

# Methods for the Intercensal 1980-1990 Alaska Population Estimates (Vintage 2013)

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## **Introduction**

The Alaska Department of Labor and Workforce Development, Research and Analysis Section (AKDOL), has produced “intercensal” 1980-1990 population estimates by age and sex for Alaska and its boroughs/census areas. These intercensal estimates are distinct from other estimates products in that they take into account information from both the 1980 and 1990 Censuses to create a time series of annual numbers back to 1980. All of these intercensal estimates are consistent with 1990 Census geography.

## **Total Population Estimates**

To make the intercensal 1980-1990 total population estimates by borough/census area, the U.S. Census Bureau’s 1980 to 1989 intercensal borough/census area estimates [1] (which include boundary changes through 1989) were proportionally adjusted to match AKDOL statewide estimates for 1980 to 1989 [2]. For 1990, all population numbers were taken from the 1990 Census [3], with adjustments added for known errors.

## **Population Estimates by Age and Sex**

Multiple methods were used for creation of the intercensal 1980-1990 age and sex estimates for Alaska and its boroughs/census areas. For 1983 to 1989, the population by age<sup>1</sup>, sex, and borough/census area was based on a censal-ratio method [4], using ratios of geography-adjusted 1990 Census populations by age and sex to 1990 Permanent Fund Dividend (PFD) applicants by age and sex. Statewide and borough/census area estimates were produced separately. All estimates were proportionally adjusted to respective total population estimates, and the borough/census area age by sex estimates were proportionally adjusted to match the statewide age by sex estimates as well.

For the 1981 and 1982 (years for which PFD data are unavailable or unreliable) statewide population by age<sup>1</sup> and sex, a “cohort-component” method [4] was used with annual birth, death, and migration data, and 1980 Census data by age and sex [5]. Under this approach, the population of each sex was separated into age groups and aged forward in time, with annual births and in-migrants added, and deaths and out-migrants subtracted. Age profiles for the birth, death, and migration data were from recent vital statistics and PFD-based migration data, along with indices for respective years. The 1981 and 1982 estimates were then adjusted based on differences between the 1983 censal-ratio-based numbers and 1983 cohort component-based numbers, and to match statewide totals.

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<sup>1</sup>Except for the population aged 85 or more. The population aged 85 or more was estimated based on linear interpolation between the 1980 and 1990 Censuses, with proportional adjustments to match total populations.

For boroughs/census areas, the 1981 and 1982 populations by age and sex were estimated based on linear interpolation between geography-adjusted 1980 Census and 1983 censal-ratio-based estimates by age and sex, and then adjusted to match borough/census area totals as well as the statewide estimates by age and sex.

### **References**

[1] U.S. Census Bureau. Intercensal Estimates of the Resident Population of States and Counties, 1980-1989. Available from: <http://www.census.gov/popest/data/historical/1980s/index.html> as of July 1, 2014.

[2] Alaska Department of Labor and Workforce Development (2000). *Alaska Population Overview: 2010 Census and 2011 Estimates*. Available from: <http://laborstats.alaska.gov/pop/estimates/pub/1011popover.pdf> as of July 1, 2014.

[3] U.S. Census Bureau. Census of Population and Housing, 1990. Available from: <http://www.census.gov/prod/www/decennial.html> as of July 1, 2014.

[4] Swanson, D. and Siegel, J. (2004). *The Methods and Materials of Demography, Second Edition*. Elsevier Science and Technology Books.

[5] U.S. Census Bureau. Census of Population and Housing, 1980. Available from: <http://www.census.gov/prod/www/decennial.html> as of July 1, 2014.