

FRIENDS OF MERRYMEETING BAY

1999 Aerial Photo Interpretation and Trends Analysis Study

Reference Wetlands

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Reference Wetland: Aquatic Bed

Date Evaluated: 8/10/99

Sub-Area: Middle Bay

General Description: Approximately ½ mile north of Abagadasset Point and west of Lillys Cove. Located along the eastern edge of a north-south oriented sand bar.

GPS Coordinate: N 44° 00.894'
W 069° 49.478'
(reading taken near center of wetland)

Vegetation: Submerged Aquatic Vegetation (exposed during extreme low tides; floating near low tide). Not indicated on NWI maps.

Total % Areal Coverage: ~65%

Species:

<u>Common name</u>	<u>Scientific</u>	<u>Estimated % Areal Coverage</u>
Eel grass, tapegrass	Vallisneria americana	55%
Red-head grass, clasping-leaved pondweed	Potamogeton perfoliatus	10%

Substrate: Dark gray sand, fine sand, silt and organic matter*
Estimated basic USDA texture class: loamy sand

Hydrology: Irregularly exposed
NWI maps do not indicate this aquatic bed or its associated water regime

* A north-south oriented sand bar immediately west of this aquatic bed is composed of nearly pure sand. Silt has accumulated along the eastern edge of this bar. These fines allow for the development of rooted aquatic vegetation which, in turn, contributes to the accumulation of organic matter and trapping of sediments as a component of this substrate.



Photo 1. Claspingleaved pondweed within about one foot of low tide. Patches of this species were interspersed with patches of tapegrass (below).

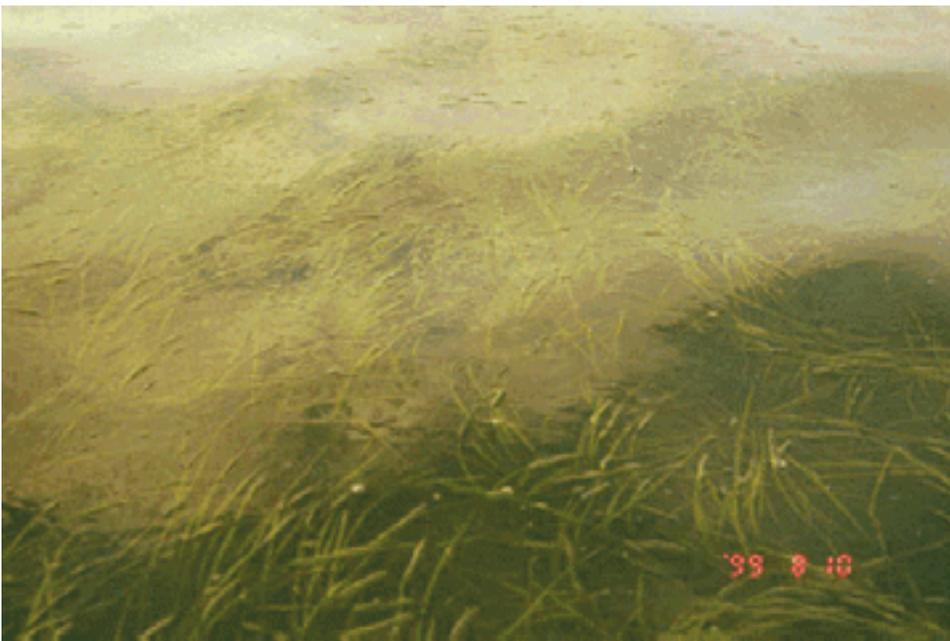


Photo 2. Tapegrass within about one foot of low tide. This plant resembles some forms of arrowhead, but most tapegrass occurs in monotypic beds, spreading vegetatively.

Reference Wetland: River Bulrush

Date Evaluated: 8/11/99

Sub-Area: Muddy/Cathance

General Description: On east bank of Cathance immediately downstream from two utility ROWs and <2,000' upstream from mouth of river.

GPS Coordinate: N 43° 59.613'
W 069° 53.024'
(reading taken near center of wetland)

Vegetation: Emergent Marsh Vegetation. (NWI class: Palustrine emergent persistent)

Total % Areal Coverage: ~135%

Species:

<u>Common name</u>	<u>Scientific</u>	<u>Estimated % Areal Coverage</u>
River bulrush	<i>Bolboschoenus fluviatilis</i>	95%
Sweet flag	<i>Acorus calamus</i>	12%
Arrowhead	<i>Sagittaria latifolia</i>	8%
Pickerelweed	<i>Pontederia cordata</i>	8%
Touch-me-not	<i>Impatiens capensis</i>	4%
Purple loosestrife	<i>Lythrum salicaria</i>	1%
Yellow pond lily	<i>Nuphar advena</i>	1%
Smartweed	<i>Persicaria punctata</i>	<1%
Arrow-leaved tearthumb	<i>Persicaria sagittata</i>	<1%
Common boneset	<i>Eupatorium perfoliatum</i>	<1%
Water dock	<i>Rumex orbiculatus</i>	<1%
Field mint	<i>Mentha arvensis</i>	<1%
Monkeyflower	<i>Mimulus ringens</i>	<1%
Bur marigold #1	<i>Bidens</i> sp.	<1%

Bur marigold #2	Bidens sp.	<1%
Water horsetail	Equistem fluviatile	<1%
Rough bedstraw	Gallium asprellum	<1%
Water-parsnip	Sium suave	<1%
Bedstraw #2	Gallium sp.	<1%
Fringed sedge	Carex crinita	<1%
Three-square	Schoenoplectus pungens	<1%
Burreed	Sparganium americanum	<1%

Substrate: dark gray silt containing some sand
Estimated basic USDA texture class: silt loam.

Hydrology: Inundated at high tide and exposed at low tide. Microtopography present so that some areas flooded most of time and some only briefly
NWI water regime: semipermanently flooded tidal



Photo 3. View to southeast from western edge of river bulrush reference.



Photo 4. View to east from the interior of the reference wetland. Purple loosestrife is visible in the left foreground. The inflorescences and dark green foliage in the foreground and background are river bulrush. The white in the center of the picture is water parsnip.

Reference Wetland: Pickerel Weed

Date Evaluated: 8/12/99

Sub-Area: Androscoggin River

General Description: Located in the extreme northwest corner of the mouth of the Androscoggin River, immediately east of the mouths of the Cathance and Muddy Rivers (about 1,000' east of Muddy)

GPS Coordinate: N 43° 58.811'
W 069° 52.697'
(reading taken near center of wetland)

Vegetation: Emergent Marsh Vegetation (NWI class: Estuarine intertidal emergent persistent)

Total % Areal Coverage: ~80%

Species:

<u>Common name</u>	<u>Scientific</u>	<u>Estimated % Areal Coverage</u>
Pickerelweed	Pontederia cordata	72%
Softstem bulrush	Schoenoplectus tabernaemontanae	4%
Red-head grass, clasping-leaved pondweed	Potamogeton perfoliatus	1%
Wild rice	Zizania aquatica	1%
Arrowhead	Sagittaria latifolia	<1%
River bulrush	Bolboschoenus fluviatilis	<1%
Three-square	Schoenoplectus pungens	<1%
Water purslane	Ludwigia palustris	<1%

Substrate: gray silt and fine sand, organic matter
Estimated basic USDA texture class: loamy sand to fine sandy loam.

Hydrology: Inundated for prolonged periods (at high tide and mid tide) and exposed at extreme low tide.
NWI water regime: regularly flooded tidal



Photo 5. View from the north edge of the pickerelweed reference facing southeast. Softstem bulrush is intermixed (it is about 3x taller than the pickerelweed).



Photo 6. View facing east from north edge of wetland towards Brick Island. Some parts of this wetland have 50% or less vegetative cover, but overall it was estimated to have a total % areal coverage of 80%.

Reference Wetland: Yellow Pond Lily

Date Evaluated: 8/12/99

Sub-Area: Middle Bay

General Description: Immediately off Abagadasset Point, just north of utility ROW. Just north of large boulder.

GPS Coordinate: N 44° 00.2439'
W 069° 49.446'
(reading taken near center of wetland)

Vegetation: Emergent Marsh Vegetation (NWI class: Palustrine emergent persistent)

Total % Areal Coverage: ~90%

Species:

<u>Common name</u>	<u>Scientific</u>	<u>Estimated % Areal Coverage</u>
Yellow pond lily	Nuphar advena	78%
Softstem bulrush	Schoenoplectus tabernaemontanae	4%
Wild rice	Zizania aquatica	3%
Arrowhead	Sagittaria latifolia	2%
River bulrush	Bolboschoenus fluviatilis	1%
Three-square	Schoenoplectus pungens	1%
Pickerelweed	Pontederia cordata	<1%
Water-parsnip	Sium suave	<1%
Sweet flag	Acorus calamus	<1%
Spikerush	Eleocharis sp.	<1%
Beggar-ticks	Bidens sp.	<1%
Water Purslane	Ludwigia palustris	<1%
smartweed, (false water pepper?)	Persicaria sp.	<1%

Substrate: dark gray silty sand with organics, both muck and recognizable plant parts present (fine roots and rhizome)
Estimated basic USDA texture class: loamy sand

Hydrology: Inundated for prolonged periods (at high tide and mid tide) and exposed at low tide.
NWI water regime: seasonal tidal



Photo 7. Dark gray silty sand with some organic accumulation and many roots/rhizomes is substrate. Some soft rush, wild rice and river bulrush interspersed with pond lily in this photo.



Photo 8. View facing south from northern edge of wetland. Wild rice is the cover type in the background.

Reference Wetland: Sweetflag

Date Evaluated: 8/12/99

Sub-Area: Chops

General Description: On the east side of the mouth of Chop's Creek. Technically too small (<1/8 acre to map), but we could not find any larger sweet flag wetlands to use as reference.

GPS Coordinate: N 43° 58.929'
W 069° 49.444'
(reading taken near center of wetland)

Vegetation: Emergent Marsh Vegetation (NWI class: Estuarine emergent persistent)

Total % Areal Coverage: ~120%

Species:

<u>Common name</u>	<u>Scientific</u>	<u>Estimated % Areal Coverage</u>
Sweet flag	<i>Acorus calamus</i>	98%
Softstem bulrush	<i>Schoenoplectus tabernaemontanae</i>	20%
Wild rice	<i>Zizania aquatica</i>	2%
River bulrush	<i>Bolboschoenus fluviatilis</i>	<1%

Substrate: dark gray silt and fine sand with organics, both muck and recognizable plant parts present (fine roots and rhizome)
Estimated basic USDA texture class: loamy sand to sandy loam

Hydrology: Inundated for prolonged periods (at high tide and mid tide) and exposed at low tide.
NWI water regime: regularly flooded tidal



Photo 9. Sweet flag wetland is in foreground adjacent to boat. Wild rice wetland in background beneath upland forest.



Photo 10. Very few sweet flag plants in flower.

Reference Wetland: Cattail

Date Evaluated: 8/12/99

Sub-Area: Chops

General Description: East side of Goose Cove, south of Chop's Creek and east of cluster of islands.

GPS Coordinate: N 43° 58.151'
W 069° 49.355'
(reading taken near center of wetland)

Vegetation: Emergent Marsh Vegetation (NWI class: Estuarine emergent persistent)

Total % Areal Coverage: ~126%

Species:

<u>Common name</u>	<u>Scientific</u>	<u>Estimated % Areal Coverage</u>
Hybrid Cattail	<i>Typha x glauca*</i>	120%
Softstem bulrush	<i>Schoenoplectus tabernaemontanae</i>	5%
Wild rice	<i>Zizania aquatica</i>	1%

Substrate: dark gray silt and fine sand with organics, both muck and recognizable plant parts present (fine roots and rhizome)
Estimated basic USDA texture class: loamy sand to sandy loam

Hydrology: Inundated for prolonged periods (at high tide and mid tide) and exposed at low tide.
NWI water regime: regularly flooded tidal

* This cattail species is one of the dominant marsh emergent species in the Chops subsection. It is definitely not broad leaved cattail (*T. latifolia*) and appears to be a hybrid between narrow-leaved (*T. angustifolia*) and broad-leaved based on height and leaf width. However, a positive determination of species was not made using mature flower spikes.



Photo 11. View facing west. This is typical dense monotypic stand of cattail. Few if any short-stature emergents can be found beneath this dense growth.



Photo 12. View to north. The cause of this devegetated swath was not determined, but might be related to human activity (e.g., waterfowl hunting).

Reference Wetland: Wild Rice

Date Evaluated: 8/12/99

Sub-Area: Abagadasset River

General Description: East of the mouth of the Abagadasset River and off-shore in “island mosaic” of emergent marshes in the middle of the bay.

GPS Coordinate: N 43° 59.903’
W 069° 49.853’
(reading taken near center of wetland)

Vegetation: Emergent Marsh Vegetation (NWI class: Estuarine emergent persistent)

Total % Areal Coverage: ~84%

Species*:

<u>Common name</u>	<u>Scientific</u>	<u>Estimated % Areal Coverage</u>
Wild rice	Zizania aquatica	82%
Softstem bulrush	Schoenoplectus tabernaemontanae	2%
River bulrush	Bolboschoenus fluviatilis	<1%

* Note: importantly, wetland was not viewed at extreme low during reference data collection and some small-stature species such as Scirpus smithii may have been present but missed. Could mostly see substrate though since viewed at about 2” above exposed. Also viewed at extreme low when selecting reference locations so mental picture of wetland was available.

Substrate: dark gray silt and fine sand with organics, both muck and recognizable plant parts present
Estimated basic USDA texture class: loamy sand to sandy loam

Hydrology: Inundated for prolonged periods (at high tide and mid tide) and exposed at extreme low tide.
NWI water regime: regularly flooded tidal



Photo 13. View facing north towards utility ROW at Abagadasset Point from wild rice wetland interior.

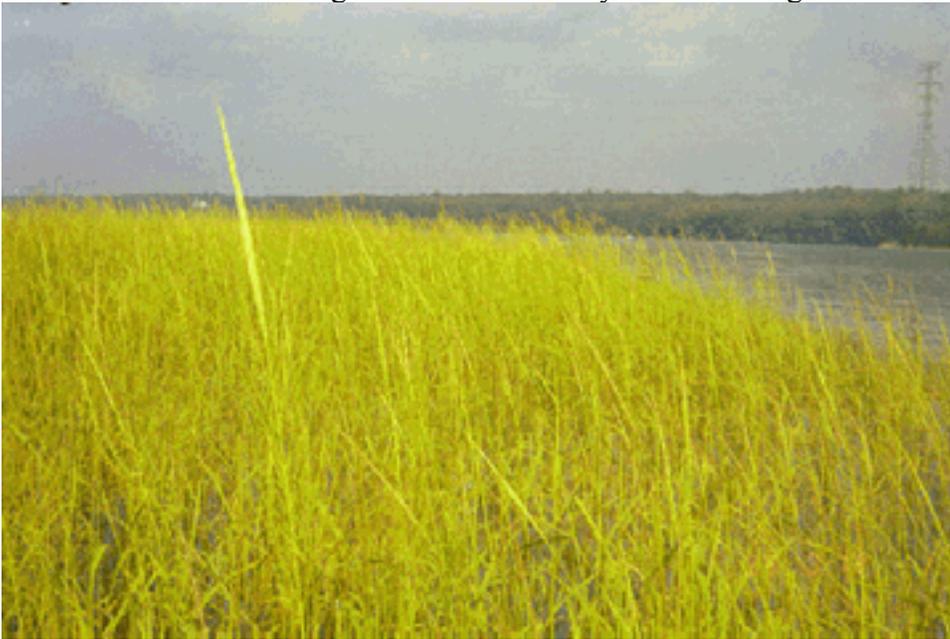


Photo 14. View facing northeast from southeast portion of wetland.

Reference Wetland: Softstem bulrush

Date Evaluated: 8/13/99

Sub-Area: Abagadasset River

General Description: East of the mouth of the Abagadasset River and off-shore in “island mosaic” of emergent marshes in the middle of the bay. Southwest of wild rice wetland.

GPS Coordinate: N 43° 59.350’
W 069° 50.462’
(reading taken near center of wetland)

Vegetation: Emergent Marsh Vegetation (NWI class: Estuarine emergent persistent)

Total % Areal Coverage: ~80%

Species:

<u>Common name</u>	<u>Scientific</u>	<u>Estimated % Areal Coverage</u>
Softstem bulrush	Schoenoplectus tabernaemontanae	60%
Three-square	Schoenoplectus pungens	15%
Wild rice	Zizania aquatica	4%
River bulrush	Bolboschoenus fluviatilis	<1%
Water-wort	Elatine sp.	<1%

Substrate: dark gray silt and sand with organics, both muck and recognizable plant parts present
Estimated basic USDA texture class: loamy sand to sandy loam

Hydrology: Inundated for prolonged periods (at high tide and mid tide) and exposed at extreme low tide.
NWI water regime: regularly flooded tidal

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Photos 15, 16. View facing west from within softstem bulrush wetland. Three square is present near the left side (water edge) of picture (above). Softstem bulrush in flower (below).



Reference Wetland: Mixed

Date Evaluated: 8/13/99

Sub-Area: Muddy/Cathance

General Description: Immediately south of Bowdoinham Wildlife Management Area, northwest of Center's Point.

GPS Coordinate: N 43° 59.142'
W 069° 52.000'
(reading taken near center of wetland)

Vegetation: Emergent Marsh Vegetation (NWI class: Estuarine emergent persistent)

Total % Areal Coverage: ~60%

Species:

<u>Common name</u>	<u>Scientific</u>	<u>Estimated % Areal Coverage</u>
Pickerel weed	Pontederia cordata	30%
Arrowhead	Sagittaria latifolia	8%
Sweet flag	Acorus calamus	6%
Softstem bulrush	Schoenoplectus tabernaemontanae	6%
River bulrush	Bolboschoenus fluviatilis	5%
Yellow pond lily	Nuphar advena	2%
Wild rice	Zizania aquatica	2%
Three-square	Schoenoplectus pungens	1%
Water-parsnip	Sium suave	<1%
Water-wort	Elatine sp.	<1%
Bulrush	Schoenoplectus smithii	<1%

Substrate: dark gray silt and sand with organics, both muck and recognizable plant parts (roots and rhizomes) present
Estimated basic USDA texture class: loamy sand to sandy loam

Hydrology: Inundated for prolonged periods (at high tide and mid tide) and exposed at extreme low tide.
NWI water regime: regularly flooded tidal



Photo 17. View facing north from south edge of mixed wetland. Wild rice wetland is visible in background.



Photo 18. View facing northwest between low and mid tides. A clump of river bulrush is in left center with pickerelweed in foreground and a clump of sweet flag in far right-center.