

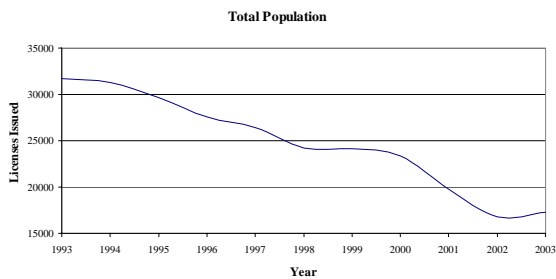
Commercial Fishing Crew Demographics & Trends in the North Pacific: 1993-2003

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More than half of the nation's fish harvest passes through the hands or under the eyes of crew members aboard commercial fishing vessels in the North Pacific, yet until now, very little has been known about the individuals that make up this work force. This research analyzes primary demographic characteristics of the crew population over the past decade, focusing on such elemental features as age, gender, and residency as are recorded in the State of Alaska license application. Further, it derives additional information such as crew member tenure, temporal trends, and population distributions. Crew populations, while often strongly affected by regulatory changes, are frequently absent from social impact analyses because of a lack of basic information. Summarizing essential demographic characteristics represents a crucial first step in addressing this data gap.

Total Population

The total number of commercial crew member licenses issued from 1993 to 2003 considered for this analysis is 272,145. The number of crew member license holders steadily decreased over the study period at an average rate of 5.7% per year. The most drastic decreases in annual licenses issued occurred between 2000 and 2001 (15% decrease), and 2001 and 2002 (another 15% decrease). Economic factors (such as drastic declines in salmon prices) and management factors (such as fishery rationalization) have both exerted a downward pressure on the number of crew jobs.

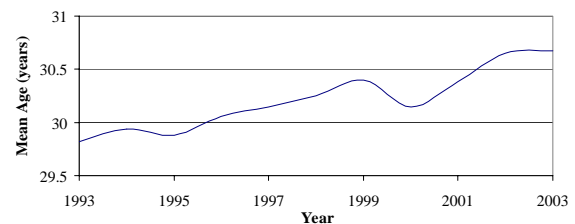


Note the 46% decrease in the number of licenses issued annually over 11 years.

Mean Age

Over the study period, the mean age of all commercial crew member license holders is 30.2 years (s.d. = 12.7 years). The median age is 29.0 years, the range is 0 to 100 as calculated from self-reported date of birth. The mean age of crew member license holders shows a slight upward trend over the study time period of approximately one year ($p < 0.001$). With fewer crew jobs available, boat captains may be more selective in hiring, likely favoring age and experience.

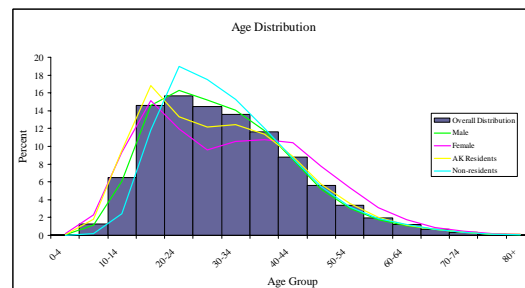
Mean Age



Mean age has increased over time, but has remained relatively close to the overall mean age of 30.2 years.

Age Distribution

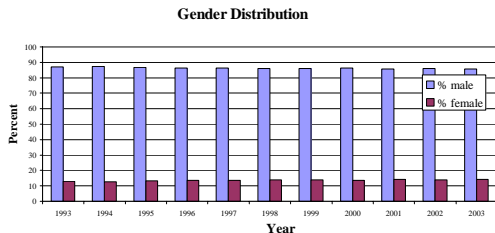
Compared to the age distribution of the total population of crew (grey bars), the female sub-population (pink line) shows a bimodal distribution, with a greater proportion of younger and older participants than the male (green line) population. A larger proportion of Alaska resident license holders (yellow line) are children aged 14 and younger (11%) compared to nonresident crew members (blue line) in the same age group (2.7%).



The overall crew population distribution peaks at 20-24, and is slightly skewed to the right, but certain sub-populations show other patterns.

Gender Distribution

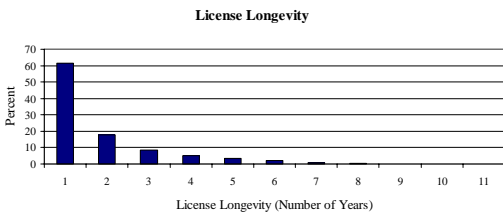
For the combined years of 1993 to 2003, men make up 86% of all license holders. Women account for 14%. Overall the distribution of licenses by gender has not changed much over this time period. The majority of female crew members are residents of Alaska (74%), compared to about 50% of male crew members.



The overall gender distribution of crew has remained fairly constant over time.

License Longevity

Of the 31% of license holders for whom a unique identifier was available, the mean number of years that an individual held a crew license is 1.8 years. Only 0.35% percent of the total population bought licenses in eight or more years. Of those long time crew members, over 98% are from Alaska (81%) and Washington (17%).

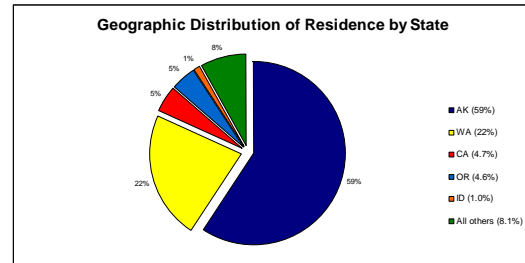


The majority of crew members hold licenses for only one or two years.

Geographic Distribution

The geographic breadth of crew member residency spans all 50 states and 48 countries (although only 3% come from outside of the US). Overall, residents of Alaska and Washington make up a large proportion

of the crew member workforce in North Pacific fisheries. Many crew members also come from other western states, including California, Oregon, and Idaho.



Crew members come from all 50 states, but over half come from Alaska, and about one quarter from Washington.

Top 10 Home Communities

While only the top ten are listed here, there are about 7,800 unique US communities listed as residences for commercial crew member license holders during the study period. The majority of these communities (83%) draw ten or fewer license holders. About 1,300 communities have more than ten crew members; just over 300 have more than 100. Over the course of the study period, only 66 unique communities have supplied over 100 crew member license holders in any single year.

Rank	City/Village	No. of Licenses N=270,357
1	Anchorage, AK	16,205
2	Kodiak, AK	13,504
3	Seattle, WA	10,855
4	Homer, AK	8,451
5	Sitka, AK	7,523
6	Petersburg, AK	5,904
7	Ketchikan, AK	5,188
8	Juneau, AK	4,919
9	Dillingham, AK	4,760
10	Cordova, AK	4,477

Between 1993 and 2003, about 15% of crew members have resided in Anchorage, Kodiak or Seattle.

How do we know that crew license data is representative of fishing crew that are actually working?

Some crew may not purchase licenses (although they are required to), and some may purchase a license and then not work. The crew license database was long thought to be unreliable because of these and other factors. However, we checked our results against a sample of crew from actual working boats, taken from US Coast Guard records of fishing vessel search and rescue incidents. The results from the working-boat sample were statistically similar to the license database results. This method could be used to research crew demographics in regions that do not require licenses.

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