

# Partnerships empower hydrology program at Big Cypress

Hydrologic technician Paul Murphy (right), former hydrologic technician (current management assistant) Christine Clark (center), and helicopter pilot Bill Evans (left) visit a hydrologic and water quality monitoring station that is part of the National Park Service–South Florida Water Management District partnership.

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# Science Notes

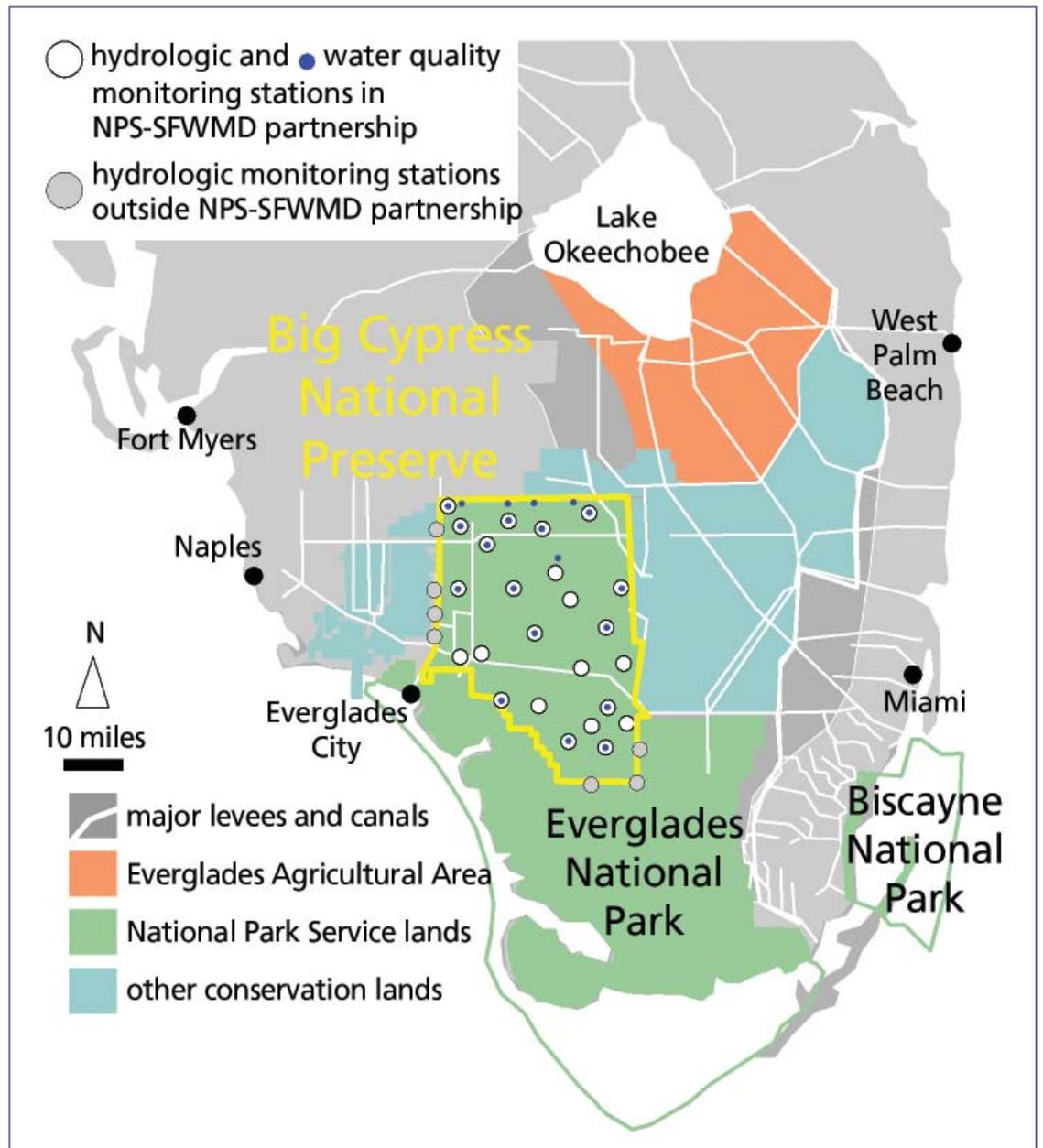


Figure 1. A network of hydrologic and water quality monitoring stations (white, blue-and-white, and gray dots) covers Big Cypress National Preserve in south Florida. Data collected at these stations are significant for understanding the greater Everglades ecosystem, which includes nearby Everglades and Biscayne national parks. The headquarters of the South Florida Water Management District, an important partner for the National Park Service in south Florida, is located in West Palm Beach.

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**MILESTONES OFFER IMPORTANT** moments to pause. Serendipitously coinciding with the 20th anniversary of the hydrology program at Big Cypress National Preserve (Florida), the relatively recent dedication of the new resource management laboratory was both a celebration of things achieved and a reflection on the parade of people and events that brought the program to its present state. When the preserve was established in 1974, Everglades National Park staff started collecting hydrologic data at a handful of sites in the new preserve. However, by the mid-1980s, funding shortfalls and complicated

logistics forced staff at Everglades to give up these duties. Recognizing hydrology as a centerpiece of the preserve's stewardship mission, preserve staff embarked on this daunting task in 1988.

The preserve's 729,000 acres (295,017 ha) are widely regarded as part of the greater Everglades ecosystem yet are distinct from the vast saw grass plain of Everglades National Park (see fig. 1). More an interwoven mosaic of shallower, less frequently flooded wetlands, Big Cypress National Preserve is best known for its prominent display of cypress domes

and strands. At their highest points, cypresses transition into orchid-hiding swamp forests and at their fringes recede into herbaceous marl prairies, which in turn rise into fire-swept pinelands and scattered upland islands of hardwood hammocks—all of which are home to the endangered Florida panther.

As an “aquatic park,” Big Cypress is a major piece in the south Florida water puzzle. Its wetland waterways are intimately connected on all sides with natural and human-managed flow systems, which are subject to substantial replumbing efforts as a result of ongoing restoration projects in the Everglades, including the \$10 billion Comprehensive Everglades Restoration Plan. With this in mind, the National Park Service gradually developed a hydrology staff at Big Cypress—hiring a seasonal hydrologist in the late 1980s, converting this position to permanent status in 1992, and adding a hydrologic technician in 1995—and embarked on developing partnerships that would become an essential ingredient in the long-term success of the hydrology program. This spirit of partnership was first ignited in 1995 with the NPS Water Resources Division (WRD) in Lakewood, Colorado, while creating the preserve’s water resources management plan. The plan provided the nascent program with a navigational chart of the complex array of aquatic issues that lay ahead.

During the planning process, WRD and park staffs identified a significant stakeholder as the South Florida Water Management District, the primary water agency for south Florida, headquartered in West Palm Beach. The foresight to partner with the district not only paid immediate dividends—such as systemic survey of the network to a common datum (i.e., mean sea level), replacement of old-style pen-and-ink chart recorders with digital loggers, and analytical water quality testing from the district’s certified lab—but also became the foundation of the preserve’s long-term hydrologic and water quality baseline monitoring program. Subsequent renewals to the partnership have resulted in expansion of the network of monitoring stations, and expanded use of the district’s robust databases for long-term data storage and retrieval, on-call technical support from district staff, and the recent addition of real-time telemetric data transmission. In exchange the preserve has dedicated its full-time hydrologic

technician and helicopter transport to the agreement (see photo, page 23).

Floridians have marveled for decades at the technologic wizardry of spaceflights launched at nearby Cape Canaveral. But many also remember a day when the vast stretches of the seemingly impenetrable and unending Everglades and Big Cypress ecosystems appeared as mysterious as unknown universes. An interesting connection and outcome of the space program was the ability to see these landscapes more clearly from space than from the ground. This new perspective helped staff of the preserve envision a hydrologic network that now includes 20 monitoring stations, 10 rain gauges, 16 water quality stations (sampled six times per year), and four pesticide sampling stations (sampled twice per year) (see map). With the historical clock ticking on 15 years, not only does this network record the history of watersheds and flow ways, but telemetry now brings its pulse to researchers’ fingertips.

The human chain that links its partnerships is as significant as technology to the hydrology program at Big Cypress National Preserve. Behind the scenes of successful partnerships are people who collaborate across agency lines, with joint institutional efforts evolving and growing to remain relevant with the passage of time. This collaborative spirit has been a key ingredient in to the preserve’s hydrology success story—in its infancy, presently, and one hopes for decades to come.

—**Robert V. Sobczak** (*robert\_sobczak@nps.gov*), Hydrologist; and **Ronald E. Clark** (*ron\_clark@nps.gov*), Chief of Resource Management—both at Big Cypress National Preserve, Florida; and **Don P. Weeks** (*don\_weeks@nps.gov*), Hydrologist, NPS Water Resources Division, Lakewood, Colorado.