D

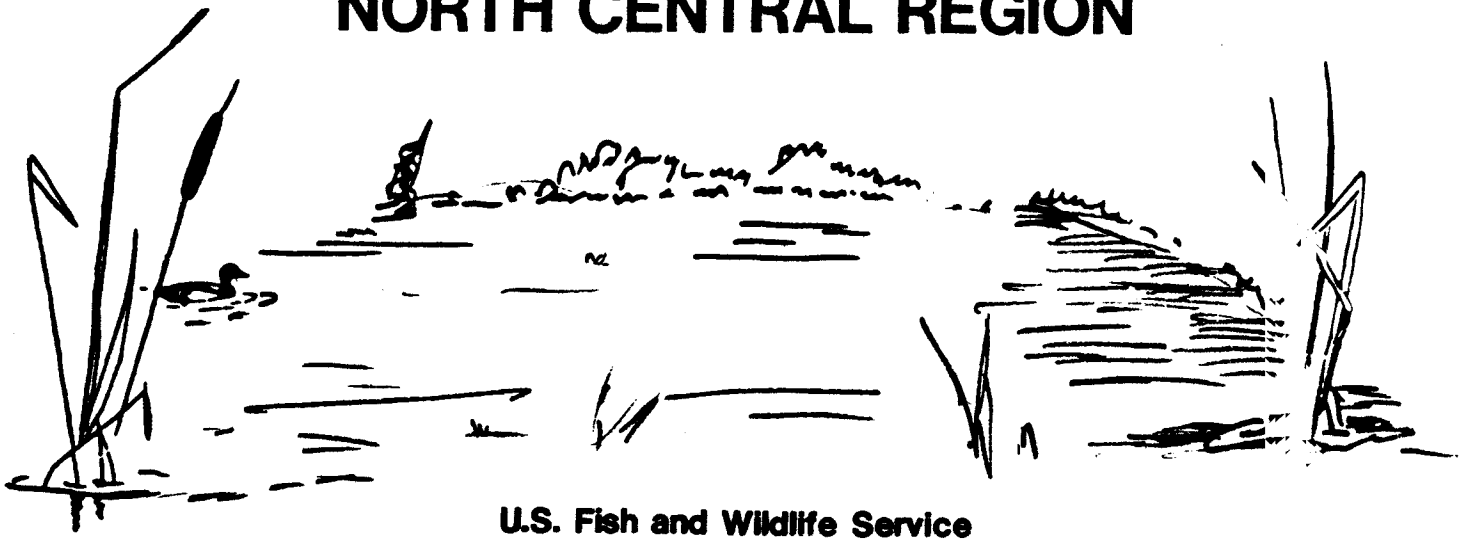
NATIONAL WETLAND INVENTORY USER REPORT 1:100,000 MAP AREA

MAP AREA: FLINT NE

1:100,000 NAME: HARBOR BEACH

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.

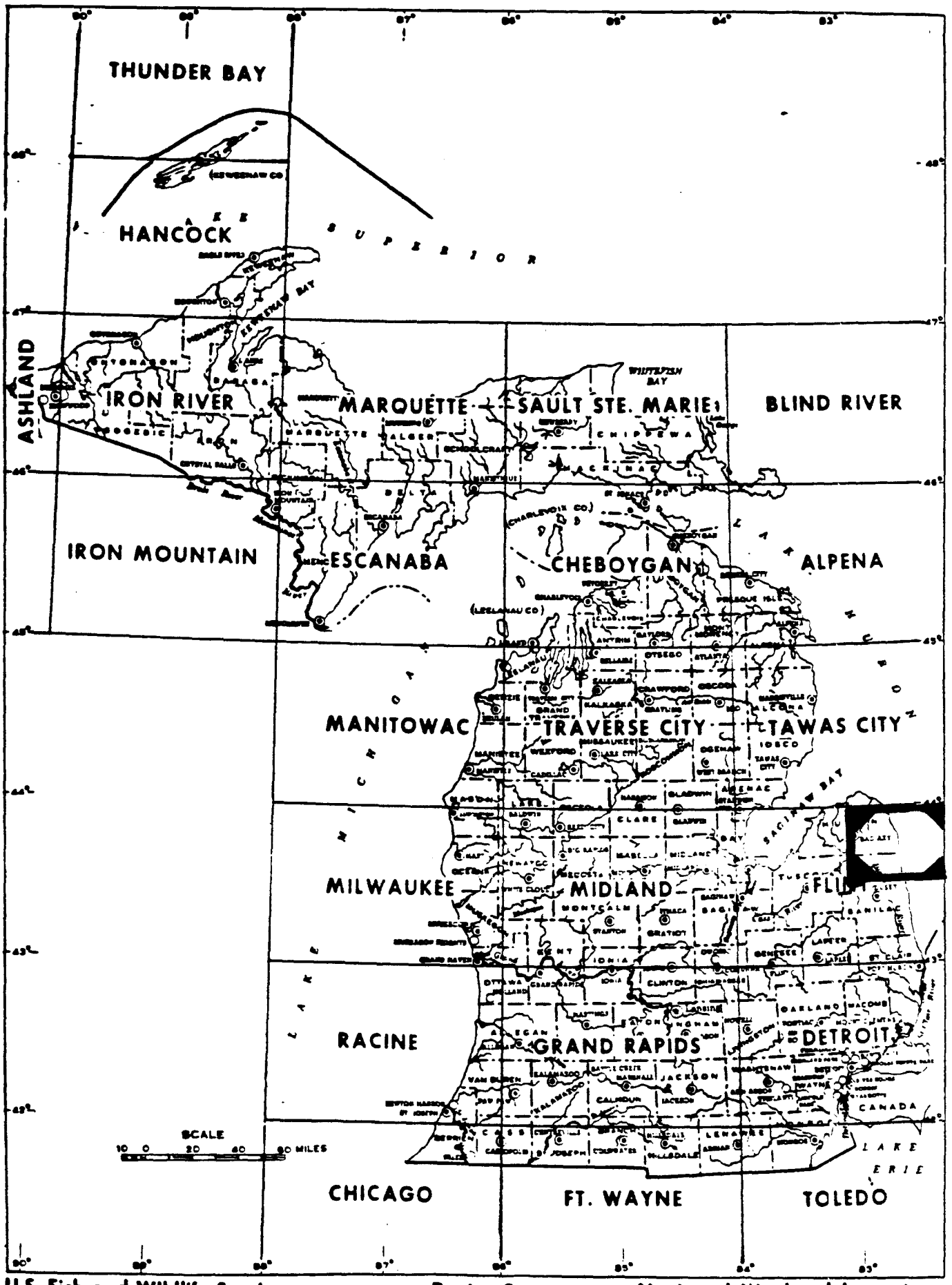
Federal, State, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either design or products of this inventory, to define limits of proprietary jurisdiction of any local, State,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



U.S. Fish and Wildlife Service Region 3 National Wetland Inventory

DATE: December 1983

MAP PREPARATION

Basic Data

Photography Used:

	Emulsion	Scale	Date	Percent Coverage
1.	Black and white	1:80,000	November 1978	100%

Field Check Dates:

1. November 27, 1979
2. January 10, 1980
3. July 9 -10, 1980

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: 82° 0' to 83° 0' West

Degrees Latitude : 43° 30' to 44° 0' North

Largest City : Bad Axe, Michigan

Flint NE is located in the 'Thumb' area of Michigan and lies just east of Saginaw Bay. The map area is bordered on the east by Lake Huron and encompasses portions of Sanilac and Huron Counties. This map lies within the Lake Huron watershed and Black and Cass River drainage basins.

B. Ecoregion

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

Code: 2113L

Humid Temperate Domain (2000)
The entire Flint 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 Flint NE map area lies in this Division.

This Division characteristically has warm summers and cold, snowy winters. The natural vegetation is needleleaf and mixed needleleaf-decidous 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 Flint NE map area 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 Hardwood Forest Section (2113L)
This Section occurs in lowland areas and covers all of the Flint NE map area.

Hardwoods are the most common tree species of this Section.

C. Topography and Land Forms

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

Codes: (III-2) A1, (III-2) A2b

Interior Physical Division (III) - The entire Flint NE map area lies within this Physical Division.

East-Central Drift and Lake-bed Flats Subdivision (2) - This Subdivision covers all of the Flint NE map area.

Flat Plains Class (A1) - This class includes the northern third of the map and extends to the east-central portion along Lake Huron. Over 80% of the land is in gentle slopes of less than 100 feet.

Smooth Plains Class (A2b) - This Class covers the southern quarter of the map and extends into the central and west-central portions of the map. More than 80% of the land is in gentle slopes. Fifty to 75% of these slopes are found in lowland areas. Local relief ranges from 100 to 300 feet.

RESOURCES

A. Wetlands

No wetland acreage figure is available for the Flint NE area at the present time.

Heavy wetland losses in the Flint NE area have been attributed mainly to agricultural drainage and to industrial development (Panzner 1955). Wetlands which remain throughout the map area are primarily forested, scrub-shrub and forested/scrub-shrub wetlands that are either saturated or seasonally flooded. Some emergent wetlands remain as well. Predominant trees and shrubs of the forested and scrub/shrub wetlands include red maple (Acer rubrum), silver maple (A. saccharinum), ash (Fraxinus sp.) and quaking aspen (Populus tremuloides), alder (Alnus sp.), and dogwood (Cornus sp.). A list of plant species for wetland types can be found in Appendix C.

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.

Panzner, E.R. 1955. Wetlands Inventory of Michigan. U.S. Fish and Wildlife Service, Office of River Basin Studies. Minneapolis, MN 19 p.

Rounds, B.W. 1955. Wetlands Inventory of Ohio. U.S. Fish and Wildlife Serv., Office of River Basin Studies, Minneapolis, Minn. 23 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 four: Lake Huron. U.S. Fish and Wildlife Service, Washington, D.C. FWS/OBS-81/02-v4. 792 p.

Appendix B

SPECIAL MAPPING PROBLEMS

Problem 1: Extensive drainage in the area made it difficult to distinguish upland from wetland forests.

Resolution: USDA Soil Surveys were used as collateral data. Field checking done when possible.

Problem 2: Much of the area is undergoing rapid development. Many wetlands are being filled for housing and industry.

Resolution: Because of extensive drainage and the dynamic nature of the area, some areas shown as wetland on USGS topos are not visible on the photos. User should be aware of changing wetland conditions.

Problem 3: 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

MAP SYMBOLS	LOCAL NAME	DOMINANT VEGETATION	WATER REGIME
PFOB PFOY PFO1Y	Lowland hardwoods Swamp	Acer rubrum Acer saccharinum Fraxinus spp. Populus tremuloides	Saturated Seasonal
PFO/SSY	Swamp	Acer rubrum Fraxinus spp. Populus tremuloides Cornus spp. Alnus spp.	Saturated Seasonal
PSSY PSS1Y	Swamp	Alnus spp. Cornus spp. Salix spp.	Saturated Seasonal Semi-permanent
PSS/EMY	Swamp	Alnus spp. Cornus spp. Salix spp. Typha latifolia Carex spp. Juncus spp.	Saturated Seasonal Semi-permanent
PEMY	Wet meadow Bog	Juncus spp. Carex spp. Sphagnum spp. Phalaris arundinacea	Saturated Seasonal
PEMY	Marsh	Typha latifolia Phragmites spp. Scirpus spp.	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.

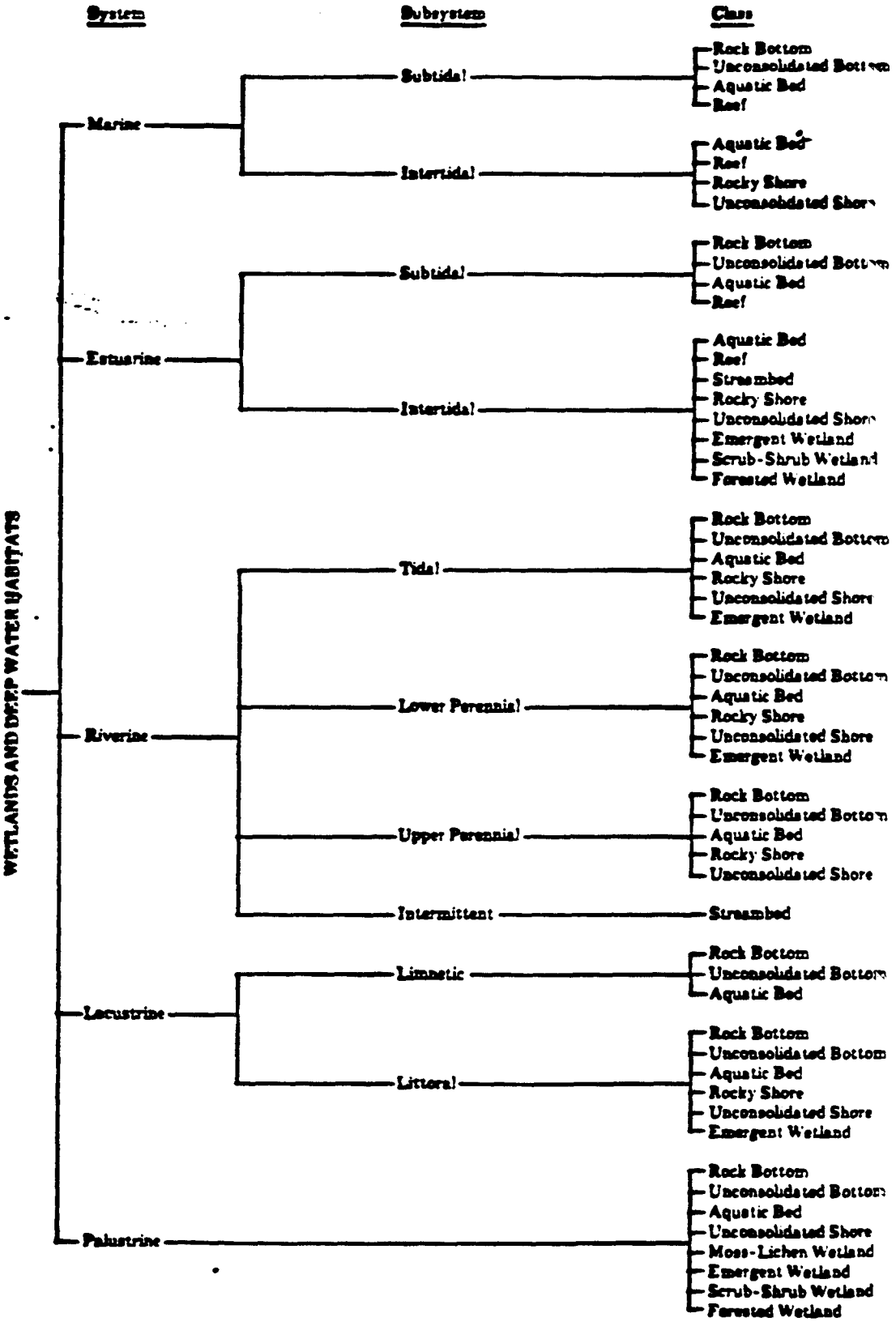


Fig 1. Classification hierarchy of wetlands and deepwater habitats, showing systems, subsystems, and classes The Palustrine System does not include deepwater habitats

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).

WETLAND LEGEND*

- [ ] System
- [ ] Subsystem
- [M] Marine
  - [1] Subtidal
  - [2] Intertidal
- [E] Estuarine
  - [1] Subtidal
  - [2] Intertidal
- [P] Palustrine
  - [ ] No Subsystem
- [R] Riverine
  - [1] Tidal
  - [2] Lower Perennial
  - [3] Upper Perennial
  - [4] Intermittent
  - [5] Unknown Perennial**
- [L] Lacustrine
  - [1] Limnetic
  - [2] Littoral
- [U] Upland

*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/Gra
  - [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 Salinity

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
i	Alkaline

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