

# NATIONAL WETLAND INVENTORY USER REPORT 1:100,000 MAP AREA

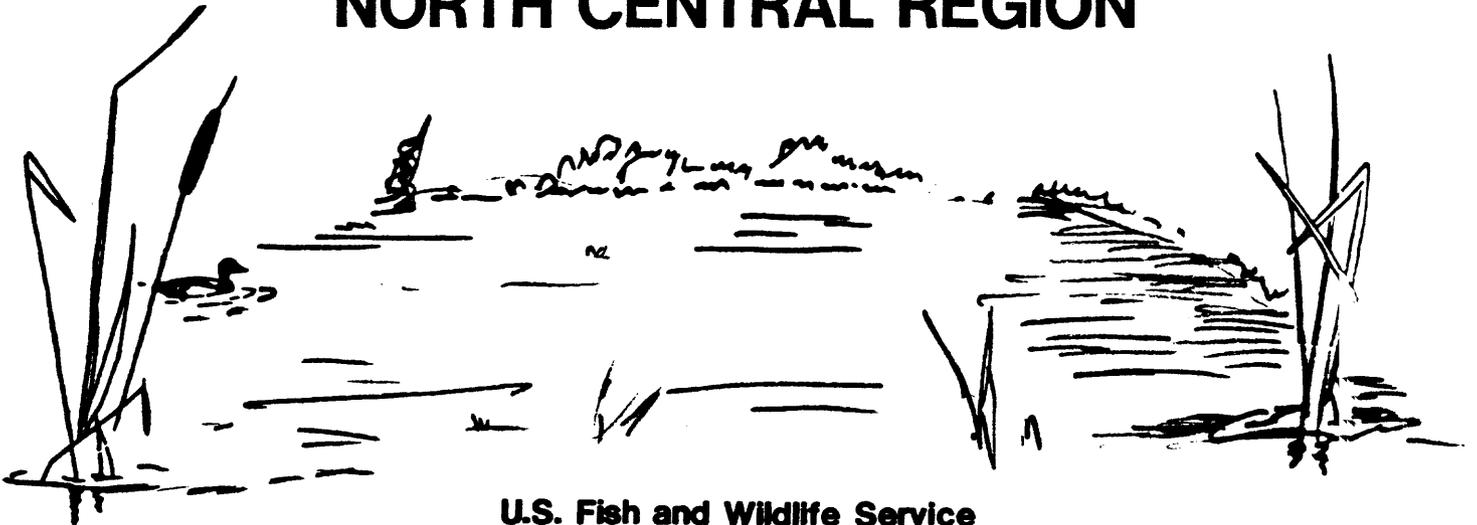
MAP AREA: SAULT SAINTE MARIE NE

1:100,000 NAME: SAULT SAINTE MARIE  
NORTH

STATE: MICHIGAN



## NORTH CENTRAL REGION



U.S. Fish and Wildlife Service

Federal Building, Fort Snelling Twin Cities, Minnesota 55111

**USER REPORT  
NATIONAL WETLAND INVENTORY  
U.S. FISH AND WILDLIFE SERVICE  
REGION 3**



PREPARED BY

RONALD E. ERICKSON  
REGIONAL WETLAND INVENTORY COORDINATOR  
U.S. FISH AND WILDLIFE SERVICE  
FEDERAL BUILDING, FORT SNELLING  
TWIN CITIES, MINNESOTA 55111

USER CAUTION

Maps for this 1:100,000 scale map were prepared primarily by stereoscopic analysis of high altitude aerial photographs. Wetlands were identified on the photographs based on vegetation, visible hydrology, and geography in accordance with Classification of Wetlands and Deepwater Habitats of the United States, Cowardin, et al., 1979. The aerial photographs reflect conditions during the specific year and season when they were taken. Some small wetlands and those obscured by dense forest cover may not be included on the map document. In addition, there is a margin of error inherent in the use and interpretation of aerial photographs. Thus a detailed on-the-ground and historical analysis of a single site may result in revision of the wetland boundaries established through photographic interpretation.

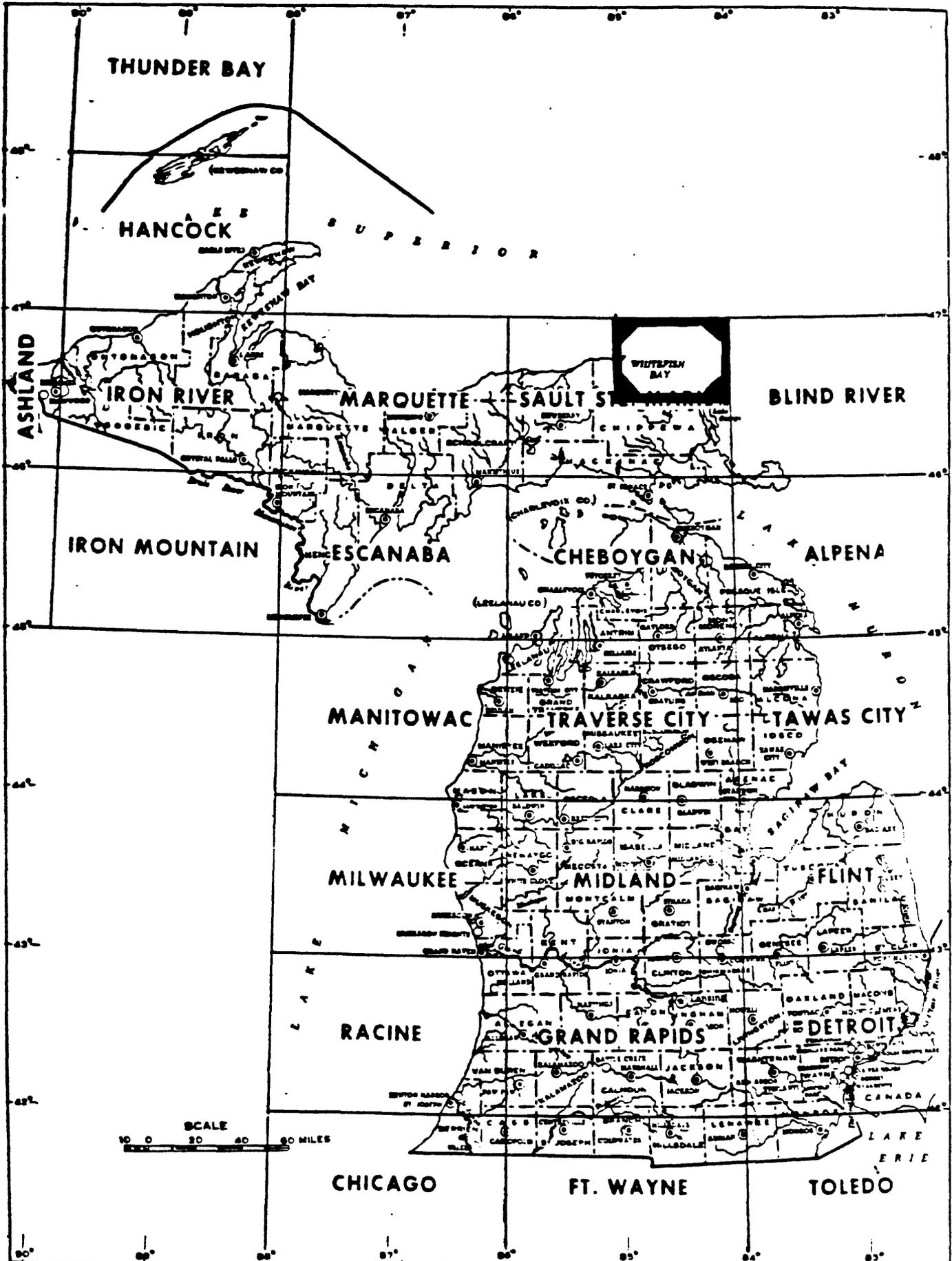
Federal, State, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either design or products of this inventory, to define limits of proprietary jurisdiction of any local, State, or Federal government or to establish the geographical scope of regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, State, or local agencies concerning specific agency regulatory programs and propriety jurisdictions that may affect such activities.

Additional information regarding this map or other National Wetland Inventory activities may be obtained by contacting:

Regional Director, Region 3 (AH/TS)  
Attn: Regional Wetlands Coordinator  
United States Fish and Wildlife Service  
Federal Building, Fort Snelling  
Twin Cities, Minnesota 55111

Michigan Dept. of Natural Resources  
Land Resources Program  
Box 30028  
Lansing, Michigan 48909

LOCATION OF REPORT  
STATE OF MICHIGAN



DATE: December 1983

MAP PREPARATION

Basic Data

Photography Used:

<u>Emulsion</u>	<u>Scale</u>	<u>Date</u>	<u>Percent Coverage</u>
1. Black and white	1:80,000	May 1980	100%

Field Check Dates:

1. None

Contractor(s) for Photo Interpretation:

1. Michigan Dept. of Natural Resources

Collateral Data Used:

1. USGS topographic quad sheets
2. USDA Soil Surveys

Mapping Legend: (See Appendix D)

Farmed Wetlands

It is the policy of the Fish and Wildlife Service to not map farmed wetlands in the National Wetlands Inventory unless the wetland is a pothole-like depression, such as those found in the Prairie Pothole Region, intermittently flooded lake bottoms, cranberry bogs, or diked former tidelands in California. Therefore this map area may contain various amounts of non-depression type wetlands which were farmed on the date of the photography and intentionally not included in the inventory. Many of these omitted wetlands commonly occur in floodplains.

GEOGRAPHY

A. General Location

Degrees Longitude: 84° 0' to 85° 0' West

Degrees Latitude : 46° 30' to 47° 0' North

Largest City : Whitefish Point, Michigan

Sault Sainte Marie NE is located in Chippewa County, in the extreme northeastern part of Michigan's upper peninsula. The map area includes Whitefish Point, and the northern-most part of Sugar Island. This map is located within the Lake Superior watershed. Most of this quad lies in Canada.

B. Ecoregion

Bailey's Ecoregion Classification and Description (Bailey 1978):

Code: 2112L

Humid Temperate Domain (2000)

The entire Sault Sainte Marie NE map is in this Domain.

The climate of this Domain has strong seasonal temperatures and precipitation cycles, and a distinctive winter season. The Humid Temperate Domain comprises the humid midlatitude forests of broadleaf deciduous and needleleaf evergreen trees.

Warm Continental Division (2100)

All of the Sault Sainte Marie NE map area lies within this Division.

This Division characteristically has warm summers and cold, snowy winters. The natural vegetation is needleleaf and mixed needleleaf-deciduous forest. The soils of this Division are Spodosols, which are strongly leached but have a top layer of humus. Spodosols are usually acidic and lack calcium, potassium and magnesium. Despite these deficiencies, Spodosols are very suitable for growing the conifers found in this Division.

Laurentian Mixed Forest Province (2110)

The entire Sault Sainte Marie NE map falls within this Province.

The vegetation of this Province is representative of the transitional zone in which it lies, between the boreal and deciduous forest zones. Forests consist either of mixed conifer-deciduous stands or mosaic-like arrangements with pure stands of deciduous forest growing on good soil sites and pure stands of conifers growing on poor soil sites.

Pines (Pinus spp.) are the most representative conifers of the mixed forest stands, with white pine (P. strobus) dominating in the Great Lakes region. Pines are often a pioneer woody species following forest fires. Eastern hemlock (Tsuga canadensis) and eastern redcedar (Juniperus virginiana) also grow in this Province.

Northern Hardwoods-Fir Forest Section (2112L)

This Section occurs in lowland, and includes all of the Sault Sainte Marie NE map area.

Hardwoods and firs (Abies spp.) are the predominant tree species of this Section.

C. Topography and Land Forms

Hammond's Land Surface Form and Physical Subdivision (Hammond 1965, 1969):

Codes: (III-3) A2b

Interior Physical Division (III) - This Physical Division covers all of the Sault Sainte Marie NE map area.

North-Central Lake-Swamp-Moraine Plains (3) - All of Sault Sainte Marie NE map lies within this Subdivision.

Smooth Plains Class (A2b) - This Class includes the entire Sault Sainte Marie NE map area. Over 80% of the land is in gentle slopes. Fifty to 75% of these slopes occur in lowlands. Local relief ranges from 100 to 300 feet.

RESOURCES

A. Wetlands

No wetland acreage figure is available for the Sault Sainte Marie NE area at the present time.

Steep topography has precluded wetland formation along much of the Lake Superior shoreline in the Sugar Island portion of Sault Sainte Marie NE. Saturated woodlands are the most common wetlands in this part of the map, although a few emergent marshes occur along Little Lake George and St. Marys River shorelines. Shrub/emergent wetlands are common in the Whitefish Point portion of the map.

Predominant tree species of the saturated woodlands include black spruce (Picea mariana), northern white cedar (Thuja occidentalis), hemlock (Tsuga canadensis), balsam fir (Abies balsamea), black ash (Fraxinus nigra) and red maple (Acer rubrum). Sedges (Carex spp.) and rushes (Juncus spp.) are important plants of the emergent wetlands. Sedges also occur in the shrub/emergent wetlands, as do speckled alder (Alnus rugosa), willow (Salix sp.), and dogwood (Cornus sp.).

A list of plant species for wetland types can be found in Appendix C.

## B. Wildlife and Fish

Several species of waterfowl inhabit the area, including scaups (Aythya spp.), canvasbacks (A. valisineria), redheads (A. americana), ring-necked ducks (A. collaris), mallards (Anas platyrhynchos), black ducks (Anas rubripes), wood ducks (Aix sponsa), goldeneyes (Bucephala clangula), buffleheads (B. albeola), old squaws (Clangula hyemalis), Canada geese (Branta canadensis) and whistling swans (Olor columbianus). Wooded swamps flooded by beavers provide important nesting habitat in the area (Great Lakes Basin Commission 1975b, Panzner 1955, Rounds 1956).

Furbearers, including beaver (Castor canadensis), muskrats (Ondatra zibethica), raccoons (Procyon lotor), weasles (Mustela spp.) and mink (M. vison), are common in the area. Pine martens (Martes americana) and fishers (Martes pennanti), which were once wiped out by overharvesting and logging, have been reintroduced into Michigan's upper peninsula. Canada lynx (Lynx canadensis) are also making a comeback.

Numerous wildlife species on the Endangered and Threatened list occur in the area. Habitat loss and competition for nest usage by the brown-headed cowbird (Molothrus ater) have been the reasons for the decline of Kirtland's warblers (Dendroica kirtlandii). Bald eagles (Haliaeetus leucocephalus) and peregrine falcons (Falco peregrinus) have also decreased in numbers, primarily because of reproductive failure attributed to the use of pesticides. However, Madsen et al. 1982 report that bald eagle production in Michigan showed an overall increase during the period 1973 - 1981.

Other wildlife species of Sault Sainte Marie NE include black bears (Ursus americanus), snowshoe hares (Lepus americanus), eastern cottontails (Sylvilagus floridanus), squirrels (Sciurus sp.) and ruffed grouse (Bonasa umbellus).

Sport fishing opportunities are available in inland lakes and streams. Both sport and commercial fishing opportunities are available in Lake Superior.

The primary sport fish of Lake Superior are lake trout (Salvelinus namaycush), rainbow trout (Salmo gairdneri), coho salmon (Oncorhynchus kisutch) and chinook salmon (O. tshawytscha). Rainbow trout (steelhead) and coho and chinook salmon are also fished in Lake Superior tributaries, as are brook trout (Salvelinus fontinalis), brown trout (Salmo trutta), suckers (Catostomus), rainbow smelt (Osmerus mordax), walleyes (Stizostedion vitreum vitreum), northern pike (Esox lucius), panfish (Lepomis spp., Pomoxis spp.) and bass (Micropterus).

Lake herring (Coregonus artedii), chubs (Semotilus) and lake whitefish (C. clupeaformis) dominate the commercial fish catch. Lake trout are of minor importance commercially; sea lampreys (Petromyzon marinus) have prevented this species from establishing a self-sustaining population (Great Lakes Basin Commission 1975a).

Appendix A

REFERENCES

- Bailey, R. G. 1978. Descriptions of the Ecoregions of the United States. USDA For. Serv. Intermtn. Reg. Ogden, Utah. 77 p.
- Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U. S. Fish and Wildlife Service, Washington, D. C. FWS/OBS-79/31. 103 p.
- Great Lakes Basin Commission. 1975a. Fish: Great Lakes Basin Comm. Great Lakes Basin Framework Study, App. 8. Ann Arbor, Mich. 290 p.
- 1975b. Wildlife: Great Lakes Basin Comm. Great Lakes Basin Framework Study App. 17. Ann Arbor, Mich. 140 p.
- Hammond, E.H. 1965. 1:17,000,000 scale Physical Subdivisions. 1 map. p. 61. In Gerlach, A.C., ed. 1970. National Atlas of the United States of America. USDI Geol. Surv. Washington, D.C. 417 p.
- 1969. 1:7,500,000 scale Classes of Land Surface Form. USDI Geol. Surv. 1 map. p. 62-63. In Gerlach, A.C., ed. 1970. National Atlas of the United States of America. USDI Geol. Surv. Washington, D.C. 417 p.
- Madsen, C.R., T.J. Sheldrake, and J.T. Leach, eds. 1982. Bald Eagle Production in the Great Lakes States 1973 - 1981. U.S. Fish and Wildlife Service, Reg. 3. Twin Cities, Minn. p.
- Panzer, E.R. 1955. Wetlands Inventory of Michigan. U.S. Fish and Wildlife Service, Office of River Basin Studies. Minneapolis, Minn. 19 p.
- Rounds, B.W. 1956. Inventory of Permanent Water Habitat Significant to Waterfowl in Michigan. U.S. Fish and Wildlife Service, Office of River Basin Studies. Minneapolis, Minn. 10 p.

ADDITIONAL INFORMATION

The purpose of this report is to provide general information regarding the production of the map and the wetlands found within the area of this map. It does not include descriptions of all wetlands found in the area nor complete species information. For additional information, the following references are recommended:

- Hammond, E. H. 1964. Analysis of Properties in Land Form Geography: An Application to Broad-scale Land Form Mapping. Annals, Assoc. Amer. Geog. v. 54. pp. 11-23.
- Herdendorf, C.E., S.M. Hartley, and M.D. Barnes, eds. 1981. Fish and Wildlife Resources of the Great Lakes Coastal Wetlands Within the United States. Volume six: Lake Superior. U.S. Fish and Wildlife Service, Washington, D.C. FWS/OBS-81/02-v6. 846 p.

Appendix B

SPECIAL MAPPING PROBLEMS

Problem 1: An arbitrary break exists between St. Marys River (R20WH) and Lake George (L10WH).

Resolution: Because of the subjectivity involved, the break was not determined.

Problem 2: It was often difficult to accurately identify specific water regimes from the 1:80,000 black and white photography.

Resolution: Combined water regimes (Z,W,Y) were used where necessary.

Appendix C

WETLAND COMMUNITIES

<u>MAP SYMBOLS</u>	<u>LOCAL NAME</u>	<u>DOMINANT VEGETATION</u>	<u>WATER REGIME</u>
PFO4B PFO4Y	Swamp	<u>Thuja occidentalis</u> <u>Tsuga canadensis</u> <u>Picea mariana</u> <u>Abies balsamea</u>	Saturated Seasonal
PFO4/1B PFO4/1Y	Swamp	<u>Thuja occidentalis</u> <u>Tsuga canadensis</u> <u>Abies balsamea</u> <u>Populus sp.</u> <u>Betula papyrifera</u> <u>Picea mariana</u>	Saturated Seasonal
PFOB PFOY	Swamp	<u>Abies balsamea</u> <u>Tsuga canadensis</u> <u>Betula papyrifera</u> <u>Thuja occidentalis</u>	Saturated Seasonal
PF01B PF01/4B PF01Y PF01/4Y	Swamp	<u>Fraxinus nigra</u> <u>Acer rubrum</u> <u>Populus sp.</u> <u>Abies balsamea</u>	Saturated Seasonal
PFO/SSB PFO/SSY	Swamp	<u>Tsuga canadensis</u> <u>Picea mariana</u> <u>Populus sp.</u> <u>Betula sp.</u> <u>Alnus rugosa</u>	Saturated Seasonal
PF05/EMY	Swamp	<u>Dead Ulmus sp.</u> <u>Tsuga canadensis</u> <u>Populus sp.</u> <u>Juncus sp.</u> <u>Carex sp.</u> <u>Typha latifolia</u>	Seasonal Semi-permanent
PSSB PSS3B PSSY	Bog	<u>Chamaedaphne calyculata</u> <u>Ledum groenlandium</u>	Saturated
PSSB PSS1B PSSY	Swamp	<u>Alnus rugosa</u> <u>Salix sp.</u> <u>Cornus sp.</u>	Saturated Seasonal
PSS/EMB	Bog	<u>Chamaedaphne calyculata</u> Misc. grasses and sedges	Saturated

<u>MAP SYMBOLS</u>	<u>LOCAL NAME</u>	<u>DOMINANT VEGETATION</u>	<u>WATER REGIME</u>
PSS/EMY	Swamp	<u>Alnus rugosa</u> <u>Salix</u> sp. <u>Cornus</u> sp. <u>Carex</u> sp.	Saturated Seasonal
PEMB	Wet meadow	<u>Carex</u> spp. <u>Juncus</u> spp. Misc. grasses	Saturated
PEMY	Marsh	<u>Carex</u> sp. <u>Juncus</u> sp. <u>Eriophorum</u> sp.	Seasonal Semi-permanent
PABH	Pond	<u>Nuphar</u> sp. <u>Lemna</u> sp.	Permanent
POWZb	Beaver flooding	Open water	Intermittently exposed Permanent

Appendix D

NATIONAL WETLAND INVENTORY  
Information and Legend  
For Map Products

Classification System: The U.S. Fish and Wildlife Service uses the "Classification of Wetlands and Deepwater Habitats of the United States", December, 1979, by L. M. Cowardin, et al., to delineate and identify wetlands. This system is hierarchical and structured around a combination of ecological, biological, hydrological and substrate characteristics which permits universal use across the United States, its territories and possessions. It consists of five systems: Marine, Estuarine, Riverine, Lacustrine (lake) and Palustrine (swamps, bogs, marshes) and proceeds in a hierarchical manner through subsystem, class, and subclass. It also contains provisions to use water regime, water chemistry, soil, and special modifiers to provide additional levels of detail.

Figure 1 is an illustration of the classification system to the class level.

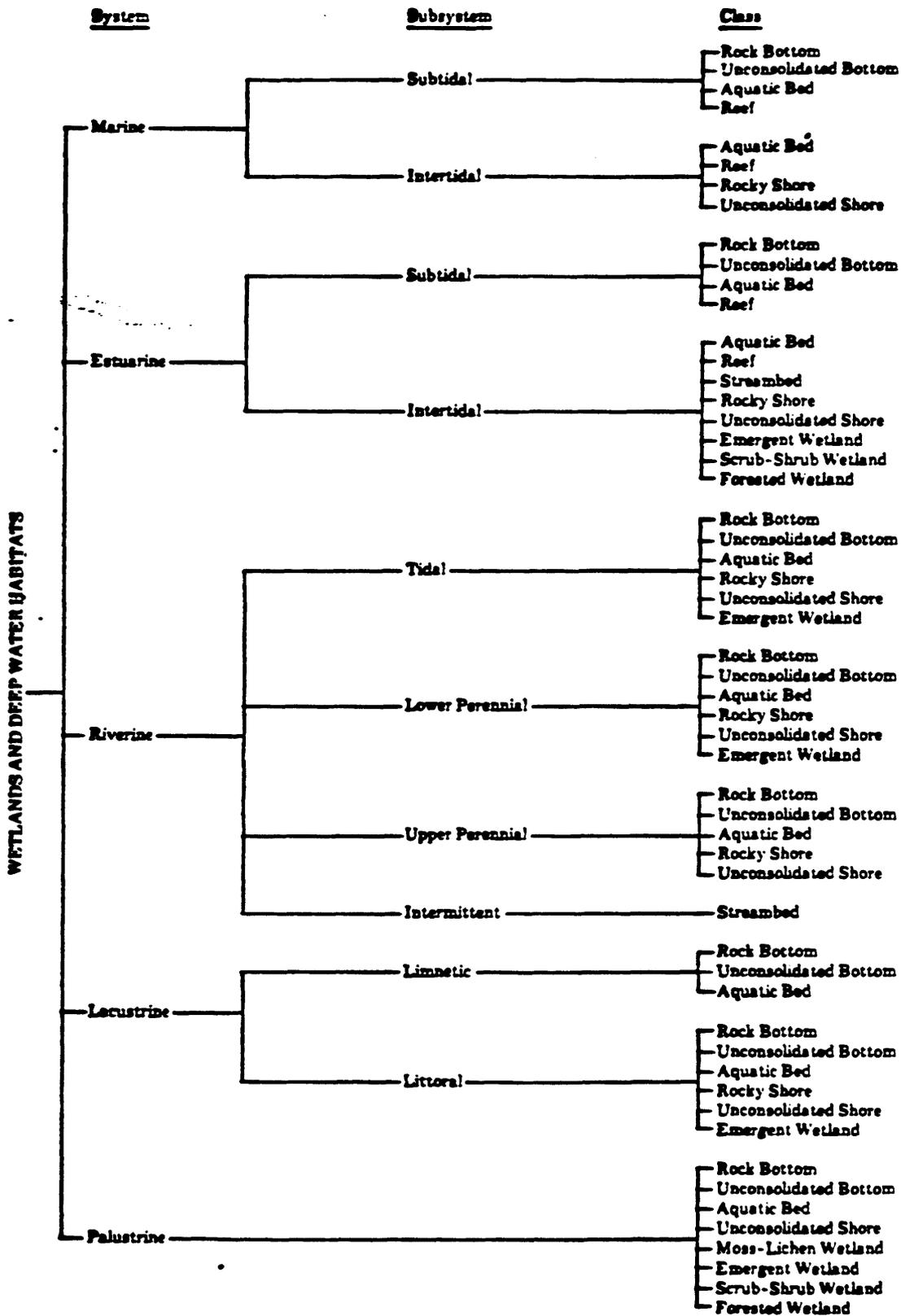


Fig. 1. Classification hierarchy of wetlands and deepwater habitats, showing systems, subsystems, and classes. The Palustrine System does not include deepwater habitats.

**Use of Wetland Legend:** Wetland data are displayed on overlays or maps by a series of letters and numbers (alpha numerics) with the first letter representing the system and subsequent alpha numerics representing, in a sequential manner, the subordinate levels of detail down to the modifiers. Where classes and subclasses have been mixed, they are separated by a diagonal line.

**Examples**

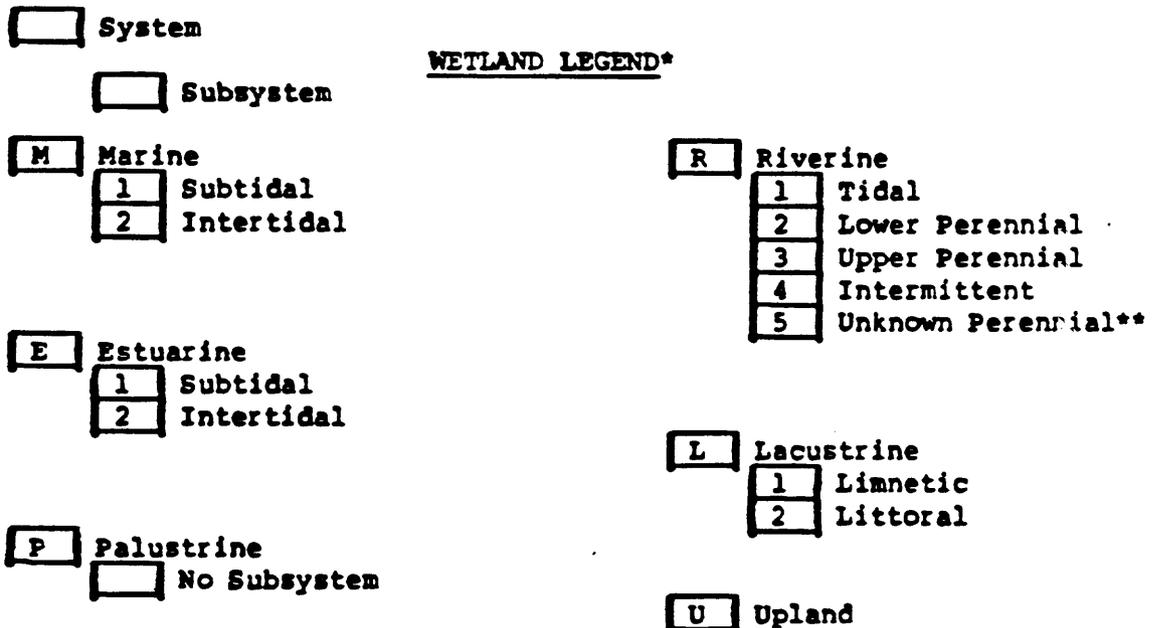
**a. Classification of wetlands to water regime and special modifier:**

System:	Lacustrine
Subsystem:	Limnetic
Class:	Unconsolidated Bottom
Subclass:	Mud
Water Regime:	Intermittently Exposed
Special Modifier:	Diked/Impounded

L 1 UB 3 G h

**b. Mixing of wetland classes and subclasses:**

PFO2/EM1F = Palustrine, Forested, Needle-leaved deciduous (PFO2) mixed with Palustrine, Emergent, Persistent (PEM1) with semipermanent water regime (F).



\*Should be used in conjunction with "Classification of Wetlands and Deepwater Habitats of the United States," by L. M. Cowardin et al.

\*\*Not included in "Classification of Wetlands and Deepwater Habitats of the United States." Created specifically for National Wetland Inventory mapping effort.

Wetland Legend (continued)

   Class

   Subclass

CLASSES AND SUBCLASSES

**AB** Aquatic Bed

1	Algal
2	Aquatic Moss
3	Rooted Vascular
4	Floating Vascular
5	Unknown Submergent**
6	Unknown Surface**

**EM** Emergent

1	Persistent
2	Nonpersistent

**FO** Forested

1	Broad-Leaved Deciduous
2	Needle-Leaved Deciduous
3	Broad-Leaved Evergreen
4	Needle-Leaved Evergreen
5	Dead
6	Deciduous**
7	Evergreen**

**ML** Moss/Lichen

1	Moss
2	Lichen

**OW** Open Water/  
Unknown Bottom\*\*

**RB** Rock Bottom

1	Bedrock
2	Rubble

**RF** Reef

1	Coral
2	Mollusk
3	Worm

**RS** Rocky Shore

1	Bedrock
2	Rubble

**SB** Streambed

1	Bedrock
2	Rubble
3	Cobble/Gravel
4	Sand
5	Mud
6	Organic
7	Vegetated

**SS** Scrub/Shrub

1	Broad-Leaved Deciduous
2	Needle-Leaved Deciduous
3	Broad-Leaved Evergreen
4	Needle-Leaved Evergreen
5	Dead
6	Deciduous**
7	Evergreen**

**UB** Unconsolidated  
Bottom

1	Cobble/Gravel
2	Sand
3	Mud
4	Organic

**US** Unconsolidated  
Shore

1	Cobble/Gravel
2	Sand
3	Mud
4	Organic
5	Vegetated

\*\*Not included in "Classification of Wetlands and Deepwater Habitats of the United States." Created specifically for National Wetland Inventory mapping efforts.

## MODIFIERS TO WETLAND CLASSIFICATION

### WATER REGIME MODIFIERS

#### Nontidal

<b>A</b>	Temporary
<b>B</b>	Saturated
<b>C</b>	Seasonal
<b>D</b>	Seasonally Flooded-Well Drained
<b>E</b>	Seasonally Flooded-Saturated
<b>F</b>	Semipermanent
<b>G</b>	Intermittently Exposed
<b>H</b>	Permanent
<b>J</b>	Intermittently Flooded

#### Nontidal Combined

<b>Z</b>	Intermittently Exposed/ Permanent (G,H above)**
<b>W</b>	Intermittently Flooded/ Temporary (A,J above)**
<b>Y</b>	Saturated Semipermanent/ All Seasonals (B,C,D,E F above)**

#### Nontidal and Tidal

<b>U</b>	Unknown**
<b>K</b>	Artificial

#### Tidal

<b>L</b>	Subtidal
<b>M</b>	Irregularly Exposed
<b>N</b>	Regularly Flooded
<b>P</b>	Irregularly Flooded
<b>R</b>	Seasonal - Tidal
<b>S</b>	Temporary - Tidal
<b>T</b>	Semipermanent - Tidal
<b>V</b>	Permanent - Tidal

### WATER CHEMISTRY MODIFIERS

#### Coastal Halinity

<b>1</b>	Hyperhaline
<b>2</b>	Euhaline
<b>3</b>	Mixohaline (Brackish)
<b>4</b>	Polyhaline
<b>5</b>	Mesohaline
<b>6</b>	Oligohaline
<b>0</b>	Fresh

#### Inland Salinity

<b>7</b>	Hypersaline
<b>8</b>	Eusaline
<b>9</b>	Mixosaline
<b>0</b>	Fresh

#### pH Freshwater

<b>a</b>	Acid
<b>t</b>	Circumneutral
<b>1</b>	Alkaline

\*\*Not included in "Classification of Wetlands and Deepwater Habitats of the United States." Created specifically for National Wetland Inventory mapping Effort.

## OTHER MODIFIERS

### Special

<b>b</b>	Beaver
<b>d</b>	Partially Drained/ Ditched
<b>f</b>	Farmed
<b>h</b>	Diked/Impounded
<b>r</b>	Artificial
<b>s</b>	Spoil
<b>x</b>	Excavated

### Soils

<b>g</b>	Organic
<b>n</b>	Mineral

Statement to Users: The overlays/maps were prepared primarily by stereoscopic analysis of high altitude aerial photographs. Wetlands were identified on the photographs based on vegetation, visible hydrology, and geography in accordance with "Classification of Wetlands and Deepwater Habitats of the United States." The aerial photographs typically reflect conditions during the specific year and season when they were taken. In addition, there is a margin of error inherent in the use of aerial photographs. Thus, a detailed on-the-ground and historical analysis of a single site may result in a revision of the wetland boundaries established through photographic interpretation. In addition, some small wetlands and those obscured by dense forest cover may not be included on this map. Federal, State, and local regulatory agencies with jurisdictions over wetlands may define and describe wetlands in a different manner than that used in this Inventory. There is no attempt, in either the design or products of this Inventory, to define the limits of proprietary jurisdiction of any Federal, State, or local government or to establish the geographical scope of the regulatory programs and proprietary jurisdictions that may affect such activities.

To Order NWI Topical Wetland Overlays/Maps: A National Wetland Inventory Order Form is required and can be obtained by writing to the address on the letterhead.

