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Program

Coastal Zone Management

Maryland

MANAGEMENT PLANS FOR  
SIGNIFICANT PLANT AND WILDLIFE HABITAT AREAS OF  
MARYLAND'S WESTERN SHORE: ANNE ARUNDEL COUNTY

APPENDIX C TO  
FINAL REPORT

SUBMITTED TO:

Coastal Resources Division  
Tidewater Administration

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November 30, 1990

Preparation of this report was partially  
funded by the Office of Ocean and Coastal  
Resources Management, National Oceanic  
and Atmospheric Administration

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APPENDIX C

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## PROTECTION AREA SUMMARY

Protection Area Name: Fresh Pond

County: Anne Arundel

USGS Quad: Gibson Island

### SUMMARY OF ECOLOGICAL SIGNIFICANCE:

Fresh Pond Protection Area contains a large freshwater pond bordered by a Coastal Plain bog, a rare habitat type in Maryland. Coastal Plain bogs are open, acidic, nutrient-poor wetlands that support many rare plant species adapted to the unusual conditions of bogs. The bog at Fresh Pond is one of the largest and floristically most diverse of Maryland's bogs. Also known by the name "Angel's Bog," it has been considered botanically important by experts for more than 50 years. Several publications by the State of Maryland have documented the ecological significance of this area and have recommended protection for Fresh Pond. The bog is designated as a nontidal wetland of Special State Concern by the Department of Natural Resources.

At least seven rare plant species grow in the bog at Fresh Pond. Two of these species are listed as Threatened in Maryland, including one which is known from fewer than ten sites in the state. The Maryland populations occur at the southern edge of this species' range. Populations at the edge of a species' range are especially important to preserve because they often differ genetically from the rest of the species. The unique genetic makeup of outlying populations may help the species survive catastrophes such as disease outbreaks or climate changes due to global warming.

Six additional rare species have been reported from Fresh Pond in the past, and are still likely to occur at the site. Additional field studies will be required to confirm the presence of the these species.

### OTHER VALUES AND SIGNIFICANCE:

Many of Maryland's nontidal wetlands have been lost due to ditching and draining for development and agriculture. The wetland complex at Fresh Pond contributes to the maintenance of water quality in the lower Patapsco River and the Chesapeake Bay.

Many species of wildlife reside in this wetland and the surrounding mixed hardwood forest. The site is part of a larger forested tract and provides habitat for forest interior breeding birds such as the Scarlet Tanager. Other animal species identified at the site include the Northern Cricket Frog, Painted Turtle, Bullfrog, Purple Martin, Mallard, Great Blue Heron,

Kingfisher, Wood Thrush, Red-Bellied Woodpecker, Bobwhite Quail, and White-tailed Deer.

#### THREATS AND MANAGEMENT NEEDS:

##### Threats

The potential for increased development of the land surrounding Fresh Pond is an important threat to the long-term viability of the bog. Development too close to the pond would create impervious surfaces that would change water flow patterns and the amount of water entering the bog. If the bog dried out, its unique vegetation would be replaced by species more tolerant of dry conditions.

Increased development would also increase the likelihood of pollutants reaching the bog and pond. Some pollutants, such as herbicides, would damage or kill bog plants directly, and others would do so by changing the acidity or nutrient levels in the bog. If fertilizers or lime used to treat lawns were to reach the bog, increased nutrient levels and reduced acidity would allow vigorous growth of more common wetland plants that could outcompete bog species. If the forest surrounding the bog was lost, the site would lose its ability to filter pollutants before they reached the wetland.

In portions of the bog, tree species are beginning to encroach upon bog vegetation. Bogs are successional plant communities, maintained in natural situations by high water levels and occasional wildfires which set back growth of competing tree species during dry years. Water levels may be high enough in Angel's Bog to limit tree growth. If the growth of tree species in the bog continues to increase, its unique vegetation may eventually be replaced with a shrub swamp, through the process of natural succession.

The road south of the pond, MD 177, is scheduled for widening in the near future. Any loss of forested land between the road and the pond would be detrimental to the bog. Any sediment or pollutants entering the bog from construction activities would also harm the bog.

The bog's sphagnum mat and the rare species growing on it are fragile and are vulnerable to compaction and trampling.

##### Management Needs

The maintenance of an adequate forested buffer on the slopes around the pond is the best insurance against changes in the chemical composition of the bog and water flow into it. The forested buffer also reduces the likelihood of the introduction

and spread of non-native, weedy plants that can crowd out rarer bog species.

Currently, a good forested buffer exists on the east and west sides of the pond. Any construction or development east or west of the pond should be low-density development confined to the upper slopes, near existing roads. The buffer on the south side of the bog is narrow and should not be reduced in size. Road construction south of the bog should be closely monitored to insure that no vegetation is removed north of the existing road, and that sediment control measures are adequate to prevent deposition of sediment into the bog, even during storm events.

The north shore of the pond has been cleared for many years, originally by a pig farmer who owned the land on that shore. Fortunately, water flow patterns are such that this shore of the pond has the least impact on the bog. Recently, a low-density residential development has been constructed on the land of the old farm. The state requested that the developer plant a vegetated buffer on the cleared area adjacent to the pond on the north shore. This buffer had not been planted as of May, 1990. Appropriate species should be planted in this area to filter potential pollutants from the new development.

The water quality and vegetation of Fresh Pond should be monitored periodically to detect potential pollution, to monitor the size and health of the rare species populations, and to determine the impact of tree species encroaching on the bog vegetation. The condition of the earth and log dam which maintains the water level in the pond and bog should also be monitored. If the existing dam fails to adequately maintain water levels in the bog, repairs may be required. It is possible that manual removal of tree species encroaching into the bog may also be required in the future to ensure the perpetuation of the rare bog species.

The Homeowners Association for the community adjacent to the pond should be contacted about the unique and fragile nature of the bog and should be encouraged to enforce covenant restrictions on uses of the pond and access to the bog.

#### BOUNDARY RECOMMENDATIONS:

The protection area boundary includes the open-water pond and its headwaters, the bog on the edges of the pond, a narrow buffer on the north shore of the pond and the stream that drains the pond, and a wider forested buffer around the remaining shores of the pond and bog.

SITE DESCRIPTION SUMMARY:

The 88-acre Fresh Pond Protection Area contains a large, acidic freshwater pond surrounded on three sides by mixed pine and hardwood forested slopes 500 to 1000 ft. in width. Dominant tree species include mixed oaks and Pitch and Virginia Pine. A few of the trees are large and old. Greenbrier dominates much of the understory and American Holly is common. Shadbush trees flower in the understory in the spring. Within this forested area are several widely scattered single family homes.

Roads border the forest on the east and south sides of the site. North of the pond, an old pig farm has been converted into a new development of single family homes. The water level in the pond is maintained by an earth and log dam on the northwest. Pond water filters slowly through the dam into a tributary of Main Creek, which feeds the lower Patapsco River. Waters in the pond are reported to have flooded an older dam.

The pond is fed by streams from the east and southwest. On the east side the feeder stream widens to form a hardwood swamp dominated by Red Maple. The pond is bordered on the east, south, and part of the western shores by a Coastal Plain bog with a well-developed vegetation mat of sphagnum moss, heath shrubs, and associated bog species. The bog flora is very diverse, including species such as Twig-rush, Sweet Pepperbush, Silvery Sedge, White Beakrush, Large Cranberry, and several carnivorous plants such as bladderworts and sundews. In portions of the bog, young Red Maples mingle with heath shrubs.

Judith R. Modlin  
October, 1990

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