

(fig. 2A). The municipios with the largest withdrawals from ground-water sources were Arecibo (13 Mgal/d) and Ponce (8 Mgal/d; fig. 2B).

In 1990, Puerto Rico had a population of 3,522,037 inhabitants living in 1,188,985 housing units (U.S. Department of Commerce, 1991). The potable water source for 96 percent of these housing units (1,141,426) was provided from public supplies, which to the general public in Puerto Rico is equivalent to the PRASA (U.S. Department of Commerce, 1991). Thus, about 3.4 million people were served from public-supply systems during 1990. The recorded public-water supply delivery to domestic users in 1990 was 161 Mgal/d, or about 47 gallons of water per person per day.

Wastewater Disposal

Wastewater disposal data of great importance to the Water-Use Program include the location of public wastewater treatment facilities, the quantity of wastewater treated and released from each facility, and the amount that is returned to the hydrologic cycle.

Wastewater is defined as water that conveys wastes from homes, businesses, and industries. The processing of wastewater for the removal or reduction of contained solids or other undesirable constituents is considered as wastewater treatment (Solley and others, 1993).

During 1990, there were 82 public wastewater treatment facilities operating in Puerto Rico. Most of them are located in the vicinity of the principal urban

center in each municipio. These facilities treated about 130 million gallons of wastewater daily.

Nine of these 82 facilities were Regional Wastewater Treatment Plants. These were (1) the Puerto Nuevo plant located in San Juan and serving the municipios of San Juan, Cataño, and part of Guaynabo; (2) the Carolina plant located in Loíza and serving Loíza, Carolina, Canóvanas, and Trujillo Alto; (3) the Bayamón plant located in Cataño and serving Bayamón and sections of Toa Baja, Guaynabo, and Cataño; (4) the Arecibo plant located in Arecibo and serving sections of Arecibo; (5) the Barceloneta plant located in Barceloneta and serving Barceloneta, Manatí, Florida, and sections of Arecibo; (6) the Mayagüez plant located in Mayagüez and serving the municipios of Mayagüez, Hormigueros, and sections of Cabo Rojo; (7) the Guayama plant located in Guayama and serving Salinas and Arroyo; (8) the Camuy plant located in Camuy which serves the municipios of Camuy and Hatillo; and (9) the Ponce plant located in Ponce and serving Ponce. Although most of the public wastewater treatment facilities provide secondary treatment, these large regional plants provide only primary treatment and discharge their effluent through deep ocean outfalls. The nine facilities discharged about 95 percent (124 Mgal/d) of the total wastewater treated at public facilities in 1990.

In 1990, an estimated 700,000 of the 1,188,985 housing units in Puerto Rico (U.S. Department of Commerce, 1991) were connected to a public wastewater treatment facility, and the other 500,000 housing units disposed of their domestic wastewater mostly through septic tanks. San Juan was the municipio with the largest number of housing units (159,000) connected to a public wastewater treatment facility. The municipios of Bayamón, Carolina, and Ponce were the next largest with 61,000, 55,000, and 46,000 housing units, respectively (fig.

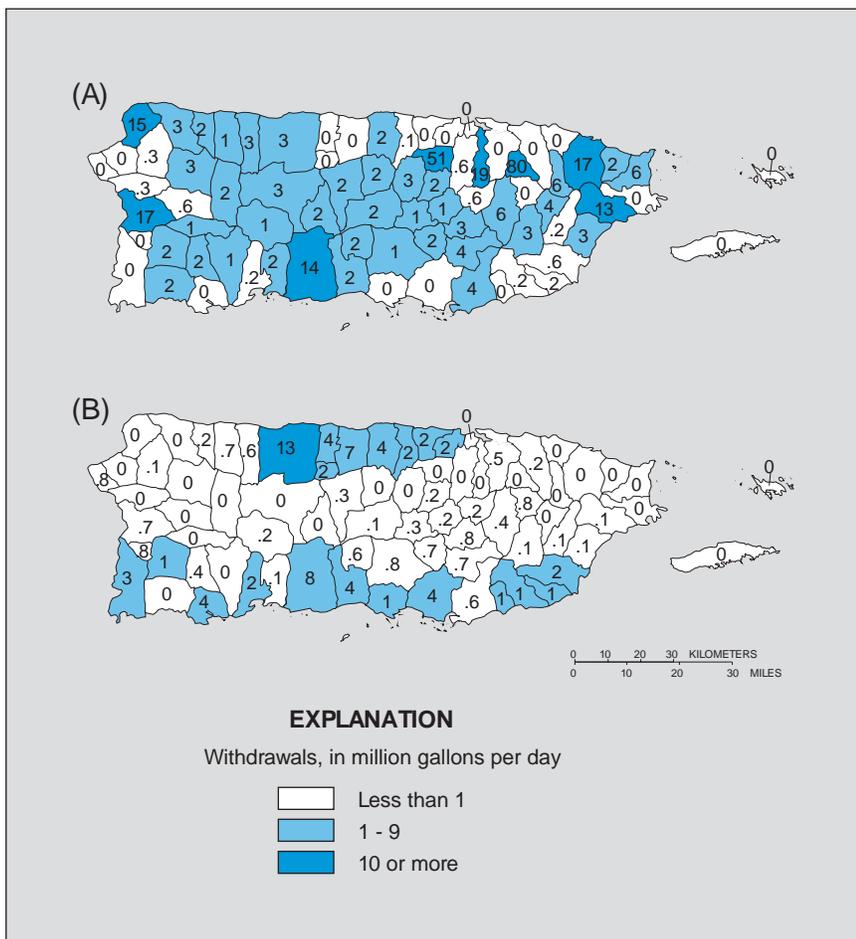


Figure 2. Public-water supply withdrawals by (A) surface-water sources and (B) ground-water sources during 1990.

3). Ninety-one percent of the housing units located in the municipio of Isla de Culebra, 82 percent in Quebradillas, and 80 percent in Las Marias disposed of their domestic wastewater mostly through septic tanks during 1990 (fig. 4).

In 1990, the three municipios with the highest density of septic tank systems were Trujillo Alto (330 systems per square mile), Aguada (279 systems per square mile), and Aguadilla (278 systems per square mile; U.S. Department of Commerce, 1991). The average density of septic tank systems for Puerto Rico is about 139 systems per square mile.

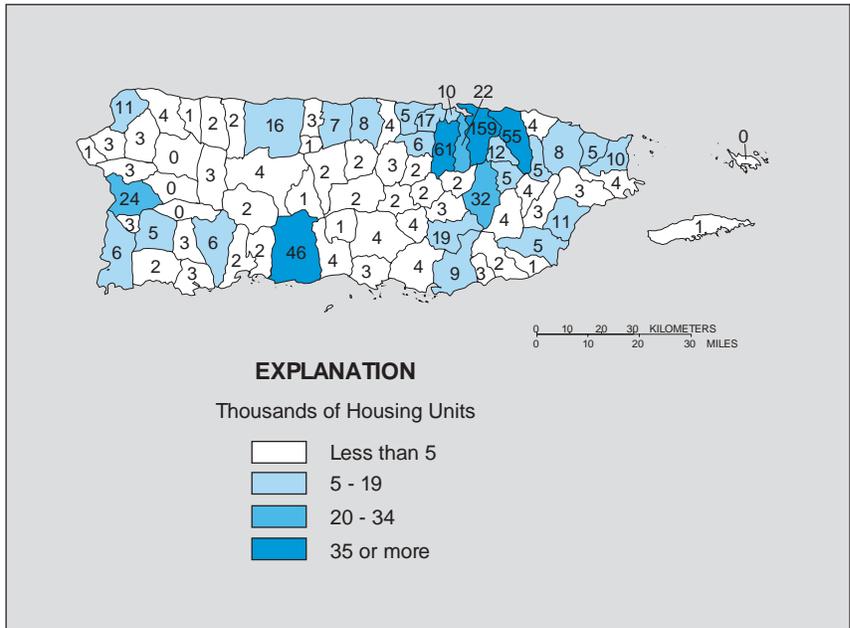


Figure 3. Housing units connected to public wastewater treatment facilities in 1990.

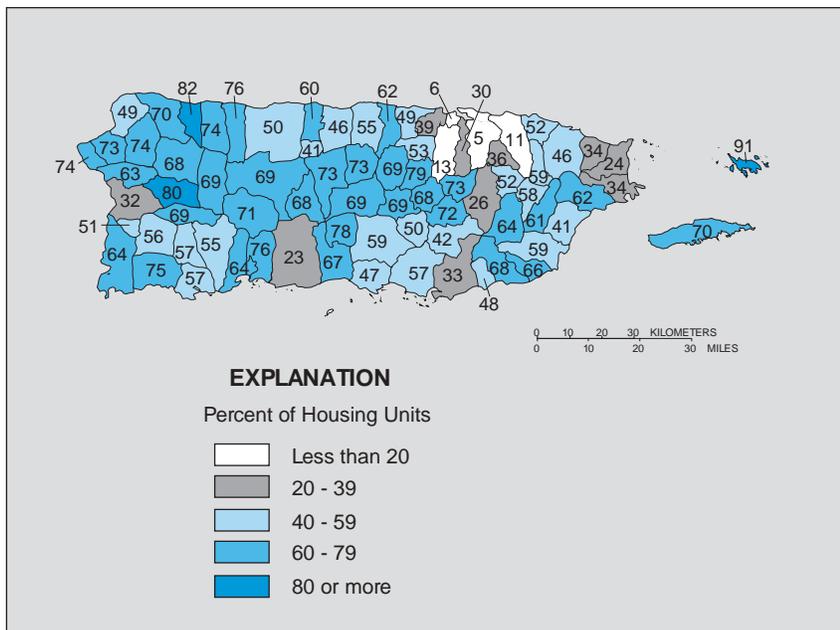


Figure 4. Percentage of housing units disposing of their domestic wastewater mostly through septic tanks during 1990.

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