DATA DESCRIPTION

Decadal Demographic Trends (1970-2010) for Coastal Geographies

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Contents

Abstract

The Decadal Demographic Trends (1970-2010) for political boundaries (i.e., state, county) were derived from Census Block Group data. The land area reported in the county and state file are the 2010 land areas reported in the attribute table of the shapefiles provided by Census.

For other jurisdictions' Demographic Trends, 1970 and 1980 were derived from county data using a "county level disaggregation methodology" explained in the "Data Analysis and Manipulations" section below. Demographic Trends 1990, 2000, and 2010 were derived from block group data from these years.

Demographic Trends information covers the following general areas: population, age, structures, racial and ethnic composition, income distributions, employment, educational attainment, and residential mobility. For more information about Census, see the U.S. Census 2010 website (*census.gov/2010census/about*).

Geographic Coverage

Coastal Shoreline Counties

A county is considered a Coastal Shoreline County if it is directly adjacent to the open ocean, major estuaries, or the Great Lakes. These counties are considered to be most directly affected by issues pertaining to the coast. For more information, visit
coast.noaa.gov/htdata/SocioEconomic/NOAA_CoastalCountyDefinitions.pdf.

Coastal Watershed Counties

A county is considered a Coastal Watershed County if one of the following criteria is met: (1) at a minimum, 15 percent of the county's total land area is located within a coastal watershed or (2) a portion of, or an entire county, accounts for at least 15 percent of a coastal watershed. The 15-percent rule was selected as an appropriate level for capturing counties with a significant impact on coastal and ocean resources. For more information, visit
coast.noaa.gov/htdata/SocioEconomic/NOAA_CoastalCountyDefinitions.pdf.

Coastal States

All states (30) that are directly adjacent to the open ocean or the Great Lakes, as well as Washington D.C., Puerto Rico, and the U.S. Virgin Islands.

Coastal Portion of Coastal States

A state-by-state aggregation of all Coastal Shoreline Counties (see definition above).

Coastal Zone Boundaries

The area contained within the coastal zone as defined by each state participating in the Coastal Zone Management Act (subject to change). For a complete description of the methods used by each state with a coastal zone management program see the coastal zone definition for each state (*coast.noaa.gov/czm/mystate*).

FEMA Special Flood Hazard Area

Areas subject to 1-percent annual chance (100-year) coastal floods as determined by the Federal Emergency Management Agency (FEMA) through the National Flood Insurance Program (NFIP). Visit *fema.gov/special-flood-hazard-area* for more information.

USGS 8-Digit Hydrologic Unit Code (HUC)

The U.S. Geological Survey (USGS) has subdivided hydrologic units into a series of successively smaller levels, with the 8-digit HUC as the smallest. The 8-digit HUC is a geographic area representing part or all of a surface drainage basin, a combination of drainage basins, or a distinct hydrologic feature, often referred to as a watershed (*water.usgs.gov/GIS/huc.html*).

National Estuarine Research Reserve System (NERRS) Target Watersheds

The National Estuarine Research Reserve System (*coast.noaa.gov/nerrs/*) is a network of reserves dedicated to long-term research, monitoring, education and resource stewardship. Most NERRS units have delineated an associated target watershed that most directly impacts reserve. The remaining five

NERRS units do not have a target watershed; they are Kachemak Bay, Mission-Aransas, Narragansett Bay, Waquoit Bay, and Lake Superior.

National Estuarine Research Reserve System (NERRS) Large Watersheds

For each of the National Estuarine Research Reserve System (*coast.noaa.gov/nerrs/*) units and their target watersheds (where applicable), large estuarine watersheds have been delineated using a flow analysis based on a 30-meter digital elevation model corresponding most closely to the boundaries of U.S. Geological Survey 8-digit Hydrologic Unit Code (HUC) watersheds.

U.S. Environmental Protection Agency National Estuary Program Study Areas

The mission of the National Estuary Program (NEP) is to protect and restore America's nationally significant estuaries. Each NEP has a designated study area and develops and implements a comprehensive conservation and management plan for that area. Each NEP has a single study area, with the exception of the Puget Sound NEP, which has divided its study area into seven sub-systems. Visit *water.epa.gov/type/oceb/nep/* for more information.

U.S. Environmental Protection Agency National Estuary Program Watersheds

The National Estuary Program (NEP) has identified the estuarine and fluvial drainage areas associated with each of its program unit study areas. These larger watersheds were delineated so the NEPs can better understand pressures created upstream of their study areas, providing critical information to successfully implement their comprehensive conservation and management plans. Visit *water.epa.gov/type/oceb/nep/* for more information.

50-Mile Buffer Area from the Coastline

The area within a 50-mile fixed distance from the coastline.

Hurricane-Prone Areas

The American Society of Civil Engineers (ASCE) delineates hurricane-prone areas of the eastern U.S. that are vulnerable to hurricane-force winds (90 mph or greater basic wind speed).

Data Analysis and Manipulations

The Census 1990 and 2000 block group data were obtained from Geolytics-CensusCDs-Long Form SF3, Release 2.1. The 2010 block group data were obtained from the Census Bureau. For 1990, 2000, and 2010, Census Block Group polygons were imported into a GIS system to assign these polygons to political, place-based management program boundaries and watershed/other jurisdictions. Estimates were obtained through a GIS overlay operation of Census Block Groups with all boundaries or study areas of interest. Block groups that fell partially in the areas of interest were prorated by area to be included in the estimates (block group area proration method). The demographic variables data of block groups were then summarized by the study areas of interest. The exception of this process is county- and state-level estimates, which were obtained by summarizing the demographic variables by the existent appropriate geography code in the file associated with each Census Block Group. All data manipulation was done using the Statistical Analysis System (SAS) software.

An example of the block group area proration method follows:

Block Group 2000 population in Watershed:

  bg1: 200 persons

  bg2: 300 persons

  bg3: 100 persons

Block Group 2000 areas in Watershed:

  bg1: 100% in watershed

  bg2: 40% in watershed

  bg3:   70% in watershed

2000 population in Watershed is calculated as follows:

  popbg1 = 200 * (100/100) = 200.00

  popbg2 = 300 * (40/100) = 120.00

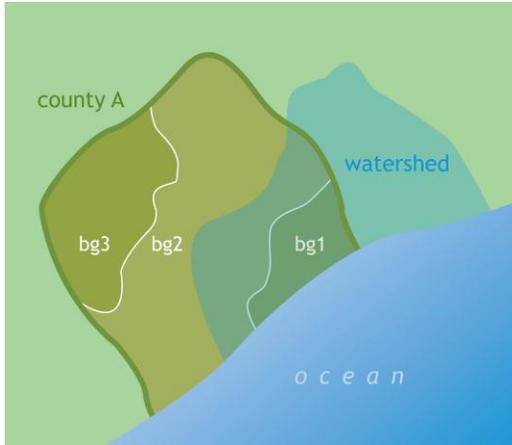 popbg3 = 100 * (70/100) = 70.00

2000 population in Watershed = round (200.00 + 120.00 + 70.00) = 390 persons

For Census 1970 and 1980 the Census Block Group data were aggregated to county Level. These county-level data were normalized to Census County 2010 boundaries. The county-level data were then disaggregated to several place-based management boundaries (e.g., NERRS, NEP), floodplains (e.g., FEMA Coastal Flood Hazard Area), NOAA and CAF watersheds, and other boundaries using a block group area proration-county disaggregation method as follows:

The county data were distributed accordingly to the population of block groups in the county. Then, the block group areas were intersected with the geography of interest (e.g., watershed) using ESRI ArcGIS software. Any block group that was partially included in the geography of interest was prorated by area.

An example of the block group area proration-county disaggregation method follows:

1970 population in County A: 400 persons – Population 2010 in County A: 600 persons

Block Group 2010 population in County A:

   bg1: 200 persons

   bg2: 300 persons

   bg3: 100 persons

Block Group 2010 areas in Watershed (County A portion):

   bg1: 100% in watershed

   bg2: 40% in watershed

   bg3: 0% in watershed

1970 population in Watershed (County A portion) is calculated as follows:

   pop70bg1 = (200/600) * 400 * (100/100) = 133.33

   pop70bg2 = (300/600) * 400 * (40/100) = 80.00

   pop70bg3 = (100/600) * 400 * (0/100) = 0.00

1970 population in Watershed (County A portion) = round (133.33 + 80.00 + 0.00) = 213 persons

To obtain the Demographic Trends file (1970, 1980, 1990, 2000, and 2010) the individual files obtained from the processing above were put together.

Quality Control and Quality Assurance

The following variables for the 1980 Census were obtained from the Geolytics CD because of problems with the accuracy of the 1980 source data obtained from the Census Bureau: Nativity and Parentage (c80nativ, c80forei), and Type of Structure and Tenure (c80tstr1, c80tstr2, c80tstr3, c80tstr4, c80tstr5).

The total count of families for the 1980 variable Family Income (c80fi1, c80fi2, c80fi3, c80fi4, c80fi5) does not equal the reported 1980 total number of families reported elsewhere in this project.

Request for Acknowledgment

NOAA requests that all individuals who download data acknowledge the source of these data in any reports, papers, or presentations. If you publish these data, please include a statement similar to, "Some or all of the data described in this article were produced by the U.S. National Oceanic and Atmospheric Administration, National Ocean Service, Office for Coastal Management.

Keywords

socioeconomic, economic, population, age, racial and ethnic compositions, income distribution, time series demographic, block group, coastal economics

Data Access

Data can be downloaded from the web at
coast.noaa.gov/dataregistry/search/collection/info/demographictrends.

A full data dictionary can be found at
coast.noaa.gov/htdata/SocioEconomic/DemographicTrends/DemographicTrends_DataDescription.pdf.