

Puerto Rico

The Commonwealth of Puerto Rico is located on the smallest island by area (9,135 square kilometers) of the Greater Antilles, situated west of the U.S. Virgin Islands and east of the Dominican Republic. Puerto Rico is comprised of one main island and several smaller ones, including Vieques, Culebra, Mona, Desecheo, and Caja de Muertos. Politically, Puerto Rico is divided into 78 *municipios* (U.S. Census Bureau county equivalents) (see Figure 34 for *municipio* boundaries). The most populated *municipios* are San Juan and Bayamon in the north and Carolina in the east. The city of San Juan is the capital of the Commonwealth, the financial capital, and home to a major port and a considerable tourism industry.

The north, east, and southwestern coastlines of Puerto Rico contain fringing, patch and shelf-edge reef formations. Along the south side of the island, reefs tend to surround the small islands off the coast. Fringe reefs are most common, and shelf-edge reefs are the best developed (15). The extent of coral reef habitat surrounding Puerto Rico is summarized in Table 27 and illustrated in Figure 30.

Habitat Type	Area (Sq Km)
<i>Depth Curves (sq km)</i>	
18 Meter Line	2,302
180 Meter Line	5,505.9
<i>Mapped Coral Habitat¹ (sq km)</i>	
Coral Reef Hardbottom	757.0
Submerged Vegetation	721.5
Unconsolidated Sediment	48.9
Other Delineations	72.7

Table 27. Approximate area (in square kilometers) of coral reef habitat surrounding Puerto Rico.

Source: Rohmann et al., 2005.

Key Facts

3,972,155	Population (2008)
435	Population Density (2008) (persons per sq km)
721	Number of residents per square kilometer of potential coral reef habitat within the 180 meter depth curve. (2008)
1,261,325	Households (2000)
1,418,476	Housing Units (2000)

Population

In 2000, the population of Puerto Rico reached 3,808,610 people; in 2008, it is estimated to be 3,972,155 (35, 49). From 1970 to 2008, the population increased by over 1,248,006 people. The *municipios* showing the greatest population increases were Bayamon, Carolina, and Toa Alta, all of which surround San Juan *Municipio*. San Juan *Municipio* actually saw a decrease in population during this time period, dropping by over 38,000 people. The greatest rate of growth was seen in Florida and Canovanas *Municipios*, growing by 8,858% and 5,923% respectively (49). Both Florida and Canovanas became *municipios* in 1970 and 1971, respectively, with newly defined borders and populations residing within these borders.

By 2015, the population is expected to grow by 167,722 people. Toa Alta *Municipio*, located directly west of Bayamon, is expected to show the greatest increase, with approximately 20,000 more people. San Juan *Municipio* is expected once again to decline in population (8,500 people) (49). Figure 31 presents this expected change by *municipio*.

In 2008, the overall population density was estimated to be 435 persons per square kilometer. The most densely populated *municipio* was San Juan with 3,448 persons per square kilometer. The second-most densely populated *municipio* was Catano with a density of 2,017 persons per square kilometer (49). Catano is located across Bahia de San Juan from San Juan. Figure 30 shows population centers in relation to adjacent coral reef habitats.



Aerial view of San Juan.

Credit: NOAA Office of Ocean and Coastal Resource Management

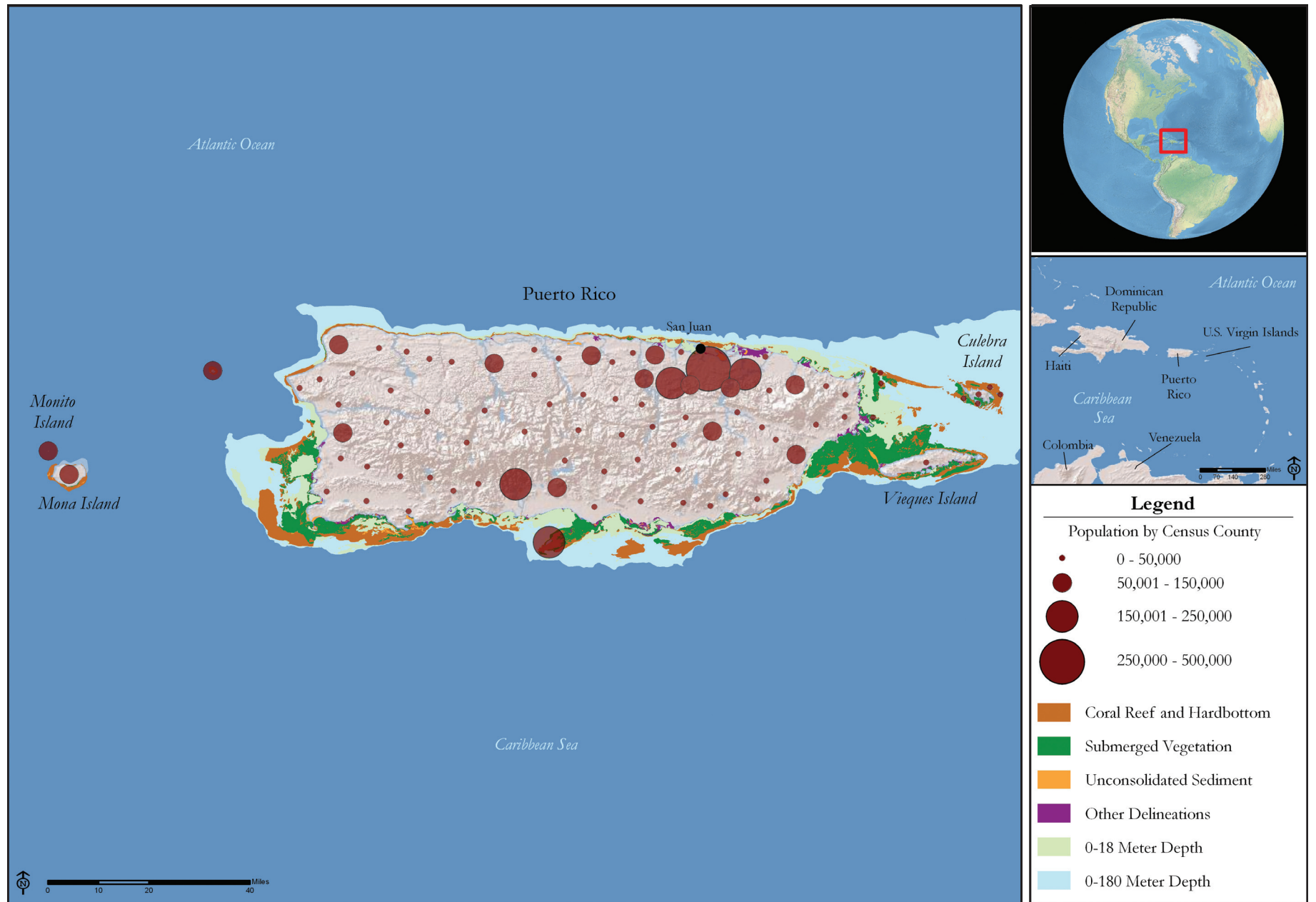


Figure 30. Population of Puerto Rico by U.S. Census counties (*municipios*) adjacent to coral reef habitat. The population markers are shown at the center of each *municipio* and should not be interpreted as exactly where population resides.
 Source: U.S. Census Bureau, 2000; Rohmann et al., 2005.

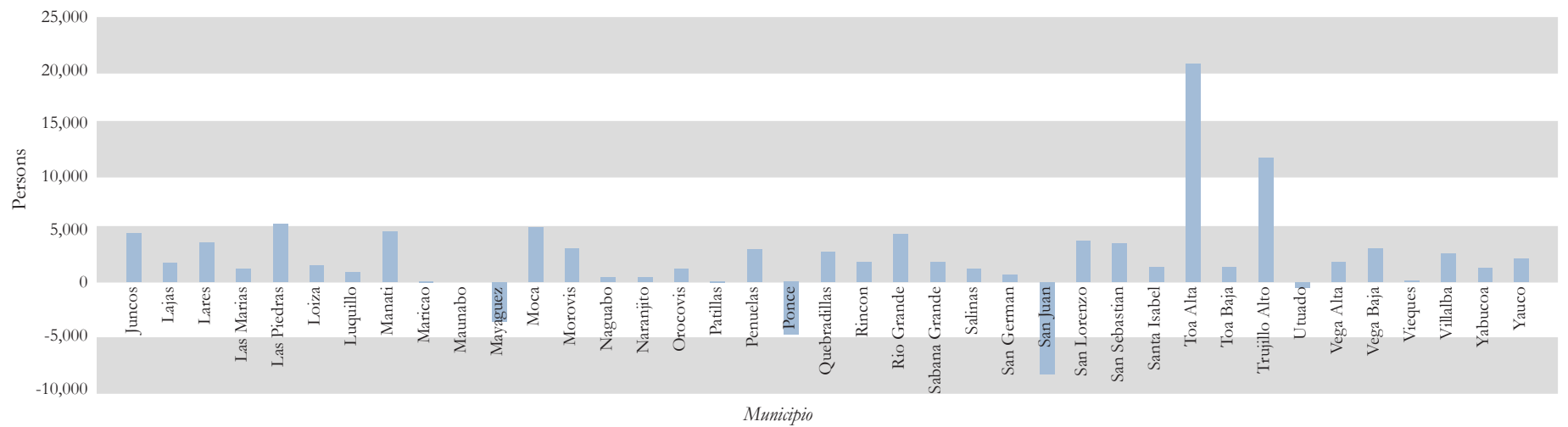


Figure 31. Expected population change in Puerto Rico from 2008 to 2015 by *municipio* (U.S. Census Bureau county equivalent). Source: U.S. Census Bureau, 2000.

Table 28 presents the ratio of the area of potential coral reef habitat and mapped coral reef habitat to the number of residents in the study area. When compared to other study areas, Puerto Rico has the second-highest number of residents per square kilometer of coral reef habitat within the 180-meter depth curve (just behind Guam).

Habitat Type	Area of Coral Reef Habitat in Puerto Rico	Persons Per Sq Km of Potential Coral Reef Habitat in 2008
<i>Depth Curves (sq km)</i>		
18 Meter Line	2,302	1,725
180 Meter Line	5,505.9	721
<i>Mapped Coral Habitat¹ (sq km)</i>		
Coral Reef Hardbottom	757.0	5,247
Submerged Vegetation	721.5	5,505
Unconsolidated Sediment	48.9	81,230
Other Delineations	72.7	54,638

Table 28. Ratio of the area of potential coral reef habitat and mapped coral reef habitat to population in Puerto Rico.
Source: Woods and Poole Economics, Inc., 2007; Rohmann et al., 2005.

Gender

In 2000, the population was 52% females and 48% males. Of individuals greater than 15 years of age, 56% were married, 28% had never been married, and 10% had been divorced (35).

Race/Ethnicity

In 2000, the population was 80% white, 8% black or African American, 7% other race, and 4% two or more races (35).

Age

Twenty-nine percent of the total population in 2000 ranged in age from 0-17, followed by the age groups 45-59 (17%), 25-34 (14%), 35-44 (14%), 18-24 (11%), 60-69 (8%), 70-79 (5%), and 80+ (3%). San Juan *Municipio*, the most populated one in Puerto Rico, had the highest percentage of elderly people with 7% ranging in age from 70-79 and 4% over the age of 80 (35).

Households

In 2000, the total number of households in Puerto Rico was 1,261,325. Eighty percent of these households were family households; of these, 30% were two-person households and 26% were three-person households. This was generally consistent across all *municipios*. Most non-family households contained only one person (90%) (35).

Language

The primary language spoken in the home was Spanish (88%), followed by English (11%) (35).

Place of Birth

Ninety-three percent of Puerto Rico's population was born in Puerto Rico and 6% were born in the United States (35).

Income

In 2000, the average median household income for all *municipios* was \$13,189 per year. This is shown in Figure 32. In 2000, 48% of the population lived below the poverty level (35).



Beach and swimmers, Caja Muertos, Puerto Rico, 2007.

Credit: Eileen Alicea, NOAA NOS International Programs Office

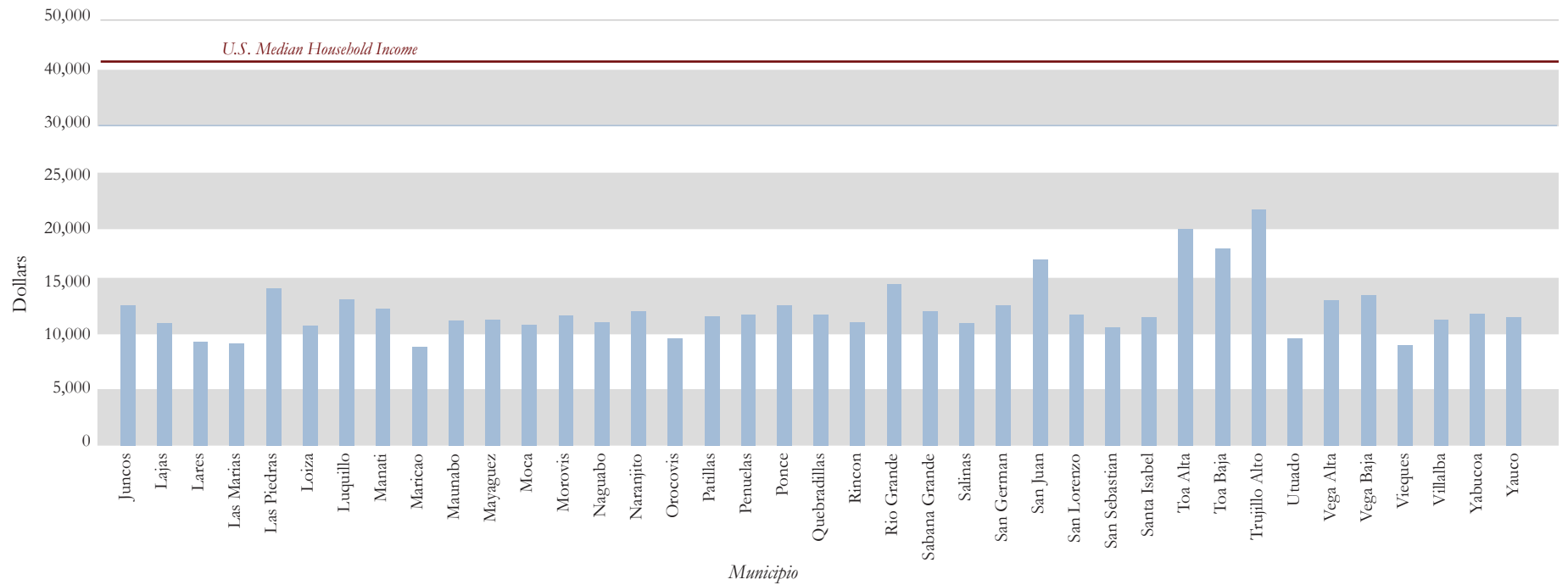
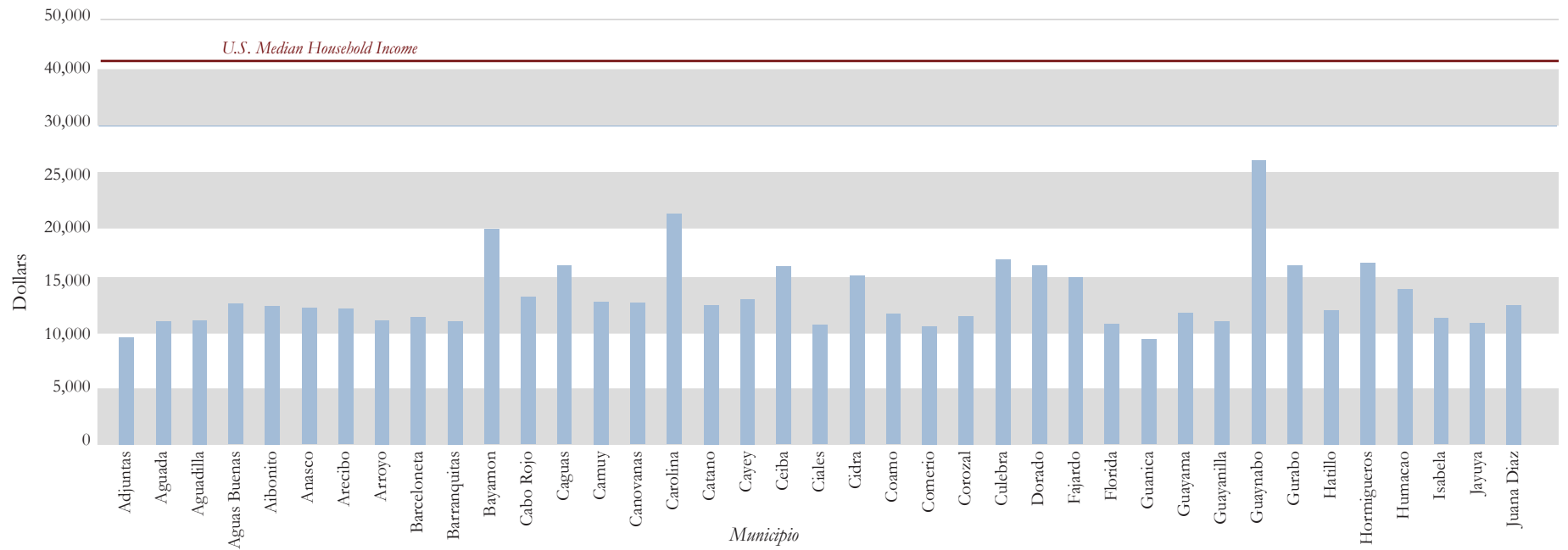


Figure 32. Median household income in Puerto Rico in 2000 by *municipio* (U.S. Census Bureau county equivalent).
Source: U.S. Census Bureau, 2000.

Education

In 2000, 22% of the adult population (25 years of age or over) had a high school diploma. Approximately 19% had some college or held an associate's degree and 18% held a bachelor's degree or higher (35). This distribution is broken down by gender in Figure 33.

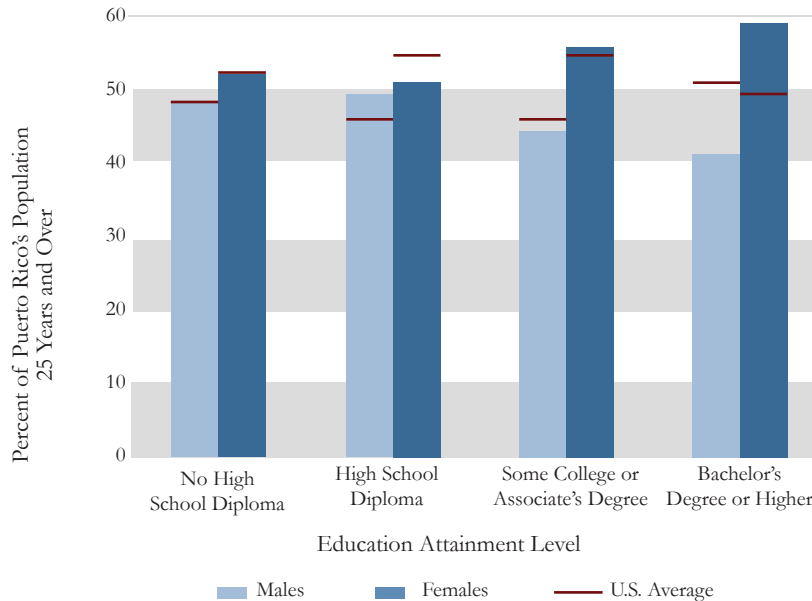


Figure 33. Education attainment by gender for the population 25 years and over in Puerto Rico in 2000.
Source: U.S. Census Bureau, 2000.

Employment

Industry

In 2000, 24% of the civilian population 16 years of age and over were employed. This percentage represents almost 931,000 people (35). The industries that employed the most people are listed in Table 29.

Commute to Work

For the civilian population over 16 years of age, 52% worked in their county of residence. The primary means of transportation to work were driving alone in a private vehicle (69%) and carpooling in a private vehicle (18%). These were followed by public transportation (5%), walking (4%), other means (2%), and working at home (2%) (35).

Industry	Percent Employed
Educational; health and social services	19
Manufacturing	13
Retail trade	12
Public administration	11
Construction	9
Professional; scientific; management; administrative and waste management services	7
Arts; entertainment; recreation; accommodation and food services	7
Other services (except public administration)	5
Finance; insurance; real estate and rental and leasing	5
Wholesale trade	4
Transportation and warehousing; and utilities	4
Information	2
Agriculture; forestry; fishing and hunting; and mining	2

Table 29. Percent of the population 16 years of age and over employed by industry in Puerto Rico in 2000.
Source: U.S. Census Bureau, 2000.

Housing and Development

Housing Units

There were a total of 1,418,476 housing units in Puerto Rico in 2000. Of the total housing units, just under 65% were owner occupied, 24% were renter occupied, and 11% were reported as vacant (35).



A resort coastline on Puerto Rico.
Credit: Kris Wall, NOAA

Highlighted Issue:
Fishing and Overfishing

In Puerto Rico, reef fish catches have decreased considerably during the last 20 years indicating classic signs of overfishing: reduced total landings, declining catch per unit effort, shifts to smaller fish, and recruitment failures. In 2003, almost 220,000 recreational anglers made over 1.1 million fishing trips in the waters of Puerto Rico. The recreational fishing occurred on the shoreline, from private boats and from charter trips. Within the eight year period from 1995 and 2002, commercial fishers caught 1.6 million tons of fish per year. Reef fish and invertebrates, including conch and lobster were the primary target of fishers (87%) (28).



*A fishing net caught on coral at low tide.
Credit: Eileen Alicea, NOAA National Ocean Service, International Programs Office*

Plumbing Facilities

In 2000, only about 6% of the housing units lacked complete plumbing facilities (35).

Source of Water

The U. S. Census Bureau did not collect data on water sources for Puerto Rico in 2000 (35).

Sewage Disposal

The U. S. Census Bureau did not collect data on sewage disposal for Puerto Rico in 2000 (35).

Building Permits

Between 2000 and 2007, an average of 6,594 building permits were issued per year for new residential construction. An average of 939 permits were issued per year for commercial construction (27).

Tourism

Between 2000 and 2005, an average of 3,407,483 visitors per year (excluding same-day visitors) visited Puerto Rico. Three quarters of the visitors were from the Americas (34).



*Development along the coast in 2005.
Credit: NOAA Office of Ocean and Coastal Resource Management*

Puerto Rico *Municipios*



1. Adjuntas	14. Camuy	27. Fajardo	40. Juncos	53. Naguabo	66. San Lorenzo
2. Aguada	15. Canóvanas	28. Florida	41. Lajas	54. Naranjito	67. San Sebastián
3. Aguadilla	16. Carolina	29. Guánica	42. Lares	55. Orocovis	68. Santa Isabel
4. Aguas Buenas	17. Cataño	30. Guayama	43. Las Marías	56. Patillas	69. Toa Alta
5. Aibonito	18. Cayey	31. Guayanilla	44. Las Piedras	57. Peñuelas	70. Toa Baja
6. Añasco	19. Ceiba	32. Guaynabo	45. Loíza	58. Ponce	71. Trujillo Alto
7. Arecibo	20. Ciales	33. Gurabo	46. Luquillo	59. Quebradillas	72. Utuado
8. Arroyo	21. Cidra	34. Hatillo	47. Manatí	60. Rincón	73. Vega Alta
9. Barceloneta	22. Coamo	35. Hormigueros	48. Maricao	61. Río Grande	74. Vega Baja
10. Barranquitas	23. Comerío	36. Humacao	49. Maunabo	62. Sabana Grande	75. Vieques
11. Bayamón	24. Corozal	37. Isabela	50. Mayagüez	63. Salinas	76. Villalba
12. Cabo Rojo	25. Culebra	38. Jayuya	51. Moca	64. San Germán	77. Yabucoa
13. Caguas	26. Dorado	39. Juana Díaz	52. Morovis	65. San Juan	78. Yauco

Figure 34. Location of Puerto Rico *municipios* (Census Bureau statistical county equivalents).