National Summary

Numerous demographic variables are summarized for each jurisdiction in the following chapters. A select number of these variables are compared across all jurisdictions in the following National Summary. They include total population, population density, gender, race, age, place of birth, median household income, education level, and number of housing units.

Collecting and summarizing demographic variables can be useful in planning for and managing coastal resources and resource use. For instance, understanding the population size (including number of households and household size) can help promote an overall understanding of the level of pressure on natural resources. Further, understanding population data over time can help determine whether pressures are increasing, decreasing, or staying the same (48).

Additionally, understanding migration, or, more simply, place of birth, may lead to customized management programs targeted to people who may not be fully aware of the coastal resources in their new environment. Other variables such as age, gender, education, and race can be useful in understanding a community's diversity, providing insights into how to best manage resources. For example, age may serve as an indicator of future pressures on certain resources, and knowing education levels may help when planning new initiatives and outreach programs (48).

Finally, understanding occupation and other employment variables (presented in the jurisdiction chapters) may help managers identify groups of people engaged in jobs that involve or may affect coastal resources. It may also determine the importance of marine resources to the livelihood of various communities (48).

Population

Population and Density
The combined population of the U.S. territories and counties adjacent to coral reef habitats totaled just over 10,908,000 in 2000 (35). In 2008, it is estimated that the population has reached 12,029,280 residents, almost double that of 1970 (49).

This population lives in an approximate land area of 51,548 square kilometers, making the projected population density to be 233 persons per square kilometer in 2008. Population density is expected to increase to

259 persons per square kilometer by 2015, and to 319 persons per square kilometer by 2030 (35, 49).

The U.S. Coral Reef Jurisdictions studied in this report vary dramatically in terms of both population and land area. The number of residents in Southeast Florida and the Florida Keys, for example, is several orders of magnitude greater than that of Guam, the Commonwealth of the Northern Mariana Islands (CNMI), American Samoa, and the U.S. Virgin Islands (USVI) (Figure 1).
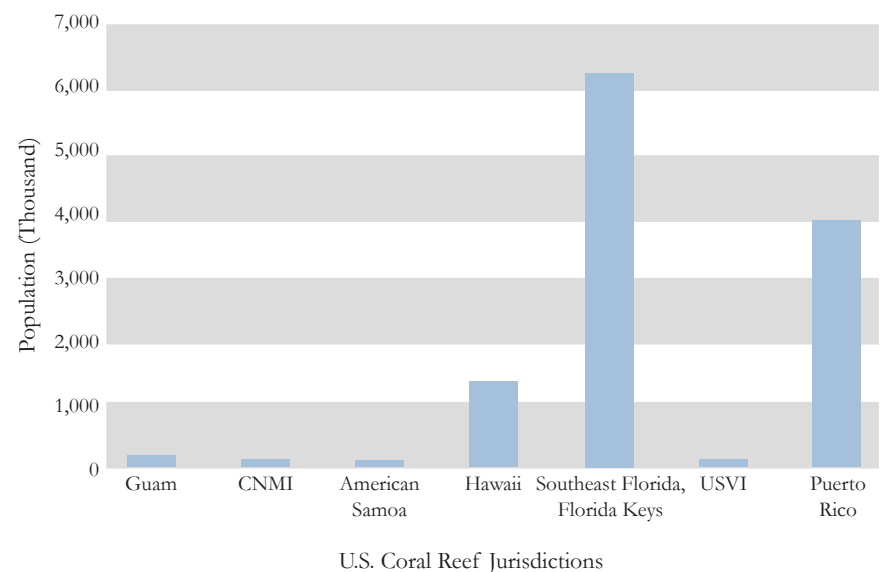

Figure 1. Total estimated population in 2008 for all study areas.
Source: Woods and Poole Economics, Inc., 2007.

Table 1 presents the total land area for each study area with its associated population density. An important point to consider when analyzing population density data is the amount of habitable land in a study area. While a territory or county may have significant land area, much of it may be comprised of swampland (as in Florida) or contain considerable slopes (as in American Samoa) that are uninhabitable. Thus, the population densities may be, in effect, much higher than those presented in Table 1.

	Land Area (sq km)	2008 Population Density (persons per sq km)
Guam	543	324
CNMI	310	305
American Samoa	188	354
Hawaii	16,633	80
Southeast Florida and the Florida Keys	24,050	261
USVI	689	162
Puerto Rico	9,135	435

Table 1. Approximate land area and corresponding population density in 2008.
Source: Woods and Poole Economics, Inc., 2007; Rohmann et al., 2005.

Population and Adjacent Coral Reef Habitat

The exact distribution and extent of U.S. shallow-water coral reef habitats is not currently known or completely mapped. However, comprehensive estimates of the potential distribution and extent of shallow-water coral reef habitat in tropical and subtropical U.S. waters have been completed. These estimates are based on analysis of 18-meter and 180-meter depth curves, which are used as surrogates for potential coral habitat distribution (29). Table 2 presents the area of potential coral reef habitat within the 18-meter depth curve compared to the number of residents in the adjacent U.S. territory or county. Table 3 presents this same data for the 180-meter depth curve. In both instances, Guam has the greatest number of residents per square kilometer of potential coral habitat.

	Area Inside 18 Meter Depth Curve (sq km)	Persons Per Sq Km of Potential Coral Reef Habitat in 2008
Guam	91	1,928
CNMI	86	1,096
American Samoa	43	1,542
Hawaii	1,221	1,085
Southeast Florida and the Florida Keys	30,801	204
USVI	344	325
Puerto Rico	2,302	1,725

Table 2. Area of potential coral reef habitat within the 18-meter depth curve and number of residents in the adjacent U.S. territory or county in 2008.
Source: Woods and Poole Economics, Inc., 2007; Rohmann et al., 2005.

	Area Inside 180 Meter Depth Curve (sq km)	Persons Per Sq Km of Potential Coral Reef Habitat in 2008
Guam	203	867
CNMI	333	283
American Samoa (Tutuila only)	353	185
Hawaii	6,596	201
Southeast Florida and the Florida Keys	113,092	56
USVI	2,065	54
Puerto Rico	5,506	721

Table 3. Area of potential coral reef habitat within the 180-meter depth curve and number of residents in the adjacent U.S. territory or county in 2008.
Source: Woods and Poole Economics, Inc., 2007; Rohmann et al., 2005.

Gender

In four of the U.S. Coral Reef Jurisdictions in 2000, Southeast Florida and the Florida Keys, Puerto Rico, USVI, and CNMI, the female population is greater than the male population (Figure 2). The greatest difference is seen in the CNMI, where women comprise 54% of the population and men 46%. In the jurisdictions where men outnumber women, Guam and American Samoa, the difference is only by 2%. Hawaii is the only jurisdiction with approximately the same number of males and females. The U.S. average is 51% females and 49% males (35).
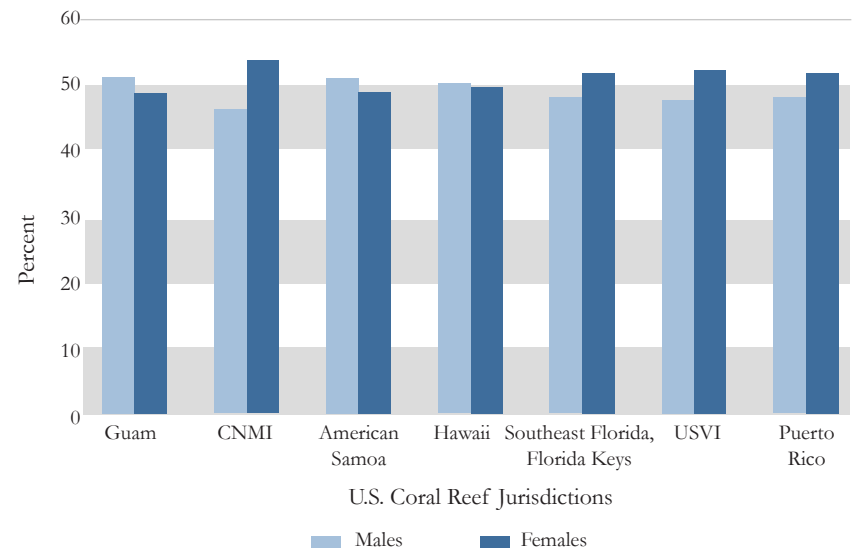

Figure 2. Percent of males and females that comprise the jurisdiction populations.
Source: U.S. Census Bureau, 2000.

Race

For the U.S. Coral Reef Jurisdictions, six general categories were identified to characterize the racial make-up of the population. Although other race categories were collected in the 2000 decennial census, totals representing less than one percent are not presented in this report. As Table 4 demonstrates, American Samoa had the highest percentage of its population as Native Hawaiian or Pacific Islander at 93%. CNMI's population had the greatest proportion of Asians, making up 56% of the population, followed by Hawaii with 42%. Hawaii also had the highest number of individuals that characterized themselves as being of 2+ races. USVI had the highest proportion of black individuals, and Puerto Rico had the highest proportion of white and other (35).

Age

Of all the U.S. Coral Reef Jurisdictions, American Samoa had the highest percentage of its population fall within the age range of 0-17 years (45%) (Table 5). This is followed by Guam with 35%. CNMI had the highest percentages in the next three age ranges: 18-24 (14%), 25-34 (29%), and 35-44 (18%). USVI's population had the highest percentage in the age range of 45-59. This age range has the highest number of individuals that are considered "Baby Boomers" (born between the years 1946 and 1965).

Lastly, Southeast Florida and the Florida Keys had the highest percentage of individuals above the age of 60, specifically falling into the age range categories of 60-69, 70-79, and 80+ (35).

	Age Group							
	0 - 17	18 - 24	25 - 34	35 - 44	45 - 59	60 - 69	70 - 79	80+
Guam	35%	11%	17%	15%	14%	5%	2%	1%
CNMI	26%	14%	29%	18%	11%	2%	1%	0%
American Samoa	45%	11%	15%	13%	11%	3%	2%	0%
Hawaii	24%	9%	14%	16%	19%	7%	6%	3%
Southeast Florida and Florida Keys	23%	8%	14%	16%	18%	9%	8%	5%
USVI	32%	8%	13%	14%	21%	8%	4%	2%
Puerto Rico	29%	11%	14%	14%	17%	8%	5%	3%
U.S. Average	26%	10%	14%	16%	18%	7%	6%	3%
Leading Jurisdictions in Percentage of each Age Group	American Samoa	CNMI				USVI	Southeast Florida and Florida Keys	

Table 5. Percent of U.S. Coral Reef Jurisdiction that falls into each age range.
Source: U.S. Census Bureau, 2000.

	Race					
	Native Hawaiian/ Pacific Islander	Asian	White	Black	Other	2+ Races
Pacific						
Guam	49%	33%	7%	1%	1%	9%
CNMI	36%	56%	2%	0%	1%	5%
American Samoa	93%	3%	1%	0%	0%	3%
Hawaii	9%	42%	24%	2%	1%	21%
Atlantic						
Southeast Florida and Florida Keys	0%	2%	71%	17%	4%	3%
USVI	0%	1%	13%	76%	6%	3%
Puerto Rico	0%	0%	80%	8%	7%	4%
Leading Jurisdictions in Percentage of Each Race	American Samoa	CNMI	Puerto Rico	USVI	Puerto Rico	Hawaii

Table 4. Percent of U.S. Coral Reef Jurisdiction that falls into each race category.
Source: U.S. Census Bureau, 2000.

Recreational boaters at Palominos in La Cordillera Reefs Natural Reserve.
Credit: Hector Horta-Abraham, Puerto Rico Department of Natural and Environmental Resources

Households

Place of Birth

In four of the U.S. Coral Reef Jurisdictions, the number of individuals born in their jurisdiction of residence outnumbered those born outside their jurisdiction. Puerto Rico led this group with over 90% of its population being born there, followed by Hawaii (57%), American Samoa (57%), and Guam (52%) (Figure 3). The jurisdictions with the highest number of individuals born outside their jurisdiction of residence include CNMI, USVI, and Southeast Florida and the Florida Keys. Southeast Florida and the Florida Keys led this group with over 70% of its population born outside the jurisdiction (35).
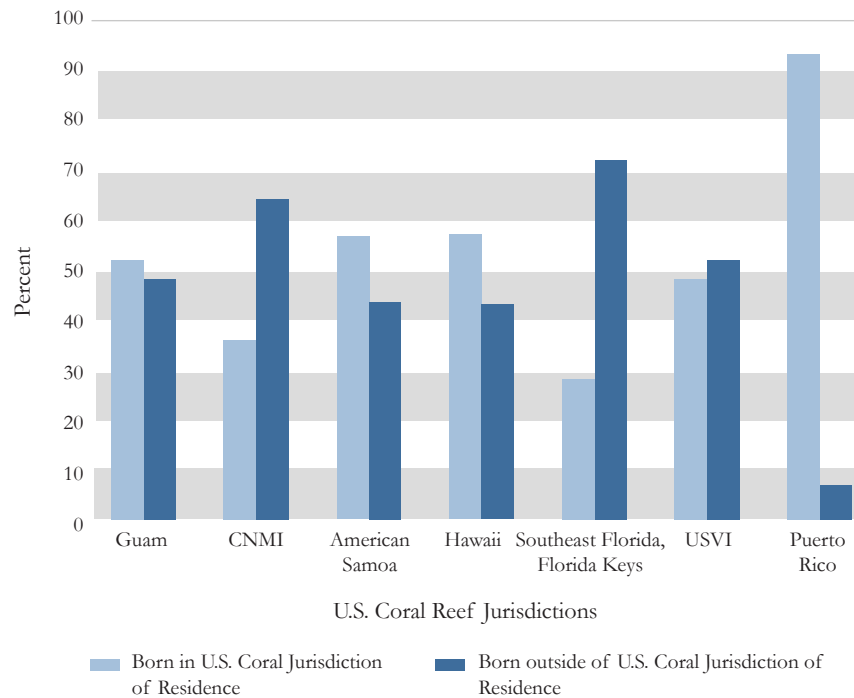

Figure 3. Place of birth for residents in the U.S. Coral Reef Jurisdictions.
Source: U.S. Census Bureau, 2000.

Income

All but one of the U.S. Coral Jurisdictions were below the U.S. median household income in 2000 (Figure 4). The average median household income among the combined counties in Southeast Florida and the Florida

Heavily populated and growing coastal communities struggle to find solutions for sewage effluent disposal. Here, a sewage outfall discharges treated sewage upcurrent of a coral reef.
Credit: Steve Spring, Palm Beach County Reef Rescue/Marine Photobank

Keys was approximately $42,729, about $735 over the U.S. average. Guam had the second-highest average median household income with $41,821. In both American Samoa and Puerto Rico, the average median household income was less then half that of the U.S. average (35).
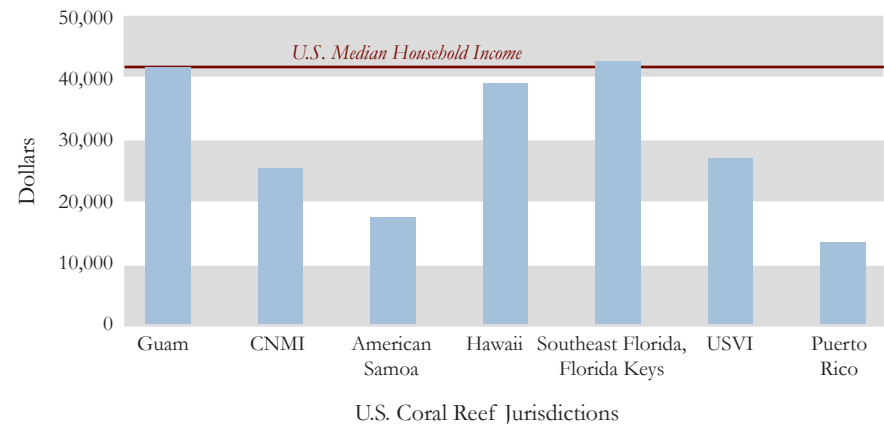

Figure 4. Median household income of the U.S. Coral Reef Jurisdictions in 2000.
Source: U.S. Census Bureau, 2000.

Education

Table 6 presents information for the highest level of education completed by adult residents of the U.S. Coral Reef Jurisdictions. Puerto Rico had the highest percentage without a high school diploma (40%). The USVI followed closely with 39%. American Samoa had the highest proportion of those having received a high school diploma. Hawaii had the highest proportion of those with some college or an associate's degree, as well as a bachelor's degree or higher (35).

	Education Attainment			
	No High School Diploma	High School Diploma	Some College or Associate's Degree	Bachelor's Degree or Higher
Guam	24%	32%	24%	15%
CNMI	31%	36%	18%	15%
American Samoa	34%	39%	19%	7%
Hawaii	14%	29%	30%	26%
Southeast Florida and Florida Keys	21%	26%	27%	24%
USVI	39%	26%	18%	17%
Puerto Rico	40%	22%	19%	18%
U.S. Average	20%	29%	27%	24%
Leading Jurisdictions in Education Attainment Categories	Puerto Rico	American Samoa	Hawaii	Hawaii

Table 6. Percent of population 25 years of age and older that have reached each education attainment category in 2000.
Source: U.S. Census Bureau, 2000.

Housing Units

A housing unit may be a house, an apartment, a mobile home, or even a single room, as long as the space is designated as separate living quarters and is directly accessible by the occupant. Southeast Florida and the Florida Keys has the greatest number of housing units among the U.S. Coral Reef Jurisdictions with over 2.4 million, approximately 42% more than the next leading jurisdiction, Puerto Rico (Table 7). Southeast Florida and the Florida Keys also has the second-lowest number of persons per housing unit with 2.3 (just ahead of the USVI with 2.2 persons per housing unit). The jurisdictions with the highest number of persons per housing unit are Guam, with 5.8, and American Samoa, with 5.7 (35).

	Housing Unit Totals		
	Number of Housing Units	Number of Persons per Housing Unit	Number of Housing Units per Sq Km
Guam	26,728	5.8	49
CNMI	17,566	3.9	57
American Samoa	10,052	5.7	53
Hawaii	460,542	2.6	28
Southeast Florida and Florida Keys	2,411,373	2.3	100
USVI	50,202	2.2	73
Puerto Rico	1,418,476	2.7	155
Total U.S.	116,028,930	1.3	88
Leading Jurisdictions	Southeast Florida and Florida Keys	Guam	Southeast Florida and Florida Keys

Table 7. Number of housing units, persons per housing unit, and number of housing units per square kilometer in U.S. Coral Reef Jurisdictions.
Source: U.S. Census Bureau, 2000; Rohmann et al., 2005.
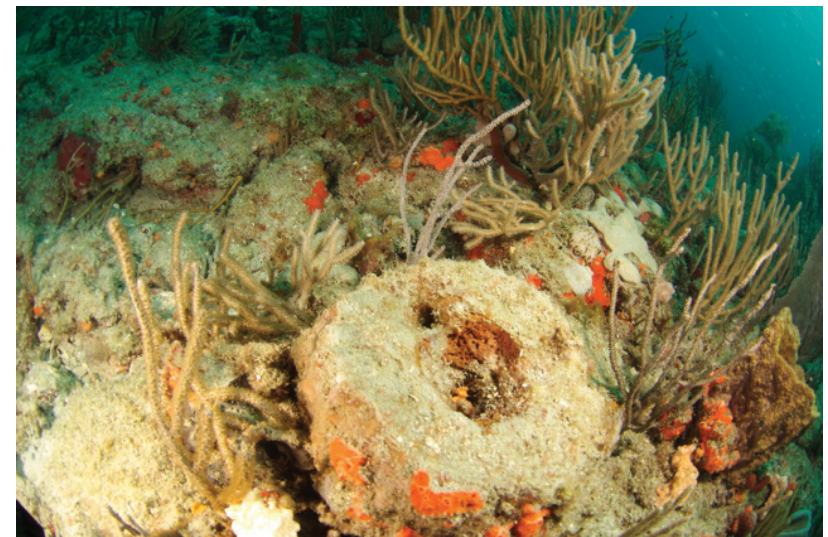
Sand covering Paul's Reef in Palm Beach, Florida. Beach sand replenishment projects are a likely source of sand that causes this type of pollution.
Credit: Steve Spring, Palm Beach County Reef Rescue/Marine Photobank

U.S. Coral Reef Jurisdictions

The U.S. Coral Reef Jurisdictions presented in this report vary dramatically in terms of geographic location, population size, land area, and coral habitats. The following sections provide detailed descriptions of each jurisdiction, including information on geography and socioeconomic conditions. In addition, some of this information is presented in relation to coral habitat size and location. As noted in the National Summary, the exact distribution and extent of U.S. shallow-water coral reef habitats is not currently known or completely mapped. However, comprehensive estimates of the potential distribution and extent of shallow-water coral reef habitat in tropical and subtropical U.S. waters have been completed. These estimates are based on analysis of 18-meter and 180-meter depth curves, which are used as surrogates for potential coral habitat distribution. Although detailed benthic habitat maps do not exist for all potential U.S. coral habitat, the benthic habitat information that is available is also presented in each jurisdiction chapter that follows.
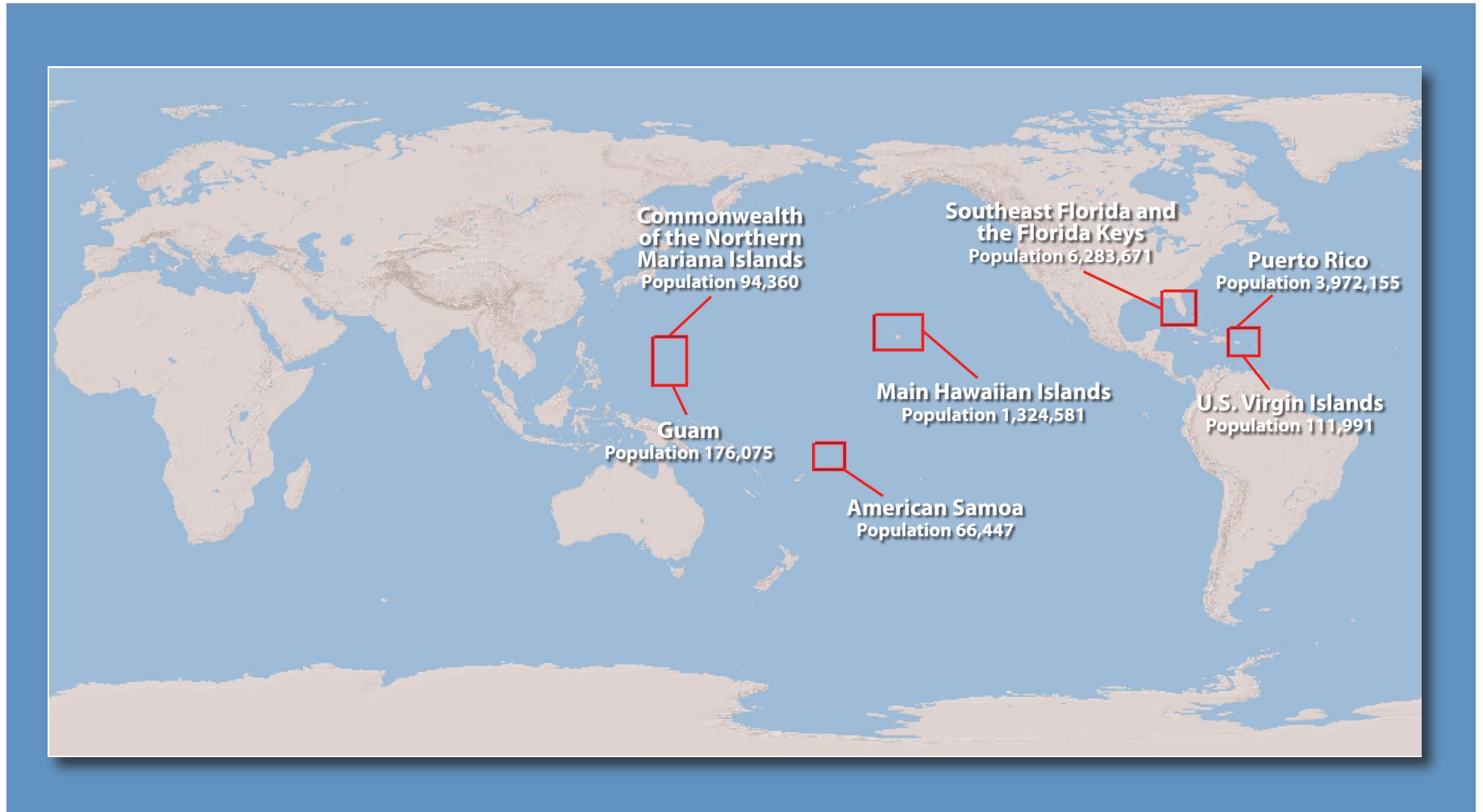

Figure 5. Location of U.S. Coral Reef Jurisdictions and their estimated population in 2008.
Source: Woods and Poole Economics, Inc., 2007.