


Guidance for Understanding a Biomonitoring Wetland Station Report

The ME DEP generates a Wetland Station Report for each visit we make to a wetland station. The Wetland Station Report contains all of the physical and chemical data describing the site. Any biological data (macroinvertebrate and/or algae data) can be found in other reports. For macroinvertebrate data see the Wetland Macroinvertebrate Sampling Report and for algae data see the Wetland Algae Sampling Report (currently under development). This guidance document takes a representative Wetland Station report and attempts to explain items from each section that may not be self-explanatory. See the Biomonitoring Sampling and Analysis page for more details on our sampling methods

(<http://www.maine.gov/dep/blwq/docmonitoring/biomonitoring/sampling/index.htm>). These reports can be found in the Biomonitoring Google Earth project by clicking on a station and then selecting the desired report from the 'Report' column. Access our Google Earth project through the Data and Maps page of our website (<http://www.maine.gov/dep/blwq/docmonitoring/biomonitoring/data.htm>).

	<h3>Maine DEP Wetland Station Report</h3> <p><i>Physical/Chemical Attributes</i></p>
Station: W-001	Name: MEADOW BROOK - W-001
Trip ID: 2005-001	Town: NEW GLOUCESTER
Mitigation Monitoring Site: No	

- **Trip ID** – Unique identifier assigned to each site visit (year sampled - station number).
- **Mitigation Monitoring Site** – Indicates if the wetland has been created, restored or enhanced as part of a mitigation plan required by a DEP issued wetland impact permit.

<u>Catchment Land Use</u>		High Int. Dev %	0.1	Water %	0.0	Non-vegetated %	0.0
Total Area (ac)	3305	Med Int. Dev. %	0.1	Wetland %	7.7	Tilled Agriculture %	2.3
Total Land (ac)	3305	Low Int. Dev. %	3.6	Upland Woody %	81.6	Human Altered %	10.5
		Development %	3.8	Natural %	89.5	Impervious %	3.2

Land used calculations are based on 2004 Maine Land Cover Data (MELCD). MELCD is a land cover map for Maine primarily derived from Landsat Thematic Mapper 5 and 7 imagery. This imagery constitutes the basis for the National Land Cover Dataset (NLCD 2001) and the NOAA Coastal Change Analysis Program (C-CAP). This land cover map was refined to the State of Maine requirements using SPOT 5 panchromatic imagery from 2004. For more information on these land cover layers and how each category is calculated, contact the ME DEP GIS Unit (<http://www.maine.gov/dep/gis/datamaps>) or the ME Office of GIS (<http://megis.maine.gov/>).

- **Total Land** – total area minus open water and mudflats
- **High Int. Dev.** – High Intensity Developed
- **Med Int. Dev.** – Medium Intensity Developed
- **Low Int. Dev.** – Low Intensity Developed
- **Development** – total of high, medium and low development and roads/runways
- **Water** – open water
- **Wetland** – wetlands, including forested wetlands
- **Upland woody** – total of all forest types except forested wetlands, including recent clear cuts and partially cut lands

- **Natural** – total area minus the human altered land category
- **Non-vegetated** – unconsolidated shores and bare land, mostly gravel pits but also rocky mountain tops, mud flats, beaches and rocky shoreline
- **Tilled Agriculture** – cultivated crops
- **Human Altered** –total of all the developed classes, road/runways, all agriculture classes and bare lands (which are mostly gravel pits)
- **Impervious** – The impervious data set was derived from 5 meter SPOT imagery collected in the summer of 2004 over the State of Maine. The impervious data set is part of a larger mapping initiative by the State to quantify land cover at a 5 meter resolution over the entire state. Areas of imperviousness are characterized by anthropogenic features such as buildings, roads, parking lots, etc.

<u>Human Disturbance</u>	
TOTAL SCORE	12
Hydrologic Modifications	2
Vegetative Modifications	2
Chemical Contaminants	0
Impervious Surface	2
Non-point Sources	6

The **Human Disturbance** evaluates the human impacts to a wetland station, within five categories of impacts: Hydrologic Modifications, Vegetative Modifications, Evidence of Chemical Contaminants, Impervious Surface, and Non-point Sources. Within each category are 5 subsections, scored on a scale from 0 (Not Observed) to 5 (Severe Disturbance). The highest possible score for each category is 25, making the highest score for each site 125. However, most sites in the wetland dataset have a Total Human Disturbance score less

than 40. See the Human Disturbance Ranking form for more information (www.maine.gov/dep/blwq/docmonitoring/biomonitoring/material.htm#QAandSOPs).

<u>Landscape-level Cowardin Classification</u>	<u>Hydrogeomorphic Setting</u>
System: PALUSTRINE	Landscape Position: LOTIC STREAM
Subsystem:	Lotic Gradient: LOW GRADIENT
Class 1: EMERGENT	Flow Path: THROUGHFLOW
Subclass 1: PERSISTENT	Land Form: FRINGE
Class 2:	Land Form Type: LOTIC STREAM
Subclass 2:	Waterbody Type: STREAM
Class 3:	Comments:
Subclass 3:	

The ME DEP uses two wetland classification systems, both developed by the US Fish and Wildlife Service’s National Wetland Inventory (NWI) Program, to characterize the wetland area surrounding our sampling station from a landscape level perspective. Please note that the wetland classification for the actual location sampled is recorded in the field, and often varies from the landscape classification due to differences in scale.

- **Landscape-level Cowardin Classification** – Characterization of the site using the Cowardin wetland classification system. This system uses vegetation, substrate and hydrology to describe wetland types for inventory purposes. (Cowardin et. al., 1979)
- **Hydrogeomorphic (HGM) Setting** – The US Army Corp of Engineers (ACOE) has developed a HGM classification system (Brinson, 1993) which uses the wetland’s watershed position, its sources of water and its hydrodynamics to evaluate its functions. The NWI program has developed a HGM-type coding system (Tiner, 2003) to complement the Cowardin classification, which is the system used by the MEDEP.

See the Biomonitoring Materials Page for complete citations of items reference above (<http://www.maine.gov/dep/blwq/docmonitoring/biomonitoring/material.htm#relatedpubs>).

Water Chemistry					
Field pH:	5.03 STU	Lab pH:	6.6 STU	Si:	5.8 MG/L
Field Conductivity:	36 US/CM	Lab Conductivity:	49.3 US/CM	NO3:	
Temperature:	13.9 DEG C	Alkalinity:	7 MG/L	NO3 + NO2:	0.01 MG/L
Dissolved O2:	6.9 MG/L	Color:	110 UNIT	Total N:	
		DOC:	14 MG/L	TKN:	0.6 MG/L
		Ca:		NH4:	
		Mg:		PO4:	0.008 MG/L
		K:		Total P:	0.042 MG/L
		Na:		Chl. a:	0.0035 MG/L
		Cl:		Corr. Chl. a:	0.0035 MG/L
		Sulfate:			

Water quality parameters analyzed either in situ with a meter (field pH, field conductivity, temperature and Dissolved Oxygen) or by an outside laboratory (all other parameters). See Hanna handheld meter and Water Grab SOPs for procedures

(<http://www.maine.gov/dep/blwq/docmonitoring/biomonitoring/material.htm#QAandSOPs>). Note that this section lists all of the water quality parameters that the Wetland program has ever collected, but not all of them are collected every year, which is why some do not have results listed.

Note: DOC is dissolved organic carbon, Ca is calcium, Mg is magnesium, K is potassium, Na is sodium, Cl is chloride, Si is dissolved silica, NO3 is nitrite, NO3+NO2 is nitrite-nitrate, Total N is total nitrogen, TKN is total Kjeldahl nitrogen, NH4 is ammonia-nitrogen, PO4 is soluble reactive phosphorus, Total P is total phosphorus, Chl a is chlorophyll a, Corr. Chl a is corrected chlorophyll a.

Dominant Plant Species:	TUSSOCK SEDGE, BLUEJOINT GRASS, SAGITTARIA; ROYAL FERN AND PICKERELWEED (PONTEDERIA CORDATA) LESS DOMINANT
Habitat Classification:	EMERGENT PERSISTENT VEGETATION
Substrate Classification:	SILT/MUCK SUBSTRATE DETRITUS SUBSTRATE

- **Dominant Plant Species** – General overview of the dominant plants seen at the station, not a comprehensive list of all species present.
- **Habitat Classification** – Type of habitat immediately surrounding where macroinvertebrate samples were collected. See Wetland field sheet for the list of possible habitat types (http://www.maine.gov/dep/blwq/docmonitoring/biomonitoring/materials/fieldsheet_wetlands.pdf).
- **Substrate Classification** – Type of substrate found where macroinvertebrate samples were collected. See Wetland field sheet for the list of possible substrate types (http://www.maine.gov/dep/blwq/docmonitoring/biomonitoring/materials/fieldsheet_wetlands.pdf).