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MAINE RE-DO

USER REPORT AND FIELD SUMMARY

I. INTRODUCTION

A. PURPOSE

The U.S. Fish and Wildlife Service's National Wetland Inventory is producing maps showing the location and classification of wetlands and deepwater habitats of the United States. The Classification of Wetlands and Deepwater Habitats of the United States by Cowardin et al. is the classification system used to define and classify wetlands. Photo interpretation conventions, hydric soils lists, and wetland plant lists are also available to enhance the use and application of the classifications system.

The purpose of the notes to users is threefold: (1) to provide localized information regarding the production of NWI maps, including specific imagery and interpretation discussion; (2) to provide a descriptive crosswalk from wetland codes on the map to common names and representative plant species; and (3) to explain local geography, climate, and wetland communities.

B. STUDY AREA

1. The work area field checked for the Maine Re-do portion of the state (see Appendix A) focused primarily on the coast and coastal plain from New Hampshire to the Canadian border along the St. Croix River. The study area represents two full 1:100,000 and ten partial 1:100,000 scale maps numbering two-hundred and thirteen 7.5' U.S.G.S. quads.

2. 1:100,000 Work Areas

Portland NE	Bangor SE
Portland SE	Eastport NW
Lewiston SE	Eastport NE
Bath NW	Eastport SW
Bangor SW	Fredricton NW
Bangor NE	Fredricton SW

C. U.S.G.S. 7.5' QUADS WITH CHECKSITES

Portland NE
Portland West (2)
Cumberland
Center (3)
Old Orchard Beach (2)
Prouts Neck (3)
Yarmouth
Waterboro (2)
Limerick (2)

Bangor SW
Washington (2)

Eastport NW
Whitneyville (2)
Machias (2)
Washington (2)
Wesley NE
Tug Mountain NE
Whiting

Portland SE
Biddeford (2)
Kennebank — Kennebunk
Bars Mills

Bath NW
Bath (3)
Boothbay Harbor (2)

Bangor SE
Seal Harbor (2)
Newbury Neck
Winter Harbor

Eastport NE
Meddybemps Lake East
Lubec (2)

Fredricton SW
Woodland
Waite SE

D. PERSONNEL

Chip Messenkopf	Task Manager - Geonex Martel, Inc.
Joanne Weber	Photointerpreter - Geonex Martel, Inc.
Toni Alessi	Photointerpreter - Geonex Martel, Inc.
Renee Whitehead	U.S. Fish and Wildlife Service (June 19-30)
Ralph Tiner	U.S. Fish and Wildlife Service (June 19-21)
Glenn Smith	U.S. Fish and Wildlife Service (June 25-30)

E. FIELD TRIP DATES

June 19 - 30, 1989

F. AERIAL PHOTOGRAPHY

Emulsion: Color Infrared
Scale: 1:58,000

1:100,000K	Date of Photography	Percent Coverage
Portland NE	04/01/86	49.0%
	05/13/87	27.0%
	05/14/87	24.0%
Portland SE	04/01/86	74.0%
	03/26/85	22.0%
	05/13/87	4.0%

1:100,000K	Date of Photography	Percent Coverage
Lewiston SE	05/13/86	100.0%
Bath NW	04/24/85	48.0%
	11/01/85	34.0%
	05/14/83	9.0%
	05/07/84	9.0%
Bangor SW	04/24/85	49.0%
	11/01/85	25.0%
	05/14/86	14.0%
	05/07/84	12.0%
Bangor NE	05/18/83	50.0%
	05/19/83	37.5%
	04/18/85	12.5%
Bangor SE	05/18/83	52.0%
	05/19/83	48.0%
Eastport NW	05/19/83	54.0%
	05/18/83	33.0%
	04/18/85	13.0%
Eastport NE	05/18/83	100.0%
Eastport SW	05/19/83	83.0%
	04/18/85	17.0%
Fredricton NW	10/23/85	79.0%
	05/07/84	11.0%
Fredricton SW	10/23/85	49.0%
	05/07/84	38.0%
	05/26/86	13.0%

G. COLLATERAL DATA

1. U.S.G.S. Topographic Maps

2. S.C.S. Soil Surveys

3. Present NWI data

4. Bailey, R.G., 1980, Description of The Ecoregions of The United States.

5. Magee, Dennis W., 1981, Freshwater Wetlands.

II. PHYSICAL DESCRIPTION OF THE PROJECT AREA

A. Geography

With the exception of the southern tip of Portland SE and Portland NE, the majority of the study area is described by Bailey (1980) as the Northern Hardwoods-Spruce Forest Section of the Laurentian Mixed Forest Province. The small area of exception is within the Appalacian Oak Forest Section of the Hot Continental Divisions' Eastern Deciduous Forest Province.

Most of the study area is characterized by plains with hills exhibiting low relief. Low mountains are found in many isolated areas within the work area. Greater than 50 - 80% of the land is gently sloping with local relief from 100 feet to 1,000 feet. 50 - 75% of the gentle slope is found in lowland areas.

B. Climate

The study area is characteristic of a northern temperate climate with sufficient rainfall to support vast broadleaf deciduous and needle leaved evergreen forests. Maine is noted for its rapidly changing weather, there are frequent rains and winters are severe. Precipitation is generally greatest along the coast, with yearly averages between 40 - 50 inches. Average annual temperatures range from 35 to 50 degrees.

C. Vegetation

The dominant vegetation over the study area ~~is~~ are forests of deciduous and coniferous species found in both mixed and pure stands. Generally, the deciduous species inhabit the lower, warmer zones of better soils while the spruce and pine mixes occupy the upper tree stratum on the poorer rocky soils of the highlands. Numerous palustrine wetlands are found in study area with bogs and marshes the two major types. The coastal zone is fringed by several species of regularly flooded rockweed and expansive tidal flats and marshes.

D. Soils

Glaciation has been the dominant influence in soil formation along with climate and vegetation. Numerous hydric soils composed of peat, muck, and clays are found in combinations with sand, silt, gravel, and rock to give the study area a wide range of soil types that vary greatly from place to place.

Generally, Spodsols are dominant in the coastal areas with Inceptisols and Alfisols more extensive further inland. Extensive deposits of clays and silts known as the Presumpscot Formation blanket the lower elevations along the coastal regions.

E. Water Regime Description

Non-Tidal

(A) Temporarily Flooded - Surface water present for brief periods during growing season, but water table usually lies well below soil surface. Plants that grow both in uplands and wetlands are characteristic of this water regime.

(B) Saturated - The substrate is saturated to the surface for extended periods during the growing season, but surface water is seldom present.

(C) Seasonally Flooded - Surface water is present for extended periods especially early in the growing season, but is absent by the end of the growing season in most years. The water table after flooding ceases is extremely variable, extending from saturated to a water table well below ground surface.

? (E) Seasonally Flooded/Saturated

(F) Semipermanently Flooded - Surface water persists throughout the growing season in most years. When surface water is absent, the water table is usually at or very near the land's surface.

(G) Intermittently Exposed - Surface water is present throughout the year except in years of extreme drought.

(H) Permanently Flooded - Water covers the land surface throughout the year in all years.

(K) Artificially Flooded - The amount and duration of flooding is controlled by means of pumps or siphons in combination with dikes and dams.

Tidal

(K) Artificially Flooded

(L) Subtidal

(M) Irregularly Exposed

(N) Regularly Flooded

(P) Irregularly Flooded

(S) Temporary-Tidal

(R) Seasonal-Tidal

(T) Semipermanent-Tidal

(V) Permanent-Tidal

Special Modifiers

(b) Beaver

(d) Partially Drained/Ditched

(h) Diked/Impounded

(r) Artificial Substrate

(x) Excavated

Water Chemistry

(6) Oligohaline

(a) Acid

Collateral data included U.S.G.S. topographic maps, climate, vegetation, and ecoregional information. The user of the map is cautioned that, due to the limitations of mapping primarily through aerial photointerpretation, a small percentage of wetlands may have gone unidentified. Since the photography was taken during a particular time and season, there may be discrepancies between the map and current field conditions. Changes in landscape which occurred after the photography was taken would result in such discrepancies.

Aerial photo interpretation and drafting were completed by Martel Laboratories, Inc., St. Petersburg, Florida.

H. MAP ACQUISITION

To discuss any questions concerning these maps or to place a map order, please contact:

Ralph Tiner
Regional Wetland Coordinator
U.S. Fish and Wildlife Service
1 Gateway Center, Suite 700
Newton Corner, Mass. 02158

To order maps only, please contact:

National Cartographic Information Center
U.S. Geological Survey
507 National Center
Reston, VA 22092

1-800-USA-MAPS

Maps are identified by the name of the corresponding U.S.G.S. 1:24,000 scale topographic quadrangle name. Topographic map indices are available from the U.S. Geological Survey.

D. WETLAND CLASSIFICATION CODES AND WATER REGIME DESCRIPTIONS

Table - Cowardin Classification Codes and Descriptions (1 of 6)

NWI CODE WATER REGIME	NWI DESCRIPTION	COMMON DESCRIPTION	CHARACTERISTIC VEGETATION
MARINE			
M1UB (L)	Marine, subtidal, unconsolidated bottom	Ocean	Unvegetated mud and sand
M2AB1 (N)	Marine, intertidal, Aquatic bed, algal	Rockweeds	Fucus vesiculosis Ascophyllum nodosum
M2RF2 (M)	Marine, intertidal, reef, mollusc	Clam bars, reefs	Clams, mussels
M2US (K)	Marine, intertidal, unconsolidated shore	Artificially flooded lobster pounds	Unvegetated sand and mud
M2US (N,P)	Marine, intertidal, unconsolidated shore	Tidal flats, beaches	Unvegetated sand and mud
M2RS (N,P)	Marine, intertidal, rocky shore	Shore, rocks	Unvegetated bedrock and cobble/gravel

D. WETLAND CLASSIFICATION CODES AND WATER REGIME DESCRIPTIONS

Table - Cowardin Classification Codes and Descriptions (2 of 6)

NWI CODE WATER REGIME	NWI DESCRIPTION	COMMON DESCRIPTION	CHARACTERISTIC VEGETATION
ESTUARINE			
E1UB (L)	Estuarine, subtidal, unconsolidated bottom	Bays, coves	Unvegetated mud and sand
E2US (N,P,M)	Estuarine, intertidal, unconsolidated shore	Tidal flats	Unvegetated mud, sand, and organic peat
E2RS (P,N)	Estuarine, intertidal, rocky shore	Rocky shoreline	Unvegetated bedrock and cobble/gravel
E2AB1	Estuarine, intertidal, aquatic bed, algal	Rockweeds	Fucus vesiculosis Ascophyllum nodosum
E2EM1 (N,P)	Estuarine, intertidal, emergent, persistent	Tidal marsh	Spartina patens Typha angustifolia Scirpus robustus Spartina pectinata Juncus balticus

D. WETLAND CLASSIFICATION CODES AND WATER REGIME DESCRIPTIONS

Table - Cowardin Classification Codes and Descriptions (3 of 6)

NWI CODE WATER REGIME	NWI DESCRIPTION	COMMON DESCRIPTION	CHARACTERISTIC VEGETATION
PALUSTRINE			
PEM1 (A,B,C, E,F)	Palustrine, emergent, persistent	Marsh, seep, wet meadow	Typha latifolia (cattail) Juncus sp. (rush) Carex sp. (rush) Iris versicolor (blue flag)
PAB3 (F,H)	Palustrine, aquatic bed, rooted vascular	Pond weeds	Nuphar lutuem (water lily) Potamogeton spp. (pondweed) Pontederia cordata (pickerelweed)
PAB4 (F,H)	Palustrine, aquatic bed, floating vascular	Pond scum	Lemna sp. (duckweed)
PFO1 (B,C,E,R)	Palustrine, forested, broad leaved deciduous	Forested, floodplains, streams, swamps, bogs, fens	Alnus spp. (Alder) Acer rubrum (red maple) Betula populifolia (gray birch)
PFO2 (B,E)	Palustrine, forested, needle leaved, deciduous		Larix laricina (larch)

D. WETLAND CLASSIFICATION CODES AND WATER REGIME DESCRIPTIONS

Table - Cowardin Classification Codes and Descriptions (4 of 6)

NWI CODE WATER REGIME	NWI DESCRIPTION	COMMON DESCRIPTION	CHARACTERISTIC VEGETATION
PALUSTRINE			
PFO4 (B,C,E,R)	Palustrine, forested, needle leaved evergreen		Chamaecyparis thyoides (Atlantic White Cedar) Picea mariana (Black spruce) Pinus strobus (Eastern White Pine) Thuja occidentalis (Northern White Cedar)
PFO5 (F,H)	Palustrine, forested, dead		
PSS1 (B,C,E,F R)	Palustrine, scrub-shrub, broad-leaved deciduous	Swamps, bogs, fens, thickets, vegetated stream banks	Cornus amomum (Silky dogwood) Kalmia angustifolia (sheep laurel) Spiraea latifolia (meadowsweet) Alnus spp. (Alder)
PSS3 (B,E)	Palustrine, scrub-shrub, broad leaved, evergreen	Bogs	Chamaedaphne, Calyculata (leatherleaf)

D. WETLAND CLASSIFICATION CODES AND WATER REGIME DESCRIPTIONS

Table - Cowardin Classification Codes and Descriptions (5 of 6)

NWI CODE WATER REGIME	NWI DESCRIPTION	COMMON DESCRIPTION	CHARACTERISTIC VEGETATION
PALUSTRINE			
PSS4 (B,C,E,R)	Palustrine, forested, needle leaved evergreen		Pinus rigida (Pitch pine) Chemaecyparis thyoides (Atlantic White Cedar) Picea mariana (Black spruce)
PUB (F,H,V,T)	Palustrine, unconsolidated bottom	Ponds, sand/ gravel pits, impoundments	Unvegetated mud
LACUSTRINE			
L1UB (H)	Lacustrine, limnetic, unconsolidated bottom	Lakes	Unvegetated mud and sand
L2US (A,C)	Lacustrine, littoral, unconsolidated shore	Exposed shoreline	Unvegetated mud and sand

D. WETLAND CLASSIFICATION CODES AND WATER REGIME DESCRIPTIONS

Table - Cowardin Classification Codes and Descriptions (6 of 6)

NWI CODE WATER REGIME	NWI DESCRIPTION	COMMON DESCRIPTION	CHARACTERISTIC VEGETATION
RIVERINE			
R1UB (V)	Riverine, tidal, unconsolidated bottom	Rivers, streams	Unvegetated mud and sand
R1AB3 (V)	Riverine, tidal, aquatic bed, rooted vascular		Nuphar luteum (water lily)
R2UB (H)	Riverine, lower perennial, unconsolidated bottom	Rivers	Unvegetated mud and sand
R2US (A,C)	Riverine, lower perennial, unconsolidated shore	Gravel bars, flats	Unvegetated mud, sand, and gravel

III. FIELD TRIP OBJECTIVES

In general to correlate photographic signatures with field observations, the identification of all representative wetland communities and their relative periods of inundation and/or saturation. This focus will help to maintain consistent, dependable delineations of wetlands throughout the mapping area.

Specifically:

1. Determine if orange/red signature is regularly flooded (M2AB1N) or irregularly exposed (M2AB1M) rockweed.

2. To establish criteria for making the M1/E1 breaks.

3. In estuaries, will the rockweed signature be regularly flooded (E2AB1N)?

4. Will a irregularly exposed unconsolidated shore (M2USM and E2USM) "break" be attempted?

5. Will the white typha and carex signatures be considered seasonally flooded emergents (PEM1C) or seasonally flooded/saturated (PEM1E)?

6. When applicable will split classes be used?

7. Will linear connections be made to express hydrologic connectivity, and will the vegetative unit be stressed over R2UBH or R4SBC calls?

Results:

1. The fringe of rockweed in both estuarine and marine work areas will be given the regularly flooded water regime (E2AB1N and M2AB1N).

2. It was decided that M1/E1 breaks would be made utilizing a combination of current NWI data, tidal range information, and obvious photointerpretive conventions as per instructions from Ralph Tiner.

3. Unlike current NWI data, no attempt will be made to estimate E2USM and M2USM irregularly exposed flats. Unconsolidated shore calls will be confined to regularly flooded (E2USN and M2USN) and irregularly flooded (E2USP and M2USP) delineations.

4. Emergents, in most cases, will be classified as PEM1E. This label reflects the soil and climactic conditions found in the work area. Exceptions may include small PEM1C polygons and linears found in agricultural areas and disturbed lands.

5. Split classes and subclass labels will be used when a wetland community exhibits an equal density of plant species, however, an attempt will be made to keep such labels to a minimum.

6. Linears will be pulled to establish hydrologic connections if:

   a. An obvious vegetative unit occupies the drainages, PSS1C for example.

   b. Pen width rivers or streams without a vegetative canopy will be labeled R2UBH, and only if the topo shows a perennial drainage.

A. FOR/RESTED WETLANDS

   1. Seasonally flooded/saturated, broad-leaved deciduous for/ested wetlands (PFO1E) were numerous and mapped aggressively to insure complete wetland coverage. On all spring photography the seasonally flooded/saturated signature (Sites #2 and 3) appears darker with broken canopy, however, care must be taken to include the subtle whitish understory of emergents (Eleocharis species) and ferns (Osmunda cinnamomea) that make up the outer fringe of the wetland perimeter. Care will be taken to insure all swamp symbols on the topos will be thoroughly investigated. Fall photography is restricted to Fredricton NW and Fredricton SW and presents a problem insofar as more attention must be paid to canopy and crown configurations. For/ested wetland signatures are again darker, bluish with broken canopy cover.

   2. Temporarily flooded, broad-leaved deciduous for/ested wetlands (PFO1A) were not observed. Seasonally flooded, broad-leaved deciduous for/ested wetlands (PFO1C) were also not found in isolated depressions and will be reserved for streamside situations in drainages. For the most part sublinear drainages will be labeled seasonally flooded for/ested to be more accurate since the actual channel is sublinear.

3. Seasonally flooded/saturated, needle leaved evergreen forested wetlands (PFO4E) were also found (Site #19) in pure stands and in with broad leaved deciduous mixes (Site #9). The dominant species observed were Picea mariana and Pinus strobus and usually had a rich understory of Sphagnum along with Scirpus cyperinus, Lycopodium obscurum, Maianthemum canadense, and Carex species.

4. Saturated, needle leaved evergreen forest (PFO4B) were numerous in isolated bog situations (Site #39) with Picea mariana, and Chamaecyparis thyoides. The dominant species exhibiting a darker purple signature on the inner fringe of the floating Chamaedaphne calyculata community (PSS3Ba). The small "a" modifier (PFO4Ba) will be used to describe the low ph content characteristically found in water associated with the mat community. Site #39 is an example of a PFO4B in the absence of the leather leaf association with a dense understory of Sphagnum species and Osmunda cinnamomen. Trientalis borealis was a less common plant observed.

In general the saturated water regime will be used in these situations:

1. "Kettlehole" type bogs.

2. Forested areas on obvious slope and in conjunction with hydric soil or contour profile.

3. Forested areas on the fringes of saturated leather leaf communities or forested with an obvious PSS3B understory.

4. Saturated, needle leaved deciduous forested wetlands (PFO2B) were found in several locations (Sites #46, 38, 33, and 32) however, the signature of Larix laricina so closely resembles that of the needle leaved evergreen species on the spring photography, it was decided to reserve the PFO2B call for checksite areas only. Subsequent field work has discovered a correlation on fall photography between the yellowing of larch needles and puffy white crowns in obvious wetlands situations, this information can be possibly used for the fall photography in Fredricton NW and Fredricton SW.

5. Dead trees (PFO5) were seen in the work area exhibiting an open water signature with various concentrations of small white trunks on the photography. While not checksited, these areas exhibit a definite semi-permanent (PFO5F) signature and are most often found in association with impounded areas or beaver activity (PFO5Fb). Artificially formed lakes and ponds (L1UBHh and PUBHh) with permanent water on the topo could justify permanently flooded (PFO5Hh) labels.

B. Shrub Wetlands

1. Temporarily and seasonally flooded, broad-leaved deciduous shrub wetlands (PSS1A and PSS1C) were uncommon in the work area, but may be found on the fringes of streams and rivers or along drier floodplains. Again, it was decided in the place of delineating the riverine channel, the seasonally flooded vegetative fringe would best describe the drainage. This is especially true in areas of greater relief where the riverine channel is more incised and hydric soil availability is lacking.

2. Seasonally flooded/saturated broad-leaved deciduous shrub wetlands (PSS1E) were very common in drainages with gentle slope, along floodplains, in disturbed areas, and numerous situations influenced by beaver activity or impounding actions of man. The PSS1E wetlands appear smooth and gray (Sites #26 and 25) to reddish on the darker photography. The species list is extensive with Alnus rugosa, Acer rubrum, Myrica gale, Ilex verticillata, and Spiraea tomentosa a few representative examples. Alder was found in many upland situations, however, the orange and brown drier signatures should pose no problems to delineations.

3. Seasonally flooded/saturated broad-leaved and needle-leaved evergreen shrub wetlands (PSS7Ba) were observed in evenly mixed communities of Chamaedaphne calyculata, Pinus rigida, and Picea mariana in bogs (Site #14), with the leather leaf exhibiting its characteristic orange signature and the needle leaf evergreen represented by small distinguishable crowns. Purer stands of saturated, broad-leaved evergreen shrub wetlands (PSS3Ba) were common (Sites #23 and 35), and usually formed in isolated depressional areas generally not associated with a discernable drainage. The characteristic bog mat is

a diverse collection of shrub species with Chamaedaphane calyculata dominant in a Rhododendron canadense, Kalmia augustifolia, Ledum groenlandicum, and Betula populifolia mix. A more even mix between the leatherleaf and broadleaved deciduous species results in a darker, less orange signature (Sites #41, 42, and 47) and shall be classified PSS3/1B or SS1/3B if the orange signature appears less dominant.

Also found in association with the saturated broad leaved deciduous and broad leaved evergreen shrub bogs are dense mixes of emergents (PSS1/EM1B, Site #27), (PSS3/EM1Ba, Site #44). In addition to either dominant shrub wetland is a dense emergent mix of Spagnum species, Sarracenia purpurea, Duosera sp., Eleocharis sp., Empetrum nigrum, and Carex sp.

Saturated, needle leaved evergreen shrub wetlands were observed in the field in both mono specific situations (PSS4B), and with emergent mixes (PSS4/EM1B) most notably in Site #43 in West Quoddy Head State Park where the dominant Picea mariana is included on a beautiful mix of Sphagnum, Drosera sp., Sarracenia purpurea, Lichens and the rare.

4. In addition, Site #29 is an example of a saturated, broad leaved deciduous shrub wetland (PSS1B) with Myrica gale dominant and Site #28 a similar situation with Alnus rugosa dominant. Both sites exhibit the grayish SS1 signature, however, now in a isolated bog setting, the understory is thick with Sphagnum. Other shrubs include Rhododendron, Canadense, Kalmia angustifolia, and Myrica gale.

5. Site #35 is an example of a seasonally flooded/ saturated broad leaved evergreen shrub wetland (PSS3E). The label reflects a combination of standing water and proximity to a drainage system. The dominant Chamaedaphne calyculata was also found with Eriophorum sp., Kalmia augustifolia, and Sarracenia purpurea. It was decided to assign the seasonally flooded/saturated to this wetland in order to better explain the fact that it does not reflect an isolated floating mat community.

6. A semi-permanently flooded, broad leaved deciduous shrub wetland (PSS1F) was observed at Site #4. The signature reflects open water with a shrub mix, and given the dominant species was Cephalanthus occidentalis, the semi-permanent water regime was assigned. Other hydric plant species observed were Myrica gale, Alnus sp., Ilex verticillata, Typha latifolia, and Nuphar sp.

C. Emergent Wetlands

1. Temporarily and seasonally flooded emergent wetlands (PEM1A, PEM1C) were not common, and although they were not field checked, some smaller (pen width) drainages exhibiting an emergent signature will be labelled PEM1C, especially when channels are narrow and crossing several contour lines. The vast majority of the emergent wetlands consisted of seasonally flooded/saturated, emergents (PEM1E). The signatures remained consistent throughout the work area as smooth white to gray (Site #26) in contrast to the shrub wetlands darker gray to blue textured signature. Species present at this site included Carex sp., and various unidentified grasses. Site #25 is an example of beaver activity (PEM1Eb) influencing the Typha latifolia and adjacent shrub wetlands.

2. Saturated emergent wetlands (PEM1B) were not common with two checksites recorded (Sites #31 and 45). Site #31 is a broad drainage with no channel present. However, growing on the slope were various unidentified grasses and Saururus cernus less common. Site #45 is a co-dominant mixture of Carex sp., and Juncus sp. mixed with grasses on slope and adjacent to a nearby estuarine system. It is doubtful that flooding ever reaches this community, however, when a soil core was obtained, the horizon measured greater than 21 inches of peat.

3. Semi-permanently flooded emergent wetlands (PEM1F) were seen in several locations in the work area, Site #8 is characteristic of the semi-permanent water regime with the smooth cattail emergent signature in standing water.

D. Coastal Estuarine and Marine Wetlands

1. All rockweed species in estuarine and marine systems will be classified either M2, E2, or AB1N. Site #24 illustrates the characteristic red/orange rockweed signature.

2. Irregularly flooded, salt marsh will be labelled E2EMIP and is identified by a smooth white signature (Site #21). Dominant species at this site were Juncus balticus and Carex paleacea, with Aster tenuifolius, Potentilla anserina, and Rosa palustris less common. Another area with several species present was Site #12 with Spartina pectinata, Spartina patens, Eleocharis sp., and Thelypteris thelypteroides dominant.

3. Regularly flooded salt marsh (E2EM1N) was not common in the work area and even though the photography reflects low tide conditions, the low marsh was not visible in almost every instance. Small units appeared on the photography as a purple stain in the water on the E2EM1P fringe, these were not mapped due to size. One of the few E2EM1N sites is #22, however, the area was inaccessible and could be viewed only through field glasses. The dominant species was identified as Spartina alterniflora.

4. A number of areas were observed to be a mixed transitional community of both salt marsh and freshwater emergent plants. The oligohaline (6) coastal halinity value will be assigned (E2EM1P6) to these areas of brackish high marsh.

5. Site #30 has Typha augustifolia dominant, with the cattails showing a darker and more pink signature when compared to the Spartina. Site #13 is a mixture of the Typha augustifolia, Spartina pectinata, Aster tenuifolius with enough Myrica gale to split class (E2SS1/EM1P6).

SUMMARY

1. Given climatic and species limitations PFO1F (semi-permanent) labels should be avoided. PFO1E has a great signature range from standing water to a subtle white (Sedge sp.) understory. Trees in a semi-permanent situation will soon become PFO5 (dead), and are usually the result of either beaver dams (PFO5Fb) or impounding activities by man.

2. In regards to split class and subclass labels FO4/SS1, FO1/EM1, EM1/SS4 for example, these will be found but, should be avoided or kept to a minimum.

3. Most ponds that are polygon size will be labelled as permanent water bodies (PUBH). The appropriate modifier "h" or "x" will also be included. Smaller "dot" size polygons will be labelled PUBF along with excavations (pits) exhibiting light blue or green shallow water.

4. PFO4B labels will be limited to
   a. Isolated "Kettle Hole" bogs
   b. On the fringe or within PSS3Ba, PSS7Ba, and similar mat communities, plus FO4 areas with obvious SS3 saturated understories.

5. The "a" acid modifier should be used with PFO4B in two situations
   a. Kettle Hole type bogs
   b. FO4 adjacent to PSS3Ba, or similar bogs.

6. Photointerpreters are instructed to carefully examine all areas with swamp symbols on the topo. Care must be taken to include these areas when delineating as the great majority do in fact represent marshy areas or areas of wet hydric soils.

7. Mollusc reefs in the Marine system, present on current NWI data, shall be transferred on to the photography and will be classified M2RF2W.

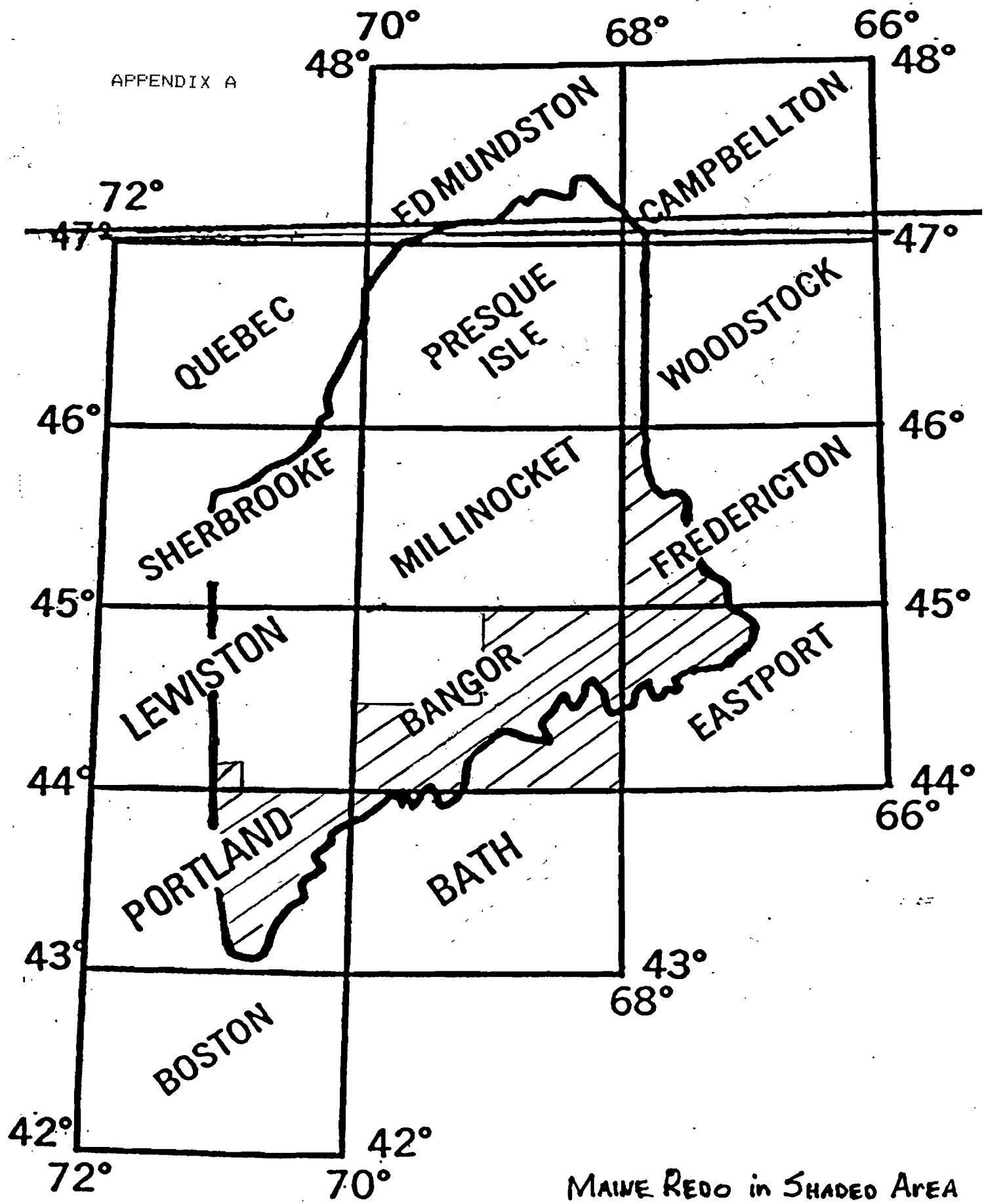
8. Artificially flooded commercial lobster ponds indicated on the topo will be classified M2USKh.

9. Isolated shallow bodies of water present within the high marsh (E2EMIP) will be classified E2US4M to describe the intermittently exposed organic peat substrate.

10. Beach sand with a smooth white signature will be labelled E2US2P and M2US2P respectively. Exposed mud on tidal flats will be classified either E2US3N or M2US3N. Additionally, M2US2N will describe the Marine tidal flats with sand substrate.

11. The "bluish" rocky shore signature found adjacent to rockweed areas (M2, E2, ABIN) will be classified either M2 or E2 RSIN. The white scar formed on the ocean facing side of islands, and shoreline facing the open ocean will be classified E2 or M2 RSIP.

APPENDIX A



MAINE REDO in SHADED AREA

APPENDIX B: PARTIAL COMMUNITY PLANT LIST

Site 1	PEM1Fh	Typha latifolia was dominant. Carex spp. and various unidentified grasses were also common.
	PAB3Hh	The dominant aquatic was Nuphar luteum.
Site 2	PFO1E	The dominant trees were Betula populifolia and Betula papyrifera. Eliocharis sp. along with Juncus sp. and Spiraea tomentosa were common.
Site 3	PFO1E	A good plant diversity with Acer rubrum dominant. Pinus strobus, Carpinus caroliniana, Onoclea sensibilis, Osmunda cinnamomea, Aralia nudicaulis, Maianthemum canadense were common. Less common plants included Betula populifolia, Abies balsamea, Osmunda regalis, Vibernum recogintum, Sphagnum sp. (in depressions), Vibernum cassinoides, Ilex verticillata, Betula papyrifera, Thelypteris noveboracensis, Polytrichum commune, and other unidentified grasses.
Site 4	PSS1F	Cephalanthus occidentalis and Myrica gale were co-dominant with Typha sp., Nuphar sp., Alnus sp., and Ilex verticillata common.
Site 5	PEM1E	Co-dominant species at this site were Calamagrostis canadensis and Spiraea latifolia. Onoclea sensibilis, Acer rubrum, Alnus sp., Iris versicolor, Sambucus sp., and Populus tremula were common plants.
Site 6	PEM1E	The dominant species at this site was Phaliris arundinacea with Salix sp. common. Less common species included Alnus rugosa, Eriphorum virginicum, Spiraea latifolia, Onoclea sensibilis, Pinus strobus, and Thelypteris thelypteroides.
Site 7	PEM1R	Typha latifolia was dominant, with Myrica gale observed as a less common species.
Site 8	PEM1F	Dominant species at this site was Typha sp.
Site 9	PFO4/1E	Picea mariana and Acer rubrum were co-dominant with Betula populifolia, Vaccinium corymbosum, Lycopodium obscurum, Sphagnum sp., and Maianthemum canadense less common species recorded.

Site 10	PFO1/SS1B	Co-dominant shrub species were Acer rubrum and Betula populifolia. Common plants included Pinus strobus, Nemopanthus mucronatus, Lyonia ligustrina, Kalmia augustifolia, and Vaccinium corymbosum. Less common plants observed at the site included Alnus sp., Spiraea latifolia, Sphagnum sp., Vaccinium macrocarpon, Viburnum cassinoides, and Osmunda regalis.
Site 11	E2EMIP	Co-dominant species at this site were Juncus balticus, Carex paleacea and Aster tenuifolius with Potentilla anserina and Rosa palustris less common.
Site 12	E2EM1P	Spartina pectinata was dominant with common plants Spartina patens, Eliocharis sp., and Thelypteris thelypteioides. Less common plants observed were Panicum sp., Hierochloe odorata, Toxicodendron radicans and Rosa palustris.
Site 13	E2SS1/EM1P6	The co-dominant shrubs and emergents were Myrica gale, and Spartina pectinata. Typha angustifolia and Aster tenuifolius were common in the mix. Less common plants observed included Dryopteris thelypteris, Rosa palustris, Toxicodendron radicans, Iris versicolor, Acer rubrum, Alnus sp., and Eliocharis sp.
Site 14	PSS7Ba	The dominant shrub mix was Chamaedaphne calyculata and Pinus rigida with Rhododendron canadense, Vaccinium corymbosum, Sphagnum sp., and Kalmia angustifolia common. Less common plants include Picea mariana, Larix laricina, Nemopanthus mucronata, Pinus strobus, Acer rubrum, Pyrus arbutifolia and Lyonia ligustrina.
Site 15	PFO1/4E	Co-dominant species were Acer rubrum, and Pinus strobus. Nemopanthus mucronata, Ilex verticillata, Lyonia ligustrina, and Osmunda cinnamomea were common with Iris versicolor, Alnus sp., Osmumda regalis, Carex spp., and Betula lutea identified as less common.
	PFO1E	Acer rubrum was dominant. Nemopanthus mucronata, Ilex verticillata, Lyonia ligustrina, Osmunda cinnamomea were common. Alnus sp., Osmumda regalis, Iris versicolor, Carex spp., and Betula lutea were less common.

Site 16	PSS3Ba	Chamaedaphne calyculata was dominant with Sphagnum sp. common. Less common plants were Pinus strobus, Acer rubrum, Kalimia angustifolia, Spiraea tomentosa, Ilex verticillata, and Rhododendron canadense.
Site 17	PEM1E	Dominant plants were a mixture of unidentified grasses with Scirpus cyperinus, and Carex spp. common. Betula populifolia, Myrica gale, Spiraea latifolia, Typha latifolia, and Spiraea tomentosa were also observed as less common.
Site 18	PAB3F	The dominant species was Pontederia cordata. Sphagnum eurycarpum was common. Less common species were Nuphar luteum and Iris versicolor (on fringe).
Site 19	PFO4E	This site had been disturbed by recent excavations with Pinus strobus dominant. Common plants at this site included Acer rubrum and Chameadaphne calyculata with less common species Kalimia angustifolia, Scirpus cyperinus and Typha sp.
Site 20	PSS1/EM1E	The emergent and shrub co-dominant mix was Typha sp., Spiraea tomentosa and other unidentified grasses with Salix spp. and Ilex verticillata.
Site 21	E2EM1P	Co-dominant plants were Carex spp., and Scirpus spp., with Pontederia cordata less common.
Site 22	R1AB3V	Field glasses were used to identify Nuphar luteum as dominant, given accessibility was not possible.
Site 23	PSS3Ba	Chamaeadaphane calyculata and Sphagnum sp. were do-dominant with Acer rubrum, Betula populifolia and unidentified grasses less common.
Site 24	E2AB1N	Exposed rockweeds were found at this site and later identified as Fucus vesiculosis and Aescophyllum nodosum.
Site 25	PEM1E6	Dominant plants located on the fringe of the beaver impoundment were several unidentified grasses and Typha latifolia.
	PSS1E	Acer rubrum was dominant. Alnus rugosa was common.

Site 26	PEM1E	Various unidentified grasses were dominant with Carex spp. as common.
	PSS1E	The dominant shrub was Salix nigra. Alnus rugosa and Spiraea tomentosa were common with Acer rubrum less common.
Site 27	PSS1/EM1B	The dominant species at this site was Phododendron canadense. Kalmia polifolia, Andromea glaucophylla, Betula populifolia, Eliocharis sp., and Sphagnum sp. were common. Alnus rugosa was less common.
Site 28	PSS1B	Alnus rugosa was dominant. Sphagnum sp. was common.
Site 29	PSS1B	Co-dominant shrub species were Myrica gale and Spiraea latifolia. Sphagnum sp. was common in depressions with Vaccinium corymbosum, Larix larcina, and Ilex verticillata also common. Acer rubrum was less common.
Site 30	E2EM1P6	This area of high marsh was dominated by Typha angustifolia.
Site 31	PEM1B	Unidentified grasses were dominant at this site, with Spiraea latifolia and Saurus cernus less common.
Site 32	PSS1B	Dominant species at this site was Andromeda glaucophylla with Viburnum trilobum, Eriophorum sp., Spiraea tomentosa, Ledum groenlandicum and other mosses common. Less common plants were Drosera sp. and Spiraea sp.
	PFO2B	Larix Laricina was dominant with Sphagnum sp: common.
Site 33	PFO2B	The dominant species was Larix laricina with Sphagnum sp. common. Spiraea latifolia, Spiraea tomentosa, Alnus rugosa, Acer rubrum, Kalmia angustifolia, Picea mariana, and unidentified grasses were less common.
Site 34	PEM1E	Various unidentified grasses were dominant at this site.
Site 35	PSS3E	Chamaedaphne calyculata was dominant with Sphagnum sp., and Eriophorum sp. common. Less common species were Kalmia angustifolia and Sarracenis purpurea.
	PSS3Ba	Chamaedaphne calyculata was dominant with Sphagnum sp., and Eriophorum sp. common.