DRAFT

User Notes for National Wetlands Inventory Maps for New Jersey*

U.S. Fish and Wildlife Service
Region 5
Habitat Resources
Newton Corner, MA 02158

August 1983

*This report covers the following 1:100,000 mapping units: Scranton SE, SW; Hartford SW; New York NW; Newark NE, SE, NW, SW; Wilmington NE, SE, NW, SW; Salisbury NE.

Introduction

The U.S. Fish and Wildlife Service, Office of Habitat Resources, is conducting an inventory of the wetlands of the United States using conventional aerial photointerpretation techniques. All wetlands are classified according to the Service's new system - Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al., 1979). The National Wetlands Inventory (NWI) is establishing a wetland data base, in both map and computer forms for the entire country. The present emphasis is on map production and in the future, wetland data will be digitized to create an automated wetland data base, as funding becomes available. The NWI information will serve to identify the current status of U.S. wetlands and can be used as a reference point from which future changes in wetlands can be evaluated. Final wetland maps for New Jersey can be ordered from the New Jersey Department of Environmental Protection, Maps and Publications, Bureau of Collections and Licensing, CN-402, Trenton, NJ 08625 (609-292-2506). Other information, including a topical brief about the NWI program, can be obtained by contacting the Regional Wetland Coordinator, U.S. Fish and Wildlife Service, One Gateway Center, Newton Corner, MA 02158.

Subject Area

New Jersey is found on parts of the following 1:100,000 maps: Scranton SE, SW; Hartford SW; New York NW; Newark NE, SE, NW, SW; Wilmington NE, SE, SW, NW; Salisbury NE. It falls within the Southeastern Mixed Forest Province (South Jersey), the Eastern Deciduous Forest Province, and the Laurentian Mixed Forest Province (northwestern New Jersey) as defined by Bailey (1978). These provinces correspond with the Atlantic Coastal Plain, the Piedmont and the Ridge and Valley sections of the state.

Map Preparation

Two series of wetland maps were produced: (1) large-scale (1:24,000) series and (2) small-scale (1:100,000) series. The National Wetlands Inventory employs conventional aerial photointerpretation techniques, i.e. high-altitude photography, to map wetlands and deepwater habitats. Wetlands were identified on aerial photographs based on vegetation, visible hydrology, and geography in accordance with the Fish and Wildlife Service's wetland definition and classification system (Cowardin, et al., 1979). There is a margin of error inherent in the use of aerial photographs. Thus, a detailed on-the-ground survey may result in revision of the wetland boundaries. Maps should therefore be used to locate the presence of wetlands and not to identify precise boundaries between wetlands and uplands.

Outlined below are relevant data about the wetlands inventory for New Jersey.

Aerial Photography Used

Most of the photography used was 1:80,000 black and white panchromatic transparencies. The dates of the photography for each 1:100K mapping unit are outlined below. The specific photography used for a given area is listed on each large-scale NWI map.

1:100,000 Mapping Unit	Photography Data
Scranton SE	Spring 1972 (CIR 1:80,000)
Scranton SW	Spring 1972 (CIR 1:80,000)
Hartford SW	Spring 1972 (CIR 1:80,000)
New York SW	Spring 1972 (CIR 1:80,000)
Newark NE	Fall 1975; Spring 1976; Fall 1976 (1:80,000 B+W)
Newark NW	Spring 1972 (CIR 1:80,000); Fall 1975 (B+W 1:80,000)
Newark SE	Spring 1972 (CIR 1:80,000); Fall 1975, Spring 1976, Fall 1976, Spring 1977 (B+W 1:80,000)
Newark SW	Spring 1981 (CIR 1:60,000)
Wilmington NE	Fall 1975, Spring 1977 (B+W 1:80,000)
Wilmington NW	Spring 1972 (CIR 1:80,000); Fall 1975, Spring 1977 (B+W 1:80,000)
Wilmington SE	Spring 1977 (B+W 1:80,000)
Wilmington SW	Spring 1977 (B+W 1:80,000)
Salisbury NE	Spring 1977 (B+W 1:80,000)

Contractor for Photointerpretation

Martel Laboratories
Clearwater, Florida

Field Checking

Approximately six weeks of field work was performed from the spring of 1978 to the present.

Collateral Data Used

U.S. Geological Survey Topographic Maps
U.S.D.A. Soil Conservation Service Soil Surveys
State of New Jersey Submerged Vegetation and Coastal Wetland Maps (NJ DEP)
The Pine Barrens: Vegetation Geography (McCormick and Jones 1973)
Delaware River Estuarine Marsh Survey (Walton and Patrick 1973)

Minimum Mapping Unit

The minimum mapping unit is generally one to three acres, although wetlands less than one acre are commonly mapped.

Reviewers of Draft Maps

New Jersey Department of Environmental Protection
New Jersey Pinelands Commission
National Marine Fisheries Service
U.S.D.A. Soil Conservation Service
U.S. Army Corps of Engineers (New York and Philadelphia Districts)
U.S. Environmental Protection Agency (Region II)
U.S. Fish and Wildlife Service

Photointerpretation Problems

1. Delineation of estuarine and riverine (tidal) systems. For inventory purposes, the boundary between brackish tidal waters and fresh tidal waters needed to be established. To do this, the results of Zich (1977) were used. This study of anadromous fishes identified approximate limits of saltwater penetration and the head of tide (upstream limit of tidal influence) in New Jersey's coastal rivers.

2. Identification of submerged vegetation in coastal waters. It was not possible to identify submerged aquatic beds in coastal areas with the photography used for the inventory due to seasonality. The State of New Jersey has completed a detailed survey of these areas and has produced a set of submerged vegetation maps for the coast. This information was transferred directly to NWI maps to provide a more complete picture of New Jersey's wetlands.

3. Identification of forested wetlands in South Jersey. In South Jersey, the available aerial photography was unfortunately taken when leaves were on the trees. This made identification of forested wetlands particularly difficult. To resolve this problem, soil surveys and additional field investigations were used to help identify these wetlands. Results of recent field checking of NWI maps by Pineland Commission biologists have shown an overall good classification accuracy for these wetlands.

4. Identification of freshwater aquatic beds. Due to use of spring photography in many areas, aquatic beds in freshwater ponds and lakes were not identifiable. These wetlands were, therefore, grouped with the "open water" class. Maps, however, do show some aquatic beds where observed during field investigations.

Hydric Soils

The presence of undrained hydric soil is one of the three major criteria used to define wetlands (Cowardin et al., 1979). The U.S.D.A. Soil Conservation Service is preparing a list of hydric soils to accompany the Fish and Wildlife Service's wetland classification system. Table 1 is a draft list of hydric soils for New Jersey. For specific information regarding hydric soils in New Jersey, contact the State Soil Scientist, U.S.D.A. Soil Conservation Service, P.O. Box 219, Somerset, NJ 08873.

Wetland Communities

The Fish and Wildlife Service is preparing a list of wetland plants (i.e. hydrophytes) to help identify wetlands. A tentative regional site is now available for distribution. In the future, the Service plans to develop a list of the Nation's wetland plant communities. At this time, however, such information is not available.

Currently, a State Wetland Report for New Jersey is in preparation. This report will describe in detail major wetland plant communities. It should be available for distribution in 1984.

Table 2 represents a list of major wetland plant communities observed during inventory work in New Jersey. Map symbols are also given; they reflect dominant vegetative life-form and water regimes (i.e. the degree of flooding and/or soil saturation).

TABLE 1. HYDRIC SOILS OF NEW JERSEY. Those soils marked by an asterisk (*) are of questionable status and require further study before final determination as hydric soil can be made.

LAND TYPE OR SOIL SERIES	NATURE OF SOIL	DRAINAGE CLASS	TAXONOMY
*Abbottstown	Mineral	Somewhat Poorly Drained	Aeric Fragiaqualfs
Adrian	Organic	Very Poorly Drained	Terric Medisaprists
Alluvial Land	Mineral	Very Poorly Drained to Moderately Well-Drained	
*Atherton	Mineral	Poorly to Very Poorly Drained	Aeric Haplaquepts
*Atsion	Mineral	Poorly Drained	Aeric Haplaquods
Bayboro	Mineral	Very Poorly Drained	Umbric Paleaquults
Berryland	Mineral	Very Poorly Drained	Typic Haplaquods
Bibb	Mineral	Poorly Drained	Typic Fluvaquents
Biddeford	Mineral	Very Poorly Drained	Histic Humaquepts
*Bowmansville	Mineral	Poorly Drained to Somewhat Poorly Drained	Aeric Fluvaquents
Carlisle	Organic	Very Poorly Drained	Typic Medisaprists
Chippewa	Mineral	Poorly To Very Poorly Drained	Typic Fragiaquepts
Cokesbury	Mineral	Poorly Drained	Typic Fragiaquults
Cokesbury, Stony	Mineral	Poorly Drained	Typic Fragiaquults
Colemantown	Mineral	Poorly Drained	Typic Ochraquults
Croton	Mineral	Poorly Drained	Typic Fragiaquults
Doylestown	Mineral	Poorly Drained	Typic Fragiaqualfs
Elkton	Mineral	Poorly Drained	Typic Ochraquults
Fallsington	Mineral	Poorly Drained	Typic Ochraquults
Fluvaquents	Mineral	Poorly Drained	
*Fredon	Mineral	Poorly Drained	Aeric Haplaquepts
Fresh Water Marsh	Organic	Very Poorly Drained	
Haledon (wet variant)	Mineral	Poorly Drained	Aquic Fragiudalfs
Halsey	Mineral	Very Poorly Drained	Mollic Haplaquepts
Humaquepts	Mineral	Somewhat To Very Poorly Drained	Cumulic Humaquepts
Keansburg	Mineral	Very Poorly Drained	Typic Umbraquults
Lamington	Mineral	Poorly Drained	Typic Fragiaquults
*Lenoir	Mineral	Somewhat Poorly Drained	Aeric Paleaquults
*Leon	Mineral	Poorly Drained	Aeric Haplaquods
Livingston	Mineral	Very Poorly Drained	Mollic Haplaquepts
Lyons	Mineral	Poorly To Very Poorly Drained	Mollic Haplaquepts
Lyons, Stony	Mineral	Poorly To Very Poorly Drained	Mollic Haplaquepts
Manahawkin	Organic	Very Poorly Drained	Terric Medisaprists
Matlock	Mineral	Poorly Drained	Typic Ochraquults
Muck	Organic	Very Poorly Drained	
Mullica	Mineral	Very Poorly Drained	Typic Humaquepts
Norwich	Mineral	Poorly Drained	Typic Fragiaquepts

Continued

TABLE 1. (Concluded)

LAND TYPE OR SOIL SERIES	NATURE OF SOIL	DRAINAGE CLASS	TAXONOMY
Norwich, Stony	Mineral	Poorly Drained	Typic Fragiaquepts
Othello	Mineral	Poorly Drained	Typic Ochraquults
*Parsippany	Mineral	Poorly Drained	Aeric Ochraqualfs
Pasquotank	Mineral	Poorly Drained	Typic Haplaquepts
Pocomoke	Mineral	Very Poorly Drained	Typic Umbraquults
Plummer	Mineral	Poorly Drained	Grossarenic Paleaquults
Portsmouth	Mineral	Very Poorly Drained	Typic Umbraquults
Preakness	Mineral	Poorly Drained To Very Poorly Drained	Typic Humaquepts
*Raynham	Mineral	Somewhat Poorly To Poorly Drained	Aeric Haplaquepts
Reaville (wet variant)	Mineral	Poorly Drained	Aquic Hapludalfs
Ridgebury	Mineral	Poorly Drained	Aeric Fragiaquepts
*Ridgebury, Stony	Mineral	Poorly Drained	Aeric Fragiaquepts
Rutledge	Mineral	Very Poorly Drained	Typic Humaquepts
Scarboro	Mineral	Very Poorly Drained	Histic Humaquepts
Shrewsbury	Mineral	Poorly Drained	Typic Ochraquults
Sloan	Mineral	Very Poorly Drained	Fluvaquentic Haplaquolls
St. Johns	Mineral	Very Poorly Drained	Typic Haplaquods
Sulfaquents	Organic	Poorly To Very Poorly Drained	
Sulfihemists	Organic	Poorly To Very Poorly Drained	
Swamp	Organic	Very Poorly Drained	
Tidal Marsh	Organic	Very Poorly Drained	
*Venango	Mineral	Somewhat Poorly Drained	Aeric Fragiaqualfs
*Venango, Stony	Mineral	Somewhat Poorly Drained	Aeric Fragiaqualfs
Walikill	Mineral	Very Poorly Drained	Thapo-Histic Fluvaquents
Watchung	Mineral	Poorly Drained	Typic Ochraqualfs
Watchung, Stony	Mineral	Poorly Drained	Typic Ochraqualfs
Wayland	Mineral	Poorly Drained	Mollic Fluvaquents
Weeksville	Mineral	Very Poorly Drained	Typic Humaquepts
Whitman	Mineral	Very Poorly Drained	Humic Fragiaquepts
Whitman, Stony	Mineral	Very Poorly Drained	Humic Fragiaquepts

Concluded

Table 2 Examples of major New Jersey wetland plant communities. Note: This is not a comprehensive list, but is based on actual field observations. Plant names generally follow Gray's Manual of Botany (1970).

Wetland Type (Mapping Symbol)	Dominance Types	Plant Common Names	Water Regime
E2AB	Zostera marina	Eelgrass	Subtidal
	Ruppia martina	Widgeon-grass	
	Potamogeton pectinatus	Pondweed	
	Ulva lactuca	Sea Lettuce	
E2EM	Spartina alterniflora (tall form)	Smooth Cordgrass	Regularly Flooded
	S. alterniflora (short form)	Smooth Cordgrass	Irregularly Flooded
	Spartina patens	Marsh Hay	
	Distichlis spicata	Salt Grass	
	Typha angustifolia	Cattail	
E2EM2N6	Peltandra virginica	Arrow Arum	Regularly Flooded
	Zizania aquatica	Wild Rice	
E2EM6	Typha angustifolia	Cattail	Irregularly Flooded
	Phragmites australis	Reed	
E2SS1	Iva frutescens	Highthide Bush	Irregularly Flooded
	Baccharis halimifolia	Sea Myrtle	
PEMN	Nuphar advena	Spatterdock	Regularly Flooded
	Zizania aquatica	Wild Rice	
	Peltandra virginica	Arrow Arum	
PEMR	Typha angustifolia	Cattail	Seasonally Flooded - Tidal
	Phragmites australis	Reed	
PEM	Typha latifolia	Cattail	Seasonally Flooded
	Carex stricta	Tussock Sedge	
	Lythrum salicaria	Purple Loosestrife	
	Polygonum spp.	Smartweeds	
	Calamagrostis canadensis	Blue-Joint	
	Pontedaria cordata	Pickerelweed	Semi-Permanently Flooded
	Zizania aquatica	Wild Rice	Semi-Permanently Flooded
	Phalaris arundinacea	Canary Grass	Temporarily Flooded

Table 2 (CONTINUED)

Wetland Type (Mapping Symbol)	Dominance Types	Plant Common Names	Water Regime
PSS1	Cephalanthus occidentalis	Buttonbush	Semi-Permanently Flooded
	Alnus sp.	Alder	Seasonally Flooded and Others
	Cornus amomum	Silky Dogwood	
	Vaccinium corymbosum	Highbush Blueberry	
	Viburnum dentatum	Arrowwood	
	Clethra alnifolia	Sweet Pepperbush	
	Acer rubrum (saplings)	Red Maple	
	Salix spp.	Willows	
PSS3	Chamaedaphne calyculata	Leatherleaf	Saturated
	Kalmia angustifolia	Sheep Laurel	
PFO1	Acer rubrum	Red Maple	Seasonally Flooded
	Nyssa sylvatica	Black Gum	
	Fraxinus spp.	Ashes	
	Acer saccharinum	Silver Maple	Temporarily Flooded
	Platanus occidentalis	Sycamore	
	Quercus palustris	Pin Oak	
	Salix nigra	Black Willow	
	Betula nigra	River Birch	
	Quercus bicolor	Swamp White Oak	
PFO2	Larix laricina	Larch	Saturated
PFO4	Chamaecyparis thyoides	Atlantic White Cedar	Seasonally Flooded and Saturated
	Pinus rigida	Pitch Pine	Temporarily Flooded
	Pinus serotina	Pond Pine	
	Tsuga canadensis	Hemlock	Seasonally Flooded and Saturated

Literature Cited

Bailey, R.G. 1978. Ecoregions of The United States. Forest Service. U.S. Dept. of Agriculture. 77 pp.

Cowardin, L.W., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of The United States. Fish and Wildlife Service, Office of Biological Services, U.S. Dept. of The Interior. FWS/OBS 79/31. 103 pp.

Fernald, M.L. 1970. Gray's Manual of Botany. D. VanNostrand Company, New York. 1632 pp.

McCormick, J. and L. Jones. 1973. The Pine Barrens: Vegetation Geography. N.J. State Museum. Res. Rept. No. 3.

Walton, T.E. and R. Patrick (eds.). 1973. Delaware River Estuarine Marsh Survey. Rept. to National Science Foundation RANN Program. 172 pp.

Zich, H.E. 1977. The Collection of Existing Information and Field Investigations of Anadromous Clupeid Spawning in New Jersey. NJ DEP, Div. of Fish, Game and Shellfisheries. Misc. Rept. No. 41.