NATURAL RESOURCES RESTORATION PLAN FOR DAMAGES ASSOCIATED WITH THE PRESIDENTE RIVERA OIL SPILL OF JUNE 1989

Office of Natural Resource Damages
New Jersey Department of Environmental Protection

August 1996

BACKGROUND

On 24 June 1989, the Uruguayan oil tanker M/V Presidente Rivera ran aground near Marcus Hook, Pennsylvania, spilling approximately 200-255,000 gallons of No. 6 fuel oil into the Delaware River. The oil spill resulted in injury to natural resources held in public trust by both federal and state governments (New Jersey and Delaware). The United States filed a claim under Section 311(f) of the Clean Water Act for natural resource damages and for recovery of costs of removal of the oil on behalf of the federal natural resource trustees, the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Department of the Interior (DOI). The state trustees, New Jersey and Delaware, also asserted claims for natural resource damages, removal costs, and penalties under the Clean Water Act and applicable state laws. Uruguay previously paid approximately \$1.3 million to settle certain claims for removal costs and penalties with the United States, New Jersey, Delaware, Pennsylvania, and the city of Wilmington arising from the Presidente Rivera spill.

On 14 July 1993, the United States (through NOAA and DOI), the State of New Jersey, the State of Delaware and the Oriental Republic of Uruguay entered a Consent Decree with the United States District Court for the District of Delaware. Under the Consent Decree, the parties agreed to settle the governments' remaining claims for \$2.65 million, plus interest that has accrued on that sum since Uruguay paid it into an escrow account pending finalization of the consent decree. The Consent Decree stipulated that \$2,140,972.00, plus interest accrued in the escrow account, be designated as "natural resource damage recovery". This natural resource damage recovery was equally divided between the States of New Jersey and Delaware to be used for restoration projects agreed upon by these states, NOAA, and DOI. As of 29 February 1996, the funds from New Jersey's natural resource damage recovery were \$1,157,633.61.

Summary of Natural Resource Injury

Natural resource injuries resulting from the oil spill included impact to blue crab and bird populations, and diminished recreational use and enjoyment of the Delaware River and shoreline in areas adjacent to the oil spill during the summer of 1989.

RESTORATION ALTERNATIVES EVALUATION

Alternatives for Restoration of Injured Resources

The consent decree states that the recovery shall be used for (i) restoration, rehabilitation, and replacement activities to adress injuries to natural resources impacted or affected by the spill; (ii) acquisition of fee title of, or conservation easements on, lands or property in the area of the spill and related ecosystems constituting natural resources equivalent to any affected by the spill; and (iii) performance of studies and projects necessary and appropriate to (i) and (ii) above. Such expenditures will be made in accordance with applicable State and/or Federal fiscal management and appropriation laws.

Appendix B of the Consent Decree is more explicit in directing the use of the damage recovery. It states that the State of New Jersey will utilize funds for acquisition and restoration in the area of Alloways Creek which comprises approximately 1,800 acres of degraded marsh, 700 acres of natural marsh, and 500 acres of upland buffer. In addition to acquisition and restoration projects, the consent decree also states that public access enhancement projects may be undertaken.

In addition to the direction provided by the Consent Decree, the National Oceanic and Atmospheric Administration's <u>Draft Final</u> Report: Restoration Guidance Document for Natural Resource Injury as a Result of Discharges of Oil (1995) was also used to provide guidance for selecting alternatives and options for potential restoration projects.

Restoration activities can be divided into several broad categories termed "alternatives." This plan recognizes five types of restoration alternatives:

<u>Natural Recovery</u> - A "no-action" alternative shall always be considered in order to determine and discuss the expected natural restoration that could occur in the absence of active restoration.

<u>Direct Restoration</u> narrowly defined means actions performed at the location of the injury to return injured resources, habitats, or services to pre-release conditions.

Rehabilitation also refers to actions performed at the injury site, which bring natural resources, habitats, or services to a state different from baseline conditions, but still beneficial to the environment and public.

Replacement refers to actions taken at sites other than that of the impact, or to substitute another resource or service for an injured one. The resources or services that are substituted should be comparable to those injured. Replacement can include non-biological (e.g., recreational, commercial, cultural) services. Pollution control, public access and education, pilot and baseline studies are also forms of replacement.

Acquisition of equivalent resources means the purchase or protection of resources that are the same, or substantially similar to injured resources, or enhance the injured resources or survices of such resources, in terms of ecological values, functions, or public uses.

Combinations of the above.

Restoration Options Criteria

The following factors are considered when selecting potential restoration options for impacted resources:

What are the degree and extent of injury to natural resources or services as determined by the damage assessment or other means?

What is the potential for natural recovery?

Is the restoration alternative linked to injured natural resources or services?

Is the restoration alternative technically feasible?

Is the restoration alternative based upon a successful proven techniques?

Will the restoration alternative result in a net environmental benefit?

What does the restoration alternative cost?

What is the amount of money available for restoration?

Are the interests, needs, and priorities of the public served with regard to the impacted habitat?

What potential impacts will a restoration alternative have upon people living in or using the affected areas?

SELECTED RESTORATION PROJECTS

Using the guidance provided by the Consent Decree and that found in NOAA (1995), the New Jersey Office of Natural Resource Damages has identified potential projects utilizing the Presidente Rivera oil spill damage recovery:

- 1) Acquisition of lands in the in the coastal areas of Salem and Cumberland Counties in the area of the Alloways Creek drainage;
- 2) Restoration of degraded marshes occurring on acquired property;

3) Restoration of an historic pier at Fort Mott State Park to improve access to, and enhance enjoyment of Delaware Estuary resources.

Land Acquisition and Restoration

Much of the marshland in Salem and Cumberland Counties was impounded and diked in historic times for agricultural purposes and has now been largely taken over by the invasive common reed (*Phragmites australis*). Thus, many marshes have lost much of their former capacity for waterfowl and fishery production. After acquiring these degraded systems, projects will be conducted to eliminate the *Phragmites* and help restore marshes to their former productivity.

The New Jersey Office of Natural Resource Damages (ONRD) proposes to establish enumberances in the amount of \$800,000 for land acquisition and marsh restoration work. The land acquisition projects will be handled by NJDEP's Green Acres Program. This program is staffed with a large group of appraisers, attorneys, planners, and other real estate professionals with considerable experience in appraising and negotiating land acquisitions. Marsh restoration will begin after the acquisition funds are exhausted in order to evaulate which areas would provide the most cost-effective restoration.

The Alloways Creek area (Figure 1) is located adjacent the northern boundary of Mad Horse Creek Wildlife Management Area and covers approximately 3.5 miles of shoreline that was affected by the *Presidente Rivera* oil spill.

Currently, ONRD is evaluating three acquisition/restoration projects in the Alloways Creek area, north of the Mad Horse Creek Wildlife Management Area: Mason Point, the Quasne property on Solters Creek, and The Trullender Property on Stowe Creek.

Mason Point - NJDEP's Division of Fish, Game & Wildlife has asked for

financial assistance in purchasing a 450 acre parcel presently owned by a Salem County meadow bank company. The site is isolated from tidal influence by a very old dike that is need of repair. Due to the condition of the dike and to general apathy on the part of the meadow bank company, water levels upstream of the dike have not been managed properly and the wetland and formerly impounded areas have been invaded by *Phragmites*. Mosquito breeding is also a major problem and the county has to spray the area frequently. Further detail regarding this project is presented in Appendix I.

ONRD proposes to allocate \$200,000 towards purchase of the parcel and repair of the dike. This money will be combined with funding from Ducks Unlimited and the NJ Waterfowl Stamp Fund. The feasibility of repairing the Mason Point dike and installing a fish passage device is currently being explored by NJ Fish, Game & Wildlife. If acquisition and dike repair can be accomplished for under \$400,000 then the \$200,000 from the Presidente Rivera settlement fund will be utilized. If the estimated project costs are greater than \$400,000 or the project is determined to be not feasible for other reasons, then the \$200,000 will revert to the general Presidente Rivera account and be used for other wetland acquisition and restoration projects. An MOU between NJONRD and the NJ Division of Fish, Game & Wildlife establishes the conditions under which these monies will be used (Appendix II).

Trullender Property - The Trullender Family owns approximately 350 acres, some of which borders Stowe Creek in Stowe Creek Township, Cumberland County. Appraisals have been ordered for this property so the approximate area of wetland acreage has not yet been determined. However, a review of areal photography indicates that greater than half of the property is upland in cultivation. According to Fish, Game and Wildlife personnel, a portion of the property is used as a nesting site by a pair of bald eagles. According to Green Acres Program, the Trullenders are willing sellers. However, given the large area of developable upland and road frontage, it is likely that a fair market value of this property will be close to \$1 million.

A portion of the *Presidente Rivera* settlement funds could be combined with other State funds and used for the purchase of this property. Some of the *Presidente Rivera* funds could also be set aside for wetland restoration on the property, but the areas suitable for wetland restoration are small and greater potential for restoration exists at other sites discussed in this plan. It is important to note that the Trullender property is likely to be developed in the future if it is not protected. ONRD proposes to contribute \$100,000.00 toward the purchase of this property.

Ouashne Property - Located in Lower Alloways Creek Township, this property consists of approximately 181 acres. According to Green Acres Program personnel, a large portion of the tract is state-owned riparian land. Therefore, the appraised value of the land only includes approximately 80 acres of non-riparian land, with the remaining 100 acres of land under tidal influence and dominated by Spartina alterniflora. The property is basically level, having approximately 1175 feet of frontage on the northern side of Alloways Creek Neck Road. The non-riparian portion of the property is divided into two designated land use zones. The frontage is RA-Residential Agriculture and the rear is FP-Flood Plain, which contain approximately 20 acres of Phragmites -dominated wetlands. Two appraisers have examined the property for the Green Acres Program and have concluded that highest and best use of the parcel would be future residential development. A fair purchase price for the parcel, based upon the two appraisal reports, is estimated to be approximately \$100,000. Similar to the situation at the Trullender property, the Quashne property will probably be developed in the near future if it is not protected.

The Quashne property is very amenable to wetland restoration work. Conversion of the Phragmites-dominated area to Spartina marsh could be accomplished by relatively minor earth-moving, as the area is cut off from tidal influence by a low dike. Access to the area with heavy equipment will not be difficult due to an existing road and approximately 80 acres of open field. A rigorous monitoring program will be established for the salt marsh restoration conducted at this site. ONRD proposes using at least \$400,000.00 for salt marsh

restoration at this site.

Fort Mott State Park Public Access Project

This project involves increasing and enhancing public access to river resources through the restoration of the Fort Mott Pier. Fort Mott State Park was heavily impacted by *Presidnte Rivera* spill, and overall, the governments' damage assessment was largely based on the impact to the public's use of river resources (e.g., lost boating and fishing days due to river closure and impacts to shoreline use). Restoration of this historically significant pier will increase recreational access (e.g., fishing, picknicing) and will enable the Pea Patch Island ferry to dock at Fort Mott, thereby opening access for New Jersey and Delaware visitors to Pea Patch Island, Fort Mott, and Delaware City. Fort Mott is also a node on the Coastal Heritage Trail and the pier was originally constructed in Civil War times.

The NJ Division of Parks and Forestry and the Delaware river and Bay Authority (DRBA) have tentatively agreed to a cooperative funding arangement for restoration of the pier and maintenence of ferry service (Appendix III). This arrangement stipulates that DRBA funds 50% of the total cost or \$400,000, whichever is greater of the actual cost. NJ Parks & Forestry will fund 50% of total cost or \$600,000, whichever is lesser of actual costs. NJONRD proposes to contribute \$300,000 of the Presidente Rivera settlement to NJ Parks & Forestry to use as part of their share of the restoration funding. Presidence Rivera funds can only be used for funding the pier restoration. If the pier restoration is accomplished with other funding sources or is not completed within the time frame stipulated in the MOU between NJONRD and the NJ Division of Parks & Forestry (Appendix IV), the monies will revert to the general Presidente Rivera account and be used for other public access projects or wetland acquisition and restoration.

This project is being coordinated with the New Jersey Division of Parks and Forestry. Details of the restoration and itemized costs are presented in Appendix III.

Estimated Allocation of the *Presidente Rivera* Natural Resource Damage Recovery for the Proposed Restoration Projects

Mason Point	\$200,000
Trullender Property	\$100,000
Qhashne Property Acquisition Wetland Restoration	\$100,000 \$400.000
Fort Mott	\$300,000

\$1,100,000

APPENDIX

MARSH PROJECT PROPOSAL

TIDEMARSH IMPOUNDMENT - SALEM RIVER WETLANDS CONSERVATION PROJECT

SUBMITTED BY:

New Jersey Division of Fish, Game and Wildlife

Tony Petrongolo, Planning Coordinator

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PROJECT DESCRIPTION:

PURPOSE:

To acquire a 450 acre <u>Phragmites</u>—dominated impoundment and restore it to a diverse, brackish system dominated by native submerged and emergent plant species through the refurbishment of the dike and water control structures, aerial herbicide application and appropriate water level management. This proposal is a part of the Salem River Project, a cooperative endeavor to protect and restore critical wetland habitat under the North American Wetlands Conservation Act. Ducks Unlimited, through the MARSH program, is a funding partner in the Salem River Project.

LOCATION: Elsinboro Township, Salem County, New Jersey Latitude 30° 30'N; Longitude 75° 30' W

OWNERSHIP: The property is currently owned by the Tidemarsh Inc., a hunting club. It will be purchased in fee by the State of New Jersey and operated as part of the state's Wildlife Management Area System administered by the Division of Fish, Game and Wildlife. Approximately 15 acres surrounding the club's hunting cabin may be retained by the current owners but will be covered by an easement restricting any further development.

LAND USE/ MANAGEMENT HISTORY:

The great majority of this tract is covered by the Tidemarsh impoundment located along the western edge of Salem County, New Jersey in the upper Delaware Estuary. This marshland, formerly flowed by the tides and dominated by salt marsh grasses, was first diked in the mid-1800's for agricultural production. Subsequent manipulation of the marsh resulted in the establishment of the exotic pest plant species Phragmites australis. This plant has taken over most of the formerly Spartina—dominated portions of the marsh, thereby decreasing its productivity and significantly reducing its habitat value for most species of wildlife.

Approximately 15 acres of this tract are covered by wooded upland edge. A one acre field within the upland is planted with wildlife food crops. A small hunting cabin is also located on this portion of the tract. The upland edge area will be retained by the current owners subject to a conservation easement.

NEED:

The attached paper summarizes the major wildlife benefits resulting from the restoration of <u>Phragmites</u>-dominated marshes.

The marshes being restored in this project lie within one of the nation's most important habitat areas for shorebirds and waterfowl, the Delaware Bay Estuary.

Each spring literally millions of shorebirds descend on the Delaware Bay to rest and re-fuel on their long migration from South America to the Arctic. Major portions of the global populations of four shorebird species stop here.

The Tidemarsh property also represents an excellent opportunity to improve critical habitat for waterfowl. These marshes are located within the Salem River Focus Area of the Atlantic Coast Joint Venture of the North American Waterfowl Management Plan. The black duck, in particular, will be benefited by this project. Thirty-four percent of the Atlantic Flyway black duck population winters in New Jersey. Improving black duck wintering habitat is a primary goal of the Atlantic Coast Joint Venture.

In addition to the black duck, migrating and wintering pintails (from the Mississippi Flyway), widgeon, gadwall, mallards, wood ducks, bluewinged teal, green-winged teal, hooded mergansers, buffleheads, goldeneyes, ruddy ducks, scaup, snow geese, Canada geese and tundra swans will utilize the restored marsh, some in large numbers.

Large numbers of wading birds; herons, egrets, rails and gallinules, are expected to take advantage of the increased habitat heterogeneity, particularly the open water areas.

In its current state, the Tidemarsh impoundment is of relatively little value to wildlife. Once restored, it will likely host its former abundance of waterfowl and shorebirds, and a great variety of other wildlife species as well.

This project will significantly reduce the amount of insecticide sprayed on this marsh by eliminating the habitat of <u>Culex salinarious and Aedes vexans</u>, mosquito species which are a particular problem on this site. This will eliminate the need for numerous sprayings of adulticide-type insecticides each year thereby benefiting wildlife and the ecosystem in general.

MANAGEMENT

PLANS:

The methodology utilized in this project will be to first draw the water in the impoundment down as much as possible once the dike and water control structures have been restored. The broad-spectrum herbicide "Rodeo" will then be aerially applied to the approximately 400 acre area dominated by Phragmites spp. in late August or early September at a rate of 4.7 1/ha. An endangered plant survey will be conducted prior to spraying to ensure that no state or federally listed plants would be impacted by the herbicide application. The water levels will remain drawn down all winter to enhance the effectiveness of the herbicide. At the beginning of the growing season, water levels will be allowed to rise on the marsh to a point where Phragmites spp. cannot germinate (18+"). This water level will then be manipulated to prevent the future reestablishment of pest plant species and to provide maximum wildlife habitat benefits.

Excellent opportunities for public wildlifeoriented recreation including hunting, fishing, birding and nature observation will be created by the project. The project area will be managed as a part of the Abbotts Meadow Wildlife Management Area.

MONITORING AND

EVALUATION: Division of Fish, Game and Wildlife land managers will monitor the effectiveness of the initial spraying and evaluate where and if follow-up spot spraying should occur. Land managers will manipulate water levels in the impoundment as needed to discourage the re-growth of Phragmites spp. and provide optimum habitat conditions for waterfowl, waterbirds and anadromous fish. Success in eliminating Phragmites spp. and establishing native marsh vegetation in the impoundment will be evaluated annually.

ACTIVITY SCHEDULE AND ESTIMATED COSTS:

SCHEDULE:

-	acquisition of Tidemarsh
-	property completed restore dike and water
-	control structures spray Phragmites spp. in impoundment
-	re-spray spot locations of Phragmites spp. re-growth if necessary
	-

BUDGET:

TOTAL

Appraisal	\$ 3,000
Land Acquisition	100,000
Permits/Project Mgmt.	2,000
Herbicide (Rodeo)	27,000
Application of Herbicide	4,000
Dike & Water Control	
Structure Restoration	250,000
Engineering	10,000
Sign	500
	\$396,500

FUNDING SOURCES:

DU MARSH 26,500
NAWCA (Salem River Project) 70,000
Presidente Rivera Oil

Spill Mitigation Fund 200,000 *

NJ Waterfowl Stamp Fund | 200,000 *

\$ 396,500

TERM OF

AGREEMENT: In Perpetuity

TOTAL

OTHER

Enclosures:

Location Map 1 - State of New Jersey
Location Map 2 - Tax map of Alloway Creek
portion of Salem River Project
Area.

Location Map 3 - Topographic map of Alloway Creek portion of Salem River Project Area.

NJDFGW Report entitled "Wildlife benefits of restoration of Phragmites-dominated marshes" NJDFGW Report entitled "Environmental Assessment of Rodeo for Marsh Restoration" Engineering Report by L.Irelan performed for Tidemarsh. Inc.

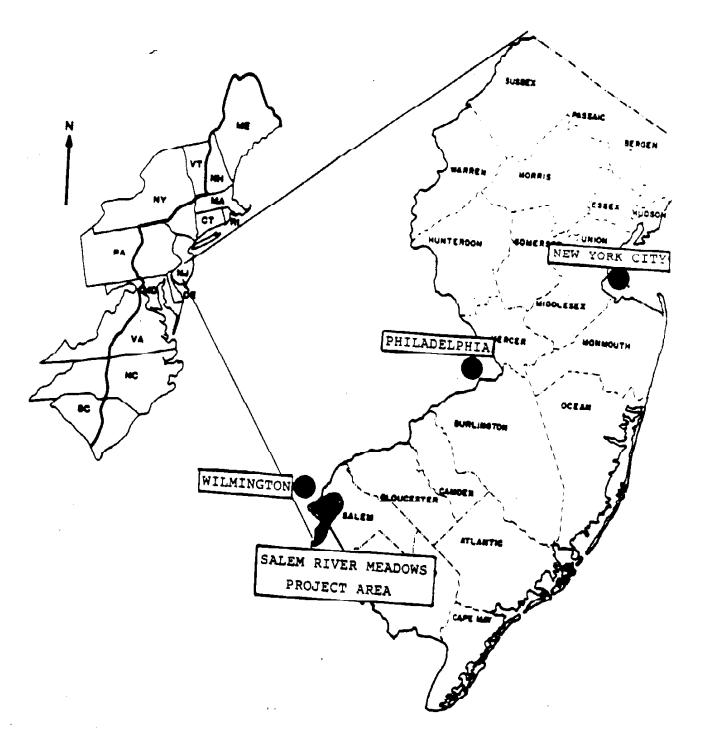
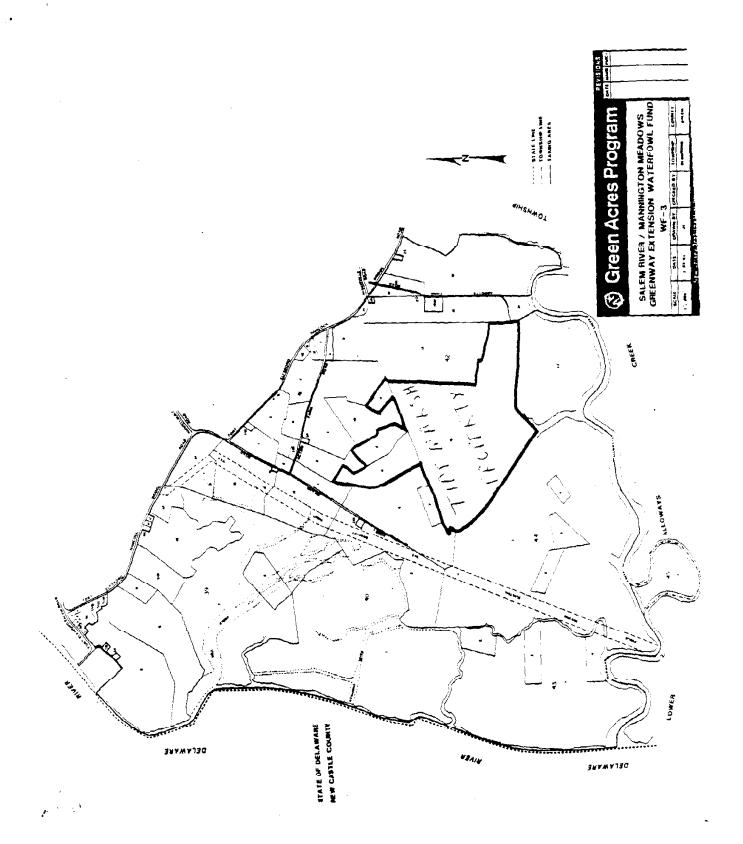
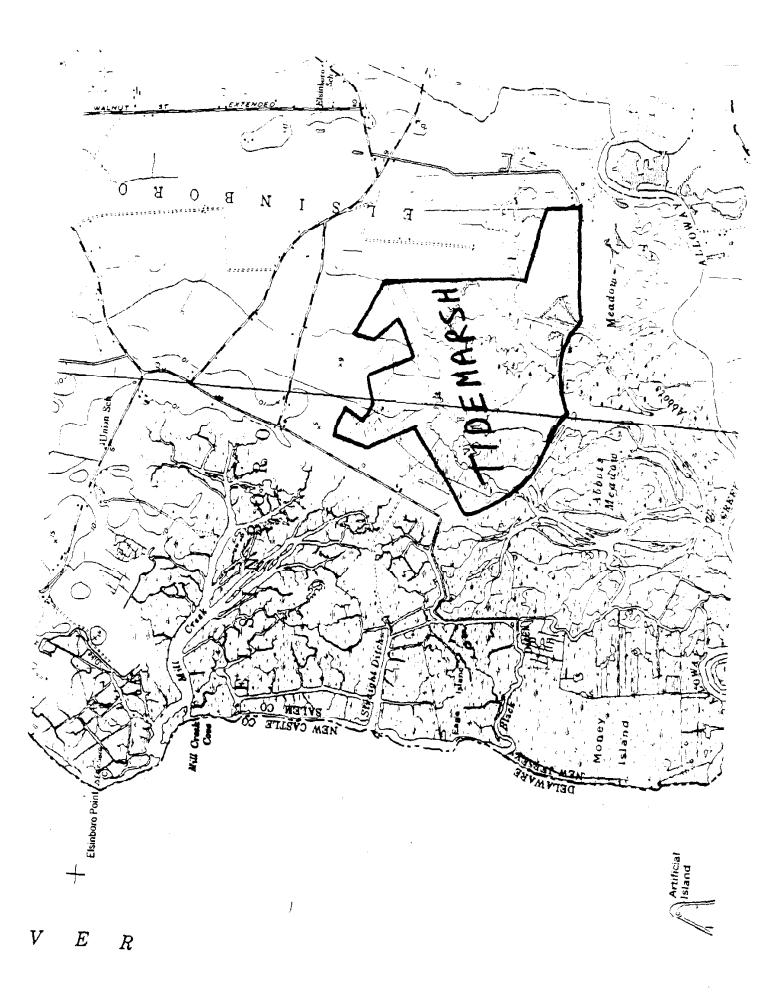


FIGURE 1: Location Map-Salem River Meadows Project Area within the Atlantic Coast Joint Venture.





WILDLIFE BENEFITS OF RESTORATION OF PHRAGMITES-DOMINATED MARSHES

Phragmites australis is an introduced emergent plant which has a tendency to dominate a wetland area once it becomes established. While thin or newly established stands (<30 feet in depth) provide good cover for wildlife, dense stands are seldom used by wildlife except along the edge (Ward 1942, Curran et.al. 1989).

Phragmites australis usually becomes established when a wetland has been disturbed or, in the case of a tidal marsh, the water table lowered and the soil dried as a result of diking (Rozsa 1983). Once this exotic has become established, its aggressive nature enables it to out-compete native vegetation.

Deer, pheasants, and some waterfowl occasionally utilize https://phragmites-dominated-areas-for-cover, however, its seeds and foliage are seldom utilized in feeding (Dirschl 1969, Gilmer et. al. 1973). Muskrats will use the rhizomes in feeding but seldom venture more than 30 feet into the stand (Widjeskog, pers. comm. 1991).

Bontje (1988) compared a restored marsh in Seacaucus, New Jersey to a <u>Phragmites</u>-dominated control site and found two times the bird species on the restored marsh and seven times the bird numbers. Benthic invertebrate diversity was two times greater on the restored marsh while benthic invertebrate numbers tripled.

Invertebrate production in a <u>Phragmites</u> marsh is limited to the edge and by the amount of water present. Studies that compared a <u>Spartina</u> marsh with a similar water regime <u>Phragmites</u> marsh, found a greater number of taxa (12) on the <u>Spartina</u> marsh as compared to the <u>Phragmites</u> marsh (4) (Kraus & Kraus, 1986).

Due to the height of its aerial shoots (6'-15') and the density of the vegetation few birds or mammals utilize the interior of <u>Phragmites</u> stands. The fish and wildlife benefits of the restoration of such stands to natural marsh communities are well documented (Buttery and Lambert 1965, Vogl 1973, Jones and Lehman 1986). This includes the improvement of habitat for waterfowl, waterbirds, raptors and furbearers by increasing: 1) desirable food plant abundance, 2) habitat heterogeneity and 3) open water space.

The growth of <u>Phragmites</u> results in the deposition of extensive root and stem mats which, over time, elevate the plant above normal water levels. This in turn reduces the invertebrate production and decreases the wildlife value of a <u>Phragmites</u>-dominated marsh (Smith, pers. comm. 1991).

As a result of the establishment of extensive stands of Phragmites (>30' deep), productivity and overall wildlife use of an area is significantly reduced. In situations where observation of wildlife is desirable, Phragmites growth screens wildlife from view and takes the place of native vegetation that would normally attract animals. In most situations, control of Phragmites is desirable. Following its elimination, most wetlands will revert to habitat types favored by a variety of native fish, wildlife and plants.

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Department of Environmental Protection Division of Fish, Game and Wildlife July 24, 1991