

Table of Contents

Contributing Organizations	ii
List of Tables	v
List of Figures	vi
List of Maps.....	vii
List of Acronyms.....	viii
Executive Summary	x
1.0 Introduction	1
1.1 Study Background	2
1.2 Restoration Goals and Targets	4
2.0 Existing Conditions	8
2.1 Study Area	8
2.2 History of Degradation and Historic Losses	11
2.2.1 Bathymetric Alterations	11
2.2.2 Shoreline Modifications	11
2.2.3 Hydrodynamic and Hydraulic Changes	12
2.2.4 Water Quality and Sediment Degradation	12
2.3 HRE Planning Regions	14
2.3.1 Jamaica Bay.....	14
2.3.2 Lower Bay	16
2.3.3 Lower Raritan River.....	17
2.3.4 Arthur Kill and Kill Van Kull.....	18
2.3.5 Newark Bay, Hackensack River, and Passaic River	20
2.3.6 Lower Hudson River	22
2.3.7 Harlem River, East River, and Western Long Island Sound	24
2.3.8 Upper Bay	25
2.4 Restoration Efforts	26
2.5 Trends in Environmental Quality.....	32
3.0 Target Ecosystem Characteristics.....	34
3.1 Habitats	36
3.1.1 Coastal Wetlands	36
3.1.2 Islands for Waterbirds	40
3.1.3 Coastal and Maritime Forests.....	46
3.1.4 Oyster Reefs.....	53
3.1.5 Eelgrass Beds	58
3.2 Habitat Complexes	63
3.2.1 Shorelines and Shallows	63
3.2.2 Habitat for Fish, Crabs, and Lobsters	68
3.3 Environmental Support Structures.....	70
3.3.1 Tributary Connections	71
3.3.2 Enclosed and Confined Waters.....	76
3.4 Contamination Issues	82
3.4.1 Sediment Contamination	82
3.5 Societal Values	91
3.5.1 Public Access.....	91
3.6 Other Restoration Actions	96
4.0 Restoration Opportunities	98
4.1 Jamaica Bay	98
4.2 Lower Bay.....	103
4.3 Lower Raritan River	105
4.4 Arthur Kill and Kill Van Kull.....	107

4.5	Newark Bay, Hackensack River, and Passaic River.....	110
4.6	Lower Hudson River	114
4.7	Harlem River, East River, and Western Long Island Sound.....	117
4.8	Upper Bay.....	119
4.9	Summary	121
5.0	Comprehensive Restoration Plan Implementation.....	123
5.1	Implementation.....	123
5.1.1	Potential Funding Opportunities	127
5.1.1.1	U.S. Army Corps of Engineers Programs.....	128
5.1.1.2	Federal Grant Programs	131
5.1.1.3	State Programs.....	133
5.1.1.4	Natural Resource Damage Assessment.....	134
5.1.1.5	Mitigation.....	134
5.1.1.6	Non-Profit Organizations	134
5.1.1.7	Additional Funding Sources	135
5.1.2	Policy Considerations for Implementation.....	135
5.1.3	Public Involvement and Support	138
5.2	Management.....	140
5.2.1	Program Management Team.....	141
5.2.2	Plan Management Mechanisms.....	143
5.2.3	Tracking Performance at the Estuary-Scale.....	145
5.2.4	Adaptive Management	147
5.2.5	Future CRP Updates.....	147
	References.....	149
Appendix A:	Target Ecosystem Characteristics Development	
Appendix B:	Geographic Information Systems Evaluation Methodology	
Appendix C:	Sediment Contamination Target Ecosystem Characteristic	
Appendix D:	Atlas of Restoration Opportunities	