BJWSA Great Swamp Effluent Management System

How It All Began

In southern Jasper County, BJWSA's Cherry Point Water Reclamation Facility (WRF) recycles cleansed water (reclaimed effluent) by using it for irrigation on local golf courses. However, golf courses do not always need effluent for irrigation. Additionally, state permits strictly limit the amount of reclaimed effluent that can be applied to land. With the rapid increase in population—more people means further land development, higher water use, and more water being recycled—BJWSA needed other options for recycling reclaimed effluent from the Cherry Point facility.

The challenge led BJWSA to an innovative management solution. Rather than building a long pipeline to a river, BJWSA developed the Great Swamp Effluent Management System (EMS), which combines an effective way to recycle water with environmental protection of natural forested wetlands.

In 1993-94 and again in 1998, BJWSA conducted water quality and biological baseline studies in the Great Swamp. BJWSA purchased the site for the Great Swamp EMS from Union Camp Corporation and completed construction of the system in November 1998, with operations starting in January 1999. BJWSA now recycles effluent from the Cherry Point WRF to the Great Swamp.

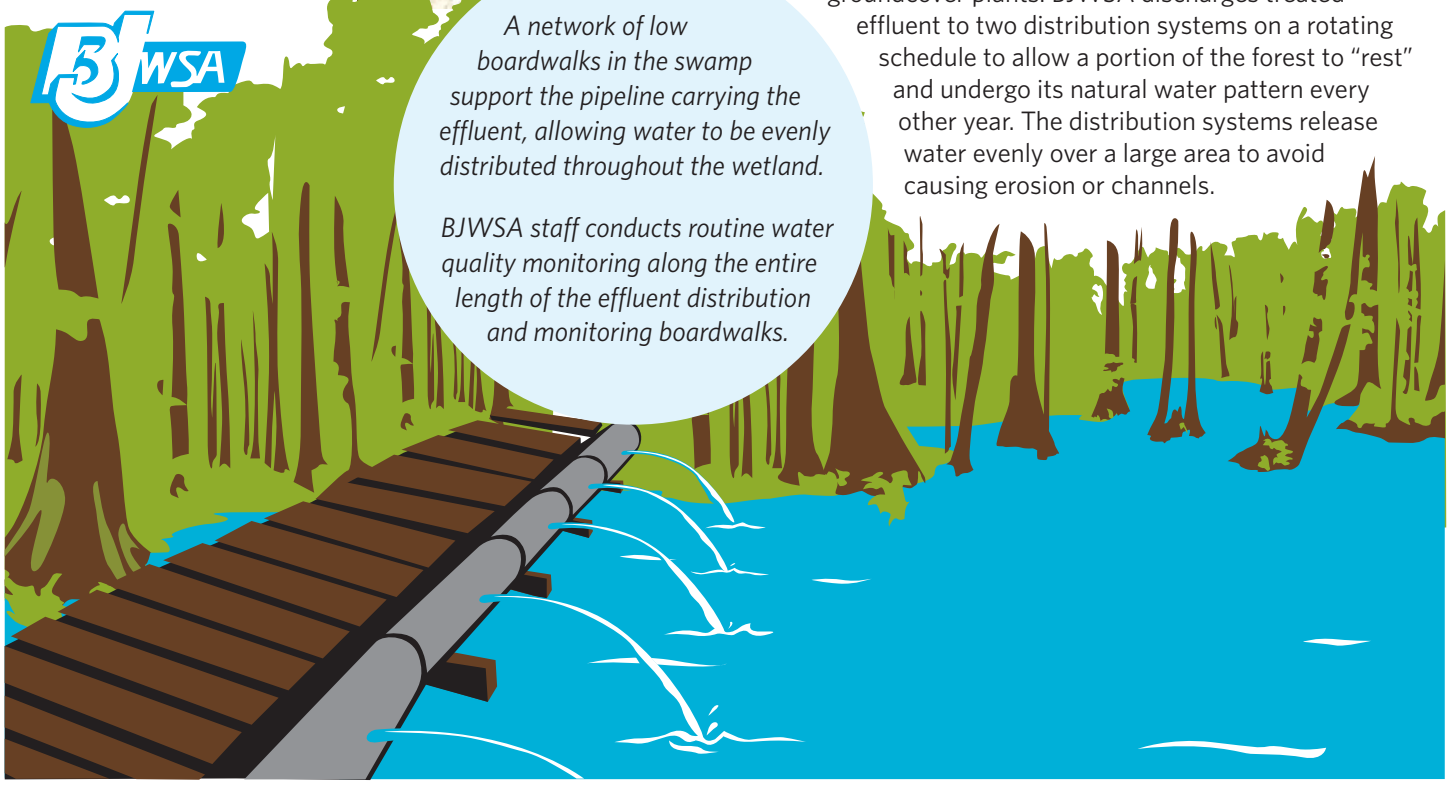
A Wise Use of an Environmental Resource

The Great Swamp EMS is a natural wetland system that can safely be used to recycle reclaimed effluent year-round. Located on 500 acres of tributary swamp on the New River's east side, the site includes a mixed hardwood forest dominated by tupelo gum, red maple, black gum, bald cypress and ash trees. Not only does this plant community thrive in flooded areas, but it can naturally absorb reclaimed water without being harmed and the area can take in water even during rainy periods.

Protecting Water Quality, Plants and Wildlife

BJWSA monitors water quality, plants and aquatic life—including threatened and endangered species—in the Great Swamp EMS to ensure conservation of wetland habitat while recycling reclaimed water. The system has met or surpassed all the SC Department of Health and Environmental Control (DHEC) biological standards under permit regulations. BJWSA performs additional monitoring and sampling beyond the regulatory requirements. As a result, there have been no adverse effects to the ecosystem from receiving Cherry Point WRF's reclaimed water—the Great Swamp EMS area is thriving.

The natural forested wetlands are the main structure of the Great Swamp EMS. BJWSA developed the necessary man-made components with minimal impact to the swamp. Low boardwalks were constructed by hand and designed to avoid the existing trees. The boardwalks serve as the support structure for all pipelines carrying the effluent into the swamp. They also provide accessibility to the sampling stations with minimal disturbance to the swamp soils and groundcover plants. BJWSA discharges treated effluent to two distribution systems on a rotating schedule to allow a portion of the forest to "rest" and undergo its natural water pattern every other year. The distribution systems release water evenly over a large area to avoid causing erosion or channels.



A network of low boardwalks in the swamp support the pipeline carrying the effluent, allowing water to be evenly distributed throughout the wetland.

BJWSA staff conducts routine water quality monitoring along the entire length of the effluent distribution and monitoring boardwalks.