC permit was similar to the process used to identify unique individuals within the crewmember license data. Data records from the two sources were compared based on information found within the social security number (SSN), birth date, first name, and last name fields. Different combinations of those fields were used for comparisons between the 2

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<sup>5</sup> Crewmember license data prior to 1988 are not available in a readable electronic format.

<sup>6</sup> Tide, Cathy. 2007. *Preliminary Examination of Commercial Crewmember License Data*. Commercial Fisheries Entry Commission, CFEC Report 07-7N, Juneau, AK.

datasets. When the information found within certain combinations of those fields were identical, the licenses of the individual in the crewmember license data were linked to the permits of the individual in the CFEC permit data.

Because information about a permit holder is consistent across all permit records examined for this project, a single option for each SSN, birth date, last name, and first name were compared to each of the values found for an individual in the crewmember license data. The following fictitious example attempts to illustrate how a single response is available for each field for the CFEC permit holder, yet more than one response is possible for the ADF&G crewmember license holder.

**Table 1. A Fictitious Example of CFEC Permit Data and ADF&G Commercial Crewmember License Data for an Individual**

CFEC Permit Data					Crewmember License Data				
SSN <sup>1</sup>	First Name	Last Name	Birth Date	CFEC File Number	SSN <sup>1</sup>	First Name	Last Name	Birth Date	Assigned Crew ID Number
XX1-22-3333	Jennie	Doe-Smith	05/12/1980	123456	XX1-22-3333	Jennifer	Doe	05/12/1980	100001
					XX1-22-3333	Jennifer	Doe	05/12/1980	100001
					XX1-22-3333	Jen	Doe	05/12/1980	100001
					XX1-22-3333	Jennifer	Poe	05/12/1980	100001
					XX1-22-3333	Jen	Doe	05/12/1930	100001
					XX1-22-3333	Jennifer	Doe	01/01/1901	100001
					XX1-22-3333	Jennifer	Doe		100001
					XX7-22-3333	Jennifer	Doe	05/12/1980	100001
						Jennifer	Poe	05/12/1980	100001
					XX1-33-2222	Jen	Doe	05/12/1930	100001
					XX1-22-3338	Jennie	Doe	12/05/1980	500002

<sup>1</sup> The first 2 numbers of the SSN are masked with 'XX' so a real SSN is not used inadvertently in this example.

### 3.3.1 Match Based on SSN

There are 15 possible combinations of the SSN, birth date, last name, and first name fields when taken 1, 2, 3, or 4 at a time. The SSN field is contained in 8 of those 15 combinations.<sup>7</sup> Any matches that may occur between license and permit records from comparing any of these 8 combinations of fields in the data would arise from simply comparing the information in the SSN field because it is the 'lowest common denominator' of the 8 combinations. Therefore, license and permit records were initially matched based on the SSN field in order to expedite this process. Each potential match was reviewed and either accepted or rejected. A total of 26,654 individuals were found within both the 1988 through 2007 crewmember license data and the 1975 through 2007 permit data based on SSN.

In the example above, Jennie Doe-Smith from the CFEC permit data matches to Jennifer Doe from the ADF&G crewmember license data because some of the crewmember records have the same SSN as the permit record. As such, all of the permits associated with CFEC file number 123456 are linked to all of the crewmember licenses associated with the assigned crewmember unique ID of 10001.

<sup>7</sup> The 8 combinations containing the SSN field are: 1. SSN, birth date, last name, first name; 2. SSN, last name, first name; 3. SSN, birth date, last name; 4. SSN, birth date, first name; 5. SSN and birth date; 6. SSN and last name; 7. SSN and first name; and 8. SSN.

### **3.3.2 Match Based on Birth Date, Last Name, and First Name**

Records in the crewmember license data and permit data were next compared by the contents of their birth date, last name, and first name fields. This combination identified 2,699 individuals in both set of data.

### **3.3.3 Match Based on Birth Date and Last Name**

Records in the crewmember license data and permit data were next compared by the contents of their birth date and last name fields. This combination identified 358 individuals in both set of data.

### **3.3.4 Match Based on Birth Date and First Name**

Records in the crewmember license data and permit data were next compared by the contents of their birth date and first name fields. This combination identified 290 individuals in both set of data.

### **3.3.5 Match Based on Last Name and First Name**

Records in the crewmember license data and permit data were next compared by the contents of their last name and first name fields. This combination identified 216 individuals in both set of data.

### **3.3.6 Match Based on Historic SSN**

Records in the crewmember license data were compared by their SSN to records in the CFEC permit data by any historic SSN they may have used. No additional individuals were identified in both set of data through this method.

### **3.3.7 Match Based on Historic Last Name and First Name**

Records in the crewmember license data were compared by their last name and first name to records in the CFEC permit data by any last names and first names they may have historically used. This combination identified 8 individuals in both set of data.

## **3.4 Correction of Unique Identifier Assignment**

There were some situations where the match between permit data and license records facilitated a correction of the unique identifier assigned to crewmember license records. In most of these cases, the correction was a consolidation of license records under a single identification number. Oftentimes there was insufficient information on the license records themselves to allow a match to each other and the assignment of a single identification number. Then each of these records would match to a single permit holder record based on information in a different combination of fields. These independent matches to a single permit holder revealed enough information to suggest the license records did in fact represent the same individual. As a result, unique identification numbers were corrected.

Table 2 illustrates an example of this kind of situation. In this scenario, license records for John Doe and Jonathon Doe with 2 different identification numbers (200002 and 500004) matched to a single permit holder (Jonathon Doe with a CFEC file number of 987654). The two license records could not be matched to each other

based solely on the contents of their fields alone; the only field containing the same information is the last name field. However, both match to the same permit holder. The first license record matched based on SSN and last name. The second license record matched based on first name, last name, and birth date. Due to the independent matches to the permit data, and the similarity of first names, the crewmember identification number for the second license record was corrected to be the same as the first license record. Through a review of matches such as this, the assignment of the crewmember identification number was improved using permit holder data. The 181,056 unique identification numbers assigned to 533,219 valid commercial crewmember licenses reflect these corrections.

**Table 2. A Fictitious Example of Matches to the CFEC Permit File that Identified Corrections to the Assigned Crewmember Identification Number**

CFEC Permit Data					Crewmember License Data Before ID Correction				
SSN <sup>1</sup>	First Name	Last Name	Birth Date	CFEC File Number	SSN <sup>1</sup>	First Name	Last Name	Birth Date	Assigned Crew ID Number
XX9-88-7777	Jonathon	Doe	05/05/1955	987654	XX9-88-7777	John	Doe	05/05/1955	200002
						Jonathon	Doe		500004

  

CFEC Permit Data					Crewmember License Data After ID Correction				
SSN <sup>1</sup>	First Name	Last Name	Birth Date	CFEC File Number	SSN <sup>1</sup>	First Name	Last Name	Birth Date	Assigned Crew ID Number
XX9-88-7777	Jonathon	Doe	05/05/1955	987654	XX9-88-7777	John	Doe	05/05/1955	200002
						Jonathon	Doe		200002

<sup>1</sup> The first 2 numbers of the SSN are masked with 'XX' so a real SSN is not used inadvertently in this example.

## 4.0 Permit Holders among Crewmember License Holders

It is a commonly held belief that some participants in commercial fishing begin as crewmembers then work their way up to holding permits and acting as skippers. This section attempts to address whether this is reflected in the crewmember license and permit data. Demographic characteristics of crewmember license holders like residency, region, census area, and rural/urban designation are also examined to see if different trends of license and permit holding emerge.

### 4.1 Frequency of Permit Holders among Crewmember License Holders

The 181,056 estimated crewmember license holders between 1988 and 2007 were compared to 66,873 commercial fishing permit holders between 1975 and 2007. Of those license holders, 30,225 held a commercial fishing permit (16.7%). The remaining 150,831 license holders did not hold a permit (83.3%). Table 3 indicates these overall numbers as well as the number of license holders in each year between 1988 and 2007 that have or have not held a commercial fishing permit at some point between 1975 and 2007. For example, there were 30,624 license holders in 1988 and 34.3% of them (10,516) held a permit at some point between 1975 and 2007. The remaining 20,108 license holders in that year could not be linked with a permit (65.7%).

**Table 3. Crewmember License Holders that Have and Have Not Held a CFEC Permit between 1975 and 2007, by License Year**

Year	Crewmember License Holders				
	Have Held a Permit		Have Not Held a Permit		Total
1988	10,516	34.3%	20,108	65.7%	30,624
1989	10,752	34.3%	20,576	65.7%	31,328
1990	11,460	32.7%	23,555	67.3%	35,015
1991	11,136	31.7%	23,941	68.3%	35,077
1992	10,748	31.1%	23,799	68.9%	34,547
1993	10,049	31.8%	21,521	68.2%	31,570
1994	9,802	31.5%	21,321	68.5%	31,123
1995	9,286	31.5%	20,214	68.5%	29,500
1996	8,642	31.5%	18,809	68.5%	27,451
1997	7,935	30.1%	18,397	69.9%	26,332
1998	7,268	30.2%	16,827	69.8%	24,095
1999	7,090	29.6%	16,901	70.4%	23,991
2000	6,502	27.9%	16,783	72.1%	23,285
2001	5,141	26.1%	14,565	73.9%	19,706
2002	4,433	26.5%	12,298	73.5%	16,731
2003	4,526	25.9%	12,926	74.1%	17,452
2004	4,363	24.3%	13,572	75.7%	17,935
2005	4,108	22.8%	13,905	77.2%	18,013
2006	3,719	20.7%	14,243	79.3%	17,962
2007	3,438	18.2%	15,501	81.8%	18,939
<b>Total Unique</b>	30,225 (16.7%)		150,831 (83.3%)		181,056

Notes:

1. Only persons who held limited entry, interim-entry, interim-use, or moratorium permits at some time between 1975 and 2007 are included (including emergency transfer recipients). Those permit holders with experimental, test fishing, educational, reservation, hatchery, or vessel permits are not included.
2. Only commercial crewmember license holders with valid licenses between 1988 and 2007 are included. The total number of crewmember license holders in a year may differ from other CFEC reports because of improvements/changes in the identification of unique individuals and the assignment of identification numbers.
3. *Source:* CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifiers).

Perhaps the most startling information revealed in Table 3 is the decline in the number and percentage of license holders that have held permits. In 1988, 13,516 or 34.3% of license holders held a permit at some point. By 2007 that number dropped to 3,438 or 18.2%. Are fewer crewmembers working their way up to be skippers, or is this decline merely a reflection of data limitations? The absence of permit data in the analysis beyond 2007 certainly contributes to the decline in license holders with a permit, but it is possible that with fewer entry level opportunities left in commercial fishing and consolidation in numerous fisheries, the decline may reflect more than just the limitations of the data.

The effect of 2006 and 2007 permit data on the percentage of license holders with a permit was examined to get a feeling for how additional permit data may change the percentage of crewmember license holders with a permit. Not surprisingly, the addition of 2006 and 2007 permit data increased the overall number and percentage of license holders with a permit. For example, 29,098 unique crewmember license holders were associated with a commercial fishing permit between 1975 and 2005. In 2006, an additional 558 crewmember license holders held a commercial fishing permit for the first time. This accounts for a 1.9% increase in license holders with a commercial fishing permit (from 29,098 to 29,656). Then in 2007, an additional 569 crewmember license holders held a commercial fishing permit for the first time. This accounts for another 1.9% increase in license holders with a commercial fishing permit (from 29,656 to 30,225). These overall totals are shown in Table 4.

**Table 4. The Increase in Crewmember License Holders with CFEC Commercial Fishing Permits with the Addition of 2006 and 2007 Permit Data, by License Year**

License Year	Total License Holders	Held a Permit Between 1975 and 2005	Increase with 2006 Permits		Held a Permit Between 1975 and 2006	Increase with 2007 Permits		Held a Permit Between 1975 and 2007			
			Number	Pct.		Number	Pct.				
1988	30,624	10,387	33.9%	61	0.2%	10,448	34.1%	68	0.2%	10,516	34.3%
1989	31,328	10,597	33.8%	81	0.3%	10,678	34.1%	74	0.2%	10,752	34.3%
1990	35,015	11,285	32.2%	89	0.3%	11,374	32.5%	86	0.2%	11,460	32.7%
1991	35,077	10,944	31.2%	108	0.3%	11,052	31.5%	84	0.2%	11,136	31.7%
1992	34,547	10,549	30.5%	100	0.3%	10,649	30.8%	99	0.3%	10,748	31.1%
1993	31,570	9,837	31.2%	110	0.3%	9,947	31.5%	102	0.3%	10,049	31.8%
1994	31,123	9,553	30.7%	122	0.4%	9,675	31.1%	127	0.4%	9,802	31.5%
1995	29,500	9,022	30.6%	138	0.5%	9,160	31.1%	126	0.4%	9,286	31.5%
1996	27,451	8,349	30.4%	153	0.6%	8,502	31.0%	140	0.5%	8,642	31.5%
1997	26,332	7,640	29.0%	155	0.6%	7,795	29.6%	140	0.5%	7,935	30.1%
1998	24,095	6,951	28.8%	169	0.7%	7,120	29.5%	148	0.7%	7,268	30.2%
1999	23,991	6,747	28.1%	191	0.8%	6,938	28.9%	152	0.7%	7,090	29.6%
2000	23,285	6,112	26.2%	211	0.9%	6,323	27.2%	179	0.7%	6,502	27.9%
2001	19,706	4,775	24.2%	193	1.0%	4,968	25.2%	173	0.9%	5,141	26.1%
2002	16,731	4,052	24.2%	207	1.2%	4,259	25.5%	174	1.0%	4,433	26.5%
2003	17,452	4,054	23.2%	253	1.4%	4,307	24.7%	219	1.2%	4,526	25.9%
2004	17,935	3,815	21.3%	300	1.7%	4,115	22.9%	248	1.4%	4,363	24.3%
2005	18,013	3,434	19.1%	346	1.9%	3,780	21.0%	328	1.8%	4,108	22.8%
2006	17,962	3,140	17.5%	200	1.1%	3,340	18.6%	379	2.1%	3,719	20.7%
2007	18,939	3,091	16.3%	147	0.8%	3,238	17.1%	200	1.1%	3,438	18.2%
<b>Total Unique</b>	181,056	29,098 (16.1%)				29,656 (16.4%)				30,225 (16.7%)	

Notes:

1. Only persons who held limited entry, interim-entry, interim-use, or moratorium permits at some time between 1975 and 2007 are included (including emergency transfer recipients). Those permit holders with experimental, test fishing, educational, reservation, hatchery, or vessel permits are not included.
2. Only commercial crewmember license holders with valid licenses between 1988 and 2007 are included. The total number of crewmember license holders in a year may differ from other CFEC reports because of improvements/changes in the identification of unique individuals and the assignment of identification numbers.
3. Source: CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifiers).

Also shown in Table 4 is the number and percentage of crewmember license holders in each year that were attributed with a commercial fishing permit and that increased with the addition of 2006 and 2007 permit data. For example, 10,387 of the 30,624 license holders in 1988 held a permit at some point between 1975 and 2005 (33.9%). In 2006, 61 of those license holders from 1988 held a permit for the first time. As a result, 10,448 of the 30,624 license holders in 1988 held a permit at some point between 1975 and 2006 (34.1%). The addition of a single year of permit data resulted in a 0.2% increase in the percentage of crewmembers with a permit. The addition of that same year of permit data resulted in an increase of 1.9% for the 2005 license holders having a permit (346 license holders). In general, the increase of license holders with a permit was more pronounced in later years leading up to 2006, but increases are seen in each license year, even those occurring 18 years prior to the permit year added.<sup>8</sup> This same pattern is seen with the addition of 2007 permit data. If this pattern holds, the addition of permit data for 2008, 2009, and onward, will likely temper the decrease seen in the percentage of crewmember license holders that go on to be permit holders. Future permit data, in as far off as 2025, may affect the percentage of license holders in 2007 who will eventually hold a commercial fishing permit.

## **4.2 Frequency of Permit Holders among Crewmember License Holders by Residency**

A commonly held belief is that participants in commercial fishing begin as crewmembers then work their way up to holding permits and acting as skippers. The previous section began to address whether this holds up in the crewmember license and permit data. This section attempts to look at the same question but with the added facet of residency. Are resident crewmembers more likely to become skippers or permit holders than nonresident crewmembers? Because an individual's residency can change during the year and over the span of a career, simply labeling an individual as a resident or nonresident can be complicated in some situations. Appendix A contains a detailed explanation of how residency assignments used in this report were made for license holders.

### **4.2.1 License Career-Beginning Residency**

Nearly half of all the license holders between 1988 and 2007 began their crewmember license career as an Alaskan resident (87,331 of 181,056 license holders).<sup>9</sup> Yet nearly three quarters of the crewmembers that have held a permit began their license career as an Alaskan resident. A much higher percentage of resident license holders have held a commercial fishing permit than nonresident license holders. Table 5 indicates the number and percentage of license holders that have held a permit and those that have not, by their residency status at the beginning of their crewmember license career. Reading the table horizontally indicates the number and percentage of crewmember license holders with permits, without permits, and overall, that are classified as residents or nonresidents. For example, there are 30,225 license holders that have held a permit, and 21,784 of

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<sup>8</sup> In 2006, 200 license holders held both a crewmember license and a commercial fishing permit. According to Alaska statutes (AS 16.05.480(a)) an individual only needs one commercial fishing license in a year to participate in any fishery as a crewmember and either an ADF&G crewmember license or a CFEC permit can be used to do so. These 200 individuals may have obtained the crewmember license and the commercial fishing permit in error not realizing the permit conveys the right to participate as a crewmember, but there are also situations where it is appropriate to have held both in a single year. For example, an individual participating as a crewmember earlier in the year under the purview of the crewmember license, who did not anticipate the intent to participate as a gear operator, who then at a later time decided to do so, and as a result was required to obtain a permit after already purchasing a crewmember license. There were also 200 individuals in 2007 that held a crewmember license and a commercial fishing permit in the same year.

<sup>9</sup> Initially this may appear in conflict with residency counts provided in the previous CFEC report on crewmember license holders (*License Longevity, Alaskan Community, and Age of Commercial Crewmember License Holders*, CFEC Report 08-9N) which indicated residents comprised the majority of license holders in each license year between 1988 and 2006. Residency in that report was determined annually rather than once for each license holder as done here. There are fewer individuals flagged as residents at the beginning of their career than nonresidents; but the residents have, in general, held licenses in more years than those flagged as nonresidents.

them began their license career as an Alaskan resident (72.1%) and 8,441 began as a nonresident (27.9%). Reading the table vertically indicates the number and percentage of resident, nonresident, and overall crewmember license holders that have or have not held a commercial fishing permit. License holders that begin their license career as an Alaskan resident are almost 3-times more likely to be a permit holder than nonresidents. Table 5 indicates 24.9% of resident license holders have held a permit (21,784 of 87,331 resident license holders) whereas only 9.0% of nonresident license holders have (8,441 of 93,725 nonresident license holders).

**Table 5. Crewmember License Holders with and without CFEC Permits, by License Career-Beginning Residency**

License Holder Permit Holding		Resident License Holders		Nonresident License Holders		Total License Holders	
		Number	Percent	Number	Percent	Number	Percent
Crewmember License Holders with Permit	Number	21,784	72.1%	8,441	27.9%	30,225	100.0%
	Percent	24.9%		9.0%		16.7%	
Crewmember License Holders without Permit	Number	65,547	43.5%	85,284	56.5%	150,831	100.0%
	Percent	75.1%		91.0%		83.3%	
Total License Holders	Number	87,331	48.2%	93,725	51.8%	181,056	100.0%
	Percent	100.0%		100.0%		100.0%	

Notes:

1. Residency reflects the license career-beginning residency of the license holder.
2. Only persons who held limited entry, interim-entry, interim-use, or moratorium permits at some time between 1975 and 2007 are included (including emergency transfer recipients). Those permit holders with experimental, test fishing, educational, reservation, hatchery, or vessel permits are not included.
3. Only commercial crewmember license holders with valid licenses between 1988 and 2007 were included.
4. Source: CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier).

#### 4.2.2 License Career-End Residency

Because an individual's residency can change during the course of a year and over the span of a career, residency changes were examined for license holders. The intent was to see how sensitive the results in Table 5 are to the residency definitions chosen. Would different patterns of permit holding exist if residency labels were based on the end of a license holder's career? As it turns out, only 6.4% of all license holders have shown at least one change in residency over the course of their license holding career (11,509 of 181,056 license holders). Even fewer have a different residency at the end of their license career than at the beginning of their license career (4.6%). There are 3,113 license holders that exhibit a residency change but revert back to their original residency by career end.

Table 6 indicates the number and percentage of license holders that held a permit and those that have not, by their residency status at the end of their license career. Residents exhibit a nearly 1% increase in each of the three categories: those with a crewmember license, those without a crewmember license, and total permit holders. However, the overall results are very similar to the results where residency is based on the beginning of the license career. Nearly three quarters of the crewmembers that have held a permit ended their license career as an Alaskan resident and license holders that end their career as a resident are more likely to hold a permit than a nonresident.

**Table 6. Crewmember License Holders with and without CFEC Permits, by License Career-End Residency**

License Holder Permit Holding		Resident License Holders		Nonresident License Holders		Total License Holders	
		Number	Percent	Number	Percent	Number	Percent
Crewmember License Holders with Permit	Number Percent	21,976 24.7%	72.7%	8,249 9.0%	27.3%	30,225 16.7%	100.0%
Crewmember License Holders without Permit	Number Percent	67,039 75.3%	44.4%	83,792 91.0%	55.6%	150,831 83.3%	100.0%
Total License Holders	Number Percent	89,015 100.0%	49.2%	92,041 100.0%	50.8%	181,056 100.0%	100.0%

Notes:

1. Residency reflects the license career-end residency of the license holder.
2. Only persons who held limited entry, interim-entry, interim-use, or moratorium permits at some time between 1975 and 2007 are included (including emergency transfer recipients). Those permit holders with experimental, test fishing, educational, reservation, hatchery, or vessel permits are not included.
3. Only commercial crewmember license holders with valid licenses between 1988 and 2007 were included.
4. *Source:* CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier).

### 4.3 Frequency of Permit Holders among Crewmember License Holders by Residency and Year

The percentage of license holders in each year that has held a commercial fishing permit at some point between 1975 and 2007 has declined, reflecting data limitations and possibly fewer crewmembers working their way up to be skippers. Is this downward trend similar for both resident and nonresident license holders? Table 7 shows the number and percentage of crewmember license holders in each year that have or have not held a commercial fishing permit at some point between 1975 and 2007, but distinguishes between resident and nonresident license holders. For license holders of either residency, the number and percentage that has held a commercial fishing permit has declined. For residents, the proportion of license holders with a permit is fairly constant between 1988 and 1996, and the decline is seen from 1997 and onward. Nonresident license holders between 1988 and 1992 and then 1996 and onward exhibit the decline in permit holding. Again, these declines are likely related to data limitations.

Table 8 also examines the residency of crewmember license holders in each year that have or have not held a commercial fishing permit at some point between 1975 and 2007, but aggregates the categories differently. License holder totals reflect permit holding status rather than residency. As such, the percentages indicate the proportion each residency group contributes to license holders with a permit and to license holders without a permit. Aside from a small decline in the late 1980s, residents have comprised a fairly constant proportion of the crewmember license holders that have held a permit (roughly 71-74%). After the first several license years shown here, residents also comprised a fairly consistent percentage of the crewmember license holders that have not held a permit (roughly 48-52%).

**Table 7. Resident and Nonresident License Holders that Have and Have not Held a CFEC Permit between 1975 and 2007, by Residency and the Years in which Crewmember Licenses were Held**

Year	Resident License Holders			Nonresident License Holders						
	Have Held a Permit	Have Not Held a Permit	Total	Have Held a Permit	Have Not Held a Permit	Total				
1988	8,070	40.3%	11,936	59.7%	20,006	2,446	23.0%	8,172	77.0%	10,618
1989	8,196	40.8%	11,879	59.2%	20,075	2,556	22.7%	8,697	77.3%	11,253
1990	8,517	40.4%	12,584	59.6%	21,101	2,943	21.2%	10,971	78.8%	13,914
1991	8,236	40.1%	12,287	59.9%	20,523	2,900	19.9%	11,654	80.1%	14,554
1992	7,930	39.7%	12,022	60.3%	19,952	2,818	19.3%	11,777	80.7%	14,595
1993	7,380	40.3%	10,952	59.7%	18,332	2,669	20.2%	10,569	79.8%	13,238
1994	7,206	39.8%	10,883	60.2%	18,089	2,596	19.9%	10,438	80.1%	13,034
1995	6,687	40.2%	9,931	59.8%	16,618	2,599	20.2%	10,283	79.8%	12,882
1996	6,242	40.1%	9,321	59.9%	15,563	2,400	20.2%	9,488	79.8%	11,888
1997	5,745	39.4%	8,841	60.6%	14,586	2,190	18.6%	9,556	81.4%	11,746
1998	5,235	39.3%	8,095	60.7%	13,330	2,033	18.9%	8,732	81.1%	10,765
1999	5,233	38.2%	8,450	61.8%	13,683	1,857	18.0%	8,451	82.0%	10,308
2000	4,708	36.3%	8,263	63.7%	12,971	1,794	17.4%	8,520	82.6%	10,314
2001	3,704	34.4%	7,053	65.6%	10,757	1,437	16.1%	7,512	83.9%	8,949
2002	3,272	34.5%	6,204	65.5%	9,476	1,161	16.0%	6,094	84.0%	7,255
2003	3,252	33.0%	6,608	67.0%	9,860	1,274	16.8%	6,318	83.2%	7,592
2004	3,086	30.8%	6,933	69.2%	10,019	1,277	16.1%	6,639	83.9%	7,916
2005	2,934	28.9%	7,233	71.1%	10,167	1,174	15.0%	6,672	85.0%	7,846
2006	2,644	26.2%	7,440	73.8%	10,084	1,075	13.6%	6,803	86.4%	7,878
2007	2,459	24.0%	7,781	76.0%	10,240	979	11.3%	7,720	88.7%	8,699

Notes:

1. Residency reflects the license year-beginning residency of the license holder.
2. Only persons who held limited entry, interim-entry, interim-use, or moratorium permits at some time between 1975 and 2007 are included (including emergency transfer recipients). Those permit holders with experimental, test fishing, educational, reservation, hatchery, or vessel permits are not included.
3. Only commercial crewmember license holders with valid licenses between 1988 and 2007 were included. The total number of crewmember license holders in a year may differ from other CFEC reports because of improvements/changes in the identification of unique individuals and the assignment of identification numbers.
4. *Source:* CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier).

**Table 8. The Residency of License Holders that Have and Have not Held a CFEC Permit between 1975 and 2007, by the Years in which Crewmember Licenses were Held**

Year	Crewmember License Holders with a Permit				Crewmember License Holders without a Permit					
	Resident		Nonresident	Total	Resident		Nonresident		Total	
1988	8,070	76.7%	2,446	23.3%	10,516	11,936	59.4%	8,172	40.6%	20,108
1989	8,196	76.2%	2,556	23.8%	10,752	11,879	57.7%	8,697	42.3%	20,576
1990	8,517	74.3%	2,943	25.7%	11,460	12,584	53.4%	10,971	46.6%	23,555
1991	8,236	74.0%	2,900	26.0%	11,136	12,287	51.3%	11,654	48.7%	23,941
1992	7,930	73.8%	2,818	26.2%	10,748	12,022	50.5%	11,777	49.5%	23,799
1993	7,380	73.4%	2,669	26.6%	10,049	10,952	50.9%	10,569	49.1%	21,521
1994	7,206	73.5%	2,596	26.5%	9,802	10,883	51.0%	10,438	49.0%	21,321
1995	6,687	72.0%	2,599	28.0%	9,286	9,931	49.1%	10,283	50.9%	20,214
1996	6,242	72.2%	2,400	27.8%	8,642	9,321	49.6%	9,488	50.4%	18,809
1997	5,745	72.4%	2,190	27.6%	7,935	8,841	48.1%	9,556	51.9%	18,397
1998	5,235	72.0%	2,033	28.0%	7,268	8,095	48.1%	8,732	51.9%	16,827
1999	5,233	73.8%	1,857	26.2%	7,090	8,450	50.0%	8,451	50.0%	16,901
2000	4,708	72.4%	1,794	27.6%	6,502	8,263	49.2%	8,520	50.8%	16,783
2001	3,704	72.0%	1,437	28.0%	5,141	7,053	48.4%	7,512	51.6%	14,565
2002	3,272	73.8%	1,161	26.2%	4,433	6,204	50.4%	6,094	49.6%	12,298
2003	3,252	71.9%	1,274	28.1%	4,526	6,608	51.1%	6,318	48.9%	12,926
2004	3,086	70.7%	1,277	29.3%	4,363	6,933	51.1%	6,639	48.9%	13,572
2005	2,934	71.4%	1,174	28.6%	4,108	7,233	52.0%	6,672	48.0%	13,905
2006	2,644	71.1%	1,075	28.9%	3,719	7,440	52.2%	6,803	47.8%	14,243
2007	2,459	71.5%	979	28.5%	3,438	7,781	50.2%	7,720	49.8%	15,501

Notes:

1. Residency reflects the license year-beginning residency of the license holder.
2. Only persons who held limited entry, interim-entry, interim-use, or moratorium permits at some time between 1975 and 2007 are included (including emergency transfer recipients). Those permit holders with experimental, test fishing, educational, reservation, hatchery, or vessel permits are not included.
3. Only commercial crewmember license holders with valid licenses between 1988 and 2007 were included. The total number of crewmember license holders in a year may differ from other CFEC reports because of improvements/changes in the identification of unique individuals and the assignment of identification numbers.
4. *Source:* CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier).

#### **4.4 Frequency of Permit Holders among Resident Crewmember License Holders by Region of Alaska**

This section examines the permit holding patterns of crewmember license holders that were Alaskan residents, focusing on the region of the state where they reside. Figure 1 contains a map of Alaska, broken down into the 5 regions defined for this report: Arctic, Interior, South Central, Southeast, and Western.<sup>10</sup> The census area or borough components for each region are also identified in the figure.

Not surprisingly, the South Central, Western, and Southeast regions are home to the vast majority of resident crewmember license holders. Combined, the three groups account for 94.3% of the resident license holders between 1988 and 2007 (82,348 license holders). The South Central region itself accounts for the largest number of resident license holders (33,645). Table 9 indicates the total number of license holders between 1988 and 2007 from each region of the state.

Although the South Central region has the largest number of license holders, the Western region accounts for the largest group of resident license holders that have held a commercial fishing permit (8,742 license holders, 40.1% of resident license holders with permit, 28.9% of all license holders with permit). The 8,742 license holders with a permit reflect nearly one third of the total crewmember license holders from the Western region (31.9% of 27,409). This ratio is the highest of any region within the state. The Southeast region is next with 25.3% of its license holders holding a permit. Table 9 indicates the number of crewmember license holders with and without a commercial fishing permit from each of the Alaska regions. Reading the table vertically indicates the proportion that license holders from each region make-up of each permit holding category: those that have held a permit, those that have not held a permit, and all crewmember license holders. Reading the table horizontally indicates the number and percentage of crewmember license holders from within each region that have or have not held a commercial fishing permit.

#### **4.5 Frequency of Permit Holders among Resident Crewmember License Holders by Region and Year**

From previous sections of this report it is clear that the number and percentage of license holders that have held a commercial fishing permit has declined, overall and for Alaska residents. Do residents from each region in the state follow this same trend? Tables 10a and 10b contain the total number of crewmember license holders from each region of the state for each year between 1988 and 2007. In each year, the Western region contributes the largest group of license holders, the South Central contributes the second largest group and the Southeast region the third largest group of license holders. Between 1988 and 2007, each region of the state showed a marked decline in the total number of crewmember license holders from the region. The South Central region, which represents the largest overall group of resident license holders, showed a decrease of 4,444 licenses between 1990 its highest year and 2002 its lowest year. The Arctic region, which contributes the smallest group of resident license holders, showed a 98.4% decline in the number of license holders between 1988 and 2002.

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<sup>10</sup> Region assignments were made based upon the census areas associated with the license career beginning city of crewmember license holders with a resident status as their license career beginning residency. The Arctic Region is comprised of the North Slope Borough and the Northwest Arctic Borough; the Interior Regions is comprised of the Denali Borough, the Fairbanks North Star Borough, the Southeast Fairbanks Census Area, and the Yukon-Koyukuk Census Area; the Southeast Region is comprised of the Haines Borough, the Juneau City and Borough, the Ketchikan Gateway Borough, the Prince of Wales – Outer Ketchikan Census Area, the Sitka City and Borough, the Skagway-Hoonah-Angoon Census Area, the Wrangell-Petersburg Census Area, and the Yakutat City and Borough; the South Central Region is comprised of the Anchorage Municipality, the Kenai Peninsula Borough, the Matanuska-Susitna Borough, and the Valdez-Cordova Census Area; the Western Region is comprised of the Aleutians East Borough, the Aleutians West Census Area, the Bethel Census Area, the Bristol Bay Borough, the Dillingham Census Area, the Kodiak Island Borough, the Lake and Peninsula Borough, the Nome Census Area, and the Wade Hampton Census Area. The author of this report apologizes for leaving the western-most Aleutian Islands off the map in Figure 1.



**Figure 1. Alaska regions and the census area components of each region**

**Table 9. Crewmember License Holders with and without CFEC Permits, by Alaska Region**

Career-Beginning Alaska Region		License Holders with Permits		License Holders without Permits		Total License Holders	
		Number	Percent	Number	Percent	Number	Percent
Arctic	Number	252	21.9%	898	78.1%	1,150	100.0%
	Percent	0.8%		0.6%		0.6%	
Interior	Number	457	16.8%	2,256	83.2%	2,713	100.0%
	Percent	1.5%		1.5%		1.5%	
South Central	Number	6,809	20.2%	26,836	79.8%	33,645	100.0%
	Percent	22.5%		17.8%		18.6%	
Southeast	Number	5,377	25.3%	15,917	74.7%	21,294	100.0%
	Percent	17.8%		10.6%		11.8%	
Western	Number	8,742	31.9%	18,667	68.1%	27,409	100.0%
	Percent	28.9%		12.4%		15.1%	
Unknown	Number	147	13.1%	973	86.9%	1,120	100.0%
	Percent	0.5%		0.6%		0.6%	
<b>Total Resident</b>	<b>Number</b>	<b>21,784</b>	<b>24.9%</b>	<b>65,547</b>	<b>75.1%</b>	<b>87,331</b>	<b>100.0%</b>
	<b>Percent</b>	<b>72.1%</b>		<b>43.5%</b>		<b>48.2%</b>	
<b>Total Nonresident</b>	<b>Number</b>	<b>8,441</b>	<b>9.0%</b>	<b>85,284</b>	<b>91.0%</b>	<b>93,725</b>	<b>100.0%</b>
	<b>Percent</b>	<b>27.9%</b>		<b>56.5%</b>		<b>51.8%</b>	
<b>Total License Holders</b>	<b>Number</b>	<b>30,225</b>	<b>16.7%</b>	<b>150,831</b>	<b>83.3%</b>	<b>181,056</b>	<b>100.0%</b>
	<b>Percent</b>	<b>100.0%</b>		<b>100.0%</b>		<b>100.0%</b>	

Notes:

1. The Alaska Region reflects the license career-beginning residency, license career-beginning census information, and license career-beginning city of the license holder. An Unknown Region indicates the crewmember license holder was an Alaska resident at license career-beginning, but their license career-beginning city could not be matched to the Census file. As such, a census area and region could not be assigned. Only Alaska residents were assigned a region.
2. Only persons who held limited entry, interim-entry, interim-use, or moratorium permits at some time between 1975 and 2007 are included (including emergency transfer recipients). Those permit holders with experimental, test fishing, educational, reservation, hatchery, or vessel permits are not included.
3. Only commercial crewmember license holders with valid licenses between 1988 and 2007 were included.
4. *Source:* CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier), and CFEC's 2000 Census file.

**Table 10a. Resident License Holders that Have or Have Not Held a CFEC Permit between 1975 and 2007, by Region and Years in which Crewmember Licenses were Held**

Resident Crewmember License Holders by Region															
Year	Arctic With a Permit		Arctic Without a Permit		Total Arctic	Interior With a Permit		Interior Without a Permit		Total Interior	Southeast With a Permit		Southeast Without a Permit		Total Southeast
1988	135	31.3%	297	68.8%	432	156	24.3%	485	75.7%	641	1,746	39.2%	2,706	60.8%	4,452
1989	85	27.8%	221	72.2%	306	152	23.3%	499	76.7%	651	1,996	40.9%	2,887	59.1%	4,883
1990	81	29.6%	193	70.4%	274	126	23.3%	415	76.7%	541	2,013	41.0%	2,895	59.0%	4,908
1991	66	25.4%	194	74.6%	260	127	24.9%	384	75.1%	511	1,978	39.5%	3,033	60.5%	5,011
1992	66	25.2%	196	74.8%	262	129	24.8%	391	75.2%	520	1,848	39.4%	2,842	60.6%	4,690
1993	55	31.4%	120	68.6%	175	109	25.1%	325	74.9%	434	1,705	38.5%	2,722	61.5%	4,427
1994	48	28.7%	119	71.3%	167	116	27.8%	302	72.2%	418	1,720	38.7%	2,723	61.3%	4,443
1995	37	27.8%	96	72.2%	133	90	23.0%	301	77.0%	391	1,424	39.7%	2,160	60.3%	3,584
1996	18	24.7%	55	75.3%	73	75	18.8%	325	81.3%	400	1,399	40.8%	2,034	59.2%	3,433
1997	26	24.5%	80	75.5%	106	50	24.2%	157	75.8%	207	1,298	39.2%	2,014	60.8%	3,312
1998	17	23.6%	55	76.4%	72	38	27.0%	103	73.0%	141	1,231	39.5%	1,882	60.5%	3,113
1999	26	27.4%	69	72.6%	95	51	31.1%	113	68.9%	164	1,208	38.4%	1,934	61.6%	3,142
2000	25	22.7%	85	77.3%	110	40	28.0%	103	72.0%	143	1,047	35.6%	1,890	64.4%	2,937
2001	22	19.8%	89	80.2%	111	41	33.6%	81	66.4%	122	935	33.3%	1,876	66.7%	2,811
2002	3	42.9%	4	57.1%	7	38	38.0%	62	62.0%	100	847	33.9%	1,653	66.1%	2,500
2003	3	37.5%	5	62.5%	8	36	31.6%	78	68.4%	114	747	31.5%	1,621	68.5%	2,368
2004	20	28.2%	51	71.8%	71	31	30.4%	71	69.6%	102	783	30.8%	1,761	69.2%	2,544
2005	16	24.2%	50	75.8%	66	36	35.3%	66	64.7%	102	716	28.5%	1,795	71.5%	2,511
2006	17	23.6%	55	76.4%	72	22	20.8%	84	79.2%	106	677	26.1%	1,918	73.9%	2,595
2007	13	20.0%	52	80.0%	65	31	22.5%	107	77.5%	138	620	23.3%	2,042	76.7%	2,662

- Notes:
1. The Alaska Region reflects the license year-beginning residency, license year-beginning census information, and license year-beginning city of the license holder. An Unknown Region indicates the crewmember license holder was an Alaska resident at license year-beginning, but their license year-beginning city could not be matched to the Census file. As such, a census area and region could not be assigned. Only Alaska residents were assigned a region.
  2. Only persons who held limited entry, interim-entry, interim-use, or moratorium permits at some time between 1975 and 2007 are included (including emergency transfer recipients). Those permit holders with experimental, test fishing, educational, reservation, hatchery, or vessel permits are not included.
  3. Only commercial crewmember license holders with valid licenses between 1988 and 2007 were included.
  4. *Source:* CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier), and CFEC's 2000 Census file.

**Table 10b. Resident License Holders that Have or Have Not Held a CFEC Permit between 1975 and 2007, by Region and Years in which Crewmember Licenses were Held (cont'd)**

Resident Crewmember License Holders by Region															
Year	South Central With a Permit		South Central Without a Permit		Total South Central	Western With a Permit		Western Without a Permit		Total Western	Unknown With a Permit		Unknown Without a Permit		Total Unknown
1988	2,400	34.4%	4,582	65.6%	6,982	3,588	48.9%	3,744	51.1%	7,332	45	26.9%	122	73.1%	167
1989	2,353	35.9%	4,207	64.1%	6,560	3,558	47.6%	3,915	52.4%	7,473	52	25.7%	150	74.3%	202
1990	2,602	35.1%	4,817	64.9%	7,419	3,637	47.1%	4,088	52.9%	7,725	58	24.8%	176	75.2%	234
1991	2,468	35.8%	4,419	64.2%	6,887	3,554	46.5%	4,082	53.5%	7,636	43	19.7%	175	80.3%	218
1992	2,407	35.1%	4,454	64.9%	6,861	3,421	46.4%	3,956	53.6%	7,377	59	24.4%	183	75.6%	242
1993	2,108	35.5%	3,838	64.5%	5,946	3,352	46.9%	3,791	53.1%	7,143	51	24.6%	156	75.4%	207
1994	2,019	35.0%	3,753	65.0%	5,772	3,266	45.8%	3,859	54.2%	7,125	37	22.6%	127	77.4%	164
1995	1,862	35.5%	3,381	64.5%	5,243	3,241	45.6%	3,863	54.4%	7,104	33	20.2%	130	79.8%	163
1996	1,696	35.1%	3,133	64.9%	4,829	3,019	45.0%	3,694	55.0%	6,713	35	30.4%	80	69.6%	115
1997	1,631	34.9%	3,048	65.1%	4,679	2,722	43.9%	3,482	56.1%	6,204	18	23.1%	60	76.9%	78
1998	1,400	35.0%	2,603	65.0%	4,003	2,446	42.9%	3,256	57.1%	5,702	103	34.4%	196	65.6%	299
1999	1,382	33.1%	2,793	66.9%	4,175	2,547	42.3%	3,474	57.7%	6,021	19	22.1%	67	77.9%	86
2000	1,289	31.4%	2,821	68.6%	4,110	2,286	40.9%	3,310	59.1%	5,596	21	28.0%	54	72.0%	75
2001	1,045	29.4%	2,505	70.6%	3,550	1,652	40.2%	2,457	59.8%	4,109	9	16.7%	45	83.3%	54
2002	900	30.3%	2,075	69.7%	2,975	1,467	38.3%	2,365	61.7%	3,832	17	27.4%	45	72.6%	62
2003	960	29.5%	2,295	70.5%	3,255	1,495	37.0%	2,551	63.0%	4,046	11	15.9%	58	84.1%	69
2004	877	26.0%	2,496	74.0%	3,373	1,369	35.3%	2,510	64.7%	3,879	6	12.0%	44	88.0%	50
2005	823	24.6%	2,525	75.4%	3,348	1,329	32.6%	2,751	67.4%	4,080	14	23.3%	46	76.7%	60
2006	718	22.3%	2,500	77.7%	3,218	1,197	29.7%	2,833	70.3%	4,030	13	20.6%	50	79.4%	63
2007	680	20.1%	2,700	79.9%	3,380	1,105	28.3%	2,798	71.7%	3,903	10	10.9%	82	89.1%	92

- Notes:
1. The Alaska Region reflects the license year-beginning residency, license year-beginning census information, and license year-beginning city of the license holder. An Unknown Region indicates the crewmember license holder was an Alaska resident at license year-beginning, but their license year-beginning city could not be matched to the Census file. As such, a census area and region could not be assigned. Only Alaska residents were assigned a region.
  2. Only persons who held limited entry, interim-entry, interim-use, or moratorium permits at some time between 1975 and 2007 are included (including emergency transfer recipients). Those permit holders with experimental, test fishing, educational, reservation, hatchery, or vessel permits are not included.
  3. Only commercial crewmember license holders with valid licenses between 1988 and 2007 were included.
  4. *Source:* CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier), and CFEC's 2000 Census file.

The number and percentage of license holders that have or have not held a commercial fishing permit are also shown in Tables 10a and 10b for each region and year. In each year, the Western region has the largest number of license holders with a permit. In most years, the Western region also has the highest percentage of license holders that have held a permit. For example, 3,588 of the 7,332 license holders from the Western region in 1988 have held a permit (48.9%). This is the largest group of license holders from a region in 1988 that has held a permit and it is the highest percentage of license holders from a region in that year to have held a permit. Only 1,746 or 39.2% of the license holders from the Southeast region in that year held a permit, and only 2,400 or 34.4% from the South Central region have. In only 3 years between 1988 and 2007 does the Western region not have the highest percentage license holders with permit holdings; in 2002 and 2003 the Arctic region has a higher percentage and in 2005 the Interior region does. Although the South Central region has more license holders in each year that have held a permit than the Southeast region, a higher percentage of Southeast license holders in each year have held a commercial fishing permit.

Over the time period covered in this table, the Western, South Central, and Southeast regions each exhibit a steady decrease in the percentage of license holders that have held a commercial fishing permit. This follows the same trend of all license holders combined and license holders when categorized as residents or nonresidents. Whether the decline is due simply to data constraints or also to a real trend is unclear. Residents of the Interior and Arctic regions exhibit a different pattern, however. Residents of the Arctic exhibit a decline in the percentage of license holders within a year that have held a permit between 1988 and 2001. In 2002 there was a dramatic increase in the percentage of Arctic license holders with a permit. However, this large percentage jump coincides with a severe drop in the number of license holders (111 to 7). As the number of Arctic license holders has rebounded, the percentage with a permit has again decreased from year to year. In recent years with the exception of 2006 and 2007, residents of the Interior had a rebound in the percentage of license holders within a year that have held a permit.

Table 11 also examines resident crewmember license holders in each year that have held a commercial fishing permit at some point between 1975 and 2007, but aggregates the information differently than Tables 10a and 10b. The table only looks at license holders that have held a permit and the annual totals reflect that permit holding status rather than regional totals. As such, the percentages indicate the proportion each region contributes to resident license holders with a permit. Nearly half of the resident crewmember license holders in each year that has held a commercial fishing permit resides in Western Alaska. In each year the second and third largest percentage of license holders with a permit reside in the South Central and Southeast regions, respectively. The contribution from each region has been relatively consistent over the 20 years. The Western region's contribution has fluctuated at most 6.0% a year, South Central and Southeast by less than 5% a year, and the Arctic and Interior by less than 2% a year.

#### **4.6 Frequency of Permit Holders among Resident Crewmember License Holders by Census Area**

The previous sections examine crewmember license and commercial fishing permit holding patterns across regions of the state of Alaska. This section provides additional detail as license holder information for each census area within a region is summarized.<sup>11</sup> Figure 1 illustrates the census area and boroughs found in each region of the state.

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<sup>11</sup> The 2000 US Census information was used to determine the census area and rural/urban designations for the license career beginning city of crewmember license holders with a resident status as their license career beginning residency. With Census 2000, the Census Bureau significantly changed its method of classifying areas as rural or urban. As a consequence, some changes have occurred to the rural/urban designations since the 1990 Census for some of Alaskan communities. Appendix A of CFEC's *Changes in the Distribution of Alaska's Commercial Fisheries Entry Permits, 1975-2007, CFEC Rpt 09-4N* contains a more complete description of the changes in rural/urban designations. For this report, designations arising from the 2000 Census were applied to all years of license data.

**Table 11. The Region of Resident License Holders that Have Held a CFEC Permit between 1975 and 2007, by the Years in which Crewmember Licenses were Held**

Year	Resident Crewmember License Holders with a Permit												
	Arctic		Interior		Southeast		South Central		Western		Unknown		Total
1988	135	1.7%	156	1.9%	1,746	21.6%	2,400	29.7%	3,588	44.5%	45	0.6%	8,070
1989	85	1.0%	152	1.9%	1,996	24.4%	2,353	28.7%	3,558	43.4%	52	0.6%	8,196
1990	81	1.0%	126	1.5%	2,013	23.6%	2,602	30.6%	3,637	42.7%	58	0.7%	8,517
1991	66	0.8%	127	1.5%	1,978	24.0%	2,468	30.0%	3,554	43.2%	43	0.5%	8,236
1992	66	0.8%	129	1.6%	1,848	23.3%	2,407	30.4%	3,421	43.1%	59	0.7%	7,930
1993	55	0.7%	109	1.5%	1,705	23.1%	2,108	28.6%	3,352	45.4%	51	0.7%	7,380
1994	48	0.7%	116	1.6%	1,720	23.9%	2,019	28.0%	3,266	45.3%	37	0.5%	7,206
1995	37	0.6%	90	1.3%	1,424	21.3%	1,862	27.8%	3,241	48.5%	33	0.5%	6,687
1996	18	0.3%	75	1.2%	1,399	22.4%	1,696	27.2%	3,019	48.4%	35	0.6%	6,242
1997	26	0.5%	50	0.9%	1,298	22.6%	1,631	28.4%	2,722	47.4%	18	0.3%	5,745
1998	17	0.3%	38	0.7%	1,231	23.5%	1,400	26.7%	2,446	46.7%	103	2.0%	5,235
1999	26	0.5%	51	1.0%	1,208	23.1%	1,382	26.4%	2,547	48.7%	19	0.4%	5,233
2000	25	0.5%	40	0.8%	1,047	22.2%	1,289	27.4%	2,286	48.6%	21	0.4%	4,708
2001	22	0.6%	41	1.1%	935	25.2%	1,045	28.2%	1,652	44.6%	9	0.2%	3,704
2002	3	0.1%	38	1.2%	847	25.9%	900	27.5%	1,467	44.8%	17	0.5%	3,272
2003	3	0.1%	36	1.1%	747	23.0%	960	29.5%	1,495	46.0%	11	0.3%	3,252
2004	20	0.6%	31	1.0%	783	25.4%	877	28.4%	1,369	44.4%	6	0.2%	3,086
2005	16	0.5%	36	1.2%	716	24.4%	823	28.1%	1,329	45.3%	14	0.5%	2,934
2006	17	0.6%	22	0.8%	677	25.6%	718	27.2%	1,197	45.3%	13	0.5%	2,644
2007	13	0.5%	31	1.3%	620	25.2%	680	27.7%	1,105	44.9%	10	0.4%	2,459

Notes:

1. The Alaska Region reflects the license year-beginning residency, license year-beginning census information, and license year-beginning city of the license holder. An Unknown Region indicates the crewmember license holder was an Alaska resident at license year-beginning, but their license year-beginning city could not be matched to the Census file. As such, a census area and region could not be assigned. Only Alaska residents were assigned a region.
2. Only persons who held limited entry, interim-entry, interim-use, or moratorium permits at some time between 1975 and 2007 are included (including emergency transfer recipients). Those permit holders with experimental, test fishing, educational, reservation, hatchery, or vessel permits are not included.
3. Only commercial crewmember license holders with valid licenses between 1988 and 2007 were included.
4. *Source:* CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier), and CFEC's 2000 Census file.

Table 12 indicates the number of crewmember license holders with and without a commercial fishing permit from each of the Alaskan census areas. Subtotals are provided for each of the Alaska regions as well as for Alaska residents and nonresidents. Within the South Central region, which had the largest number of license holders, the Kenai Peninsula Borough had the largest number of overall license holders (15,146) followed closely by the Anchorage Municipality (11,941). In the region, the Valdez-Cordova census area exhibited the highest percentage of license holders with a permit (27.6%).

Within the Western region, which had the largest group of resident license holders that have held a commercial fishing permit, the Kodiak Island Borough contributed the largest number of overall license holders (7,031), the Bethel Census Area had the largest number of license holders with a permit (2,166), and the Dillingham census area had the highest percentage of license holders with a permit (42.2%).

Statewide, the Kenai Peninsula Borough in the South Central region had the largest number of license holders with a permit (3,431). The Yakutat City and Borough in the Southeast Region had the highest percentage of license holders with a permit (49.7%). Statewide, the Fairbanks North Star Borough in the Interior Region had the highest percentage of license holders that have not held a commercial fishing permit (85.6%).

#### **4.7 Frequency of Permit Holders among Resident Crewmember License Holders by Census Area and Year**

Between 1988 and 2007, each region of the state showed a marked decline in the total number of crewmember license holders. That decline is reflected in each census area across the state. The extent of the decline varies between census areas, however. In some of the census areas, where the total number of license holders each year has been fairly small, the decrease is also small. But in other census areas the drop in the number of license holders has been dramatic. For example, in the Kenai Peninsula Borough there were 3,484 license holders in 1990 but only 1,486 in 2006. That is a drop of nearly 2,000 license holders in 16 years. Because of the large size of the table, this summary information can be found in Appendix B at the end of this report.

Appendix B also indicates, by year, the number of license holders in each census area across the state that has or has not held a commercial fishing permit at some point between 1975 and 2007. The number of license holders with a commercial fishing permit has declined in all census areas, except those census areas with a very small numbers of license holders with permits (North Slope Borough, Denali Borough, and Southeast Fairbanks Census Area). The percentage of license holders from each census area that have held a permit decreases over time in all of the regions of the state but the Arctic and the Interior.

Appendix C also examines resident crewmember license holders in each year that have held a commercial fishing permit at some point between 1975 and 2007, but aggregates the information differently than Appendix B. The table only looks at license holders that have held a permit and the annual totals reflect that permit holding status rather than census area totals. As such, the percentages indicate the proportion each census area contributes to resident license holders with a permit. Over time, the Kenai Peninsula Borough has been home to the largest percentage of resident license holders with a commercial fishing permit. The Sitka City and Borough, Aleutians East Borough, and the Dillingham Census Area contribute an increasing percentage of resident license holders with commercial fishing permit holdings.

**Table 12. Crewmember License Holders with and without CFEC Permits, by Alaska Region and Census Area**

Career-Beginning Alaska Region and Census Area	License Holders with Permits		License Holders Without Permits		Total License Holders
	Number	Percent	Number	Percent	
<b>Arctic</b>	<b>252</b>	<b>21.9%</b>	<b>898</b>	<b>78.1%</b>	<b>1,150</b>
North Slope Borough	11	18.3%	49	81.7%	60
Northwest Arctic Borough	241	22.1%	849	77.9%	1,090
<b>Interior</b>	<b>457</b>	<b>16.8%</b>	<b>2,256</b>	<b>83.2%</b>	<b>2,713</b>
Denali Borough	11	15.5%	60	84.5%	71
Fairbanks North Star Bor.	213	14.4%	1,263	85.6%	1,476
Southeast Fairbanks CA	27	14.8%	155	85.2%	182
Yukon-Koyukuk CA	206	20.9%	778	79.1%	984
<b>South Central</b>	<b>6,809</b>	<b>20.2%</b>	<b>26,836</b>	<b>79.8%</b>	<b>33,645</b>
Anchorage Municipality	1,936	16.2%	10,005	83.8%	11,941
Kenai Peninsula Borough	3,431	22.7%	11,715	77.3%	15,146
Matanuska-Susitna Bor.	505	16.0%	2,661	84.0%	3,166
Valdez-Cordova CA	937	27.6%	2,455	72.4%	3,392
<b>Southeast</b>	<b>5,377</b>	<b>25.3%</b>	<b>15,917</b>	<b>74.7%</b>	<b>21,294</b>
Haines Borough	198	19.2%	835	80.8%	1,033
Juneau City and Borough	894	21.4%	3,284	78.6%	4,178
Ketchikan Gateway Bor.	782	21.7%	2,826	78.3%	3,608
Pr. Wales – Outer Ketch. CA	644	27.2%	1,724	72.8%	2,368
Sitka City and Borough	957	25.4%	2,813	74.6%	3,770
Skagway-Hoonah-Angoon CA	415	28.0%	1,068	72.0%	1,483
Wrangell-Petersburg CA	1,242	28.5%	3,119	71.5%	4,361
Yakutat City and Borough	245	49.7%	248	50.3%	493
<b>Western</b>	<b>8,742</b>	<b>31.9%</b>	<b>18,667</b>	<b>68.1%</b>	<b>27,409</b>
Aleutians East Borough	407	30.3%	938	69.7%	1,345
Aleutian West CA	312	20.0%	1,248	80.0%	1,560
Bethel CA	2,166	34.9%	4,036	65.1%	6,202
Bristol Bay Borough	422	40.7%	614	59.3%	1,036
Dillingham CA	1,415	42.2%	1,937	57.8%	3,352
Kodiak Island Borough	1,812	25.8%	5,219	74.2%	7,031
Lake and Peninsula Bor.	494	33.7%	973	66.3%	1,467
Nome CA	525	31.9%	1,122	68.1%	1,647
Wade Hampton CA	1,189	31.5%	2,580	68.5%	3,769
<b>Unknown</b>	<b>147</b>	<b>13.1%</b>	<b>973</b>	<b>86.9%</b>	<b>1,120</b>
<b>Total Resident</b>	<b>21,784</b>	<b>24.9%</b>	<b>65,547</b>	<b>75.1%</b>	<b>87,331</b>
<b>Total Nonresident</b>	<b>8,441</b>	<b>9.0%</b>	<b>85,284</b>	<b>91.0%</b>	<b>93,725</b>
<b>Total License Holders</b>	<b>30,225</b>	<b>16.7%</b>	<b>150,831</b>	<b>83.3%</b>	<b>181,056</b>

Notes:

1. The Alaska region and census area reflect the license career-beginning residency and license career-beginning city of the license holder. An Unknown Region indicates the crewmember license holder was an Alaska resident at license career-beginning, but their license career-beginning city could not be matched to the Census file. As such, a census area and region could not be assigned. Only Alaska residents were assigned a census area or region.
2. CA stands for Census Area.
3. Only persons who held limited entry, interim-entry, interim-use, or moratorium permits at some time between 1975 and 2007 are included (including emergency transfer recipients). Those permit holders with experimental, test fishing, educational, reservation, hatchery, or vessel permits are not included.
4. Only commercial crewmember license holders with valid licenses between 1988 and 2007 were included.
5. Source: CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier), and CFEC's 2000 Census file.

#### **4.8 Frequency of Permit Holders among Resident Crewmember License Holders by Rural/Urban Designation**

This section summarizes the permit holding pattern of crewmember license holders from communities with rural or urban designations. The community that an individual resides in can change between years and across the span of a career, so the rural or urban classification associated with an individual can also change.<sup>12</sup> The analysis in this section reflects the rural or urban designation for the license career beginning community for each individual.

Table 13 indicates the number of crewmember license holders with and without a commercial fishing permit that are from rural or urban communities. Reading the table vertically indicates the proportion that license holders from rural and urban communities make-up of each permit holding category: those that have held a permit, those that have not held a permit, and all crewmember license holders. Just over half of the crewmember license holders that began their license career as an Alaskan resident are from communities designated as urban in the 2000 Census (45,783 license holders, 52.4% of residents, 25.3% overall). However, more license holders with permits are from rural communities (12,123 license holders, 55.7% of residents, 40.1% overall) than urban communities (43.7%, 9,514 of 87,831 license holders).

Reading Table 13 horizontally indicates the number and percentage of crewmember license holders from rural and urban communities that have or have not held a commercial fishing permit. License holders that begin their license career in rural communities are more likely to be permit holders than those from urban communities (30.0% vs. 20.8%, respectively).

#### **4.9 Frequency of Permit Holders among Resident License Holders by Rural/Urban Designation and Year**

Table 14 indicates the number of rural or urban license holders by year, and the number and percentage of each which have or have not held a commercial fishing permit. Not surprisingly, the trend of declining license holders is seen for both rural and urban residents of Alaska. Since 2002, however, the total numbers of rural and urban license holders appear to have stabilized somewhat. Following a low of 5,132 rural license holders in 2002, the number has hovered in the low to mid-5,000s. Although this is a far cry from the high of 10,449 rural license holders in 1990, the number has not dropped any lower since 2002.

Although the number of rural license holders has stabilized in recent years, the number of those that have held a permit has declined and continued to decline even after 2002. This may simply be due to data constraints as permit data for 2008 and onward are not included in the analysis. Regardless of the decline, a slightly higher percentage of rural license holders in each year have held a permit than urban license holders. Not only are rural license holders more likely to hold a commercial fishing permit than urban license holders, this has remained true over 20 years of license history.

Table 15 also examines resident crewmember license holders in each year that have held a commercial fishing permit at some point between 1975 and 2007, but aggregates the information differently than Table 14. License holder totals reflect permit holding status rather than rural/urban designation. As such, the percentages indicate the proportion each rural/urban group contributes to license holders with a permit and to license holders without a permit. Rural residents in each year have comprised a fairly constant proportion of the crewmember license holders that have held a permit (roughly 56-62%); each year the majority of license holders who have held a permit are rural residents. Over time, rural residents have provided an increasing percentage of the license holders that have not held a permit (roughly 44-55%).

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<sup>12</sup> There 13,693 crewmember license holders that have a different rural or urban designation at the end of their crewmember license career than at the beginning of their license career (7.6%).

**Table 13. Crewmember License Holders with and without CFEC Permits, by Rural or Urban Designation**

Rural or Urban Designation		License Holders with Permit		License Holders without Permits		Total License Holders	
		Number	Percent	Number	Percent	Number	Percent
Rural	Number	12,123	30.0%	28,305	70.0%	40,428	100.0%
	Percent	40.1%		18.8%		22.3%	
Urban	Number	9,514	20.8%	36,269	79.2%	45,783	100.0%
	Percent	31.5%		24.0%		25.3%	
Unknown	Number	147	13.1%	973	86.9%	1,120	100.0%
	Percent	0.5%		0.6%		0.6%	
<b>Resident Total</b>	<b>Number</b>	<b>21,784</b>	<b>24.9%</b>	<b>65,547</b>	<b>75.1%</b>	<b>87,331</b>	<b>100.0%</b>
	<b>Percent</b>	<b>72.1%</b>		<b>43.5%</b>		<b>48.2%</b>	
<b>Nonresident Total</b>	<b>Number</b>	<b>8,441</b>	<b>9.0%</b>	<b>85,284</b>	<b>91.0%</b>	<b>93,725</b>	<b>100.0%</b>
	<b>Percent</b>	<b>27.9%</b>		<b>56.5%</b>		<b>51.8%</b>	
<b>Total Permit Holders</b>	<b>Number</b>	<b>30,225</b>	<b>16.7%</b>	<b>150,831</b>	<b>83.3%</b>	<b>181,056</b>	<b>100.0%</b>
	<b>Percent</b>	<b>100.0%</b>		<b>100.0%</b>		<b>100.0%</b>	

Notes:

1. Rural and urban designations reflect the license career-beginning residency and license career-beginning city of the license holder. An Unknown designation indicates the crewmember license holder was an Alaska resident at license career-beginning, but their license career-beginning city could not be matched to the Census file. As such, a census area and rural/urban designation could not be assigned. Only Alaska residents were assigned a rural, urban, or unknown designation.
2. Only persons who held limited entry, interim-entry, interim-use, or moratorium permits at some time between 1975 and 2007 are included (including emergency transfer recipients). Those permit holders with experimental, test fishing, educational, reservation, hatchery, or vessel permits are not included.
3. Only commercial crewmember license holders with valid licenses between 1988 and 2007 were included.
4. *Source:* CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier), and CFEC's 2000 US Census file.

**Table 14. Resident Rural and Urban License Holders that Have and Have not Held a CFEC Permit between 1975 and 2007, by Rural/Urban Designation and the Years in which Crewmember Licenses were Held**

Year	Resident Rural License Holders				Resident Urban License Holders					
	Have Held a Permit	Have Not Held a Permit	Total		Have Held a Permit	Have Not Held a Permit	Total			
1988	4,591	46.6%	5,260	53.4%	9,851	3,434	34.4%	6,554	65.6%	9,988
1989	4,652	46.2%	5,408	53.8%	10,060	3,492	35.6%	6,321	64.4%	9,813
1990	4,795	45.9%	5,654	54.1%	10,449	3,664	35.2%	6,754	64.8%	10,418
1991	4,605	45.4%	5,546	54.6%	10,151	3,588	35.3%	6,566	64.7%	10,154
1992	4,478	45.1%	5,461	54.9%	9,939	3,393	34.7%	6,378	65.3%	9,771
1993	4,223	45.7%	5,010	54.3%	9,233	3,106	34.9%	5,786	65.1%	8,892
1994	4,139	45.1%	5,043	54.9%	9,182	3,030	34.7%	5,713	65.3%	8,743
1995	4,054	44.6%	5,035	55.4%	9,089	2,600	35.3%	4,766	64.7%	7,366
1996	3,782	43.7%	4,870	56.3%	8,652	2,425	35.7%	4,371	64.3%	6,796
1997	3,461	42.6%	4,656	57.4%	8,117	2,266	35.5%	4,125	64.5%	6,391
1998	3,148	42.4%	4,280	57.6%	7,428	1,984	35.4%	3,619	64.6%	5,603
1999	3,254	41.2%	4,639	58.8%	7,893	1,960	34.4%	3,744	65.6%	5,704
2000	2,935	39.8%	4,431	60.2%	7,366	1,752	31.7%	3,778	68.3%	5,530
2001	2,155	38.2%	3,481	61.8%	5,636	1,540	30.4%	3,527	69.6%	5,067
2002	1,897	37.0%	3,235	63.0%	5,132	1,358	31.7%	2,924	68.3%	4,282
2003	1,918	35.8%	3,445	64.2%	5,363	1,323	29.9%	3,105	70.1%	4,428
2004	1,795	33.8%	3,522	66.2%	5,317	1,285	27.6%	3,367	72.4%	4,652
2005	1,724	31.6%	3,732	68.4%	5,456	1,196	25.7%	3,455	74.3%	4,651
2006	1,543	28.3%	3,901	71.7%	5,444	1,088	23.8%	3,489	76.2%	4,577
2007	1,381	25.7%	4,003	74.3%	5,384	1,068	22.4%	3,696	77.6%	4,764

Notes:

1. Rural and Urban designations reflect the license year beginning residency and license year beginning city of the license holder.
2. Resident license holders from communities that did not match the 2000 Census file are assigned an unknown rural/urban designation and they are not shown in this table.
3. Only persons who held limited entry, interim-entry, interim-use, or moratorium permits at some time between 1975 and 2007 are included (including emergency transfer recipients). Those permit holders with experimental, test fishing, educational, reservation, hatchery, or vessel permits are not included.
4. Only commercial crewmember license holders with valid licenses between 1988 and 2007 were included.
5. *Source:* CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier), and CFEC's 2000 Census file.

**Table 15. The Rural/Urban Designation of Resident License Holders that Have and Have not Held a CFEC Permit between 1975 and 2007, by the Years in which Crewmember Licenses were Held**

Year	Resident Crewmember License Holders with a Permit							Resident Crewmember License Holders without a Permit						
	Rural		Urban		Unknown		Total	Rural		Urban		Unknown		Total
1988	4,591	56.9%	3,434	42.6%	45	0.6%	8,070	5,260	44.1%	6,554	54.9%	122	1.0%	11,936
1989	4,652	56.8%	3,492	42.6%	52	0.6%	8,196	5,408	45.5%	6,321	53.2%	150	1.3%	11,879
1990	4,795	56.3%	3,664	43.0%	58	0.7%	8,517	5,654	44.9%	6,754	53.7%	176	1.4%	12,584
1991	4,605	55.9%	3,588	43.6%	43	0.5%	8,236	5,546	45.1%	6,566	53.4%	175	1.4%	12,287
1992	4,478	56.5%	3,393	42.8%	59	0.7%	7,930	5,461	45.4%	6,378	53.1%	183	1.5%	12,022
1993	4,223	57.2%	3,106	42.1%	51	0.7%	7,380	5,010	45.7%	5,786	52.8%	156	1.4%	10,952
1994	4,139	57.4%	3,030	42.0%	37	0.5%	7,206	5,043	46.3%	5,713	52.5%	127	1.2%	10,883
1995	4,054	60.6%	2,600	38.9%	33	0.5%	6,687	5,035	50.7%	4,766	48.0%	130	1.3%	9,931
1996	3,782	60.6%	2,425	38.8%	35	0.6%	6,242	4,870	52.2%	4,371	46.9%	80	0.9%	9,321
1997	3,461	60.2%	2,266	39.4%	18	0.3%	5,745	4,656	52.7%	4,125	46.7%	60	0.7%	8,841
1998	3,148	60.1%	1,984	37.9%	103	2.0%	5,235	4,280	52.9%	3,619	44.7%	196	2.4%	8,095
1999	3,254	62.2%	1,960	37.5%	19	0.4%	5,233	4,639	54.9%	3,744	44.3%	67	0.8%	8,450
2000	2,935	62.3%	1,752	37.2%	21	0.4%	4,708	4,431	53.6%	3,778	45.7%	54	0.7%	8,263
2001	2,155	58.2%	1,540	41.6%	9	0.2%	3,704	3,481	49.4%	3,527	50.0%	45	0.6%	7,053
2002	1,897	58.0%	1,358	41.5%	17	0.5%	3,272	3,235	52.1%	2,924	47.1%	45	0.7%	6,204
2003	1,918	59.0%	1,323	40.7%	11	0.3%	3,252	3,445	52.1%	3,105	47.0%	58	0.9%	6,608
2004	1,795	58.2%	1,285	41.6%	6	0.2%	3,086	3,522	50.8%	3,367	48.6%	44	0.6%	6,933
2005	1,724	58.8%	1,196	40.8%	14	0.5%	2,934	3,732	51.6%	3,455	47.8%	46	0.6%	7,233
2006	1,543	58.4%	1,088	41.1%	13	0.5%	2,644	3,901	52.4%	3,489	46.9%	50	0.7%	7,440
2007	1,381	56.2%	1,068	43.4%	10	0.4%	2,459	4,003	51.4%	3,696	47.5%	82	1.1%	7,781

**Notes:**

1. Rural and Urban designations reflect the license year beginning residency and license year beginning city of the license holder. An Unknown designation indicates the crewmember license holder was an Alaska resident at license year beginning, but their license year beginning city could not be matched to the Census file. As such, a rural/urban designation could not be assigned.
2. Only persons who held limited entry, interim-entry, interim-use, or moratorium permits at some time between 1975 and 2007 are included (including emergency transfer recipients). Those permit holders with experimental, test fishing, educational, reservation, hatchery, or vessel permits are not included.
3. Only commercial crewmember license holders with valid licenses between 1988 and 2007 were included.
4. *Source:* CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier), and CFEC's 2000 Census file.

## 5.0 Permit Holder Status of Commercial Crewmember License Holders with Permits

The previous section of this report examined demographic data and trends over time for commercial crewmember license holders that either held or had not held a commercial fishing permit. This section shifts focus slightly and examines whether crewmembers held permits through emergency transfer or if they were outright permit holders.

### 5.1 Permit Holder vs. Emergency Transfer Holder

There are two ways in which an individual can hold a CFEC commercial fishing permit: as the permit holder of record or as a temporary holder through emergency transfer. In the event a limited entry permit holder is prevented from fishing due to illness, death, disability, required military or government service, or other unavoidable hardships of a temporary and unforeseen nature, they may emergency transfer their permit to another individual.<sup>13</sup> The emergency transfer holder may fish the permit and make landings, but the permit reverts back to the permit holder by year-end.

When crewmember license holders were compared to CFEC permit holders, they were compared to permit holders of record as well as emergency transfer holders. Of the 30,225 crewmember license holders also identified in the CFEC permit data, 21,711 were permit holders (71.8%), 5,917 were permit holders as well as emergency transfer holders (19.6%), and 2,597 were exclusively emergency transfer holders (8.6%).

Table 16 identifies the number of crewmember license holders that have held permits and/or been emergency transfer holders. The crewmember license holders are also broken out by their license career-beginning residency. Resident license holders were slightly more likely to be permit holders than nonresidents (92.7% and 88.1%, respectively). Nonresident license holders were slightly more likely to have been emergency transfer holders than resident crewmember license holders (29.0% and 27.8%, respectively).

**Table 16. Permit Holder Status of Crewmember License Holders, by Residency**

Residency	Permit Holders Only		ET Holders Only		Permit and ET Holders		Permit Holder Subtotal		ET Holder Subtotal		Total
Nonresident	5,990	71.0%	1,003	11.9%	1,448	17.2%	7,438	88.1%	2,451	29.0%	8,441
Resident	15,721	72.2%	1,594	7.3%	4,469	20.5%	20,190	92.7%	6,063	27.8%	21,784
Total	21,711	71.8%	2,597	8.6%	5,917	19.6%	27,628	91.4%	8,514	28.2%	30,225

**Notes:**

1. Residency reflects the license career-beginning residency of the license holder.
2. ET refers to emergency transfer.
3. Each crewmember license holder associated with CFEC's permit data occurs in one of three categories: permit holders only, permit and ET holders, or ET holders only. Depending on the category, each license holder may be accounted for in one or both of the subtotal columns. As individuals occur in more than one column, numbers do not add up to the total in each row. Percentages reflect each category or subtotal's percentage of the total crewmember license holders for a residency or overall.
4. Only persons who held limited entry, interim-entry, interim-use, or moratorium permits at some time between 1975 and 2007 are included (including emergency transfer recipients). Those permit holders with experimental, test fishing, educational, reservation, hatchery, or vessel permits are not included.
5. Only commercial crewmember license holders with valid licenses between 1988 and 2007 were included.
6. *Source:* CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier).

<sup>13</sup> The holder of an interim-use permit may only emergency transfer their permit if they are an applicant for a permanent limited entry permit. Oftentimes this type of interim-use permit is referred to as an interim-entry permit so as to distinguish it from an interim-use permit in an open access fishery.

Of the crewmember license holders that have held permits as both the holder of record and temporarily as the emergency transfer holder, 57.0% were a permit holder of record before they were an emergency transfer holder (3,371 of 5,917), 29.2% were an emergency transfer holder first (1,729 of 5,917), and 13.8% held a permit and an emergency transfer for the first time in the same year (817 of 5,917).

## 6.0 Permit Types Held by Commercial Crewmember License Holders

Alaska statutes refer to two classes of commercial fishing permits: entry and interim-use permits. For clarity sake, CFEC oftentimes differentiates those two classes of permits into four: limited entry permits, interim-use permits, interim-entry permits, and moratorium permits. Limited entry permits are issued in limited entry fisheries, interim-use permits are issued in open access fisheries, interim-entry permits are a type of interim-use permit issued in limited entry fisheries to individuals awaiting a decision on their limited entry permit application, and moratorium permits are a type of interim-use permit issued in fisheries under moratoria to individuals that meet certain eligibility requirements. For this section however, commercial fishing permits will be classified as either interim-use permits or limited entry permits.<sup>14</sup> The previous section of this report examined whether commercial crewmember license holders were permit holders or emergency transfer holders. This section examines whether those that were permit holders held interim-use and/or limited entry permits.

### 6.1 Limited Entry vs. Interim-Use Permits<sup>15</sup>

Of the 30,225 crewmember license holders associated with a commercial fishing permit data, 27,628 were the permit holder, as opposed to the recipient of an emergency transfer. Table 17 contains a breakdown of those 27,628 crewmember license and permit holders by the type or types of commercial fishing permit they held between 1975 and 2007. Over three-quarters of the crewmember license holders held an interim-use permit (21,186 or 76.7%), either solely or in conjuncture with a limited entry permit, and a majority held a limited entry permit (16,420 or 59.4%).

Table 17 also shows the type of commercial fishing permit held by crewmember license holders that began their license career as either a resident or nonresident. The percentage of nonresidents that have held either an interim-use permit or a limited entry permit, but not both, is higher than for residents. A higher percentage of resident crewmember license holders have held both interim-use and limited entry permits than nonresidents, however.

**Table 17. Permit Types Held by Crewmember License Holders, by Residency**

Residency	Interim-Use Only		Limited Entry Only		Interim-Use and Limited Entry		Interim-Use Subtotal		Limited Entry Subtotal		Total
Nonresident	3,229	43.4%	2,107	28.3%	2,102	28.3%	5,331	71.7%	4,209	56.6%	7,438
Resident	7,979	39.5%	4,335	21.5%	7,876	39.0%	15,855	78.5%	12,211	60.5%	20,190
Total	11,208	40.6%	6,442	23.3%	9,978	36.1%	21,186	76.7%	16,420	59.4%	27,628

Notes:

1. Residency reflects the license career-beginning residency of the license holder.
2. Interim-Use refers collectively to interim-use permits, interim-entry permits, and moratorium permits.
3. Each crewmember license holder associated with CFEC's permit data as the permit holder occurs in one of three categories: interim-use only, interim-use and limited entry, or limited entry only. Depending on the category, each license holder may be accounted for in one or both of the subtotal columns. As individuals occur in more than one column, numbers do not add up to the total in each row. Percentages reflect each category or subtotal's percentage of the total crewmember license holders for a residency or overall.
4. Only persons who held limited entry, interim-entry, interim-use, or moratorium permits at some time between 1975 and 2007 are included. Those permit holders with experimental, test fishing, educational, reservation, hatchery, or vessel permits are not included. Recipients of emergency transfers are not included.
5. Only commercial crewmember license holders with valid licenses between 1988 and 2007 were included.
6. Source: CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier).

<sup>14</sup> This report does not include vessel limited entry permits for the Bering Sea hair crab or Weathervane scallop fisheries because those permits are issued to vessels rather than to individuals.

<sup>15</sup> The author of this report had thought to compare limited entry and interim-use permit holdings of crewmember license holders to limited entry and interim-use permit holdings of permit holders not identified in the crewmember license data. Unfortunately, it is not possible to identify permit holders that have not held a crewmember license because of the abbreviated years of crewmember license data available.

## 6.2 Resource Type and Permit Fishery of Permits Held by Crewmember License Holders

There are many different commercial fishing permit types issued. Permit types vary based on the type of resource harvested, the type of gear used, the area where harvest occurs, and in some cases by vessel length or gear restriction. Table 18 summarizes the permit types held by crewmember license holders based on the type of fishery resource the permit was issued for. Salmon permits have been the most common permit type held by crewmember license holders. Over half of the crewmember license holders with permits have held a salmon permit (14,932 or 54.0%). Halibut permits have been the second most common type of permit held by crewmember license holders (9,675 or 35.0%).

**Table 18. Resource Type of Permits Held by Crewmember License Holders**

Type of Resource	Crewmember License/Permit Holders	
S – Salmon	14,932	54.0%
B – Halibut	9,675	35.0%
G – Roe herring	6,563	23.8%
M – Miscellaneous saltwater finfish	6,362	23.0%
L – Herring spawn-on-kelp	3,327	12.0%
C – Sablefish	2,543	9.2%
T – Tanner Crab	2,398	8.7%
K – King Crab	1,972	7.1%
P – Shrimp	1,967	7.1%
D – Dungeness Crab	1,902	6.9%
R – Clams (except geoduck)	1,026	3.7%
Z – Miscellaneous marine invertebrates	880	3.2%
Y – Demersal Shelf Rockfish	800	2.9%
Q – Sea Cucumbers	637	2.3%
H – Food/Bait herring	604	2.2%
U – Sea Urchins	449	1.6%
I – Lingcod	414	1.5%
A – Abalone	375	1.4%
F – Freshwater fish	363	1.3%
O – Octopi and squid	264	1.0%
E – Bering Sea Hair Crab	209	0.8%
J – Geoducks	91	0.3%
W – Scallops	65	0.2%
N – Snails	42	0.2%
Total Distinct Individuals	27,628	

**Notes:**

1. Resource type refers to the fishery resource for which a permit was issued.
2. Only crewmember license holders that were the permit holder are included. Permits held through emergency transfer are not included.
3. Several of the Southeast Alaska pot gear crab permits are issued for both King and Tanner crab resources (K 49A, K 59A, and K 69A). In this table, individuals with these permit types have been counted for in both the King crab and Tanner crab resource categories.
4. Individuals may have held permits in more than 1 resource category, so the sum of crewmember license holders in all the categories will exceed the total count of unique crewmember license/permit holders.
5. *Source:* CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier).

The commercial fishing permits held by crewmember license holders were also summarized by the permit fishery for which they were issued. The 20 most common are listed in Table 19. The two statewide halibut longline permit fisheries were most common among crewmember license holders. A statewide longline halibut permit for vessels under 60 feet has been held by 6,619 crewmember license holders (B 06B, 24.0%) and the statewide longline halibut permit for vessels over 60 feet has been held by 4,377 crewmember license holders (B 61B, 15.8%). The Bristol Bay salmon drift gillnet (S 03T) permit fishery is the third most commonly held permit for crewmember license holders (2,903, 10.5%). Unfortunately, because data are not currently collected about crewmember participation, it is not possible to identify whether crewmember license holders obtain permits for the fisheries in which they participated as a crewmember.

It is most common that crewmember license holders have held a permit in only one permit fishery. Of the 27,628 crewmember license holders that have been a permit holder, 12,567 have held a permit with one permit fishery code (45.5%). Conversely, a small percentage (1.2%) has held a permit with 16 or more permit fisheries. Table 20 summarizes crewmember license holders by the number of permit fisheries in which they have held a permit.

**Table 19. The 20 Most Common Permit Fisheries of Permits Held by Crewmember License Holders**

Permit Fishery	Crewmember License/Permit Holders	
B 06B – STATEWIDE HALIBUT, LONGLINE VESSEL UNDER 60'	6,619	24.0%
B 61B – STATEWIDE HALIBUT, LONGLINE VESSEL 60' OR OVER	4,377	15.8%
S 03T – BRISTOL BAY SALMON, DRIFT GILLNET	2,903	10.5%
M 61B – STW MISCELLANEOUS SALTWATER FINFISH, LONGLINE VESSEL OVER 60'	2,539	9.2%
S 05B – STATEWIDE SALMON, HAND TROLL	2,393	8.7%
M 06B – STW MISCELLANEOUS SALTWATER FINFISH, LONGLINE VESSEL UNDER 60'	2,187	7.9%
G 34T – BRISTOL BAY HERRING ROE, GILLNET	2,186	7.9%
G 34J – WESTWARD HERRING, GILLNET	2,166	7.8%
S 04T – BRISTOL BAY SALMON, SET GILLNET	1,756	6.4%
C 61B – STATEWIDE SABLEFISH, LONGLINE VESSEL 60' OR OVER	1,750	6.3%
M 26B – STATEWIDE MISCELLANEOUS SALTWATER FINFISH, MECHANICAL JIG	1,598	5.8%
P 09B – STATEWIDE SHRIMP, POT GEAR VESSEL 50' OR LESS	1,345	4.9%
D 09B – STATEWIDE DUNGENESS CRAB, POT GEAR VESSEL 50' OR LESS	1,305	4.7%
L 99B – STATEWIDE HERRING SPAWN ON KELP, OTHER GEAR	1,235	4.5%
L 12T – BRISTOL BAY HERRING SPAWN ON KELP, HAND PICK	1,229	4.4%
S 04W – KUSKOKWIM SALMON, GILLNET	1,122	4.1%
S 04H – COOK INLET SALMON, SET GILLNET	1,111	4.0%
S 15B – STATEWIDE SALMON, POWER TROLL	1,064	3.9%
B 05B – STATEWIDE HALIBUT, HAND TROLL	1,031	3.7%
G 34S – SECURITY COVE HERRING ROE, GILLNET	997	3.6%
Total Distinct Individuals	27,628	

Notes:

1. Permit fishery refers to the resource type, gear type, area, and possibly vessel or gear restriction for which a permit was issued. Crewmember license holders have held permits in 431 permit fisheries.
2. 'STW' signifies Statewide.
3. Only crewmember license holders that were the permit holder are included. Permits held through emergency transfer are not included.
4. Individuals may have held permits in more than 1 permit fishery, so the sum of crewmember license holders in all the categories will exceed the total count of unique crewmember license/permit holders.
5. *Source:* CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier).

**Table 20. Number of Permit Fishery Types Held by Crewmember License Holders**

Permit Fishery Count	Crewmember License Holders	
1	12,567	45.5%
2	5,302	19.2%
3	2,932	10.6%
4	1,889	6.8%
5	1,226	4.4%
6	854	3.1%
7	648	2.4%
8	453	1.6%
9	392	1.4%
10	281	1.0%
11	218	0.8%
12	162	0.6%
13	158	0.6%
14	122	0.4%
15	88	0.3%
16+	336	1.2%
Total	27,628	

Notes:

1. Permit fishery refers to the resource type, gear type, area, and possibly vessel or gear restriction for which a permit was issued. Crewmember license holders have held permits in 431 permit fisheries.

2. Only permit holders are included. Emergency Transfer holders are excluded.

3. *Source:* CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier).

## 7.0 Longevity

Because information has not been collected about which crewmember license holders participate in fisheries, and which CFEC permit card holders participate as crewmembers, it is difficult to identify long-term professional and short-term transient crew. For this report as well as previous CFEC reports, license longevity is defined as the number of years that an individual has held a commercial crewmember license. License longevity has been used to estimate which crewmember license holders are long-term and which are short-term crewmembers. In a previous report, license longevity was summarized for crewmember license holders and generalizations made about professional and transient crew.<sup>16</sup> In this report, license longevity is compared for crewmember license holders that have and have not held CFEC commercial fishing permits. In general, does license longevity differ between crewmember license holders that have held a permit at some point and crewmember license holders that have not been associated with a CFEC commercial fishing permit?

This report then goes further and examines the career longevity of crewmember license holders that have held commercial fishing permits. Career longevity is defined as the number of years an individual has held a commercial crewmember license and/or a CFEC commercial fishing permit. Do permit holdings significantly extend the length of a crewmember license holder's career in commercial fishing?

In order to examine longevity, the following longevity attributes were estimated for each crewmember license holder:

- Comprehensive license longevity - the total number of years that an individual held a crewmember license between 1988 and 2007.
- Cumulative license longevity - the number of years that an individual held a crewmember license between 1988 and up to and including the year of the license. A cumulative license longevity value is calculated for an individual in each year they held a crewmember license between 1988 and 2007.
- Comprehensive career longevity - the total number of years that an individual has held a crewmember license between 1988 and 2007 and/or held a CFEC commercial fishing permit between 1975 and 2007.
- Cumulative career longevity - the number of years that an individual held either a crewmember license or a CFEC commercial fishing permit up to and including the year of the license or permit. A cumulative career longevity value is calculated for an individual in each year they held a crewmember license between 1988 and 2007 or held a CFEC commercial fishing permit between 1975 and 2007.

Each attribute will be explained and summarized for the crewmember license holders in the following sections.

### 7.1 Comprehensive License Longevity

The comprehensive license longevity represents the total number of years that an individual has held a crewmember license between 1988 and 2007. Based on unique identification number assignments, an estimated 181,056 distinct individuals obtained at least one commercial crewmember license between 1988 and 2007. Each of these is attributed with a single comprehensive license longevity value. For example, an individual with a crewmember license in each year between 1988 and 2007 has a comprehensive license longevity value of 20 years and an individual with a crewmember license only in 1990 has a comprehensive license longevity value of 1 year.

A considerable amount of effort was spent in *License Longevity, Alaskan Community, and Age of Commercial Crewmember License Holders* discussing how this attribute is an underestimate for many crewmember license holders. Because of the abbreviated time-period for which crewmember license data are available, many

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<sup>16</sup> Tide, Cathy. 2008. *License Longevity, Alaskan Community, and Age of Commercial Crewmember License Holders*. Commercial Fisheries Entry Commission, CFEC Report 08-9N, Juneau, AK.

comprehensive license longevity values do not accurately reflect the number of years that an individual has held a crewmember license. For example, an individual that only appears in the data in 1988 will be assigned a comprehensive license longevity of 1 year. In reality, they may have held crewmember licenses in several prior years but which they cannot be credited for. However, a crewmember license holder later in the time period may have all of their licenses credited in their comprehensive license longevity calculation. The data constraints prevent the accurate measurement of some crewmember's license longevity. As a consequence, analysis on the comprehensive license longevity values may not accurately reflect license longevity statistics, any summaries or statistics are an underestimate, and they treat individuals that are unequally disadvantaged in the same way.

Even with that being said, descriptive statistics for the comprehensive license longevity of crewmember license holders over the 20 year period between 1988 and 2007 are shown in Table 21. The values are intended simply as a point of comparison between the different classifications of license holders. They are not intended to be taken at face value because of the data constraints described above. Each group may equally contain individuals that are disadvantaged by the data constraints. From these statistics it can be gathered that each group of license holders has crewmembers with a single license and those with a license in every year, but that on average, license holders that have held CFEC permits have held crewmember licenses in more years than those that have not held a CFEC permit.

**Table 21. Comprehensive License Longevity Statistics over 1988 to 2007, for All License Holders, License Holders without CFEC Permits, and License Holders with CFEC Permits**

<b>Longevity Statistic</b>	<b>All License Holders</b>	<b>License Holders without a Permit</b>	<b>License Holders with a Permit</b>
Number	181,056	150,831	30,225
Mean	2.82	2.39	4.99
Median	1	1	4
Mode	1	1	1
Std. Dev.	3.12	2.63	4.23
Maximum	20	20	20
Minimum	1	1	1

Notes:

1. Comprehensive license longevity refers to the number of years each commercial crewmember license holder has held a license between 1988 and 2007.
2. Comprehensive license longevity values and the descriptive statistics should be viewed as underestimates, because not all the years of crewmember licenses could be included in the longevity determination.
3. To be classified as a permit holder, the crewmember license holder must have held a CFEC commercial fishing permit or been an emergency transfer holder in at least 1 year between 1975 and 2007.
4. *Source:* CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier).

## 7.2 Cumulative License Longevity

The cumulative license longevity values reflect the number of years that an individual held a crewmember license between 1988 and up to and including a particular year between 1988 and 2007. Each of the estimated 181,056 individuals in the data has a cumulative license longevity value for each year in which they held a commercial crewmember license. For example, an individual who held a license in every year between 1988 and 2007 has 20

cumulative license longevity values; one for each year they held a license. In 1988 their cumulative license longevity is 1 year, in 1989 their cumulative license longevity is 2 years, and in 1990 their cumulative license longevity is 3 years, etc. For each succeeding year that a license was held, the cumulative license longevity value is one year greater, until 2007 when their cumulative license longevity is 20 years. For an individual who only held a license in 1990, they have a single cumulative license longevity value for 1990 of 1 year.

The cumulative license longevity values provide an alternate way to summarize license longevity for crewmember license holders. In this approach cumulative license longevities are summarized for each year; the mean, median, and frequencies are only based on cumulative longevities of crewmember license holders with a license in that particular year and their longevity values only reflect their license holdings up to and including that year. For example, the license longevity summaries for 2000 only reflect license holders in 2000 and their cumulative license longevities up to and including 2000. There are 13 years of license data available leading up to and including 2000, and each license holder's cumulative longevity value is based on the number of years they have held a license between 1988 and 2000. Again, the report *License Longevity, Alaskan Community, and Age of Commercial Crewmember License Holders* discusses how this alternate approach still has its biases and still underestimates license longevity, but it eliminates the bias caused by summarizing longevity values that are based on a different number of available years of data.

The cumulative license longevities of crewmember license holders in each year between 1988 and 2007 are summarized in Table 22. The table indicates the number of license holders in each year, the mean and median cumulative license longevity in that year, and the number of license holders by their cumulative license longevity. For example, there were 18,939 unique crewmember license holders in 2007, the mean license longevity was 5.5 years, and the median license longevity was 3 years. There were 5,187 license holders who appear for the first time in the data series, which account for 27.4% of the license holders in 2007 and 3,971 license holders that held a crewmember license in at least 10 years between 1988 and 2007 (21.0%).

Separate tables were prepared for crewmember license holders that have not been associated with a CFEC commercial fishing permit between 1975 and 2007 (Table 23) and for those that have (Table 24). The most striking difference between these two tables is that in each year, license holders that have held a CFEC permit have *on average* held licenses in more years than license holders that have not been associated with a CFEC permit. In 2007 that difference is the most dramatic; the mean longevity is 5.1 years longer for crewmember license holders that have held a permit, and the median is 6 years longer.

The cumulative license longevities of the crewmember license holders that have held a CFEC commercial fishing permit are then broken out even further by license residency. In several years, resident license holders associated with a CFEC permit have *on average* held crewmember licenses in more years than nonresident license holders. In 2007 this difference is the largest; the mean cumulative license longevity for residents is 9.9 years compared to 9.1 for nonresidents. In several years between 1988 and 2007, however, the difference in the means for these two populations is negligible. In fact, in most years before 2005, the median license longevity value for residents and nonresidents is the same.

Table 22. Mean and Median Cumulative License Longevities and the Number of Unique Crewmember License Holders by Cumulative License Longevity, by License Year

License Year	Available Years of License Data	No. of Unique License Holders	Longevity (in years)		Number of License Holders by Cumulative License Longevity																			
			Mean	Median	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
					Year	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years
2007	20	18,939	5.5	3	5,187 27.4%	2,590 13.7%	1,769 9.3%	1,303 6.9%	1,127 6.0%	885 4.7%	798 4.2%	707 3.7%	602 3.2%	572 3.0%	516 2.7%	443 2.3%	423 2.2%	365 1.9%	322 1.7%	305 1.6%	274 1.4%	299 1.6%	270 1.4%	182 1.0%
2006	19	17,962	5.5	4	4,866 27.1%	2,405 13.4%	1,650 9.2%	1,281 7.1%	1,009 5.6%	871 4.8%	773 4.3%	672 3.7%	603 3.4%	573 3.2%	498 2.8%	461 2.6%	427 2.4%	357 2.0%	353 2.0%	316 1.8%	337 1.9%	307 1.7%	203 1.1%	
2005	18	18,013	5.5	4	4,802 26.7%	2,381 13.2%	1,595 8.9%	1,199 6.7%	1,069 5.9%	954 5.3%	791 4.4%	711 3.9%	680 3.8%	588 3.3%	524 2.9%	504 2.8%	421 2.3%	426 2.4%	381 2.1%	382 2.1%	372 2.1%	233 1.3%		
2004	17	17,935	5.4	4	4,790 26.7%	2,297 12.8%	1,526 8.5%	1,298 7.2%	1,088 6.1%	885 4.9%	844 4.7%	754 4.2%	669 3.7%	601 3.4%	572 3.2%	500 2.8%	506 2.8%	446 2.5%	443 2.5%	439 2.4%	277 1.5%			
2003	16	17,452	5.4	4	4,565 26.2%	2,057 11.8%	1,591 9.1%	1,313 7.5%	1,019 5.8%	967 5.5%	867 5.0%	755 4.3%	687 3.9%	657 3.8%	551 3.2%	581 3.3%	524 3.0%	499 2.9%	496 2.8%	323 1.9%				
2002	15	16,731	5.3	4	4,283 25.6%	2,082 12.4%	1,546 9.2%	1,229 7.3%	1,051 6.3%	955 5.7%	856 5.1%	719 4.3%	693 4.1%	596 3.6%	592 3.5%	556 3.3%	575 3.4%	594 3.6%	404 2.4%					
2001	14	19,706	4.9	4	5,372 27.3%	2,557 13.0%	1,839 9.3%	1,456 7.4%	1,270 6.4%	1,094 5.6%	920 4.7%	901 4.6%	803 4.1%	745 3.8%	736 3.7%	714 3.6%	743 3.8%	556 2.8%						
2000	13	23,285	4.8	4	6,218 26.7%	3,051 13.1%	2,186 9.4%	1,788 7.7%	1,510 6.5%	1,324 5.7%	1,241 5.3%	1,103 4.7%	1,055 4.5%	981 4.2%	1,007 4.3%	1,017 4.4%	804 3.5%							
1999	12	23,991	4.7	4	6,275 26.2%	3,089 12.9%	2,350 9.8%	1,935 8.1%	1,622 6.8%	1,478 6.2%	1,288 5.4%	1,226 5.1%	1,207 5.0%	1,242 5.0%	1,253 5.2%	1,026 4.3%								
1998	11	24,095	4.5	4	6,174 25.6%	3,264 13.5%	2,416 10.0%	1,997 8.3%	1,697 7.0%	1,531 6.4%	1,416 5.9%	1,395 5.8%	1,420 5.9%	1,509 6.3%	1,276 5.3%									
1997	10	26,332	4.2	3	7,364 28.0%	3,519 13.4%	2,642 10.0%	2,253 8.6%	1,844 7.0%	1,723 6.5%	1,636 6.2%	1,753 6.7%	1,937 7.4%	1,661 6.3%										
1996	9	27,451	4.0	3	7,615 27.7%	3,686 13.4%	2,873 10.5%	2,328 8.5%	2,215 8.1%	2,075 7.6%	2,166 7.9%	2,400 8.7%	2,093 7.6%											
1995	8	29,500	3.7	3	8,658 29.3%	4,079 13.8%	3,104 10.5%	2,826 9.6%	2,559 8.7%	2,612 8.9%	2,954 10.0%	2,708 9.2%												
1994	7	31,123	3.3	3	9,462 30.4%	4,549 14.6%	3,657 11.8%	3,210 10.3%	3,224 10.4%	3,582 11.5%	3,439 11.0%													
1993	6	31,570	3.1	3	9,428 29.9%	5,189 16.4%	4,157 13.2%	3,967 12.6%	4,406 14.0%	4,423 14.0%														
1992	5	34,547	2.6	2	11,892 34.4%	6,025 17.4%	5,273 15.3%	5,559 16.1%	5,798 16.8%															
1991	4	35,077	2.3	2	12,571 35.8%	7,444 21.2%	7,325 20.9%	7,737 22.1%																
1990	3	35,015	1.9	2	14,641 41.8%	10,058 28.7%	10,316 29.5%																	
1989	2	31,328	1.5	1	16,269 51.9%	15,059 48.1%																		
1988	1	30,624	1.0	1	30,624 100%																			

- Notes:
1. Cumulative license longevity refers to the number of years each commercial crewmember license holder has held a license between 1988 and a particular license year.
  2. Cumulative license longevity values and the descriptive statistics should be viewed as underestimates, because not all the years of crewmember licenses could be included in the longevity determination.
  3. The total number of crewmember license holders in a year may differ from other CFEC reports because of improvements/changes in the identification of unique individuals and the assignment of identification numbers. As a result of the improved/changed identification, longevity attributes may be different for individuals for this analysis than in other CFEC reports.
  4. Source: CFEC's adaptation of the ADF&G commercial crewmember file.

Table 23. Mean and Median Cumulative License Longevities and the Number of Unique Crewmember License Holders WITHOUT a CFEC Permit by Cumulative License Longevity, by License Year

License Year	Available Years of License Data	No. of Unique License Holders	Longevity (in years)		Number of License Holders by Cumulative License Longevity																			
			Mean	Median	1 Year	2 Years	3 Years	4 Years	5 Years	6 Years	7 Years	8 Years	9 Years	10 Years	11 Years	12 Years	13 Years	14 Years	15 Years	16 Years	17 Years	18 Years	19 Years	20 Years
2007	20	15,501	4.6	3	5,011 32.3%	2,390 15.4%	1,563 10.1%	1,119 7.2%	924 6.0%	688 4.4%	613 4.0%	491 3.2%	435 2.8%	378 2.4%	316 2.0%	272 1.8%	251 1.6%	190 1.2%	182 1.2%	155 1.0%	143 0.9%	141 0.9%	144 0.9%	95 0.6%
2006	19	14,243	4.6	3	4,632 32.5%	2,155 15.1%	1,437 10.1%	1,075 7.5%	788 5.5%	683 4.8%	536 3.8%	475 3.3%	386 2.7%	350 2.5%	292 2.1%	256 1.8%	222 1.6%	197 1.4%	179 1.3%	151 1.1%	161 1.1%	163 1.1%	105 0.7%	
2005	18	13,905	4.5	3	4,519 32.5%	2,094 15.1%	1,350 9.7%	966 6.9%	826 5.9%	678 4.9%	551 4.0%	459 3.3%	451 3.2%	346 2.5%	287 2.1%	272 2.0%	215 1.5%	211 1.5%	186 1.3%	181 1.3%	195 1.4%	118 0.8%		
2004	17	13,572	4.5	3	4,481 33.0%	2,014 14.8%	1,254 9.2%	1,026 7.6%	799 5.9%	625 4.6%	563 4.1%	476 3.5%	408 3.0%	332 2.4%	309 2.3%	253 1.9%	248 1.8%	207 1.5%	214 1.6%	225 1.7%	138 1.0%			
2003	16	12,926	4.4	3	4,260 33.0%	1,740 13.5%	1,292 10.0%	1,006 7.8%	734 5.7%	640 5.0%	532 4.1%	481 3.7%	393 3.0%	370 2.9%	305 2.4%	276 2.1%	245 1.9%	246 1.9%	249 1.9%	157 1.2%				
2002	15	12,298	4.3	3	3,978 32.3%	1,769 14.4%	1,262 10.3%	923 7.5%	747 6.1%	631 5.1%	558 4.5%	417 3.4%	384 3.1%	320 2.6%	287 2.3%	269 2.2%	274 2.2%	288 2.3%	191 1.6%					
2001	14	14,565	4.1	3	5,008 34.4%	2,182 15.0%	1,460 10.0%	1,083 7.4%	885 6.1%	733 5.0%	561 3.9%	516 3.5%	431 3.0%	384 2.6%	359 2.5%	332 2.3%	357 2.5%	274 1.9%						
2000	13	16,783	4.0	3	5,694 33.9%	2,563 15.3%	1,680 10.0%	1,284 7.7%	1,023 6.1%	830 4.9%	745 4.4%	608 3.6%	543 3.2%	481 2.9%	477 2.8%	477 2.8%	378 2.3%							
1999	12	16,901	3.9	3	5,691 33.7%	2,515 14.9%	1,785 10.6%	1,384 8.2%	1,020 6.0%	907 5.4%	717 4.2%	627 3.7%	609 3.6%	586 3.5%	572 3.4%	488 2.9%								
1998	11	16,827	3.8	3	5,538 32.9%	2,667 15.8%	1,826 10.9%	1,343 8.0%	1,110 6.6%	889 5.3%	737 4.4%	728 4.3%	681 4.0%	704 4.2%	604 3.6%									
1997	10	18,397	3.5	2	6,672 36.3%	2,834 15.4%	1,905 10.4%	1,502 8.2%	1,129 6.1%	930 5.1%	869 4.7%	873 4.7%	902 4.9%	781 4.2%										
1996	9	18,809	3.4	2	6,800 36.2%	2,824 15.0%	2,002 10.6%	1,487 7.9%	1,301 6.9%	1,134 6.0%	1,115 5.9%	1,145 6.1%	1,001 5.3%											
1995	8	20,214	3.1	2	7,669 37.9%	3,106 15.4%	2,095 10.4%	1,745 8.6%	1,469 7.3%	1,372 6.8%	1,445 7.1%	1,313 6.5%												
1994	7	21,321	2.9	2	8,304 38.9%	3,397 15.9%	2,426 11.4%	1,940 9.1%	1,737 8.1%	1,803 8.5%	1,714 8.0%													
1993	6	21,521	2.7	2	8,152 37.9%	3,812 17.7%	2,699 12.5%	2,275 10.6%	2,332 10.8%	2,251 10.5%														
1992	5	23,799	2.3	2	10,216 42.9%	4,330 18.2%	3,183 13.4%	3,088 13.0%	2,982 12.5%															
1991	4	23,941	2.1	2	10,500 43.9%	5,035 21.0%	4,307 18.0%	4,099 17.1%																
1990	3	23,555	1.7	2	11,671 49.5%	6,257 26.6%	5,627 23.9%																	
1989	2	20,576	1.4	1	11,927 58.0%	8,649 42.0%																		
1988	1	20,108	1.0	1	20,108 100%																			

Notes:

1. Cumulative license longevity refers to the number of years each commercial crewmember license holder held a license between 1988 and a particular license year.
2. Cumulative license longevity values and the descriptive statistics should be viewed as underestimates, because not all years of crewmember licenses could be included in the longevity determination.
3. The crewmember license holder may not have held a CFEC commercial fishing permit or been an emergency transfer holder between 1975 and 2007 to be classified as not having a permit.
4. The total number of crewmember license holders in a year may differ from other CFEC reports because of improvements/changes in the identification of unique individuals and the assignment of identification numbers. As a result of the improved/changed identification, longevity attributes may be different for individuals for this analysis than in other CFEC reports.
5. Source: CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier).

Table 24. Mean and Median Cumulative License Longevities and the Number of Unique Crewmember License Holders WITH a CFEC Permit by Cumulative License Longevity, by License Year

License Year	Available Years of License Data	No. of Unique License Holders	Longevity (in years)		Number of License Holders by Cumulative License Longevity																			
			Mean	Median	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
					Year	Years																		
2007	20	3,438	9.7	9	176	200	206	184	203	197	185	216	167	194	200	171	172	175	140	150	131	158	126	87
					5.1%	5.8%	6.0%	5.4%	5.9%	5.7%	5.4%	6.3%	4.9%	5.6%	5.8%	5.0%	5.0%	5.1%	4.1%	4.4%	3.8%	4.6%	3.7%	2.5%
2006	19	3,719	9.2	9	234	250	213	206	221	188	237	197	217	223	206	205	205	160	174	165	176	144	98	
					6.3%	6.7%	5.7%	5.5%	5.9%	5.1%	6.4%	5.3%	5.8%	6.0%	5.5%	5.5%	5.5%	4.3%	4.7%	4.4%	4.7%	3.9%	2.6%	
2005	18	4,108	8.7	8	283	287	245	233	243	276	240	252	229	242	237	232	206	215	195	201	177	115		
					6.9%	7.0%	6.0%	5.7%	5.9%	6.7%	5.8%	6.1%	5.6%	5.9%	5.8%	5.6%	5.0%	5.2%	4.7%	4.9%	4.3%	2.8%		
2004	17	4,363	8.4	8	309	283	272	272	289	260	281	278	261	269	263	247	258	239	229	214	139			
					7.1%	6.5%	6.2%	6.2%	6.6%	6.0%	6.4%	6.4%	6.0%	6.2%	6.0%	5.7%	5.9%	5.5%	5.2%	4.9%	3.2%			
2003	16	4,526	8.0	8	305	317	299	307	285	327	335	274	294	287	246	305	279	253	247	166				
					6.7%	7.0%	6.6%	6.8%	6.3%	7.2%	7.4%	6.1%	6.5%	6.3%	5.4%	6.7%	6.2%	5.6%	5.5%	3.7%				
2002	15	4,433	7.8	8	305	313	284	306	304	324	298	302	309	276	305	287	301	306	213					
					6.9%	7.1%	6.4%	6.9%	6.9%	7.3%	6.7%	6.8%	7.0%	6.2%	6.9%	6.5%	6.8%	6.9%	4.8%					
2001	14	5,141	7.4	7	364	375	379	373	385	361	359	385	372	361	377	382	386	282						
					7.1%	7.3%	7.4%	7.3%	7.5%	7.0%	7.0%	7.5%	7.2%	7.0%	7.3%	7.4%	7.5%	5.5%						
2000	13	6,502	7.0	7	524	488	506	504	487	494	496	495	512	500	530	540	426							
					8.1%	7.5%	7.8%	7.8%	7.5%	7.6%	7.6%	7.6%	7.9%	7.7%	8.2%	8.3%	6.6%							
1999	12	7,090	6.6	7	584	574	565	551	602	571	571	599	598	656	681	538								
					8.2%	8.1%	8.0%	7.8%	8.5%	8.1%	8.1%	8.4%	8.4%	9.3%	9.6%	7.6%								
1998	11	7,268	6.2	6	636	597	590	654	587	642	679	667	739	805	672									
					8.8%	8.2%	8.1%	9.0%	8.1%	8.8%	9.3%	9.2%	10.2%	11.1%	9.2%									
1997	10	7,935	5.8	6	692	685	737	751	715	793	767	880	1,035	880										
					8.7%	8.6%	9.3%	9.5%	9.0%	10.0%	9.7%	11.1%	13.0%	11.1%										
1996	9	8,642	5.3	6	815	862	871	841	914	941	1,051	1,255	1,092											
					9.4%	10.0%	10.1%	9.7%	10.6%	10.9%	12.2%	14.5%	12.6%											
1995	8	9,286	4.8	5	989	973	1,009	1,081	1,090	1,240	1,509	1,395												
					10.7%	10.5%	10.9%	11.6%	11.7%	13.4%	16.3%	15.0%												
1994	7	9,802	4.3	5	1,158	1,152	1,231	1,270	1,487	1,779	1,725													
					11.8%	11.8%	12.6%	3.0%	5.2%	8.1%	7.6%													
1993	6	10,049	3.8	4	1,276	1,377	1,458	1,692	2,074	2,172														
					12.7%	13.7%	14.5%	6.8%	0.6%	1.6%														
1992	5	10,748	3.3	3	1,676	1,695	2,090	2,471	2,816															
					15.6%	15.8%	19.4%	3.0%	6.2%															
1991	4	11,136	2.7	3	2,071	2,409	3,018	3,638																
					18.6%	21.6%	27.1%	2.7%																
1990	3	11,460	2.2	2	2,970	3,801	4,689																	
					25.9%	33.2%	40.9%																	
1989	2	10,752	1.6	2	4,342	6,410																		
					40.4%	59.6%																		
1988	1	10,516	1.0	1	10,516																			
					100%																			

Notes:

1. Cumulative license longevity refers to the number of years each commercial crewmember license holder held a license between 1988 and a particular license year.
2. Cumulative license longevity values and the descriptive statistics should be viewed as underestimates, because not all years of crewmember licenses could be included in the longevity determination.
3. The crewmember license holder must have held a CFEC commercial fishing permit or been an emergency transfer holder in at least 1 year between 1975 and 2007 to be classified as having a permit.
4. The total number of crewmember license holders in a year may differ from other CFEC reports because of improvements/changes in the identification of unique individuals and the assignment of identification numbers. As a result of the improved/changed identification, longevity attributes may be different for individuals for this analysis than in other CFEC reports.
5. Source: CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier).

Table 25. Mean and Median Cumulative License Longevities and the Number of Unique RESIDENT Crewmember License Holders WITH a CFEC Permit by Cumulative License Longevity, by License Year

License Year	Available Years of License Data	No. of Unique License Holders	Longevity (in years)		Number of Resident License Holders by Cumulative License Longevity																			
					Mean	Median	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
			Year	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years
2007	20	2,459	9.9	10	98 4.0%	134 5.4%	133 5.4%	115 4.7%	149 6.1%	140 5.7%	136 5.5%	174 7.1%	129 5.2%	141 5.7%	148 6.0%	121 4.9%	131 5.3%	137 5.6%	109 4.4%	107 4.4%	91 3.7%	116 4.7%	89 3.6%	61 2.5%
2006	19	2,644	9.4	9	132 5.0%	159 6.0%	135 5.1%	141 5.3%	155 5.9%	137 5.2%	189 7.1%	151 5.7%	164 6.2%	164 6.2%	149 5.6%	151 5.7%	160 6.1%	125 4.7%	131 5.0%	109 4.1%	121 4.6%	102 3.9%	69 2.6%	
2005	18	2,934	8.9	9	150 5.1%	181 6.2%	164 5.6%	171 5.8%	190 6.5%	218 7.4%	186 6.3%	188 6.4%	165 5.6%	173 5.9%	173 5.9%	178 6.1%	154 5.2%	162 5.5%	127 4.3%	148 5.0%	127 4.3%	79 2.7%		
2004	17	3,086	8.6	8	169 5.5%	182 5.9%	186 6.0%	206 6.7%	218 7.1%	197 6.4%	217 7.0%	191 6.2%	186 6.0%	194 6.3%	193 6.3%	186 6.0%	179 5.8%	167 5.4%	163 5.3%	155 5.0%	97 3.1%			
2003	16	3,252	8.1	8	182 5.6%	223 6.9%	222 6.8%	217 6.7%	212 6.5%	245 7.5%	249 7.7%	203 6.2%	210 6.5%	215 6.6%	190 5.8%	220 6.8%	196 6.0%	178 5.5%	175 5.4%	115 3.5%				
2002	15	3,272	7.9	8	202 6.2%	218 6.7%	215 6.6%	236 7.2%	227 6.9%	243 7.4%	226 6.9%	227 6.9%	232 7.1%	219 6.7%	227 6.9%	210 6.4%	222 6.8%	217 6.6%	151 4.6%					
2001	14	3,704	7.5	8	225 6.1%	257 6.9%	276 7.5%	274 7.4%	283 7.6%	272 7.3%	259 7.0%	283 7.6%	294 7.9%	269 7.3%	274 7.4%	269 7.3%	273 7.4%	196 5.3%						
2000	13	4,708	7.0	7	331 7.0%	341 7.2%	362 7.7%	372 7.9%	368 7.8%	359 7.6%	368 7.8%	387 8.2%	379 8.1%	378 8.0%	381 8.1%	383 8.1%	299 6.4%							
1999	12	5,233	6.6	7	409 7.8%	425 8.1%	403 7.7%	419 8.0%	447 8.5%	444 8.5%	445 8.5%	451 8.6%	449 8.6%	479 9.2%	480 9.2%	382 7.3%								
1998	11	5,235	6.2	6	428 8.2%	404 7.7%	434 8.3%	466 8.9%	439 8.4%	495 9.5%	508 9.7%	500 9.6%	529 10.1%	554 10.6%	478 9.1%									
1997	10	5,745	5.9	6	454 7.9%	480 8.4%	527 9.2%	559 9.7%	543 9.5%	594 10.3%	575 10.0%	633 11.0%	748 13.0%	632 11.0%										
1996	9	6,242	5.3	6	547 8.8%	592 9.5%	645 10.3%	650 10.4%	678 10.9%	692 11.1%	757 12.1%	903 14.5%	778 12.5%											
1995	8	6,687	4.9	5	657 9.8%	683 10.2%	748 11.2%	777 11.6%	798 11.9%	900 13.5%	1,095 16.4%	1,029 15.4%												
1994	7	7,206	4.3	5	799 11.1%	869 12.1%	927 12.9%	938 13.0%	1,095 15.2%	1,289 17.9%	1,289 17.9%													
1993	6	7,380	3.9	4	882 12.0%	1,036 14.0%	1,086 14.7%	1,242 16.8%	1,514 20.5%	1,620 22.0%														
1992	5	7,930	3.3	3	1,171 14.8%	1,257 15.9%	1,550 19.5%	1,832 23.1%	2,120 26.7%															
1991	4	8,236	2.8	3	1,495 18.2%	1,779 21.6%	2,214 26.9%	2,748 33.4%																
1990	3	8,517	2.2	2	2,130 25.0%	2,802 32.9%	3,585 42.1%																	
1989	2	8,196	1.6	2	3,253 39.7%	4,943 60.3%																		
1988	1	8,070	1.0	1	8,070 100%																			

- Notes:
1. Cumulative license longevity refers to the number of years each commercial crewmember license holder held a license between 1988 and a particular license year.
  2. Cumulative license longevity values and the descriptive statistics should be viewed as underestimates, because not all years of crewmember licenses could be included in the longevity determination.
  3. The crewmember license holder must have held a CFEC commercial fishing permit or been an emergency transfer holder in at least 1 year between 1975 and 2007 to be classified as having a permit.
  4. Residency reflects the license year-beginning residency of the license holder.
  5. The total number of crewmember license holders in a year may differ from other CFEC reports because of improvements/changes in the identification of unique individuals and the assignment of identification numbers. As a result of the improved/changed identification, longevity attributes may be different for individuals for this analysis than in other CFEC reports.
  6. Source: CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier).

Table 26. Mean and Median Cumulative License Longevities and the Number of Unique NONRESIDENT Crewmember License Holders WITH a CFEC Permit by Cumulative License Longevity, by License Yr

License Year	Available Years of License Data	No. of Unique License Holders	Longevity (in years)		Number of Nonresident License Holders by Cumulative License Longevity																			
			Mean	Median	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
					Year	Years																		
2007	20	979	9.1	9	78	66	73	69	54	57	49	42	38	53	52	50	41	38	31	43	40	42	37	26
					8.0%	6.7%	7.5%	7.0%	5.5%	5.8%	5.0%	4.3%	3.9%	5.4%	5.3%	5.1%	4.2%	3.9%	3.2%	4.4%	4.1%	4.3%	3.8%	2.7%
2006	19	1,075	8.7	8	102	91	78	65	66	51	48	46	53	59	57	54	45	35	43	56	55	42	29	
					9.5%	8.5%	7.3%	6.0%	6.1%	4.7%	4.5%	4.3%	4.9%	5.5%	5.3%	5.0%	4.2%	3.3%	4.0%	5.2%	5.1%	3.9%	2.7%	
2005	18	1,174	8.3	8	133	106	81	62	53	58	54	64	64	69	64	54	52	53	68	53	50	36		
					11.3%	9.0%	6.9%	5.3%	4.5%	4.9%	4.6%	5.5%	5.5%	5.9%	5.5%	4.6%	4.4%	4.5%	5.8%	4.5%	4.3%	3.1%		
2004	17	1,277	8.1	8	140	101	86	66	71	63	64	87	75	75	70	61	79	72	66	59	42			
					11.0%	7.9%	6.7%	5.2%	5.6%	4.9%	5.0%	6.8%	5.9%	5.9%	5.5%	4.8%	6.2%	5.6%	5.2%	4.6%	3.3%			
2003	16	1,274	7.9	8	123	94	77	90	73	82	86	71	84	72	56	85	83	75	72	51				
					9.7%	7.4%	6.0%	7.1%	5.7%	6.4%	6.8%	5.6%	6.6%	5.7%	4.4%	6.7%	6.5%	5.9%	5.7%	4.0%				
2002	15	1,161	7.8	8	103	95	69	70	77	81	72	75	77	57	78	77	79	89	62					
					8.9%	8.2%	5.9%	6.0%	6.6%	7.0%	6.2%	6.5%	6.6%	4.9%	6.7%	6.6%	6.8%	7.7%	5.3%					
2001	14	1,437	7.3	7	139	118	103	99	102	89	100	102	78	92	103	113	113	86						
					9.7%	8.2%	7.2%	6.9%	7.1%	6.2%	7.0%	7.1%	5.4%	6.4%	7.2%	7.9%	7.9%	6.0%						
2000	13	1,794	6.8	7	193	147	144	132	119	135	128	108	133	122	149	157	127							
					10.8%	8.2%	8.0%	7.4%	6.6%	7.5%	7.1%	6.0%	7.4%	6.8%	8.3%	8.8%	7.1%							
1999	12	1,857	6.6	7	175	149	162	132	155	127	126	148	149	177	201	156								
					9.4%	8.0%	8.7%	7.1%	8.3%	6.8%	6.8%	8.0%	8.0%	9.5%	10.8%	8.4%								
1998	11	2,033	6.2	6	208	193	156	188	148	147	171	167	210	251	194									
					10.2%	9.5%	7.7%	9.2%	7.3%	7.2%	8.4%	8.2%	10.3%	12.3%	9.5%									
1997	10	2,190	5.7	6	238	205	210	192	172	199	192	247	287	248										
					10.9%	9.4%	9.6%	8.8%	7.9%	9.1%	8.8%	11.3%	13.1%	11.3%										
1996	9	2,400	5.3	6	268	270	226	191	236	249	294	352	314											
					11.2%	11.3%	9.4%	8.0%	9.8%	10.4%	12.3%	14.7%	13.1%											
1995	8	2,599	4.7	5	332	290	261	304	292	340	414	366												
					12.8%	11.2%	10.0%	11.7%	11.2%	13.1%	15.9%	14.1%												
1994	7	2,596	4.3	5	359	283	304	332	392	490	436													
					13.8%	10.9%	11.7%	12.8%	15.1%	18.9%	16.8%													
1993	6	2,669	3.8	4	394	341	372	450	560	552														
					14.8%	12.8%	13.9%	16.9%	21.0%	20.7%														
1992	5	2,818	3.2	3	505	438	540	639	696															
					17.9%	15.5%	19.2%	22.7%	24.7%															
1991	4	2,900	2.7	3	576	630	804	890																
					19.9%	21.7%	27.7%	30.7%																
1990	3	2,943	2.1	2	840	999	1,104																	
					28.5%	33.9%	37.5%																	
1989	2	2,556	1.6	2	1,089	1,467																		
					42.6%	57.4%																		
1988	1	2,446	1.0	1	2,446																			
					100%																			

- Notes:
1. Cumulative license longevity refers to the number of years each commercial crewmember license holder held a license between 1988 and a particular license year.
  2. Cumulative license longevity values and the descriptive statistics should be viewed as underestimates, because not all years of crewmember licenses could be included in the longevity determination.
  3. The crewmember license holder must have held a CFEC commercial fishing permit or been an emergency transfer holder in at least 1 year between 1975 and 2007 to be classified as having a permit.
  4. Residency reflects the license year-beginning residency of the license holder.
  5. The total number of crewmember license holders in a year may differ from other CFEC reports because of improvements/changes in the identification of unique individuals and the assignment of identification numbers. As a result of the improved/changed identification, longevity attributes may be different for individuals for this analysis than in other CFEC reports.
  6. Source: CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier).

### 7.3 Comprehensive Career Longevity

Long-term professional crewmembers are viewed as being more dependent upon fisheries for their livelihood than transient crewmembers. Because it is difficult to identify long-term professional and short-term transient crewmembers with existing data, license longevity has been used to estimate long-term and short-term crewmembers. Following the examination of license longevity, the next logical extension would be to examine the career longevity of crewmembers that have held CFEC commercial fishing permits. Do holding CFEC permits noticeably extend the length of crewmembers' commercial fishing careers? These sections attempt to address that question.

The comprehensive career longevity represents the total number of years that an individual has held a crewmember license between 1988 and 2007 and/or held a CFEC commercial fishing permit between 1975 and 2007. Based on unique identification number assignments, an estimated 181,056 distinct individuals obtained at least one commercial crewmember license between 1988 and 2007 and 30,225 of those held a CFEC permit at some point between 1975 and 2007. For the 150,831 crewmember license holders that could not be associated with a CFEC permit, their comprehensive career longevity is the same length as their comprehensive license longevity. For the 30,225 crewmember license holders associated with a CFEC permit, their comprehensive career longevity may be the same as their comprehensive license longevity (if permit holdings only occur in the same years as license holdings) or longer (if permit holdings exist outside the years crewmember licenses were held).

Table 27 contains summary statistics on the comprehensive career longevity of crewmember license holders that have not held a CFEC permit and those crewmember license holders that have. At first glance, it appears that holding CFEC permits greatly extends the career of crewmember license holders. The mean comprehensive career longevity is 9.9 years longer for crewmember license holders that have held a CFEC permit than for those that have not. The increase in the comprehensive career longevity is due in part to longer license holding careers, described in previous sections, but is also due to the permit holdings. Crewmember license holders have held CFEC permits in years other than their crewmember licenses in as few as 1 year and in as many as 32 years. The mean number of years that crewmember license holders have held permits in years other than their crewmember licenses is 8.0 and the median is 5.

An inherent bias in Table 27 is the length of years upon which comprehensive career longevity were calculated. There are only 20 years of crewmember license data from which to determine career longevity for the individuals that have not held a CFEC permit but there are 33 years of CFEC permit data from which to determine career longevity for individuals that have held a CFEC permit. In order to "level the playing field," an additional comprehensive career longevity was calculated for individuals that have held crewmember licenses and a CFEC permit. This second comprehensive career longevity was based on the same years of crewmember license data (1988-2007) but considered only a subset of the years for which permit data were available (1988-2007). In this way, career longevity are determined in a comparable way for individuals who have held a permit and those that have not.

As expected, the comprehensive career longevity are, on average, shorter for crewmember license holders with a permit when they are calculated on fewer years of permit data. The mean longevity is 9.79 years, 2.5 years shorter than when the full span of permit data is included, and the median is 2 years shorter at 9 years. Even though career longevity are shorter when determined in this manner, they still suggest that crewmember license holders who have held a CFEC permit tend to have longer careers. The mean length of comprehensive career longevity for crewmembers that have held a permit is almost 5 years longer than the mean length of their comprehensive license longevity (9.79 vs. 4.99 years). Crewmember license holders have held CFEC permits in years other than their crewmember licenses in as few as 1 year and in as many as 19 years between 1988 and 2007. The mean number of years that crewmember license holders have held permits in years other than their crewmember licenses is 6.7 and the median is 5.

With comprehensive career longevity of crewmember license holders that have held a CFEC permit based on the same number of years of data as the comprehensive career longevity of crewmember license holders that have not held a CFEC permit (the same as comprehensive license longevity), it seems more reasonable to compare the two values. The comprehensive career longevity mean suggests crewmember license holders that have held a CFEC permit have longer commercial fishing careers than those that have not held a CFEC permit. The mean for those with a permit is 9.79 years opposed to 2.39 years for those who have not held a permit. As mentioned above, the increase in the comprehensive career longevity for crewmembers with a permit is due in part to longer license longevity but also to permit holdings.

**Table 27. Comprehensive Career Longevity Statistics for Crewmember License Holders With and Without CFEC Commercial Fishing Permits**

Longevity Statistic	License Holders Without Permit	License Holders with Permit	
		Including Permit Data '75-'07	Including Permit Data '88-'07
Number	150,831	30,225	30,225
Mean	2.39	12.29	9.79
Median	1	11	9
Mode	1	4	20
Std. Dev.	2.63	7.91	6.34
Maximum	20	33	20
Minimum	1	1	1

Notes:

1. Comprehensive career longevity refers to the number of years each commercial crewmember license holder has held a license between 1988 and 2007 and/or CFEC permits between 1975 and 2007 or CFEC permits between 1988 and 2007.
2. Comprehensive career longevity values and the descriptive statistics should be viewed as underestimates, because not all the years of crewmember licenses could be included in the longevity determination and for the 1988-2007 column, not all the years of CFEC permits were included.
3. To be classified as a permit holder, the crewmember license holder must have held a CFEC commercial fishing permit or been an emergency transfer holder in at least 1 year between 1975 and 2007.
4. *Source:* CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier).

The comprehensive career longevity values are affected by data constraints just as the comprehensive license longevity values are and should be viewed with caution. Many comprehensive career longevity values do not accurately reflect the length of an individual's career because crewmember license holdings prior to 1988 cannot be included and CFEC permit holdings prior to 1988 may not be included, depending on which comprehensive career longevity value is used. At the very least, the summary statistics should be viewed as underestimates.

#### 7.4 Cumulative Career Longevity

Just like a cumulative license longevity value provided an alternate way to summarize license longevity for crewmember license holders, cumulative career longevity values provide an alternate way to summarize career longevity for individuals that are both crewmember license and CFEC permit holders. The cumulative career longevity values reflect the number of years that an individual held either a crewmember license or a CFEC commercial fishing permit up to and including a particular year. The CFEC commercial fishing permits may have

been held in years between 1975 and 2007. The crewmember licenses may have been held in years between 1988 and 2007. For example, the 1988 cumulative career longevities are based on permit holdings between 1975 and 1988 and crewmember license holdings in 1988. The 2007 cumulative career longevities are based on permit holdings between 1975 and 2007 and crewmember license holdings between 1988 and 2007. To further illustrate this, an individual with permits in 1987 and 1988 and crewmember licenses in 1988 and 1989 has cumulative career longevities of 1 in 1987, 2 in 1988, and 3 in 1989. Years in which both a crewmember license and CFEC permit were held are only counted as a single year towards career longevity. Each of the estimated 30,225 individuals that have held a crewmember license and CFEC commercial fishing permit have a cumulative career longevity value for each year in which they held a license or a permit.

Prior to 1988, the cumulative career longevity values only reflect years in which CFEC permits have been held, because crewmember license data before 1988 could not be included in this analysis. It is from 1988 and onward that crewmember license holdings begin to contribute to career longevities. Because the focus of this report is on crewmember license holders that have held permits, the cumulative career longevity summaries are only shown for years once crewmember license data have been available. Tables 28a and 28b summarize the cumulative career longevities of crewmember license holders that have also held a CFEC commercial fishing permit. The summaries are provided for the license holders in each year between 1988 and 2007, but whose career holdings may precede those years. The tables also indicate the frequency of license holders in each year by their career longevity up to and including that year. For example, in 2007 there were 3,438 unique crewmember license holders. Of the 20 years of crewmember license data and 33 years of CFEC permit data available, their mean career longevity was 15.3 years and their median career longevity was 16 years. There were individuals with a career longevity as short as 1 year and as long as 33 years. The most common career longevity in 2007 was 20 years (256 individuals, 7.4% of 3,438 license holders).

It is not surprising that with each additional year of data, the mean cumulative career longevity increases from 1988 until 2007. The median career longevity values increase overall, as well, but not as consistently from year to year as the mean. Originally the intent of the career longevities was to compare cumulative career longevities for crewmember license holders that have held a CFEC permit to their license longevities and to career longevities of crewmember license holders that have not held a CFEC permit, to estimate how much permit holdings contribute to the length of a commercial fishing career. Just like with the comprehensive career longevities it seems illogical to compare cumulative career longevities based on 20 potential years of data with longevities based on 33 potential years of data, so cumulative career longevities were recalculated using the 20 years of crewmember license data and the same 20 years of CFEC permit data. Although these values seem more appropriate to compare to other cumulative longevities, those based on 33 years of CFEC permit data are useful because they give a closer approximation of what career longevity may be in reality.

Table 29 summarizes the cumulative career longevities of crewmember license holders that have also held a CFEC commercial fishing permit. The summaries are provided for the license holders in each year between 1988 and 2007, but do not include any career holdings that precede 1988. The table also indicates the frequency of license holders in each year by their career longevity from 1988 up to and including that year. A comparison of cumulative career longevity to cumulative license longevity for the crewmember license holders in 2007 that have held a CFEC permit, confirms that permit holdings tend to add to an individual's commercial fishing career. For these 3,438 individuals permit holding added an average of 3.6 additional years to their career (13.3 years vs. 9.7 years). With each additional year of available data, the gap has increased. For example, crewmember license holders in 2006 added an average of 3.2 additional years over their license holdings and 2005 license holders an additional 2.8 years, etc.

A comparison of the cumulative career longevity of crewmember license holders in 2007 that have held a CFEC permit to crewmember license holders in 2007 that have not held a CFEC permit, shows a much greater

commercial fishing career length for those with permit holdings.<sup>17</sup> The mean career longevity for those with permit holdings is 13.3 years whereas the mean career longevity for those without permit holdings is 4.6 years. Out of 20 years of permit and license data, those individuals that have held both average 8.7 years longer than individuals that have only held licenses. The composition of individuals by career longevity is very different for these two groups as well; for those having held a permit, the number of license holders by longevity increases as the career longevity increases and for those that have not held a permit, the number of license holders decreases as career longevity increases.

All of the longevity attributes discussed in these sections suggests that individuals that have held a crewmember license and a CFEC commercial fishing permit tend to have longer crewmember license careers and longer commercial fishing careers than those individuals that have only held a crewmember license.

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<sup>17</sup> Recall, the cumulative career longevity of individuals that have not held a CFEC permit is the same as their cumulative license longevity.

Table 28a. Mean and Median Cumulative Career Longevity and the Number of Unique Crewmember License Holders WITH a CFEC Permit by Cumulative Career Longevity, by License Year

License Year	Available Years of License Data	Available Years of Permit Data	No. of Unique License Holders	Longevity (in years)		Number of License Holders by Cumulative Career Longevity																	
				Mean	Median	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
						Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years	Years
2007	20	33	3,438	15.3	16	24	60	77	94	91	114	119	121	117	136	133	149	159	148	168	190	164	227
						0.7%	1.7%	2.2%	2.7%	2.6%	3.3%	3.5%	3.5%	3.4%	4.0%	3.9%	4.3%	4.6%	4.3%	4.9%	5.5%	4.8%	6.6%
2006	19	32	3,719	14.2	14	75	100	125	98	123	106	132	146	152	149	156	163	162	184	183	188	252	243
						2.0%	2.7%	3.4%	2.6%	3.3%	2.9%	3.5%	3.9%	4.1%	4.0%	4.2%	4.4%	4.4%	4.9%	4.9%	5.1%	6.8%	6.5%
2005	18	31	4,108	13.3	13	131	152	121	134	131	169	149	171	166	167	176	185	204	205	217	276	284	312
						3.2%	3.7%	2.9%	3.3%	3.2%	4.1%	3.6%	4.2%	4.0%	4.1%	4.3%	4.5%	5.0%	5.0%	5.3%	6.7%	6.9%	7.6%
2004	17	30	4,363	12.6	13	156	144	172	158	166	167	185	174	177	198	214	217	232	243	303	316	321	127
						3.6%	3.3%	3.9%	3.6%	3.8%	3.8%	4.2%	4.0%	4.1%	4.5%	4.9%	5.0%	5.3%	5.6%	6.9%	7.2%	7.4%	2.9%
2003	16	29	4,526	12.1	12	142	179	173	178	180	218	186	197	204	229	215	255	246	318	346	371	149	97
						3.1%	4.0%	3.8%	3.9%	4.0%	4.8%	4.1%	4.4%	4.5%	5.1%	4.8%	5.6%	5.4%	7.0%	7.6%	8.2%	3.3%	2.1%
2002	15	28	4,433	11.6	12	161	169	166	180	194	191	187	215	238	218	238	239	335	384	426	167	99	90
						3.6%	3.8%	3.7%	4.1%	4.4%	4.3%	4.2%	4.8%	5.4%	4.9%	5.4%	5.4%	7.6%	8.7%	9.6%	3.8%	2.2%	2.0%
2001	14	27	5,141	11.0	11	179	206	231	219	250	225	248	274	281	292	301	370	462	519	190	135	118	75
						3.5%	4.0%	4.5%	4.3%	4.9%	4.4%	4.8%	5.3%	5.5%	5.7%	5.9%	7.2%	9.0%	10.1%	3.7%	2.6%	2.3%	1.5%
2000	13	26	6,502	10.4	10	273	275	290	304	297	316	354	379	383	417	453	623	723	265	185	135	99	111
						4.2%	4.2%	4.5%	4.7%	4.6%	4.9%	5.4%	5.8%	5.9%	6.4%	7.0%	9.6%	11.1%	4.1%	2.8%	2.1%	1.5%	1.7%
1999	12	25	7,090	10.0	10	281	334	314	336	321	393	400	462	483	538	724	878	299	214	165	133	113	88
						4.0%	4.7%	4.4%	4.7%	4.5%	5.5%	5.6%	6.5%	6.8%	7.6%	10.2%	12.4%	4.2%	3.0%	2.3%	1.9%	1.6%	1.2%
1998	11	24	7,268	9.4	9	302	331	339	381	386	432	485	493	568	807	967	326	246	193	136	122	97	100
						4.2%	4.6%	4.7%	5.2%	5.3%	5.9%	6.7%	6.8%	7.8%	11.1%	13.3%	4.5%	3.4%	2.7%	1.9%	1.7%	1.3%	1.4%
1997	10	23	7,935	8.9	9	318	351	421	451	481	543	559	653	930	1,197	425	294	225	156	148	103	103	84
						4.0%	4.4%	5.3%	5.7%	6.1%	6.8%	7.0%	8.2%	11.7%	15.1%	5.4%	3.7%	2.8%	2.0%	1.9%	1.3%	1.3%	1.1%
1996	9	22	8,642	8.3	8	369	460	502	506	590	625	787	1,092	1,404	502	323	248	169	168	114	118	90	100
						4.3%	5.3%	5.8%	5.9%	6.8%	7.2%	9.1%	12.6%	16.2%	5.8%	3.7%	2.9%	2.0%	1.9%	1.3%	1.4%	1.0%	1.2%
1995	8	21	9,286	7.7	7	448	511	539	663	693	884	1,250	1,664	603	385	286	200	172	139	121	104	114	91
						4.8%	5.5%	5.8%	7.1%	7.5%	9.5%	13.5%	17.9%	6.5%	4.1%	3.1%	2.2%	1.9%	1.5%	1.3%	1.1%	1.2%	1.0%
1994	7	20	9,802	7.1	6	522	597	656	758	981	1,388	1,985	668	436	296	230	176	151	150	121	128	108	107
						5.3%	6.1%	6.7%	7.7%	10.0%	14.2%	20.3%	6.8%	4.4%	3.0%	2.3%	1.8%	1.5%	1.5%	1.2%	1.3%	1.1%	1.1%
1993	6	19	10,049	6.4	6	519	707	812	1,042	1,529	2,237	774	474	349	228	200	178	169	140	113	126	106	107
						5.2%	7.0%	8.1%	10.4%	15.2%	22.3%	7.7%	4.7%	3.5%	2.3%	2.0%	1.8%	1.7%	1.4%	1.1%	1.3%	1.1%	1.1%
1992	5	18	10,748	5.7	5	706	861	1,223	1,706	2,635	957	538	380	283	237	171	180	158	121	118	114	107	253
						6.6%	8.0%	11.4%	15.9%	24.5%	8.9%	5.0%	3.5%	2.6%	2.2%	1.6%	1.7%	1.5%	1.1%	1.1%	1.1%	1.0%	2.4%
1991	4	17	11,136	5.0	4	818	1,279	1,901	3,129	1,111	595	454	296	255	188	190	162	160	128	104	94	272	
						7.3%	11.5%	17.1%	28.1%	10.0%	5.3%	4.1%	2.7%	2.3%	1.7%	1.7%	1.5%	1.4%	1.1%	0.9%	0.8%	2.4%	
1990	3	16	11,460	4.4	3	1,216	2,069	3,673	1,312	667	475	333	286	209	217	198	162	164	127	101	251		
						10.6%	18.1%	32.1%	11.4%	5.8%	4.1%	2.9%	2.5%	1.8%	1.9%	1.7%	1.4%	1.4%	1.1%	0.9%	2.2%		
1989	2	15	10,752	3.7	2	1,792	4,122	1,533	780	514	370	288	224	194	185	160	154	110	84	242			
						16.7%	38.3%	14.3%	7.3%	4.8%	3.4%	2.7%	2.1%	1.8%	1.7%	1.5%	1.4%	1.0%	0.8%	2.3%			
1988	1	14	10,516	3.1	2	4,984	1,887	939	559	411	309	244	205	192	177	164	117	94	234				
						47.4%	17.9%	8.9%	5.3%	3.9%	2.9%	2.3%	1.9%	1.8%	1.7%	1.6%	1.1%	0.9%	2.2%				

Table 28b. Mean and Median Cumulative Career Longevity and the Number of Unique Crewmember License Holders WITH a CFEC Permit by Career Longevity, by License Year (cont'd)

License Year	Available Years of License Data	Available Years of Permit Data	No. of Unique License Holders	Longevity (in years)		Number of License Holders by Cumulative Career Longevity															
				Mean	Median	19 Years	20 Years	21 Years	22 Years	23 Years	24 Years	25 Years	26 Years	27 Years	28 Years	29 Years	30 Years	31 Years	32 Years	33 Years	
2007	20	33	3,438	15.3	16	228 6.6%	256 7.4%	104 3.0%	85 2.5%	74 2.2%	52 1.5%	36 1.0%	35 1.0%	39 1.1%	41 1.2%	31 0.9%	39 1.1%	33 1.0%	22 0.6%	72 2.1%	
2006	19	32	3,719	14.2	14	272 7.3%	110 3.0%	87 2.3%	77 2.1%	54 1.5%	47 1.3%	49 1.3%	50 1.3%	37 1.0%	30 0.8%	42 1.1%	33 0.9%	25 0.7%	69 1.9%		
2005	18	31	4,108	13.3	13	124 3.0%	93 2.3%	76 1.9%	54 1.3%	48 1.2%	51 1.2%	49 1.2%	39 0.9%	29 0.7%	52 1.3%	43 1.0%	33 0.8%	67 1.6%			
2004	17	30	4,363	12.6	13	122 2.8%	79 1.8%	68 1.6%	55 1.3%	50 1.1%	55 1.3%	38 0.9%	24 0.6%	51 1.2%	39 0.9%	34 0.8%	78 1.8%				
2003	16	29	4,526	12.1	12	92 2.0%	68 1.5%	64 1.4%	59 1.3%	69 1.5%	38 0.8%	33 0.7%	52 1.1%	42 0.9%	39 0.9%	87 1.9%					
2002	15	28	4,433	11.6	12	66 1.5%	60 1.4%	47 1.1%	63 1.4%	38 0.9%	30 0.7%	47 1.1%	45 1.0%	37 0.8%	103 2.3%						
2001	14	27	5,141	11.0	11	80 1.6%	52 1.0%	73 1.4%	46 0.9%	46 0.9%	60 1.2%	44 0.9%	46 0.9%	119 2.3%							
2000	13	26	6,502	10.4	10	80 1.2%	88 1.4%	67 1.0%	63 1.0%	76 1.2%	56 0.9%	50 0.8%	140 2.2%								
1999	12	25	7,090	10.0	10	91 1.3%	74 1.0%	64 0.9%	76 1.1%	75 1.1%	65 0.9%	169 2.4%									
1998	11	24	7,268	9.4	9	93 1.3%	67 0.9%	76 1.0%	76 1.0%	71 1.0%	174 2.4%										
1997	10	23	7,935	8.9	9	75 0.9%	75 0.9%	82 1.0%	73 0.9%	188 2.4%											
1996	9	22	8,642	8.3	8	85 1.0%	91 1.1%	90 1.0%	209 2.4%												
1995	8	21	9,286	7.7	7	108 1.2%	97 1.0%	214 2.3%													
1994	7	20	9,802	7.1	6	97 1.0%	247 2.5%														
1993	6	19	10,049	6.4	6	239 2.4%															
1992	5	18	10,748	5.7	5																
1991	4	17	11,136	5.0	4																
1990	3	16	11,460	4.4	3																
1989	2	15	10,752	3.7	2																
1988	1	14	10,516	3.1	2																

Notes:

1. Cumulative career longevity refers to the number of years each commercial crewmember license holder held a license between 1988 and a particular year and held a CFEC permit between 1975 and a particular year.
2. Cumulative career longevity values and the descriptive statistics should be viewed as underestimates, because not all years of crewmember licenses could be included in the longevity determination.
3. The crewmember license holder must have held a CFEC commercial fishing permit or been an emergency transfer holder in at least 1 year between 1975 and 2007 to be classified as having a permit.
4. The total number of crewmember license holders in a year may differ from other CFEC reports because of improvements/changes in the identification of unique individuals and the assignment of identification numbers. As a result of the improved/changed identification, longevity attributes may be different for individuals for this analysis than in other CFEC reports.
5. *Source:* CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier).

Table 29. Mean and Median Cumulative Career Longevity and the Number of Unique Crewmember License Holders WITH a CFEC Permit by Career Longevity, by License Year, 1988 to 2007 Data Only

License Year	Available/Included Years of Data	No. of Unique License Holders	Longevity (in years)		Number of License Holders by Cumulative Career Longevity, 1988+																			
			Mean	Median	1 Year	2 Years	3 Years	4 Years	5 Years	6 Years	7 Years	8 Years	9 Years	10 Years	11 Years	12 Years	13 Years	14 Years	15 Years	16 Years	17 Years	18 Years	19 Years	20 Years
2007	20	3,438	13.3	14	50	67	89	98	97	131	121	132	125	164	152	168	170	172	182	217	204	272	304	523
					1.5%	1.9%	2.6%	2.9%	2.8%	3.8%	3.5%	3.8%	3.6%	4.8%	4.4%	4.9%	4.9%	5.0%	5.3%	6.3%	5.9%	7.9%	8.8%	15.2%
2006	19	3,719	12.4	13	94	121	127	108	135	117	143	150	161	165	190	173	188	202	220	236	293	334	562	
					2.5%	3.3%	3.4%	2.9%	3.6%	3.1%	3.8%	4.0%	4.3%	4.4%	5.1%	4.7%	5.1%	5.4%	5.9%	6.3%	7.9%	9.0%	15.1%	
2005	18	4,108	11.5	13	154	165	134	143	144	179	157	178	182	203	204	206	222	260	265	335	379	598		
					3.7%	4.0%	3.3%	3.5%	3.5%	4.4%	3.8%	4.3%	4.4%	4.9%	5.0%	5.0%	5.4%	6.3%	6.5%	8.2%	9.2%	14.6%		
2004	17	4,363	10.9	12	174	164	174	163	179	178	195	193	208	228	230	242	299	304	355	419	658			
					4.0%	3.8%	4.0%	3.7%	4.1%	4.1%	4.5%	4.4%	4.8%	5.2%	5.3%	5.5%	6.9%	7.0%	8.1%	9.6%	15.1%			
2003	16	4,526	10.3	11	170	192	181	194	191	223	200	218	234	269	238	293	321	395	472	735				
					3.8%	4.2%	4.0%	4.3%	4.2%	4.9%	4.4%	4.8%	5.2%	5.9%	5.3%	6.5%	7.1%	8.7%	10.4%	16.2%				
2002	15	4,433	9.9	11	180	179	181	198	200	206	211	248	283	224	291	320	373	521	818					
					4.1%	4.0%	4.1%	4.5%	4.5%	4.6%	4.8%	5.6%	6.4%	5.1%	6.6%	7.2%	8.4%	11.8%	18.5%					
2001	14	5,141	9.3	10	202	230	239	246	244	254	289	323	308	327	386	441	637	1,015						
					3.9%	4.5%	4.6%	4.8%	4.7%	4.9%	5.6%	6.3%	6.0%	6.4%	7.5%	8.6%	12.4%	19.7%						
2000	13	6,502	8.6	9	318	291	323	310	333	370	429	411	474	516	572	839	1,316							
					4.9%	4.5%	5.0%	4.8%	5.1%	5.7%	6.6%	6.3%	7.3%	7.9%	8.8%	12.9%	20.2%							
1999	12	7,090	8.2	9	331	364	327	360	400	436	447	545	587	689	988	1,616								
					4.7%	5.1%	4.6%	5.1%	5.6%	6.1%	6.3%	7.7%	8.3%	9.7%	13.9%	22.8%								
1998	11	7,268	7.6	9	368	350	372	435	437	470	570	629	720	1,122	1,795									
					5.1%	4.8%	5.1%	6.0%	6.0%	6.5%	7.8%	8.7%	9.9%	15.4%	24.7%									
1997	10	7,935	7.1	8	374	403	503	509	504	648	670	829	1,319	2,176										
					4.7%	5.1%	6.3%	6.4%	6.4%	8.2%	8.4%	10.4%	16.6%	27.4%										
1996	9	8,642	6.4	7	450	532	579	561	670	790	996	1,534	2,530											
					5.2%	6.2%	6.7%	6.5%	7.8%	9.1%	11.5%	17.8%	29.3%											
1995	8	9,286	5.8	7	544	625	637	784	855	1,132	1,747	2,962												
					5.9%	6.7%	6.9%	8.4%	9.2%	12.2%	18.8%	31.9%												
1994	7	9,802	5.2	6	654	693	789	940	1,254	1,974	3,498													
					6.7%	7.1%	8.0%	9.6%	12.8%	20.1%	35.7%													
1993	6	10,049	4.5	5	689	856	1,028	1,354	2,155	3,967														
					6.9%	8.5%	10.2%	13.5%	21.4%	39.5%														
1992	5	10,748	3.8	4	961	1,150	1,609	2,397	4,631															
					8.9%	10.7%	15.0%	22.3%	43.1%															
1991	4	11,136	3.1	3	1,231	1,715	2,712	5,478																
					11.1%	15.4%	24.4%	49.2%																
1990	3	11,460	2.4	3	1,929	3,121	6,410																	
					16.8%	27.2%	55.9%																	
1989	2	10,752	1.7	2	3,145	7,607																		
					29.3%	70.7%																		
1988	1	10,516	1.0	1	10,516																			
					100%																			

- Notes:
1. Cumulative career longevity refers to the number of years each commercial crewmember license holder held a license between 1988 and a particular year and/or held a CFEC permit between 1988 and a particular year.
  2. Cumulative career longevity values and the descriptive statistics should be viewed as underestimates, because not all years of crewmember licenses could be included in the longevity determination and not all years of CFEC permit data were included.
  3. The crewmember license holder must have held a CFEC commercial fishing permit or been an emergency transfer holder in at least 1 year between 1975 and 2007 to be classified as having a permit.
  4. The total number of crewmember license holders in a year may differ from other CFEC reports because of improvements/changes in the identification of unique individuals and the assignment of identification numbers. As a result of the improved/changed identification, longevity attributes may be different for individuals for this analysis than in other CFEC reports.
  5. Source: CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier).

## 8.0 Sequence of Commercial Crewmember License and CFEC Permit Holdings

There is a widely held belief that some participants in commercial fishing begin as crewmembers then work their way up to holding permits and acting as skippers. One of the goals of this work was to determine if that was reflected in the data. Unfortunately, with the different years of crewmember license and CFEC permit data available, it may not be possible to answer this question definitively. Two attempts were made to address whether individuals held crewmember licenses or CFEC permits first, but each analysis is handicapped by the data constraints previously discussed. Table 30 presents the initial career holdings of individuals that have held crewmember licenses and CFEC commercial fishing permits based on those two analyses. Initial career holding refers to what was held first in the course of an individual's commercial fishing career, a commercial crewmember license, a CFEC commercial fishing permit, or both in the same year.

**Table 30. Initial Career Holding of Crewmember License Holders with a CFEC Commercial Fishing Permit**

Initial Career Holding	Including Permit Data '75-'07		Including Permit Data '88-'07	
Crewmember License	11,968	39.6%	19,794	65.5%
CFEC Permit	16,809	55.6%	7,691	25.5%
Both	1,448	4.8%	2,740	9.0%
Total	30,225		30,225	

**Notes:**

1. Initial Career Holding refers to what was held first in the course of an individual's commercial fishing career, a commercial crewmember license or a CFEC commercial fishing permit. 'Both' indicates that a crewmember license and a CFEC permit were both held in the same year of an individual's first appearance in the data.
2. Crewmember license holdings between 1988 and 2007 and CFEC permit holdings between 1975 and 2007 or 1988 and 2007 were considered for the initial career holding for each individual.
3. Initial career holding should be viewed as estimates, because not all the years of crewmember licenses could be included in the determination and for the 1988-2007 column, not all the years of CFEC permits were included.
4. To be classified as a permit holder, the crewmember license holder must have held a CFEC commercial fishing permit or been an emergency transfer holder in at least 1 year between 1975 and 2007.
5. *Source:* CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier).

When CFEC permit data between 1975 and 2007 and crewmember license data between 1988 and 2007 were reviewed, a majority of individuals appear to have held a CFEC permit first in their commercial fishing career (16,809 of 30,225, 55.6%). This is contrary to the belief that most individuals participate as crewmembers and work their way up to being the skipper. The result is not surprising considering the structure of the data used, however. Anyone that held a permit between 1975 and 1987 would be automatically flagged as holding a permit first, because any crewmember license holdings prior to 1988 are not accounted for. It is easy to imagine that there are individuals that held a crewmember license at some point in those 13 years between 1975 and 1987 that should, in reality, be credited with a crewmember license for the beginning of their commercial fishing career.

When CFEC permit data were restricted to 1988 through 2007, to match the time-period for which crewmember license data were available, the results changed drastically. Now a majority of the individuals appear to have held a crewmember license first in their commercial fishing career (19,794 of 30,225, 65.5%) and follows with the belief that most individuals participate as crewmembers and then become skippers. Unfortunately, looking at the

data this way is flawed as well. For example, there are individuals with a crewmember license at some point between 1988 and 2007 which only have permit holdings before 1988. As a result in this second analysis, they are automatically flagged as holding a crewmember license first, because their permit holdings are not accounted for.<sup>18</sup> But like the preceding method, any crewmember license holdings prior to 1988 are not accounted for either.

Because of the existing data constraints, it is probably best not to make any generalizations or sweeping statements about the sequence of crewmember license and CFEC permit holdings.

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<sup>18</sup> When CFEC permit data are restricted to 1988 through 2007 for this analysis, 5,399 of the 19,794 individuals credited with holding a crewmember license prior to a CFEC permit, only held permits *prior* to 1988. None of their permit history is taken into account.

## 9.0 Summary

Despite differences in the ADF&G commercial crewmember license data and the CFEC permit data, it was possible to identify the same individuals within both sources of information. In fact, 30,225 people were identified as having held a crewmember license at some time between 1988 and 2007 and also a CFEC permit at some time between 1975 and 2007. The 30,225 individuals account for 16.7% of the 181,056 estimated crewmember license holders over the 1988 to 2007 time period.

Although participation data are not collected for crewmembers, it is possible to make some generalizations about their commercial fishing careers based simply on license and permit holdings. For example, crewmember license holders that have held a CFEC permit tend to have held crewmember licenses in more years than crewmembers that have not held a CFEC permit. The mean cumulative license longevity of crewmember license holders in 2007 that have held a CFEC permit is 9.7 years as opposed to 4.6 years for those that have not held a CFEC permit. When their CFEC permit holdings are taken into consideration, the mean length of crewmembers' commercial fishing careers are extended even further. The mean cumulative career longevity of crewmember license holders in 2007 that have held a CFEC permit is 15.3 years, if all 33 years of permit data are considered, or 13.3 years when permit data between 1988 and 2007 only are considered.

Because crewmember license data prior to 1988 and after 2007 could not be incorporated in this analysis, the license longevity and career longevity values are potentially underestimated. The crewmember license holdings prior to 1988 could increase the length of some individuals' crewmember license histories and therefore increase the length of their licensing/permitting careers as well. A second drawback that results because crewmember license data prior to 1988 could not be incorporated in this analysis is the inability to determine whether individuals held a crewmember license or a CFEC permit first in their commercial fishing career. There is no definitive way to show crewmembers advance from crewing to skippering commercial fishing operations through the available data.

In spite of the limitations with the data, analysis of demographic information associated with the crewmember licenses reveals some interesting findings. For example, Alaska residents account for 72.1% of the crewmember license holders that have held a CFEC permit. Nearly a quarter of resident crewmember license holders have held a CFEC permit compared to just 9.0% of nonresident crewmember license holders.

The South Central region has had the largest number of crewmember license holders, but Western Alaska accounts for the largest number of Alaska resident crewmember license holders that have held a CFEC permit. In addition, the Western region has the highest percentage of its license holders to have held a CFEC permit. Of the Alaskan census areas, the Kenai Peninsula Borough has contributed the largest number of crewmember license holders as well as the largest number of crewmember license holders that have held a CFEC permit, but the Yakutat City and Borough has seen the highest percentage of its crewmember license holders with CFEC permits. While urban license holders comprise a slightly larger percentage of the resident crewmember license holders between 1988 and 2007, rural license holders make up a larger percentage of those that have also held CFEC permits.

The number of crewmember license holders in each year has declined between 1988 and 2007. The decline is seen for crewmembers overall, for residents and nonresidents, for each Alaskan region, in all Alaskan census areas, and for license holders from rural and urban communities. The number of crewmember license holders that have held a CFEC permit has also dropped from 1988 to 2007. The decline in this case is seen for license holders overall, for residents and nonresidents, in several regions of the state but not all, for most Alaskan census areas, and for license holders from both rural and urban communities. The decline in crewmember license holders with a CFEC permit may simply reflect data constraints, as permit data after 2007 have not been included in the analysis, or it may reflect decreases in entry level opportunities and/or the consolidation of numerous commercial fisheries. The addition of permit data following 2007 might mitigate the decline somewhat.

Although there are limitations to the data upon which these analyses were based and results must be viewed as estimates, this report is able to provide a more complete picture of commercial fishermen's combined license and permit history than ever before. It was possible to make generalizations about the careers of commercial fishermen, as captured through the ADF&G crewmember licensing and CFEC permit data, and to identify permit holding patterns of crewmember license holders based on a variety of demographic traits.

## Appendix A – Crewmember License Holder Residency Assignments

The residency of an individual’s commercial crewmember license was determined by the following criteria:

1. If the class code on a commercial crewmember license indicated the individual paid for a resident or nonresident license, then the license residency was either resident or nonresident.<sup>19</sup>
2. If the class code failed to indicate a residency, such as for duplicate licenses, child licenses, or unknown codes, then the residency assignment was based upon information in the original class code field.<sup>20</sup> If the original class code indicated the individual paid for a resident or nonresident license, then the license residency was either resident or nonresident.
3. If the class code failed to indicate a residency, and the original class code did not indicate the residency of the initial license either, then the license residency was flagged as unknown.<sup>21</sup>

Although it does not occur that often, it is possible for an individual to have resident and nonresident licenses within the same year.<sup>22</sup> An individual’s year-beginning residency was determined in the following manner:

1. If the license with the earliest issue date for the year is a resident or nonresident license, then year-beginning residency is based on the license with the earliest issue date.
2. If the license with the earliest issue date for the year has an unknown residency, then the year-beginning residency is based on the earliest non-unknown license residency.
3. If the first license issued in the year has an unknown residency, and no other license in the year indicates a residency, then the corrected state value for the license with the earliest issue date designates the residency.<sup>23</sup>

An individual’s year-end residency was determined in the following manner:

1. If the license with the latest issue date for the year is a resident or nonresident license, then year-ending residency is based on the license with the latest issue date.
2. If the license with the latest issue date for the year has an unknown residency, then the year-ending residency is based on the latest non-unknown license residency.
3. If the last license issued in the year has an unknown residency, and no other license in the year indicates a residency, then the corrected state value for the license with the latest issue date designates the residency.<sup>24</sup>

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<sup>19</sup> The license class code is used to distinguish different types of commercial crewmember licenses. The code can differentiate resident licenses from nonresident licenses, yearlong licenses from 7-day licenses, and adult licenses from child licenses. The class codes 30, 34, or 36 indicate a resident license. The class codes 31, 35, or 37 indicate a nonresident license. The three codes reflect an annual license, a child license, or a 7-day license, respectively, for each residency.

<sup>20</sup> In the event an individual loses their crewmember license, they may obtain a duplicate license for a reduced fee. The class code of a license can distinguish these duplicate licenses from originally issued licenses. On the duplicate license application, the crewmember is supposed to indicate the type of license of the original license, and that information is captured in the original class code. The original class codes of 30, 34, or 36 indicate a resident license. The original class codes 31, 35, or 37 indicate a nonresident license.

<sup>21</sup> In some cases the original class code field contains values that reflect an unknown residency (i.e. 32 or 33) or reflect an unknown type of license (0, 5a, un, or blank).

<sup>22</sup> Although individuals may move within a year, it is fairly uncommon for the residency associated with an individual’s licenses to change during the course of a year. In only 860 of the 510,676 license holder/year combinations that exist does the license residency change within a year (0.17%).

<sup>23</sup> If the city indicated on a crewmember license was Anacortes, Bellingham, Beremertion (presumably Bremerton), Tukwilla, Tukwla (presumably Tukwilla), Port Townsend, Port Orchard, or Seattle, and the state indicated was ‘AK’ then the state field was corrected to ‘WA’. If the city was Pebble Beach, Chico, or Daly City and the state was ‘AK’ then the state field was corrected to ‘CA’. If the city indicated on a license was Astoria and the state was ‘AK’ then the state field was corrected to ‘OR’. The state field was not modified for any other licenses. If the corrected state was ‘AK’ then the license holder is assumed to be a resident. All other values in the corrected state field resulted in classification as a nonresident.

<sup>24</sup> If the city indicated on a crewmember license was Anacortes, Bellingham, Beremertion (presumably Bremerton), Tukwilla, Tukwla (presumably Tukwilla), Port Townsend, Port Orchard, or Seattle, and the state indicated was ‘AK’ then the state field

Because an individual's residency may change over the course of time, it can be difficult to label an individual as simply a resident or a nonresident. As such, a career-beginning and career-end residency were determined for each license holder. The career-beginning residency was assigned as follows:

1. The year-beginning residency of the first year in which an individual held a license between 1988 and 2007 is the career-beginning residency.

The career-ending residency was assigned as follows:

1. The year-end residency of the final year in which an individual held a license between 1988 and 2007 is assigned as the career-end residency.<sup>25</sup>

A residency change over the course of a career is more common than a residency change for licenses held within a single year. Of all license holders, 6.4% have shown at least one change in residency over the course of their license holding career (11,509 of 181,056 license holders). However, only 4.6% have a different residency at the end of their crewmember license career than at the beginning of their license career. There are 3,113 license holders that have a residency change over the course of their license career, but that revert back to their original residency by career end.

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was corrected to 'WA'. If the city was Pebble Beach, Chico, or Daly City and the state was 'AK' then the state field was corrected to 'CA'. If the city indicated on a license was Astoria and the state was 'AK' then the state field was corrected to 'OR'. The state field was not modified for any other licenses. If the corrected state was 'AK' then the license holder is assumed to be a resident. All other values in the corrected state field resulted in classification as a nonresident.

<sup>25</sup> The career-end residency for each license holder was compared to another potential residency assignment, one based upon the count of year-end resident and year-end nonresident flags for each individual. This comparison was performed in order to confirm whether career-end residency could be an appropriate overall flag for residency. Because the career-end residency and year-end residency counts assigned the same overall residency flag for 98.6% of the individuals, the career-end residency could be used to describe each license holder's residency.

## Appendix B – Resident License Holders with and without a Permit by Year Beginning Census Area and Year

Arctic Region										Interior Region					
North Slope Borough						Northwest Arctic Borough				Denali Borough					
Year	With a Permit		Without a Permit		Total	With a Permit		Without a Permit		Total	With a Permit		Without a Permit		Total
1988	5	29.4%	12	70.6%	17	130	31.3%	285	68.7%	415	2	14.3%	12	85.7%	14
1989	2	15.4%	11	84.6%	13	83	28.3%	210	71.7%	293	4	26.7%	11	73.3%	15
1990	3	33.3%	6	66.7%	9	78	29.4%	187	70.6%	265	2	14.3%	12	85.7%	14
1991	3	33.3%	6	66.7%	9	63	25.1%	188	74.9%	251	2	13.3%	13	86.7%	15
1992	3	33.3%	6	66.7%	9	63	24.9%	190	75.1%	253	1	12.5%	7	87.5%	8
1993	3	37.5%	5	62.5%	8	52	31.1%	115	68.9%	167	0	0.0%	4	100%	4
1994	3	42.9%	4	57.1%	7	45	28.1%	115	71.9%	160	1	16.7%	5	83.3%	6
1995	2	33.3%	4	66.7%	6	35	27.6%	92	72.4%	127	0	0.0%	6	100%	6
1996	2	33.3%	4	66.7%	6	16	23.9%	51	76.1%	67	1	16.7%	5	83.3%	6
1997	2	22.2%	7	77.8%	9	24	24.7%	73	75.3%	97	1	12.5%	7	87.5%	8
1998	1	14.3%	6	85.7%	7	16	24.6%	49	75.4%	65	0	0.0%	3	100%	3
1999	3	30.0%	7	70.0%	10	23	27.1%	62	72.9%	85	0	0.0%	4	100%	4
2000	2	25.0%	6	75.0%	8	23	22.5%	79	77.5%	102	1	20.0%	4	80.0%	5
2001	2	28.6%	5	71.4%	7	20	19.2%	84	80.8%	104	1	50.0%	1	50.0%	2
2002	2	50.0%	2	50.0%	4	1	33.3%	2	66.7%	3	2	28.6%	5	71.4%	7
2003	2	40.0%	3	60.0%	5	1	33.3%	2	66.7%	3	0	0.0%	4	100%	4
2004	2	33.3%	4	66.7%	6	18	27.7%	47	72.3%	65	0	0.0%	5	100%	5
2005	1	14.3%	6	85.7%	7	15	25.4%	44	74.6%	59	0	0.0%	2	100%	2
2006	2	28.6%	5	71.4%	7	15	23.1%	50	76.9%	65	1	25.0%	3	75.0%	4
2007	2	33.3%	4	66.7%	6	11	18.6%	48	81.4%	59	2	33.3%	4	66.7%	6

Interior Region															
Fairbanks North Star Borough					Southeast Fairbanks Census Area					Yukon-Koyukuk Census Area					
Year	With a Permit		Without a Permit		Total	With a Permit		Without a Permit		Total	With a Permit		Without a Permit		Total
1988	66	21.6%	240	78.4%	306	7	20.0%	28	80.0%	35	81	28.3%	205	71.7%	286
1989	58	21.0%	218	79.0%	276	4	20.0%	16	80.0%	20	86	25.3%	254	74.7%	340
1990	52	20.2%	206	79.8%	258	14	48.3%	15	51.7%	29	58	24.2%	182	75.8%	240
1991	60	22.5%	207	77.5%	267	9	25.7%	26	74.3%	35	56	28.9%	138	71.1%	194
1992	59	22.1%	208	77.9%	267	5	17.9%	23	82.1%	28	64	29.5%	153	70.5%	217
1993	56	25.8%	161	74.2%	217	7	23.3%	23	76.7%	30	46	25.1%	137	74.9%	183
1994	57	28.6%	142	71.4%	199	4	13.8%	25	86.2%	29	54	29.3%	130	70.7%	184
1995	42	23.9%	134	76.1%	176	5	31.3%	11	68.8%	16	43	22.3%	150	77.7%	193
1996	34	21.3%	126	78.8%	160	8	42.1%	11	57.9%	19	32	14.9%	183	85.1%	215
1997	34	24.6%	104	75.4%	138	3	23.1%	10	76.9%	13	12	25.0%	36	75.0%	48
1998	23	24.2%	72	75.8%	95	4	28.6%	10	71.4%	14	11	37.9%	18	62.1%	29
1999	26	28.0%	67	72.0%	93	2	12.5%	14	87.5%	16	23	45.1%	28	54.9%	51
2000	26	26.0%	74	74.0%	100	3	37.5%	5	62.5%	8	10	33.3%	20	66.7%	30
2001	29	28.7%	72	71.3%	101	3	75.0%	1	25.0%	4	8	53.3%	7	46.7%	15
2002	19	29.7%	45	70.3%	64	10	66.7%	5	33.3%	15	7	50.0%	7	50.0%	14
2003	20	29.4%	48	70.6%	68	9	52.9%	8	47.1%	17	7	28.0%	18	72.0%	25
2004	18	27.3%	48	72.7%	66	9	64.3%	5	35.7%	14	4	23.5%	13	76.5%	17
2005	22	32.8%	45	67.2%	67	10	62.5%	6	37.5%	16	4	23.5%	13	76.5%	17
2006	11	19.0%	47	81.0%	58	7	33.3%	14	66.7%	21	3	13.0%	20	87.0%	23
2007	18	20.2%	71	79.8%	89	4	22.2%	14	77.8%	18	7	28.0%	18	72.0%	25

South Central Region															
Anchorage Municipality					Kenai Peninsula Borough					Matanuska-Susitna Borough					
Year	With a Permit		Without a Permit		Total	With a Permit		Without a Permit		Total	With a Permit		Without a Permit		Total
1988	677	28.6%	1,691	71.4%	2,368	1,213	36.9%	2,076	63.1%	3,289	159	29.4%	381	70.6%	540
1989	652	30.0%	1,518	70.0%	2,170	1,225	38.2%	1,984	61.8%	3,209	147	31.6%	318	68.4%	465
1990	662	27.7%	1,726	72.3%	2,388	1,324	38.0%	2,160	62.0%	3,484	187	32.2%	393	67.8%	580
1991	687	29.4%	1,649	70.6%	2,336	1,226	39.6%	1,870	60.4%	3,096	163	30.8%	367	69.2%	530
1992	689	29.5%	1,648	70.5%	2,337	1,182	37.5%	1,969	62.5%	3,151	152	29.7%	360	70.3%	512
1993	578	28.9%	1,420	71.1%	1,998	1,084	38.5%	1,730	61.5%	2,814	142	29.7%	336	70.3%	478
1994	549	28.9%	1,351	71.1%	1,900	1,042	37.6%	1,729	62.4%	2,771	128	28.2%	326	71.8%	454
1995	536	30.2%	1,236	69.8%	1,772	950	38.7%	1,503	61.3%	2,453	119	28.1%	304	71.9%	423
1996	460	28.6%	1,146	71.4%	1,606	877	37.5%	1,461	62.5%	2,338	134	33.3%	268	66.7%	402
1997	439	30.0%	1,022	70.0%	1,461	852	37.1%	1,445	62.9%	2,297	120	30.6%	272	69.4%	392
1998	357	30.0%	834	70.0%	1,191	751	37.6%	1,246	62.4%	1,997	112	32.6%	232	67.4%	344
1999	377	29.3%	908	70.7%	1,285	724	35.2%	1,334	64.8%	2,058	101	28.1%	258	71.9%	359
2000	349	26.9%	948	73.1%	1,297	665	33.7%	1,311	66.3%	1,976	95	26.4%	265	73.6%	360
2001	282	25.3%	832	74.7%	1,114	535	31.7%	1,151	68.3%	1,686	66	23.2%	219	76.8%	285
2002	242	26.2%	682	73.8%	924	462	32.4%	965	67.6%	1,427	49	22.4%	170	77.6%	219
2003	273	26.1%	774	73.9%	1,047	477	31.6%	1,033	68.4%	1,510	70	27.5%	185	72.5%	255
2004	228	22.7%	777	77.3%	1,005	462	27.4%	1,226	72.6%	1,688	69	23.1%	230	76.9%	299
2005	221	21.4%	814	78.6%	1,035	431	26.5%	1,193	73.5%	1,624	62	20.6%	239	79.4%	301
2006	215	20.6%	831	79.4%	1,046	345	23.2%	1,141	76.8%	1,486	58	19.7%	237	80.3%	295
2007	208	19.9%	839	80.1%	1,047	326	20.6%	1,259	79.4%	1,585	58	15.3%	321	84.7%	379

South Central Region					Southeast Region										
Valdez-Cordova Census Area					Haines Borough					Juneau City and Borough					
Year	With a Permit		Without a Permit		Total	With a Permit		Without a Permit		Total	With a Permit		Without a Permit		Total
1988	351	44.7%	434	55.3%	785	64	32.2%	135	67.8%	199	289	34.0%	560	66.0%	849
1989	329	45.9%	387	54.1%	716	66	30.7%	149	69.3%	215	311	34.6%	587	65.4%	898
1990	429	44.4%	538	55.6%	967	67	30.6%	152	69.4%	219	296	35.2%	545	64.8%	841
1991	392	42.4%	533	57.6%	925	73	32.2%	154	67.8%	227	308	35.6%	558	64.4%	866
1992	384	44.6%	477	55.4%	861	73	33.8%	143	66.2%	216	279	33.4%	557	66.6%	836
1993	304	46.3%	352	53.7%	656	70	36.6%	121	63.4%	191	264	31.9%	564	68.1%	828
1994	300	46.4%	347	53.6%	647	61	31.9%	130	68.1%	191	258	35.2%	475	64.8%	733
1995	257	43.2%	338	56.8%	595	53	37.9%	87	62.1%	140	176	35.3%	322	64.7%	498
1996	225	46.6%	258	53.4%	483	41	31.5%	89	68.5%	130	172	37.6%	285	62.4%	457
1997	220	41.6%	309	58.4%	529	48	33.1%	97	66.9%	145	185	37.4%	309	62.6%	494
1998	180	38.2%	291	61.8%	471	54	39.7%	82	60.3%	136	151	34.9%	282	65.1%	433
1999	180	38.1%	293	61.9%	473	47	32.6%	97	67.4%	144	149	35.6%	270	64.4%	419
2000	180	37.7%	297	62.3%	477	42	29.4%	101	70.6%	143	135	32.5%	281	67.5%	416
2001	162	34.8%	303	65.2%	465	32	23.4%	105	76.6%	137	116	29.1%	282	70.9%	398
2002	147	36.3%	258	63.7%	405	31	24.6%	95	75.4%	126	113	34.6%	214	65.4%	327
2003	140	31.6%	303	68.4%	443	29	34.9%	54	65.1%	83	102	29.3%	246	70.7%	348
2004	118	31.0%	263	69.0%	381	28	29.2%	68	70.8%	96	102	26.6%	281	73.4%	383
2005	109	28.1%	279	71.9%	388	17	19.3%	71	80.7%	88	90	25.1%	269	74.9%	359
2006	100	25.6%	291	74.4%	391	21	22.3%	73	77.7%	94	84	20.8%	319	79.2%	403
2007	88	23.8%	281	76.2%	369	28	28.0%	72	72.0%	100	78	18.1%	352	81.9%	430

Southeast Region															
Ketchikan Gateway Borough						Prince of Wales – Outer Ketchikan CA					Sitka City and Borough				
Year	With a Permit		Without a Permit		Total	With a Permit		Without a Permit		Total	With a Permit		Without a Permit		Total
1988	252	33.1%	509	66.9%	761	203	44.8%	250	55.2%	453	350	40.2%	520	59.8%	870
1989	288	36.2%	507	63.8%	795	234	45.8%	277	54.2%	511	373	42.9%	497	57.1%	870
1990	266	33.8%	522	66.2%	788	240	44.6%	298	55.4%	538	355	41.0%	511	59.0%	866
1991	264	32.9%	539	67.1%	803	253	44.2%	320	55.8%	573	345	39.4%	530	60.6%	875
1992	230	32.1%	486	67.9%	716	227	42.5%	307	57.5%	534	336	40.5%	494	59.5%	830
1993	219	31.6%	473	68.4%	692	180	39.8%	272	60.2%	452	318	40.7%	463	59.3%	781
1994	216	32.0%	459	68.0%	675	184	38.7%	292	61.3%	476	360	41.9%	500	58.1%	860
1995	182	33.3%	364	66.7%	546	154	38.5%	246	61.5%	400	294	42.1%	405	57.9%	699
1996	168	31.0%	374	69.0%	542	161	41.6%	226	58.4%	387	306	45.9%	361	54.1%	667
1997	150	30.2%	347	69.8%	497	125	35.8%	224	64.2%	349	281	43.2%	369	56.8%	650
1998	157	33.1%	318	66.9%	475	145	40.8%	210	59.2%	355	246	40.2%	366	59.8%	612
1999	141	31.3%	310	68.7%	451	157	39.5%	240	60.5%	397	233	40.7%	340	59.3%	573
2000	130	30.9%	291	69.1%	421	139	39.3%	215	60.7%	354	204	35.7%	367	64.3%	571
2001	101	25.5%	295	74.5%	396	136	38.1%	221	61.9%	357	213	36.7%	367	63.3%	580
2002	106	28.0%	273	72.0%	379	116	37.4%	194	62.6%	310	185	37.5%	308	62.5%	493
2003	82	25.2%	244	74.8%	326	103	33.7%	203	66.3%	306	170	34.8%	319	65.2%	489
2004	84	27.5%	222	72.5%	306	116	33.6%	229	66.4%	345	187	34.2%	359	65.8%	546
2005	74	24.4%	229	75.6%	303	93	30.5%	212	69.5%	305	165	30.6%	374	69.4%	539
2006	74	24.5%	228	75.5%	302	76	24.3%	237	75.7%	313	158	28.6%	395	71.4%	553
2007	70	22.5%	241	77.5%	311	72	23.3%	237	76.7%	309	155	27.5%	408	72.5%	563

Southeast Region															
Skagway-Hoonah-Angoon Census Area					Wrangell-Petersburg Census Area					Yakutat City and Borough					
Year	With a Permit		Without a Permit		Total	With a Permit		Without a Permit		Total	With a Permit		Without a Permit		Total
1988	137	41.1%	196	58.9%	333	383	43.3%	501	56.7%	884	68	66.0%	35	34.0%	103
1989	163	38.5%	260	61.5%	423	473	45.0%	578	55.0%	1,051	88	73.3%	32	26.7%	120
1990	189	42.6%	255	57.4%	444	516	47.3%	574	52.7%	1,090	84	68.9%	38	31.1%	122
1991	165	39.2%	256	60.8%	421	496	44.1%	629	55.9%	1,125	74	61.2%	47	38.8%	121
1992	169	40.5%	248	59.5%	417	462	45.1%	562	54.9%	1,024	72	61.5%	45	38.5%	117
1993	155	40.2%	231	59.8%	386	445	44.1%	564	55.9%	1,009	54	61.4%	34	38.6%	88
1994	135	37.4%	226	62.6%	361	441	42.1%	606	57.9%	1,047	65	65.0%	35	35.0%	100
1995	122	42.7%	164	57.3%	286	399	42.6%	538	57.4%	937	44	56.4%	34	43.6%	78
1996	102	41.1%	146	58.9%	248	408	43.7%	526	56.3%	934	41	60.3%	27	39.7%	68
1997	93	37.8%	153	62.2%	246	376	43.4%	490	56.6%	866	40	61.5%	25	38.5%	65
1998	85	38.8%	134	61.2%	219	356	43.3%	466	56.7%	822	37	60.7%	24	39.3%	61
1999	86	35.4%	157	64.6%	243	348	41.4%	493	58.6%	841	47	63.5%	27	36.5%	74
2000	73	35.6%	132	64.4%	205	296	38.0%	483	62.0%	779	28	58.3%	20	41.7%	48
2001	65	33.0%	132	67.0%	197	249	35.3%	457	64.7%	706	23	57.5%	17	42.5%	40
2002	64	38.1%	104	61.9%	168	224	33.0%	455	67.0%	679	8	44.4%	10	55.6%	18
2003	52	36.1%	92	63.9%	144	194	30.1%	450	69.9%	644	15	53.6%	13	46.4%	28
2004	62	35.0%	115	65.0%	177	187	28.3%	473	71.7%	660	17	54.8%	14	45.2%	31
2005	54	33.5%	107	66.5%	161	199	28.0%	512	72.0%	711	24	53.3%	21	46.7%	45
2006	53	30.1%	123	69.9%	176	186	26.5%	516	73.5%	702	25	48.1%	27	51.9%	52
2007	45	25.1%	134	74.9%	179	148	20.6%	570	79.4%	718	24	46.2%	28	53.8%	52

Western Region															
Aleutians East Borough						Aleutians West Census Area					Bethel Census Area				
Year	With a Permit		Without a Permit		Total	With a Permit		Without a Permit		Total	With a Permit		Without a Permit		Total
1988	125	46.8%	142	53.2%	267	99	38.2%	160	61.8%	259	936	50.6%	913	49.4%	1,849
1989	216	50.2%	214	49.8%	430	124	35.6%	224	64.4%	348	948	48.5%	1,008	51.5%	1,956
1990	211	47.2%	236	52.8%	447	126	31.3%	277	68.7%	403	834	48.1%	901	51.9%	1,735
1991	218	47.6%	240	52.4%	458	109	28.3%	276	71.7%	385	836	47.1%	938	52.9%	1,774
1992	228	47.4%	253	52.6%	481	110	30.7%	248	69.3%	358	898	48.6%	950	51.4%	1,848
1993	209	43.9%	267	56.1%	476	99	32.6%	205	67.4%	304	748	47.3%	833	52.7%	1,581
1994	224	47.4%	249	52.6%	473	111	31.7%	239	68.3%	350	782	46.5%	899	53.5%	1,681
1995	202	45.6%	241	54.4%	443	114	33.5%	226	66.5%	340	860	46.1%	1,005	53.9%	1,865
1996	158	40.3%	234	59.7%	392	89	27.6%	233	72.4%	322	796	48.0%	863	52.0%	1,659
1997	171	45.1%	208	54.9%	379	94	32.1%	199	67.9%	293	669	45.9%	789	54.1%	1,458
1998	162	40.7%	236	59.3%	398	81	31.2%	179	68.8%	260	642	44.3%	806	55.7%	1,448
1999	171	40.7%	249	59.3%	420	71	26.9%	193	73.1%	264	631	47.1%	710	52.9%	1,341
2000	173	42.1%	238	57.9%	411	56	24.1%	176	75.9%	232	519	43.3%	680	56.7%	1,199
2001	139	39.5%	213	60.5%	352	65	27.4%	172	72.6%	237	330	41.5%	466	58.5%	796
2002	132	42.7%	177	57.3%	309	58	26.1%	164	73.9%	222	224	37.4%	375	62.6%	599
2003	113	37.2%	191	62.8%	304	60	25.1%	179	74.9%	239	230	37.2%	389	62.8%	619
2004	115	39.0%	180	61.0%	295	60	26.5%	166	73.5%	226	226	35.7%	407	64.3%	633
2005	101	35.3%	185	64.7%	286	44	22.4%	152	77.6%	196	229	32.1%	485	67.9%	714
2006	95	31.9%	203	68.1%	298	45	24.3%	140	75.7%	185	206	31.3%	452	68.7%	658
2007	102	34.2%	196	65.8%	298	37	19.8%	150	80.2%	187	172	28.1%	441	71.9%	613

Western Region															
Bristol Bay Borough					Dillingham Census Area					Kodiak Island Borough					
Year	With a Permit		Without a Permit		Total	With a Permit		Without a Permit		Total	With a Permit		Without a Permit		Total
1988	156	60.9%	100	39.1%	256	530	61.5%	332	38.5%	862	696	39.1%	1,083	60.9%	1,779
1989	128	62.7%	76	37.3%	204	439	58.9%	306	41.1%	745	716	39.5%	1,097	60.5%	1,813
1990	169	64.3%	94	35.7%	263	523	62.3%	317	37.7%	840	888	40.9%	1,281	59.1%	2,169
1991	144	63.7%	82	36.3%	226	483	62.3%	292	37.7%	775	849	40.5%	1,246	59.5%	2,095
1992	161	63.9%	91	36.1%	252	475	59.6%	322	40.4%	797	764	38.8%	1,207	61.2%	1,971
1993	149	61.6%	93	38.4%	242	524	63.4%	303	36.6%	827	747	39.5%	1,145	60.5%	1,892
1994	134	62.0%	82	38.0%	216	484	61.2%	307	38.8%	791	720	39.3%	1,111	60.7%	1,831
1995	135	55.3%	109	44.7%	244	507	58.8%	355	41.2%	862	613	39.8%	927	60.2%	1,540
1996	127	53.4%	111	46.6%	238	483	56.8%	368	43.2%	851	598	42.4%	813	57.6%	1,411
1997	130	57.0%	98	43.0%	228	434	52.2%	398	47.8%	832	551	41.4%	781	58.6%	1,332
1998	107	51.4%	101	48.6%	208	416	52.6%	375	47.4%	791	481	41.6%	676	58.4%	1,157
1999	126	50.4%	124	49.6%	250	458	49.8%	462	50.2%	920	490	40.5%	721	59.5%	1,211
2000	123	50.2%	122	49.8%	245	443	48.7%	466	51.3%	909	446	37.4%	747	62.6%	1,193
2001	105	49.3%	108	50.7%	213	364	46.0%	427	54.0%	791	413	36.9%	706	63.1%	1,119
2002	95	46.6%	109	53.4%	204	267	46.0%	314	54.0%	581	355	37.6%	590	62.4%	945
2003	93	46.5%	107	53.5%	200	285	44.0%	363	56.0%	648	345	37.2%	583	62.8%	928
2004	87	45.5%	104	54.5%	191	279	42.0%	386	58.0%	665	326	36.0%	580	64.0%	906
2005	75	43.4%	98	56.6%	173	286	40.9%	413	59.1%	699	287	33.0%	584	67.0%	871
2006	64	35.8%	115	64.2%	179	227	35.9%	406	64.1%	633	261	30.2%	603	69.8%	864
2007	62	37.8%	102	62.2%	164	223	34.4%	426	65.6%	649	264	31.1%	586	68.9%	850

**Western Region**

Year	Lake and Peninsula Borough			Nome Census Area			Wade Hampton Census Area								
	With a Permit	Without a Permit	Total	With a Permit	Without a Permit	Total	With a Permit	Without a Permit	Total						
1988	234	51.3%	222	48.7%	456	255	53.2%	224	46.8%	479	557	49.5%	568	50.5%	1,125
1989	220	49.3%	226	50.7%	446	219	53.5%	190	46.5%	409	548	48.8%	574	51.2%	1,122
1990	220	46.8%	250	53.2%	470	222	53.6%	192	46.4%	414	444	45.1%	540	54.9%	984
1991	212	49.6%	215	50.4%	427	224	53.0%	199	47.0%	423	479	44.6%	594	55.4%	1,073
1992	217	50.0%	217	50.0%	434	101	57.1%	76	42.9%	177	467	44.1%	592	55.9%	1,059
1993	217	47.9%	236	52.1%	453	207	51.6%	194	48.4%	401	452	46.7%	515	53.3%	967
1994	197	45.4%	237	54.6%	434	200	47.1%	225	52.9%	425	414	44.8%	510	55.2%	924
1995	209	45.6%	249	54.4%	458	179	46.4%	207	53.6%	386	422	43.7%	544	56.3%	966
1996	189	44.8%	233	55.2%	422	168	40.2%	250	59.8%	418	411	41.1%	589	58.9%	1,000
1997	178	44.2%	225	55.8%	403	138	41.2%	197	58.8%	335	357	37.8%	587	62.2%	944
1998	157	42.9%	209	57.1%	366	75	37.7%	124	62.3%	199	325	37.1%	550	62.9%	875
1999	180	42.4%	245	57.6%	425	102	42.9%	136	57.1%	238	318	33.4%	634	66.6%	952
2000	166	39.8%	251	60.2%	417	88	44.7%	109	55.3%	197	272	34.3%	521	65.7%	793
2001	135	36.9%	231	63.1%	366	51	38.1%	83	61.9%	134	50	49.5%	51	50.5%	101
2002	92	39.1%	143	60.9%	235	34	34.0%	66	66.0%	100	210	33.0%	427	67.0%	637
2003	99	35.1%	183	64.9%	282	50	38.8%	79	61.2%	129	220	31.6%	477	68.4%	697
2004	81	34.6%	153	65.4%	234	20	23.3%	66	76.7%	86	175	27.2%	468	72.8%	643
2005	91	32.5%	189	67.5%	280	45	26.2%	127	73.8%	172	171	24.8%	518	75.2%	689
2006	77	30.3%	177	69.7%	254	43	25.3%	127	74.7%	170	179	22.7%	610	77.3%	789
2007	67	29.4%	161	70.6%	228	29	17.8%	134	82.2%	163	149	19.8%	602	80.2%	751

**Unknown Census Area**

Year	With a Permit	Without a Permit	Total		
1988	45	26.9%	122	73.1%	167
1989	52	25.7%	150	74.3%	202
1990	58	24.8%	176	75.2%	234
1991	43	19.7%	175	80.3%	218
1992	59	24.4%	183	75.6%	242
1993	51	24.6%	156	75.4%	207
1994	37	22.6%	127	77.4%	164
1995	33	20.2%	130	79.8%	163
1996	35	30.4%	80	69.6%	115
1997	18	23.1%	60	76.9%	78
1998	103	34.4%	196	65.6%	299
1999	19	22.1%	67	77.9%	86
2000	21	28.0%	54	72.0%	75
2001	9	16.7%	45	83.3%	54
2002	17	27.4%	45	72.6%	62
2003	11	15.9%	58	84.1%	69
2004	6	12.0%	44	88.0%	50
2005	14	23.3%	46	76.7%	60
2006	13	20.6%	50	79.4%	63
2007	10	10.9%	82	89.1%	92

**Notes:**

1. The Alaska census areas reflect the license year-beginning residency and license year-beginning city of the license holder. An Unknown census area indicates the crewmember license holder was an Alaska resident at license year-beginning, but their license year-beginning city could not be matched to the Census file. As such, a census area could not be assigned. Only Alaska residents were assigned a census area
2. CA stands for Census Area.
3. Only permit holders and emergency transfer holders of limited entry, interim-entry, interim-use, and moratorium permits between 1975 and 2007 were included. Those permit holders with experimental, test fishing, educational, reservation, hatchery, or vessel permits were not included
4. Only commercial crewmember license holders with valid licenses between 1988 and 2007 were included.
5. *Source:* CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier), and CFEC's 2000 Census file.

## Appendix C – Resident Commercial Crewmember License Holders with a Permit by Census Area and Year

Year	Arctic Region				Interior Region						South Central Region							
	North Slope Borough		Northwest Arctic Bor.		Denali Borough		Fairbanks North Star Borough		Southeast Fairbanks CA		Yukon-Koyukuk CA		Anchorage Municipality		Kenai Peninsula Borough		Matanuska-Susitna Borough	
1988	5	0.06%	130	1.61%	2	0.02%	66	0.82%	7	0.09%	81	1.00%	677	8.39%	1,213	15.03%	159	1.97%
1989	2	0.02%	83	1.01%	4	0.05%	58	0.71%	4	0.05%	86	1.05%	652	7.96%	1,225	14.95%	147	1.79%
1990	3	0.04%	78	0.92%	2	0.02%	52	0.61%	14	0.16%	58	0.68%	662	7.77%	1,324	15.55%	187	2.20%
1991	3	0.04%	63	0.76%	2	0.02%	60	0.73%	9	0.11%	56	0.68%	687	8.34%	1,226	14.89%	163	1.98%
1992	3	0.04%	63	0.79%	1	0.01%	59	0.74%	5	0.06%	64	0.81%	689	8.69%	1,182	14.91%	152	1.92%
1993	3	0.04%	52	0.70%	0	0.00%	56	0.76%	7	0.09%	46	0.62%	578	7.83%	1,084	14.69%	142	1.92%
1994	3	0.04%	45	0.62%	1	0.01%	57	0.79%	4	0.06%	54	0.75%	549	7.62%	1,042	14.46%	128	1.78%
1995	2	0.03%	35	0.52%	0	0.00%	42	0.63%	5	0.07%	43	0.64%	536	8.02%	950	14.21%	119	1.78%
1996	2	0.03%	16	0.26%	1	0.02%	34	0.54%	8	0.13%	32	0.51%	460	7.37%	877	14.05%	134	2.15%
1997	2	0.03%	24	0.42%	1	0.02%	34	0.59%	3	0.05%	12	0.21%	439	7.64%	852	14.83%	120	2.09%
1998	1	0.02%	16	0.31%	0	0.00%	23	0.44%	4	0.08%	11	0.21%	357	6.82%	751	14.35%	112	2.14%
1999	3	0.06%	23	0.44%	0	0.00%	26	0.50%	2	0.04%	23	0.44%	377	7.20%	724	13.84%	101	1.93%
2000	2	0.04%	23	0.49%	1	0.02%	26	0.55%	3	0.06%	10	0.21%	349	7.41%	665	14.12%	95	2.02%
2001	2	0.05%	20	0.54%	1	0.03%	29	0.78%	3	0.08%	8	0.22%	282	7.61%	535	14.44%	66	1.78%
2002	2	0.06%	1	0.03%	2	0.06%	19	0.58%	10	0.31%	7	0.21%	242	7.40%	462	14.12%	49	1.50%
2003	2	0.06%	1	0.03%	0	0.00%	20	0.62%	9	0.28%	7	0.22%	273	8.39%	477	14.67%	70	2.15%
2004	2	0.06%	18	0.58%	0	0.00%	18	0.58%	9	0.29%	4	0.13%	228	7.39%	462	14.97%	69	2.24%
2005	1	0.03%	15	0.51%	0	0.00%	22	0.75%	10	0.34%	4	0.14%	221	7.53%	431	14.69%	62	2.11%
2006	2	0.08%	15	0.57%	1	0.04%	11	0.42%	7	0.26%	3	0.11%	215	8.13%	345	13.05%	58	2.19%
2007	2	0.08%	11	0.45%	2	0.08%	18	0.73%	4	0.16%	7	0.28%	208	8.46%	326	13.26%	58	2.36%

Year	South Central																	
	Valdez-Cordova CA		Haines Borough		Juneau City and Borough		Ketchikan Gateway Bor.		Pr. of Wales-Outer Ketchikan CA		Sitka City and Borough		Skagway-Hoonah-Angoon CA		Wrangell-Petersburg CA		Yakutat City and Borough	
1988	351	4.35%	64	0.79%	289	3.58%	252	3.12%	203	2.52%	350	4.34%	137	1.70%	383	4.75%	68	0.84%
1989	329	4.01%	66	0.81%	311	3.79%	288	3.51%	234	2.86%	373	4.55%	163	1.99%	473	5.77%	88	1.07%
1990	429	5.04%	67	0.79%	296	3.48%	266	3.12%	240	2.82%	355	4.17%	189	2.22%	516	6.06%	84	0.99%
1991	392	4.76%	73	0.89%	308	3.74%	264	3.21%	253	3.07%	345	4.19%	165	2.00%	496	6.02%	74	0.90%
1992	384	4.84%	73	0.92%	279	3.52%	230	2.90%	227	2.86%	336	4.24%	169	2.13%	462	5.83%	72	0.91%
1993	304	4.12%	70	0.95%	264	3.58%	219	2.97%	180	2.44%	318	4.31%	155	2.10%	445	6.03%	54	0.73%
1994	300	4.16%	61	0.85%	258	3.58%	216	3.00%	184	2.55%	360	5.00%	135	1.87%	441	6.12%	65	0.90%
1995	257	3.84%	53	0.79%	176	2.63%	182	2.72%	154	2.30%	294	4.40%	122	1.82%	399	5.97%	44	0.66%
1996	225	3.60%	41	0.66%	172	2.76%	168	2.69%	161	2.58%	306	4.90%	102	1.63%	408	6.54%	41	0.66%
1997	220	3.83%	48	0.84%	185	3.22%	150	2.61%	125	2.18%	281	4.89%	93	1.62%	376	6.54%	40	0.70%
1998	180	3.44%	54	1.03%	151	2.88%	157	3.00%	145	2.77%	246	4.70%	85	1.62%	356	6.80%	37	0.71%
1999	180	3.44%	47	0.90%	149	2.85%	141	2.69%	157	3.00%	233	4.45%	86	1.64%	348	6.65%	47	0.90%
2000	180	3.82%	42	0.89%	135	2.87%	130	2.76%	139	2.95%	204	4.33%	73	1.55%	296	6.29%	28	0.59%
2001	162	4.37%	32	0.86%	116	3.13%	101	2.73%	136	3.67%	213	5.75%	65	1.75%	249	6.72%	23	0.62%
2002	147	4.49%	31	0.95%	113	3.45%	106	3.24%	116	3.55%	185	5.65%	64	1.96%	224	6.85%	8	0.24%
2003	140	4.31%	29	0.89%	102	3.14%	82	2.52%	103	3.17%	170	5.23%	52	1.60%	194	5.97%	15	0.46%
2004	118	3.82%	28	0.91%	102	3.31%	84	2.72%	116	3.76%	187	6.06%	62	2.01%	187	6.06%	17	0.55%
2005	109	3.72%	17	0.58%	90	3.07%	74	2.52%	93	3.17%	165	5.62%	54	1.84%	199	6.78%	24	0.82%
2006	100	3.78%	21	0.79%	84	3.18%	74	2.80%	76	2.87%	158	5.98%	53	2.00%	186	7.03%	25	0.95%
2007	88	3.58%	28	1.14%	78	3.17%	70	2.85%	72	2.93%	155	6.30%	45	1.83%	148	6.02%	24	0.98%

**Western Region**

Year	Aleutians East Borough		Aleutians West CA		Bethel Census Area		Bristol Bay Borough		Dillingham Census Area		Kodiak Island Borough		Lake and Peninsula Bor.		Nome Census Area		Wade Hampton CA	
1988	125	1.55%	99	1.23%	936	11.60%	156	1.93%	530	6.57%	696	8.62%	234	2.90%	255	3.16%	557	6.90%
1989	216	2.64%	124	1.51%	948	11.57%	128	1.56%	439	5.36%	716	8.74%	220	2.68%	219	2.67%	548	6.69%
1990	211	2.48%	126	1.48%	834	9.79%	169	1.98%	523	6.14%	888	10.43%	220	2.58%	222	2.61%	444	5.21%
1991	218	2.65%	109	1.32%	836	10.15%	144	1.75%	483	5.86%	849	10.31%	212	2.57%	224	2.72%	479	5.82%
1992	228	2.88%	110	1.39%	898	11.32%	161	2.03%	475	5.99%	764	9.63%	217	2.74%	101	1.27%	467	5.89%
1993	209	2.83%	99	1.34%	748	10.14%	149	2.02%	524	7.10%	747	10.12%	217	2.94%	207	2.80%	452	6.12%
1994	224	3.11%	111	1.54%	782	10.85%	134	1.86%	484	6.72%	720	9.99%	197	2.73%	200	2.78%	414	5.75%
1995	202	3.02%	114	1.70%	860	12.86%	135	2.02%	507	7.58%	613	9.17%	209	3.13%	179	2.68%	422	6.31%
1996	158	2.53%	89	1.43%	796	12.75%	127	2.03%	483	7.74%	598	9.58%	189	3.03%	168	2.69%	411	6.58%
1997	171	2.98%	94	1.64%	669	11.64%	130	2.26%	434	7.55%	551	9.59%	178	3.10%	138	2.40%	357	6.21%
1998	162	3.09%	81	1.55%	642	12.26%	107	2.04%	416	7.95%	481	9.19%	157	3.00%	75	1.43%	325	6.21%
1999	171	3.27%	71	1.36%	631	12.06%	126	2.41%	458	8.75%	490	9.36%	180	3.44%	102	1.95%	318	6.08%
2000	173	3.67%	56	1.19%	519	11.02%	123	2.61%	443	9.41%	446	9.47%	166	3.53%	88	1.87%	272	5.78%
2001	139	3.75%	65	1.75%	330	8.91%	105	2.83%	364	9.83%	413	11.15%	135	3.64%	51	1.38%	50	1.35%
2002	132	4.03%	58	1.77%	224	6.85%	95	2.90%	267	8.16%	355	10.85%	92	2.81%	34	1.04%	210	6.42%
2003	113	3.47%	60	1.85%	230	7.07%	93	2.86%	285	8.76%	345	10.61%	99	3.04%	50	1.54%	220	6.77%
2004	115	3.73%	60	1.94%	226	7.32%	87	2.82%	279	9.04%	326	10.56%	81	2.62%	20	0.65%	175	5.67%
2005	101	3.44%	44	1.50%	229	7.81%	75	2.56%	286	9.75%	287	9.78%	91	3.10%	45	1.53%	171	5.83%
2006	95	3.59%	45	1.70%	206	7.79%	64	2.42%	227	8.59%	261	9.87%	77	2.91%	43	1.63%	179	6.77%
2007	102	4.15%	37	1.50%	172	6.99%	62	2.52%	223	9.07%	264	10.74%	67	2.72%	29	1.18%	149	6.06%

Year	Unknown Census Area		Total Residents
1988	45	0.56%	8,070
1989	52	0.63%	8,196
1990	58	0.68%	8,517
1991	43	0.52%	8,236
1992	59	0.74%	7,930
1993	51	0.69%	7,380
1994	37	0.51%	7,206
1995	33	0.49%	6,687
1996	35	0.56%	6,242
1997	18	0.31%	5,745
1998	103	1.97%	5,235
1999	19	0.36%	5,233
2000	21	0.45%	4,708
2001	9	0.24%	3,704
2002	17	0.52%	3,272
2003	11	0.34%	3,252
2004	6	0.19%	3,086
2005	14	0.48%	2,934
2006	13	0.49%	2,644
2007	10	0.41%	2,459

**Notes:**

1. The Alaska census areas reflect the license year-beginning residency and license year-beginning city of the license holder. An Unknown census area indicates the crewmember license holder was an Alaska resident at license year-beginning, but their license year-beginning city could not be matched to the Census file. As such, a census area could not be assigned. Only Alaska residents were assigned a census area.
2. CA stands for Census Area.
3. Only permit holders and emergency transfer holders of limited entry, interim-entry, interim-use, and moratorium permits between 1975 and 2007 were included. Those permit holders with experimental, test fishing, educational, reservation, hatchery, or vessel permits were not included. Revoked
4. Only commercial crewmember license holders with valid licenses between 1988 and 2007 were included.
5. *Source:* CFEC's permit file, CFEC's permit holder and crewmember match file, CFEC's adaptation of the ADF&G commercial crewmember file (with assigned unique identifier), and CFEC's 2000 Census file.

