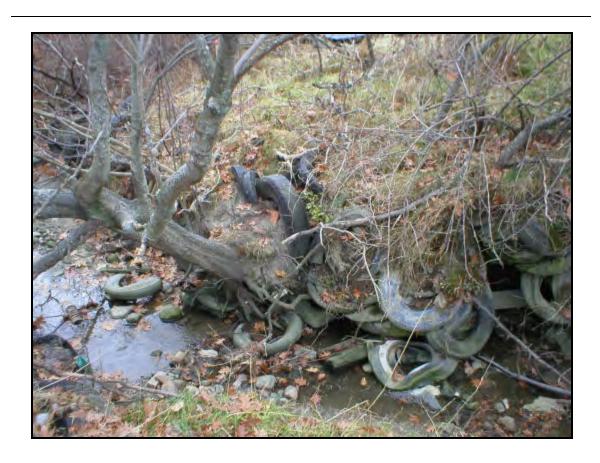




FINAL HABITAT RESTORATION INVENTORY SUMMARY REPORT

FOR THE LOWER PRESUMPSCOT RIVER WATERSHED

VOLUME II



APRIL 2005

Prepared by: Northern Ecological Associates, Inc.

451 Presumpscot Street Portland, Maine 04103

FINAL HABITAT RESTORATION INVENTORY SUMMARY REPORT

FOR THE LOWER PRESUMPSCOT RIVER WATERSHED

VOLUME II

Casco Bay Estuary Project
Muskie School of Public Service
University of Southern Maine
49 Exeter Street
Portland, Maine 04104

April 2005

This program is supported by the Gulf of Maine Council on the Marine Environment and the National Oceanic and Atmospheric Administration (NOAA) Award #NA17FZ1390





APPENDIX A

FIELD DATA FORMS

FORM 1: Site Identification and Degradation Scoring

Site ID:	Waterbody:			Date:	Eval	luator(s):
State: Maine	County:		Town:		Zi	ip Code:
Ownership: Public	Private Both	Owner	Name(s):			
Photo #'s:		A	Approximate l	ength of evalua	ation area:	
Location (x,y): System Type: Estuarine Riverine Lacustrine						Lacustrine
Restoration recommen	dations, challenges, cor	nsideratio	ns:			
General Description of	Area and Restoration N	Need (land	uses, cover ty	pes, impairme	ents, source	s of problems):

Source(s) or Causes of Degradation (circle all that apply)

1	Rip-rap (or other artificial hard structure)	7	Impervious surface with potential for runoff into waterbody
2	Fill/debris/trash	8	Dam/obstruction
3	Drainage issue	9	Land clearing (not maintained as right-of-way)
4	ATV/off-road vehicle damage	10	Right-of-way clearing (maintained open corridor for road, utility,
	_		railroad)
5	Culvert issue	11	Unstable bank
6	Invasive plant species	12	Land use activity is a potential nutrient/pollution source

Indicators of Degradation (problems that result from the sources of degradation listed above) (score impact/severity when present 1.0 = very high, .75 = high, .50 = moderate, .25 = low)

Fiel	d Indicator	Score	Comments
1	Low water quality/clarity (turbid, muddy, surface sheen, algal growth, smell of pollutants)		
2	Impediment to natural water flow (constrictions, restrictions, redirection of flow)		
3	Obstruction to fish passage (seasonal water withdrawal, dams, culverts that obstruct passage, diversions)		
4	Low bank stability/erosion (evidence of bank failure, fallen trees, undercutting, no overhanging vegetation on bank tops)		
5	Areas of concentrated high velocity runoff into waterbody (i.e., paved gullies, steep swales)		
6	Apparent lack of or impaired native vegetation along shoreline and/or bank (vegetation in freshwater and tidal systems)		
7	Unnatural channel (downcutting, widening, straightening, or evidence of manmade structures in or along channel that alter channel or reduce erosion of banks)		
8	Evidence of repeated flooding/severe flooding (watermarks, sediment deposits, flood damage)		
9	Evidence of unnatural sediment build-up/accumulation		
10	Impaired aesthetic quality		
11	Buffer of well-vegetated shrubs and/or trees < 250 ft. wide (adjacent to waterbody and/or associated wetland)		
12	Adjacent to sources of potential high nutrient input or pollution (i.e., golf courses, agricultural areas, housing developments, large lawns) AND has a small buffer (< 250 ft)		
13	Wetland loss (filled or hydrologic connection impaired)		
14	Direct disturbance to in-stream substrate		
	TOTAL DEGRADATION SCORE		

FORM 2 – Conceptual Costs

SITE ID:	
----------	--

Cost

Low < \$25,000
Moderate > \$25,000 to < \$75,000
High > \$75,000 to < 150,000
Very High > \$150,000

Checl	klist of factors that will contribute to higher costs	
1	Plantings/landscaping	
2	Invasive species control	
3	Soil amendments	
4	Soil/fill removal	
5	Biostabilization/erosion sediment control	
6	Hard structure stabilization	
7	Soil stabilization erosion control	
8	Minor grading	
9	Major grading	
10	Impervious surface removal	
11	Remove/modify areas of concentrated runoff	
12	Construct storm water management device	
13	Construction access	
14	Trash/debris removal	
15	Construct recreational facilities/access	
16	Removal of obstructions (dams, culverts)	
17	Clearing and grubbing	
18	Mobilization/demobilization	
19	Maintenance	
20	Exclusion devices/animal control (herbivores, ATV access)	
21	Engineering Designs	
22	Topographic Surveys	

Comments:

FORM 3 - Potential Challenges or Limitations to Restoration

SITE ID:

	ntial Challenges or Limitations (check those that will likely apply to the site, and indicate was researched and found NOT to be a problem)	cate if an
1	Ownership private and landowner unwilling to support activity	
2	Low potential for partnering, in-kind support, financial support	
3	Utility/infrastructure (right-of-way, railroad tracks, buried cable/waterline/sewer line)	
4	Topographic or geologic (steep slopes, shallow bedrock)	
5	Hazardous materials (contaminated site, soils)	
6	Limited access	
7	Threatened/Endangered species or cultural resources	
8	Low likelihood of long-term success due to natural site conditions	

Comments:

Site ID:	Date:	

CHANNEL MORPHOLOGY Parameter

		Not Evaluated	0	0.25	0.5	0.75	1
	Scored Features						
1	Undercutting of banks from contact with high velocity water flow		None observed	Low < 10%	Moderate 10 – 20%	High > 20 - 40%	Very High > 40%
2	Erosion of banks from upslope runoff (gullies)		None observed	Low < 10%	Moderate 10 – 20%	High > 20 - 40%	Very High > 40%
3	Steepness of banks (gradual topography/wetlands along bank increase capacity for flood control, reduces erosion of bank)		Flat 0 to 10°	Gradual > 10° to 25°	Moderate > 25° to 45°	Steep $> 45^{\circ}$ to 65°	Very Steep > 65°
4	Percent of banks covered with persistent vegetation		> 50%		25% - 50%		< 25%
5	Evidence of severe in-waterbody scouring		None observed	Low < 10%	Moderate 10 – 20%	High > 20 - 40%	Very High > 40%
6	Aggradations of sediment in waterbody		Not an impairment		Moderate impairment		Significant impairment
7	Evidence of significant increase in flood flow (floodplain flooding > every other year, bank and channel erosion, mid-channel bars, slumping, incising))		None observed	Present, minor impact			Present, major impact
8	Evidence of a significant decrease in flood flow (channel widening and shallowing, channel braiding, excessive sediment buildup on outside of bends in channel)		None observed	Present, minor impact			Present, major impact
9	Evidence of channelization/loss of sinuosity		None observed	Present, minor impact			Present, major impact

Site ID:	Date:	

IN-STREAM/FISH HABITAT Parameter

		Not Evaluated	0	0.25	0.5	0.75	1
	Scored Features						
1	Impediments/obstructions to fish passage present in waterbody (undersized culverts, dam/weirs with fish passage devices, major log jams)		None observed		Present, impedes passage		Present, complete obstruction
2	Average late-season pool area		Optimal 35% - 65%		High > 65%		Low < 35%
4	Presence of in-waterbody fish attractors (fallen trees, logs, dense brush, rocks/boulders, artificial attractors)		Optimal 15% - 50%		High > 50%		Low < 15%
5	Percent of bank with overhanging vegetation within 1 ft of water surface (cover for fish)		Abundant > 50%		Moderate 25% - 50%		Sparse < 25%
6	Riffle embededness/degree of siltation (degree that gravel/cobble in riffles are covered by finer sediments)		None/minor embeddedness		Moderately embedded		Completely embedded
7	Presence of riffles, runs and pools in general vicinity of restoration site		All observed		One absent	Two absent	All absent
8	Percent aquatic/intertidal vegetation		> 50%		> 25% - < 50%		< 25%
9	Restriction to shoreline breeding/foraging habitat		None observed		Present, minor restriction		Present, major restriction
	Unscored Features (Characterization Only)						
	Predominant substrate (circle substrate type)		Gravel/rubble		Sand		Boulder, bedrock or fine silts/clay
	Presence of aquatic insects and other macro invertebrates		Many	Common	Some	Few	None

Site ID:	Date:	

HUMAN DISTURBANCE Parameter

		Not Evaluated	0	0.25	0.5	0.75	1
	Scored Features						
1	Evidence of periodic direct disturbance to riparian areas/banks (ATV damage, livestock, mowing/cutting)		None observed		Yes, minor impact		Yes, major impact
2	Evidence of periodic direct disturbance in waterbody (ATV use, livestock impacts)		None observed		Yes, minor impact		Yes, major impact
3	Evidence of significant trash, debris, fill, hard structure in waterbody		None observed		Yes, minor impact		Yes, major impact
4	Evidence of significant trash, debris, fill, hard structure on shoreline bank		None observed		Yes, minor impact		Yes, major impact
5	Presence of commercial/industrial activity that is impacting the waterbody		None observed		Yes, minor impact		Yes, major impact

Site ID:	Date:	

RIPARIAN ZONE Parameter

		Not Evaluated	0	0.25	0.5	0.75	1
	Scored Features						
1	Forested buffer width (from top of slope)		> 250 ft	> 100 - < 250 ft.	> 50 - < 100 ft.	< 50 - > 25 ft	< 25 ft
2	Percent cover of riparian (top down, how much of ground surface is covered by vegetation) Riparian = veg within 75 ft of water		> 75%	50% - 75%	25% - 50%	5 - 25%	< 5%
3	Evidence of loss/degradation of native riparian vegetation (linear, how much of the former riparian vegetation is missing/degraded)		< 10%		> 10% - < 50%		> 50%
4	Percent cover of invasive/non-native plant species within 50 ft of waterbody		None observed	Trace - 25%	25% - 50%	50% - 75%	> 75%
5	Presence of significant wildlife attractors (dense brush, snags, boulders)		Many	Common	Some	Few	None
6	Number of layers/structure in buffer (herb, shrub, saplings, mature trees)		4	3	2	1	0
7	Obstruction/impediment to veg growth		None observed		Present, minor restriction		Present, significant restriction

Site ID:	Date:	

WATER QUALITY Parameter

		Not Evaluated	0	0.25	0.5	0.75	1
	Scored Features						
1	Water clarity/turbidity (not color; visibility)		No obvious impairment		Impaired		Significantly impaired
2	Evidence of concentrated runoff (swales, gullies, pipes, etc., carry runoff directly to channel and not through vegetated areas for filtration)		None observed		Present, not significant		Present, potential problem
3	Topography of adjacent buffer areas (opportunities to improve water quality through sediment trapping/infiltration)		Flat 0 to 10°	Gradual > 10° to 25°	Moderate > 25° to 45°	Steep > 45° to 65°	Very Steep > 65°
4	Potential for or evidence of pollution input (agricultural fields, lawns, golf courses) upslope of waterbody		None observed		Present, not significant		Present, potential problem
5	Impervious surface density within 250 feet of channel		< 25 %		25% - 50%		> 50%
6	Evidence of poor water quality (surface sheen, smell of pollutants, algal growth, data)		None observed		Present, not significant		Present, potential problem

Unscored Features

Water color Clear or tea color Other

APPENDIX B

LIST OF RESTORATION SITES AND RESTORATION SITE SUMMARY REPORTS

APPENDIX C

ADDITIONAL FIGURES

