

IV. Accomplishments



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Since the Reserve's official designation in 1993, it has undergone some remarkable changes. It has evolved from a fledgling program, searching for its place, to become a leader in coastal research and education within the state of Delaware. The original DNERR Management Plan was published in 1993 as part of the requirements set forth for site designation. The plan was very detailed and allowed for little flexibility to meet the needs of the growing program; therefore, several of its goals were not met. This is not meant to imply that the DNERR program has not been successful in its mission. Its original goals and objectives are still applicable to the Reserve and have guided operations, research, and education for the last 11 years. Additionally, the current operation very accurately reflects recognized needs and priorities.

A. Organizational Realignment

At its inception, the DNERR was managed by three Divisions within the Delaware Department of Natural Resources and Environmental Control (DNREC): the Division of Soil and Water Conservation, the Division of Parks and Recreation, and the Division of Fish and Wildlife (DFW). Each party brought vital skills and coordination needed for Reserve designation; however, after designation it soon became apparent that co-management by three separate entities was not the most efficient use of State resources. Differences of philosophy, management style, and vision for the Reserve's role soon necessitated a consolidation of authority under one division. In 1995, the Division of Soil and Water Conservation became administratively responsible for the Reserve. This was the logical choice because the Division houses the Delaware Coastal Programs (DCP) within which the DNERR Program is located. This reorganization was a major step forward for the DNERR, fulfilling its responsibilities, and fostering a partnership that has given the research and education programs statewide influence. It has also increased the mutual benefits received from closely sharing resources for coastal and estuarine management.

The DNERR works in conjunction with the Delaware Coastal Management Program (DCMP), also located within the DCP. This cooperation is one of several shining achievements of the DNERR. By supporting each other, both programs reach large audiences and have a greater impact on the health of Delaware's coastal zone. As both programs were mandated through the CZMA (as amended), it is a logical partnership. The DNERR has taken the CZMA directive to heart and is able to provide timely research and educational programs on a statewide basis that deal with real issues facing decision-makers. Apart from specific System-wide initiatives, both programs are working toward the same overall goal: the protection and improvement of the coastal zone through sound research, education, and science based management.

With the organizational realignment, it was necessary to also realign the original staff plan. Significantly fewer staff members are currently employed by the Reserve, or even dedicated to Reserve tasks, than were planned in 1993. Staffing continues to be an issue, as funding and successful justification of positions is a difficult task at the State level.

B. Development of Sites and Facilities

1. St. Jones Center

The DNERR is working to become the focal point for estuarine research in the State. The usefulness of the St. Jones Center goes even further. The Center is a neutral meeting ground for many environmental groups to exchange points of view on issues facing Delaware's environment.

Facilitating dialogue is necessary to achieve positive results. Reserve staff strive to foster an atmosphere where management and academic interests come together to promote science based management targeted at coastal decision-makers and the environmental community at large.

The St. Jones Center and research facility was opened in May 1999 at the St. Jones Reserve component. It was the culmination of years of hard work and planning. The existing facility is drastically different from the original proposal. Prior to the Reserve's designation and any construction, the future visitors/research center was envisioned as housing multiple DNREC divisions and a significant number of state employees. It was redesigned after the original management plan was published, as a result of construction funding limitations, the management consolidation and the placement of several Divisions' priorities in other areas.

All DNERR staff offices, laboratory, and education facilities are located within the present Center. The facility was constructed with as many environmentally friendly features as possible, which include: geothermal heating system, ceiling fans in all offices, long-lasting concrete-based siding, a recycled concrete entrance lane, and a tertiary septic treatment system. All of these features are highlighted to visitors through interpretive panels and formal programs.

2. Trail/Boardwalk

A one mile trail along the edge of the marsh at the St. Jones Reserve component was constructed in 1993. The first quarter-mile of this trail is a raised boardwalk that has several learning stations. The trail and boardwalk have been popular attractions and regularly draw hikers, birdwatchers, naturalists, rare-plant enthusiasts, and various other groups.

3. Blackbird Creek Reserve Component

The Blackbird Creek Reserve component has seen relatively little development since the Reserve's designation. The underlying philosophy of the DNERR remains to keep this site as pristine as possible. Access gates have been installed, identification signs have been posted, and a maintenance trail is maintained. Reforestation efforts are underway in select areas.

As additional land is acquired in the coming years, an assessment and evaluation of the need for a facility may be necessary. Consideration will be given to minor facilities development if it is found to be needed, appropriate and possible to accomplish without impacts to the ecosystem.

C. Development of Educational Exhibits and Publications

A total of 18 educational exhibits have been designed and installed at the St. Jones Reserve component, which has expanded the utility of the St. Jones Center and contributed to Reserve outreach in general. Because Reserve staff are often not available to guide visitors through the Center or along the trail, visitors are able to learn about estuarine ecology and Reserve operations through self-guided exhibits. These on-site exhibits are also used during school programs to facilitate the description of complex estuarine ecology and Reserve research. In addition, the Reserve has two traveling exhibits that can be taken by staff to various public outreach events such as Coast Day, the Water Festival, and the Delaware State Fair.

On a quarterly basis, the Reserve newsletter ("The Skimmer") and Public Programs Brochure are published. Since designation, the mailing list for these publications has grown steadily. The mailing list currently contains over 500 names and continually expands. Upon request, individuals' addresses are

added to the mailing list at public event sign-ups, through calls to the Reserve, and through advertisements in local newspapers. The newsletter highlights Reserve events, current research projects, and current environmental issues in the State. The brochure gives a detailed listing of public events for which the general public may register.

D. Expansion of Education Program

The Education program has met with remarkable success:

- Age-appropriate core curricula correlated to state of Delaware teaching standards in Math, Science, Social Studies, and Language Arts have been completed and implemented.
- Programming for elementary, secondary, and post-secondary participants has been established. Programs include on-site field trips, off-site field trips, and classroom outreach presentations.
- The Reserve currently hosts over 5,000 school children per year.
- Poorly served schools in northern Delaware are being reached through in-classroom programs.
- The Education Coordinator has served on the steering committee for a Tri-State Horseshoe Crab/Shorebird Education Program entitled “Green Eggs and Sand” since its inception in 2000. To date, the program has served over 300 educators in eight states.
- Reserve education staff also serve on steering committees for the Delaware Water Festival and the Delaware Envirothon.
- The Reserve participates annually in events including Coast Day and the Water Festival, each of which draws over 2,000 participants.

E. Research and Monitoring Program

A wide variety of coastal issues are being addressed by research and monitoring activities performed at the Reserve or through Reserve partnerships. Following are some of the accomplishments of the program.

- A network of datasondes and weather stations has been established in the Reserve components and their surrounding watersheds. This includes: four datasonde locations for SWMP plus two auxiliary sites to monitor development effects on the Blackbird Creek site; one diel and four grab-sample monitoring sites to measure nutrients and Chl-A; two SWMP weather stations, one at each of the components; and four auxiliary weather stations to monitor site-specific parameters to supplement Reserve research projects. The St. Jones and Blackbird site’s weather stations offer near real-time web display of the data.



Figure IV-1. SWMP Weatherstation.

- Data from these deployments has been used by other State and Federal agencies and their subcontractors to refine and validate water quality models for Total Maximum Daily Load (TMDL) implementation, wave generation models for beach erosion and habitat conditions, and estimated nutrient and pesticide loadings from atmospheric deposition.
- The DNERR staff's experience and knowledge of atmospheric deposition issues facilitated the selection of the DNERR in a regional project with the U.S. Department of Agriculture (USDA), the University of Maryland (UM), and the University of Delaware (UD) for research involving the atmospheric deposition of pesticides.
- The DNERR's successful history of monitoring stormwater runoff and nonpoint source loads has driven requests by the DNREC's Sediment and Stormwater Program, Nonpoint Source Pollution Program and Delaware Department of Transportation to request the DNERR's services in monitoring and evaluating new and innovative measures to protect the State's water supplies.
- In collaboration with the British Trust for Ornithology, the DNERR has become the eastern-U.S. base of operations for an international team of ornithologists studying migrating shorebirds. These studies, conducted during the month of May, estimate migratory shorebird populations, determine weight gain during their stopover in the Delaware Bay, correlate weather data to bird concentrations, and determine characteristics of preferred beaches. The DNERR handles all logistics and volunteer coordination, and supplies housing and data-analysis support for the team.
- In conjunction with the shorebird studies is research into horseshoe crabs, whose eggs are the primary food source of the birds. To fully understand spawning and movement of the horseshoe crab, the DNERR has brought together a team of scientists to study the biological and geophysical properties that affect the crab. The scientific team includes researchers from the DNREC, U.S. Geological Survey (USGS), and the UD College of Agriculture and Natural Sciences, College of Marine Studies (CMS), and Department of Geology. Results from this work will be used in development of regulations for beach replenishment, dredging operations, horseshoe crab harvesting, and habitat management.
- Through its growing partnership with Delaware State University (DSU), the DNERR was selected as one of five regional sites for a major NOAA-funded grant to develop an Environmental Cooperative Science Center (ECSC) for minority-serving universities. These centers will develop conceptual ecological models for their regions based on current data and develop future cooperative research to monitor indicator indices.
- The DNERR and its staff were major contributors in developing environmental indicators as required by the Delaware Coastal Zone Act of 1974. Through the development and implementation of these indicators, the Act was finally promulgated after 25 years (see Appendix H-2).

In particular, the DNERR has established a complementary working relationship with the DCMP to conduct special targeted projects that address current high-priority issues or concerns affecting the State's coastal resources.

- The Reserve’s research into water quality in residential dead-end canals contributed to the DNREC’s support of, and the passage of, legislation to develop tax-based maintenance organizations to improve the environmental quality of these canals.
- The DNERR has regularly partnered with UD to conduct water quality research in Delaware’s inland bays and to investigate the historic geomorphology of the St. Jones River.

F. Establishment of Partnerships

Partnerships are actively sought in the hopes of reaching the largest audience possible for the Reserve’s research, education, and outreach efforts. To date, the DNERR Research and Monitoring Program has collaborated with a variety of organizations. The Reserve has been recognized as a high-quality site for estuarine research that can provide expert knowledge, logistical support, equipment, and a forum location for local, national, and international researchers. These researchers represent various institutions and organizations including: the University of Delaware, the University of Maryland, Delaware State University, USDA, USGS, NOAA, the U.S. Fish and Wildlife Service (USFWS), DCOMP, The Nature Conservancy (TNC), The Nature Society, The British Trust for Ornithology, the Wash Wader Ringing Group, and others.

The Education, Interpretation, and Outreach Program has also supported or conducted joint programs with environmental education entities throughout the State. These include but are not limited to: the Delaware Nature Society (DNS), Delaware Estuary Program (DELEP), Delaware Native Plant Society, UD, TNC, USDA, USFWS, and local public and private education institutions. Specifically, the Reserve has:

- Partnered with Aquatic Resources Education Programs in Delaware, Maryland, and New Jersey to develop educational materials about fisheries management.
- Conducted Coastal Decision-Maker Workshops, in conjunction with UD’s Cooperative Extension Service, regarding conservation cost-share programs.
- Assisted with planning, development, and implementation of environmental events throughout the State.

G. Section 312 Evaluation

Every three years the DNERR participates in a section 312 review. This review is conducted by NOAA and ensures that the DNERR is following the stated objectives in its management plan as well as the action plan developed for each annual operations award. The 312 review is intended to support the reserve by identifying areas where progress has been accomplished as well as offering suggestions for areas that require more attention. A typical review team is composed of NOAA staff, a staff member from another reserve and an Estuarine Reserves Division program specialist. The process involves the 312 team reviewing the current management plan and list of objectives stated in the annual operations awards. The team visits the reserve for approximately four days where it interviews staff, the public, volunteers and other professionals who have a relationship with the DNERR. All participants are asked to review progress and discuss success’es and barriers. Upon completion of the interviews the team compiles a document that records successes, recommended actions and necessary actions. The reserve then addresses each issue over the course of the next three years.

In August of 2002, the DNERR underwent scheduled Section 312 reviews. The period evaluated was June 1999 through July 2002. The review was conducted at the same time as the Delaware Coastal Management Program. Copies of all 312 evaluations are available at the St. Jones Center. Contact the Reserve Manager to request information.

