

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

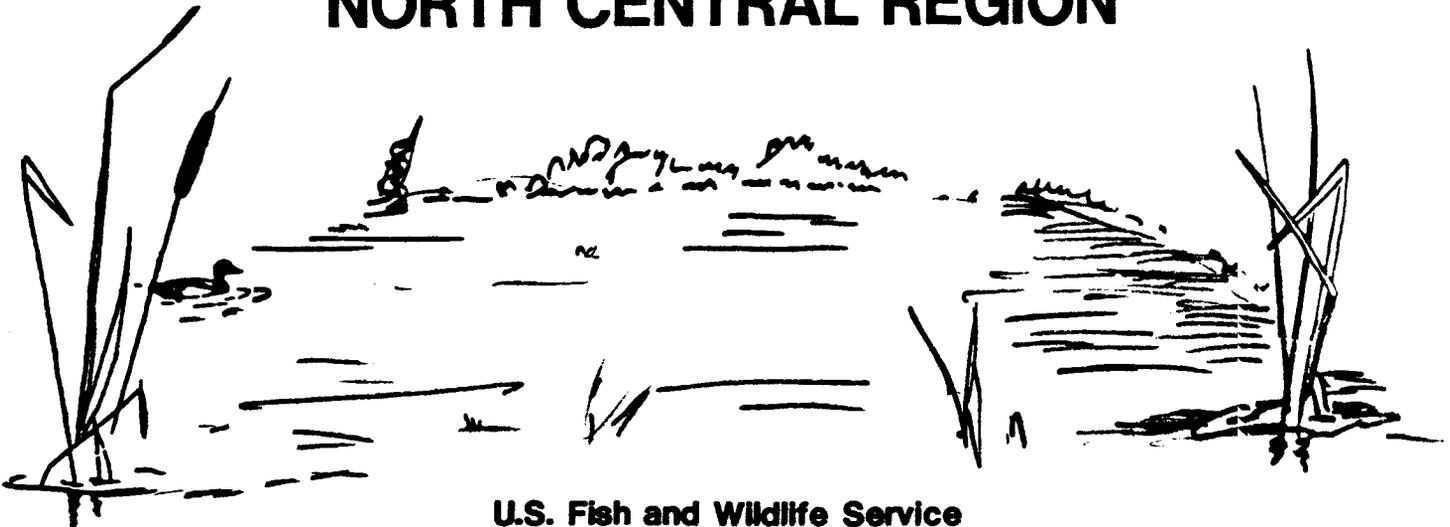
MAP AREA: ESCANABA SW

1:100,000 NAME: MARINETTE

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

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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.

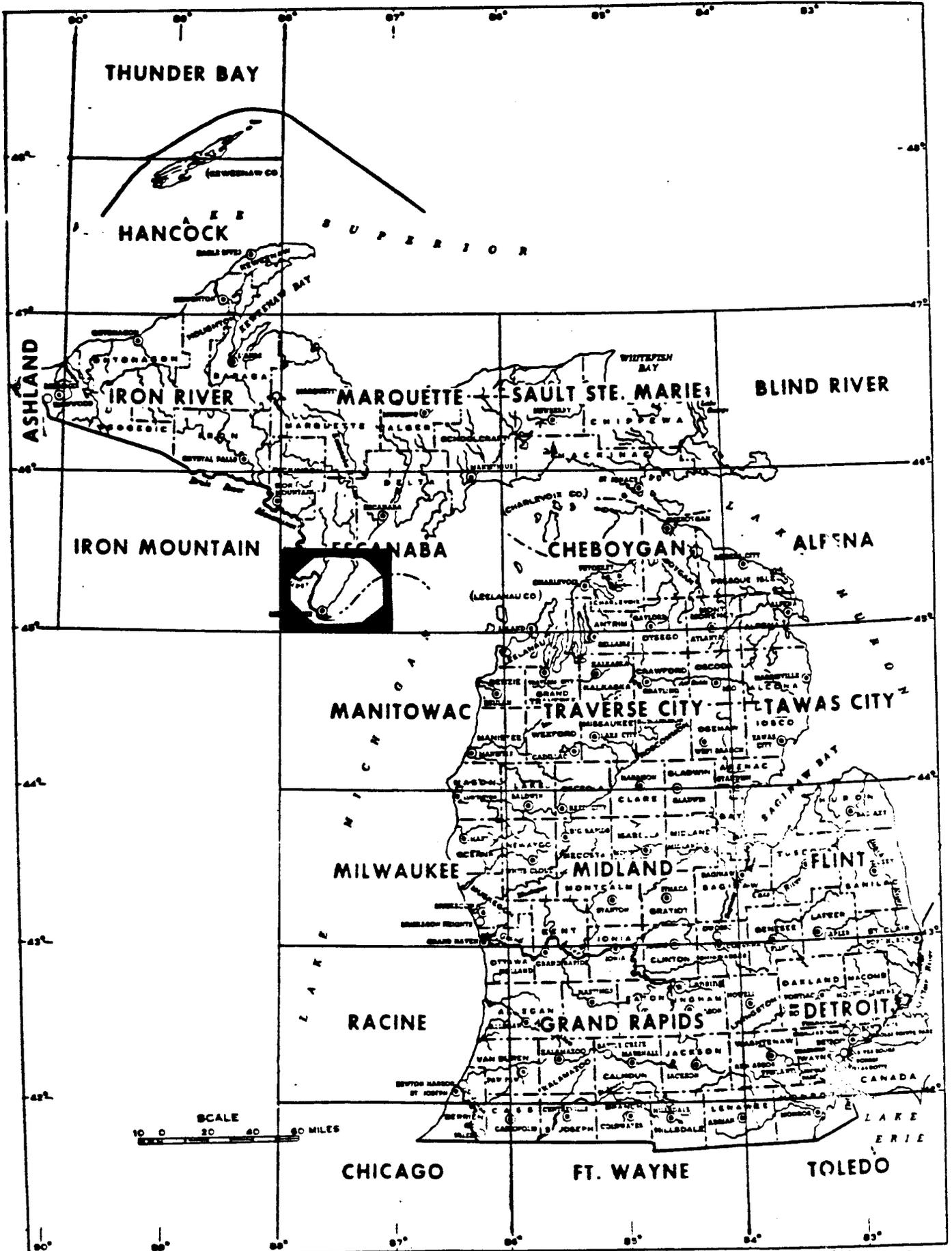
Federal, State, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either design or products of this inventory, to define limits of proprietary jurisdiction of any local, State, 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, 1979	100%

Field Check Dates:

1. December 3 - 5, 1979
2. September 7 - 8, 1981

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: 87° 0' to 88° 0' West

Degrees Latitude : 45° 0' to 45° 30' North

Largest City : Menominee, Michigan

The Michigan portion of Escanaba SW includes the southern tip of Michigan's upper peninsula and encompasses a part of Menominee County. The map area is bordered on the west by the Wisconsin state line and on the east by Green Bay of Lake Michigan. This map lies within the Lake Michigan watershed, and Cedar and Little Cedar River drainage basins.

B. Ecoregion

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

Code: 2112L, 2113L

Humid Temperate Domain (2000)

The entire Escanaba SW 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 Escanaba SW 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 Escanaba SW 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 lowlands, and includes two-thirds of the map area, extending from the north-central and northeast portions of the southeast portion.

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

Northern Hardwoods Forest Section (2113L)

This Section occurs in lowlands, and covers one-thirds of the map area, extending from the south-central and southwest portions to the northwest corner.

Hardwoods 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, (III-3) B2b

Interior Physical Division (III) - This Physical Division covers the entire Escanaba SW map area.

North-Central Lake-Swamp-Moraine Plains Subdivision (3) - All of Escanaba SW map lies within this Subdivision.

Smooth Plains Class (A2b) - This Class includes the eastern 60% of Escanaba SW, where over 80% of the land is in gentle slopes. Fifty to 75% of these slopes are found in lowlands. Local relief ranges from 100 to 300 feet.

Irregular Plains Class (B2b) - The western 40% of the Escanaba SW map area is covered by this Class, where 50 to 80% of the land is in gentle slopes. Fifty to 75% of these slopes occur in lowlands. Local relief in this Class ranges from 100 to 300 feet.

RESOURCES

A. Wetlands

Wetland density in the Escanaba SW map area is very high with wetlands well distributed throughout the map. Forested wetland is the predominant wetland type, which often covers large expanses of land. Smaller scrub-shrub wetlands are also common, many of which contain leatherleaf (Chamaedaphne calyculata).

Black spruce (Picea mariana) and northern white cedar are the predominant tree species of many of the forested wetlands. Other common species occurring in other forested wetlands include balsam fir (Abies balsamea), hemlock (Tsuga canadensis), ash (Frazinus sp.), tamarack (Larix laricina), dogwood (Cornus sp.), willow (Salix sp.), and alder (Alnus sp.). A list of plant species for wetland types can be found in Appendix C.

No wetland acreage figure is available for the Escanaba SW area at the present time.

B. Wildlife and Fish

Some wildlife species on the Endangered and Threatened list are present in Escanaba SW. Habitat loss and competition for nest usage by brown-headed cowbirds (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.

Several species of waterfowl inhabit the area, particularly in the vicinity of Green Bay and the Menominee River. These species include 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 waterfowl nesting habitat (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), have maintained relatively stable populations. 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.

Populations of some wildlife species in the Escanaba SW map area have declined in recent years. Decline of forest game species, particularly the white-tailed deer (Odocoileus virginianus), has been attributed to decreased habitat diversity caused by improved fire control measures and forest management practices that encouraged conifers.

Other wildlife species of Escanaba SW include black bears (Ursus americanus), snowshoe hares (Lepus americanus), eastern cottontails (Sylvilagus floridanus), squirrels (Sciurus sp.), ruffed grouse (Bonasa umbellus), and ring-necked pheasants (Phasianus cochicus).

Sport fishing opportunities are available in many inland lakes and rivers, and in Lake Michigan and its immediate tributaries. Commercial fishing is limited to Lake Michigan.

Common fish species of inland lakes, where most sport fishing occurs, include walleyes (Stizostedion vitreum vitreum), largemouth bass (Micropterus salmoides), smallmouth bass (M. dolomieu), northern pike (Esox lucius), muskellunge (E. masquingy), suckers (Catostomus), rainbow smelt (Osmerus mordax), lake trout (Salvelinus namaycush), whitefish, yellow perch (Perca flavescens), bluegills (Lepomis macrochirus), and panfish (Lepomis spp., Pomoxis spp.).

Inland rivers and Lake Michigan tributaries provide some of the best sport fishing opportunities in the Escanaba SW area. Northerns, walleyes, bass, and panfish are found in impounded backwater areas of rivers; brook trout (Salvelinus fontinalis) and brown trout (Salmo trutta) are prevalent in cold, headwater areas. Brown and brook trout, walleyes, smallmouth bass and panfish are also fished in Lake Michigan tributaries, as are rainbow trout (steelheads - Salmo gairdneri), suckers, coho salmon (Oncorhynchus kisutch), and chinook salmon (O. tshawytscha).

Common sport fish of Lake Michigan include yellow perch, smelt, northerns, walleyes, suckers, smallmouth bass, panfish, coho and chinook salmon, and lake, rainbow, brook and brown trout. Lake whitefish (Coregonus clupeaformis) and chubs (Semotilus) are the most important commercial species; however, alewife (Alosa pseudoharengus) and smelt have increased in importance (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 five: Lake Michigan. U.S. Fish and Wildlife Service, Washington, D.C. FWS/OBS-81/02-v5. 1592 p.

Appendix B

SPECIAL MAPPING PROBLEMS

Problem 1: Alternating light and dark bands present on some photos (beach ridges). The light bands represented FO, the dark bands upland.

Resolution: Field checking when possible. Be aware that beach ridges are common near shores of Great Lakes.

Problem 2: Poor resolution of photography caused difficulty in determining wetland covertypes.

Resolution: Use of USGS topographic maps as collateral data. Correlated photo signatures with ground observations, and made sure that similar signatures were labeled consistently.

Problem 3: Difficult to determine the upland/wetland break for species [e.g. alder (Alnus sp.) and cedar (Thuja occidentalis)] which grow on both upland and wetland sites. This problem was particularly true along rivers.

Resolution: Use of USGS topographic maps as collateral data. Field checking when possible. A conservative approach was taken when mapping vegetation which frequently occurs on upland/wetland borders, and where no distinct separations (i.e. contours) are apparent. Only low-lying areas were delineated as wetland. Upon review of draft maps, some polygons containing alder or cedar were reduced or changed to upland. However, users should be aware that wetlands can occur on slopes.

Problem 4: It was 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>
PFOB	Swamp	<u>Tsuga canadensis</u> <u>Abies balsamea</u> <u>Betula papyrifera</u>	Saturated
PFO4B	Cedar swamp	<u>Thuja occidentalis</u> <u>Picea mariana</u>	Saturated
PFO4/1B	Swamp	<u>Thuja occidentalis</u> <u>Fraxinus sp.</u> <u>Populus tremuloides</u>	Saturated
PFO4/2B	Swamp	<u>Thuja occidentalis</u> <u>Picea mariana</u> <u>Larix laricina</u>	Saturated
PFO/SSY	Swamp	<u>Fraxinus sp.</u> <u>Populus tremuloides</u> <u>Cornus sp.</u> <u>Salix sp.</u> <u>Alnus sp.</u>	Saturated Seasonal
PSSB	Swamp	<u>Alnus sp.</u> <u>Cornus stolonifera</u>	Saturated
PSS3B	Bog	<u>Chamaedaphne calyculata</u>	Saturated
PSS/EMY	Swamp	<u>Salix sp.</u> <u>Alnus sp.</u> <u>Carex sp.</u> <u>Juncus sp.</u>	Saturated Seasonal
PEMY	Marsh	<u>Typha latifolia</u> <u>Phragmites sp.</u>	Seasonal Semi-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.

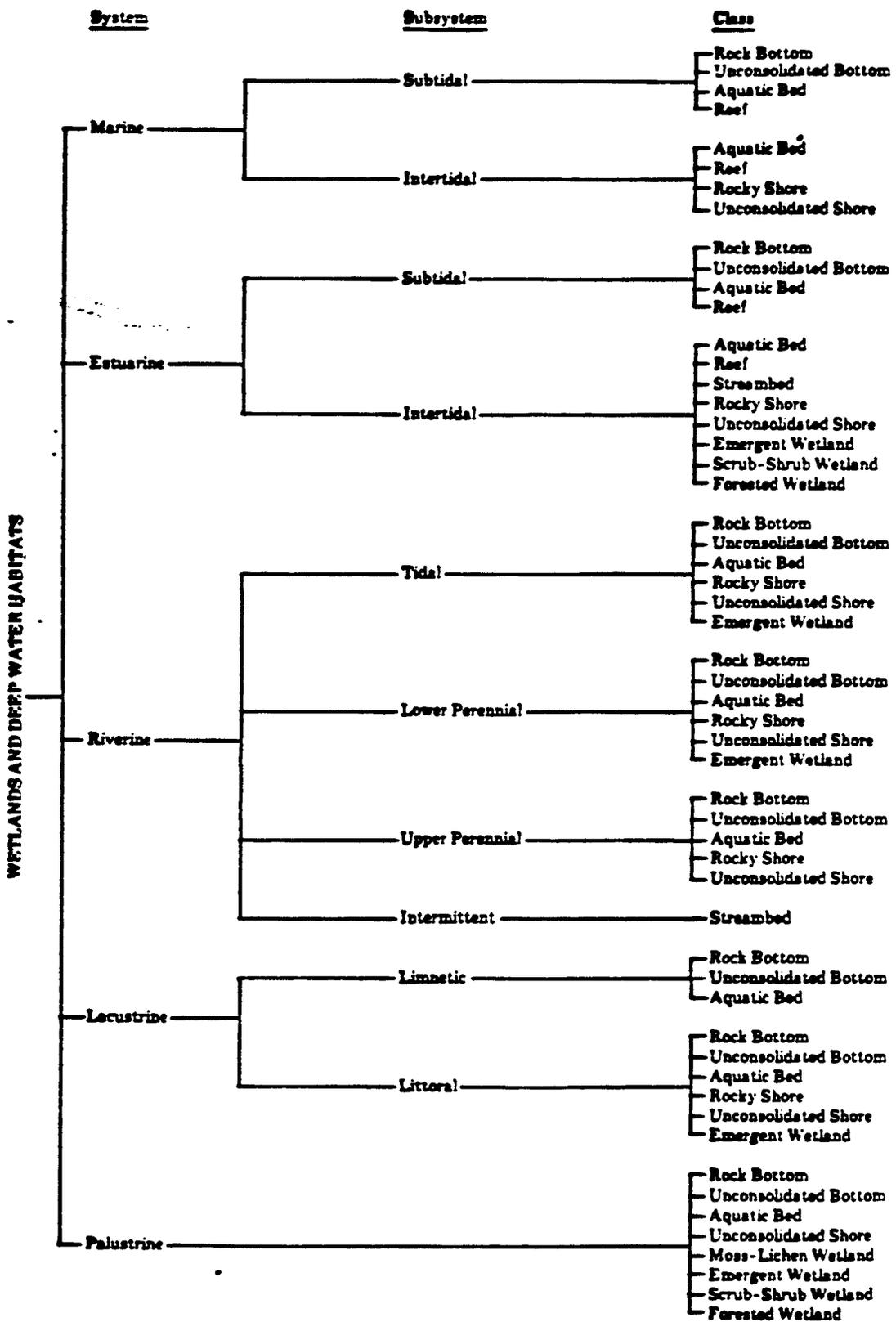


Fig. 1. Classification hierarchy of wetlands and deepwater habitats, showing systems, subsystems, and classes. The Palustrine System does not include deepwater habitats.

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

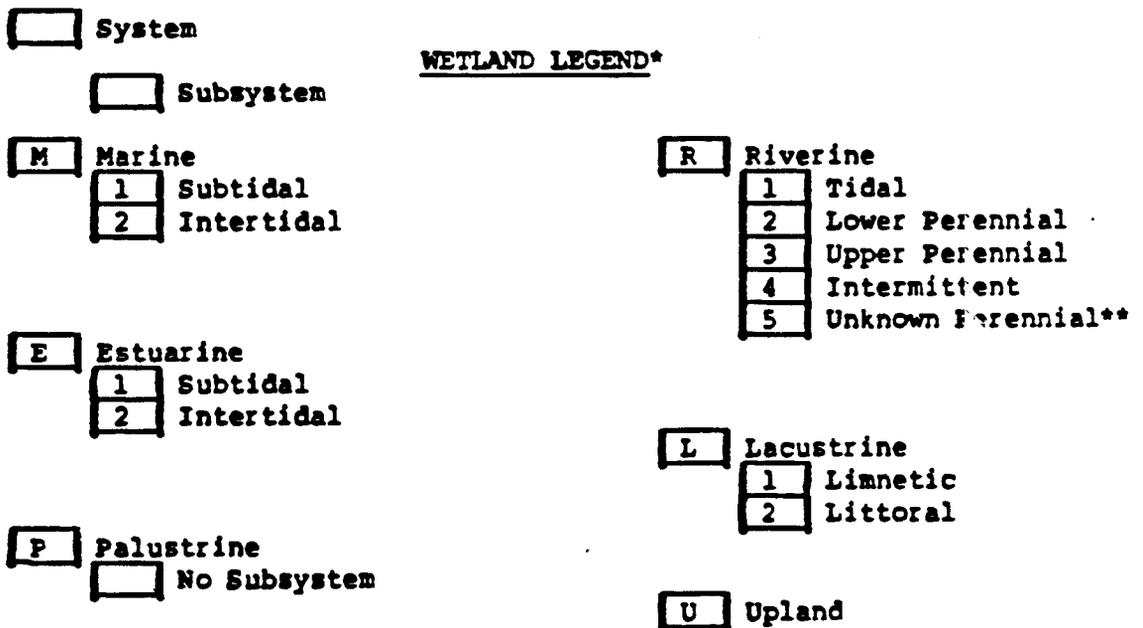
a. Classification of wetlands to water regime and special modifier:

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

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

Nontidal Combined

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

Nontidal and Tidal

U	Unknown**
K	Artificial

Tidal

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

WATER CHEMISTRY MODIFIERS

Coastal Halinity

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

Inland Salinity

7	Hypersaline
8	Eusaline
9	Mixosaline
0	Fresh

pH Freshwater

a	Acid
t	Circumneutral
l	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	Beaver
d	Partially Drained/ Ditched
f	Farmed
h	Diked/Impounded
r	Artificial
s	Spoil
x	Excavated

Soils

g	Organic
n	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.

