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THE ESTUARINE STUDY
VOLUME 3

ENVIRONMENTAL IMPACT MATRICES

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Division of Coastal Resources
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AIR SOLID WASTE WATER

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THE ESTUARINE STUDY FINAL DRAFT ENVIRONMENTAL IMPACT MATRICES

INTRODUCTION

This section and the enclosed matrices are part of the Estuarine Study, which was commissioned by the Office of Coastal Zone Management which has recently become the Division of Coastal Resources in the New Jersey Department of Environmental Protection, Bureau of Coastal Planning and Development (DEP-BCPD). The purpose of this volume is to develop a method for evaluating proposed coastal facilities for use by DEP.

IMPACT ANALYSIS EXAMPLE

A major part of the estuarine study was the identification of impact relationships in the New Jersey coastal zone. There is a state-of-the-art limitation on the extent to which these relationships are understood, and the quantification of such relationships is only possible for a limited number of impacting activities. Despite the limited technical basis, a contractural agreement was made to lay a broad based conceptual framework and to begin an evolutionary process of impact identification and impact management. The matrix method was selected as the most logical format for impact relationship identification. The matrix format is also easily computerized, and it is the eventual goal of the Bureau of Coastal Planning and Development to computerize at least a portion of the impact review and regulatory management process. A matrix flow chart is provided in Figure 1.

Eighty separate complex matrices were developed to identify impacts in the coastal zone. A few of these are presented as illustrative examples of the method of analysis possible through the use of the matrix system. A complete set of the matrices is contained in the Appendixes along with a discussion of resource uses, impacting activities, environmental changes, objectives, assumptions, and notes concerning the use of the matrices. It must be remembered when reviewing the examples that these matrices represent the system prototype. As in any prototype, changes and refinements through use and study are expected and are desirable. The matrices will be used repeatedly as permit applications for various uses are received by BCPD and changes will be incorporated by the system users over time. In addition, it is hoped that the use of this matrix system will lead to an orderly prioritization of study needs in the coastal zone, and that through additional basic and applied research the quantification of impact relationships can become more definitive.

MATRIX FLOW CHART

USER IN-PUT

STEP 1: Specify Study Use and Location
Use Class
General Land, Edge, or Water Type
Vegetation Present
Special Types Present
Adjacent Types (General and Special)

↓

STEP 2: Identify Impacting Activities

SET I. Matrix use/impacting activity
land, edges, and water

↓

STEP 3: Identify Primary Environmental Impacts Within Land or Water Type

STEP 4: Identify Major Environ-mental Impacts of Concern Within Land or Water Type

SET II. Matrix impacting activities/primary changes
Type Specific with
vegetation and special resources

STEP 5: Identify Causally Related Environmental Impacts Within Land or Water Type

SET III. Intra-type
recycling matrix
primary - secondary
change. Type specific

STEP 7: Identify Causally Related Environmental Impacts in Adjacent Land or Water Types

SET IV. Inter-type
recycling matrix
primary - secondary
change. Land, edges, and
water

STEP 6: Identify Causally Related Environmental Impacts of Concern Within Land or Water Type

STEP 8: Identify Causally Related Impacts of Concern in Adjacent Land or Water Types

SET V. Matrix change/Objectives
general and then specific if present
Type Specific

Figure 1.

MATRIX FLOW CHART

Step 1: The impact identification process begins with the listing of input data specifying the proposed use, its site, and adjacent sites. Step 2: Impacting activities which are associated with a proposed use are identified. Matrix 1 opposes uses and impacting activities and is an example of the 4 matrices in Matrix Set I (Appendix 1.A). The impacting activities are described as major (X), variable (V), or minor (O). The time sequence of impacting activities is divided into preparation (PR), construction (CO), and operation (OP) phases. The example which has been chosen is the proposed siting of a fossil fuel electric generation facility (power plant) in a lowland , coarse soil area adjacent to a back bay which contains a commercially valuable shellfish bed. The following discussion demonstrates through the sequential application of differing matrices how a proposed use such as a power plant can potentially impact an objective for a special coastal resource (estuarine shellfish bed). This is further illustrated in Figure 2, a Flow Chart specifically highlighted for this example.

In Step 2 Matrix 1 is entered from the use (top) side by first locating the use category "Fossil Fuel Electrical Generation". This use category is further subdivided into the subcategories "cooling tower", "cooling ponds/lakes", and "once through cooling". For this example the category "once through cooling" will be used. The use category was subdivided to take into account the differing potential water effects caused by the application of differing cooling water treatment technology. Proceeding down the page from the entry point, we find that the following major (X) impacting activities are likely to occur as a result of building and operating a once through cooling fossil fuel electrical generating facility:

PREPARATION	CONSTRUCTION	OPERATION
Diking	Diking	Diking
Water Transfer/ Diversion	Water Transfer/ Diversion	Water Transfer/Diversion
		Landscaping/ROW Management
		Drainage
		Surface Water Demand
		Subsurface Water Demand
	Culverting	Culverting
	Channelization	Channelization
		Thermal Effluent
	Unconsolidated Non- Hazardous	(Liquid waste disposal)
	(Solid waste disposal)	Unconsolidated Non-Hazardous (Solid waste disposal)
		Particulates (Air waste disposal)
		Gases (Air waste disposal)

EXAMPLE MATRIX FLOW CHART

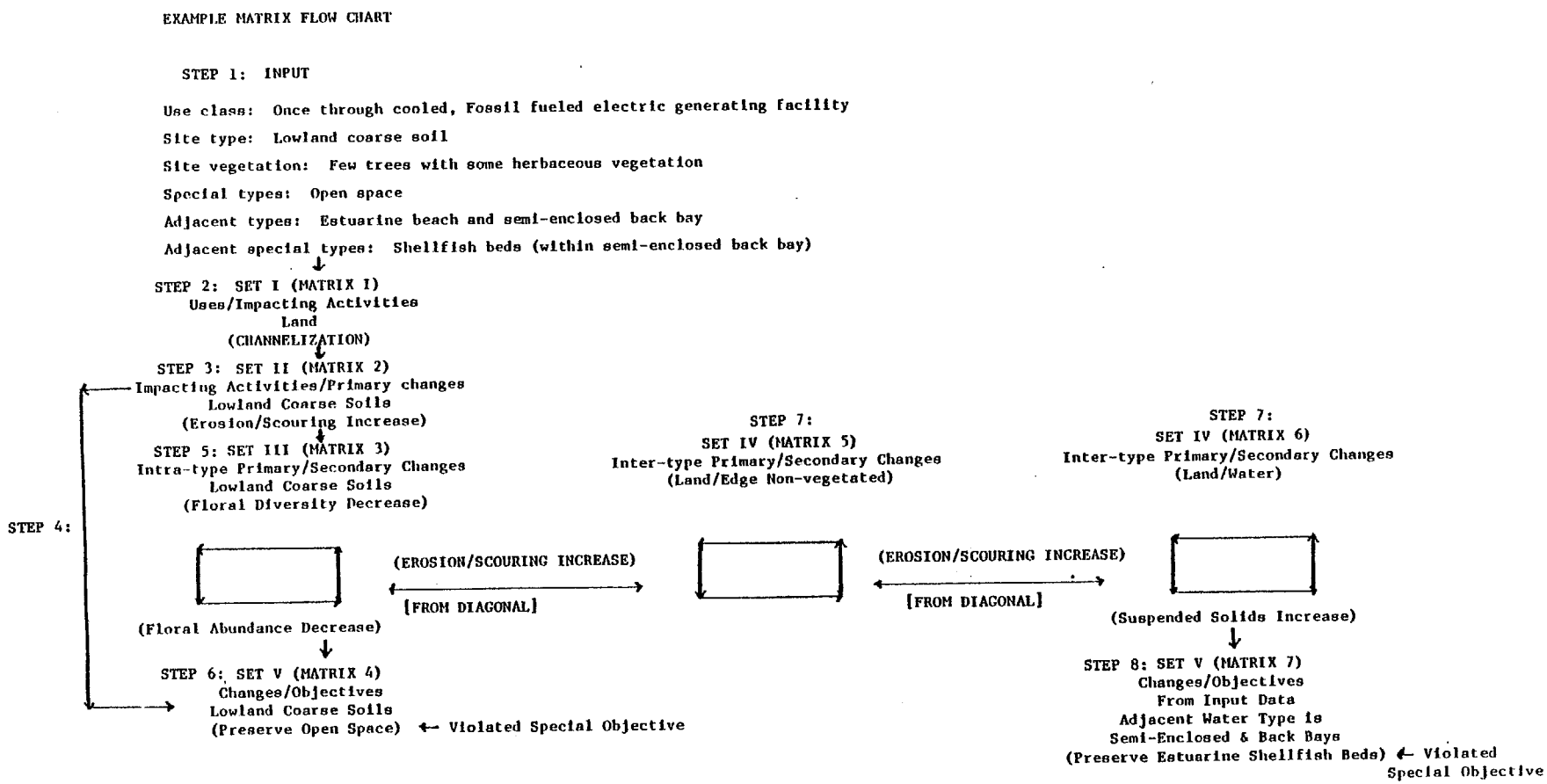

Figure 2. Example Matrix Flow Chart

SET I. STEP 2.
MATRIX #1. USE VERSUS IMPACTING ACTIVITIES ON LAND

LAND
USES
VERSUS
IMPACTING ACTIVITIES

- PR-PREPARATION
- CO-CONSTRUCTION
- OP-OPERATION
- T-TIME OF OCCURRENCE
- X-MAJOR
- V-VARIABLE
- O-MINOR

EXIT

IMPACTING ACTIVITY (columns, from right to left as printed): COMPACTION; WOODY CLEARING; HERBACEOUS CLEARING; PLOWING/DISCING; DIKING; FILLING-UNCONSOLIDATED; FILLING-CONSOLIDATED; EXCAVATING; IMPERVIOUS SURFACE; DREDGING; FERTILIZING; INSECTICIDING; HERBICIDING; IRRIGATING; STRUCTURAL SUPPORT; VEHICULAR TRAFFIC; WATER TRANSFER/DIVERSION; FOUNDATION; LANDSCAPING/ROW MANAGEMENT; DRAINAGE; SURFACE WATER DEMAND; SUBSURFACE WATER DEMAND; CULVERTING; CHANNELIZATION; PEDESTRIAN TRAFFIC; LIQUID WASTE DISPOSAL: PESTICIDES, HEAVY METALS, NUTRIENTS, THERMAL EFFLUENTS; SOLID WASTE DISPOSAL: ORGANIC, HAZARDOUS, UNCONSOLIDATED NON-HAZARDOUS, CONSOLIDATED NON-HAZARDOUS; AIR WASTE DISPOSAL: PARTICULATES, GASES, HAZARDS

USES	USE SUBCATEGORIES	USE CATEGORIES
RURAL		HOUSING
SINGLE FAMILY DETACHED		
SINGLE FAMILY ATTACHED		
URBAN HIGH DENSITY		
RETAIL AND SERVICE		COMMERCIAL
WHOLESALE AND DISTRIBUTION		
INSTITUTIONAL/PROFESSIONAL FACILITIES		INSTITUTIONAL/PROFESSIONAL FACILIT
ELECTRICAL EQUIPMENT/SUPPLIES	FABRICATION AND ASSEMBLY	INDUSTRIAL
METAL PRODUCTS		
TRANSPORTATION EQUIPMENT		
MACHINERY EXCEPT ELECTRICAL		
INSTRUMENTS AND RELATED PRODUCTS		
FURNITURE		
INORGANIC CHEMICALS	CHEMICALS AND ALLIED PRODUCTS	
ORGANIC CHEMICALS		
PLASTICS AND SYNTHETICS		
PHARMACEUTICALS AND COSMETICS		
SOAPS AND DETERGENTS		
PAINTS AND ALLIED PRODUCTS		
AGRICULTURAL CHEMICALS		
APPAREL/TEXTILE PRODUCTS	TEXTILES	
WEAVING AND KNITTING MILLS		
TEXTILE FINISHING		
LEATHER AND LEATHER PRODUCTS		
IRON AND STEEL MANUFACTURING	PRIMARY METALS	
FERROALLOYS		
ALUMINUM AND ALLOYS		
CU, PB, ZN, HG SMELTING/PROCESSING		
METAL PLATING		
GLASS MANUFACTURING	STONE, CLAY, AND GLASS PRODUCTS	
CEMENT		
CLAY PRODUCTS		
CUT STONE		
CONCRETE, GYPSUM, AND PLASTER		
MEAT AND POULTRY	FOOD AND FOOD BYPRODUCTS	
DAIRY		
PRESERVED FRUITS AND VEGETABLES		
GRAIN MILLS		
FISH AND SHELLFISH PROCESSING		
BAKERIES		
SUGAR REFINERIES/CONFECTIONERS		
FATS AND OILS		
ALCOHOLIC BEVERAGES		
SOFT DRINKS		
PRINTING AND PUBLISHING		
PULP MILLS	PAPER AND ALLIED PRODUCTS	
PAPER/BUILDING BOARD PLANTS		
HARD ROCK QUARRYING	EXTRACTIVE	
UNCONSOLIDATED		
SAW MILLS AND PLANING	LUMBER AND WOOD PRODUCTS	
MILLWORKS		
WOOD CONTAINERS		
WOOD PRESERVATION		
PIPELINES AND PUMPING STATIONS	BULK STORAGE/TRANSFER FACILITIES	
STORAGE TANKS		
TRANSFER FACILITIES (OIL, CHEMICAL)		
AERIAL TRANSMISSION LINES		
BURIED TRANSMISSION CABLES		
PETROLEUM REFINING	PETROLEUM AND PETROLEUM PRODUCTS	
PETROLEUM RECOVERY FACILITY		
OILS AND GREASES		
PHENOLS, CREOSOTES AND TARS		
SYNTHETIC GAS MANUFACTURING		
LIQUIFIED NATURAL GAS		
GAS PROCESSING		
COOLING TOWER	NUCLEAR ELECTRICAL GENERATION	ENERGY GENERATION
ONCE THROUGH COOLING		
COOLING PONDS/LAKES		
COOLING TOWER	FOSSIL FUEL ELECTRICAL GENERATION	
ONCE THROUGH COOLING	ENTER	
COOLING PONDS/LAKES		
OUTDOOR	LARGE CROWD GATHERING FACILITY	RECREATION
INDOOR		
OUTDOOR	SMALL CROWD GATHERING FACILITY	
INDOOR		
CENTRALIZED WATER		PUBLIC FACILITIES
CENTRALIZED SEWAGE		
INCINERATOR	SOLID WASTE MANAGEMENT	
LANDFILL		
COMPOST		
EXPRESSWAY	AUTO	TRANSPORTATION
COLLECTOR		
LOCAL ROAD		
RAIL		
PORT (LARGE)	SHIP	
MARINA (MEDIUM)		
DOCK (SMALL)		
NAVIGATION		
AIRPORT	AIRCRAFT	
SMALL LANDING FIELD		
COMMERCIAL	SHELLFISHING	NATURAL RESOURCE UTILIZATION
RECREATIONAL		
COMMERCIAL	FISHING	
RECREATIONAL		
AQUACULTURE		
FORESTRY		
ROW CROPS	AGRICULTURE	
SALT HAY		
NURSERIES		
ORCHARDS		
LIVESTOCK LOT		
LIVESTOCK RANGE		
MOSQUITO CONTROL DITCHING		

In addition to this checklist, some potential major impacting activities are listed as variable, such as woody clearing, which could be major if, the proposed site were heavily forested. In any case, for the sake of simplicity of example, only major impacting activities will be followed through the matrix sequencing.

Matrix 2 is an example of the matrices in Set II (Appendix 1.B.) which for Step 3 lists the primary environmental changes projected to occur as a result of the identified impacting activities (IA). In normal usage, all of the impacting activities which may occur in a major or variable capacity as a consequence of a use, would be checked through the matrices to determine their primary and secondary environmental changes. However, for this example we shall address only a minimal number of the impacting activities and resultant environmental changes. If we take the IA "channelization" and enter the matrix from the top, we find listed the following major (X) primary environmental changes projected to occur:

- Increase in groundwater discharge
- Increase in erosion/scouring
- Major change in flow regime

Next, we proceed to Step 5, which is to identify the secondary changes which may occur on the land (lowland coarse soils) as a result of the primary environmental changes. Matrix 3 is labeled "Intra-Type Environmental Change Linkages - Lowland Coarse Soils" and is an example of the matrices in Set III (Appendix 1.C). By entering this matrix from the primary change (left) side for the primary change "erosion/scouring (I)", we develop a list of the following secondary changes projected to occur on the land:

- Decrease in Faunal Abundance
- Decrease in Faunal Reproductive Potential
- Decrease in Faunal Diversity
- Decrease in Floral Diversity
- Decrease in Floral Abundance
- Decrease in Primary Productivity

Matrix 3 is a recycling matrix and tertiary changes may be identified by re-entering the primary change side again--this time using the above secondary changes. In this manner, if we re-enter the matrix at "Decrease in Floral Diversity," we find the following additional potential environmental changes:

- Decrease in Faunal Abundance
- Decrease in Faunal Reproductive Potential
- Decrease in Faunal Diversity

So, channelization can cause an increase in scouring/erosion which can directly alter the types and numbers of animals present or it can indirectly affect the animals by altering the vegetation of the site. By re-entering

SET II. STEP 3.
MATRIX #2. IMPACTING ACTIVITIES VERSUS ENVIRONMENTAL CHANGES - LOWLAND COARSE SOILS

LOWLAND COARSE SOILS

IMPACTING ACTIVITIES VERSUS ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES ←

IMPACTING ACTIVITIES ←

		COMPACTION	WOODY CLEARING	HERBACEOUS CLEARING	PLOWING/DISCING	DIKING	FILLING-UNCONSOLIDATED	FILLING-CONSOLIDATED	EXCAVATING	IMPERVIOUS SURFACE	DREDGING	FERTILIZING	INSECTICIDING	HERBICIDING	IRRIGATING	STRUCTURAL SUPPORT	VEHICULAR TRAFFIC	WATER TRANSFER/DIVERSION	INUNDATION	LANDSCAPE/ROW MANAGEMENT	DRAINAGE	SURFACE WATER DEMAND	SUBSURFACE WATER DEMAND	CULVERTING	CHANNELIZATION ← (ENTER)	PEDESTRIAN TRAFFIC	PESTICIDES	HEAVY METALS	NUTRIENTS	THERMAL EFFLUENTS	ORGANIC	HAZARDOUS	UNCONSOLIDATED NONHAZARDOUS	CONSOLIDATED NONHAZARDOUS	PARTICULATES	GASES	HAZARDS
																										LIQUID WASTE DISPOSAL						SOLID WASTE DISPOSAL		AIR WASTE DISPOSAL		
AQUIFER RECHARGE	I														X			V	X								O	O	O	O	O						
AQUIFER RECHARGE	D	O	X	X			X	O		X								V			X	X		O	V								X	O			O
GROUNDWATER DISCHARGE	I								X									O				X	X		X												O
GROUNDWATER DISCHARGE	D																	O																			
GROUNDWATER SALINITY	I																																				
SURFACE WATER SALINITY	I																																				
SURFACE WATER SALINITY	D																																				
WATER TEMPERATURE	I																																				
WATER TEMPERATURE	D																																				
SUSPENDED SOLIDS	I																																				
SUSPENDED SOLIDS	D																																				
TOXIC SUBSTANCES	I						X	V					X	X			X										X	X	V		X	X			X	X	X
NUTRIENTS	I						X	O				X					O												X			X	X	V	O	O	X
NUTRIENTS	D						X	X	O	X											O												X	X			
PATHOGENS	I						V																								X	X			X		X
pH	I																																				
pH	D																																				
DISSOLVED OXYGEN	D																																				
DISSOLVED SOLIDS	I																																				
DISSOLVED SOLIDS	D																																				
SUBSTRATE PARTICLE SIZE	I																																				
SUBSTRATE PARTICLE SIZE	D																																				
SEDIMENTATION	I																																				
SEDIMENTATION	D																																				
SEDIMENT CHEMISTRY																																					
FAUNAL ABUNDANCE	I																				O																
FAUNAL ABUNDANCE	D	O	X	X	O	O	X	X	X	X						X	O		X					O	O	O							X	X			
FAUNAL REPRODUCTIVE POTENTIAL	I																				O																
FAUNAL REPRODUCTIVE POTENTIAL	D	O	X	X	X		O	O	X	X						X			X							O							O	O			
FAUNAL DIVERSITY	I																				O																
FAUNAL DIVERSITY	D	O	X	X	O		O	O	X	X						X			X							O							O	O			
FLORAL ABUNDANCE	I		O	O	O		O								X				O	O										O			O				
FLORAL ABUNDANCE	D	O	X	X	O	O	X	X	X	X						X			X	X	O			O	O	O				X			X	X			
FLORAL DIVERSITY	I						O								X					O	O									O			O				
FLORAL DIVERSITY	D	O	X	X	X		X	X	X	X						X			X	X	O					O				X			X	X			
SUNLIGHT PENETRATION	D																																				
PRIMARY PRODUCTIVITY	I		O	O	O		O								X					O	O									O			O				
PRIMARY PRODUCTIVITY	D	O	X	X	X	O	X	X	X	X						X			X	X	O			O	O	O				X			X	X			
SOIL ASSIMILATIVE CAPACITY	I				O																																
SOIL ASSIMILATIVE CAPACITY	D	O				O	X	O	X	X									X														X	O			X
BATHYMETRY VARIABILITY	I																																				
WATER DEPTH	I																																				
WATER DEPTH	D																																				
SHORE PROTECTION CAPACITY	I																																				
SHORE PROTECTION CAPACITY	D																																				
SHORELINE CHANGES																																					
LITTORAL DRIFT	I																																				
LITTORAL DRIFT	D																																				
RUNOFF	I	O	X	X			X	O		X										X	X												X	O			
EXIT EROSION/SCOURING ←	I								X										X						X												
EROSION/SCOURING	D				O	X	O	X		X						X			O						O								O	X			
FLOOD FREQUENCY	I																																				X
FLOOD FREQUENCY	D					X	O	O																													
FLOOD INTENSITY	I																																				X
FLOOD INTENSITY	D					X	O	O																													
FLOW REGIME			O	X	X		X	X	X	X	X							X			X	X	X	O	X		X	X	X	X	X		X	X			X
CIRCULATION/MIXING	I																																				
CIRCULATION/MIXING	D																																				
NOISE																	X																				

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

SPECIAL RESOURCE AREAS WITHIN THIS TYPE

PINE BARRENS
OPEN SPACE
OAK, HICKORY AND PINE FORESTS

SET III. STEP 5.
MATRIX #3. INTRA-TYPE ENVIRONMENTAL CHANGE LINKAGES - LOWLAND COARSE SOILS

EXIT/RECYCLE

LOWLAND COARSE SOILS

INTRA-TYPE ENVIRONMENTAL CHANGE LINKAGES

→ PRIMARY ENVIRONMENTAL CHANGES / ↑ SECONDARY ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES		AQUIFER RECHARGE	AQUIFER RECHARGE	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE	GROUNDWATER SALINITY	SURFACE WATER SALINITY	SURFACE WATER SALINITY	WATER TEMPERATURE	WATER TEMPERATURE	SUSPENDED SOLIDS	SUSPENDED SOLIDS	TOXIC SUBSTANCES	NUTRIENTS	NUTRIENTS	PATHOGENS	pH	pH	DISSOLVED OXYGEN	DISSOLVED SOLIDS	DISSOLVED SOLIDS	SUBSTRATE PARTICLE SIZE	SUBSTRATE PARTICLE SIZE	SEDIMENTATION	SEDIMENTATION	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE	FAUNAL ABUNDANCE	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL DIVERSITY	FAUNAL DIVERSITY	FLORAL ABUNDANCE	FLORAL ABUNDANCE	FLORAL DIVERSITY	FLORAL DIVERSITY	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY	PRIMARY PRODUCTIVITY	SOIL ASSIMILATIVE CAPACITY	SOIL ASSIMILATIVE CAPACITY	BATHYMETRY VARIABILITY	WATER DEPTH	WATER DEPTH	SHORE PROTECTION CAPACITY	SHORE PROTECTION CAPACITY	SHORELINE CHANGES	LITTORAL DRIFT	LITTORAL DRIFT	RUNOFF	EROSION/SCOURING	EROSION/SCOURING	FLOOD FREQUENCY	FLOOD FREQUENCY	FLOOD INTENSITY	FLOOD INTENSITY	FLOW REGIME	CIRCULATION/MIXING	CIRCULATION/MIXING	NOISE
	ENVIRONMENTAL CHANGES	I	D	I	D	I	I	D	I	D	I	D	I	I	D	I	I	D	D	I	D	I	D	I	D		I	D	I	D	I	D	I	D	I	D	D	I	D	I	D	I	I	D	I	D		I	D	I	I	D	I	D	I	D		I	D	
AQUIFER RECHARGE	I	X																		X	O												O		O			O																			X			
AQUIFER RECHARGE	D		X																															O		O			O																		X			
GROUNDWATER DISCHARGE	I			X																														O		O			O																		X			
GROUNDWATER DISCHARGE	D				X																												O		O			O																			X			
GROUNDWATER SALINITY	I					X														X								O		O		O		X		X			X																					
SURFACE WATER SALINITY	I																																																											
SURFACE WATER SALINITY	D																																																											
WATER TEMPERATURE	I																																																											
WATER TEMPERATURE	D																																																											
SUSPENDED SOLIDS	I																																																											
SUSPENDED SOLIDS	D																																																											
TOXIC SUBSTANCES	I											X																X		X		O	O	X		X		O	X																					
NUTRIENTS	I											X	X															O		O			O	O	O	O		O	O																					
NUTRIENTS	D																																	O		O			O																					
PATHOGENS	I															X												X		X		X																												
pH	I																																																											
pH	D																																																											
DISSOLVED OXYGEN	D																																																											
DISSOLVED SOLIDS	I					X														X								O		O		O		X		X			X																					
DISSOLVED SOLIDS	D																				X						O						X		X			X																						
SUBSTRATE PARTICLE SIZE	I																																																											
SUBSTRATE PARTICLE SIZE	D																																																											
SEDIMENTATION	I																																																											
SEDIMENTATION	D																																																											
SEDIMENT CHEMISTRY																																																												
FAUNAL ABUNDANCE	I												O		O												O		O	O	O	O		O					O																					
FAUNAL ABUNDANCE	D																												O	O	O	O																												
FAUNAL REPRODUCTIVE POTENTIAL	I																										X				O																													
FAUNAL REPRODUCTIVE POTENTIAL	D																											X				X																												
FAUNAL DIVERSITY	I																										O		O																															
FAUNAL DIVERSITY	D																										O	X	O	X																														
FLORAL ABUNDANCE	I	X													O												X		X		X	O	O		O	O		X		X												X		O		O	X			
FLORAL ABUNDANCE	D																											X		X		X		O	O	O			X		X									X										
FLORAL DIVERSITY	I																										X		X		X		O	O				O	O													O		O		O	O			
FLORAL DIVERSITY	D																											X		X		X	O	O				O	O																					
SUNLIGHT PENETRATION	D																																																											
PRIMARY PRODUCTIVITY	I														O												X		X		X	O	X		O	O		O																						
PRIMARY PRODUCTIVITY	D																											X		X		X		X	O	O																								
SOIL ASSIMILATIVE CAPACITY	I	O													X						X																			O												O		O		O	O			
SOIL ASSIMILATIVE CAPACITY	D		X										X	X		X				X																					X									X										
BATHYMETRY VARIABILITY	I																																																											
WATER DEPTH	I																																																											
WATER DEPTH	D																																																											
SHORE PROTECTION CAPACITY	I																																																											
SHORE PROTECTION CAPACITY	D																																																											
SHORELINE CHANGES																																																												
LITTORAL DRIFT	I																																																											
LITTORAL DRIFT	D																																																											
RUNOFF	I		X												O																																			O	X		X		X		X			
EROSION/SCOURING	I														O													X		X		X		X		X			X		O										X									
EROSION/SCOURING	D																										O		O		O		X		X			O		O												X								
FLOOD FREQUENCY	I	X				X																						X		X		X		X		O			O		O										X		O							
FLOOD FREQUENCY	D		X																								X		O		X		O		X			X		O												O		O						
FLOOD INTENSITY	I					X																						X		X		O		X		X			X		O										X				X					
FLOOD INTENSITY	D																										X		X		X		O		X			X		O												O				O				
FLOW REGIME				X	X	X							X	X	X	X				X													O	X	O	X		O	X	O	X												X	X	X	O	X			
CIRCULATION/MIXING	I																																																											
CIRCULATION/MIXING	D																																																											
NOISE																												X		X		O																												

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

the matrix again and again at each appropriate entry line it is possible to identify complex causal impact chains thoroughly and sequentially. This is how the matrices are intended to be used following their placement in a computer data bank.

The next step (Step 6) in this simplified example is an evaluation of the effects of the projected environmental changes on both general and special coastal resource objectives. Matrix Set V (Appendix I.E.) was prepared for this purpose. This step is illustrated by Matrix 4. We also could have arrived at Step 6 utilizing Step 4 which would bypass Step 5 (Figures 1 and 2) and give us only the primary environmental changes caused by the use. In Step 6 all the environmental changes (primary, secondary, and tertiary) which have been identified are used to enter the matrix from the top. If, by way of example, we enter at "Floral Abundance - D" the following objectives would be potentially violated:

General Objectives

- Regulate groundwater discharge and levels
- Preserve faunal abundance and diversity
- Preserve floral abundance and diversity
- Preserve natural primary productivity
- Maintain natural geomorphological profile
- Preserve freshwater flows

Special Objectives
(Objectives for Special Coastal Resources)

- Preserve Pine Barrens
- Preserve open space
- Preserve oak, hickory, and pine forests

Obviously, one has to know where the site is located in relation to special coastal resources. Because our input information in Figure I indicates the site is not located in the Pine Barrens or in a forest, then those special objectives will not be violated. A notation at the bottom of Matrix 2 indicates that the potential for all three of the above special coastal resources to occur in the lowland coarse soil land type, and it would be up to the matrix system user to identify such areas at the input stage.

The central point to make about the matrix process is that it ties each use to coastal objectives through the identification of impacting activities and their directly or indirectly associated environmental changes. The matrix process does not guarantee that each of the identified changes will occur, but it does identify causally related event sequences which have a high probability of occurrence. The DEP and the applicant can then examine the identified potential impacts in an organized and logical fashion and arrive at a management scheme to avoid or mitigate potential environmental problems.

SET V. STEP 6.
MATRIX #4. ENVIRONMENTAL CHANGES VERSUS OBJECTIVES - LOWLAND COARSE SOILS

LOWLAND COARSE SOILS

ENVIRONMENTAL CHANGES VERSUS OBJECTIVES

OBJECTIVES ↑

ENVIRONMENTAL CHANGES ←	GENERAL MAINTAIN RECHARGE RATES	MAINTAIN RECHARGE RATES	REGULATE GROUNDWATER DISCHARGE AND LEVELS	MAINTAIN AQUIFER QUALITY	MAINTAIN GRADIENTS OF SALINITY	MAINTAIN AMBIENT WATER TEMPERATURES	CONTROL TURBIDITY	REGULATE TOXIC SUBSTANCE DISCHARGES	MAINTAIN NATURAL NUTRIENT GRADIENTS	CONTROL PATHOGEN DISCHARGES	MAINTAIN NATURAL pH LEVELS	MAINTAIN DISSOLVED OXYGEN LEVELS	REGULATE DISSOLVED SOLIDS CONCENTRATIONS	PRESERVE AQUATIC HABITATS	PRESERVE FAUNAL ABUNDANCE AND DIVERSITY	PRESERVE FLORAL ABUNDANCE AND DIVERSITY	PRESERVE NATURAL PRIMARY PRODUCTIVITY	MAINTAIN SOIL ASSIMILATIVE CAPACITY	PRESERVE NATURAL SHORE PROTECTION CAP.	MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.	PRESERVE FRESH WATER FLOWS	PRESERVE ESTUARINE CIRCULATION/MIXING	REGULATE NOISE	SPECIAL: TO PRESERVE....	SHELLFISH REEFS	ESTUARINE SHELLFISH BEDS	OCEAN SHELLFISH BEDS	PRIME FISHING AREAS	SUBMERGED VEGETATION	TIDAL WETLANDS	BOGS AND MORTIDAL WETLANDS	WHITE CEDAR STANDS	MIGRATORY PATHWAYS AND SPAWNING AREAS	SHIPWRECKS AND REEFS	BEACHES	DUNES	COASTAL BLUFFS	PINE BARRENS	OPEN SPACE	PRIME FARMLAND AND SPECIALTY SOILS	CENTRAL BARRIER ISLAND CORRIDOR	OAK, HICKORY AND PINE FORESTS
AQUIFER RECHARGE				O																																								
AQUIFER RECHARGE			X																																									
GROUNDWATER DISCHARGE			X																																									
GROUNDWATER DISCHARGE			O																																									
GROUNDWATER SALINITY				X									X																															
SURFACE WATER SALINITY				X																																								
SURFACE WATER SALINITY																																												
WATER TEMPERATURE																																												
WATER TEMPERATURE																																												
SUSPENDED SOLIDS																																												
SUSPENDED SOLIDS																																												
TOXIC SUBSTANCES				X				X							X																													
NUTRIENTS				X				O	X						O																													
NUTRIENTS									X							X																													
PATHOGENS				X						X																																		
pH																																												
pH																																												
DISSOLVED OXYGEN																																												
DISSOLVED SOLIDS				X									X		O																													
DISSOLVED SOLIDS																																												
SUBSTRATE PARTICLE SIZE																																												
SUBSTRATE PARTICLE SIZE																																												
SEDIMENTATION																																												
SEDIMENTATION																																												
SEDIMENT CHEMISTRY																																												
FAUNAL ABUNDANCE										O							O	O	X																									
FAUNAL ABUNDANCE																			X																									
FAUNAL REPRODUCTIVE POTENTIAL																			O																									
FAUNAL REPRODUCTIVE POTENTIAL																			X																									
FAUNAL DIVERSITY																			O																									
FAUNAL DIVERSITY																			X																									
FLORAL ABUNDANCE																	O	O																										
FLORAL ABUNDANCE			X														X	X	X			X																						
FLORAL DIVERSITY																		O																										
FLORAL DIVERSITY																			X																									
SUNLIGHT PENETRATION																																												
PRIMARY PRODUCTIVITY																	O	O																										
PRIMARY PRODUCTIVITY																	X	X	X																									
SOIL ASSIMILATIVE CAPACITY																																												
SOIL ASSIMILATIVE CAPACITY																X	O	O						X																				
BATHYMETRY VARIABILITY																																												
WATER DEPTH																																												
WATER DEPTH																																												
SHORE PROTECTION CAPACITY																																												
SHORE PROTECTION CAPACITY																																												
SHORELINE CHANGES																																												
LITTORAL DRIFT																																												
LITTORAL DRIFT																																												
RUNOFF																					X	X																						
EROSION/SCOURING																					X																							
EROSION/SCOURING																					O																							
FLOOD FREQUENCY																					X	X																						
FLOOD FREQUENCY																					O	O																						
FLOOD INTENSITY																					X	X																						
FLOOD INTENSITY																					O																							
FLOW REGIME																					X	X																						
CIRCULATION/MIXING																																												
CIRCULATION/MIXING																																												
NOISE																								X																				

EXIT ←

I-INCREASE
D-DECREASE

PROBABILITY TO VIOLATE OBJECTIVES
X-HIGH
V-VARIABLE
O-LOW

ENTER ←

The above example is a simple sequence which related changes on the land to land-based objectives. The matrix process can also be used to identify impacts to water areas, and, hence, to water-based objectives Matrix 3 shows the degree of potential for impact transmission from the low-land coarse soil type to the next adjacent land and water type. This potential intertype linkage is shown on the diagonal. For example, if an entry is made on Matrix 3 on the left at "erosion/scouring - I" and if one follows that horizontal column over to the matrix diagonal, an "X" is found in the vertical column "erosion-souring - I". This means that there is a high potential for the effects of erosion/scouring to pass from the land to an adjacent edge or water type. If we now assume that our hypothetical power plant is separated from the back bay by a "nonvegetated-high load" edge type (estuarine beach), then for Step 7 we can utilize Matrix 5 to evaluate impacts passed through the lowland type to the edge. Matrix 5 is an example of the matrices in Set IV (Appendix 1.D.) which indicate general intertype environmental change linkages.

If we now enter Matrix 5 at the left at "erosion/scouring - I", the impacts of which we have just determined could be easily transmitted from the land to the edge, the following secondary environmental changes projected to occur in the edge are indicated as major:

- Increase in suspended solids
- Increase in toxic substances
- Increase in nutrients
- Increase in sedimentation
- Increase in littoral drift

We also note that on the diagonal an "X" appears again in the column "erosion-scouring - I". This "X" in the diagonal indicates that a high potential remains that the effects of erosion/scouring will not stop at the edge but could be passed through to the adjacent water body.

We consequently do not stop at the edge for identification of potential objectives violations, but proceed on the diagonal indication that erosion/scouring effects will be passed through to the adjacent back bay, we then arrive at Matrix 6 and repeat Step 7. This matrix shows the secondary changes which occur in water as a result of erosion/scouring effects on the land. The reader should remember at this point that we have started with the impacting activity "channelization" and proceeded through the change "erosion/scouring" to identify changes on the lowland coarse soil land type which were subsequentially passed to the estuarine beach (as indicated on the diagonals of Matrices 3 and 5) and now finally passed to the back bay water type (as indicated on Matrix 6's diagonal). We will now demonstrate that the changes associated with erosion/scouring in the back bay potentially violate several general and special coastal resource objectives.

MATRIX #5. LAND VERSUS EDGE, INTER-TYPE ENVIRONMENTAL CHANGE LINKAGES

LAND VERSUS EDGE-NONVEGETATED HIGH LOAD

INTER-TYPE ENVIRONMENTAL CHANGE LINKAGES

→ PRIMARY ENVIRONMENTAL CHANGES / ↑ SECONDARY ENVIRONMENTAL CHANGES (EXIT ↑)

PRIMARY ENVIRONMENTAL CHANGES		AQUIFER RECHARGE (I)	AQUIFER RECHARGE (D)	GROUNDWATER DISCHARGE (I)	GROUNDWATER DISCHARGE (D)	GROUNDWATER SALINITY (I)	SURFACE WATER SALINITY (I)	SURFACE WATER SALINITY (D)	WATER TEMPERATURE (I)	WATER TEMPERATURE (D)	SUSPENDED SOLIDS (I)	SUSPENDED SOLIDS (D)	TOXIC SUBSTANCES (I)	NUTRIENTS (I)	NUTRIENTS (D)	PATHOGENS (I)	pH (I)	pH (D)	DISSOLVED OXYGEN (I)	DISSOLVED SOLIDS (I)	DISSOLVED SOLIDS (D)	SUBSTRATE PARTICLE SIZE (I)	SUBSTRATE PARTICLE SIZE (D)	SEDIMENTATION (I)	SEDIMENTATION (D)	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE (I)	FAUNAL ABUNDANCE (D)	FAUNAL REPRODUCTIVE POTENTIAL (I)	FAUNAL REPRODUCTIVE POTENTIAL (D)	FAUNAL DIVERSITY (I)	FAUNAL DIVERSITY (D)	FLORAL ABUNDANCE (I)	FLORAL ABUNDANCE (D)	FLORAL DIVERSITY (I)	FLORAL DIVERSITY (D)	SUNLIGHT PENETRATION (I)	PRIMARY PRODUCTIVITY (I)	PRIMARY PRODUCTIVITY (D)	SOIL ASSIMILATIVE CAPACITY (I)	SOIL ASSIMILATIVE CAPACITY (D)	BATHYMETRY VARIABILITY (I)	WATER DEPTH (I)	WATER DEPTH (D)	SHORE PROTECTION CAPACITY (I)	SHORE PROTECTION CAPACITY (D)	SHORELINE CHANGES	LITTORAL DRIFT (I)	LITTORAL DRIFT (D)	RUNOFF (I)	EROSION/SCOURING (I)	EROSION/SCOURING (D)	FLOOD FREQUENCY (I)	FLOOD FREQUENCY (D)	FLOOD INTENSITY (I)	FLOOD INTENSITY (D)	FLOW REGIME	CIRCULATION/MIXING (I)	CIRCULATION/MIXING (D)
AQUIFER RECHARGE	I																																																										
AQUIFER RECHARGE	D																																																										
GROUNDWATER DISCHARGE	I																																																										
GROUNDWATER DISCHARGE	D																																																										
GROUNDWATER SALINITY	I					O																																																					
SURFACE WATER SALINITY	I																																																										
SURFACE WATER SALINITY	D																																																										
WATER TEMPERATURE	I																																																										
WATER TEMPERATURE	D																																																										
SUSPENDED SOLIDS	I																																																										
SUSPENDED SOLIDS	D																																																										
TOXIC SUBSTANCES	I												X																																													
NUTRIENTS	I												O	X																																													
NUTRIENTS	D																																																										
PATHOGENS	I															O																																											
pH	I																																																										
pH	D																																																										
DISSOLVED OXYGEN	D																																																										
DISSOLVED SOLIDS	I					O																				O		O		O		O																											
DISSOLVED SOLIDS	D																																																										
SUBSTRATE PARTICLE SIZE	I																																																										
SUBSTRATE PARTICLE SIZE	D																																																										
SEDIMENTATION	I																																																										
SEDIMENTATION	D																																																										
SEDIMENT CHEMISTRY																																																											
FAUNAL ABUNDANCE	I													O													O	O	O	O	O	O																											
FAUNAL ABUNDANCE	D																																																										
FAUNAL REPRODUCTIVE POTENTIAL	I																										O	O																															
FAUNAL REPRODUCTIVE POTENTIAL	D																																																										
FAUNAL DIVERSITY	I																																																										
FAUNAL DIVERSITY	D																																																										
FLORAL ABUNDANCE	I																										X		X		X																					X		X		X	X		
FLORAL ABUNDANCE	D																											O		O		O																		X									
FLORAL DIVERSITY	I																										O		O		O																					O		O		O	O		
FLORAL DIVERSITY	D																																																										
SUNLIGHT PENETRATION	D																																																										
PRIMARY PRODUCTIVITY	I																										X		X		X																												
PRIMARY PRODUCTIVITY	D																											O		O		O																											
SOIL ASSIMILATIVE CAPACITY	I														X		V	V				X																																					
SOIL ASSIMILATIVE CAPACITY	D													X	X		X	V	V		X																																						
BATHYMETRY VARIABILITY	I																																																										
WATER DEPTH	I																																																										
WATER DEPTH	D																																																										
SHORE PROTECTION CAPACITY	I																																																										
SHORE PROTECTION CAPACITY	D																																																										
SHORELINE CHANGES																																																											
LITTORAL DRIFT	I																																																										
LITTORAL DRIFT	D																																																										
RUNOFF	I										X		X	O	X									X	O																							O		X	X		X		X		X		
EROSION/SCOURING (ENTER →)	I										X		X	X	O									X																								X			X								
EROSION/SCOURING	D																								O																								O			O							
FLOOD FREQUENCY	I													X		O								X																											X		X				X		
FLOOD FREQUENCY	D																								O																											O		O			X		
FLOOD INTENSITY	I													X		O								X																											X				X		X		
FLOOD INTENSITY	D																								O																											X				X	X		
FLOW REGIME				X	X	X																																												X	X	X	X	X	X	X	X		
CIRCULATION/MIXING	I																																																										
CIRCULATION/MIXING	D																																																										
NOISE																																																											

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

SET IV. STEP 7.
MATRIX #6. LAND VERSUS WATER, INTER-TYPE ENVIRONMENTAL CHANGE LINKAGES

LAND VERSUS WATER

INTER-TYPE ENVIRONMENTAL CHANGE LINKAGES

→ PRIMARY ENVIRONMENTAL CHANGES ↑ SECONDARY ENVIRONMENTAL CHANGES

EXIT ↑ (SUSPENDED SOLIDS I); ENTER → (EROSION/SCOURING I)

PRIMARY ENVIRONMENTAL CHANGES		AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY I	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES I	NUTRIENTS I	NUTRIENTS D	PATHOGENS I	pH I	pH D	DISSOLVED OXYGEN D	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION D	PRIMARY PRODUCTIVITY I	PRIMARY PRODUCTIVITY D	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY I	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF I	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE
AQUIFER RECHARGE	I																																																											
AQUIFER RECHARGE	D																																																											
GROUNDWATER DISCHARGE	I																																																											
GROUNDWATER DISCHARGE	D																																																											
GROUNDWATER SALINITY	I						X													X																																								
SURFACE WATER SALINITY	I																																																											
SURFACE WATER SALINITY	D																																																											
WATER TEMPERATURE	I																																																											
WATER TEMPERATURE	D																																																											
SUSPENDED SOLIDS	I																																																											
SUSPENDED SOLIDS	D																																																											
TOXIC SUBSTANCES	I												X																																															
NUTRIENTS	I												O	X																																														
NUTRIENTS	D														O																																													
PATHOGENS	I															X																																												
pH	I																																																											
pH	D																																																											
DISSOLVED OXYGEN	D																																																											
DISSOLVED SOLIDS	I																																																											
DISSOLVED SOLIDS	D																			X																																								
SUBSTRATE PARTICLE SIZE	I																				X																																							
SUBSTRATE PARTICLE SIZE	D																																																											
SEDIMENTATION	I																																																											
SEDIMENTATION	D																																																											
SEDIMENT CHEMISTRY																																																												
FAUNAL ABUNDANCE	I																																																											
FAUNAL ABUNDANCE	D																																																											
FAUNAL REPRODUCTIVE POTENTIAL	I																																																											
FAUNAL REPRODUCTIVE POTENTIAL	D																																																											
FAUNAL DIVERSITY	I																																																											
FAUNAL DIVERSITY	D																																			V																								
FLORAL ABUNDANCE	I									V	V			V																																														
FLORAL ABUNDANCE	D								V			V			V																																												
FLORAL DIVERSITY	I																																																											
FLORAL DIVERSITY	D																																																											
SUNLIGHT PENETRATION	D																																																											
PRIMARY PRODUCTIVITY	I										V			V																																													
PRIMARY PRODUCTIVITY	D											V			V																																												
SOIL ASSIMILATIVE CAPACITY	I														X		V	V			X																																							
SOIL ASSIMILATIVE CAPACITY	D												X	X		X	V	V		X																																							
BATHYMETRY VARIABILITY	I																																																											
WATER DEPTH	I																																																											
WATER DEPTH	D																																																											
SHORE PROTECTION CAPACITY	I																																																											
SHORE PROTECTION CAPACITY	D																																																											
SHORELINE CHANGES																																																												
LITTORAL DRIFT	I																																																											
LITTORAL DRIFT	D																																										X					X					X		X		X				
RUNOFF	I							V			X		X	O		X	V	V		X																												X												
EROSION/SCOURING	I										X		O	X		O				X																													X											
EROSION/SCOURING	D											X			O						X																																								
FLOOD FREQUENCY	I										X		X	X		X	V	V		X																																								
FLOOD FREQUENCY	D											X			X		O	O			X																																							
FLOOD INTENSITY	I										X		X	X		X	V	V		X																																								
FLOOD INTENSITY	D											X			X		O	O			X																																		X				
FLOW REGIME				X	X			X																																																					
CIRCULATION/MIXING	I																																																											
CIRCULATION/MIXING	D																																																											
NOISE																																																												

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

If we now enter Matrix 6 on the left at the column titled "erosion/scouring - I", the following major potential secondary changes are identified:

- Increase in suspended solids
- Increase in nutrients
- Increase in dissolved solids
- Increase in littoral drift

Matrix 7 shows the relationship of environmental changes in semi-enclosed and back bays to general and special coastal resource objectives. If we now enter this matrix at the top at the column entitled "suspended solids - I" we find (Step 8) that a high potential exists to violate the following objectives:

General Objectives

- Maintain ambient water temperatures
- Control turbidity
- Maintain natural nutrient gradients
- Maintain dissolved oxygen levels
- Preserve faunal abundance and diversity
- Preserve floral abundance and diversity
- Preserve natural primary productivity
- Maintain natural geomorphological processes

Special Objectives

- Preserve shellfish reefs
- Preserve estuarine shellfish beds
- Preserve prime fishing areas
- Preserve submerged vegetation
- Preserve migratory pathways and spawning areas

Again, the matrix system user needs to utilize the input information to determine the presence of a special coastal resource in the affected water-body. The reader will recall that our example input information (Step 1) indicated the presence of an estuarine shellfish bed in the adjacent back bay. Therefore, the environmental change of increased suspended solids violates the special objective to preserve estuarine shellfish beds (Step 8).

In summary, the matrix system has linked the building of a new power plant to the potential for adversely affecting a special coastal resource. The BCPD should require, based on the identified impact relationship, that the applicant break that particular causal chain through the use of appropriate mitigation measure(s), in order to avoid violating a coastal objective and destroying a valued resource, i.e., a productive hard clam bed. Numerous other possible specific impacts of the proposed plant could be identified through the use of this matrix system and an overall management and mitigation scheme developed for the proposed project. The proper and thoughtful application of this process could insure use compatibility with natural resource coastal objectives.

SET V. STEP 8.
MATRIX #7. ENVIRONMENTAL CHANGES VERSUS OBJECTIVES SEMI-ENCLOSED AND BACK BAY

SEMI-ENCLOSED AND BACK BAYS

ENVIRONMENTAL CHANGES VERSUS OBJECTIVES

OBJECTIVES ↑

ENVIRONMENTAL CHANGES ←

ENVIRONMENTAL CHANGES		GENERAL	MAINTAIN RECHARGE RATES	REGULATE GROUNDWATER DISCHARGE AND LEVELS	MAINTAIN AQUIFER QUALITY	MAINTAIN GRADIENTS OF SALINITY	MAINTAIN AMBIENT WATER TEMPERATURES	CONTROL TURBIDITY	REGULATE TOXIC SUBSTANCE DISCHARGES	MAINTAIN NATURAL NUTRIENT GRADIENTS	CONTROL PATHOGEN DISCHARGES	MAINTAIN NATURAL pH LEVELS	MAINTAIN DISSOLVED OXYGEN LEVELS	REGULATE DISSOLVED SOLIDS CONCENTRATIONS	PRESERVE AQUATIC HABITATS	PRESERVE FAUNAL ABUNDANCE AND DIVERSITY	PRESERVE FLORAL ABUNDANCE AND DIVERSITY	PRESERVE NATURAL PRIMARY PRODUCTIVITY	MAINTAIN SOIL ASSIMILATIVE CAPACITY	PRESERVE NATURAL SHORE PROTECTION CAP.	MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.	PRESERVE FRESH WATER FLOWS	PRESERVE ESTUARINE CIRCULATION/MIXING	REGULATE NOISE
AQUIFER RECHARGE	I				x	x									x							x		
AQUIFER RECHARGE	D																							
GROUNDWATER DISCHARGE	I				o	x	x															x		
GROUNDWATER DISCHARGE	D						x																	
GROUNDWATER SALINITY	I					x	x							o										
SURFACE WATER SALINITY	I						x					o				x	x	x			o			
SURFACE WATER SALINITY	D						x					o				o	o	o						
WATER TEMPERATURE	I							x					x				o	o	o					
WATER TEMPERATURE	D						x										x	x	x				o	
SUSPENDED SOLIDS ←	I	ENTER					x	x	x	x	x	<	o			x	x	x	x		x			
SUSPENDED SOLIDS	D										x		o								o			
TOXIC SUBSTANCES	I									x			o	o	x		x	x	x					
NUTRIENTS	I								o	x		x		x			o	o	o					
NUTRIENTS	D											o						o	o					
PATHOGENS	I										x					x								
pH	I									<			o				o	o	o					
pH	D									<			o				o	o	o		o			
DISSOLVED OXYGEN	D									x				x		x								
DISSOLVED SOLIDS	I				x	x									o									
DISSOLVED SOLIDS	D																							
SUBSTRATE PARTICLE SIZE	I															o			x					
SUBSTRATE PARTICLE SIZE	D															x	x			x	x			
SEDIMENTATION	I										x					x		x	x	x	x			
SEDIMENTATION	D										o													
SEDIMENT CHEMISTRY							o				x		x	x		x	x	x	x					
FAUNAL ABUNDANCE	I										x						o	o	o					
FAUNAL ABUNDANCE	D															x								
FAUNAL REPRODUCTIVE POTENTIAL	I																							
FAUNAL REPRODUCTIVE POTENTIAL	D															x								
FAUNAL DIVERSITY	I																							
FAUNAL DIVERSITY	D															x								
FLORAL ABUNDANCE	I							x		<		o							o					
FLORAL ABUNDANCE	D												x						x	x	x		x	
FLORAL DIVERSITY	I																							
FLORAL DIVERSITY	D															x	x	x	o					
SUNLIGHT PENETRATION	D																		x	x				
PRIMARY PRODUCTIVITY	I											o							o	o				
PRIMARY PRODUCTIVITY	D															x			x	x	x			
SOIL ASSIMILATIVE CAPACITY	I																							
SOIL ASSIMILATIVE CAPACITY	D																							
BATHYMETRY VARIABILITY	I															x	x					x		
WATER DEPTH	I						x	o	o	o	o			o					x	x		x		x
WATER DEPTH	D															x	x				x			x
SHORE PROTECTION CAPACITY	I																				o			o
SHORE PROTECTION CAPACITY	D															o	o	o	o		x	x		o
SHORELINE CHANGES																x	x		o	o	x	x		x
LITTORAL DRIFT	I																				o			
LITTORAL DRIFT	D																				o	o		
RUNOFF	I																							
EROSION/SCOURING	I							x	x	x	x	x				x	x	x	x			x	x	
EROSION/SCOURING	D																				o	o		
FLOOD FREQUENCY	I									x		x				x	x	x			x	x		x
FLOOD FREQUENCY	D																						x	x
FLOOD INTENSITY	I									x		x				x	x	x			x	x		x
FLOOD INTENSITY	D																						x	x
FLOW REGIME										x		x				x	x	x		x	x	x		x
CIRCULATION/MIXING	I												o								o			o
CIRCULATION/MIXING	D												o		x						o			x
NOISE															o									

SPECIAL: TO PRESERVE....	I
SHELLFISH REEFS	I
ESTUARINE SHELLFISH BEDS	D
OCEAN SHELLFISH BEDS	D
PRIME FISHING AREAS	D
SUBMERGED VEGETATION	D
TIDAL WETLANDS	D
BOGS AND MONTIDAL WETLANDS	D
WHITE CEDAR STANDS	D
MIGRATORY PATHWAYS AND SPAWNING AREAS	D
SHIPWRECKS AND REEFS	D
BEACHES	D
DUNES	D
COASTAL BLUFFS	D
PINE BARRENS	D
OPEN SPACE	D
PRIME FARMLAND AND SPECIALTY SOILS	D
CENTRAL BARRIER ISLAND CORRIDOR	D
OAK, HICKORY AND PINE FORESTS	D

EXIT ↑

I-INCREASE
D-DECREASE

PROBABILITY TO VIOLATE OBJECTIVES
X-HIGH
V-VARIABLE
O-LOW

Appendixes

A full set of 80 of the estuarine study environmental impact matrices is presented in Appendix 1. These matrices encompass the 20 land, water, and edge types described in Appendix 2, and identify 103 uses (Appendix 3), 36 impacting activities (Appendix 4), 59 environmental changes (Appendix 5), 22 general ecological objectives,and 18 special objectives for special coastal resources (Appendix 6).

The important assumptions and notes concerning the matrices are presented in Appendix 7.

APPENDIX 1

Final Draft Matrices

SET I:

A. Uses versus Impacting Activities

Type	Page
Land	18.
Edge Vegetated Low Load	19.
Edge Non-Vegetated High Load	20.
Water	21.

LAND USES VERSUS IMPACTING ACTIVITIES

PR-PREPARATION
CO-CONSTRUCTION
OP-OPERATION
T-TIME OF OCCURRENCE
X-MAJOR
V-VARIABLE
O-MINOR

USES ← / IMPACTING ACTIVITY →	USE SUBCATEGORIES	USE CATEGORIES	HAZARDS	AIR WASTE DISPOSAL: GASES	AIR WASTE DISPOSAL: PARTICULATES	SOLID WASTE DISPOSAL: CONSOLIDATED NON-HAZARDOUS	SOLID WASTE DISPOSAL: UNCONSOLIDATED NON-HAZARDOUS	SOLID WASTE DISPOSAL: HAZARDOUS	LIQUID WASTE DISPOSAL: ORGANIC	LIQUID WASTE DISPOSAL: THERMAL EFFLUENTS	LIQUID WASTE DISPOSAL: NUTRIENTS	LIQUID WASTE DISPOSAL: HEAVY METALS	LIQUID WASTE DISPOSAL: PESTICIDES	PEDESTRIAN TRAFFIC	CHANNELIZATION	CULVERTING	SUBSURFACE WATER DEMAND	SURFACE WATER DEMAND	DRAINAGE	LANDSCAPING/ROW MANAGEMENT	INUNDATION	WATER TRANSFER/DIVERSION	VEHICULAR TRAFFIC	STRUCTURAL SUPPORT	IRRIGATING	HERBICIDING	INSECTICIDING	FERTILIZING	DREDGING	IMPERVIOUS SURFACE	EXCAVATING	FILLING-CONSOLIDATED	FILLING-UNCONSOLIDATED	DIKING	PLOWING/DISCING	HERBACEOUS CLEARING	WOODY CLEARING	COMPACTION
PR																						T		T					T		T	T	T	T	T	T	T	T
CO						T	T		T		T				T	T						T		T					T	T	T	T	T	T				T
OP			T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
RURAL		HOUSING				O	O		O		O		V	O	O	O	O	O	O	O		O	O	O		X	X	V		O	O		O			X	V	O
SINGLE FAMILY DETACHED				O	O	X	X		X		X	O	O	O	X	X	V	V	X	X		X	O	O		O	X	O		X	X		X			X	X	X
SINGLE FAMILY ATTACHED				O	O	X	X		X		X	O	O	O	X	X	X	X	X	O		X	X	X		O	X	O		X	X		X			X	X	X
URBAN HIGH DENSITY				X	X	X	X		X		X	O	O	O	X	X	X	X	X	O		X	X	X			X			X	X		X			X	X	X
RETAIL AND SERVICE		COMMERCIAL		X	X	X	X		O		O	X			X	X	O	O	X			X	X	X			O			X	X		X			X	X	X
WHOLESALE AND DISTRIBUTION				O	O	X	X		O		O	O			X	X	O	O	X			X	X	X						X	X		X			X	X	X
INSTITUTIONAL/PROFESSIONAL FACILITIES		INSTITUTIONAL/PROFESSIONAL FACILITIES		O	O	X	X		X		X	O	V	O	X	X	X	X	X	O		X	X	X		O	X	O		X	X		X			X	X	X
ELECTRICAL EQUIPMENT/SUPPLIES	FABRICATION AND ASSEMBLY	INDUSTRIAL			O	X	O		X		O	X			X	X	V	V	X			X	O	X						X	X		X			X	X	X
METAL PRODUCTS				X	O	X	O		X		O	X			X	X	X	X	X			X	O	X						X	X		X			X	X	X
TRANSPORTATION EQUIPMENT				O		X	O		X		O	O			X	X	X	X	X			X	O	X						X	X		X			X	X	X
MACHINERY EXCEPT ELECTRICAL				O	O	X	O		X		O	O			X	X	X	X	X			X	O	X						X	X		X			X	X	X
INSTRUMENTS AND RELATED PRODUCTS						X	O		O		O	O			X	X	O	O	X			X	O	X						X	X		X			X	X	X
FURNITURE				O	O	X	O		X		O				X	X	X	X	X			X	O	X						X	X		X			X	X	X
INORGANIC CHEMICALS	CHEMICALS AND ALLIED PRODUCTS		X	X	X	O	O		X		X	O			X	X	X	X	X		O	X	O	X						X	X		X			X	X	X
ORGANIC CHEMICALS			X	X		O	O		X		O	O			X	X	X	X	X		O	X	O	X						X	X		X			X	X	X
PLASTICS AND SYNTHETICS			O	X		X	O		X	O	O	O			X	X	X	X	X		O	X	O	X						X	X		X			X	X	X
PHARMACEUTICALS AND COSMETICS				O		X	O		X		O	O	O		X	X	X	X	X	O		X	O	X		O		O		X	X		X			X	X	X
SOAPS AND DETERGENTS					O	X	O		X		X	O			X	X	X	X	X			X	O	X						X	X		X			X	X	X
PAINTS AND ALLIED PRODUCTS			O	O	O	X	O		X		O	X			X	X	X	X	X		O	X	O	X						X	X		X			X	X	X
AGRICULTURAL CHEMICALS			X	O	O	X	O		X		X	X	X		X	X	X	X	X			X	O	X						X	X		X			X	X	X
APPAREL/TEXTILE PRODUCTS	TEXTILES					X	O		X		O	O	O		X	X	X	X	X	O		X	O	X		O				X	X		X			X	X	X
WEAVING AND KNITTING MILLS						X	O		X		O				X	X	X	X	X		O	X	O	X						X	X		X			X	X	X
TEXTILE FINISHING						X	O		X		O	O			X	X	X	X	X		O	X	O	X						X	X		X			X	X	X
LEATHER AND LEATHER PRODUCTS			O	O	O	X	O		X		O	O			X	X	X	X	X		O	X	O	X						X	X		X			X	X	X
IRON AND STEEL MANUFACTURING	PRIMARY METALS		O	X	X	X	X		X	X	O	X			X	X	X	X	X		O	X	O	X						X	X		X			X	X	X
FERROALLOYS			O	O	O	X	O	O	X	X	O	X			X	X	X	X	X			X	O	X						X	X		X			X	X	X
ALUMINUM AND ALLOYS				O	O	X	O		X	X	O	X			X	X	X	X	X			X	O	X						X	X		X			X	X	X
CU, PB, ZN, HG SMELTING/PROCESSING			O	X	X	O	O	X	X	X	O	X			X	X	X	X	X		O	X	O	X						X	X		X			X	X	X
METAL PLATING			O	O		O	O		X		O	X			X	X	X	X	X			X	O	X						X	X		X			X	X	X
GLASS MANUFACTURING	STONE, CLAY, AND GLASS PRODUCTS		O	O		X	X	X	X		X	O			X	X	X	X	X			X	O	X						X	X		X			X	X	X
CEMENT					X	X	X		X		O				X	X	X	X	X			X	X	X						X	X		X			X	X	X
CLAY PRODUCTS					O	X	X		O		O				X	X	X	X	X			X	O	X						X	X		X			X	X	X
CUT STONE					O	X	O		O		O				X	X	X	X	X			X	O	X						X	X		X			X	X	X
CONCRETE, GYPSUM, AND PLASTER					X	X	X		O		O				X	X	X	X	X			X	O	X						X	X		X			X	X	X
MEAT AND POULTRY	FOOD AND FOOD BYPRODUCTS			O	O	X	O		X		O				X	X	X	X	X			X	O	X						X	X		X			X	X	X
DAIRY						O	O		X		X				X	X	X	X	X			X	O	X						X	X		X			X	X	X
PRESERVED FRUITS AND VEGETABLES						X	O		X		O				X	X	X	X	X			X	O	X						X	X		X			X	X	X
GRAIN MILLS						O	O		O		X				X	X	O	O	X			X	O	X						X	X		X			X	X	X
FISH AND SHELLFISH PROCESSING						X	O		X		X				X	X	X	X	X			X	O	X						X	X		X			X	X	X
BAKERIES						O	O		O		O				X	X	O	O	X			X	X	X						X	X		X			X	X	X
SUGAR REFINERIES/CONFECTIONERS				O		O	O		X		X				X	X	X	X	X			X	O	X						X	X		X			X	X	X
FATS AND OILS					X	O	O		X		O				X	X	X	X	X			X	O	X						X	X		X			X	X	X
ALCOHOLIC BEVERAGES				X	O	X	O		X		X				X	X	X	X	X			X	O	X						X	X		X			X	X	X
SOFT DRINKS						X	O		O		X				X	X	X	X	X			X	O	X						X	X		X			X	X	X
PRINTING AND PUBLISHING						X	O		O		O	O			X	X	O	O	X			X	O	X						X	X		X			X	X	X
PULP MILLS	PAPER AND ALLIED PRODUCTS			O	O	O	O		X		X	X			X	X	X	X	X		O	X	O	X						X	X		X			X	X	X
PAPER/BUILDING BOARD PLANTS					O	O	O		X		X	X			X	X	X	X	X		O	X	O	X						X	X		X			X	X	X
HARD ROCK QUARRYING	EXTRACTIVE				O	X	X		O						X	O	X	X	X		O	X	X								X			X		X	X	
UNCONSOLIDATED					O	X	X		X		O	O			X	O	X	X	X		O	X	X								X		O	X		X	X	X
SAW MILLS AND PLANING	LUMBER AND WOOD PRODUCTS			O	O	X	X		X		O				X	X	X	X	X			X	O	X						X	X		X			X	X	X
MILLWORKS				O	O	O	O		X		O				X	X	X	X	X			X	O	X						X	X		X			X	X	X
WOOD CONTAINERS				O	O	X	O		O		O				X	X	X	X	X			X	O	X						X	X		X			X	X	X
WOOD PRESERVATION			O	O	O	O	O		X		O				X	X	X	X	X			X	O	X						X	X		X			X	X	X
PIPELINES AND PUMPING STATIONS	BULK STORAGE/TRANSFER FACILITIES					O	O						X			O				X						X				O			O			O	X	
STORAGE TANKS				O		O	O		X						X	X			X			X		X						X	X		X	X		X	X	X
TRANSFER FACILITIES (OIL, CHEMICAL)			O			O	X		X						X	X			X			X	O	X						X	X		X	X		X	X	X
AERIAL TRANSMISSION LINES							O						X							X				O		X					O	O				O	X	
BURIED TRANSMISSION CABLES						O	O		O				O							X						O					O		O			O	X	
PETROLEUM REFINING	PETROLEUM AND PETROLEUM PRODUCTS		X	X	X	O	O		X	X	O	X			X	X	X	X	X		O	X	O	X						X	X		X	X		X	X	X
PETROLEUM RECOVERY FACILITY			O			O	X		X		O	X			X	X	X	X	X			X	O	X						X	X		X			X	X	X
OILS AND GREASES			O			O	X		X		O				X	X	X	X	X			X	O	X						X	X		X			X	X	X
PHENOLS, CREOSOTES AND TARS			O	X		O	X		X		O				X	X	X	X	X			X	O	X						X	X		X			X	X	X
SYNTHETIC GAS MANUFACTURING			O			O	O		O		O				X	X	X	X	X			X	O	X						X	X		X			X	X	X
LIQUIFIED NATURAL GAS			X			O	O		O	X	O				X	X	X	X	X			X	O	X						X	X		X			X	X	X
GAS PROCESSING			O	X		O	O		O		O				X	X	X	X	X			X	O	X						X	X		X			X	X	X
COOLING TOWER	NUCLEAR ELECTRICAL GENERATION	ENERGY GENERATION	X		X		X	X	O	O	O		O		X	X	X	X	X	X		X	O	O		O		X		O	O		O	X		O	V	V
ONCE THROUGH COOLING			X				X	X	O	X	O		O		X	X	X	X	X	X	O	X	O	O		O		X		O	O		O	X		O	V	V
COOLING PONDS/LAKES			X				X	X	O	X	O		O		X	X	X	X	X	X	O	X	O	O		O				O	V		O	X		O	V	V
COOLING TOWER	FOSSIL FUEL ELECTRICAL GENERATION			X	X		X		O	O	O	V	O		X	X	X	X	X	X		X	O	O		O		X		O	O		O	X		O	V	V
ONCE THROUGH COOLING				X	X		X		O	X	O	V	O		X	X	X	X	X	X	O	X	O	O		O		V		O	O		O	X		O	V	V
COOLING PONDS/LAKES				X	X		X		O	X	O	V	O		X	X	X	X	X	X	O	X	O	O		O				O	V		O	X		O	V	V
OUTDOOR	LARGE CROWD GATHERING FACILITY	RECREATION		O	O	X			X		X	X	X	O	X	X	X	X	X	O	O	X	X	O	O	O	X	O		X	X		X			X	X	X
INDOOR				O	O	X			X		X	X			X	X	X	X	X			X	X	X						X	X		X			X	X	X
OUTDOOR	SMALL CROWD GATHERING FACILITY					O			X		X	O	X	X	X	X	X	X	X	X	O	O	O	O	O	X	X	X		O	O		O			O	X	O
INDOOR						O			X		X	O			X	X	X	X	X			X	O	X						X	X		X			X	X	X
CENTRALIZED WATER		PUBLIC FACILITIES	O				O		X		X				X	X	X	X	X	X	V	X		O						O	V		O	V		O	V	O
CENTRALIZED SEWAGE			O	O			X	X	X	X	X	X			X	X			X	O		X		O	V					O	X					O	X	X
INCINERATOR	SOLID WASTE MANAGEMENT			X	X		X		O		O				X	X			X			X	X	X						X	X		X			X	X	X
LANDFILL			X			X	X	X	X		X	X	X		X	X			X	X		O	X				X				X	X	X	X		X	X	X
COMPOST				O			X		O		O				X	X			X			X	X	X						X	X		X			X	X	X
EXPRESSWAY	AUTO	TRANSPORTATION		X	X				O		O	X	O		X	O			X	O		X	X	O		O		O		X	X		X			X	X	X
COLLECTOR				X	X				O		O	X	O		X	O			X	O		X	X	O		O				X	X		X			X	X	X
LOCAL ROAD				O	O				O		O	O	O		X	O			X	O		X	X	O		O				X	X		X			X	X	X
RAIL									O		O		O		X	O			O	X		X	O	O		X				O	X	X	O			O	X	X
PORT (LARGE)	SHIP					O	X		O		O	O			X	X	X	X	X			X	X	X						X	X		X			X	X	X
MARINA (MEDIUM)						O	X		O		O	O	O		X	X	X	X	X			X	X	X			X			X	X		X			X	X	X
DOCK (SMALL)						O	X						O	O	X	O	O	O	O	O		O					X			O		O	O			O		O
NAVIGATION																																						
AIRPORT	AIRCRAFT			X	X	O			O		O	O	O		X	X	O	O	X	X		X	X	O		O				X	X		X			X	X	X
SMALL LANDING FIELD				O	O	O			O		O	O	O		X	X	O	O	X	X		X	O	O		X				V	X		X			O	X	X
COMMERCIAL	SHELLFISHING	NATURAL RESOURCE UTILIZATION																																				
RECREATIONAL																																						
COMMERCIAL	FISHING																																					
RECREATIONAL																																						
AQUACULTURE							O		X		X				X	X	X	X	X		V	X		O						X	X		X	V		X	X	X
FORESTRY						O							O		X	O			O	X						X	X											
ROW CROPS	AGRICULTURE								X		X		X		X	X	V	V	O	X	V	V			V	X	X	X						V	X	X	X	
SALT HAY																																						
NURSERIES						O			X		X		X		X	O	V	V	O	X						X	X	X							X	X	X	
ORCHARDS						O							X		X	O	O	O	O	X						X	X	X							X	O	X	
LIVESTOCK LOT			O				X		X		X		O	X	X	X	X	X	X			X					X			X	X		X			X	X	X
LIVESTOCK RANGE							O		O		X			X	O	O			O	X																X	X	
MOSQUITO CONTROL DITCHING																																						

EDGE VEGETATED LOW LOAD

USES

VERSUS

IMPACTING ACTIVITIES

PR=PREPARATION
CO=CONSTRUCTION
OP=OPERATION
T=TIME OF OCCURRENCE
X=MAJOR
V=VARIABLE
O=MINOR

USE CATEGORIES	USE SUBCATEGORIES	USES ← / IMPACTING ACTIVITY ↑	AIR WASTE DISPOSAL: HAZARDS	GASES	PARTICULATES	SOLID WASTE DISPOSAL: CONSOLIDATED NON-HAZARDOUS	UNCONSOLIDATED NON-HAZARDOUS	HAZARDOUS	LIQUID WASTE DISPOSAL: ORGANIC	THERMAL EFFLUENTS	NUTRIENTS	HEAVY METALS	PESTICIDES	PEDESTRIAN TRAFFIC	CHANNELIZATION	CULVERTING	SUBSURFACE WATER DEMAND	SURFACE WATER DEMAND	DRAINAGE	LANDSCAPING/ROW MANAGEMENT	INUNDATION	WATER TRANSFER/DIVERSION	VEHICULAR TRAFFIC	STRUCTURAL SUPPORT	IRRIGATING	HERBICIDING	INSECTICIDING	FERTILIZING	DREDGING	IMPERVIOUS SURFACE	EXCAVATING	FILLING-CONSOLIDATED	FILLING-UNCONSOLIDATED	DIKING	PLOWING/DISCING	HERBACEOUS CLEARING	WOODY CLEARING	COMPACTION
HOUSING		RURAL				O	O		O		O		X	O	O	O	O	O	O	O	O	O	O	O		X	X	O	O	O	O	O	O	O		O	O	O
		SINGLE FAMILY DETACHED		O	O	X	X		X		X	O	X	O	X	X	V	V	X	X	V	X	O	O		O	X	O	V	X	V	O	V	X		X	X	X
		SINGLE FAMILY ATTACHED		O	O	X	X		X		X	O	X	O	X	X	X	X	X	O	V	X	X	X		O	X	O	V	X	V	O	V	X		X	X	X
		URBAN HIGH DENSITY		X	X	X	X		X		X	O	O	O	X	X	X	X	X	O	O	X	X	X			X		O	X	X	O	X	X		X	X	X
COMMERCIAL		RETAIL AND SERVICE		X	X	X	X		O		O	X	O		X	X	O	O	X			X	X	X			O			X		O	X	X		X	X	X
		WHOLESALE AND DISTRIBUTION		O	O	X	X		O		O	O			X	X	O	O	X			X	X	X						X		O	X	X		X	X	X
INSTITUTIONAL/PROFESSIONAL FACILITIES		INSTITUTIONAL/PROFESSIONAL FACILITIES		O	O	X	X		X		X	O	X	O	X	X	X	X	X	O		X	X	X		O	X	O		X		O	X	X		X	X	X
INDUSTRIAL	FABRICATION AND ASSEMBLY	ELECTRICAL EQUIPMENT/SUPPLIES			O	X	O		X		O	X			X	X	V	V	X			X	O	X						X		O	X	X		X	X	X
		METAL PRODUCTS		X	O	X	O		X		O	X			X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		TRANSPORTATION EQUIPMENT		O		X	O		X		O	O			X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		MACHINERY EXCEPT ELECTRICAL		O	O	X	O		X		O	O			X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		INSTRUMENTS AND RELATED PRODUCTS				X	O		O		O	O			X	X	O	O	X			X	O	X						X		O	X	X		X	X	X
		FURNITURE		O	O	X	O		X		O				X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
	CHEMICALS AND ALLIED PRODUCTS	INORGANIC CHEMICALS	X	X	X	O	O		X		X	O			X	X	X	X	X		O	X	O	X						X		O	X	X		X	X	X
		ORGANIC CHEMICALS	X	X		O	O		X		O	O			X	X	X	X	X		O	X	O	X						X		O	X	X		X	X	X
		PLASTICS AND SYNTHETICS	O	X		X	O		X	O	O	O			X	X	X	X	X		O	X	O	X						X		O	X	X		X	X	X
		PHARMACEUTICALS AND COSMETICS		O		X	O		X		O	O			X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		SOAPS AND DETERGENTS			O	X	O		X		X	O			X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		PAINTS AND ALLIED PRODUCTS	O	O	O	X	O		X		O	X			X	X	X	X	X		O	X	O	X						X		O	X	X		X	X	X
		AGRICULTURAL CHEMICALS	X	O	O	X	O		X		X	X	X		X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
	TEXTILES	APPAREL/TEXTILE PRODUCTS				X	O		X		O	O			X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		WEAVING AND KNITTING MILLS				X	O		X		O				X	X	X	X	X		O	X	O	X						X		O	X	X		X	X	X
		TEXTILE FINISHING				X	O		X		O	O			X	X	X	X	X		O	X	O	X						X		O	X	X		X	X	X
		LEATHER AND LEATHER PRODUCTS	O	O	O	X	O		X		O	O			X	X	X	X	X		O	X	O	X						X		O	X	X		X	X	X
	PRIMARY METALS	IRON AND STEEL MANUFACTURING	O	X	X	X	X		X	X	O	X			X	X	X	X	X		O	X	O	X						X		O	X	X		X	X	X
		FERROALLOYS	O	O	O	X	O	O	X	X	O	X			X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		ALUMINUM AND ALLOYS		O	O	X	O		X	X	O	X			X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		CU, PB, ZN, HG SMELTING/PROCESSING	O	X	X	O	O	X	X	X	O	X			X	X	X	X	X		O	X	O	X						X		O	X	X		X	X	X
		METAL PLATING	O	O		O	O		X		O	X			X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
	STONE, CLAY, AND GLASS PRODUCTS	GLASS MANUFACTURING	O	O		X	X	X	X		X	O			X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		CEMENT			X	X	X		X		O				X	X	X	X	X			X	X	X						X		O	X	X		X	X	X
		CLAY PRODUCTS			O	X	X		O		O				X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		CUT STONE			O	X	O		O		O				X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		CONCRETE, GYPSUM, AND PLASTER			X	X	X		O		O				X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
	FOOD AND FOOD BYPRODUCTS	MEAT AND POULTRY		O	O	X	O		X		O				X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		DAIRY				O	O		X		X				X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		PRESERVED FRUITS AND VEGETABLES				X	O		X		O				X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		GRAIN MILLS				O	O		O		X				X	X	O	O	X			X	O	X						X		O	X	X		X	X	X
		FISH AND SHELLFISH PROCESSING				X	O		X		X				X	X	X	X	X		O	X	O	X					O	X	O	O	X	X		X	X	X
		BAKERIES				O	O		O		O				X	X	O	O	X			X	X	X						X		O	X	X		X	X	X
		SUGAR REFINERIES/CONFECTIONERS		O		O	O		X		X				X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		FATS AND OILS			X	O	O		X		O				X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		ALCOHOLIC BEVERAGES		X	O	X	O		X		X				X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		SOFT DRINKS				X	O		O		X				X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		PRINTING AND PUBLISHING				X	O		O		O	O			X	X	O	O	X			X	O	X						X		O	X	X		X	X	X
	PAPER AND ALLIED PRODUCTS	PULP MILLS		O	O	O	O		X		X	X			X	X	X	X	X		O	X	O	X						X		O	X	X		X	X	X
		PAPER/BUILDING BOARD PLANTS			O	O	O		X		X	X			X	X	X	X	X		O	X	O	X						X		O	X	X		X	X	X
	EXTRACTIVE	HARD ROCK QUARRYING																																				
		UNCONSOLIDATED			O		X		X		O	O			X	O	X	X	X		O	X	X						V		V		O	X		X	X	O
	LUMBER AND WOOD PRODUCTS	SAW MILLS AND PLANING		O	O	X	X		X		O				X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		MILLWORKS		O	O	O	O		X		O				X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		WOOD CONTAINERS		O	O	X	O		O		O				X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		WOOD PRESERVATION	O	O	O	O	O		X		O				X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
	BULK STORAGE/TRANSFER FACILITIES	PIPELINES AND PUMPING STATIONS				O	O									O				X				O							X	O	O			O	X	X
		STORAGE TANKS		O		O	O		X						X	X			X			X		X						X		O	X	X		X	X	X
		TRANSFER FACILITIES (OIL, CHEMICAL)	O			O	X		X						X	X			X		O	X	O	X					O	X	O	O	X	X		X	X	X
		AERIAL TRANSMISSION LINES					O													X				O								O				O	X	O
		BURIED TRANSMISSION CABLES				O	O		O											X											X		O			O	X	X
	PETROLEUM AND PETROLEUM PRODUCTS	PETROLEUM REFINING	X	X	X	O	O		X	X	O	X			X	X	X	X	X		O	X	O	X						X		O	X	X		X	X	X
		PETROLEUM RECOVERY FACILITY	O			O	X		X		O	X			X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		OILS AND GREASES	O			O	X		X		O				X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		PHENOLS, CREOSOTES AND TARS	O	X		O	X		X		O				X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		SYNTHETIC GAS MANUFACTURING	O			O	O		O		O				X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		LIQUIFIED NATURAL GAS	X			O	O		O	X	O				X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
		GAS PROCESSING	O	X		O	O		O		O				X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
ENERGY GENERATION	NUCLEAR ELECTRICAL GENERATION	COOLING TOWER	X		X		X	X	O	O	O		O		X	X	X	X	X	O		X	O	O		O				O	O	O	X	X		O	V	V
		ONCE THROUGH COOLING	X				X	X	O	X	O		O		X	X	X	X	X	O	O	X	O	O		O			O	O	O	O	X	X		O	V	V
		COOLING PONDS/LAKES	X				X	X	O	X	O		O		X	X	X	X	X	O	V	X	O	O		O			V	O	V	O	O	X		O	V	V
	FOSSIL FUEL ELECTRICAL GENERATION	COOLING TOWER		X	X		X		O	O	O	V	O		X	X	X	X	X	O		X	O	O		O				O	O	O	X	X		O	V	V
		ONCE THROUGH COOLING		X	X		X		O	X	O	V	O		X	X	X	X	X	O	O	X	O	O		O			O	O	O	O	X	X		O	V	V
		COOLING PONDS/LAKES		X	X		X		O	X	O	V	O		X	X	X	X	X	O	V	X	O	O		O			V	O	V	O	O	X		O	V	V
RECREATION	LARGE CROWD GATHERING FACILITY	OUTDOOR		O	O	X			X		X	X	X	O	X	X	X	X	X	O	O	X	X	O		O	X	O		O	X	O	X	X		X	X	X
		INDOOR		O	O	X			X		X	X			X	X	X	X	X			X	X	X						X		O	X	X		X	X	X
	SMALL CROWD GATHERING FACILITY	OUTDOOR				O			X		X	O	X	X	X	X	X	X	X	X	O	O	O	O		X	X	X		O	O	O	X	O		O	V	O
		INDOOR				O			X		X	O			X	X	X	X	X			X	O	X						X		O	X	X		X	X	X
PUBLIC FACILITIES		CENTRALIZED WATER	O				O		X		X				X	X	X	X	X	X	V	X		O					V	O	V	O	X	X		O	V	O
		CENTRALIZED SEWAGE	O	O			X	X	X	X	X	X			X	X			X	O		X		O	V					O		O	X	X		O	X	X
	SOLID WASTE MANAGEMENT	INCINERATOR		X	X		X		O		O				X	X			X			X	X	X						X		O	X	X		X	X	X
		LANDFILL	X			X	X	X	X		X	X	X		X	X			X	X		X	X				X				X	X	X	X		X	X	X
		COMPOST		O			X		O		O				X	X			X			X	X	X						X		O	X	X		X	X	X
TRANSPORTATION	AUTO	EXPRESSWAY		X	X				O		O	X	O		X	O			X	O	O	X	X	O		O				X	O	O	X	X		X	X	X
		COLLECTOR		X	X				O		O	X	O		X	O			X	O	O	X	X	O		O				X	O	O	X	X		X	X	X
		LOCAL ROAD		O	O				O		O	O	O		X	O			X	O	O	X	X	O		O				X	O	O	X	X		X	X	X
		RAIL							O		O		O		X	O			O	X	O	X	O	O		X				O	O	X	O	X		O	X	X
	SHIP	PORT (LARGE)				O	X		O		O	O			X	X	X	X	X		X	X	X	X					V	X	V	O	X			X	X	X
		MARINA (MEDIUM)				O	X		O		O	O	O		X	X	X	X	X	O	X	X	X	X			X		V	X	V	O	X			X	X	X
		DOCK (SMALL)				O	X						O	O	X	O	O	O	O	O		O		O			X		V	O	V	O	O			O	O	O
		NAVIGATION																																				
	AIRCRAFT	AIRPORT		X	X	O			O		O	O	O		X	X	O	O	X	X		X	X	O		O				X		O	X	X		X	X	X
		SMALL LANDING FIELD		O	O	O			O		O	O	O		X	X	O	O	X	X		X	O	O		X				V		O	X	X		O	X	X
NATURAL RESOURCE UTILIZATION	SHELLFISHING	COMMERCIAL																											O									
		RECREATIONAL												X															O									
	FISHING	COMMERCIAL																																				
		RECREATIONAL												X									O															
		AQUACULTURE					O		X		X				X	X	X	X	X		V	X		O					V	V	V	O	X	X		X	X	X
		FORESTRY				O							X							X						X	X									O	O	
	AGRICULTURE	ROW CROPS							X		X		X		X	O	V	V	X	X		X			V	X	X	X					V	X	X	X	X	O
		SALT HAY													X	O				X		X												X		O	X	
		NURSERIES																																				
		ORCHARDS																																				
		LIVESTOCK LOT	O				X	X	X		X		X	X	X	X	X	X	X			X					X			X			X	X		X	X	X
		LIVESTOCK RANGE					O		O		X			X						X																O	X	O
		MOSQUITO CONTROL DITCHING					X		X		O		X		X	O			X		X	X					X		O		X			X		X	X	

EDGE NON-VEGETATED HIGH LOAD

USES

VERSUS

IMPACTING ACTIVITIES

PR=PREPARATION
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X=MAJOR
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USES ← / IMPACTING ACTIVITY ↑	AIR WASTE DISPOSAL: HAZARDS	AIR WASTE DISPOSAL: GASES	AIR WASTE DISPOSAL: PARTICULATES	SOLID WASTE DISPOSAL: CONSOLIDATED NON-HAZARDOUS	SOLID WASTE DISPOSAL: UNCONSOLIDATED NON-HAZARDOUS	SOLID WASTE DISPOSAL: HAZARDOUS	LIQUID WASTE DISPOSAL: ORGANIC	LIQUID WASTE DISPOSAL: THERMAL EFFLUENTS	LIQUID WASTE DISPOSAL: NUTRIENTS	LIQUID WASTE DISPOSAL: HEAVY METALS	LIQUID WASTE DISPOSAL: PESTICIDES	PEDESTRIAN TRAFFIC	CHANNELIZATION	CULVERTING	SUBSURFACE WATER DEMAND	SURFACE WATER DEMAND	DRAINAGE	LANDSCAPING/ROW MANAGEMENT	INUNDATION	WATER TRANSFER/DIVERSION	VEHICULAR TRAFFIC	STRUCTURAL SUPPORT	IRRIGATING	HERBICIDING	INSECTICIDING	FERTILIZING	DREDGING	IMPERVIOUS SURFACE	EXCAVATING	FILLING-CONSOLIDATED	FILLING-UNCONSOLIDATED	DIKING	PLOWING/DISCING	HERBACEOUS CLEARING	WOODY CLEARING	COMPACTION	USE SUBCATEGORIES	USE CATEGORIES
PR																				T							T		T	T	T	T	T	T	T	T		
CO				T	T		T		T				T	T						T		T					T	T	T	T	T	T				T		
OP	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T		
RURAL				O	O		O		O		O	O	O	O	O	O	O		O	O	O	O			O		O	O	O	O	O	O						HOUSING
SINGLE FAMILY DETACHED		O	O	X	X		X		X	O	X	O	X	X	V	V	X		V	X	O	O			X		V	X	V	O	V	X						
SINGLE FAMILY ATTACHED		O	O	X	X		X		X	O	X	O	X	X	X	X	X		V	X	X	X			X		V	X	V	O	V	X						
URBAN HIGH DENSITY		X	X	X	X		X		X	O	X	O	X	X	X	X	X		O	X	X	X			X		O	X	O	O	X	X						
RETAIL AND SERVICE		X	X	X	X		O		O	X	O		X	X	O	O	X			X	X	X			O			X		O	X	X						COMMERCIAL
WHOLESALE AND DISTRIBUTION		O	O	X	X		O		O	O			X	X	O	O	X			X	X	X						X		O	X	X						
INSTITUTIONAL/PROFESSIONAL FACILITIES		O	O	X	X		X		X	O	X	O	X	X	X	X	X			X	X	X			X			X		O	X	X						INSTITUTIONAL/PROFESSIONAL FACILITIES
ELECTRICAL EQUIPMENT/SUPPLIES			O	X	O		X		O	X			X	X	V	V	X			X	O	X						X		O	X	X					FABRICATION AND ASSEMBLY	INDUSTRIAL
METAL PRODUCTS		X	O	X	O		X		O	X			X	X	X	X	X			X	O	X						X		O	X	X						
TRANSPORTATION EQUIPMENT		O		X	O		X		O	O			X	X	X	X	X			X	O	X						X		O	X	X						
MACHINERY EXCEPT ELECTRICAL		O	O	X	O		X		O	O			X	X	X	X	X			X	O	X						X		O	X	X						
INSTRUMENTS AND RELATED PRODUCTS				X	O		O		O	O			X	X	O	O	X			X	O	X						X		O	X	X						
FURNITURE		O	O	X	O		X		O				X	X	X	X	X			X	O	X						X		O	X	X						
INORGANIC CHEMICALS	X	X	X	O	O		X		X	O			X	X	X	X	X		O	X	O	X						X		O	X	X					CHEMICALS AND ALLIED PRODUCTS	
ORGANIC CHEMICALS	X	X		O	O		X		O	O			X	X	X	X	X		O	X	O	X						X		O	X	X						
PLASTICS AND SYNTHETICS	O	X		X	O		X	O	O	O			X	X	X	X	X		O	X	O	X						X		O	X	X						
PHARMACEUTICALS AND COSMETICS		O		X	O		X		O	O			X	X	X	X	X			X	O	X						X		O	X	X						
SOAPS AND DETERGENTS			O	X	O		X		X	O			X	X	X	X	X			X	O	X						X		O	X	X						
PAINTS AND ALLIED PRODUCTS	O	O	O	X	O		X		O	X			X	X	X	X	X		O	X	O	X						X		O	X	X						
AGRICULTURAL CHEMICALS	X	O	O	X	O		X		X	X	X		X	X	X	X	X			X	O	X						X		O	X	X						
APPAREL/TEXTILE PRODUCTS				X	O		X		O	O			X	X	X	X	X			X	O	X						X		O	X	X					TEXTILES	
WEAVING AND KNITTING MILLS				X	O		X		O				X	X	X	X	X		O	X	O	X						X		O	X	X						
TEXTILE FINISHING				X	O		X		O	O			X	X	X	X	X		O	X	O	X						X		O	X	X						
LEATHER AND LEATHER PRODUCTS	O	O	O	X	O		X		O	O			X	X	X	X	X		O	X	O	X						X		O	X	X						
IRON AND STEEL MANUFACTURING	O	X	X	X	X		X	X	O	X			X	X	X	X	X		O	X	O	X						X		O	X	X					PRIMARY METALS	
FERROALLOYS	O	O	O	X	O	O	X	X	O	X			X	X	X	X	X			X	O	X						X		O	X	X						
ALUMINUM AND ALLOYS		O	O	X	O		X	X	O	X			X	X	X	X	X			X	O	X						X		O	X	X						
CU, PB, ZN, MG SMELTING/PROCESSING	O	X	X	O	O	X	X	X	O	X			X	X	X	X	X		O	X	O	X						X		O	X	X						
METAL PLATING	O	O		O	O		X		O	X			X	X	X	X	X			X	O	X						X		O	X	X						
GLASS MANUFACTURING	O	O		X	X	X	X		X	O			X	X	X	X	X			X	O	X						X		O	X	X					STONE, CLAY, AND GLASS PRODUCTS	
CEMENT			X	X	X		X		O				X	X	X	X	X			X	X	X						X		O	X	X						
CLAY PRODUCTS			O	X	X		O		O				X	X	X	X	X			X	O	X						X		O	X	X						
CUT STONE			O	X	O		O		O				X	X	X	X	X			X	O	X						X		O	X	X						
CONCRETE, GYPSUM, AND PLASTER			X	X	X		O		O				X	X	X	X	X			X	O	X						X		O	X	X						
MEAT AND POULTRY		O	O	X	O		X		O				X	X	X	X	X			X	O	X						X		O	X	X					FOOD AND FOOD BYPRODUCTS	
DAIRY				O	O		X		X				X	X	X	X	X			X	O	X						X		O	X	X						
PRESERVED FRUITS AND VEGETABLES				X	O		X		O				X	X	X	X	X			X	O	X						X		O	X	X						
GRAIN MILLS				O	O		O		X				X	X	O	O	X			X	O	X						X		O	X	X						
FISH AND SHELLFISH PROCESSING				X	O		X		X				X	X	X	X	X		O	X	O	X					O	X	O	O	X	X						
BAKERIES				O	O		O		O				X	X	O	O	X			X	X	X						X		O	X	X						
SUGAR REFINERIES/CONFECTIONERS		O		O	O		X		X				X	X	X	X	X			X	O	X						X		O	X	X						
FATS AND OILS			X	O	O		X		O				X	X	X	X	X			X	O	X						X		O	X	X						
ALCOHOLIC BEVERAGES		X	O	X	O		X		X				X	X	X	X	X			X	O	X						X		O	X	X						
SOFT DRINKS				X	O		O		X				X	X	X	X	X			X	O	X						X		O	X	X						
PRINTING AND PUBLISHING				X	O		O		O	O			X	X	O	O	X			X	O	X						X		O	X	X						
PULP MILLS		O	O	O	O		X		X	X			X	X	X	X	X		O	X	O	X						X		O	X	X					PAPER AND ALLIED PRODUCTS	
PAPER/BUILDING BOARD PLANTS			O	O	O		X		X	X			X	X	X	X	X		O	X	O	X						X		O	X	X						
HARD ROCK QUARRYING																																					EXTRACTIVE	
UNCONSOLIDATED			O		X		X		O	O			X	O	X	X	X		O	X	X						V		V			X						
SAW MILLS AND PLANING		O	O	X	X		X		O				X	X	X	X	X			X	O	X						X		O	X	X					LUMBER AND WOOD PRODUCTS	
MILLWORKS		O	O	O	O		X		O				X	X	X	X	X			X	O	X						X		O	X	X						
WOOD CONTAINERS		O	O	X	O		O		O				X	X	X	X	X			X	O	X						X		O	X	X						
WOOD PRESERVATION	O	O	O	O	O		X		O				X	X	X	X	X			X	O	X						X		O	X	X						
PIPELINES AND PUMPING STATIONS				O	O									O								O							X	O	O						BULK STORAGE/TRANSFER FACILITIES	
STORAGE TANKS		O		O	O		X						X	X			X			X		X						X		O	X	X						
TRANSFER FACILITIES (OIL, CHEMICAL)	O			O	X		X						X	X			X		O	X	O	X					O	X	O	O	X	X						
AERIAL TRANSMISSION LINES					O																	O								O								
BURIED TRANSMISSION CABLES				O	O		O																						X	O								
PETROLEUM REFINING	X	X	X	O	O		X	X	O	X			X	X	X	X	X		O	X	O	X						X		O	X	X					PETROLEUM AND PETROLEUM PRODUCTS	
PETROLEUM RECOVERY FACILITY	O			O	X		X		O	X			X	X	X	X	X			X	O	X						X		O	X	X						
OILS AND GREASES	O			O	X		X		O				X	X	X	X	X			X	O	X						X		O	X	X						
PHENOLS, CREOSOTES AND TARS	O	X		O	X		X		O				X	X	X	X	X			X	O	X						X		O	X	X						
SYNTHETIC GAS MANUFACTURING	O			O	O		O		O				X	X	X	X	X			X	O	X						X		O	X	X						
LIQUIFIED NATURAL GAS	X			O	O		O	X	O				X	X	X	X	X			X	O	X						X		O	X	X						
GAS PROCESSING	O	X		O	O		O		O				X	X	X	X	X			X	O	X						X		O	X	X						
COOLING TOWER	X		X		X	X	O	O	O				X	X	X	X	X			X	O	O						O	O	O	X	X					NUCLEAR ELECTRICAL GENERATION	ENERGY GENERATION
ONCE THROUGH COOLING	X				X	X	O	X	O				X	X	X	X	X		O	X	O	O					O	O	O	O	X	X						
COOLING PONDS/LAKES	X				X	X	O	X	O				X	X	X	X	X		V	X	O	O					V	O	V	O	O	X						
COOLING TOWER		X	X		X		O	O	O	V			X	X	X	X	X			X	O	O						O	O	O	X	X					FOSSIL FUEL ELECTRICAL GENERATION	
ONCE THROUGH COOLING		X	X		X		O	X	O	V			X	X	X	X	X		O	X	O	O					O	O	O	O	X	X						
COOLING PONDS/LAKES		X	X		X		O	X	O	V			X	X	X	X	X		V	X	O	O					V	O	V	O	O	X						
OUTDOOR		O	O	X			X		X	X	X	O	X	X	X	X	X		O	X	X	O			X			O	X	O	X	X					LARGE CROWD GATHERING FACILITY	RECREATION
INDOOR		O	O	X			X		X	X			X	X	X	X	X			X	X	X						X		O	X	X						
OUTDOOR				O			X		X	O	X	X	X	X	X	X	X		O	O	O	O			X			O	O	O	X						SMALL CROWD GATHERING FACILITY	
INDOOR				O			X		X	O			X	X	X	X	X			X	O	X						X		O	X	X						
CENTRALIZED WATER	O				O		X		X				X	X	X	X	X		V	X		O					V	O	V	O	X	X						PUBLIC FACILITIES
CENTRALIZED SEWAGE	O	O			X	X	X	X	X	X			X	X			X			X		O	V					O		O	X	X						
INCINERATOR		X	X		X		O		O				X	X			X			X	X	X						X		O	X	X					SOLID WASTE MANAGEMENT	
LANDFILL	X			X	X	X	X		X	X			X	X			X			X	X								X	X	X	X						
COMPOST		O			X		O		O				X	X			X			X	X	X						X		O	X	X						
EXPRESSWAY		X	X				O		O	X			X	O			X		O	X	X	O						X	O	O	X	X					AUTO	TRANSPORTATION
COLLECTOR		X	X				O		O	X			X	O			X		O	X	X	O						X	O	O	X	X						
LOCAL ROAD		O	O				O		O	O			X	O			X		O	X	X	O						X	O	O	X	X						
RAIL							O		O				X	O			O		O	X	O	O						O	O	X	O	X						
PORT (LARGE)				O	X		O		O	O			X	X	X	X	X		X	X	X	X					V	X	V	O	X						SHIP	
MARINA (MEDIUM)				O	X		O		O	O	O		X	X	X	X	X		X	X	X	X			X		V	X	V	O	X							
DOCK (SMALL)				O	X						O	O	X	O	O	O	O			O		O			X		V	O	V	O	O							
NAVIGATION																																						
AIRPORT																																					AIRCRAFT	
SMALL LANDING FIELD		O	O	O			O		O	O			X	X	O	O	X			X	O	O						V		O	X	X						
COMMERCIAL																											O										SHELLFISHING	NATURAL RESOURCE UTILIZATION
RECREATIONAL												X															O											
COMMERCIAL																					O																FISHING	
RECREATIONAL												X									O																	
AQUACULTURE					O		X		X				X	X	X	X	X		V	X		O					V	V	V	O	X	X						
FORESTRY																																						
ROW CROPS																																					AGRICULTURE	
SALT HAY																																						
NURSERIES																																						
ORCHARDS																																						
LIVESTOCK LOT																																						
LIVESTOCK RANGE																																						
MOSQUITO CONTROL DITCHING					X		X		O		X		X	O			X		X	X					X		V		V									

WATER USES VERSUS IMPACTING ACTIVITIES

PR-PREPARATION
CO=CONSTRUCTION
OP=OPERATION
T=TIME OF OCCURRENCE
X=MAJOR
V=VARIABLE
O=MINOR

USE CATEGORIES	USE SUBCATEGORIES	USES	AIR WASTE DISPOSAL			SOLID WASTE DISPOSAL			LIQUID WASTE DISPOSAL																													
		IMPACTING ACTIVITY	HAZARDS	GASES	PARTICULATES	CONSOLIDATED NON-HAZARDOUS	UNCONSOLIDATED NON-HAZARDOUS	HAZARDOUS	ORGANIC	THERMAL EFFLUENTS	NUTRIENTS	HEAVY METALS	PESTICIDES	PEDESTRIAN TRAFFIC	CHANNELIZATION	CULVERTING	SUBSURFACE WATER DEMAND	SURFACE WATER DEMAND	DRAINAGE	LANDSCAPING/ROW MANAGEMENT	INUNDATION	WATER TRANSFER/DIVERSION	VEHICULAR TRAFFIC	STRUCTURAL SUPPORT	IRRIGATING	HERBICIDING	INSECTICIDING	FERTILIZING	DREDGING	IMPERVIOUS SURFACE	EXCAVATING	FILLING-CONSOLIDATED	FILLING-UNCONSOLIDATED	DIKING	PLOWING/DISCING	HERBACEOUS CLEARING	WOODY CLEARING	COMPACTION
		PR																					T							T		T	T	T	T	T	T	T	T
		CO				T	T		T		T				T	T							T		T						T	T	T	T	T	T				T
		OP	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
		RURAL				O	O		O		O		O		O	O	O	O	O			O		O			O		O			O	O					
HOUSING		SINGLE FAMILY DETACHED		O	O	X	X		X		X	O	O		X	X	V	V	X			X	O	O		O	X		V			O	V					
		SINGLE FAMILY ATTACHED		O	O	X	X		X		X	O	O		X	X	X	X	X			X	O	O		O	X		V			O	V					
		URBAN HIGH DENSITY		X	X	X	X		X		X	O	O		X	X	X	X	X			X	O	O		O	X		O			O	X					
COMMERCIAL		RETAIL AND SERVICE		X	X	X	X		O		O	X			X	X	O	O	X			X		O			O					O	X					
		WHOLESALE AND DISTRIBUTION		O	O	X	X		O		O	O			X	X	O	O	X			X		O			O					O	X					
INSTITUTIONAL/PROFESSIONAL FACILITIES		INSTITUTIONAL/PROFESSIONAL FACILITIES		O	O	X	X		X		X	O	O		X	X	X	X	X			X		O			X					O	X					
INDUSTRIAL	FABRICATION AND ASSEMBLY	ELECTRICAL EQUIPMENT/SUPPLIES			O	X	O		X		O	X			X	X	V	V	X			X		O								O	X					
		METAL PRODUCTS		X	O	X	O		X		O	X			X	X	X	X	X			X		O								O	X					
		TRANSPORTATION EQUIPMENT		O	O	X	O		X		O	O			X	X	X	X	X			X		O								O	X					
		MACHINERY EXCEPT ELECTRICAL		O	O	X	O		X		O	O			X	X	X	X	X			X		O								O	X					
		INSTRUMENTS AND RELATED PRODUCTS				X	O		O		O	O			X	X	O	O	X			X		O								O	X					
		FURNITURE		O	O	X	O		X		O				X	X	X	X	X			X		O								O	X					
	CHEMICALS AND ALLIED PRODUCTS	INORGANIC CHEMICALS	X	X	X	O	O		X		X	O			X	X	X	X	X			X		O								O	X					
		ORGANIC CHEMICALS	X	X		O	O		X		O	O			X	X	X	X	X			X		O								O	X					
		PLASTICS AND SYNTHETICS	O	X		X	O		X	O	O	O			X	X	X	X	X			X		O								O	X					
		PHARMACEUTICALS AND COSMETICS		O		X	O		X		O	O			X	X	X	X	X			X		O								O	X					
		SOAPS AND DETERGENTS	O		O	X	O		X		X	O			X	X	X	X	X			X		O								O	X					
		PAINTS AND ALLIED PRODUCTS	O	O	O	X	O		X		O	X			X	X	X	X	X			X		O								O	X					
		AGRICULTURAL CHEMICALS	X	O	O	X	O		X		X	X	X		X	X	X	X	X			X		O								O	X					
	TEXTILES	APPAREL/TEXTILE PRODUCTS				X	O		X		O	O			X	X	X	X	X			X		O								O	X					
		WEAVING AND KNITTING MILLS				X	O		X		O				X	X	X	X	X			X		O								O	X					
		TEXTILE FINISHING				X	O		X		O	O			X	X	X	X	X			X		O								O	X					
		LEATHER AND LEATHER PRODUCTS	O	O	O	X	O		X		O	O			X	X	X	X	X			X		O								O	X					
	PRIMARY METALS	IRON AND STEEL MANUFACTURING	O	X	X	X	X		X	X	O	X			X	X	X	X	X			X		O								O	X					
		FERROALLOYS	O	O	O	X	O	O	X	X	O	X			X	X	X	X	X			X		O								O	X					
		ALUMINUM AND ALLOYS		O	O	X	O		X	X	O	X			X	X	X	X	X			X		O								O	X					
		CU, PB, ZN, HG SMELTING/PROCESSING	O	X	X	O	O	X	X	X	O	X			X	X	X	X	X			X		O								O	X					
		METAL PLATING	O	O		O	O		X		O	X			X	X	X	X	X			X		O								O	X					
	STONE, CLAY, AND GLASS PRODUCTS	GLASS MANUFACTURING	O	O		X	X	X	X		X	O			X	X	X	X	X			X		O								O	X					
		CEMENT			X	X	X		X		O				X	X	X	X	X			X		O								O	X					
		CLAY PRODUCTS			O	X	X		O		O				X	X	X	X	X			X		O								O	X					
		CUT STONE			O	X	O		O		O				X	X	X	X	X			X		O								O	X					
		CONCRETE, GYPSUM, AND PLASTER			X	X	X		O		O				X	X	X	X	X			X		O								O	X					
	FOOD AND FOOD BYPRODUCTS	MEAT AND POULTRY		O	O	X	O		X		O				X	X	X	X	X			X		O								O	X					
		DAIRY				O	O		X		X				X	X	X	X	X			X		O								O	X					
		PRESERVED FRUITS AND VEGETABLES				X	O		X		O				X	X	X	X	X			X		O								O	X					
		GRAIN MILLS				O	O		O		X				X	X	O	O	X			X		O								O	X					
		FISH AND SHELLFISH PROCESSING				X	O		X		X				X	X	X	X	X			X		O						O			O	X					
		BAKERIES				O	O		O		O				X	X	O	O	X			X		O								O	X					
		SUGAR REFINERIES/CONFECTIONERS		O		O	O		X		X				X	X	X	X	X			X		O								O	X					
		FATS AND OILS			X	O	O		X		O				X	X	X	X	X			X		O								O	X					
		ALCOHOLIC BEVERAGES		X	O	X	O		X		X				X	X	X	X	X			X		O								O	X					
		SOFT DRINKS				X	O		O		X				X	X	X	X	X			X		O								O	X					
		PRINTING AND PUBLISHING				X	O		O		O	O			X	X	O	O	X			X		O								O	X					
	PAPER AND ALLIED PRODUCTS	PULP MILLS		O	O	O	O		X		X	X			X	X	X	X	X			X		O								O	X					
		PAPER/BUILDING BOARD PLANTS			O	O	O		X		X	X			X	X	X	X	X			X		O								O	X					
	EXTRACTIVE	HARD ROCK QUARRYING																																					
		UNCONSOLIDATED			O	X	X		X		X	O			X		X	X	X			X								X								
	LUMBER AND WOOD PRODUCTS	SAW MILLS AND PLANING		O	O	X	X		X		O				X	X	X	X	X			X		O								O	X					
		MILLWORKS		O	O	O	O		X		O				X	X	X	X	X			X		O								O	X					
		WOOD CONTAINERS		O	O	X	O		O		O				X	X	X	X	X			X		O								O	X					
		WOOD PRESERVATION	O	O	O	O	O		X		O				X	X	X	X	X			X		O								O	X					
	BULK STORAGE/TRANSFER FACILITIES	PIPELINES AND PUMPING STATIONS				O	X		O		O									X										X			O	O					
		STORAGE TANKS		O		O			X						X	X			X			X												O	X					
		TRANSFER FACILITIES (OIL, CHEMICAL)	O			O	X		X		O				X	X			X			O	X	V					V			O	V					
		AERIAL TRANSMISSION LINES																							O									O	O					
		BURIED TRANSMISSION CABLES					O		O		O																				X				O					
	PETROLEUM AND PETROLEUM PRODUCTS	PETROLEUM REFINING	X	X	X	O	O		X	X	O	X			X	X	X	X	X			X		O								O	X					
		PETROLEUM RECOVERY FACILITY	O			O	X		X		O	X			X	X	X	X	X			X		O								O	X					
		OILS AND GREASES	O			O	X		X		O				X	X	X	X	X			X		O								O	X					
		PHENOLS, CREOSOTES AND TARS	O	X		O	X		X		O				X	X	X	X	X			X		O								O	X					
		SYNTHETIC GAS MANUFACTURING	O			O	O		O		O				X	X	X	X	X			X		O								O	X					
		LIQUIFIED NATURAL GAS	X			O	O		O	X	O				X	X	X	X	X			X		O								O	X					
		GAS PROCESSING	O	X		O	O		O		O				X	X	X	X	X			X		O								O	X					
ENERGY GENERATION	NUCLEAR ELECTRICAL GENERATION	COOLING TOWER	X		X		X	X	O	O	O	O	O		X	X	X	X	X			X		O		O						O	X					
		ONCE THROUGH COOLING	X				X	X	O	X	O	X	X		X	X	X	X	X			X		O		X			O			V	X					
		COOLING PONDS/LAKES	X				X	X	O	X	O	X	X		X	X	X	X	O			X		O		X			O			O	O					
	FOSSIL FUEL ELECTRICAL GENERATION	COOLING TOWER		X	X		X		O	O	O	O	O		X	X	X	X	X			X		O		O						O	X					
		ONCE THROUGH COOLING		X	X		X		O	X	O	X	X		X	X	X	X	X			X		O		X			O			O	X					
		COOLING PONDS/LAKES		X	X		X		O	X	O	X	X		X	X	X	X	O			X		O		X			O			O	O					
RECREATION	LARGE CROWD GATHERING FACILITY	OUTDOOR		O	O	X			X		X	X	O		X	X	X	X	X			X		O			X					O	X					
		INDOOR		O	O	X			X		X	X			X	X	X	X	X			X		O			O					O	X					
	SMALL CROWD GATHERING FACILITY	OUTDOOR				O			X		X	O	O		X	X	X	X	X			X		O			X					O	X					
		INDOOR				O			X		X	O			X	X	X	X	X			X		O								O	X					
PUBLIC FACILITIES		CENTRALIZED WATER	O				O		X		X				X	X	X	X	X			X		O						O			O	X					
		CENTRALIZED SEWAGE	O	O			X	X	X	X	X	X	X		X	X			X			X				X						O	X					
	SOLID WASTE MANAGEMENT	INCINERATOR		X	X		X		O		O				X	X			X			X		O								O	X					
		LANDFILL																																					
		COMPOST		O			X		O		O				X	X			X			X		O								O	X					
TRANSPORTATION	AUTO	EXPRESSWAY		X	X				O		O	X			X	O			X			X		O								O	X					
		COLLECTOR		X	X				O		O	X			X	O			X			X		O								O	X					
		LOCAL ROAD		O	O				O		O	O			X	O			X			X		O								O	X					
		RAIL									O				X	O			X			X		O								O	X					
	SHIP	PORT (LARGE)				O	X		O		O	X	O		X	X	X	X	O			X	X	V			X		X			O	O					
		MARINA (MEDIUM)				O	X		O		O	X	O		X	X	X	X	O			X	X	X		X	X		X			O	O					
		DOCK (SMALL)				O	X					O		X	O	O	O	O			O	O	O		X	X		X			O	O					
		NAVIGATION		X	X		X		O		O		O		X							X	X	O		X			X								
	AIRCRAFT	AIRPORT		X	X	O			O		O	O			X	X	O	O	X			X	O										O	X					
		SMALL LANDING FIELD		O	O	O			O		O	O			X	X	O	O	X			X	O	O									O	X					
NATURAL RESOURCE UTILIZATION	SHELLFISHING	COMMERCIAL				O			O		O												X							O								
		RECREATIONAL				O			O		O												X							O								
	FISHING	COMMERCIAL							O		O												X															
		RECREATIONAL							O		O												X															
		AQUACULTURE					O		X		X		O		X	X	X	X	O			X		V		V			V			O	O					
		FORESTRY																																					
	AGRICULTURE	ROW CROPS																																					
		SALT HAY																																					
		NURSERIES																																					
		ORCHARDS																																					
		LIVESTOCK LOT																																					
		LIVESTOCK RANGE																																					
		MOSQUITO CONTROL DITCHING					X		X		O		X		X	O			X								X		X										

SET II:

B. Impacting Activities versus Environmental Changes

Type	Page
Ocean Offshore	23.
Ocean Nearshore	24.
Open Bay	25.
Semi-Enclosed and Back Bay	26.
Tidal Inlets, Guts, and Canals	27.
Tidal Rivers	28.
Non-Tidal Rivers	29.
Non-Tidal Inland Basins	30.
Ocean Beaches and Foredunes	31.
Estuarine Beaches and Bars	32.
Tidal Wetlands	33.
Non-Tidal Wetlands	34.
Wet Forests	35.
Central Barrier Island Corridor	36.
Lowland Coarse Soils	37.
Lowland Medium Soils	38.
Lowland Fine Soils	39.
Upland Coarse Soils	40.
Upland Medium Soils	41.
Upland Fine Soils	42.

OCEAN OFFSHORE

IMPACTING ACTIVITIES
VERSUS
ENVIRONMENTAL CHANGES

PRIMARY
ENVIRONMENTAL CHANGES ←

PRIMARY ENVIRONMENTAL CHANGES	IMPACTING ACTIVITIES →	COMPACTION	WOODY CLEARING	HERBACEOUS CLEARING	PLOWING/DISCING	DIKING	FILLING-UNCONSOLIDATED	FILLING-CONSOLIDATED	EXCAVATING	IMPERVIOUS SURFACE	DREDGING	FERTILIZING	INSECTICIDING	HERBICIDING	IRRIGATING	STRUCTURAL SUPPORT	VEHICULAR TRAFFIC	WATER TRANSFER/DIVERSION	INUNDATION	LANDSCAPE/ROW MANAGEMENT	DRAINAGE	SURFACE WATER DEMAND	SUBSURFACE WATER DEMAND	CULVERTING	CHANNELIZATION	PEDESTRIAN TRAFFIC	LIQUID WASTE DISPOSAL: PESTICIDES	HEAVY METALS	NUTRIENTS	THERMAL EFFLUENTS	ORGANIC	SOLID WASTE DISPOSAL: HAZARDOUS	UNCONSOLIDATED NONHAZARDOUS	CONSOLIDATED NONHAZARDOUS	PARTICULATES	AIR WASTE DISPOSAL: GASES	HAZARDS
AQUIFER RECHARGE	I																																					
AQUIFER RECHARGE	D																																					
GROUNDWATER DISCHARGE	I																																					
GROUNDWATER DISCHARGE	D																																					
GROUNDWATER SALINITY	I																																					
SURFACE WATER SALINITY	I																																					
SURFACE WATER SALINITY	D																																					
WATER TEMPERATURE	I																													O								
WATER TEMPERATURE	D																													O								
SUSPENDED SOLIDS	I							O			X																		X		X	X	X	O			
SUSPENDED SOLIDS	D																																					
TOXIC SUBSTANCES	I							O			X																X	X			X	X			O	O	X
NUTRIENTS	I							O			X																		X			X	X	O		O	X
NUTRIENTS	D																																					
PATHOGENS	I										X																				X	X					X
pH	I																																					
pH	D																																					
DISSOLVED OXYGEN	D																												X	X	X	X	X	O			X
DISSOLVED SOLIDS	I																																					
DISSOLVED SOLIDS	D																																					
SUBSTRATE PARTICLE SIZE	I							X																										X			
SUBSTRATE PARTICLE SIZE	D																																X				
SEDIMENTATION	I																																					
SEDIMENTATION	D																																					
SEDIMENT CHEMISTRY								X			X																		X		X	X	X	X			X
FAUNAL ABUNDANCE	I							X																										O			
FAUNAL ABUNDANCE	D							O			X											O										X	O			
FAUNAL REPRODUCTIVE POTENTIAL	I							X																										O			
FAUNAL REPRODUCTIVE POTENTIAL	D							O			X																					X	O			
FAUNAL DIVERSITY	I							X																										O			
FAUNAL DIVERSITY	D										X																					X	O			
FLORAL ABUNDANCE	I																																					
FLORAL ABUNDANCE	D																																					
FLORAL DIVERSITY	I																																					
FLORAL DIVERSITY	D																																					
SUNLIGHT PENETRATION	D																																					
PRIMARY PRODUCTIVITY	I																																					
PRIMARY PRODUCTIVITY	D																																					
SOIL ASSIMILATIVE CAPACITY	I																																					
SOIL ASSIMILATIVE CAPACITY	D																																					
BATHYMETRY VARIABILITY	I							X			X																					X	X			
WATER DEPTH	I										X																										
WATER DEPTH	D							X																													
SHORE PROTECTION CAPACITY	I																																					
SHORE PROTECTION CAPACITY	D																																					
SHORELINE CHANGES																																						
LITTORAL DRIFT	I																																					
LITTORAL DRIFT	D																																					
RUNOFF	I																																					
EROSION/SCOURING	I																																					
EROSION/SCOURING	D																																					
FLOOD FREQUENCY	I																																					
FLOOD FREQUENCY	D																																					
FLOOD INTENSITY	I																																					
FLOOD INTENSITY	D																																					
FLOW REGIME																																						
CIRCULATION/MIXING	I																	O																				
CIRCULATION/MIXING	D							X											X																		
NOISE																		X																				

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

SPECIAL RESOURCE AREAS WITHIN THIS TYPE

SHELLFISH REEFS
OCEAN SHELLFISH BEDS
PRIME FISHING AREAS
MIGRATORY PATHWAYS AND SPAWNING AREAS
SHIPWRECKS AND REEFS

OCEAN NEARSHORE

IMPACTING ACTIVITIES
VERSUS
ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES ← / IMPACTING ACTIVITIES →		COMPACTION	WOODY CLEARING	HERBACEOUS CLEARING	PLOWING/DISCING	DIKING	FILLING-UNCONSOLIDATED	FILLING-CONSOLIDATED	EXCAVATING	IMPERVIOUS SURFACE	DREDGING	FERTILIZING	INSECTICIDING	HERBICIDING	IRRIGATING	STRUCTURAL SUPPORT	VEHICULAR TRAFFIC	WATER TRANSFER/DIVERSION	INUNDATION	LANDSCAPE/ROW MANAGEMENT	DRAINAGE	SURFACE WATER DEMAND	SUBSURFACE WATER DEMAND	CULVERTING	CHANNELIZATION	PEDESTRIAN TRAFFIC	LIQUID WASTE DISPOSAL: PESTICIDES	HEAVY METALS	NUTRIENTS	THERMAL EFFLUENTS	ORGANIC	SOLID WASTE DISPOSAL: HAZARDOUS	UNCONSOLIDATED NONHAZARDOUS	CONSOLIDATED NONHAZARDOUS	PARTICULATES	AIR WASTE DISPOSAL: GASES	HAZARDS
AQUIFER RECHARGE	I																																					
AQUIFER RECHARGE	D																																					
GROUNDWATER DISCHARGE	I																					X																
GROUNDWATER DISCHARGE	D																																					
GROUNDWATER SALINITY	I										O																											
SURFACE WATER SALINITY	I																																					
SURFACE WATER SALINITY	D																																					
WATER TEMPERATURE	I																													O								
WATER TEMPERATURE	D																													O								O
SUSPENDED SOLIDS	I						X	O			X										X								X		X	X	X	O				
SUSPENDED SOLIDS	D																																					
TOXIC SUBSTANCES	I						X	O			X					O					X						X	X	O		X	X			O	O	X
NUTRIENTS	I						X				X										X								X			X	X	O	O	O	X
NUTRIENTS	D																																					
PATHOGENS	I						X	O			O										O										X	X			O		X
pH	I																																					
pH	D																																					
DISSOLVED OXYGEN	D																				O								X	X	X	X	X	O			X
DISSOLVED SOLIDS	I																																					
DISSOLVED SOLIDS	D																																					
SUBSTRATE PARTICLE SIZE	I							X																										X			
SUBSTRATE PARTICLE SIZE	D						X																										X				
SEDIMENTATION	I																																					
SEDIMENTATION	D																																					
SEDIMENT CHEMISTRY							X	X																					X	X	X	X	X	X			X
FAUNAL ABUNDANCE	I							X								O																		O			
FAUNAL ABUNDANCE	D						X	O			X											X										X	O				
FAUNAL REPRODUCTIVE POTENTIAL	I							X								O																		O			
FAUNAL REPRODUCTIVE POTENTIAL	D						X	O			X											X										X	O				
FAUNAL DIVERSITY	I							X								O																		X			
FAUNAL DIVERSITY	D						X				X											X										X	O				
FLORAL ABUNDANCE	I																																					
FLORAL ABUNDANCE	D																																					
FLORAL DIVERSITY	I																																					
FLORAL DIVERSITY	D																																					
SUNLIGHT PENETRATION	D																																					
PRIMARY PRODUCTIVITY	I																																					
PRIMARY PRODUCTIVITY	D																																					
SOIL ASSIMILATIVE CAPACITY	I																																					
SOIL ASSIMILATIVE CAPACITY	D																																					
BATHYMETRY VARIABILITY	I						X	X			X					X																X	X				
WATER DEPTH	I										X																											
WATER DEPTH	D						X	X																								O	O				
SHORE PROTECTION CAPACITY	I						O	O										O																			
SHORE PROTECTION CAPACITY	D										X							X																			
SHORELINE CHANGES							X	X										X													X	X					
LITTORAL DRIFT	I						X																									V					
LITTORAL DRIFT	D							X			X					O																	X				
RUNOFF	I																																					
EROSION/SCOURING	I										X																											
EROSION/SCOURING	D																																					
FLOOD FREQUENCY	I																																					
FLOOD FREQUENCY	D																																					
FLOOD INTENSITY	I																																					
FLOOD INTENSITY	D																																					
FLOW REGIME																																						
CIRCULATION/MIXING	I						X	X			O						O	O												O							
CIRCULATION/MIXING	D						X	X			X					O		O																			
NOISE																	X																				

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

SPECIAL RESOURCE AREAS WITHIN THIS TYPE

SHELLFISH REEFS
OCEAN SHELLFISH BEDS
PRIME FISHING AREAS
MIGRATORY PATHWAYS AND SPAWNING AREAS
SHIPWRECKS AND REEFS

OPEN BAY

IMPACTING ACTIVITIES
VERSUS
ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES ← / IMPACTING ACTIVITIES →		COMPACTION	WOODY CLEARING	HERBACEOUS CLEARING	PLOWING/DISCING	DIKING	FILLING-UNCONSOLIDATED	FILLING-CONSOLIDATED	EXCAVATING	INPERVIOUS SURFACE	DREDGING	FERTILIZING	INSECTICIDING	HERBICIDING	IRRIGATING	STRUCTURAL SUPPORT	VEHICULAR TRAFFIC	WATER TRANSFER/DIVERSION	INUNDATION	LANDSCAPE/ROW MANAGEMENT	DRAINAGE	SURFACE WATER DEMAND	SUBSURFACE WATER DEMAND	CULVERTING	CHANNELIZATION	PEDESTRIAN TRAFFIC	LIQUID WASTE DISPOSAL: PESTICIDES	HEAVY METALS	NUTRIENTS	THERMAL EFFLUENTS	ORGANIC	SOLID WASTE DISPOSAL: HAZARDOUS	UNCONSOLIDATED NONHAZARDOUS	CONSOLIDATED NONHAZARDOUS	AIR WASTE DISPOSAL: PARTICULATES	GASES	HAZARDS
AQUIFER RECHARGE	I																																					
AQUIFER RECHARGE	D																																					
GROUNDWATER DISCHARGE	I										O												X															
GROUNDWATER DISCHARGE	D																																					
GROUNDWATER SALINITY	I										X																											
SURFACE WATER SALINITY	I																																					
SURFACE WATER SALINITY	D																																					
WATER TEMPERATURE	I																													O								O
WATER TEMPERATURE	D																													O								X
SUSPENDED SOLIDS	I						X	O			X					O					X							X			X	X	X	O	O		
SUSPENDED SOLIDS	D																																					
TOXIC SUBSTANCES	I						X	O			X			X		O					X						X	X	O		X	X			V	V	X
NUTRIENTS	I						X	O			X										X								X			X	X	O	V	V	X
NUTRIENTS	D																																					
PATHOGENS	I						X	O			O										X										X	X	O		O		X
pH	I																																					
pH	D																																					
DISSOLVED OXYGEN	D						O				X										O								X	X	X	X	X	O			X
DISSOLVED SOLIDS	I																																					
DISSOLVED SOLIDS	D																																					
SUBSTRATE PARTICLE SIZE	I							X																										X				
SUBSTRATE PARTICLE SIZE	D						X																										X					
SEDIMENTATION	I																																					
SEDIMENTATION	D																																					
SEDIMENT CHEMISTRY							X	X			X															X	X	X	X	X	X	X	X				X
FAUNAL ABUNDANCE	I							X								O																		O				
FAUNAL ABUNDANCE	D						X	O			X					O						O											X	O				
FAUNAL REPRODUCTIVE POTENTIAL	I							X								O																		O				
FAUNAL REPRODUCTIVE POTENTIAL	D						X	O			X																						X	O				
FAUNAL DIVERSITY	I							X								O																		X				
FAUNAL DIVERSITY	D						X				X																						X	O				
FLORAL ABUNDANCE	I						O																										O					
FLORAL ABUNDANCE	D						X	X			X					X																	X	X				
FLORAL DIVERSITY	I						O																															
FLORAL DIVERSITY	D						X	X			X					X																	X	X				
SUNLIGHT PENETRATION	D																																					
PRIMARY PRODUCTIVITY	I						O																										O					
PRIMARY PRODUCTIVITY	D						X	X			X					X																	X	X				
SOIL ASSIMILATIVE CAPACITY	I																																					
SOIL ASSIMILATIVE CAPACITY	D																																					
BATHYMETRY VARIABILITY	I						X	X			X					X																	X	X				
WATER DEPTH	I										X																											
WATER DEPTH	D						X	X																									O	O				
SHORE PROTECTION CAPACITY	I						X	X										O																				
SHORE PROTECTION CAPACITY	D										X							X																				
SHORELINE CHANGES							X	X										X															X	X				
LITTORAL DRIFT	I						O																										O					
LITTORAL DRIFT	D							O			O					O																		O				
RUNOFF	I																																					
EROSION/SCOURING	I										X						V																					
EROSION/SCOURING	D																																					
FLOOD FREQUENCY	I																																					
FLOOD FREQUENCY	D																																					
FLOOD INTENSITY	I																																					
FLOOD INTENSITY	D																																					
FLOW REGIME																							O			O	O	O	O	O							
CIRCULATION/MIXING	I										O						V	O											O								
CIRCULATION/MIXING	D						X	X			X					O		O											O								
NOISE																	X																				

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

SPECIAL RESOURCE AREAS WITHIN THIS TYPE

SHELLFISH REEFS
ESTUARINE SHELLFISH BEDS
PRIME FISHING AREAS
SUBMERGED VEGETATION
MIGRATORY PATHWAYS AND SPAWNING AREAS

SEMI-ENCLOSED AND BACK BAYS

IMPACTING ACTIVITIES
VERSUS
ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES ⟵ | IMPACTING ACTIVITIES ↓

		COMPACTION	WOODY CLEARING	HERBACEOUS CLEARING	PLOWING/DISCING	DIKING	FILLING-UNCONSOLIDATED	FILLING-CONSOLIDATED	EXCAVATING	IMPERVIOUS SURFACE	DREDGING	FERTILIZING	INSECTICIDING	HERBICIDING	IRRIGATING	STRUCTURAL SUPPORT	VEHICULAR TRAFFIC	WATER TRANSFER/DIVERSION	INUNDATION	LANDSCAPE/ROW MANAGEMENT	DRAINAGE	SURFACE WATER DEMAND	SUBSURFACE WATER DEMAND	CULVERTING	CHANNELIZATION	PEDESTRIAN TRAFFIC	LIQUID WASTE DISPOSAL: PESTICIDES	HEAVY METALS	NUTRIENTS	THERMAL EFFLUENTS	ORGANIC	SOLID WASTE DISPOSAL: HAZARDOUS	UNCONSOLIDATED NONHAZARDOUS	CONSOLIDATED NONHAZARDOUS	AIR WASTE DISPOSAL: PARTICULATES	GASES	HAZARDS
AQUIFER RECHARGE	I																																					
AQUIFER RECHARGE	D																																					
GROUNDWATER DISCHARGE	I										O												X															
GROUNDWATER DISCHARGE	D																																					
GROUNDWATER SALINITY	I										X																											
SURFACE WATER SALINITY	I																																					
SURFACE WATER SALINITY	D																																					X
WATER TEMPERATURE	I																													X								O
WATER TEMPERATURE	D																													O								X
SUSPENDED SOLIDS	I						X	O			X					V					X								X		X	X	X	O	V		
SUSPENDED SOLIDS	D																																					
TOXIC SUBSTANCES	I						X	V			X		X	X		V					X						X	X	O		X	X			V	V	X
NUTRIENTS	I						X	O			X					O					X								X			X	X	O	V	V	X
NUTRIENTS	D																																					
PATHOGENS	I						X	O			X										X										X	X	O		O		X
pH	I										O										O										O	O	O		O	O	X
pH	D										O										O										O	O	O		O	O	X
DISSOLVED OXYGEN	D						O				X										X								X	X	X	X	X	O			X
DISSOLVED SOLIDS	I																																					
DISSOLVED SOLIDS	D																																					
SUBSTRATE PARTICLE SIZE	I							X																										X			
SUBSTRATE PARTICLE SIZE	D						X																										X				
SEDIMENTATION	I																																					
SEDIMENTATION	D																																					
SEDIMENT CHEMISTRY							X	X			X															X	X	X	X	X	X	X	X	X			X
FAUNAL ABUNDANCE	I							X								O																		O			
FAUNAL ABUNDANCE	D						X	V			X					O						V											X	O			
FAUNAL REPRODUCTIVE POTENTIAL	I							X								O																		O			
FAUNAL REPRODUCTIVE POTENTIAL	D						X	V			X											V											X	O			
FAUNAL DIVERSITY	I							X								O																		X			
FAUNAL DIVERSITY	D						X	O			X											V											X	O			
FLORAL ABUNDANCE	I						O																										O				
FLORAL ABUNDANCE	D						X	X			X					X																	X	X			
FLORAL DIVERSITY	I						O																														
FLORAL DIVERSITY	D						X	X			X																						X	X			
SUNLIGHT PENETRATION	D															X																					
PRIMARY PRODUCTIVITY	I						O																										O				
PRIMARY PRODUCTIVITY	D						X	X			X					X																	X	X			
SOIL ASSIMILATIVE CAPACITY	I																																					
SOIL ASSIMILATIVE CAPACITY	D																																					
BATHYMETRY VARIABILITY	I						X	X			X					X																	X	X			
WATER DEPTH	I										X																										
WATER DEPTH	D						X	X																									O	O			
SHORE PROTECTION CAPACITY	I						V	X										O																			
SHORE PROTECTION CAPACITY	D										X							X																			
SHORELINE CHANGES							X	X										X															X	X			
LITTORAL DRIFT	I																																					
LITTORAL DRIFT	D																																					
RUNOFF	I																																					
EROSION/SCOURING	I										X						X																				
EROSION/SCOURING	D																																					
FLOOD FREQUENCY	I																																					
FLOOD FREQUENCY	D																																					
FLOOD INTENSITY	I																																					
FLOOD INTENSITY	D																																					
FLOW REGIME							X	X			X					O		O					X				O	O	O	O	O		X	X			X
CIRCULATION/MIXING	I										O						X	O												O							X
CIRCULATION/MIXING	D						X	X			X					O		O												X							
NOISE																	X																				

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

SPECIAL RESOURCE AREAS WITHIN THIS TYPE

SHELLFISH REEFS
ESTUARINE SHELLFISH BEDS
PRIME FISHING AREAS
SUBMERGED VEGETATION
MIGRATORY PATHWAYS AND SPAWNING AREAS

TIDAL GUTS, INLETS AND CANALS

IMPACTING ACTIVITIES
VERSUS
ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES ←

	IMPACTING ACTIVITIES →	COMPACTION	WOODY CLEARING	HERBACEOUS CLEARING	PLOWING/DISCING	DIKING	FILLING-UNCONSOLIDATED	FILLING-CONSOLIDATED	EXCAVATING	IMPERVIOUS SURFACE	DREDGING	FERTILIZING	INSECTICIDING	HERBICIDING	IRRIGATING	STRUCTURAL SUPPORT	VEHICULAR TRAFFIC	WATER TRANSFER/DIVERSION	INUNDATION	LANDSCAPE/ROW MANAGEMENT	DRAINAGE	SURFACE WATER DEMAND	SUBSURFACE WATER DEMAND	CULVERTING	CHANNELIZATION	PEDESTRIAN TRAFFIC	LIQUID WASTE DISPOSAL: PESTICIDES	HEAVY METALS	NUTRIENTS	THERMAL EFFLUENTS	ORGANIC	SOLID WASTE DISPOSAL: HAZARDOUS	UNCONSOLIDATED NONHAZARDOUS	CONSOLIDATED NONHAZARDOUS	PARTICULATES	AIR WASTE DISPOSAL: GASES	HAZARDS
AQUIFER RECHARGE	I																																					
AQUIFER RECHARGE	D																																					
GROUNDWATER DISCHARGE	I										O												X															
GROUNDWATER DISCHARGE	D																																					
GROUNDWATER SALINITY	I										X																											
SURFACE WATER SALINITY	I																																					
SURFACE WATER SALINITY	D																																					X
WATER TEMPERATURE	I																													X								O
WATER TEMPERATURE	D																													O								X
SUSPENDED SOLIDS	I						X	O			X					V					X			O	O				X		X	X	X	O	O			
SUSPENDED SOLIDS	D																																					
TOXIC SUBSTANCES	I						X	O			X		X	X		V					X						X	X	O		X	X			V	V	X
NUTRIENTS	I						X	O			X					O					X			O	O				X			X	X	O	V	V	X
NUTRIENTS	D																																					
PATHOGENS	I						X	O			X										X									X	X	O		O			X
pH	I										O										O									O	O	O		O	O	O	X
pH	D										O										O									O	O	O		O	O	O	X
DISSOLVED OXYGEN	D						O				X										O								X	X	X	X	X	O			X
DISSOLVED SOLIDS	I																																					
DISSOLVED SOLIDS	D																																					
SUBSTRATE PARTICLE SIZE	I							X																										X			
SUBSTRATE PARTICLE SIZE	D						X																									X					
SEDIMENTATION	I																																					
SEDIMENTATION	D																																					
SEDIMENT CHEMISTRY							X	X			X															X	X	X	X	X	X	X	X			X
FAUNAL ABUNDANCE	I							X								O																		O			
FAUNAL ABUNDANCE	D						X	O			X					O		X				X		O	X							X	O			
FAUNAL REPRODUCTIVE POTENTIAL	I							X								O																	O			
FAUNAL REPRODUCTIVE POTENTIAL	D						X	O			X							X				X			X							X	O			
FAUNAL DIVERSITY	I							X								O																	X			
FAUNAL DIVERSITY	D						X	O			X							X				X		O	X							X	O			
FLORAL ABUNDANCE	I						O																									O					
FLORAL ABUNDANCE	D						X	X			X					X		X						X	X							X	X				
FLORAL DIVERSITY	I						O																															
FLORAL DIVERSITY	D						X	X			X							X						X	X							X	X				
SUNLIGHT PENETRATION	D															X								X													
PRIMARY PRODUCTIVITY	I						O																									O					
PRIMARY PRODUCTIVITY	D						X	X			X					X		X					X	X							X	X				
SOIL ASSIMILATIVE CAPACITY	I																																					
SOIL ASSIMILATIVE CAPACITY	D																																					
BATHYMETRY VARIABILITY	I						X	X			X					X																X	X				
WATER DEPTH	I										X																											
WATER DEPTH	D						X	X																								O	O				
SHORE PROTECTION CAPACITY	I						O	X								O		O																			
SHORE PROTECTION CAPACITY	D										X							X																			
SHORELINE CHANGES							X	X										X							X							X	X				
LITTORAL DRIFT	I						O																									X					
LITTORAL DRIFT	D							X			V																						X				
RUNOFF	I																																					
EROSION/SCOURING	I										X						X																				
EROSION/SCOURING	D																																					
FLOOD FREQUENCY	I																																					
FLOOD FREQUENCY	D																	X																			
FLOOD INTENSITY	I																																					
FLOOD INTENSITY	D																	X																			
FLOW REGIME							X	X			X					X		X					X		X	O	O	O	O	O		X	X				X
CIRCULATION/MIXING	I						X	X			X					O	X	X					X	X						O							X
CIRCULATION/MIXING	D						X	X								O		X												O							
NOISE																	X																				

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

SPECIAL RESOURCE AREAS WITHIN THIS TYPE

SHELLFISH REEFS
ESTUARINE SHELLFISH BEDS
PRIME FISHING AREAS
SUBMERGED VEGETATION
MIGRATORY PATHWAYS AND SPAWNING AREAS

TIDAL RIVERS

IMPACTING ACTIVITIES
VERSUS
ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES ← / IMPACTING ACTIVITIES →		COMPACTION	WOODY CLEARING	HERBACEOUS CLEARING	PLOWING/DISCING	DIKING	FILLING-UNCONSOLIDATED	FILLING-CONSOLIDATED	EXCAVATING	IMPERVIOUS SURFACE	DREDGING	FERTILIZING	INSECTICIDING	HERBICIDING	IRRIGATING	STRUCTURAL SUPPORT	VEHICULAR TRAFFIC	WATER TRANSFER/DIVERSION	INUNDATION	LANDSCAPE/ROW MANAGEMENT	DRAINAGE	SURFACE WATER DEMAND	SUBSURFACE WATER DEMAND	CULVERTING	CHANNELIZATION	PEDESTRIAN TRAFFIC	LIQUID WASTE DISPOSAL: PESTICIDES	HEAVY METALS	NUTRIENTS	THERMAL EFFLUENTS	ORGANIC	SOLID WASTE DISPOSAL: HAZARDOUS	UNCONSOLIDATED NONHAZARDOUS	CONSOLIDATED NONHAZARDOUS	AIR WASTE DISPOSAL: PARTICULATES	GASES	HAZARDS
AQUIFER RECHARGE	I																																					
AQUIFER RECHARGE	D																																					
GROUNDWATER DISCHARGE	I										O												X															
GROUNDWATER DISCHARGE	D																								V													
GROUNDWATER SALINITY	I										X																											
SURFACE WATER SALINITY	I																					X			X													
SURFACE WATER SALINITY	D																																					X
WATER TEMPERATURE	I																													X								
WATER TEMPERATURE	D																													O								X
SUSPENDED SOLIDS	I						X	O			X					V					X			O	O				X		X	X	X	O	V			
SUSPENDED SOLIDS	D																																					
TOXIC SUBSTANCES	I						X	V			X		X	X		V					X						X	X	O		X	X			V	V	X
NUTRIENTS	I						X	O			X					O					X			O	O				X			X	X	O	V	V	X
NUTRIENTS	D																																					
PATHOGENS	I						X	O			X										X									X	X	O		O			X
pH	I						V				O										O									V	V	V		O	O		X
pH	D						V				O										O									V	V	V		O	O		X
DISSOLVED OXYGEN	D						O				X										O								X	X	X	X	X	O			X
DISSOLVED SOLIDS	I						X	O			X					O					X	X			X					X	X	X	X				O
DISSOLVED SOLIDS	D																																					
SUBSTRATE PARTICLE SIZE	I							X																										X				
SUBSTRATE PARTICLE SIZE	D						X																										X					
SEDIMENTATION	I																																					
SEDIMENTATION	D																																					
SEDIMENT CHEMISTRY							X	X			X																X	X	X	X	X	X	X	X			X
FAUNAL ABUNDANCE	I							X								O																		O				
FAUNAL ABUNDANCE	D						X	X			X					O		X				X		O	X								X	O				
FAUNAL REPRODUCTIVE POTENTIAL	I							X								O																		O				
FAUNAL REPRODUCTIVE POTENTIAL	D						X	X			X							X				X			X								X	O				
FAUNAL DIVERSITY	I							X								O																		O				
FAUNAL DIVERSITY	D						X	X			X							X				X		O	X								X	O				
FLORAL ABUNDANCE	I						O																											O				
FLORAL ABUNDANCE	D						X	X			X					X		X						X	X								X	X				
FLORAL DIVERSITY	I						O																															
FLORAL DIVERSITY	D						X	X			X							X						X	X								X	X				
SUNLIGHT PENETRATION	D															X								X														
PRIMARY PRODUCTIVITY	I						O																										O					
PRIMARY PRODUCTIVITY	D						X	X			X					X		X						X	X								X	X				
SOIL ASSIMILATIVE CAPACITY	I																																					
SOIL ASSIMILATIVE CAPACITY	D																																					
BATHYMETRY VARIABILITY	I						X	X			X					X																	X	X				
WATER DEPTH	I										X														X												X
WATER DEPTH	D						X	X														X			X								O	O				X
SHORE PROTECTION CAPACITY	I						O	X								O		O																				
SHORE PROTECTION CAPACITY	D										X																											
SHORELINE CHANGES							X	X										X							X								X	X				
LITTORAL DRIFT	I						O																										O					
LITTORAL DRIFT	D							O			X																							O				
RUNOFF	I																																					
EROSION/SCOURING	I										X						X																					
EROSION/SCOURING	D																																					
FLOOD FREQUENCY	I						X	O																														
FLOOD FREQUENCY	D																	X																				
FLOOD INTENSITY	I						X	O																														X
FLOOD INTENSITY	D																	X																				
FLOW REGIME							X	X			X					X		X				X	X		X		V	V	V	X	V		X	X				X
CIRCULATION/MIXING	I						X	X			X					O	X	X						X	X					O								X
CIRCULATION/MIXING	D										X					O		X												O								
NOISE																	X																					

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

SPECIAL RESOURCE AREAS WITHIN THIS TYPE

SHELLFISH REEFS
ESTUARINE SHELLFISH BEDS
PRIME FISHING AREAS
SUBMERGED VEGETATION
MIGRATORY PATHWAYS AND SPAWNING AREAS

NON-TIDAL RIVERS

IMPACTING ACTIVITIES
VERSUS
ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES ← / IMPACTING ACTIVITIES →		COMPACTION	WOODY CLEARING	HERBACEOUS CLEARING	PLOWING/DISCING	DIKING	FILLING-UNCONSOLIDATED	FILLING-CONSOLIDATED	EXCAVATING	IMPERVIOUS SURFACE	DREDGING	FERTILIZING	INSECTICIDING	HERBICIDING	IRRIGATING	STRUCTURAL SUPPORT	VEHICULAR TRAFFIC	WATER TRANSFER/DIVERSION	INUNDATION	LANDSCAPE/ROW MANAGEMENT	DRAINAGE	SURFACE WATER DEMAND	SUBSURFACE WATER DEMAND	CULVERTING	CHANNELIZATION	PEDESTRIAN TRAFFIC	LIQUID WASTE DISPOSAL: PESTICIDES	HEAVY METALS	NUTRIENTS	THERMAL EFFLUENTS	ORGANIC	SOLID WASTE DISPOSAL: HAZARDOUS	UNCONSOLIDATED NONHAZARDOUS	CONSOLIDATED NONHAZARDOUS	PARTICULATES	AIR WASTE DISPOSAL: GASES	HAZARDS
AQUIFER RECHARGE	I																	X																				
AQUIFER RECHARGE	D																	X							X													
GROUNDWATER DISCHARGE	I										O							X					X															
GROUNDWATER DISCHARGE	D																	X							V													
GROUNDWATER SALINITY	I																																					
SURFACE WATER SALINITY	I																																					
SURFACE WATER SALINITY	D																																					
WATER TEMPERATURE	I																													X								O
WATER TEMPERATURE	D																													O								X
SUSPENDED SOLIDS	I						X	O			X					X					X			O	O				X		X	X	X	O	V			
SUSPENDED SOLIDS	D																																					
TOXIC SUBSTANCES	I						X	V			X		X	X		X					X						X	X	O		X	X			X	X	X
NUTRIENTS	I						X	O			X					O					X			O	O				X			X	X	O	X	X	X
NUTRIENTS	D																																					
PATHOGENS	I						X	O			X										X									X	X	O		O		X
pH	I						X				X										X									X	X	X		V	V	X
pH	D						X				X										X									X	X	X		V	V	X
DISSOLVED OXYGEN	D						O				X										X								X	X	X	X	O			X
DISSOLVED SOLIDS	I						X	O			X					O					X										X	X	X	X		O
DISSOLVED SOLIDS	D																																					
SUBSTRATE PARTICLE SIZE	I							X																										X			
SUBSTRATE PARTICLE SIZE	D						X																									X					
SEDIMENTATION	I																																					
SEDIMENTATION	D																																					
SEDIMENT CHEMISTRY							X	X			X															X	X	X	X	X	X	X	X			X
FAUNAL ABUNDANCE	I							X								O																		O			
FAUNAL ABUNDANCE	D						X	X			X					O		X				X		O	X							X	O				
FAUNAL REPRODUCTIVE POTENTIAL	I							X								O																	O				
FAUNAL REPRODUCTIVE POTENTIAL	D						X	X			X							X				X			X							X	O				
FAUNAL DIVERSITY	I							X								O																	X				
FAUNAL DIVERSITY	D						X	X			X							X				X		O	X							X	O				
FLORAL ABUNDANCE	I						O																									O					
FLORAL ABUNDANCE	D						X	X			X					X		X						X	X							X	X				
FLORAL DIVERSITY	I						O																														
FLORAL DIVERSITY	D						X	X			X							X						X	X							X	X				
SUNLIGHT PENETRATION	D															X								X													
PRIMARY PRODUCTIVITY	I						O																									O					
PRIMARY PRODUCTIVITY	D						X	X			X					X		X						X	X							X	X				
SOIL ASSIMILATIVE CAPACITY	I																																					
SOIL ASSIMILATIVE CAPACITY	D																																					
BATHYMETRY VARIABILITY	I						X	X			X					X																X	X				
WATER DEPTH	I										X							X							X												X
WATER DEPTH	D						X	X										X				X			X							O	O				X
SHORE PROTECTION CAPACITY	I						O	X										O																			
SHORE PROTECTION CAPACITY	D										X																										
SHORELINE CHANGES							X	X										X							X							X	X				
LITTORAL DRIFT	I																															O					
LITTORAL DRIFT	D							O			O																						O				
RUNOFF	I																																					
EROSION/SCOURING	I										X						X																				
EROSION/SCOURING	D																																					
FLOOD FREQUENCY	I						X	O																													
FLOOD FREQUENCY	D																	X																			
FLOOD INTENSITY	I						X	O																													X
FLOOD INTENSITY	D																	X																			
FLOW REGIME							X	X			X					X		X				X	X		X		X	X	X	X	X		X	X			X
CIRCULATION/MIXING	I						X	X			O					O	X	X						X	X				O								X
CIRCULATION/MIXING	D										X					O		X											V								
NOISE																	X																				

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

SPECIAL RESOURCE AREAS WITHIN THIS TYPE

SUBMERGED VEGETATION
MIGRATORY PATHWAYS AND SPAWNING AREAS
PRIME FISHING AREAS

NON-TIDAL INLAND BASINS

IMPACTING ACTIVITIES
VERSUS
ENVIRONMENTAL CHANGES

PRIMARY
ENVIRONMENTAL CHANGES ←

PRIMARY ENVIRONMENTAL CHANGES ← / IMPACTING ACTIVITIES →		COMPACTION	WOODY CLEARING	HERBACEOUS CLEARING	PLOWING/DISCING	DIKING	FILLING-UNCONSOLIDATED	FILLING-CONSOLIDATED	EXCAVATING	IMPERVIOUS SURFACE	DREDGING	FERTILIZING	INSECTICIDING	HERBICIDING	IRRIGATING	STRUCTURAL SUPPORT	VEHICULAR TRAFFIC	WATER TRANSFER/DIVERSION	INUNDATION	LANDSCAPE/ROW MANAGEMENT	DRAINAGE	SURFACE WATER DEMAND	SUBSURFACE WATER DEMAND	CULVERTING	CHANNELIZATION	PEDESTRIAN TRAFFIC	LIQUID WASTE DISPOSAL: PESTICIDES	HEAVY METALS	NUTRIENTS	THERMAL EFFLUENTS	ORGANIC	SOLID WASTE DISPOSAL: HAZARDOUS	UNCONSOLIDATED NONHAZARDOUS	CONSOLIDATED NONHAZARDOUS	AIR WASTE DISPOSAL: PARTICULATES	GASES	HAZARDS
AQUIFER RECHARGE	I																	X																				
AQUIFER RECHARGE	D																	X																				
GROUNDWATER DISCHARGE	I										O							X				X																
GROUNDWATER DISCHARGE	D																	X																				
GROUNDWATER SALINITY	I																																					
SURFACE WATER SALINITY	I																																					
SURFACE WATER SALINITY	D																																					
WATER TEMPERATURE	I																																					
WATER TEMPERATURE	D																													X								O
SUSPENDED SOLIDS	I						X	O			X					X					X								O								X
SUSPENDED SOLIDS	D																												X		X	X	X	O	X			
TOXIC SUBSTANCES	I						X	V			X		X	X		X					X										X							
NUTRIENTS	I						X	O			X					O					X						X	X	O		X	X			X	X	X	
NUTRIENTS	D																				X		O	O					X			X	X	O	X	X	X	
PATHOGENS	I						X	O			X										X										X	X	O		O			X
pH	I						V				X										X										X	X	X		X	X	X	
pH	D						V				X										X										X	X	X		X	X	X	
DISSOLVED OXYGEN	D						O				X										X										X	X	X		X	X	X	
DISSOLVED SOLIDS	I						X	O			X					O					X								X	X	X	X	X	O			X	
DISSOLVED SOLIDS	D																				X										X	X	X	X	X		O	
SUBSTRATE PARTICLE SIZE	I							X																														
SUBSTRATE PARTICLE SIZE	D						X																										X					
SEDIMENTATION	I																															X						
SEDIMENTATION	D																																					
SEDIMENT CHEMISTRY							X	X			X																											
FAUNAL ABUNDANCE	I							X								O											X	X	X	X	X	X	X	X			X
FAUNAL ABUNDANCE	D						X	X			X					O		X				X												O				
FAUNAL REPRODUCTIVE POTENTIAL	I							X								O																	X	O				
FAUNAL REPRODUCTIVE POTENTIAL	D						X	X			X							X				X												O				
FAUNAL DIVERSITY	I							X								O																	X	O				
FAUNAL DIVERSITY	D						X	X			X							X				X												X				
FLORAL ABUNDANCE	I						O																										X	O				
FLORAL ABUNDANCE	D						X	X			X					X		X															O					
FLORAL DIVERSITY	I						O																										X	X				
FLORAL DIVERSITY	D						X	X			X							X																				
SUNLIGHT PENETRATION	D															X																	X	X				
PRIMARY PRODUCTIVITY	I						O																															
PRIMARY PRODUCTIVITY	D						X	X			X					X		X															O					
SOIL ASSIMILATIVE CAPACITY	I																																X	X				
SOIL ASSIMILATIVE CAPACITY	D																																					
BATHYMETRY VARIABILITY	I						X	X			X					X																	X	X				
WATER DEPTH	I										X							X																				
WATER DEPTH	D						X	X										X				X											O	O			X	
SHORE PROTECTION CAPACITY	I							X										O																				
SHORE PROTECTION CAPACITY	D										X							X																				
SHORELINE CHANGES							X	X										X															X	X				
LITTORAL DRIFT	I																																					
LITTORAL DRIFT	D																																					
RUNOFF	I																																					
EROSION/SCOURING	I										X					X																						
EROSION/SCOURING	D																																					
FLOOD FREQUENCY	I						X	O																														
FLOOD FREQUENCY	D																																					
FLOOD INTENSITY	I						X	O																														
FLOOD INTENSITY	D																																				X	
FLOW REGIME										O					O		X			X	X				X	X	X	X	X									
CIRCULATION/MIXING	I															X																					X	
CIRCULATION/MIXING	D										X				O		X												X									
NOISE																X																						

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

SPECIAL RESOURCE AREAS WITHIN THIS TYPE

SUBMERGED VEGETATION
MIGRATORY PATHWAYS AND SPAWNING AREAS
PRIME FISHING AREAS

OCEAN BEACHES AND FOREDUNES

IMPACTING ACTIVITIES
VERSUS
ENVIRONMENTAL CHANGES

PRIMARY
ENVIRONMENTAL CHANGES ←

	IMPACTING ACTIVITIES →	CONPACTION	WOODY CLEARING	HERBACEOUS CLEARING	PLOWING/DISCING	DIKING	FILLING-UNCONSOLIDATED	FILLING-CONSOLIDATED	EXCAVATING	IMPERVIOUS SURFACE	DREDGING	FERTILIZING	INSECTICIDING	HERBICIDING	IRRIGATING	STRUCTURAL SUPPORT	VEHICULAR TRAFFIC	WATER TRANSFER/DIVERSION	INUNDATION	LANDSCAPE/ROW MANAGEMENT	DRAINAGE	SURFACE WATER DEMAND	SUBSURFACE WATER DEMAND	CULVERTING	CHANNELIZATION	PEDESTRIAN TRAFFIC	LIQUID WASTE DISPOSAL: PESTICIDES	HEAVY METALS	NUTRIENTS	THERMAL EFFLUENTS	ORGANIC	SOLID WASTE DISPOSAL: HAZARDOUS	UNCONSOLIDATED NONHAZARDOUS	CONSOLIDATED NONHAZARDOUS	AIR WASTE DISPOSAL: PARTICULATES	GASES	HAZARDS
AQUIFER RECHARGE	I																						O															
AQUIFER RECHARGE	D			O				X			X						O										O	O	O	O	O			X	O			O
GROUNDWATER DISCHARGE	I									X		O											X															O
GROUNDWATER DISCHARGE	D							O			O																											
GROUNDWATER SALINITY	I																																					
SURFACE WATER SALINITY	I																																					
SURFACE WATER SALINITY	D																																					
WATER TEMPERATURE	I																																					
WATER TEMPERATURE	D																																					
SUSPENDED SOLIDS	I																																					
SUSPENDED SOLIDS	D																																					
TOXIC SUBSTANCES	I						X	V	O		O		X	X			O									X	X	O		X	X			X	X	X
NUTRIENTS	I						X	O	X		X	X																X			X	X	X	O	O	X
NUTRIENTS	D						O			X	O																				O	O	O				
PATHOGENS	I						V				X																			X	X			X		X
pH	I																																					
pH	D																																					
DISSOLVED OXYGEN	D																																					
DISSOLVED SOLIDS	I																																					
DISSOLVED SOLIDS	D																																					
SUBSTRATE PARTICLE SIZE	I						O	X																								O	X				
SUBSTRATE PARTICLE SIZE	D						X		X		X																					X					
SEDIMENTATION	I																																					
SEDIMENTATION	D																																					
SEDIMENT CHEMISTRY							X	O	X	X	X							O													X	X	X				
FAUNAL ABUNDANCE	I							X								X		O		O													O				
FAUNAL ABUNDANCE	D			X			O	O	X	X	X					O	X	O		O				X	O					X		X	X				
FAUNAL REPRODUCTIVE POTENTIAL	I							X								X		O															O				
FAUNAL REPRODUCTIVE POTENTIAL	D			X			O	O	X	X	X					O	X	O						X	O					X		X	X				
FAUNAL DIVERSITY	I							X								X		O		O													O				
FAUNAL DIVERSITY	D			X					X	X	X							O						X	O					X		X	X				
FLORAL ABUNDANCE	I																			O										O							
FLORAL ABUNDANCE	D			X			X	X		X							X			O					X					X		X					
FLORAL DIVERSITY	I																			O										O							
FLORAL DIVERSITY	D			X			X	X		X							X								O					X		X					
SUNLIGHT PENETRATION	D																																					
PRIMARY PRODUCTIVITY	I																			O										O							
PRIMARY PRODUCTIVITY	D			X			X	X		X							X			O					O					X		X					
SOIL ASSIMILATIVE CAPACITY	I																																					
SOIL ASSIMILATIVE CAPACITY	D						X		X	X	X					O				O												X	O			X	
BATHYMETRY VARIABILITY	I																																					
WATER DEPTH	I																																					
WATER DEPTH	D																																					
SHORE PROTECTION CAPACITY	I						X	O		O						V		O						X								X	O				
SHORE PROTECTION CAPACITY	D							O	X	X	X					X		X																			
SHORELINE CHANGES							X	X	X		X					X		X														X	X				
LITTORAL DRIFT	I						O											X														O					
LITTORAL DRIFT	D							X	X	X	X					X		X														X	X				
RUNOFF	I			X			O	O		X																						X	O				
EROSION/SCOURING	I			X				X	X	X	X					X	X	X																			
EROSION/SCOURING	D						O	O		O						X		X						X								O	O				
FLOOD FREQUENCY	I								X		X																									V	
FLOOD FREQUENCY	D						X									X																X	O				
FLOOD INTENSITY	I								X		X																									V	
FLOOD INTENSITY	D						X									X																X	O				
FLOW REGIME							X	X	X	X	X					X		X				X		X		X	X	X	X	X		X	O			V	
CIRCULATION/MIXING	I																																					
CIRCULATION/MIXING	D																																					
NOISE																	X																				

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

SPECIAL RESOURCE AREAS WITHIN THIS TYPE

BEACHES
DUNES
OPEN SPACE

ESTUARINE BEACHES AND BARS

IMPACTING ACTIVITIES
VERSUS
ENVIRONMENTAL CHANGES

PRIMARY
ENVIRONMENTAL CHANGES ←

	IMPACTING ACTIVITIES ↓	COMPACTION	WOODY CLEARING	HERBACEOUS CLEARING	PLOWING/DISCING	DIKING	FILLING-UNCONSOLIDATED	FILLING-CONSOLIDATED	EXCAVATING	IMPERVIOUS SURFACE	DREDGING	FERTILIZING	INSECTICIDING	HERBICIDING	IRRIGATING	STRUCTURAL SUPPORT	VEHICULAR TRAFFIC	WATER TRANSFER/DIVERSION	INUNDATION	LANDSCAPE/ROW MANAGEMENT	DRAINAGE	SURFACE WATER DEMAND	SUBSURFACE WATER DEMAND	CULVERTING	CHANNELIZATION	PEDESTRIAN TRAFFIC	LIQUID WASTE DISPOSAL: PESTICIDES	HEAVY METALS	NUTRIENTS	THERMAL EFFLUENTS	ORGANIC	SOLID WASTE DISPOSAL: HAZARDOUS	UNCONSOLIDATED NONHAZARDOUS	CONSOLIDATED NONHAZARDOUS	AIR WASTE DISPOSAL: PARTICULATES	CASES	HAZARDS
AQUIFER RECHARGE	I																	O	X								O	O	O	O	O						
AQUIFER RECHARGE	D						X	O		X						O		X						O	X								X	O			O
GROUNDWATER DISCHARGE	I								X		O							X					X		O												O
GROUNDWATER DISCHARGE	D					X	O			O									O																		
GROUNDWATER SALINITY	I																																					
SURFACE WATER SALINITY	I																																					
SURFACE WATER SALINITY	D																																					
WATER TEMPERATURE	I																																					
WATER TEMPERATURE	D																																					
SUSPENDED SOLIDS	I																																					
SUSPENDED SOLIDS	D																																					
TOXIC SUBSTANCES	I						X	V	O		O		X				O										X	X	O		X	X			X	X	X
NUTRIENTS	I						X	O	X		X								O										X			X	X	X	O	O	X
NUTRIENTS	D								O	X	O							O														O	O	O			
PATHOGENS	I						V				X																				X	X			X		X
pH	I																																					
pH	D																																					
DISSOLVED OXYGEN	D																																					
DISSOLVED SOLIDS	I																																					
DISSOLVED SOLIDS	D																																					
SUBSTRATE PARTICLE SIZE	I						O	X	O		O																										
SUBSTRATE PARTICLE SIZE	D						X		X		X																						O	X			
SEDIMENTATION	I																																X					
SEDIMENTATION	D																																					
SEDIMENT CHEMISTRY							X	O	X	X	X							X	X													X	X	X			
FAUNAL ABUNDANCE	I							X								X		O	O															O			
FAUNAL ABUNDANCE	D					X	X	X	X	X	X					O	X	X	X				O	X	O				X			X	X				
FAUNAL REPRODUCTIVE POTENTIAL	I							X								X		O	O														O				
FAUNAL REPRODUCTIVE POTENTIAL	D					X	X	X	X	X	X					O	X	X	X				O	X	O				X			X	X				
FAUNAL DIVERSITY	I							X								X		O	O														O				
FAUNAL DIVERSITY	D					X	X	X	X	X	X							X	X				O	X	O				X			X	X				
FLORAL ABUNDANCE	I					X	X											X	X										O			X					
FLORAL ABUNDANCE	D																																					
FLORAL DIVERSITY	I					X	X											X	X										O			X					
FLORAL DIVERSITY	D																																					
SUNLIGHT PENETRATION	D																																					
PRIMARY PRODUCTIVITY	I					X	X											X	X										O			X					
PRIMARY PRODUCTIVITY	D																																					
SOIL ASSIMILATIVE CAPACITY	I																																					
SOIL ASSIMILATIVE CAPACITY	D					X	X		X	X	X					O			X														X	O			X
BATHYMETRY VARIABILITY	I																																					
WATER DEPTH	I																																					
WATER DEPTH	D																																					
SHORE PROTECTION CAPACITY	I					X	X	X		X						O		X					O	X								X	X				
SHORE PROTECTION CAPACITY	D							O	X		X					X		X	X																		
SHORELINE CHANGES						X	X	X	X		X					X		X														X	X				
LITTORAL DRIFT	I						O																										O					
LITTORAL DRIFT	D					O		X	X	X	X					X		O														X	X				
RUNOFF	I						X	O		X																						X	O				
EROSION/SCOURING	I							X	X	X	X					X	X	X	X																		
EROSION/SCOURING	D					X	O	O		O						X		X							X							O	O				
FLOOD FREQUENCY	I								X		X								X																		V
FLOOD FREQUENCY	D					X	X	X								X																X	X				
FLOOD INTENSITY	I					O			X		X								X																		V
FLOOD INTENSITY	D					X	X	X								X																X	X				
FLOW REGIME						X	X	X	X	X	X					X		X	X				X	O	X		X	X	X	X	X	X	X				V
CIRCULATION/MIXING	I																																					
CIRCULATION/MIXING	D																																					
NOISE																	X																				

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

SPECIAL RESOURCE AREAS WITHIN THIS TYPE

BEACHES
OPEN SPACE
ESTUARINE SHELLFISH BEDS

TIDAL WETLANDS

IMPACTING ACTIVITIES
VERSUS
ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES ← / IMPACTING ACTIVITIES ↓		COMPACTION	WOODY CLEARING	HERBACEOUS CLEARING	PLOWING/DISCING	DIKING	FILLING-UNCONSOLIDATED	FILLING-CONSOLIDATED	EXCAVATING	IMPERVIOUS SURFACE	DREDGING	FERTILIZING	INSECTICIDING	HERBICIDING	IRRIGATING	STRUCTURAL SUPPORT	VEHICULAR TRAFFIC	WATER TRANSFER/DIVERSION	INUNDATION	LANDSCAPE/ROW MANAGEMENT	DRAINAGE	SURFACE WATER DEMAND	SUBSURFACE WATER DEMAND	CULVERTING	CHANNELIZATION	PEDESTRIAN TRAFFIC	PESTICIDES	HEAVY METALS	NUTRIENTS	THERMAL EFFLUENTS	ORGANIC	HAZARDOUS	UNCONSOLIDATED NONHAZARDOUS	CONSOLIDATED NONHAZARDOUS	PARTICULATES	GASES	HAZARDS
																										LIQUID WASTE DISPOSAL					SOLID WASTE DISPOSAL			AIR WASTE DISPOSAL		
AQUIFER RECHARGE	I					O			O		O						O	X								O	O	O	O	O						
AQUIFER RECHARGE	D	O		O			X	O		X						O		X			X				X							X	O			O	
GROUNDWATER DISCHARGE	I								X		X							X			X		X		O											O	
GROUNDWATER DISCHARGE	D					X	O			O									O																		
GROUNDWATER SALINITY	I																																				
SURFACE WATER SALINITY	I																																				
SURFACE WATER SALINITY	D																																				
WATER TEMPERATURE	I																																				
WATER TEMPERATURE	D																																				
SUSPENDED SOLIDS	I																																				
SUSPENDED SOLIDS	D																																				
TOXIC SUBSTANCES	I						X	O	X		X		X				X		X								X	O		X	X			X	X	X
NUTRIENTS	I						X	O	X		X																	X			X	X	X	O	O	X
NUTRIENTS	D	O				X	X	X	X	X	X					O		X							X						O	X	X			
PATHOGENS	I						V				X																			X	X			X		X
pH	I																																				
pH	D																																				
DISSOLVED OXYGEN	D																																				
DISSOLVED SOLIDS	I																																				
DISSOLVED SOLIDS	D																																				
SUBSTRATE PARTICLE SIZE	I						O	X	O		O																					O	X				
SUBSTRATE PARTICLE SIZE	D						X		X		X																					X					
SEDIMENTATION	I															X																					
SEDIMENTATION	D			X		X																															
SEDIMENT CHEMISTRY		O		X			X	X	X	X	X							X	X		X		X								X	X	X			
FAUNAL ABUNDANCE	I							O								X		X	O	O													O			
FAUNAL ABUNDANCE	D	O		X		O	X	X	X	X	X					X	X	X	X	O	X			O	X	O				X		X	X			
FAUNAL REPRODUCTIVE POTENTIAL	I							O								X		X	O														O			
FAUNAL REPRODUCTIVE POTENTIAL	D	O		X		O	X	X	X	X	X					X	X	X	X		X			O	X	O				X		X	X			
FAUNAL DIVERSITY	I							O								X		X	O	O													O			
FAUNAL DIVERSITY	D	O		X		O	X	X	X	X	X						X	X	X		X			O	X	O				X		X	X			
FLORAL ABUNDANCE	I					O												X	O	O										O						
FLORAL ABUNDANCE	D	O		X		O	X	X	X	X	X					X	X	X	X	O	X			O	X	O				X		X	X			
FLORAL DIVERSITY	I																	X	O	O										O						
FLORAL DIVERSITY	D	O		X		O	X	X	X	X	X					X	X	X	X		X			O	X	O				X		X	X			
SUNLIGHT PENETRATION	D																																				
PRIMARY PRODUCTIVITY	I					O												X	O	O										O						
PRIMARY PRODUCTIVITY	D	O		X		O	X	X	X	X	X					X	X	X	X	O	X			O	X	O				X		X	X			
SOIL ASSIMILATIVE CAPACITY	I																																				
SOIL ASSIMILATIVE CAPACITY	D	X				O	X	O	X	X	X					X		X	X	O	X					O						X	O	O		X
BATHYMETRY VARIABILITY	I																																				
WATER DEPTH	I																																				
WATER DEPTH	D																																				
SHORE PROTECTION CAPACITY	I					X	X	X		O						O		O							X							X	X			
SHORE PROTECTION CAPACITY	D						O	O	X	O	X					X		X	X																	
SHORELINE CHANGES						X	X	X	X	O	X					X		X														X	X			
LITTORAL DRIFT	I						O											X														O				
LITTORAL DRIFT	D						X	X	O	X	O					O		X														X	X			
RUNOFF	I	X		X			X	O	O	X								X			X											X	O			
EROSION/SCOURING	I			X					X		X					O	X	X	X	X	X													O	O	
EROSION/SCOURING	D					X	O	O		X						X		X							X							O	O			
FLOOD FREQUENCY	I								X		X								X																	X	
FLOOD FREQUENCY	D					X	X	X								X																X	X			
FLOOD INTENSITY	I					O			X		X								X																	X	
FLOOD INTENSITY	D					X	X	X								X																X	X			
FLOW REGIME						X	X	X	X	X	X					X		X	X		X	X	X	O	X		X	X	X	X	X	X	X			X
CIRCULATION/MIXING	I																																				
CIRCULATION/MIXING	D																																				
NOISE																	X																				

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

SPECIAL RESOURCE AREAS WITHIN THIS TYPE

TIDAL WETLANDS
OPEN SPACE

NONTIDAL FRESHWATER WETLANDS

IMPACTING ACTIVITIES
VERSUS
ENVIRONMENTAL CHANGES

PRIMARY
ENVIRONMENTAL CHANGES ←

IMPACTING ACTIVITIES →

PRIMARY ENVIRONMENTAL CHANGES		COMPACTION	WOODY CLEARING	HERBACEOUS CLEARING	PLOWING/DISCING	DIKING	FILLING-UNCONSOLIDATED	FILLING-CONSOLIDATED	EXCAVATING	IMPERVIOUS SURFACE	DREDGING	FERTILIZING	INSECTICIDING	HERBICIDING	IRRIGATING	STRUCTURAL SUPPORT	VEHICULAR TRAFFIC	WATER TRANSFER/DIVERSION	INUNDATION	LANDSCAPE/ROW MANAGEMENT	DRAINAGE	SURFACE WATER DEMAND	SUBSURFACE WATER DEMAND	CULVERTING	CHANNELIZATION	PEDESTRIAN TRAFFIC	LIQUID WASTE DISPOSAL: PESTICIDES	HEAVY METALS	NUTRIENTS	THERMAL EFFLUENTS	ORGANIC	SOLID WASTE DISPOSAL: HAZARDOUS	UNCONSOLIDATED NONHAZARDOUS	CONSOLIDATED NONHAZARDOUS	AIR WASTE DISPOSAL: PARTICULATES	GASES	HAZARDS
AQUIFER RECHARGE	I						O			O		O				X			O	X								O	O	O	O	O						
AQUIFER RECHARGE	D	O			X			X	O		X						O		X			X	X		O	X								X	O			O
GROUNDWATER DISCHARGE	I									X		X							X			X	X	X		O												O
GROUNDWATER DISCHARGE	D						X	O			X									O																		
GROUNDWATER SALINITY	I																																					
SURFACE WATER SALINITY	I																																					
SURFACE WATER SALINITY	D																																					
WATER TEMPERATURE	I																																					
WATER TEMPERATURE	D																																					
SUSPENDED SOLIDS	I																																					
SUSPENDED SOLIDS	D																																					
TOXIC SUBSTANCES	I							X	O	X		X		X	X			X		X							X	X	O		X	X			X	X	X
NUTRIENTS	I							X	O	X		X	X																X			X	X	X	O	O	X
NUTRIENTS	D	O					X	X	X	X	X	X					O		X							X						O	X	X			
PATHOGENS	I							O																							X	X			X		X
pH	I																																					
pH	D																																					
DISSOLVED OXYGEN	D																																					
DISSOLVED SOLIDS	I																																					
DISSOLVED SOLIDS	D																																					
SUBSTRATE PARTICLE SIZE	I							O	X	O		O																					O	X			
SUBSTRATE PARTICLE SIZE	D									X		X																									
SEDIMENTATION	I																																					
SEDIMENTATION	D			X		X																																
SEDIMENT CHEMISTRY		O		X			X	X	X	X	X				X			X	X		X											X	X	X			
FAUNAL ABUNDANCE	I																	X	O																			
FAUNAL ABUNDANCE	D	O		X		O	X	X	X	X	X				X	X	X	X	X	O	X			O	X	O				X			X	X			
FAUNAL REPRODUCTIVE POTENTIAL	I																	X	O																			
FAUNAL REPRODUCTIVE POTENTIAL	D	O		X		O	X	X	X	X	X				X	X	X	X	X	O	X			O	X	O				X			X	X			
FAUNAL DIVERSITY	I																	X	O																			
FAUNAL DIVERSITY	D	O		X		O	X	X	X	X	X				X	X	X	X	X	O	X			O	X	O				X			X	X			
FLORAL ABUNDANCE	I					O									X			X	O											O							
FLORAL ABUNDANCE	D	O		X		O	X	X	X	X	X					X	X	X	X	O	X			O	X	O				X			X	X			
FLORAL DIVERSITY	I																	X	O											O							
FLORAL DIVERSITY	D	O		X		O	X	X	X	X	X				X	X	X	X	X	O	X			O	X	O				X			X	X			
SUNLIGHT PENETRATION	D																																					
PRIMARY PRODUCTIVITY	I					O									O			X	O											O							
PRIMARY PRODUCTIVITY	D	O		X		O	X	X	X	X	X				X	X	X	X	X	O	X			O	X	O				X			X	X			
SOIL ASSIMILATIVE CAPACITY	I																																					
SOIL ASSIMILATIVE CAPACITY	D	X				O	X	O	X	X	X				X	X		X	X	O	X					O							X	O	O		X
BATHYMETRY VARIABILITY	I																																					
WATER DEPTH	I																																					
WATER DEPTH	D																																					
SHORE PROTECTION CAPACITY	I					X	X	X		V						O		O							X								X	X			
SHORE PROTECTION CAPACITY	D						O	O	X	O	X							X	X																		
SHORELINE CHANGES						X	X	X	X		X					X		X															X	X			
LITTORAL DRIFT	I																																					
LITTORAL DRIFT	D																																					
RUNOFF	I	X		X			X	O	O	X								X			X												X	O			
EROSION/SCOURING	I			X					X		X				O	O	X	X	X		X															O	O	
EROSION/SCOURING	D					X	O	O		X						X		X							X								O	O			
FLOOD FREQUENCY	I								X		X								X																		X
FLOOD FREQUENCY	D					X	X	X								X																	X	X			
FLOOD INTENSITY	I					O			X		X								X																		X
FLOOD INTENSITY	D					X	X	X								X																	X	X			
FLOW REGIME						X	X	X	X	X	X				X	X		X	X		X	X	X	O	X		X	X	X	X	X		X	X			X
CIRCULATION/MIXING	I																																					
CIRCULATION/MIXING	D																																					
NOISE																	X																					

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

SPECIAL RESOURCE AREAS WITHIN THIS TYPE

BOGS AND NONTIDAL WETLANDS
PINE BARRENS
OPEN SPACE

WETLAND FOREST

IMPACTING ACTIVITIES
VERSUS
ENVIRONMENTAL CHANGES

PRIMARY
ENVIRONMENTAL CHANGES ←

	IMPACTING ACTIVITIES →	COMPACTION	WOODY CLEARING	HERBACEOUS CLEARING	PLOWING/DISCING	DIKING	FILLING-UNCONSOLIDATED	FILLING-CONSOLIDATED	EXCAVATING	IMPERVIOUS SURFACE	DREDGING	FERTILIZING	INSECTICIDING	HERBICIDING	IRRIGATING	STRUCTURAL SUPPORT	VEHICULAR TRAFFIC	WATER TRANSFER/DIVERSION	INUNDATION	LANDSCAPE/ROW MANAGEMENT	DRAINAGE	SURFACE WATER DEMAND	SUBSURFACE WATER DEMAND	CULVERTING	CHANNELIZATION	PEDESTRIAN TRAFFIC	LIQUID WASTE DISPOSAL: PESTICIDES	HEAVY METALS	NUTRIENTS	THERMAL EFFLUENTS	ORGANIC	SOLID WASTE DISPOSAL: HAZARDOUS	UNCONSOLIDATED NONHAZARDOUS	CONSOLIDATED NONHAZARDOUS	AIR WASTE DISPOSAL: PARTICULATES	GASES	HAZARDS
AQUIFER RECHARGE	I								O						X			O	X								O	O	O	O	O						
AQUIFER RECHARGE	D	O	X				X	O		X						O			X		X	X		O	X								X	O			O	
GROUNDWATER DISCHARGE	I								X										X		X	X	X		O												O	
GROUNDWATER DISCHARGE	D					X	O			X										O																		
GROUNDWATER SALINITY	I																																					
SURFACE WATER SALINITY	I																																					
SURFACE WATER SALINITY	D																																					
WATER TEMPERATURE	I																																					
WATER TEMPERATURE	D																																					
SUSPENDED SOLIDS	I																																					
SUSPENDED SOLIDS	D																																					
TOXIC SUBSTANCES	I						X	V	X				X	X			X		X								X	X	O		X	X			X	X	X
NUTRIENTS	I						X	O	X																				X			X	X	X	O	O	X
NUTRIENTS	D					X	X	X	X	X						O			X						X							O	X	X				
PATHOGENS	I						V																								X	X			X		X
pH	I																																					
pH	D																																					
DISSOLVED OXYGEN	D																																					
DISSOLVED SOLIDS	I																																					
DISSOLVED SOLIDS	D																																					
SUBSTRATE PARTICLE SIZE	I						O	X	O																							O	X				
SUBSTRATE PARTICLE SIZE	D																																					
SEDIMENTATION	I																																					
SEDIMENTATION	D		X			X																																
SEDIMENT CHEMISTRY			X				X	X	X	X					X			X	X		X											X	X	X			
FAUNAL ABUNDANCE	I							O										X		O														O			
FAUNAL ABUNDANCE	D		X			O	X	X	X	X					X	X	X	X	X	O	X			O	X	O				X			X	X			
FAUNAL REPRODUCTIVE POTENTIAL	I							O																										O			
FAUNAL REPRODUCTIVE POTENTIAL	D		X			O	X	X	X	X					X	X	X	X	X		X			O	X	O				X			X	X			
FAUNAL DIVERSITY	I							O										X		O														O			
FAUNAL DIVERSITY	D		X			O	X	X	X	X					X	X	X	X	X		X			O	X	O				X			X	X			
FLORAL ABUNDANCE	I					O									X			X		O										O							
FLORAL ABUNDANCE	D	O	X			O	X	X	X	X						X	X	X	X	O	X			O	X					X			X	X			
FLORAL DIVERSITY	I																	X		O										O							
FLORAL DIVERSITY	D	O	X			O	X	X	X	X					X	X	X	X	X		X			O	X					X			X	X			
SUNLIGHT PENETRATION	D																																					
PRIMARY PRODUCTIVITY	I					O									O			X		O										O							
PRIMARY PRODUCTIVITY	D	O	X			O	X	X	X	X					X	X	X	X	X	O	X			O	X					X			X	X			
SOIL ASSIMILATIVE CAPACITY	I																																					
SOIL ASSIMILATIVE CAPACITY	D	X				O	X	O	X	X					X	X		X	X	O	X					O						X	O	O		X	
BATHYMETRY VARIABILITY	I																																					
WATER DEPTH	I																																					
WATER DEPTH	D																																					
SHORE PROTECTION CAPACITY	I					X	X	X		O						O		O							X							X	X				
SHORE PROTECTION CAPACITY	D								X	O								X	X																		
SHORELINE CHANGES																X		X																			
LITTORAL DRIFT	I																																					
LITTORAL DRIFT	D																																					
RUNOFF	I	X	X				X	O	O	X								X			X											X	O				
EROSION/SCOURING	I	O	X						X						O	O	X	X	X		X														O	O	
EROSION/SCOURING	D					X	O	O		X						X		X							X							O	O				
FLOOD FREQUENCY	I								X										X																		X	
FLOOD FREQUENCY	D					X	X	X								X																X	X				
FLOOD INTENSITY	I								X										X																		X	
FLOOD INTENSITY	D					X	X	X								X																X	X				
FLOW REGIME						X	X	X	X	X					X	X		X	X		X	X	X	O	X		X	X	X	X	X	X	X				X
CIRCULATION/MIXING	I																																					
CIRCULATION/MIXING	D																																					
NOISE																	X																					

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

SPECIAL RESOURCE AREAS WITHIN THIS TYPE

BOGS AND NONTIDAL WETLANDS
WHITE CEDAR STANDS
PINE BARRENS
OPEN SPACE

CENTRAL BARRIER ISLAND CORRIDOR

IMPACTING ACTIVITIES VERSUS ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES ← / IMPACTING ACTIVITIES →		COMPACTION	WOODY CLEARING	HERBACEOUS CLEARING	PLOWING/DISCING	DIKING	FILLING-UNCONSOLIDATED	FILLING-CONSOLIDATED	EXCAVATING	IMPERVIOUS SURFACE	DREDGING	FERTILIZING	INSECTICIDING	HERBICIDING	IRRIGATING	STRUCTURAL SUPPORT	VEHICULAR TRAFFIC	WATER TRANSFER/DIVERSION	INUNDATION	LANDSCAPE/ROW MANAGEMENT	DRAINAGE	SURFACE WATER DEMAND	SUBSURFACE WATER DEMAND	CULVERTING	CHANNELIZATION	PEDESTRIAN TRAFFIC	LIQUID WASTE DISPOSAL: PESTICIDES	HEAVY METALS	NUTRIENTS	THERMAL EFFLUENTS	ORGANIC	SOLID WASTE DISPOSAL: HAZARDOUS	UNCONSOLIDATED NONHAZARDOUS	CONSOLIDATED NONHAZARDOUS	PARTICULATES	AIR WASTE DISPOSAL: GASES	HAZARDS
AQUIFER RECHARGE	I																	O	X								O	O	O	O	O						
AQUIFER RECHARGE	D	O	X	X			X	O		X								O			X	X			O								X	O			O
GROUNDWATER DISCHARGE	I								O													X	X														O
GROUNDWATER DISCHARGE	D																																				
GROUNDWATER SALINITY	I																																				
SURFACE WATER SALINITY	I																																				
SURFACE WATER SALINITY	D																																				
WATER TEMPERATURE	I																																				
WATER TEMPERATURE	D																																				
SUSPENDED SOLIDS	I																																				
SUSPENDED SOLIDS	D																																				
TOXIC SUBSTANCES	I						X	V					X	X			X									X	X	O		X	X			X	X	X
NUTRIENTS	I						X	O				X					O											X			X	X	O	O	O	X
NUTRIENTS	D						X	X	O	X																						X	X			
PATHOGENS	I						V																							X	X			X		X
pH	I																																				
pH	D																																				
DISSOLVED OXYGEN	D																																				
DISSOLVED SOLIDS	I																																				
DISSOLVED SOLIDS	D																																				
SUBSTRATE PARTICLE SIZE	I																																				
SUBSTRATE PARTICLE SIZE	D																																				
SEDIMENTATION	I																																				
SEDIMENTATION	D																																				
SEDIMENT CHEMISTRY																																					
FAUNAL ABUNDANCE	I																																				
FAUNAL ABUNDANCE	D	O	X	X		O	X	X	X	X						X	O		X					O	O	O							X	X			
FAUNAL REPRODUCTIVE POTENTIAL	I																																				
FAUNAL REPRODUCTIVE POTENTIAL	D	O	X	X		O	O	O	X	X						X			X							O							O	O			
FAUNAL DIVERSITY	I																																				
FAUNAL DIVERSITY	D	O	X	X		O	O	O	X	X						X			X							O							O	O			
FLORAL ABUNDANCE	I		O				O													O										O			O				
FLORAL ABUNDANCE	D	O	X	X		O	X	X	X	X						X			X	X	O			O	O	O				X			X	X			
FLORAL DIVERSITY	I		O				O													O										O			O				
FLORAL DIVERSITY	D	O	X	X		O	X	X	X	X						X			X	X	O					O				X			X	X			
SUNLIGHT PENETRATION	D																																				
PRIMARY PRODUCTIVITY	I						O													O										O			O				
PRIMARY PRODUCTIVITY	D	O	X	X		O	X	X	X	X						X			X	X	O			O	O	O				X			X	X			
SOIL ASSIMILATIVE CAPACITY	I						O																														
SOIL ASSIMILATIVE CAPACITY	D	O				O	X	O	X	X									X														X	O			X
BATHYMETRY VARIABILITY	I																																				
WATER DEPTH	I																																				
WATER DEPTH	D																																				
SHORE PROTECTION CAPACITY	I																																				
SHORE PROTECTION CAPACITY	D																																				
SHORELINE CHANGES																																					
LITTORAL DRIFT	I																																				
LITTORAL DRIFT	D																																				
RUNOFF	I	O	X	X			X	O		X										X	X												X	O			
EROSION/SCOURING	I		X	X					X										X						X												
EROSION/SCOURING	D					X	O	X		X						X									O								O	X			
FLOOD FREQUENCY	I																																				X
FLOOD FREQUENCY	D					X	O	O																													
FLOOD INTENSITY	I																																				X
FLOOD INTENSITY	D					X	O	O																													
FLOW REGIME			O	X	X		X	X	X	X	X								X			X	X	X	O	X		X	X	X	X	X		X	X			X
CIRCULATION/MIXING	I																																				
CIRCULATION/MIXING	D																																				
NOISE																	X																				

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

SPECIAL RESOURCE AREAS WITHIN THIS TYPE

OPEN SPACE
CENTRAL BARRIER ISLAND CORRIDOR
DUNES

LOWLAND COARSE SOILS

IMPACTING ACTIVITIES
VERSUS
ENVIRONMENTAL CHANGES

PRIMARY
ENVIRONMENTAL CHANGES ←

	IMPACTING ACTIVITIES ←	COMPACTION	WOODY CLEARING	HERBACEOUS CLEARING	PLOWING/DISCING	DIKING	FILLING-UNCONSOLIDATED	FILLING-CONSOLIDATED	EXCAVATING	IMPERVIOUS SURFACE	DREDGING	FERTILIZING	INSECTICIDING	HERBICIDING	IRRIGATING	STRUCTURAL SUPPORT	VEHICULAR TRAFFIC	WATER TRANSFER/DIVERSION	INUNDATION	LANDSCAPE/ROW MANAGEMENT	DRAINAGE	SURFACE WATER DEMAND	SUBSURFACE WATER DEMAND	CULVERTING	CHANNELIZATION	PEDESTRIAN TRAFFIC	LIQUID WASTE DISPOSAL: PESTICIDES	HEAVY METALS	NUTRIENTS	THERMAL EFFLUENTS	ORGANIC	HAZARDOUS	SOLID WASTE DISPOSAL: UNCONSOLIDATED NONHAZARDOUS	CONSOLIDATED NONHAZARDOUS	PARTICULATES	AIR WASTE DISPOSAL: GASES	HAZARDS
AQUIFER RECHARGE	I					X										X			V	X							O	O	O	O	O						
AQUIFER RECHARGE	D	O	X	X			X	O		X									V			X	X		O	V							X	O			O
GROUNDWATER DISCHARGE	I								X										O				X	X		X											O
GROUNDWATER DISCHARGE	D																		O																		
GROUNDWATER SALINITY	I																																				
SURFACE WATER SALINITY	I																																				
SURFACE WATER SALINITY	D																																				
WATER TEMPERATURE	I																																				
WATER TEMPERATURE	D																																				
SUSPENDED SOLIDS	I																																				
SUSPENDED SOLIDS	D																																				
TOXIC SUBSTANCES	I						X	V					X	X			X										X	X	V		X	X			X	X	X
NUTRIENTS	I						X	O				X					O												X			X	X	V	O	O	X
NUTRIENTS	D						X	X	O	X											O											X	X				
PATHOGENS	I						V																								X	X			X		X
pH	I																																				
pH	D																																				
DISSOLVED OXYGEN	D																																				
DISSOLVED SOLIDS	I																																				
DISSOLVED SOLIDS	D																																				
SUBSTRATE PARTICLE SIZE	I																																				
SUBSTRATE PARTICLE SIZE	D																																				
SEDIMENTATION	I																																				
SEDIMENTATION	D																																				
SEDIMENT CHEMISTRY																																					
FAUNAL ABUNDANCE	I																				O																
FAUNAL ABUNDANCE	D	O	X	X	O	O	X	X	X	X						X	O		X					O	O	O							X	X			
FAUNAL REPRODUCTIVE POTENTIAL	I																				O																
FAUNAL REPRODUCTIVE POTENTIAL	D	O	X	X	X	O	O	O	X	X						X			X							O							O	O			
FAUNAL DIVERSITY	I																				O																
FAUNAL DIVERSITY	D	O	X	X	O	O	O	O	X	X						X			X							O							O	O			
FLORAL ABUNDANCE	I		O	O	O		O								X				O	O										O			O				
FLORAL ABUNDANCE	D	O	X	X	O	O	X	X	X	X						X			X	X	O			O	O	O				X			X	X			
FLORAL DIVERSITY	I						O								X					O	O									O			O				
FLORAL DIVERSITY	D	O	X	X	X		X	X	X	X						X			X	X	O					O				X			X	X			
SUNLIGHT PENETRATION	D																																				
PRIMARY PRODUCTIVITY	I		O	O	O		O								X					O										O			O				
PRIMARY PRODUCTIVITY	D	O	X	X	X	O	X	X	X	X						X			X	X	O			O	O	O				X			X	X			
SOIL ASSIMILATIVE CAPACITY	I				O																																
SOIL ASSIMILATIVE CAPACITY	D	O				O	X	O	X	X									X														X	O			X
BATHYMETRY VARIABILITY	I																																				
WATER DEPTH	I																																				
WATER DEPTH	D																																				
SHORE PROTECTION CAPACITY	I																																				
SHORE PROTECTION CAPACITY	D																																				
SHORELINE CHANGES																																					
LITTORAL DRIFT	I																																				
LITTORAL DRIFT	D																																				
RUNOFF	I	O	X	X			X	O		X										X	X												X	O			
EROSION/SCOURING	I								X									X						X												
EROSION/SCOURING	D				O	X	O	X		X						X			O						O								O	X			
FLOOD FREQUENCY	I																																				X
FLOOD FREQUENCY	D					X	O	O																													
FLOOD INTENSITY	I																																				X
FLOOD INTENSITY	D					X	O	O																													
FLOW REGIME			O	X	X		X	X	X	X	X								X			X	X	X	O	X		X	X	X	X	X		X	X			X
CIRCULATION/MIXING	I																																				
CIRCULATION/MIXING	D																																				
NOISE																	X																				

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

SPECIAL RESOURCE AREAS WITHIN THIS TYPE

PINE BARRENS
OPEN SPACE
OAK, HICKORY AND PINE FORESTS

LOWLAND MEDIUM SOILS

IMPACTING ACTIVITIES
VERSUS
ENVIRONMENTAL CHANGES

PRIMARY
ENVIRONMENTAL CHANGES ←

	IMPACTING ACTIVITIES →	COMPACTION	WOODY CLEARING	HERBACEOUS CLEARING	PLOWING/DISCING	DIKING	FILLING-UNCONSOLIDATED	FILLING-CONSOLIDATED	EXCAVATING	IMPERVIOUS SURFACE	DREDGING	FERTILIZING	INSECTICIDING	HERBICIDING	IRRIGATING	STRUCTURAL SUPPORT	VEHICULAR TRAFFIC	WATER TRANSFER/DIVERSION	INUNDATION	LANDSCAPE/ROW MANAGEMENT	DRAINAGE	SURFACE WATER DEMAND	SUBSURFACE WATER DEMAND	CULVERTING	CHANNELIZATION	PEDESTRIAN TRAFFIC	LIQUID WASTE DISPOSAL: PESTICIDES	HEAVY METALS	NUTRIENTS	THERMAL EFFLUENTS	ORGANIC	SOLID WASTE DISPOSAL: HAZARDOUS	UNCONSOLIDATED NONHAZARDOUS	CONSOLIDATED NONHAZARDOUS	AIR WASTE DISPOSAL: PARTICULATES	CASES	HAZARDS
AQUIFER RECHARGE	I					V	X									X			V	X							O	O	O	O	O						
AQUIFER RECHARGE	D	X	X	X				X	O		X								V			X	X		O	V							X	O				O
GROUNDWATER DISCHARGE	I									O									O				X	X		X												O
GROUNDWATER DISCHARGE	D																		O																			
GROUNDWATER SALINITY	I																																					
SURFACE WATER SALINITY	I																																					
SURFACE WATER SALINITY	D																																					
WATER TEMPERATURE	I																																					
WATER TEMPERATURE	D																																					
SUSPENDED SOLIDS	I																																					
SUSPENDED SOLIDS	D																																					
TOXIC SUBSTANCES	I							X	V					X	X			X									X	X	V		X	X			X	X	X
NUTRIENTS	I							X	O				X					O											X			X	X	V	O	O	X
NUTRIENTS	D							X	X	X	X										X												X	X				
PATHOGENS	I							V																							X	X			X		X
pH	I																																					
pH	D																																					
DISSOLVED OXYGEN	D																																					
DISSOLVED SOLIDS	I																																					
DISSOLVED SOLIDS	D																																					
SUBSTRATE PARTICLE SIZE	I																																					
SUBSTRATE PARTICLE SIZE	D																																					
SEDIMENTATION	I																																					
SEDIMENTATION	D																																					
SEDIMENT CHEMISTRY																																						
FAUNAL ABUNDANCE	I																				O																	
FAUNAL ABUNDANCE	D	O	X	X	O	O	X	X	X	X						X	O		X					O	O	O							X	X			
FAUNAL REPRODUCTIVE POTENTIAL	I																				O																	
FAUNAL REPRODUCTIVE POTENTIAL	D	O	X	X	X	O	O	O	O	X	X					X			X							O							O	O			
FAUNAL DIVERSITY	I																				O																	
FAUNAL DIVERSITY	D	O	X	X	O	O	O	O	X	X						X			X							O							O	O			
FLORAL ABUNDANCE	I		O	O	O		O								X					O	O								O				O				
FLORAL ABUNDANCE	D	O	X	X	O	O	X	X	X	X						X			X	X	O			O	O	O			X				X	X			
FLORAL DIVERSITY	I		O	O			O								X					O	O								O				O				
FLORAL DIVERSITY	D	O	X	X	X	O	X	X	X	X						X			X	X	O					O			X				X	X			
SUNLIGHT PENETRATION	D																																					
PRIMARY PRODUCTIVITY	I		O	O	V		O								X						O								O				O				
PRIMARY PRODUCTIVITY	D	O	X	X	O	O	X	X	X	X						X			X	X	O			O	O	O			X				X	X			
SOIL ASSIMILATIVE CAPACITY	I				O																																	
SOIL ASSIMILATIVE CAPACITY	D	X				O	X	O	X	X									V							O							X	O			X
BATHYMETRY VARIABILITY	I																																					
WATER DEPTH	I																																					
WATER DEPTH	D																																					
SHORE PROTECTION CAPACITY	I																																					
SHORE PROTECTION CAPACITY	D																																					
SHORELINE CHANGES																																						
LITTORAL DRIFT	I																																					
LITTORAL DRIFT	D																																					
RUNOFF	I	X	X	X			X	O		X										X	X												X	O			
EROSION/SCOURING	I		X	X					X										X						X										O	O	
EROSION/SCOURING	D				O	X	O	X		X						X			O						O								O	X			
FLOOD FREQUENCY	I																																				X	
FLOOD FREQUENCY	D					X	O	O																														
FLOOD INTENSITY	I																																				X	
FLOOD INTENSITY	D					X	O	O																														
FLOW REGIME		X	X	X	O	X	X	X	X	X								X			X	X	X	O	X	X	X	X	X	X		X	X			X
CIRCULATION/MIXING	I																																					
CIRCULATION/MIXING	D																																					
NOISE																	X																				

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

SPECIAL RESOURCE AREAS WITHIN THIS TYPE

PINE BARRENS
OPEN SPACE
PRIME FARMLANDS AND SPECIALTY SOILS
OAK, HICKORY AND PINE FORESTS

LOWLAND FINE SOILS

IMPACTING ACTIVITIES
VERSUS
ENVIRONMENTAL CHANGES

PRIMARY
ENVIRONMENTAL CHANGES ←

IMPACTING ACTIVITIES ↓

		COMPACTION	WOODY CLEARING	HERBACEOUS CLEARING	PLOWING/DISCING	DIKING	FILLING-UNCONSOLIDATED	FILLING-CONSOLIDATED	EXCAVATING	IMPERVIOUS SURFACE	DREDGING	FERTILIZING	INSECTICIDING	HERBICIDING	IRRIGATING	STRUCTURAL SUPPORT	VEHICULAR TRAFFIC	WATER TRANSFER/DIVERSION	INUNDATION	LANDSCAPE/ROW MANAGEMENT	DRAINAGE	SURFACE WATER DEMAND	SUBSURFACE WATER DEMAND	CULVERTING	CHANNELIZATION	PEDESTRIAN TRAFFIC	LIQUID WASTE DISPOSAL: PESTICIDES	HEAVY METALS	NUTRIENTS	THERMAL EFFLUENTS	ORGANIC	SOLID WASTE DISPOSAL: HAZARDOUS	UNCONSOLIDATED NONHAZARDOUS	CONSOLIDATED NONHAZARDOUS	AIR WASTE DISPOSAL: PARTICULATES	GASES	HAZARDS
AQUIFER RECHARGE	I					X	X									X			O	X							O	O	O	O	O						
AQUIFER RECHARGE	D	X	X	X				X	O		X								V			X	X		O	V							X	O				O
GROUNDWATER DISCHARGE	I									O									O				X	X		X												O
GROUNDWATER DISCHARGE	D																		O																			
GROUNDWATER SALINITY	I																																					
SURFACE WATER SALINITY	I																																					
SURFACE WATER SALINITY	D																																					
WATER TEMPERATURE	I																																					
WATER TEMPERATURE	D																																					
SUSPENDED SOLIDS	I																																					
SUSPENDED SOLIDS	D																																					
TOXIC SUBSTANCES	I						X	V					X	X			X										X	X	V		X	X			X	X	X
NUTRIENTS	I						X	O				X				O													X			X	X	V	O	O	X
NUTRIENTS	D						X	X	X	X											X												X	X				
PATHOGENS	I						V																								X	X			X		X
pH	I																																					
pH	D																																					
DISSOLVED OXYGEN	D																																					
DISSOLVED SOLIDS	I																																					
DISSOLVED SOLIDS	D																																					
SUBSTRATE PARTICLE SIZE	I																																					
SUBSTRATE PARTICLE SIZE	D																																					
SEDIMENTATION	I																																					
SEDIMENTATION	D																																					
SEDIMENT CHEMISTRY																																						
FAUNAL ABUNDANCE	I																				O																	
FAUNAL ABUNDANCE	D	O	X	X	O	O	X	X	X	X						X	O		X					O	O	O							X	X			
FAUNAL REPRODUCTIVE POTENTIAL	I																				O																	
FAUNAL REPRODUCTIVE POTENTIAL	D	O	X	X	X	O	O	O	X	X						X			X							O							O	O			
FAUNAL DIVERSITY	I																				O																	
FAUNAL DIVERSITY	D	O	X	X	O	O	O	O	X	X						X			X							O							O	O			
FLORAL ABUNDANCE	I		O	O	O		O								X					O	O									O			O				
FLORAL ABUNDANCE	D	O	X	X	O	O	X	X	X	X						X			X	X	O			O	O	O				X			X	X			
FLORAL DIVERSITY	I		O	O			O								X					O	O									O			O				
FLORAL DIVERSITY	D	O	X	X	X	O	X	X	X	X						X			X	X	O					O			X	X							
SUNLIGHT PENETRATION	D																																					
PRIMARY PRODUCTIVITY	I		O	O	V		O								X						O									O			O				
PRIMARY PRODUCTIVITY	D	O	X	X	O	O	X	X	X	X						X			X	X	O			O	O	O				X			X	X			
SOIL ASSIMILATIVE CAPACITY	I				O		O																										O					
SOIL ASSIMILATIVE CAPACITY	D	X				O	X	O	X	X									O							O							X	O	O		X
BATHYMETRY VARIABILITY	I																																					
WATER DEPTH	I																																					
WATER DEPTH	D																																					
SHORE PROTECTION CAPACITY	I																																					
SHORE PROTECTION CAPACITY	D																																					
SHORELINE CHANGES																																						
LITTORAL DRIFT	I																																					
LITTORAL DRIFT	D																																					
RUNOFF	I	X	X	X			X	O		X										X	X											X	O				
EROSION/SCOURING	I		X	X					X										X						X										O	O	
EROSION/SCOURING	D				O	X	O	X		X						X			O						O							O	X				
FLOOD FREQUENCY	I																																					X
FLOOD FREQUENCY	D					X	O	O																														
FLOOD INTENSITY	I																																					X
FLOOD INTENSITY	D					X	O	O																														
FLOW REGIME		X	X	X	O	X	X	X	X	X								X			X	X	X	O	X		X	X	X	X	X		X	X			X
CIRCULATION/MIXING	I																																					
CIRCULATION/MIXING	D																																					
NOISE																	X																					

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

SPECIAL RESOURCE AREAS WITHIN THIS TYPE

OPEN SPACE
PRIME FARMLAND AND SPECIALTY SOILS
OAK, HICKORY AND PINE FORESTS

UPLAND COARSE SOILS

IMPACTING ACTIVITIES
VERSUS
ENVIRONMENTAL CHANGES

PRIMARY
ENVIRONMENTAL CHANGES ←

	IMPACTING ACTIVITIES →	COMPACTION	WOODY CLEARING	HERBACEOUS CLEARING	PLOWING/DISCING	DIKING	FILLING-UNCONSOLIDATED	FILLING-CONSOLIDATED	EXCAVATING	IMPERVIOUS SURFACE	DREDGING	FERTILIZING	INSECTICIDING	HERBICIDING	IRRIGATING	STRUCTURAL SUPPORT	VEHICULAR TRAFFIC	WATER TRANSFER/DIVERSION	INUNDATION	LANDSCAPE/ROW MANAGEMENT	DRAINAGE	SURFACE WATER DEMAND	SUBSURFACE WATER DEMAND	CULVERTING	CHANNELIZATION	PEDESTRIAN TRAFFIC	LIQUID WASTE DISPOSAL: PESTICIDES	HEAVY METALS	NUTRIENTS	THERMAL EFFLUENTS	ORGANIC	SOLID WASTE DISPOSAL: HAZARDOUS	UNCONSOLIDATED NONHAZARDOUS	CONSOLIDATED NONHAZARDOUS	AIR WASTE DISPOSAL: PARTICULATES	GASES	HAZARDS
AQUIFER RECHARGE	I					X			V						X			V	X								O	O	O	O	O						
AQUIFER RECHARGE	D	O		X	X			X	O		X							V			X	X		O	V								X	O				O
GROUNDWATER DISCHARGE	I									O								O				X	X		X													O
GROUNDWATER DISCHARGE	D																	O																				
GROUNDWATER SALINITY	I																																					
SURFACE WATER SALINITY	I																																					
SURFACE WATER SALINITY	D																																					
WATER TEMPERATURE	I																																					
WATER TEMPERATURE	D																																					
SUSPENDED SOLIDS	I																																					
SUSPENDED SOLIDS	D																																					
TOXIC SUBSTANCES	I						X	V					X	X			X									X	X	V		X	X			X	X	X
NUTRIENTS	I						X	O				X				O												X			X	X	V	O	O	X
NUTRIENTS	D						X	X	O	X										O												X	X				
PATHOGENS	I						V																							X	X			X		X
pH	I																																					
pH	D																																					
DISSOLVED OXYGEN	D																																					
DISSOLVED SOLIDS	I																																					
DISSOLVED SOLIDS	D																																					
SUBSTRATE PARTICLE SIZE	I																																					
SUBSTRATE PARTICLE SIZE	D																																					
SEDIMENTATION	I																																					
SEDIMENTATION	D																																					
SEDIMENT CHEMISTRY																																						
FAUNAL ABUNDANCE	I																				O																	
FAUNAL ABUNDANCE	D	O		X	X	O	O	X	X	X	X						X	O		X				O	O	O							X	X			
FAUNAL REPRODUCTIVE POTENTIAL	I																				O																	
FAUNAL REPRODUCTIVE POTENTIAL	D	O		X	X	X	O	O	O	X	X						X			X						O							O	O			
FAUNAL DIVERSITY	I																				O																	
FAUNAL DIVERSITY	D	O		X	X	O	O	O	O	X	X						X			X						O							O	O			
FLORAL ABUNDANCE	I			O	O	O		O								X					O									O			O					
FLORAL ABUNDANCE	D	O		X	X	O	O	X	X	X	X						X			X	X	O			O	O	O				X		X	X			
FLORAL DIVERSITY	I							O								X					O	O								O			O				
FLORAL DIVERSITY	D	O		X	X	X		X	X	X	X						X			X	X	O				O				X			X	X			
SUNLIGHT PENETRATION	D																																					
PRIMARY PRODUCTIVITY	I			O	O	O		O								X					O									O			O				
PRIMARY PRODUCTIVITY	D	O		X	X	X	O	X	X	X	X						X			X	X	O			O	O	O				X		X	X			
SOIL ASSIMILATIVE CAPACITY	I					O																																
SOIL ASSIMILATIVE CAPACITY	D	O						X	O	X	X									X													X	O			X
BATHYMETRY VARIABILITY	I																																					
WATER DEPTH	I																																					
WATER DEPTH	D																																					
SHORE PROTECTION CAPACITY	I																																					
SHORE PROTECTION CAPACITY	D																																					
SHORELINE CHANGES																																						
LITTORAL DRIFT	I																																					
LITTORAL DRIFT	D																																					
RUNOFF	I	O		X	X			X	O		X										X	X											X	O			
EROSION/SCOURING	I									X									X						X												
EROSION/SCOURING	D					O	X	O	X		X						X			O					O								O	X			
FLOOD FREQUENCY	I																																					X
FLOOD FREQUENCY	D						X	O	O																												
FLOOD INTENSITY	I																																					X
FLOOD INTENSITY	D						X	O	O																												
FLOW REGIME			O	X	X		X	X	X	X	X							X			X	X	X	O	X		X	X	X	X	X		X	X			X
CIRCULATION/MIXING	I																																					
CIRCULATION/MIXING	D																																					
NOISE																	X																				

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

SPECIAL RESOURCE AREAS WITHIN THIS TYPE

COASTAL BLUFFS
PINE BARRENS
OPEN SPACE
OAK, HICKORY AND PINE FORESTS

UPLAND MEDIUM SOILS

IMPACTING ACTIVITIES
VERSUS
ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES ← / IMPACTING ACTIVITIES →		COMPACTION	WOODY CLEARING	HERBACEOUS CLEARING	PLOWING/DISCING	DIKING	FILLING-UNCONSOLIDATED	FILLING-CONSOLIDATED	EXCAVATING	IMPERVIOUS SURFACE	DREDGING	FERTILIZING	INSECTICIDING	HERBICIDING	IRRIGATING	STRUCTURAL SUPPORT	VEHICULAR TRAFFIC	WATER TRANSFER/DIVERSION	INUNDATION	LANDSCAPE/ROW MANAGEMENT	DRAINAGE	SURFACE WATER DEMAND	SUBSURFACE WATER DEMAND	CULVERTING	CHANNELIZATION	PEDESTRIAN TRAFFIC	LIQUID WASTE DISPOSAL: PESTICIDES	HEAVY METALS	NUTRIENTS	THERMAL EFFLUENTS	ORGANIC	SOLID WASTE DISPOSAL: HAZARDOUS	UNCONSOLIDATED NONHAZARDOUS	CONSOLIDATED NONHAZARDOUS	AIR WASTE DISPOSAL: PARTICULATES	GASES	HAZARDS
AQUIFER RECHARGE	I					V	X			V						X			V	X							O	O	O	O	O						
AQUIFER RECHARGE	D	X	X	X				X	O		X								V			X	X		O	V							X	O				O
GROUNDWATER DISCHARGE	I									O									O				X	X		X												O
GROUNDWATER DISCHARGE	D																		O																			
GROUNDWATER SALINITY	I																																					
SURFACE WATER SALINITY	I																																					
SURFACE WATER SALINITY	D																																					
WATER TEMPERATURE	I																																					
WATER TEMPERATURE	D																																					
SUSPENDED SOLIDS	I																																					
SUSPENDED SOLIDS	D																																					
TOXIC SUBSTANCES	I						X	V					X	X			X										X	X		X	X			X	X	X
NUTRIENTS	I						X	O				X				O													X		X	X	V	O	O	X
NUTRIENTS	D						X	X	X	X											X											X	X				
PATHOGENS	I						V																							X	X			X		X
pH	I																																					
pH	D																																					
DISSOLVED OXYGEN	D																																					
DISSOLVED SOLIDS	I																																					
DISSOLVED SOLIDS	D																																					
SUBSTRATE PARTICLE SIZE	I																																					
SUBSTRATE PARTICLE SIZE	D																																					
SEDIMENTATION	I																																					
SEDIMENTATION	D																																					
SEDIMENT CHEMISTRY																																						
FAUNAL ABUNDANCE	I																				O																	
FAUNAL ABUNDANCE	D	O	X	X	O	O	X	X	X	X						X	O		X					O	O	O							X	X			
FAUNAL REPRODUCTIVE POTENTIAL	I																				O																	
FAUNAL REPRODUCTIVE POTENTIAL	D	O	X	X	X	O	O	O	O	X	X					X			X							O							O	O			
FAUNAL DIVERSITY	I																				O																	
FAUNAL DIVERSITY	D	O	X	X	O	O	O	O	O	X	X					X			X							O							O	O			
FLORAL ABUNDANCE	I		O	O	O		O								X					O	O									O			O				
FLORAL ABUNDANCE	D	O	X	X	O	O	X	X	X	X						X			X	X	O			O	O	O				X			X	X			
FLORAL DIVERSITY	I		O	O			O								X					O	O									O			O				
FLORAL DIVERSITY	D	O	X	X	X	O	X	X	X	X						X			X	X	O					O				X			X	X			
SUNLIGHT PENETRATION	D																																					
PRIMARY PRODUCTIVITY	I		O	O	V		O								X						O									O							
PRIMARY PRODUCTIVITY	D	O	X	X	O	O	X	X	X	X						X			X	X	O			O	O	O				X			X	X			
SOIL ASSIMILATIVE CAPACITY	I				O																																	
SOIL ASSIMILATIVE CAPACITY	D	X				O	X	O	X	X									V							O							X	O			X
BATHYMETRY VARIABILITY	I																																					
WATER DEPTH	I																																					
WATER DEPTH	D																																					
SHORE PROTECTION CAPACITY	I																																					
SHORE PROTECTION CAPACITY	D																																					
SHORELINE CHANGES																																						
LITTORAL DRIFT	I																																					
LITTORAL DRIFT	D																																					
RUNOFF	I	X	X	X			X	O		X										X	X												X	O			
EROSION/SCOURING	I		X	X					X										X						X										O	O	
EROSION/SCOURING	D				O	X	O	X		X						X			O						O								O	X			
FLOOD FREQUENCY	I																																					X
FLOOD FREQUENCY	D					X	O	O																														
FLOOD INTENSITY	I																																					X
FLOOD INTENSITY	D					X	O	O																														
FLOW REGIME		X	X	X	O	X	X	X	X	X								X		X	X	X	O	X		X	X	X	X	X		X	X			X
CIRCULATION/MIXING	I																																					
CIRCULATION/MIXING	D																																					
NOISE																	X																				

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

SPECIAL RESOURCE AREAS WITHIN THIS TYPE

COASTAL BLUFFS
PINE BARRENS
OPEN SPACE
PRIME FARMLAND AND SPECIALTY SOILS
OAK, HICKORY AND PINE FORESTS

UPLAND FINE SOILS

IMPACTING ACTIVITIES
VERSUS
ENVIRONMENTAL CHANGES

PRIMARY
ENVIRONMENTAL CHANGES ←

	IMPACTING ACTIVITIES →	COMPACTION	WOODY CLEARING	HERBACEOUS CLEARING	PLOWING/DISCING	DIKING	FILLING-UNCONSOLIDATED	FILLING-CONSOLIDATED	EXCAVATING	IMPERVIOUS SURFACE	DREDGING	FERTILIZING	INSECTICIDING	HERBICIDING	IRRIGATING	STRUCTURAL SUPPORT	VEHICULAR TRAFFIC	WATER TRANSFER/DIVERSION	INUNDATION	LANDSCAPE/ROW MANAGEMENT	DRAINAGE	SURFACE WATER DEMAND	SUBSURFACE WATER DEMAND	CULVERTING	CHANNELIZATION	PEDESTRIAN TRAFFIC	LIQUID WASTE DISPOSAL: PESTICIDES	HEAVY METALS	NUTRIENTS	THERMAL EFFLUENTS	ORGANIC	SOLID WASTE DISPOSAL: HAZARDOUS	UNCONSOLIDATED NONHAZARDOUS	CONSOLIDATED NONHAZARDOUS	AIR WASTE DISPOSAL: PARTICULATES	GASES	HAZARDS
AQUIFER RECHARGE	I					X	X			V						X			O	X							O	O	O	O	O						
AQUIFER RECHARGE	D	X	X	X				X	O		X								V			X	X		O	V							X	O				O
GROUNDWATER DISCHARGE	I									O									O				X	X		X												O
GROUNDWATER DISCHARGE	D																		O																			
GROUNDWATER SALINITY	I																																					
SURFACE WATER SALINITY	I																																					
SURFACE WATER SALINITY	D																																					
WATER TEMPERATURE	I																																					
WATER TEMPERATURE	D																																					
SUSPENDED SOLIDS	I																																					
SUSPENDED SOLIDS	D																																					
TOXIC SUBSTANCES	I							X	V					X	X			X									X	X	V		X	X			X	X	X
NUTRIENTS	I							X	O				X					O											X			X	X	V	O	O	X
NUTRIENTS	D							X	X	X	X										X												X	X				
PATHOGENS	I							V																							X	X			X		X
pH	I																																					
pH	D																																					
DISSOLVED OXYGEN	D																																					
DISSOLVED SOLIDS	I																																					
DISSOLVED SOLIDS	D																																					
SUBSTRATE PARTICLE SIZE	I																																					
SUBSTRATE PARTICLE SIZE	D																																					
SEDIMENTATION	I																																					
SEDIMENTATION	D																																					
SEDIMENT CHEMISTRY																																						
FAUNAL ABUNDANCE	I																				O																	
FAUNAL ABUNDANCE	D	O	X	X	X	O	O	X	X	X	X					X	O		X					O	O	O							X	X				
FAUNAL REPRODUCTIVE POTENTIAL	I																				O																	
FAUNAL REPRODUCTIVE POTENTIAL	D	O	X	X	X	X	O	O	O	X	X					X			X							O							O	O				
FAUNAL DIVERSITY	I																				O																	
FAUNAL DIVERSITY	D	O	X	X	X	O	O	O	O	X	X					X			X							O							O	O				
FLORAL ABUNDANCE	I		O	O	O			O							X					O	O									O			O					
FLORAL ABUNDANCE	D	O	X	X	O	O	O	X	X	X	X					X			X	X	O			O	O	O				X			X	X				
FLORAL DIVERSITY	I		O	O				O							X					O	O									O			O					
FLORAL DIVERSITY	D	O	X	X	X	X	O	X	X	X	X					X			X	X	O					O				X			X	X				
SUNLIGHT PENETRATION	D																																					
PRIMARY PRODUCTIVITY	I			O	O	V		O							X						O									O			O					
PRIMARY PRODUCTIVITY	D	O	X	X	O	O	X	X	X	X						X			X	X	O			O	O	O				X			X	X				
SOIL ASSIMILATIVE CAPACITY	I				O		O																										O					
SOIL ASSIMILATIVE CAPACITY	D	X				O	X	O	X	X									O							O							X	O	O			X
BATHYMETRY VARIABILITY	I																																					
WATER DEPTH	I																																					
WATER DEPTH	D																																					
SHORE PROTECTION CAPACITY	I																																					
SHORE PROTECTION CAPACITY	D																																					
SHORELINE CHANGES																																						
LITTORAL DRIFT	I																																					
LITTORAL DRIFT	D																																					
RUNOFF	I	X	X	X			X	O		X										X	X											X	O				
EROSION/SCOURING	I		X	X					X										X						X										O	O	
EROSION/SCOURING	D				O	X	O	X		X						X			O						O							O	X				
FLOOD FREQUENCY	I																																					X
FLOOD FREQUENCY	D					X	O	O																														
FLOOD INTENSITY	I																																					X
FLOOD INTENSITY	D					X	O	O																														
FLOW REGIME		X	X	X	O	X	X	X	X	X								X		X	X	X	O	X		X	X	X	X	X		X	X				X
CIRCULATION/MIXING	I																																					
CIRCULATION/MIXING	D																																					
NOISE																	X																					

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

SPECIAL RESOURCE AREAS WITHIN THIS TYPE

COASTAL BLUFFS
OPEN SPACE
PRIME FARMLAND AND SPECIALTY SOILS
OAK, HICKORY AND PINE FORESTS

APPENDIX 1 continued

SET III

C. Intra-type Environmental Change Linkages

Primary Environmental Changes versus Secondary Environmental Changes

Type	Page
Ocean Offshore	44.
Ocean Nearshore	45.
Open Bay	46.
Semi-Enclosed and Back Bay	47.
Tidal Inlets, Guts, and Canals	48.
Tidal Rivers	49.
Non-Tidal Rivers	50.
Non-Tidal Inland Basins	51.
Ocean Beaches and Foredunes	52.
Estuarine Beaches and Bars	53.
Tidal Wetlands	54.
Non-Tidal Wetlands	55.
Wet Forests	56.
Central Barrier Island Corridor	57.
Lowland Coarse Soils	58.
Lowland Medium Soils	59.
Lowland Fine Soils	60.
Upland Coarse Soils	61.
Upland Medium Soils	62.
Upland Fine Soils	63.

OCEAN OFFSHORE

INTRA-TYPE ENVIRONMENTAL CHANGE LINKAGES

→ PRIMARY ENVIRONMENTAL CHANGES; ↑ SECONDARY ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES		AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY I	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES I	NUTRIENTS I	NUTRIENTS D	PATHOGENS I	pH I	pH D	DISSOLVED OXYGEN D	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION D	PRIMARY PRODUCTIVITY I	PRIMARY PRODUCTIVITY D	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY I	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF I	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE
AQUIFER RECHARGE	I																																																											
AQUIFER RECHARGE	D																																																											
GROUNDWATER DISCHARGE	I																																																											
GROUNDWATER DISCHARGE	D																																																											
GROUNDWATER SALINITY	I																																																											
SURFACE WATER SALINITY	I																																																											
SURFACE WATER SALINITY	D																																																											
WATER TEMPERATURE	I																		X								O	O	O	O	O	O	X	O	X	O		X	O																				X	
WATER TEMPERATURE	D																									O		O		O		O		O		O			O																				X	
SUSPENDED SOLIDS	I								O				V	X		V			O					O				O		O		O		O		O	O		O																					
SUSPENDED SOLIDS	D														O										X		O		O		O		O		O			O																						
TOXIC SUBSTANCES	I												X			O			O							O		X		X		X		X		X			X																					
NUTRIENTS	I												O						O														X		O			X																						
NUTRIENTS	D																																	X	O	X			X																					
PATHOGENS	I																											X		X		X																												
pH	I																																																											
pH	D																																																											
DISSOLVED OXYGEN	D												X													X		X		X		X																												
DISSOLVED SOLIDS	I																																																											
DISSOLVED SOLIDS	D																																																											
SUBSTRATE PARTICLE SIZE	I																									X	X	O	X	O	X	O										X										X								
SUBSTRATE PARTICLE SIZE	D																									X		X		X		X																			X									
SEDIMENTATION	I													X									X			X		X		X		X												X																
SEDIMENTATION	D														X												X		X		X		X		X			X																						
SEDIMENT CHEMISTRY													X						X								X	X	X	X	X	X																												
FAUNAL ABUNDANCE	I																									O	O		X	O	O	X		O		O			O																					
FAUNAL ABUNDANCE	D																											O	O	O		O	O					O																						
FAUNAL REPRODUCTIVE POTENTIAL	I																										X				O																													
FAUNAL REPRODUCTIVE POTENTIAL	D																											X				O																												
FAUNAL DIVERSITY	I																										X																																	
FAUNAL DIVERSITY	D																											O																																
FLORAL ABUNDANCE	I												O		X												X	O	X	O	X	O			O	O	X	X																						
FLORAL ABUNDANCE	D																		X									X	O	X	O	X			O	O			X																					
FLORAL DIVERSITY	I																										X		X		X		O					O																						
FLORAL DIVERSITY	D																											X		X		X		O					O																					
SUNLIGHT PENETRATION	D																																	X		X			X																					
PRIMARY PRODUCTIVITY	I																										X	O	X	O	X	O	X			O																								
PRIMARY PRODUCTIVITY	D																											X		X		X		X	O																									
SOIL ASSIMILATIVE CAPACITY	I																																																											
SOIL ASSIMILATIVE CAPACITY	D																																																											
BATHYMETRY VARIABILITY	I																							O			X	X	X	X	X	X																										X		
WATER DEPTH	I									X																																										X							X	
WATER DEPTH	D								X																																										X							X		
SHORE PROTECTION CAPACITY	I																																																											
SHORE PROTECTION CAPACITY	D																																																											
SHORELINE CHANGES																																																												
LITTORAL DRIFT	I																																																											
LITTORAL DRIFT	D																																																											
RUNOFF	I																																																											
EROSION/SCOURING	I										X		V	X		V						X			X	X		X		X		X										O																		
EROSION/SCOURING	D											X												X		X	X		X		X																													
FLOOD FREQUENCY	I																																																											
FLOOD FREQUENCY	D																																																											
FLOOD INTENSITY	I																																																											
FLOOD INTENSITY	D																																																											
FLOW REGIME																																																												
CIRCULATION/MIXING	I																								X	X	X		X	O	X	O																			O									
CIRCULATION/MIXING	D																		X					X		X	O	X	O	X	O	X																				O								
NOISE																																																												

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

OCEAN NEARSHORE

INTRA-TYPE ENVIRONMENTAL CHANGE LINKAGES

PRIMARY ENVIRONMENTAL CHANGES → SECONDARY ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES	BOUNDARY ENVIRONMENTAL CHANGES	AQUIFER RECHARGE (I)	AQUIFER RECHARGE (D)	GROUNDWATER DISCHARGE (I)	GROUNDWATER DISCHARGE (D)	GROUNDWATER SALINITY	SURFACE WATER SALINITY (I)	SURFACE WATER SALINITY (D)	WATER TEMPERATURE (I)	WATER TEMPERATURE (D)	SUSPENDED SOLIDS (I)	SUSPENDED SOLIDS (D)	TOXIC SUBSTANCES	NUTRIENTS (I)	NUTRIENTS (D)	PATHOGENS	pH (I)	pH (D)	DISSOLVED OXYGEN	DISSOLVED SOLIDS (I)	DISSOLVED SOLIDS (D)
AQUIFER RECHARGE	I																				
AQUIFER RECHARGE	D																				
GROUNDWATER DISCHARGE	I			O		O														O	
GROUNDWATER DISCHARGE	D																				
GROUNDWATER SALINITY	I					O														X	
SURFACE WATER SALINITY	I																				
SURFACE WATER SALINITY	D																				
WATER TEMPERATURE	I																		O		
WATER TEMPERATURE	D																				
SUSPENDED SOLIDS	I								O				V	X		V			O		
SUSPENDED SOLIDS	D														O						
TOXIC SUBSTANCES	I												X						O		
NUTRIENTS	I												O						O		
NUTRIENTS	D																				
PATHOGENS	I															O					
pH	I																				
pH	D																				
DISSOLVED OXYGEN	D												X								
DISSOLVED SOLIDS	I																			O	
DISSOLVED SOLIDS	D																				
SUBSTRATE PARTICLE SIZE	I																				
SUBSTRATE PARTICLE SIZE	D																				
SEDIMENTATION	I													X							
SEDIMENTATION	D														X						
SEDIMENT CHEMISTRY													X						O		
FAUNAL ABUNDANCE	I																				
FAUNAL ABUNDANCE	D																				
FAUNAL REPRODUCTIVE POTENTIAL	I																				
FAUNAL REPRODUCTIVE POTENTIAL	D																				
FAUNAL DIVERSITY	I																				
FAUNAL DIVERSITY	D																				
FLORAL ABUNDANCE	I												O		O						
FLORAL ABUNDANCE	D																		X		
FLORAL DIVERSITY	I																				
FLORAL DIVERSITY	D																				
SUNLIGHT PENETRATION	I																				
PRIMARY PRODUCTIVITY	I														X						
PRIMARY PRODUCTIVITY	D																				
SOIL ASSIMILATIVE CAPACITY	I																				
SOIL ASSIMILATIVE CAPACITY	D																				
BATHYMETRY VARIABILITY	I																				
WATER DEPTH	I								O	O											
WATER DEPTH	D								X	O											
SHORE PROTECTION CAPACITY	I																				
SHORE PROTECTION CAPACITY	D																				
SHORELINE CHANGES																					
LITTORAL DRIFT	I																				
LITTORAL DRIFT	D																				
RUNOFF	I																				
EROSION/SCOURING	I										X		V	X		V					
EROSION/SCOURING	D											O									
FLOOD FREQUENCY	I																				
FLOOD FREQUENCY	D																				
FLOOD INTENSITY	I																				
FLOOD INTENSITY	D																				
FLOW REGIME						X															
CIRCULATION/MIXING	I																				
CIRCULATION/MIXING	D																		O		
NOISE																					

PRIMARY ENVIRONMENTAL CHANGES	SUBSTRATE PARTICLE SIZE (I)	SUBSTRATE PARTICLE SIZE (D)	SEDIMENTATION (I)	SEDIMENTATION (D)	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE (I)	FAUNAL ABUNDANCE (D)	FAUNAL REPRODUCTIVE POTENTIAL (I)	FAUNAL REPRODUCTIVE POTENTIAL (D)	FAUNAL DIVERSITY (I)	FAUNAL DIVERSITY (D)	FLORAL ABUNDANCE (I)	FLORAL ABUNDANCE (D)	FLORAL DIVERSITY (I)	FLORAL DIVERSITY (D)	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY (I)	PRIMARY PRODUCTIVITY (D)	SOIL ASSIMILATIVE CAPACITY (I)	SOIL ASSIMILATIVE CAPACITY (D)
AQUIFER RECHARGE (I)																				
AQUIFER RECHARGE (D)																				
GROUNDWATER DISCHARGE (I)					O															
GROUNDWATER DISCHARGE (D)																				
GROUNDWATER SALINITY					O															
SURFACE WATER SALINITY (I)																				
SURFACE WATER SALINITY (D)																				
WATER TEMPERATURE (I)						O	X	O	X	O	O	O	O	O	O		O	O		
WATER TEMPERATURE (D)							O		O		O		O		O			O		
SUSPENDED SOLIDS (I)			X				O		O		O		O		O	O		O		
SUSPENDED SOLIDS (D)				O		O		O		O		O		O			O			
TOXIC SUBSTANCES					O		O		X		X		X		X			X		
NUTRIENTS (I)					X							X		O			X			
NUTRIENTS (D)					O								X	O	X			X		
PATHOGENS							X		X		X									
pH (I)																				
pH (D)																				
DISSOLVED OXYGEN					X		X		X		X									
DISSOLVED SOLIDS (I)																				
DISSOLVED SOLIDS (D)																				
SUBSTRATE PARTICLE SIZE (I)					X	X	O	X	O	X	O									
SUBSTRATE PARTICLE SIZE (D)					X		X		X		X									
SEDIMENTATION (I)		X	X		X		X		X		X									
SEDIMENTATION (D)				O		X		X		X		O		X			X			
SEDIMENT CHEMISTRY						X	X	X	O	X	X									
FAUNAL ABUNDANCE (I)					O	X		X	O	O	X		O					O		
FAUNAL ABUNDANCE (D)							X	O	O		O									
FAUNAL REPRODUCTIVE POTENTIAL (I)						X				O	O									
FAUNAL REPRODUCTIVE POTENTIAL (D)							O				O									
FAUNAL DIVERSITY (I)						X				X										
FAUNAL DIVERSITY (D)							O				X									
FLORAL ABUNDANCE (I)						X	O	X	O	X	O			O	O	X	X			
FLORAL ABUNDANCE (D)							O	O	X	O	X			O	O			X		
FLORAL DIVERSITY (I)						X		X		X		O					O			
FLORAL DIVERSITY (D)							X		X		X		O					O		
SUNLIGHT PENETRATION													X		X			X		
PRIMARY PRODUCTIVITY (I)						X	O	X	O	X	O	X			O					
PRIMARY PRODUCTIVITY (D)							X		X		X		X	O						
SOIL ASSIMILATIVE CAPACITY (I)																				
SOIL ASSIMILATIVE CAPACITY (D)																				
BATHYMETRY VARIABILITY			O			X	O	X	O	X	O									
WATER DEPTH (I)						O		O		X										
WATER DEPTH (D)							O		O		O									
SHORE PROTECTION CAPACITY (I)																				
SHORE PROTECTION CAPACITY (D)																				
SHORELINE CHANGES																				
LITTORAL DRIFT (I)			X																	
LITTORAL DRIFT (D)				X																
RUNOFF																				
EROSION/SCOURING (I)	O			X	X		X		X		X									
EROSION/SCOURING (D)			X		X	X		X		X										
FLOOD FREQUENCY (I)																				
FLOOD FREQUENCY (D)																				
FLOOD INTENSITY (I)																				
FLOOD INTENSITY (D)																				
FLOW REGIME																				
CIRCULATION/MIXING (I)				X	X	X		X	X	X	X									
CIRCULATION/MIXING (D)			X		X	X	O	X	X	O	X									
NOISE																				

PRIMARY ENVIRONMENTAL CHANGES	BATHYMETRY VARIABILITY	WATER DEPTH (I)	WATER DEPTH (D)	SHORE PROTECTION CAPACITY (I)	SHORE PROTECTION CAPACITY (D)	SHORELINE CHANGES	LITTORAL DRIFT (I)	LITTORAL DRIFT (D)	RUNOFF	EROSION/SCOURING (I)	EROSION/SCOURING (D)	FLOOD FREQUENCY (I)	FLOOD FREQUENCY (D)	FLOOD INTENSITY (I)	FLOOD INTENSITY (D)	FLOW REGIME	CIRCULATION/MIXING (I)	CIRCULATION/MIXING (D)	NOISE
AQUIFER RECHARGE (I)																			
AQUIFER RECHARGE (D)																			
GROUNDWATER DISCHARGE (I)																X			
GROUNDWATER DISCHARGE (D)																			
GROUNDWATER SALINITY																			
SURFACE WATER SALINITY (I)																			
SURFACE WATER SALINITY (D)																			
WATER TEMPERATURE (I)																		O	
WATER TEMPERATURE (D)																		O	
SUSPENDED SOLIDS (I)							X			X									
SUSPENDED SOLIDS (D)								X			O								
TOXIC SUBSTANCES																			
NUTRIENTS (I)																			
NUTRIENTS (D)																			
PATHOGENS																			
pH (I)																			
pH (D)																			
DISSOLVED OXYGEN																			
DISSOLVED SOLIDS (I)																			
DISSOLVED SOLIDS (D)																			
SUBSTRATE PARTICLE SIZE (I)	X			X				X		X	X								
SUBSTRATE PARTICLE SIZE (D)					X		X			X									
SEDIMENTATION (I)			X			X	X												
SEDIMENTATION (D)								X											
SEDIMENT CHEMISTRY																			
FAUNAL ABUNDANCE (I)																			
FAUNAL ABUNDANCE (D)																			
FAUNAL REPRODUCTIVE POTENTIAL (I)																			
FAUNAL REPRODUCTIVE POTENTIAL (D)																			
FAUNAL DIVERSITY (I)																			
FAUNAL DIVERSITY (D)																			
FLORAL ABUNDANCE (I)																			
FLORAL ABUNDANCE (D)																			
FLORAL DIVERSITY (I)																			
FLORAL DIVERSITY (D)																			
SUNLIGHT PENETRATION																			
PRIMARY PRODUCTIVITY (I)																			
PRIMARY PRODUCTIVITY (D)																			
SOIL ASSIMILATIVE CAPACITY (I)																			
SOIL ASSIMILATIVE CAPACITY (D)																			
BATHYMETRY VARIABILITY	X							X									O		
WATER DEPTH (I)		X			X			X			O							O	
WATER DEPTH (D)			X	X			V			O							O		
SHORE PROTECTION CAPACITY (I)				O		X				X	X								
SHORE PROTECTION CAPACITY (D)					O	X				O	O								
SHORELINE CHANGES	O	X	X	X	X	X	X	X									O	X	
LITTORAL DRIFT (I)				O		O	X			X									
LITTORAL DRIFT (D)					X	X		X			O								
RUNOFF																			
EROSION/SCOURING (I)	X			X	X	X	X			X									
EROSION/SCOURING (D)				X	V			X			O								
FLOOD FREQUENCY (I)																			
FLOOD FREQUENCY (D)																			
FLOOD INTENSITY (I)																			
FLOOD INTENSITY (D)																			
FLOW REGIME																I			
CIRCULATION/MIXING (I)										V							I		
CIRCULATION/MIXING (D)											O							I	
NOISE																			

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

OPEN BAY

INTRA-TYPE ENVIRONMENTAL CHANGE LINKAGES — PRIMARY ENVIRONMENTAL CHANGES → / SECONDARY ↑	ENVIRONMENTAL CHANGES	AQUIFER RECHARGE	AQUIFER RECHARGE	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE	GROUNDWATER SALINITY	SURFACE WATER SALINITY	SURFACE WATER SALINITY	WATER TEMPERATURE	WATER TEMPERATURE	SUSPENDED SOLIDS	SUSPENDED SOLIDS	TOXIC SUBSTANCES	NUTRIENTS	NUTRIENTS	PATHOGENS	pH	pH	DISSOLVED OXYGEN	DISSOLVED SOLIDS	DISSOLVED SOLIDS	SUBSTRATE PARTICLE SIZE	SUBSTRATE PARTICLE SIZE	SEDIMENTATION	SEDIMENTATION	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE	FAUNAL ABUNDANCE	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL DIVERSITY	FAUNAL DIVERSITY	FLORAL ABUNDANCE	FLORAL ABUNDANCE	FLORAL DIVERSITY	FLORAL DIVERSITY	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY	PRIMARY PRODUCTIVITY	SOIL ASSIMILATIVE CAPACITY	SOIL ASSIMILATIVE CAPACITY	BATHYMETRY VARIABILITY	WATER DEPTH	WATER DEPTH	SHORE PROTECTION CAPACITY	SHORE PROTECTION CAPACITY	SHORELINE CHANGES	LITTORAL DRIFT	LITTORAL DRIFT	RUNOFF	EROSION/SCOURING	EROSION/SCOURING	FLOOD FREQUENCY	FLOOD FREQUENCY	FLOOD INTENSITY	FLOOD INTENSITY	FLOW REGIME	CIRCULATION/MIXING	CIRCULATION/MIXING	NOISE
AQUIFER RECHARGE	I	O				O														O																																					O			
AQUIFER RECHARGE	D																																																											
GROUNDWATER DISCHARGE	I	O		O		O		O																		O																																		
GROUNDWATER DISCHARGE	D						O																																																		O			
GROUNDWATER SALINITY	I					O														O						O																																		
SURFACE WATER SALINITY	I																									O		O		O		O		O		O			O																					
SURFACE WATER SALINITY	D																									O	O	O	O	O	O	O	O	O	O	O		O	O																					
WATER TEMPERATURE	I																		O							O	O	O	O	O	O	O	O	O	O	O		O	O																				O	
WATER TEMPERATURE	D																									O	O	O	O	O	O	O		O		O			O																				O	
SUSPENDED SOLIDS	I								O				O	O		O			O					O				O		O		O		O		O	O		O									O			O									
SUSPENDED SOLIDS	D														O										O		O		O		O		O		O			O											O			O								
TOXIC SUBSTANCES	I												O						O							O		O		O		O		O		O			O																					
NUTRIENTS	I												O	O					O							O							O		O			O																						
NUTRIENTS	D														O											O								O	O	O		O																						
PATHOGENS	I															O												O		O		O																												
pH	I																																																											
pH	D																																																											
DISSOLVED OXYGEN	D												O													O		O		O		O																												
DISSOLVED SOLIDS	I					X																																																						
DISSOLVED SOLIDS	D																			O																																								
SUBSTRATE PARTICLE SIZE	I																									O	O	O	O	O	O	O		O		O			O			O			O				O		O	O								
SUBSTRATE PARTICLE SIZE	D																									O	O	O	O	O	O	O	O		O			O													O									
SEDIMENTATION	I													O									O	O		O		O		O		O		O		O			O					O		O	O	O			O									
SEDIMENTATION	D														O										O		O		O		O		O		O			O											O											
SEDIMENT CHEMISTRY									O				O						O								O	O	O	O	O	O	O	O	O	O		O	O																					
FAUNAL ABUNDANCE	I																									O	O		O	O	O	O		O		O			O																					
FAUNAL ABUNDANCE	D																									O			O	O	O	O	O					O																						
FAUNAL REPRODUCTIVE POTENTIAL	I																										O				O	O																												
FAUNAL REPRODUCTIVE POTENTIAL	D																											O				O																												
FAUNAL DIVERSITY	I																										O				O																													
FAUNAL DIVERSITY	D																											O				O																												
FLORAL ABUNDANCE	I												O		O									O		O	O	O	O	O	O	O	O		O	O	O	O							O		O		O			O						O		
FLORAL ABUNDANCE	D																		O						O	O		O	O	O	O	O		O	O	O			O							O	O	O			O							O		
FLORAL DIVERSITY	I																										O		O		O		O					O																						
FLORAL DIVERSITY	D																											O		O		O		O					O																					
SUNLIGHT PENETRATION	D																																	O		O			O																					
PRIMARY PRODUCTIVITY	I														O											O	O	O	O	O	O	O	O			O		O																						
PRIMARY PRODUCTIVITY	D																										O		O		O			O	O				O																					
SOIL ASSIMILATIVE CAPACITY	I																																																											
SOIL ASSIMILATIVE CAPACITY	D																																																											
BATHYMETRY VARIABILITY	I																							O			O	O	O	O	O	O			O							O							O									O		
WATER DEPTH	I	X							O	O																	O		O		O			O		O	O		O				O			O			O			O					O		O	
WATER DEPTH	D								O	O																		O		O		O	O		O			O						O	O			O										O		
SHORE PROTECTION CAPACITY	I																																												O		O				O	O		O		O		O		
SHORE PROTECTION CAPACITY	D																																													O	O				O	O	O		O					
SHORELINE CHANGES																												O		O		O		O		O			O			O	O	O	O	O	O	O	O		O	O	O	O	O	O	O	O	O	
LITTORAL DRIFT	I																							O																					O		O	O												
LITTORAL DRIFT	D																								O																					O	O		O			O								
RUNOFF	I																																																											
EROSION/SCOURING	I										O		O	O		O						O			X	O		O		O		O		O		O			O			O			O	O	O	O			O									
EROSION/SCOURING	D											O												O		O	O		O		O		O		O			O						O	O			O			O								
FLOOD FREQUENCY	I						O																																							O					O		O				O	O		
FLOOD FREQUENCY	D							O																																					O							O					O		O	
FLOOD INTENSITY	I																																													O					O				O		O	O		
FLOOD INTENSITY	D							O																																					O							O						O	O	
FLOW REGIME				O	O	O	O	O																		O	O	O	O	O	O	O	O	O	O	O		O	O								O	O			O	O	O	O	O	O	O	O	O	
CIRCULATION/MIXING	I																								O	O	O		O	O	O	O																											
CIRCULATION/MIXING	D																		O					O		O	O	O	O	O	O	O																			O	O						O	O	
NOISE																														O																													

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

SEMI-ENCLOSED AND BACK BAYS

INTRA-TYPE ENVIRONMENTAL CHANGE LINKAGES

→ PRIMARY ENVIRONMENTAL CHANGES

↑ SECONDARY ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES	ENVIRONMENTAL CHANGES	AQUIFER RECHARGE (I)	AQUIFER RECHARGE (D)	GROUNDWATER DISCHARGE (I)	GROUNDWATER DISCHARGE (D)	GROUNDWATER SALINITY (I)	SURFACE WATER SALINITY (I)	SURFACE WATER SALINITY (D)	WATER TEMPERATURE (I)	WATER TEMPERATURE (D)	SUSPENDED SOLIDS (I)	SUSPENDED SOLIDS (D)	TOXIC SUBSTANCES (I)	NUTRIENTS (I)	NUTRIENTS (D)	PATHOGENS (I)	pH (I)	pH (D)	DISSOLVED OXYGEN (D)	DISSOLVED SOLIDS (I)	DISSOLVED SOLIDS (D)	SUBSTRATE PARTICLE SIZE (I)	SUBSTRATE PARTICLE SIZE (D)	SEDIMENTATION (I)	SEDIMENTATION (D)	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE (I)	FAUNAL ABUNDANCE (D)	FAUNAL REPRODUCTIVE POTENTIAL (I)	FAUNAL REPRODUCTIVE POTENTIAL (D)	FAUNAL DIVERSITY (I)	FAUNAL DIVERSITY (D)	FLORAL ABUNDANCE (I)	FLORAL ABUNDANCE (D)	FLORAL DIVERSITY (I)	FLORAL DIVERSITY (D)	SUNLIGHT PENETRATION (D)	PRIMARY PRODUCTIVITY (I)	PRIMARY PRODUCTIVITY (D)	SOIL ASSIMILATIVE CAPACITY (I)	SOIL ASSIMILATIVE CAPACITY (D)	BATHYMETRY VARIABILITY (I)	WATER DEPTH (I)	WATER DEPTH (D)	SHORE PROTECTION CAPACITY (I)	SHORE PROTECTION CAPACITY (D)	SHORELINE CHANGES	LITTORAL DRIFT (I)	LITTORAL DRIFT (D)	RUNOFF (I)	EROSION/SCOURING (I)	EROSION/SCOURING (D)	FLOOD FREQUENCY (I)	FLOOD FREQUENCY (D)	FLOOD INTENSITY (I)	FLOOD INTENSITY (D)	FLOW REGIME	CIRCULATION/MIXING (I)	CIRCULATION/MIXING (D)	NOISE
AQUIFER RECHARGE	I	O				X														X																																					O			
AQUIFER RECHARGE	D																																																											
GROUNDWATER DISCHARGE	I	O		O		X		X																		O																															O			
GROUNDWATER DISCHARGE	D						X																																																					
GROUNDWATER SALINITY	I					X														X						X																																		
SURFACE WATER SALINITY	I					X											X							O		X		X		X		X		X		X			X																					
SURFACE WATER SALINITY	D																	X							O	X	O	O	O	O	O	O	O	O	O	O		O	O																					
WATER TEMPERATURE	I																		X							X	O	X	O	X	O	X	X	O	X	O		X	O																				O	
WATER TEMPERATURE	D																									X	O	X	O	X	O	X		X		X			X																				O	
SUSPENDED SOLIDS	I								X				V	X		V	O	O	X					X				X		X		X		X		X	X		X									O			O									
SUSPENDED SOLIDS	D														X		O	O							X		O		O		O		O		O			O											O			O								
TOXIC SUBSTANCES	I												X				O	O	O							X		X		X		X		X		X			X																					
NUTRIENTS	I												O	O					X							X							X		O			X																						
NUTRIENTS	D														O											X								X	O	X			X																					
PATHOGENS	I															O												X		X		X																												
pH	I												V													V		O		O		O		O		O			O																					
pH	D												V													V		O		O		O		O		O			O												X									
DISSOLVED OXYGEN	D												X													X		X		X		X																												
DISSOLVED SOLIDS	I					X														X																																								
DISSOLVED SOLIDS	D																																																											
SUBSTRATE PARTICLE SIZE	I																									O	X	O	X	O	X	O		X		X			X			X			X				O			X								
SUBSTRATE PARTICLE SIZE	D																									X	O	X	O	X	O	X	X		X			X								X		O			X									
SEDIMENTATION	I													X									X	X		X		X		X		X		X		X			X					X			X	O												
SEDIMENTATION	D														X										X		X		X		X		X		X			X											O											
SEDIMENT CHEMISTRY									O				X				V	V	X								X	X	X	X	X	X	X	X	O	X		X	X																					
FAUNAL ABUNDANCE	I													X		O										X	X		X	O	O	X		X		O			O																					
FAUNAL ABUNDANCE	D																									X		X	O	O		O	O					O																						
FAUNAL REPRODUCTIVE POTENTIAL	I																										X				O	O																												
FAUNAL REPRODUCTIVE POTENTIAL	D																											X				X																												
FAUNAL DIVERSITY	I																										X				X																													
FAUNAL DIVERSITY	D																											O				X																												
FLORAL ABUNDANCE	I												V		X									X		X	X	O	X	O	X	O	X		O	O	X	X							X		X		X			X							O	
FLORAL ABUNDANCE	D																		X						X	X		X	O	X	O	X		X	O	O			X							X	X	O			X							O		
FLORAL DIVERSITY	I																										O		X		X		O					O																						
FLORAL DIVERSITY	D																											X		X		X		O					O																					
SUNLIGHT PENETRATION	D																																	X		X			X																					
PRIMARY PRODUCTIVITY	I														X											X	X	O	X	O	X	O	X			O		X																						
PRIMARY PRODUCTIVITY	D																									X		X		X		X		X	O				X																					
SOIL ASSIMILATIVE CAPACITY	I																																																											
SOIL ASSIMILATIVE CAPACITY	D																																																											
BATHYMETRY VARIABILITY	I																							O			X	X	X	X	X	X										X							O									O		
WATER DEPTH	I	X							O	X																	O		O		X			X		X	X		X				X			X			O			X					X		X	
WATER DEPTH	D								X	O																		O		O		O	X		X			X						X	X			O			X							O		
SHORE PROTECTION CAPACITY	I																																												X		X					X		X		X				
SHORE PROTECTION CAPACITY	D																																													X	X				X		X		X					
SHORELINE CHANGES																												O		O		O		O		O			O			X	X	X	X	X	X	O	O		X	X	X	X	X	X	X	X	X	
LITTORAL DRIFT	I																							O																					X		O	O			X									
LITTORAL DRIFT	D																								O																					O	O		O			X								
RUNOFF	I																																																											
EROSION/SCOURING	I										X		V	X		V	O	O				X			X	X		X		X		X		X		X			X			O			O	X	X	O			X									
EROSION/SCOURING	D											X												X		X	X		X		X		X		X			X							X	O			X			O								
FLOOD FREQUENCY	I						X																																							X					X		X				X	X		
FLOOD FREQUENCY	D							X																																					X							X					X		X	
FLOOD INTENSITY	I						X																																							X					X				X		X	X		
FLOOD INTENSITY	D							X																																					X							X					X		X	
FLOW REGIME				X	X	X	X	X	O	O																X	X	X	X	X	X	X	X	X	X	X		X	X									X	O		O	X	X	X	X	X	X	X	X	
CIRCULATION/MIXING	I																X	X							X	X	X		X	O	X	O																			X							X		
CIRCULATION/MIXING	D																X	X	X					X		X	O	X	O	X	O	X																				X							X	
NOISE																														O		O																												

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

TIDAL INLETS, GUTS AND CANALS

INTRA-TYPE ENVIRONMENTAL CHANGE LINKAGES

PRIMARY ENVIRONMENTAL CHANGES ↓ / SECONDARY →	ENVIRONMENTAL CHANGES	AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES	NUTRIENTS I	NUTRIENTS D	PATHOGENS	pH I	pH D	DISSOLVED OXYGEN	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY I	PRIMARY PRODUCTIVITY D	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE
AQUIFER RECHARGE	I	X				O														O																																			O			
AQUIFER RECHARGE	D																																																											
GROUNDWATER DISCHARGE	I	X		O		O		O																		O																															O			
GROUNDWATER DISCHARGE	D						O																																																	O			
GROUNDWATER SALINITY	I					O														O						O																																		
SURFACE WATER SALINITY	I					I	X																	O		O		O		O		O		O		O			O																					
SURFACE WATER SALINITY	D																								O	O	O	O	O	O	O	O	O	O	O	O		O	O																					
WATER TEMPERATURE	I																		O							O	O	O	O	O	O	O	O	O	O	O		O	O																				O	
WATER TEMPERATURE	D																									O	O	O	O	O	O	O		O		O			O																				O	
SUSPENDED SOLIDS	I								O				V	O		V			O					O				O		O		O		O		O	O		O									O			O									
SUSPENDED SOLIDS	D														O										O		O		O		O		O		O			O											O			O								
TOXIC SUBSTANCES	I												O						O							O		O		O		O		O		O			O																					
NUTRIENTS	I												O	O					O							O							O		O			O																						
NUTRIENTS	D														O											O								O	O	O			O																					
PATHOGENS	I															O												O		O		O																												
pH	I																																																											
pH	D																																																											
DISSOLVED OXYGEN	I												O													O		O		O		O																												
DISSOLVED SOLIDS	I					X														O																																								
DISSOLVED SOLIDS	D																																																											
SUBSTRATE PARTICLE SIZE	I																									O	O	O	O	O	O	O		O		O			O			O			O				O		O	O									
SUBSTRATE PARTICLE SIZE	D																									O	O	O	O	O	O	O	O	O		O			O							O		O			O										
SEDIMENTATION	I													O									O	O		O		O		O		O		O		O			O						O			O	O												
SEDIMENTATION	D														O										O		O		O		O		O		O			O											O											
SEDIMENT CHEMISTRY									O				O						O								O	O	O	O	O	O	O	O	O	O		O	O																						
FAUNAL ABUNDANCE	I													O		O										O	O		O	O	O	O		O		O			O																						
FAUNAL ABUNDANCE	D																									O		O	O	O		O	O					O																							
FAUNAL REPRODUCTIVE POTENTIAL	I																										O				O	O																												
FAUNAL REPRODUCTIVE POTENTIAL	D																											O				O																												
FAUNAL DIVERSITY	I																										O				O																													
FAUNAL DIVERSITY	D																											O				O																												
FLORAL ABUNDANCE	I												O		O									O		O	O	O	O	O	O	O	O		O	O	O	O							O		O		O			O							O	
FLORAL ABUNDANCE	D																		O						O	O		O	O	O	O	O		O	O	O			O							O	O	O			O							O		
FLORAL DIVERSITY	I																										O		O		O		O		O			O																						
FLORAL DIVERSITY	D																											O		O		O		O		O			O																					
SUNLIGHT PENETRATION	I																																	O		O			O																					
PRIMARY PRODUCTIVITY	I														O											O	O	O	O	O	O	O	O			O		O																						
PRIMARY PRODUCTIVITY	D																									O		O		O		O		O	O				O																					
SOIL ASSIMILATIVE CAPACITY	I																																																											
SOIL ASSIMILATIVE CAPACITY	D																																																											
BATHYMETRY VARIABILITY	I																							O			O	O	O	O	O	O			O							O							O									O		
WATER DEPTH	I	I							O	O																	O		O		O			O		O	O		O				O			O			O			O							O	
WATER DEPTH	D								O	X																		O		O		O	O		O			O						O	O			O			O							O		
SHORE PROTECTION CAPACITY	I																																												O		O				O	O		O		O				
SHORE PROTECTION CAPACITY	D																																													O	O				O	O	O		O					
SHORELINE CHANGES																												O		O		O		O		O			O			O	O	O	O	O	O	O	O		O	O	O	O	O	O	X	O	O	
LITTORAL DRIFT	I																							O																						O		O	O			O									
LITTORAL DRIFT	D																								O																						O	O		O			O								
RUNOFF	I																																																											
EROSION/SCOURING	I										O		V	O		V						O			X	O		O		O		O		O		O			O			O			O	O	O	O			O									
EROSION/SCOURING	D											O												O		O	O		O		O		O		O			O						O	O			O			O								
FLOOD FREQUENCY	I						O																																							O					O		O					O		
FLOOD FREQUENCY	D							O																																					O							O							O	
FLOOD INTENSITY	I						O																																							O					O				O			O		
FLOOD INTENSITY	D							O																																					O							O							O	
FLOW REGIME				O	O	O	O	O																		O	O	O	O	O	O	O	O	O	O	O		O	O										O	O		O	O	O	O	O	O	O	O	O	
CIRCULATION/MIXING	I																								O	O	O		O	O	O	O																			O							O		
CIRCULATION/MIXING	D																		O					O		O	O	O	O	O	O	O																				O							O	
NOISE																													O		O																												

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

TIDAL RIVERS

INTRA-TYPE ENVIRONMENTAL CHANGE LINKAGES

PRIMARY ENVIRONMENTAL CHANGES → / SECONDARY ENVIRONMENTAL CHANGES ↑		AQUIFER RECHARGE (I)	AQUIFER RECHARGE (D)	GROUNDWATER DISCHARGE (I)	GROUNDWATER DISCHARGE (D)	GROUNDWATER SALINITY (I)	SURFACE WATER SALINITY (I)	SURFACE WATER SALINITY (D)	WATER TEMPERATURE (I)	WATER TEMPERATURE (D)	SUSPENDED SOLIDS (I)	SUSPENDED SOLIDS (D)	TOXIC SUBSTANCES (I)	NUTRIENTS (I)	NUTRIENTS (D)	PATHOGENS (I)	pH (I)	pH (D)	DISSOLVED OXYGEN (D)	DISSOLVED SOLIDS (I)	DISSOLVED SOLIDS (D)	SUBSTRATE PARTICLE SIZE (I)	SUBSTRATE PARTICLE SIZE (D)	SEDIMENTATION (I)	SEDIMENTATION (D)	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE (I)	FAUNAL ABUNDANCE (D)	FAUNAL REPRODUCTIVE POTENTIAL (I)	FAUNAL REPRODUCTIVE POTENTIAL (D)	FAUNAL DIVERSITY (I)	FAUNAL DIVERSITY (D)	FLORAL ABUNDANCE (I)	FLORAL ABUNDANCE (D)	FLORAL DIVERSITY (I)	FLORAL DIVERSITY (D)	SUNLIGHT PENETRATION (D)	PRIMARY PRODUCTIVITY (I)	PRIMARY PRODUCTIVITY (D)	SOIL ASSIMILATIVE CAPACITY (I)	SOIL ASSIMILATIVE CAPACITY (D)	BATHYMETRY VARIABILITY (I)	WATER DEPTH (I)	WATER DEPTH (D)	SHORE PROTECTION CAPACITY (I)	SHORE PROTECTION CAPACITY (D)	SHORELINE CHANGES	LITTORAL DRIFT (I)	LITTORAL DRIFT (D)	RUNOFF (I)	EROSION/SCOURING (I)	EROSION/SCOURING (D)	FLOOD FREQUENCY (I)	FLOOD FREQUENCY (D)	FLOOD INTENSITY (I)	FLOOD INTENSITY (D)	FLOW REGIME	CIRCULATION/MIXING (I)	CIRCULATION/MIXING (D)	NOISE
AQUIFER RECHARGE	I	0				0														0																																				0			
AQUIFER RECHARGE	D																																																										
GROUNDWATER DISCHARGE	I	0		0		0		0																		0																	0														0			
GROUNDWATER DISCHARGE	D						0																																				0													0			
GROUNDWATER SALINITY	I					0														0																																							
SURFACE WATER SALINITY	I					0	0										0							0		0		0		0		0		0		0			0																							
SURFACE WATER SALINITY	D																0							0	0	0	0	0	0	0	0	0	0	0	0		0	0																						
WATER TEMPERATURE	I																	0							0	0	0	0	0	0	0	0	0	0	0		0	0																					0	
WATER TEMPERATURE	D																								0	0	0	0	0	0	0		0		0			0																					0	
SUSPENDED SOLIDS	I							0				V	0		V	0	0	0					0				0		0		0		0		0	0		0										0			0									
SUSPENDED SOLIDS	D													0		0	0							0		0		0		0		0		0			0											0			0								
TOXIC SUBSTANCES	I											0				0	0	0							0		0		0		0		0		0			0																							
NUTRIENTS	I											0	0					0							0							0		0			0																							
NUTRIENTS	D													0											0								0	0	0			0																					
PATHOGENS	I														0												0		0		0																												
pH	I											V													0		0		0		0		0		0			0																							
pH	D											V													0		0		0		0		0		0			0												0									
DISSOLVED OXYGEN	D											0													0		0		0		0																												
DISSOLVED SOLIDS	I					X														0																																							
DISSOLVED SOLIDS	D																																																										
SUBSTRATE PARTICLE SIZE	I																								0	0	0	0	0	0	0		0		0			0			0			0				0		0	0								
SUBSTRATE PARTICLE SIZE	D																								0	0	0	0	0	0	0	0		0			0							0		0			0										
SEDIMENTATION	I												0									0	0		0		0		0		0		0		0			0						0			0	0												
SEDIMENTATION	D													0										0		0		0		0		0		0			0											0											
SEDIMENT CHEMISTRY								0				0				0	0	0								0	0	0	0	0	0	0	0	0	0		0	0																						
FAUNAL ABUNDANCE	I												0		0										X	0		0	0	0	0		0					0																						
FAUNAL ABUNDANCE	D													0											0		0	0	0		0	0					0																						
FAUNAL REPRODUCTIVE POTENTIAL	I																									0				0	0																												
FAUNAL REPRODUCTIVE POTENTIAL	D																										0				0																												
FAUNAL DIVERSITY	I																									0				0																													
FAUNAL DIVERSITY	D																										0				0																												
FLORAL ABUNDANCE	I											0		0									0		0	0	0	0	0	0	0	0		0	0	0	0							0		0		0			0							0	
FLORAL ABUNDANCE	D																	0						0	0		0	0	0	0	0		0	0	0			0								0	0	0			0							0		
FLORAL DIVERSITY	I																									0		0		0		0		0			0																						
FLORAL DIVERSITY	D																										0		0		0		0		0			0																					
SUNLIGHT PENETRATION	D																																0		0			0																					
PRIMARY PRODUCTIVITY	I													0											0	0	0	0	0	0	0	0			0		0																						
PRIMARY PRODUCTIVITY	D																								0		0		0		0		0	0				0																					
SOIL ASSIMILATIVE CAPACITY	I																																																										
SOIL ASSIMILATIVE CAPACITY	D																																																										
BATHYMETRY VARIABILITY	I																							0			0	0	0	0	0	0			X							0							0										0		
WATER DEPTH	I	0							0	0																	0		0		0			0		0	0		0				0			0			0			0					0		0	
WATER DEPTH	D								0	0																		0		0		0	0		0			0						0	0			0			0						0	0		
SHORE PROTECTION CAPACITY	I																																											0		0						0		0		0	0			
SHORE PROTECTION CAPACITY	D																																												0	0				0		0		0		0			
SHORELINE CHANGES																											0		0		0		0		0			0			0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	
LITTORAL DRIFT	I																							0																							0	0			0									
LITTORAL DRIFT	D																								0																						0		0			0								
RUNOFF	I																																																										
EROSION/SCOURING	I										0		V	0		V	0	0					0			X	0		0		0		0		0		0			0			0				0	0	0			0									
EROSION/SCOURING	D											0												0		0	0		0		0		0		0			0							0				0			0								
FLOOD FREQUENCY	I						0																																							0					0		0				0	0		
FLOOD FREQUENCY	D							0																																					0							0					0		0	
FLOOD INTENSITY	I						0																																							0					0				0		0	0		
FLOOD INTENSITY	D							0																																					0							0					0		0	
FLOW REGIME				0	0	0	0	0	0	0																0	0	0	0	0	0	0	0	0	0	0		0	0				0	0				0	0		0	0	0	0	0	0	0	0	0	
CIRCULATION/MIXING	I															0	0								0	0	0		0	0	0	0																			0							0		
CIRCULATION/MIXING	D															0	0	0					0		0	0	0	0	0	0	0																				0							0	
NOISE																													0		0																												

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

NONTIDAL RIVERS

INTRA-TYPE ENVIRONMENTAL CHANGE LINKAGES

PRIMARY ENVIRONMENTAL CHANGES → / SECONDARY ENVIRONMENTAL CHANGES ↑	ENVIRONMENTAL CHANGES	AQUIFER RECHARGE	AQUIFER RECHARGE	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE	GROUNDWATER SALINITY	SURFACE WATER SALINITY	SURFACE WATER SALINITY	WATER TEMPERATURE	WATER TEMPERATURE	SUSPENDED SOLIDS	SUSPENDED SOLIDS	TOXIC SUBSTANCES	NUTRIENTS	NUTRIENTS	PATHOGENS	pH	pH	DISSOLVED OXYGEN	DISSOLVED SOLIDS	DISSOLVED SOLIDS	SUBSTRATE PARTICLE SIZE	SUBSTRATE PARTICLE SIZE	SEDIMENTATION	SEDIMENTATION	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE	FAUNAL ABUNDANCE	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL DIVERSITY	FAUNAL DIVERSITY	FLORAL ABUNDANCE	FLORAL ABUNDANCE	FLORAL DIVERSITY	FLORAL DIVERSITY	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY	PRIMARY PRODUCTIVITY	SOIL ASSIMILATIVE CAPACITY	SOIL ASSIMILATIVE CAPACITY	BATHYMETRY VARIABILITY	WATER DEPTH	WATER DEPTH	SHORE PROTECTION CAPACITY	SHORE PROTECTION CAPACITY	SHORELINE CHANGES	LITTORAL DRIFT	LITTORAL DRIFT	RUNOFF	EROSION/SCOURING	EROSION/SCOURING	FLOOD FREQUENCY	FLOOD FREQUENCY	FLOOD INTENSITY	FLOOD INTENSITY	FLOW REGIME	CIRCULATION/MIXING	CIRCULATION/MIXING	NOISE
		I	D	I	D	I	I	D	I	D	I	D	I	I	D	I	I	D	I	I	D	I	D	I	D		I	D	I	D	I	D	I	D	I	D	I	I	D	I	D	I	I	D	I	D		I	D	I	I	D	I	D	I	D		I	D	
AQUIFER RECHARGE	I	IO																																									IO													IO			
AQUIFER RECHARGE	D		IO																																																					IO			
GROUNDWATER DISCHARGE	I	DO		IO																																						IO														IO			
GROUNDWATER DISCHARGE	D																																										IO													IO			
GROUNDWATER SALINITY	I					IO	IX													IO						IO																																		
SURFACE WATER SALINITY	I					IO	DO										IO			IO				DO		IO		IO		IO		IO		IO		IO			IO																					
SURFACE WATER SALINITY	D																																																											
WATER TEMPERATURE	I																		IO							IO	DO	IO	DO	IO	DO	IO	DO	DO	IO	DO		IO	DO																				DO	
WATER TEMPERATURE	D																									IO	DO	DO	DO	DO	DO	DO		DO		DO			DO																				DO	
SUSPENDED SOLIDS	I								IO				IO	IO		IO	IO	IO	IO					IO				IO		IO		IO		IO		IO	IO		IO									IO			IO									
SUSPENDED SOLIDS	D														IO		IO	IO							IO		DO		DO		DO		DO		DO			DO											IO			DO								
TOXIC SUBSTANCES	I												IO				DO	DO	DO	DO						IO		IO		IO		IO		IO		IO			IO																					
NUTRIENTS	I												DO	DO					IO							IO							IO		DO			IO																						
NUTRIENTS	D														DO											IX								IO	DO	IO			IO																					
PATHOGENS	I															DO												IO		IO		IO																												
pH	I												IO				IO			IO						IO		IO		IO		IO		IO		IO			IO																					
pH	D												IO					IO		IO						IO		IO		IO		IO		IO		IO			IO												IO									
DISSOLVED OXYGEN	I												IO													IO		IO		IO		IO																												
DISSOLVED SOLIDS	I																DO			IO				DO		IO		IO		IO		IO		IO		IO			IO																					
DISSOLVED SOLIDS	D																	DO							DO	IO	IO		IO		IO		IO		IO			IO																						
SUBSTRATE PARTICLE SIZE	I																									DO	IO	DO	IO	DO	IO	DO		IO		IO			IO			IO			IO				DO		IO	IO								
SUBSTRATE PARTICLE SIZE	D																									IO	DO	IO	DO	IO	DO	IO	IO		IO			IO								IO		DO			IO									
SEDIMENTATION	I													IO									IO	IO		IO		IO		IO		IO		IO		IO			IO					IO			IO	DO												
SEDIMENTATION	D														IO										IO		IO		IO		IO		IO		IO			IO											DO											
SEDIMENT CHEMISTRY									IO				IO				IO	IO	IO								IO	IO	IO	IO	IO	IO	IO	IO	IO	IO		IO	IO																					
FAUNAL ABUNDANCE	I													IO		DO										DO	IO		IO	DO	DO	IO		DO		DO			DO																					
FAUNAL ABUNDANCE	D																									DO		IO	DO	DO		DO	DO		-			DO																						
FAUNAL REPRODUCTIVE POTENTIAL	I																										IO				DO	DO																												
FAUNAL REPRODUCTIVE POTENTIAL	D																											IO				IO																												
FAUNAL DIVERSITY	I																										IO				IO																													
FAUNAL DIVERSITY	D																											DO				IO																												
FLORAL ABUNDANCE	I												DO		IO									IO		IO	IO	DO	IO	DO	IO	DO	IO		DO	DO	IO	IO							IO		IO		DO			IO					IO		IO	
FLORAL ABUNDANCE	D																		IO						DO	IO		IO	DO	IO	DO	IO		IO	DO	DO			IO							IO	IO	DO			IO						IO	IO		
FLORAL DIVERSITY	I																										IO		IO		IO		DO		DO			DO																						
FLORAL DIVERSITY	D																											IO		IO		IO		DO		DO			DO																					
SUNLIGHT PENETRATION	I																																	IO		IO			IO																					
PRIMARY PRODUCTIVITY	I														IO											IO	IO	DO	IO	DO	IO	DO	IO			DO		DO																						
PRIMARY PRODUCTIVITY	D																									IO		IO		IO		IO		IO	DO				DO																					
SOIL ASSIMILATIVE CAPACITY	I																																																											
SOIL ASSIMILATIVE CAPACITY	D																																																											
BATHYMETRY VARIABILITY	I																							DO			IO	DO	IO	DO	IO	DO			IO							IO							IO									IO	IO		
WATER DEPTH	I	IO							DO	IO																	DO		DO		IO			IO		IO	IO		IO				IO			IO			DO			IO					IO		IO	
WATER DEPTH	D								IO	DO																		DO		DO		IO	IO		IO			IO						IO	IO			DO			IO						IO	IO		
SHORE PROTECTION CAPACITY	I																																												IO		IO				IO	IO		IO		IO	IO			
SHORE PROTECTION CAPACITY	D																																													IO	IO				IO	IO	IO		IO		IO			
SHORELINE CHANGES																												DO		IO		DO		DO		DO			DO			IO	IO	IO	IO	IO	IO	DO	DO		IO	IO	IO	IO	IO	IO	IO	IO	IO	
LITTORAL DRIFT	I																																															IO			DO									
LITTORAL DRIFT	D																																																DO			IO								
RUNOFF	I																																																											
EROSION/SCOURING	I										IO		IO	IO		IO	IO	IO		IO		IO			X	IO		IO		IO		IO		IO		IO			IO			DO				IO	IX	DO			IO									
EROSION/SCOURING	D											IO												IO		IO	IO		IO		IO		IO		IO			IO							IO				DO			IO								
FLOOD FREQUENCY	I																			IO																										IO					IO		IO				IO	IO		
FLOOD FREQUENCY	D																				IO																								IO							IO		DO			IO		IO	
FLOOD INTENSITY	I																			IO																										IO					IO				IO		IO	IO		
FLOOD INTENSITY	D																				IO																								IO							IO				DO	IO		IO	
FLOW REGIME				IO	IO	IO			IO	IO																IO	IO	IO	IO	IO	IO	IO	IO	IO	IO	IO		IO	IO				IO	IO				IO	IO		IO	IO	IO	IO	IO	IO	IO	IO	IO	
CIRCULATION/MIXING	I																IO	IO							DO	IO	IO		IO	DO	IO	IO																			IO							IO		
CIRCULATION/MIXING	D																IO	IO	IO					IO		IO	DO	IO	DO	IO	IO	IO																				IO							IO	
NOISE																														IO		IO																												

I=INCREASE | POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

NONTIDAL INLAND BASINS

INTRA-TYPE ENVIRONMENTAL CHANGE LINKAGES

↑ SECONDARY ENVIRONMENTAL CHANGES

→ PRIMARY ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES	ENVIRONMENTAL CHANGES	AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES	NUTRIENTS I	NUTRIENTS D	PATHOGENS	pH I	pH D	DISSOLVED OXYGEN	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY I	PRIMARY PRODUCTIVITY D	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE
AQUIFER RECHARGE	I	X																																										X													X			
AQUIFER RECHARGE	D		X																																																						X			
GROUNDWATER DISCHARGE	I	O		X																																																				X			
GROUNDWATER DISCHARGE	D																																										X													X			
GROUNDWATER SALINITY	I					X	X													X						X																																		
SURFACE WATER SALINITY	I					X	O										X			X				O		X		X		X		X		X		X			X																					
SURFACE WATER SALINITY	D																																																										
WATER TEMPERATURE	I																		X							X	O	X	O	X	O	X	X	O	X	O		X	O																				O	
WATER TEMPERATURE	D																									X		O		O		O		O		O			O																				O	
SUSPENDED SOLIDS	I								X				X	X		O	X	X	X					X				X		X		X		X		X	X		X																					
SUSPENDED SOLIDS	D														O		O	O							X		O		O		O		O		O			O																						
TOXIC SUBSTANCES	I												X				V	V	V	O						X		X		X		X		X		X			X																					
NUTRIENTS	I												O	O					X							X							X		O			X																						
NUTRIENTS	D														O											X								X	O	X			X																					
PATHOGENS	I															O												X		X		X																												
pH	I												X				O			X						X		X		X		X		X		X			X																					
pH	D												X					O		X						X		X		X		X		X		X			X												X									
DISSOLVED OXYGEN	D												X													X		X		X		X																												
DISSOLVED SOLIDS	I																O			X				O		X		X		X		X		X		X			X																					
DISSOLVED SOLIDS	D																	O							O	X	X		X		X		X		X			X																						
SUBSTRATE PARTICLE SIZE	I																									O	X	O	X	O	X	O		X		X			X			X			X							X									
SUBSTRATE PARTICLE SIZE	D																									X		X		O		X	O		X			X								X					X										
SEDIMENTATION	I													X									X			X		X		X		X		X		X			X						X			X														
SEDIMENTATION	D														X										X		X		X		X		X		X			X																						
SEDIMENT CHEMISTRY									O				X				X	X	X								X	X	X	X	X	X	X	X	X	X		X	X																					
FAUNAL ABUNDANCE	I													X		O										X	X		X	O	O	X		O					O																					
FAUNAL ABUNDANCE	D																									X		X	O	O		O																												
FAUNAL REPRODUCTIVE POTENTIAL	I																										X				O	O																												
FAUNAL REPRODUCTIVE POTENTIAL	D																											X				X																												
FAUNAL DIVERSITY	I																										X				X																													
FAUNAL DIVERSITY	D																											O				X																												
FLORAL ABUNDANCE	I												V		X									X		X	X	O	X	O	X	O	X		O	O	X	O							X							X							X	
FLORAL ABUNDANCE	D																		X						X	X		X	O	X	O	X		X	O	O			X							X	X				X							X		
FLORAL DIVERSITY	I																										X		X		X		O		O			O																						
FLORAL DIVERSITY	D																											X		X		X		O		O			O																					
SUNLIGHT PENETRATION	D																																	X		X			X																					
PRIMARY PRODUCTIVITY	I														X											X	X	O	X	O	X	O	X			O		O																						
PRIMARY PRODUCTIVITY	D																									X		X		X		X		X	O				O																					
SOIL ASSIMILATIVE CAPACITY	I																																																										
SOIL ASSIMILATIVE CAPACITY	D																																																										
BATHYMETRY VARIABILITY	I																						O			X	O	X	O	X	O			X							X															X	X		
WATER DEPTH	I	X							O	X																	O		O		X			X		X	X		X				X			X						X					X		X	
WATER DEPTH	D								X	O																		O		O		X	X		X			X						X	X						X						X	X		
SHORE PROTECTION CAPACITY	I																																												X		X				X	X		X		X	X			
SHORE PROTECTION CAPACITY	D																																													X	X				X	X	X		X		X			
SHORELINE CHANGES																												O		O		O		O		O			O			X	X	X	X	X	X				X	X	X	X	X	X	X	X	X	
LITTORAL DRIFT	I																																																										
LITTORAL DRIFT	D																																																										
RUNOFF	I																																																										
EROSION/SCOURING	I										X		V	X		V	X	X		X		X			X	X		X		X		X		X		X			X			O				X	X				X									
EROSION/SCOURING	D											X												X		X	X		X		X		X		X			X							X							X								
FLOOD FREQUENCY	I																			X																											X					X		X				X	X		
FLOOD FREQUENCY	D																				X																									X							X		O			X		X	
FLOOD INTENSITY	I																			X																											X					X				X		X	X		
FLOOD INTENSITY	D																				X																									X							X				X	X		X	
FLOW REGIME				X	X	X			X	X																X	X	X	X	X	X	X	X	X	X	X		X	X				X	X							X	X	X	X	X	X	X	X	X	
CIRCULATION/MIXING	I																X	X							X	X	X		X	O	X	X																			X							X		
CIRCULATION/MIXING	D																X	X	X					X		X	O	X	O	X	O	X																				X							X	
NOISE																														O		O																												

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

OCEAN BEACHES AND FOREDUNES

INTRA-TYPE ENVIRONMENTAL CHANGE LINKAGES

→ SECONDARY ENVIRONMENTAL CHANGES

→ PRIMARY ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES	ENVIRONMENTAL CHANGES	AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES	NUTRIENTS I	NUTRIENTS D	PATHOGENS	pH I	pH D	DISSOLVED OXYGEN	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY I	PRIMARY PRODUCTIVITY D	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE
AQUIFER RECHARGE	I	O				O														O	O																																				O			
AQUIFER RECHARGE	D		O																																																						O			
GROUNDWATER DISCHARGE	I			O																																																					O			
GROUNDWATER DISCHARGE	D				O																																																				O			
GROUNDWATER SALINITY	I					O														O														O		O			O																					
SURFACE WATER SALINITY	I																																																												
SURFACE WATER SALINITY	D																																																												
WATER TEMPERATURE	I																																																											
WATER TEMPERATURE	D																																																												
SUSPENDED SOLIDS	I																																																											
SUSPENDED SOLIDS	D																																																												
TOXIC SUBSTANCES	I											O														O		O		O		O		O		O			O		O																				
NUTRIENTS	I											O	O													O							O		O			O																							
NUTRIENTS	D																																																												
PATHOGENS	I														O													O		O		O																												
pH	I																																																											
pH	D																																																												
DISSOLVED OXYGEN	I																																																											
DISSOLVED SOLIDS	I					O														O														O		O			O																					
DISSOLVED SOLIDS	D																																																												
SUBSTRATE PARTICLE SIZE	I																									O	O		O		O										O				O				O			O									
SUBSTRATE PARTICLE SIZE	D																									O																				O		O			O									
SEDIMENTATION	I												O										O			O															O						O	O												
SEDIMENTATION	D																									O	O		O		O									O									O											
SEDIMENT CHEMISTRY																											O	O	O	O	O	O	O	O	O	O		O	O																					
FAUNAL ABUNDANCE	I												O		O												O		O		O																													
FAUNAL ABUNDANCE	D																											O		O		O																												
FAUNAL REPRODUCTIVE POTENTIAL	I																										O				O																													
FAUNAL REPRODUCTIVE POTENTIAL	D																											O				O																												
FAUNAL DIVERSITY	I																										O		O		O																													
FAUNAL DIVERSITY	D																										O	O	O	O		O																												
FLORAL ABUNDANCE	I	O																						O		O	O		O		O				O			O		O					O							O				O				
FLORAL ABUNDANCE	D		O																						O	O		O		O		O		O		O			O		O					O				X	O				O					
FLORAL DIVERSITY	I																										O		O		O		O		O			O														O								
FLORAL DIVERSITY	D																											O		O		O		O				O																					
SUNLIGHT PENETRATION	I																																																											
PRIMARY PRODUCTIVITY	I																									O	O		O		O		O		O																									
PRIMARY PRODUCTIVITY	D																									O		O		O		O		O		O																								
SOIL ASSIMILATIVE CAPACITY	I	O												O												O																										O					O			
SOIL ASSIMILATIVE CAPACITY	D		O										V	V		V				O						O																								O										
BATHYMETRY VARIABILITY	I																																																											
WATER DEPTH	I																																																											
WATER DEPTH	D																																																												
SHORE PROTECTION CAPACITY	I																										O		O		O		O		O			O							O							X		O		O				
SHORE PROTECTION CAPACITY	D																											O		O		O		O		O			O							O					O		O		O					
SHORELINE CHANGES																							O	O		O	O	O	O	O	O	O	O	O	O		O	O						O	O	O	O	O		O	O	O	O	O	O				
LITTORAL DRIFT	I																																											O		O	O				O								
LITTORAL DRIFT	D																																												O	O		O		O									
RUNOFF	I		O												O							O																							O				O	O						O			
EROSION/SCOURING	I														O										O			O		O		O		O		O			O	O	O					O	O	O			O									
EROSION/SCOURING	D																						O			O		O		O		O		O			O		O	O				O				O			O								
FLOOD FREQUENCY	I	O				O														O				O				O		O		O		O		O			O							O	O				O		O							
FLOOD FREQUENCY	D		O																						O		O		O		O		O		O			O							O															
FLOOD INTENSITY	I					O									O					O				O				O		O		O		O		O			O							O	O				O				O					
FLOOD INTENSITY	D																								O		O		O		O		O		O			O							O							O								
FLOW REGIME				O	O	O							O	O	O	O				O																																					O			
CIRCULATION/MIXING	I																																																											
CIRCULATION/MIXING	D																																																												
NOISE																												O		O		O																												

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

ESTUARINE BEACHES AND BARS

INTRA-TYPE ENVIRONMENTAL CHANGE LINKAGES / PRIMARY ENVIRONMENTAL CHANGES	SECONDARY ENVIRONMENTAL CHANGES	AQUIFER RECHARGE	AQUIFER RECHARGE	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE	GROUNDWATER SALINITY	SURFACE WATER SALINITY	SURFACE WATER SALINITY	WATER TEMPERATURE	WATER TEMPERATURE	SUSPENDED SOLIDS	SUSPENDED SOLIDS	TOXIC SUBSTANCES	NUTRIENTS	NUTRIENTS	PATHOGENS	pH	pH	DISSOLVED OXYGEN	DISSOLVED SOLIDS	DISSOLVED SOLIDS	SUBSTRATE PARTICLE SIZE	SUBSTRATE PARTICLE SIZE	SEDIMENTATION	SEDIMENTATION	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE	FAUNAL ABUNDANCE	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL DIVERSITY	FAUNAL DIVERSITY	FLORAL ABUNDANCE	FLORAL ABUNDANCE	FLORAL DIVERSITY	FLORAL DIVERSITY	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY	PRIMARY PRODUCTIVITY	SOIL ASSIMILATIVE CAPACITY	SOIL ASSIMILATIVE CAPACITY	BATHYMETRY VARIABILITY	WATER DEPTH	WATER DEPTH	SHORE PROTECTION CAPACITY	SHORE PROTECTION CAPACITY	SHORELINE CHANGES	LITTORAL DRIFT	LITTORAL DRIFT	RUNOFF	EROSION/SCOURING	EROSION/SCOURING	FLOOD FREQUENCY	FLOOD FREQUENCY	FLOOD INTENSITY	FLOOD INTENSITY	FLOW REGIME	CIRCULATION/MIXING	CIRCULATION/MIXING	NOISE
AQUIFER RECHARGE	I	O				X														O	X																																				O			
AQUIFER RECHARGE	D																																																											
GROUNDWATER DISCHARGE	I			X																																																					O			
GROUNDWATER DISCHARGE	D				O																																																				O			
GROUNDWATER SALINITY	I					X														X						O		O		O		O																												
SURFACE WATER SALINITY	I																																																											
SURFACE WATER SALINITY	D																																																											
WATER TEMPERATURE	I																																																											
WATER TEMPERATURE	D																																																											
SUSPENDED SOLIDS	I																																																											
SUSPENDED SOLIDS	D																																																											
TOXIC SUBSTANCES	I												X													X		X		X		X									X																			
NUTRIENTS	I												O	X												X							O		X			X																						
NUTRIENTS	D																									X																																		
PATHOGENS	I															X												O		O		O																												
pH	I																																																											
pH	D																																																											
DISSOLVED OXYGEN	D																																																											
DISSOLVED SOLIDS	I					X														X						O		O		O		O																												
DISSOLVED SOLIDS	D																				O						O		O		O																													
SUBSTRATE PARTICLE SIZE	I																									X	X		X		X										O				X				X			X								
SUBSTRATE PARTICLE SIZE	D																									X							O		O			O								X		X			X									
SEDIMENTATION	I													X									X			X		O		O		O	O		O			O			X						O	X												
SEDIMENTATION	D														X											X	O		O		O									X									X											
SEDIMENT CHEMISTRY													X	X	X												X	X	X	X	X	X	X		X			X																						
FAUNAL ABUNDANCE	I													O		O											O		X		O																													
FAUNAL ABUNDANCE	D																											O		O		O																												
FAUNAL REPRODUCTIVE POTENTIAL	I																										X				X																													
FAUNAL REPRODUCTIVE POTENTIAL	D																											X				X																												
FAUNAL DIVERSITY	I																										X		X		O																													
FAUNAL DIVERSITY	D																										O	X	O	X		O																												
FLORAL ABUNDANCE	I														X									X		X	X		X		X				X			X		X					X				X			X				X				
FLORAL ABUNDANCE	D																																																											
FLORAL DIVERSITY	I																										X		X		O		X					X														X								
FLORAL DIVERSITY	D																																																											
SUNLIGHT PENETRATION	D																																																											
PRIMARY PRODUCTIVITY	I														X											X	X		X		X		X		X																									
PRIMARY PRODUCTIVITY	D																																																											
SOIL ASSIMILATIVE CAPACITY	I														X											X																										X								
SOIL ASSIMILATIVE CAPACITY	D												O	O		O										X																																		
BATHYMETRY VARIABILITY	I																																																											
WATER DEPTH	I																																																											
WATER DEPTH	D																																																											
SHORE PROTECTION CAPACITY	I																										X		X		X		X		X			X							X							X		X		X	X			
SHORE PROTECTION CAPACITY	D																											X		X		X														X					X		X		X		X			
SHORELINE CHANGES																								X	X		X	X	X	X	X	X	X		X			X							X	X	O	X	X		X	X	X	X	X	X	X			
LITTORAL DRIFT	I																																												O		X	X				O								
LITTORAL DRIFT	D																																													O	X		X		O									
RUNOFF	I														O																																				O						O			
EROSION/SCOURING	I														X										X			X		X		X														X	X	X			X									
EROSION/SCOURING	D																							X			O		O		O		X		X			X							X				X			X								
FLOOD FREQUENCY	I																							X				X		X		X														X	X				X		X				X			
FLOOD FREQUENCY	D																								X		X		X		X		O		O			O							X							X		X			X			
FLOOD INTENSITY	I														X									X				X		X		X														X	X				X						X			
FLOOD INTENSITY	D																								X		X		X		X		O		O			O							X							X				X	X			
FLOW REGIME				X	X	X							X	X	X	X				X																									X	X	X	X	X		X	X	X	X	X	X	X			
CIRCULATION/MIXING	I																																																											
CIRCULATION/MIXING	D																																																											
NOISE																												X		X		X																												

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

TIDAL WETLANDS

INTRA-TYPE ENVIRONMENTAL CHANGE LINKAGES

→ PRIMARY ENVIRONMENTAL CHANGES

↑ SECONDARY ENVIRONMENTAL CHANGES

	ENVIRONMENTAL CHANGES	AQUIFER RECHARGE	AQUIFER RECHARGE	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE	GROUNDWATER SALINITY	SURFACE WATER SALINITY	SURFACE WATER SALINITY	WATER TEMPERATURE	WATER TEMPERATURE	SUSPENDED SOLIDS	SUSPENDED SOLIDS	TOXIC SUBSTANCES	NUTRIENTS	NUTRIENTS	PATHOGENS	pH	pH	DISSOLVED OXYGEN	DISSOLVED SOLIDS	DISSOLVED SOLIDS	SUBSTRATE PARTICLE SIZE	SUBSTRATE PARTICLE SIZE	SEDIMENTATION	SEDIMENTATION	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE	FAUNAL ABUNDANCE	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL DIVERSITY	FAUNAL DIVERSITY	FLORAL ABUNDANCE	FLORAL ABUNDANCE	FLORAL DIVERSITY	FLORAL DIVERSITY	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY	PRIMARY PRODUCTIVITY	SOIL ASSIMILATIVE CAPACITY	SOIL ASSIMILATIVE CAPACITY	BATHYMETRY VARIABILITY	WATER DEPTH	WATER DEPTH	SHORE PROTECTION CAPACITY	SHORE PROTECTION CAPACITY	SHORELINE CHANGES	LITTORAL DRIFT	LITTORAL DRIFT	RUNOFF	EROSION/SCOURING	EROSION/SCOURING	FLOOD FREQUENCY	FLOOD FREQUENCY	FLOOD INTENSITY	FLOOD INTENSITY	FLOW REGIME	CIRCULATION/MIXING	CIRCULATION/MIXING	NOISE
		I	D	I	D	I	I	D	I	D	I	D	I	I	D	I	I	D	D	I	D	I	D	I	D		I	D	I	D	I	D	I	D	I	D	D	I	D	I	D	I	I	D	I	D		I	D	I	I	D	I	D	I	D		I	D	
AQUIFER RECHARGE	I	O				X														X	X																																				X			
AQUIFER RECHARGE	D		O																																																						X			
GROUNDWATER DISCHARGE	I			X																													O	O	O	O		O	O																			X			
GROUNDWATER DISCHARGE	D				X																																																				X			
GROUNDWATER SALINITY	I					X														X						O		O		O		O		O		O			O																					
SURFACE WATER SALINITY	I																																																										
SURFACE WATER SALINITY	D																																																										
WATER TEMPERATURE	I																																																										
WATER TEMPERATURE	D																																																										
SUSPENDED SOLIDS	I																																																										
SUSPENDED SOLIDS	D																																																										
TOXIC SUBSTANCES	I												X													X		X		X		X		X		X			X													O									
NUTRIENTS	I												X	X												X							X		X			X																						
NUTRIENTS	D																									X								X		X			X																					
PATHOGENS	I															X												O		O		O																												
pH	I																																																										
pH	D																																																										
DISSOLVED OXYGEN	D																																																										
DISSOLVED SOLIDS	I					X														X						X		O		O		O		O		O			O																					
DISSOLVED SOLIDS	D																																																										
SUBSTRATE PARTICLE SIZE	I																									X	X	O	X	O	X	O		O		O			O		X				X				X			X								
SUBSTRATE PARTICLE SIZE	D																									X							X		X			O								X		X			X									
SEDIMENTATION	I													X									X	X		X		O		O		O	O	O	O	O		O	O		X						X	X												
SEDIMENTATION	D														X										X	X	O		O	O	O									X								X											
SEDIMENT CHEMISTRY												X	X	X													X	X	X	X	X	X	X	X	X	X		X	X																					
FAUNAL ABUNDANCE	I													O		O											O		X	O	O	O		O		O			O																					
FAUNAL ABUNDANCE	D																											O		O		O																												
FAUNAL REPRODUCTIVE POTENTIAL	I																										X				X																													
FAUNAL REPRODUCTIVE POTENTIAL	D																											X				X																												
FAUNAL DIVERSITY	I																										X		X		O																													
FAUNAL DIVERSITY	D																										O	X	O	X		O																												
FLORAL ABUNDANCE	I	O													O									X		X	X	O	X	O	X	O	X		O	X		X		X					X				X			X				X	X			
FLORAL ABUNDANCE	D		X											X											X	X		X		X		X		X	O	O			X		X					X		X		X	X				X		X			
FLORAL DIVERSITY	I																										X		X		X		O	O	O			O	O													O								
FLORAL DIVERSITY	D																											X		X		X	X	O		O		O	O																					
SUNLIGHT PENETRATION	D																																																											
PRIMARY PRODUCTIVITY	I														X											X	X	O	X	O	X	X	X		O	O		X																						
PRIMARY PRODUCTIVITY	D													X												X		X		X		X		X	O	O			X																					
SOIL ASSIMILATIVE CAPACITY	I	O													X											X														X													X					X			
SOIL ASSIMILATIVE CAPACITY	D		O										X	X		X				X						X															X									X											
BATHYMETRY VARIABILITY	I																																																										
WATER DEPTH	I																																																										
WATER DEPTH	D																																																										
SHORE PROTECTION CAPACITY	I																										X		X		X		X		O			X							X								X		X		X	X			
SHORE PROTECTION CAPACITY	D																											X		X		X		X		X			X								X						X		X		X		X			
SHORELINE CHANGES																								O	X		O	O	X	X	O	O	O	X	O	X		O	O						O	O	X	X	O		O	O	X	X	O	O	O			
LITTORAL DRIFT	I																																												O		X	O				X								
LITTORAL DRIFT	D																																													O	X		O		X									
RUNOFF	I		X												X																																				X						X			
EROSION/SCOURING	I														X										X			X		X		X		X		X			X	O	O					X	X	X		X	X									
EROSION/SCOURING	D																							X			O		O		O		X		X			X		X	O				X				X			O								
FLOOD FREQUENCY	I	O				O														O					X				X		X		X		O		O			X							X	X				X		X				X			
FLOOD FREQUENCY	D		O																							X		X		X		X		O		O			O						X							X					X			
FLOOD INTENSITY	I					X									X					X					X				X		X		X		X		X			X							X	X				X				X		X			
FLOOD INTENSITY	D																								X		X		X		X		O		O			O						X							X					X			
FLOW REGIME					X	X	X							X	X	X	X				X	X																																				X			
CIRCULATION/MIXING	I																																																										
CIRCULATION/MIXING	D																																																										
NOISE																												X		X		O																												

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

NONTIDAL FRESHWATER WETLANDS

INTRA-TYPE ENVIRONMENTAL CHANGE LINKAGES

→ PRIMARY ENVIRONMENTAL CHANGES ; ↑ SECONDARY ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES	SECONDARY ENVIRONMENTAL CHANGES	AQUIFER RECHARGE	AQUIFER RECHARGE	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE	GROUNDWATER SALINITY	SURFACE WATER SALINITY	SURFACE WATER SALINITY	WATER TEMPERATURE	WATER TEMPERATURE	SUSPENDED SOLIDS	SUSPENDED SOLIDS	TOXIC SUBSTANCES	NUTRIENTS	NUTRIENTS	PATHOGENS	pH	pH	DISSOLVED OXYGEN	DISSOLVED SOLIDS	DISSOLVED SOLIDS
AQUIFER RECHARGE	I	O																			O
AQUIFER RECHARGE	D		O																		
GROUNDWATER DISCHARGE	I			O																	
GROUNDWATER DISCHARGE	D				O																
GROUNDWATER SALINITY	I					O														O	
SURFACE WATER SALINITY	I																				
SURFACE WATER SALINITY	D																				
WATER TEMPERATURE	I																				
WATER TEMPERATURE	D																				
SUSPENDED SOLIDS	I																				
SUSPENDED SOLIDS	D																				
TOXIC SUBSTANCES	I												O								
NUTRIENTS	I												V	O							
NUTRIENTS	D																				
PATHOGENS	I															O					
pH	I																				
pH	D																				
DISSOLVED OXYGEN	I																				
DISSOLVED SOLIDS	I					O														O	
DISSOLVED SOLIDS	D																				
SUBSTRATE PARTICLE SIZE	I																				
SUBSTRATE PARTICLE SIZE	D																				
SEDIMENTATION	I													O							
SEDIMENTATION	D														O						
SEDIMENT CHEMISTRY													O	O	O						
FAUNAL ABUNDANCE	I													O		O					
FAUNAL ABUNDANCE	D																				
FAUNAL REPRODUCTIVE POTENTIAL	I																				
FAUNAL REPRODUCTIVE POTENTIAL	D																				
FAUNAL DIVERSITY	I																				
FAUNAL DIVERSITY	D																				
FLORAL ABUNDANCE	I	O													O						
FLORAL ABUNDANCE	D		O											O							
FLORAL DIVERSITY	I																				
FLORAL DIVERSITY	D																				
SUNLIGHT PENETRATION	D																				
PRIMARY PRODUCTIVITY	I														O						
PRIMARY PRODUCTIVITY	D													O							
SOIL ASSIMILATIVE CAPACITY	I	O													O						
SOIL ASSIMILATIVE CAPACITY	D		O										O	O		O					
BATHYMETRY VARIABILITY	I																				
WATER DEPTH	I																				
WATER DEPTH	D																				
SHORE PROTECTION CAPACITY	I																				
SHORE PROTECTION CAPACITY	D																				
SHORELINE CHANGES																					
LITTORAL DRIFT	I																				
LITTORAL DRIFT	D																				
RUNOFF	I		O												O						
EROSION/SCOURING	I														O						
EROSION/SCOURING	D																				
FLOOD FREQUENCY	I	V																			
FLOOD FREQUENCY	D		O																		
FLOOD INTENSITY	I														O						
FLOOD INTENSITY	D																				
FLOW REGIME				O	O	O							O	O	O	O				O	O
CIRCULATION/MIXING	I																				
CIRCULATION/MIXING	D																				
NOISE																					

PRIMARY ENVIRONMENTAL CHANGES	SUBSTRATE PARTICLE SIZE	SUBSTRATE PARTICLE SIZE	SEDIMENTATION	SEDIMENTATION	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE	FAUNAL ABUNDANCE	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL DIVERSITY	FAUNAL DIVERSITY	FLORAL ABUNDANCE	FLORAL ABUNDANCE	FLORAL DIVERSITY	FLORAL DIVERSITY	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY	PRIMARY PRODUCTIVITY	SOIL ASSIMILATIVE CAPACITY	SOIL ASSIMILATIVE CAPACITY
AQUIFER RECHARGE																				
AQUIFER RECHARGE																				
GROUNDWATER DISCHARGE												O	O	O	O		O	O		
GROUNDWATER DISCHARGE																				
GROUNDWATER SALINITY					O		O		O		O		O		O			O		
SURFACE WATER SALINITY																				
SURFACE WATER SALINITY																				
WATER TEMPERATURE																				
WATER TEMPERATURE																				
SUSPENDED SOLIDS																				
SUSPENDED SOLIDS																				
TOXIC SUBSTANCES					O		O		O		O		O		O			O		O
NUTRIENTS					O							O	O	O	O		O	O		
NUTRIENTS					O								O		O			O		
PATHOGENS							O		O		O									
pH																				
pH																				
DISSOLVED OXYGEN																				
DISSOLVED SOLIDS					O		X		X		X		O		O			O		
DISSOLVED SOLIDS					O							O		O			O			
SUBSTRATE PARTICLE SIZE					O		O		O		O		O		O			O		O
SUBSTRATE PARTICLE SIZE					O							O		O			O			
SEDIMENTATION		O	O		O		O		O		O	O	O	O	O		O	O		O
SEDIMENTATION				O	O	O		O		O									O	
SEDIMENT CHEMISTRY						O	O	O	O	O	O	O	O	O	O		O	O		
FAUNAL ABUNDANCE						O		O	O	O	O		O		O			O		
FAUNAL ABUNDANCE							O		O		O									
FAUNAL REPRODUCTIVE POTENTIAL						O				O										
FAUNAL REPRODUCTIVE POTENTIAL							O				O									
FAUNAL DIVERSITY						O		O		O										
FAUNAL DIVERSITY						O	O	O	O		O									
FLORAL ABUNDANCE			O		O	O		O		O		O		O	O		O		O	
FLORAL ABUNDANCE				O	O		O		O		O		O	O	O			O		O
FLORAL DIVERSITY						O		O		O		O		O			O			
FLORAL DIVERSITY							O		O		O	O	O		O		O	O		
SUNLIGHT PENETRATION																				
PRIMARY PRODUCTIVITY					O	O		O		O		O		O	O		O			
PRIMARY PRODUCTIVITY					O		O		O		O		O	O	O			O		
SOIL ASSIMILATIVE CAPACITY					O														O	
SOIL ASSIMILATIVE CAPACITY					O															O
BATHYMETRY VARIABILITY																				
WATER DEPTH																				
WATER DEPTH																				
SHORE PROTECTION CAPACITY						O		O		O		O		O			O			
SHORE PROTECTION CAPACITY							O		O		O		O		O			O		
SHORELINE CHANGES			O	O		O	O	O	O	O	O	O	O	O	O		O	O		
LITTORAL DRIFT																				
LITTORAL DRIFT																				
RUNOFF	O																			
EROSION/SCOURING				O			O		O		O		O		O			O	O	O
EROSION/SCOURING			O			O		O		O		O		O			O		O	O
FLOOD FREQUENCY			O				O		O		O	O	O	O	O		O	O		
FLOOD FREQUENCY				O		O		O		O		O	O	O	O		O	O		
FLOOD INTENSITY			O				O		O		O		O		O			O		
FLOOD INTENSITY				O		O		O		O		O		O			O			
FLOW REGIME																				
CIRCULATION/MIXING																				
CIRCULATION/MIXING																				
NOISE							O		O		O									

PRIMARY ENVIRONMENTAL CHANGES	BATHYMETRY VARIABILITY	WATER DEPTH	WATER DEPTH	SHORE PROTECTION CAPACITY	SHORE PROTECTION CAPACITY	SHORELINE CHANGES	LITTORAL DRIFT	LITTORAL DRIFT	RUNOFF	EROSION/SCOURING	EROSION/SCOURING	FLOOD FREQUENCY	FLOOD FREQUENCY	FLOOD INTENSITY	FLOOD INTENSITY	FLOW REGIME	CIRCULATION/MIXING	CIRCULATION/MIXING	NOISE
AQUIFER RECHARGE																O			
AQUIFER RECHARGE																O			
GROUNDWATER DISCHARGE																O			
GROUNDWATER DISCHARGE																O			
GROUNDWATER SALINITY																			
SURFACE WATER SALINITY																			
SURFACE WATER SALINITY																			
WATER TEMPERATURE																			
WATER TEMPERATURE																			
SUSPENDED SOLIDS																			
SUSPENDED SOLIDS																			
TOXIC SUBSTANCES										O									
NUTRIENTS																			
NUTRIENTS																			
PATHOGENS																			
pH																			
pH																			
DISSOLVED OXYGEN																			
DISSOLVED SOLIDS																			
DISSOLVED SOLIDS																			
SUBSTRATE PARTICLE SIZE				O							O								
SUBSTRATE PARTICLE SIZE					O					O									
SEDIMENTATION						O													
SEDIMENTATION																			
SEDIMENT CHEMISTRY																			
FAUNAL ABUNDANCE																			
FAUNAL ABUNDANCE																			
FAUNAL REPRODUCTIVE POTENTIAL																			
FAUNAL REPRODUCTIVE POTENTIAL																			
FAUNAL DIVERSITY																			
FAUNAL DIVERSITY																			
FLORAL ABUNDANCE				O							O				O	O			
FLORAL ABUNDANCE					O				O	O				O		O			
FLORAL DIVERSITY											O					O			
FLORAL DIVERSITY																			
SUNLIGHT PENETRATION																			
PRIMARY PRODUCTIVITY																			
PRIMARY PRODUCTIVITY																			
SOIL ASSIMILATIVE CAPACITY											O					O			
SOIL ASSIMILATIVE CAPACITY									O										
BATHYMETRY VARIABILITY																			
WATER DEPTH																			
WATER DEPTH																			
SHORE PROTECTION CAPACITY				O							O		O		O	O			
SHORE PROTECTION CAPACITY					O				O	O		O		O		O			
SHORELINE CHANGES				O	O	O				O	O	O	O	O	O	O			
LITTORAL DRIFT																			
LITTORAL DRIFT																			
RUNOFF									O	O		O		O		O			
EROSION/SCOURING					O	O			O	O									
EROSION/SCOURING				X							O								
FLOOD FREQUENCY					O	O				O		O				O			
FLOOD FREQUENCY				O							O					O			
FLOOD INTENSITY					O	O				O				O		O			
FLOOD INTENSITY				O							O					O			
FLOW REGIME				O	O	O				O	O	O	O	O	O	O			
CIRCULATION/MIXING																			
CIRCULATION/MIXING																			
NOISE																			

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

WETLAND FOREST

INTRA-TYPE ENVIRONMENTAL CHANGE LINKAGES

→ PRIMARY ENVIRONMENTAL CHANGES / SECONDARY ENVIRONMENTAL CHANGES ↑

PRIMARY ENVIRONMENTAL CHANGES	ENVIRONMENTAL CHANGES	AQUIFER RECHARGE (I)	AQUIFER RECHARGE (D)	GROUNDWATER DISCHARGE (I)	GROUNDWATER DISCHARGE (D)	GROUNDWATER SALINITY (I)	SURFACE WATER SALINITY (I)	SURFACE WATER SALINITY (D)	WATER TEMPERATURE (I)	WATER TEMPERATURE (D)	SUSPENDED SOLIDS (I)	SUSPENDED SOLIDS (D)	TOXIC SUBSTANCES (I)	NUTRIENTS (I)	NUTRIENTS (D)	PATHOGENS (I)	pH (I)	pH (D)	DISSOLVED OXYGEN (D)	DISSOLVED SOLIDS (I)	DISSOLVED SOLIDS (D)	SUBSTRATE PARTICLE SIZE (I)	SUBSTRATE PARTICLE SIZE (D)	SEDIMENTATION (I)	SEDIMENTATION (D)	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE (I)	FAUNAL ABUNDANCE (D)	FAUNAL REPRODUCTIVE POTENTIAL (I)	FAUNAL REPRODUCTIVE POTENTIAL (D)	FAUNAL DIVERSITY (I)	FAUNAL DIVERSITY (D)	FLORAL ABUNDANCE (I)	FLORAL ABUNDANCE (D)	FLORAL DIVERSITY (I)	FLORAL DIVERSITY (D)	SUNLIGHT PENETRATION (D)	PRIMARY PRODUCTIVITY (I)	PRIMARY PRODUCTIVITY (D)	SOIL ASSIMILATIVE CAPACITY (I)	SOIL ASSIMILATIVE CAPACITY (D)	BATHYMETRY VARIABILITY (I)	WATER DEPTH (I)	WATER DEPTH (D)	SHORE PROTECTION CAPACITY (I)	SHORE PROTECTION CAPACITY (D)	SHORELINE CHANGES	LITTORAL DRIFT (I)	LITTORAL DRIFT (D)	RUNOFF (I)	EROSION/SCOURING (I)	EROSION/SCOURING (D)	FLOOD FREQUENCY (I)	FLOOD FREQUENCY (D)	FLOOD INTENSITY (I)	FLOOD INTENSITY (D)	FLOW REGIME	CIRCULATION/MIXING (I)	CIRCULATION/MIXING (D)	NOISE
AQUIFER RECHARGE	I	O																			O																																				I			
AQUIFER RECHARGE	D		O																																																						O			
GROUNDWATER DISCHARGE	I			O																													O	O	O	O		O	O																		O			
GROUNDWATER DISCHARGE	D				O																																																				O			
GROUNDWATER SALINITY	I					O														O						O		O		O		O		O		O			O																					
SURFACE WATER SALINITY	I																																																											
SURFACE WATER SALINITY	D																																																											
WATER TEMPERATURE	I																																																											
WATER TEMPERATURE	D																																																											
SUSPENDED SOLIDS	I																																																											
SUSPENDED SOLIDS	D																																																											
TOXIC SUBSTANCES	I												O													O		O		O		O		O		O			O		O																			
NUTRIENTS	I												O	O												O							O	O	O	O		O	O																					
NUTRIENTS	D																																	O		O			O																					
PATHOGENS	I															O												O		O		O																												
pH	I																																																											
pH	D																																																											
DISSOLVED OXYGEN	D																																																											
DISSOLVED SOLIDS	I																			O						O		O		O		O		O		O			O																					
DISSOLVED SOLIDS	D																																O		O			O																						
SUBSTRATE PARTICLE SIZE	I																									O								O		O			O		O				O							O								
SUBSTRATE PARTICLE SIZE	D																									O							O		O			O								O					O									
SEDIMENTATION	I													O									O			O							O	O	O	O		O	O		O																			
SEDIMENTATION	D														O											O																																		
SEDIMENT CHEMISTRY													O	O	O																			O		O			O																					
FAUNAL ABUNDANCE	I													O		O											O		O	O	O	O		O		O			O																					
FAUNAL ABUNDANCE	D																											O		O		O																												
FAUNAL REPRODUCTIVE POTENTIAL	I																										O				O																													
FAUNAL REPRODUCTIVE POTENTIAL	D																											O				O																												
FAUNAL DIVERSITY	I																										O		O		O																													
FAUNAL DIVERSITY	D																										O	O	O	O		O																												
FLORAL ABUNDANCE	I	O													O									O		O	O		O		O		V		O	O		O		O					O							O				O	O			
FLORAL ABUNDANCE	D		O																						O	O		O		O		O	V	O		O			O		O					O				X	O				O		O			
FLORAL DIVERSITY	I																										O		O		O		O					O																						
FLORAL DIVERSITY	D																											O		O		O	O	O				O	O																					
SUNLIGHT PENETRATION	D																																																											
PRIMARY PRODUCTIVITY	I														O											O	O		O		O		O		O	O																								
PRIMARY PRODUCTIVITY	D																									O		O		O		O		O	O	O																								
SOIL ASSIMILATIVE CAPACITY	I	O													O											O														O												O					O			
SOIL ASSIMILATIVE CAPACITY	D		O										O	O		O										O															O									O										
BATHYMETRY VARIABILITY	I																																																											
WATER DEPTH	I																																																											
WATER DEPTH	D																																																											
SHORE PROTECTION CAPACITY	I																										O		O		O		O		O			O													O		O		O	O			
SHORE PROTECTION CAPACITY	D																											O		O		O		O		O			O											O	O		O		O		X			
SHORELINE CHANGES																								O	O		O	O	O	O	O	O	O	O	O	O		O	O						O	O					O	O	O	O	O	O	O			
LITTORAL DRIFT	I																																																											
LITTORAL DRIFT	D																																																											
RUNOFF	I		O												O							O																												O	O		O		O		O			
EROSION/SCOURING	I														O										O			O		O		O		O		O			O	O	O					O	O			O	O									
EROSION/SCOURING	D																							O			O		O		O		O		O			O		O	O				O															
FLOOD FREQUENCY	I	O																						O				O		O		O	O	O	O	O		O	O							O	O				O		O				O			
FLOOD FREQUENCY	D		O																						O		O		O		O		O	O	O	O		O	O						O							O					O			
FLOOD INTENSITY	I														O									O				O		O		O		O		O			O							O	O				O				O		O			
FLOOD INTENSITY	D																								O		O		O		O		O		O			O							O							O					O			
FLOW REGIME				O	O	O							O	O	O	O				O	O																								O	O	O				O	O	O	O	O	O	O			
CIRCULATION/MIXING	I																																																											
CIRCULATION/MIXING	D																																																											
NOISE																												O		O		O																												

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

CENTRAL BARRIER ISLAND CORRIDOR

INTRA-TYPE ENVIRONMENTAL CHANGE LINKAGES

PRIMARY ENVIRONMENTAL CHANGES → | SECONDARY ENVIRONMENTAL CHANGES ↓

	AQUIFER RECHARGE	AQUIFER RECHARGE	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE	GROUNDWATER SALINITY	SURFACE WATER SALINITY	SURFACE WATER SALINITY	WATER TEMPERATURE	WATER TEMPERATURE	SUSPENDED SOLIDS	SUSPENDED SOLIDS	TOXIC SUBSTANCES	NUTRIENTS	NUTRIENTS	PATHOGENS	pH	pH	DISSOLVED OXYGEN	DISSOLVED SOLIDS	DISSOLVED SOLIDS	SUBSTRATE PARTICLE SIZE	SUBSTRATE PARTICLE SIZE	SEDIMENTATION	SEDIMENTATION	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE	FAUNAL ABUNDANCE	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL DIVERSITY	FAUNAL DIVERSITY	FLORAL ABUNDANCE	FLORAL ABUNDANCE	FLORAL DIVERSITY	FLORAL DIVERSITY	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY	PRIMARY PRODUCTIVITY	SOIL ASSIMILATIVE CAPACITY	SOIL ASSIMILATIVE CAPACITY	BATHYMETRY VARIABILITY	WATER DEPTH	WATER DEPTH	SHORE PROTECTION CAPACITY	SHORE PROTECTION CAPACITY	SHORELINE CHANGES	LITTORAL DRIFT	LITTORAL DRIFT	RUNOFF	EROSION/SCOURING	EROSION/SCOURING	FLOOD FREQUENCY	FLOOD FREQUENCY	FLOOD INTENSITY	FLOOD INTENSITY	FLOW REGIME	CIRCULATION/MIXING	CIRCULATION/MIXING	NOISE
AQUIFER RECHARGE	I	X			X															X	X												X		X				X																							X			
AQUIFER RECHARGE	D		X																																D		D				D																				D			
GROUNDWATER DISCHARGE	I			D																															D		D				D																				D			
GROUNDWATER DISCHARGE	D				D																														D		D				D																				D			
GROUNDWATER SALINITY	I					D														D							D		D		D		D		D				D																									
SURFACE WATER SALINITY	I																																																													
SURFACE WATER SALINITY	D																																																													
WATER TEMPERATURE	I																																																													
WATER TEMPERATURE	D																																																													
SUSPENDED SOLIDS	I																																																													
SUSPENDED SOLIDS	D																																																													
TOXIC SUBSTANCES	I											X															X		X		X		X		X				X																									
NUTRIENTS	I											X	X														X		X				X	X	X		X		X																									
NUTRIENTS	D																																X		X				X																									
PATHOGENS	I														X												X		X		X																																	
pH	I																																																													
pH	D																																																													
DISSOLVED OXYGEN	D																																																													
DISSOLVED SOLIDS	I					X														X							X		X		X		X		X				X																									
DISSOLVED SOLIDS	D																				X					X						X		X				X																									
SUBSTRATE PARTICLE SIZE	I																																																													
SUBSTRATE PARTICLE SIZE	D																																																													
SEDIMENTATION	I																																																													
SEDIMENTATION	D																																																													
SEDIMENT CHEMISTRY	I																																																													
FAUNAL ABUNDANCE	I																												X		X								X																									
FAUNAL ABUNDANCE	D																													X		X																															
FAUNAL REPRODUCTIVE POTENTIAL	I																									X					X																															
FAUNAL REPRODUCTIVE POTENTIAL	D																										X					X																															
FAUNAL DIVERSITY	I																									X		X																																			
FAUNAL DIVERSITY	D																									X	X	X	X																																		
FLORAL ABUNDANCE	I	O													O											X		X		X		X		X				X		X															X		X		X	X			
FLORAL ABUNDANCE	D																										X		X		X		X		X				X		X													X		X							
FLORAL DIVERSITY	I																									X		X		X		X	X						X	X																							
FLORAL DIVERSITY	D																										X		X		X	X	X						X	X																							
SUNLIGHT PENETRATION	D																																																													
PRIMARY PRODUCTIVITY	I														O											X		X		X		X		X	O	O		X																									
PRIMARY PRODUCTIVITY	D																										X		X		X		X	X	X																												
SOIL ASSIMILATIVE CAPACITY	I	X													X						X																			X															X		X		X	X			
SOIL ASSIMILATIVE CAPACITY	D		X										X	X		X				X																					X												X										
BATHYMETRY VARIABILITY	I																																																													
WATER DEPTH	I																																																													
WATER DEPTH	D																																																													
SHORE PROTECTION CAPACITY	I																																																													
SHORE PROTECTION CAPACITY	D																																																													
SHORELINE CHANGES	I																																																													
LITTORAL DRIFT	I																																																													
LITTORAL DRIFT	D																																																													
RUNOFF	I		X												O																																																
EROSION/SCOURING	I														O												X		X		X		X		X				X		X																						
EROSION/SCOURING	D																									X		X		X		X		X				X		X																						
FLOOD FREQUENCY	I	X				X														X							X		X		X		X		X				X		X																						
FLOOD FREQUENCY	D		X																							X		X		X		X		X				X		X																						
FLOOD INTENSITY	I					X														X							X		X		X		X		X				X		X																						
FLOOD INTENSITY	D																									X		X		X		X		X				X		X																						
FLOW REGIME				X	X	X							X	X	X	X				X												X	X	X	X		X	X	X	X																						
CIRCULATION/MIXING	I																																																													
CIRCULATION/MIXING	D																																																													
NOISE																													X		X		X																																X

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

LOWLAND COARSE SOILS

INTRA-TYPE ENVIRONMENTAL CHANGE LINKAGES

→ PRIMARY ENVIRONMENTAL CHANGES / ↑ SECONDARY ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES		AQUIFER RECHARGE (I)	AQUIFER RECHARGE (D)	GROUNDWATER DISCHARGE (I)	GROUNDWATER DISCHARGE (D)	GROUNDWATER SALINITY	SURFACE WATER SALINITY (I)	SURFACE WATER SALINITY (D)	WATER TEMPERATURE (I)	WATER TEMPERATURE (D)	SUSPENDED SOLIDS (I)	SUSPENDED SOLIDS (D)	TOXIC SUBSTANCES	NUTRIENTS (I)	NUTRIENTS (D)	PATHOGENS	pH (I)	pH (D)	DISSOLVED OXYGEN	DISSOLVED SOLIDS (I)	DISSOLVED SOLIDS (D)	SUBSTRATE PARTICLE SIZE (I)	SUBSTRATE PARTICLE SIZE (D)	SEDIMENTATION (I)	SEDIMENTATION (D)	SEDIMENT CHEMISTRY
AQUIFER RECHARGE	I	X																		X	O					
AQUIFER RECHARGE	D		X																							
GROUNDWATER DISCHARGE	I			X																						
GROUNDWATER DISCHARGE	D				X																					
GROUNDWATER SALINITY	I					X														X						
SURFACE WATER SALINITY	I																									
SURFACE WATER SALINITY	D																									
WATER TEMPERATURE	I																									
WATER TEMPERATURE	D																									
SUSPENDED SOLIDS	I																									
SUSPENDED SOLIDS	D																									
TOXIC SUBSTANCES	I												X													
NUTRIENTS	I												V	X												
NUTRIENTS	D																									
PATHOGENS	I															X										
pH	I																									
pH	D																									
DISSOLVED OXYGEN	D																									
DISSOLVED SOLIDS	I					X														X						
DISSOLVED SOLIDS	D																				X					
SUBSTRATE PARTICLE SIZE	I																									
SUBSTRATE PARTICLE SIZE	D																									
SEDIMENTATION	I																									
SEDIMENTATION	D																									
SEDIMENT CHEMISTRY																										
FAUNAL ABUNDANCE	I													O		O										
FAUNAL ABUNDANCE	D																									
FAUNAL REPRODUCTIVE POTENTIAL	I																									
FAUNAL REPRODUCTIVE POTENTIAL	D																									
FAUNAL DIVERSITY	I																									
FAUNAL DIVERSITY	D																									
FLORAL ABUNDANCE	I	O													O											
FLORAL ABUNDANCE	D																									
FLORAL DIVERSITY	I																									
FLORAL DIVERSITY	D																									
SUNLIGHT PENETRATION	D																									
PRIMARY PRODUCTIVITY	I														O											
PRIMARY PRODUCTIVITY	D																									
SOIL ASSIMILATIVE CAPACITY	I	X													X						X					
SOIL ASSIMILATIVE CAPACITY	D		X										X	X		X				X						
BATHYMETRY VARIABILITY	I																									
WATER DEPTH	I																									
WATER DEPTH	D																									
SHORE PROTECTION CAPACITY	I																									
SHORE PROTECTION CAPACITY	D																									
SHORELINE CHANGES																										
LITTORAL DRIFT	I																									
LITTORAL DRIFT	D																									
RUNOFF	I		X												O											
EROSION/SCOURING	I														O											
EROSION/SCOURING	D																									
FLOOD FREQUENCY	I	X				V																				
FLOOD FREQUENCY	D		X																							
FLOOD INTENSITY	I					V																				
FLOOD INTENSITY	D																									
FLOW REGIME				X	X	X							X	X	X	X				O						
CIRCULATION/MIXING	I																									
CIRCULATION/MIXING	D																									
NOISE																										

PRIMARY ENVIRONMENTAL CHANGES		FAUNAL ABUNDANCE (I)	FAUNAL ABUNDANCE (D)	FAUNAL REPRODUCTIVE POTENTIAL (I)	FAUNAL REPRODUCTIVE POTENTIAL (D)	FAUNAL DIVERSITY (I)	FAUNAL DIVERSITY (D)	FLORAL ABUNDANCE (I)	FLORAL ABUNDANCE (D)	FLORAL DIVERSITY (I)	FLORAL DIVERSITY (D)	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY (I)	PRIMARY PRODUCTIVITY (D)	SOIL ASSIMILATIVE CAPACITY (I)	SOIL ASSIMILATIVE CAPACITY (D)	BATHYMETRY VARIABILITY	WATER DEPTH (I)	WATER DEPTH (D)	SHORE PROTECTION CAPACITY (I)	SHORE PROTECTION CAPACITY (D)	SHORELINE CHANGES	LITTORAL DRIFT (I)	LITTORAL DRIFT (D)	RUNOFF	EROSION/SCOURING (I)	EROSION/SCOURING (D)	FLOOD FREQUENCY (I)	FLOOD FREQUENCY (D)	FLOOD INTENSITY (I)	FLOOD INTENSITY (D)	FLOW REGIME	CIRCULATION/MIXING (I)	CIRCULATION/MIXING (D)	NOISE
AQUIFER RECHARGE	I							O		O			O																			X			
AQUIFER RECHARGE	D								O		O			O																		X			
GROUNDWATER DISCHARGE	I								O		O			O																		X			
GROUNDWATER DISCHARGE	D							O		O			O																			X			
GROUNDWATER SALINITY	I		O		O		O		X		X			X																					
SURFACE WATER SALINITY	I																																		
SURFACE WATER SALINITY	D																																		
WATER TEMPERATURE	I																																		
WATER TEMPERATURE	D																																		
SUSPENDED SOLIDS	I																																		
SUSPENDED SOLIDS	D																																		
TOXIC SUBSTANCES	I		X		X		X	O	X		X		O	X																					
NUTRIENTS	I		O		O			O	O	O	O		O	O																					
NUTRIENTS	D								O		O			O																					
PATHOGENS	I		X		X		X																												
pH	I																																		
pH	D																																		
DISSOLVED OXYGEN	D																																		
DISSOLVED SOLIDS	I		O		O		O		X		X			X																					
DISSOLVED SOLIDS	D	O						X		X			X																						
SUBSTRATE PARTICLE SIZE	I																																		
SUBSTRATE PARTICLE SIZE	D																																		
SEDIMENTATION	I																																		
SEDIMENTATION	D																																		
SEDIMENT CHEMISTRY																																			
FAUNAL ABUNDANCE	I	O		O	O	O	O		O					O																					
FAUNAL ABUNDANCE	D			O	O	O	O																												
FAUNAL REPRODUCTIVE POTENTIAL	I	X				O																													
FAUNAL REPRODUCTIVE POTENTIAL	D		X				X																												
FAUNAL DIVERSITY	I	O		O																															
FAUNAL DIVERSITY	D	O	X	O	X																														
FLORAL ABUNDANCE	I	X		X		X	O	O		O	O		X		X												X		O		O	X			
FLORAL ABUNDANCE	D		X		X		X		O	O	O			X		X									X										
FLORAL DIVERSITY	I	X		X		X		O	O				O	O													O		O		O	O			
FLORAL DIVERSITY	D		X		X		X	O	O				O	O																					
SUNLIGHT PENETRATION	D																																		
PRIMARY PRODUCTIVITY	I	X		X		X	O	X		O	O		O																						
PRIMARY PRODUCTIVITY	D		X		X		X		X	O	O																								
SOIL ASSIMILATIVE CAPACITY	I														O												O		O		O	O			
SOIL ASSIMILATIVE CAPACITY	D															X									X										
BATHYMETRY VARIABILITY	I																																		
WATER DEPTH	I																																		
WATER DEPTH	D																																		
SHORE PROTECTION CAPACITY	I																																		
SHORE PROTECTION CAPACITY	D																																		
SHORELINE CHANGES																																			
LITTORAL DRIFT	I																																		
LITTORAL DRIFT	D																																		
RUNOFF	I																								X	X		X		X		X			
EROSION/SCOURING	I		X		X		X		O		X			X		O										X									
EROSION/SCOURING	D	O		O		O		X		X			X		O												O								
FLOOD FREQUENCY	I		X		X		X		X		X			X		O										X		O							
FLOOD FREQUENCY	D	X		X		X		X		X			X		O												X		O						
FLOOD INTENSITY	I		X		X		X		X		X			X		X										X				X					
FLOOD INTENSITY	D	X		X		X		X		X			X		O												X				O				
FLOW REGIME								O	X	O	X		O	X	O	X												O	X	O	X	O			
CIRCULATION/MIXING	I																																		
CIRCULATION/MIXING	D																																		
NOISE			X		X		X																												

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

LOWLAND MEDIUM SOILS

INTRA-TYPE ENVIRONMENTAL CHANGE LINKAGES

SECONDARY ENVIRONMENTAL CHANGES →

PRIMARY ENVIRONMENTAL CHANGES ↓

PRIMARY ENVIRONMENTAL CHANGES	SECONDARY ENVIRONMENTAL CHANGES	AQUIFER RECHARGE	AQUIFER RECHARGE	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE	GROUNDWATER SALINITY	SURFACE WATER SALINITY	SURFACE WATER SALINITY	WATER TEMPERATURE	WATER TEMPERATURE	SUSPENDED SOLIDS
AQUIFER RECHARGE	I	X									
AQUIFER RECHARGE	D		X								
GROUNDWATER DISCHARGE	I			X							
GROUNDWATER DISCHARGE	D				X						
GROUNDWATER SALINITY	I					X					
SURFACE WATER SALINITY	I										
SURFACE WATER SALINITY	D										
WATER TEMPERATURE	I										
WATER TEMPERATURE	D										
SUSPENDED SOLIDS	I										
SUSPENDED SOLIDS	D										
TOXIC SUBSTANCES	I										
NUTRIENTS	I										
NUTRIENTS	D										
PATHOGENS	I										
pH	I										
pH	D										
DISSOLVED OXYGEN	D										
DISSOLVED SOLIDS	I					X					
DISSOLVED SOLIDS	D										
SUBSTRATE PARTICLE SIZE	I										
SUBSTRATE PARTICLE SIZE	D										
SEDIMENTATION	I										
SEDIMENTATION	D										
SEDIMENT CHEMISTRY											
FAUNAL ABUNDANCE	I										
FAUNAL ABUNDANCE	D										
FAUNAL REPRODUCTIVE POTENTIAL	I										
FAUNAL REPRODUCTIVE POTENTIAL	D										
FAUNAL DIVERSITY	I										
FAUNAL DIVERSITY	D										
FLORAL ABUNDANCE	I	O									
FLORAL ABUNDANCE	D										
FLORAL DIVERSITY	I										
FLORAL DIVERSITY	D										
SUNLIGHT PENETRATION	D										
PRIMARY PRODUCTIVITY	I										
PRIMARY PRODUCTIVITY	D										
SOIL ASSIMILATIVE CAPACITY	I	O									
SOIL ASSIMILATIVE CAPACITY	D		X								
BATHYMETRY VARIABILITY	I										
WATER DEPTH	I										
WATER DEPTH	D										
SHORE PROTECTION CAPACITY	I										
SHORE PROTECTION CAPACITY	D										
SHORELINE CHANGES											
LITTORAL DRIFT	I										
LITTORAL DRIFT	D										
RUNOFF	I		X								
EROSION/SCOURING	I										
EROSION/SCOURING	D										
FLOOD FREQUENCY	I	X				V					
FLOOD FREQUENCY	D		X								
FLOOD INTENSITY	I					V					
FLOOD INTENSITY	D										
FLOW REGIME				O	O	X					
CIRCULATION/MIXING	I										
CIRCULATION/MIXING	D										
NOISE											

PRIMARY ENVIRONMENTAL CHANGES	SECONDARY ENVIRONMENTAL CHANGES	SUSPENDED SOLIDS	TOXIC SUBSTANCES	NUTRIENTS	NUTRIENTS	PATHOGENS	pH	pH	DISSOLVED OXYGEN	DISSOLVED SOLIDS	DISSOLVED SOLIDS
AQUIFER RECHARGE	I									X	X
AQUIFER RECHARGE	D										
GROUNDWATER DISCHARGE	I										
GROUNDWATER DISCHARGE	D										
GROUNDWATER SALINITY	I									X	
SURFACE WATER SALINITY	I										
SURFACE WATER SALINITY	D										
WATER TEMPERATURE	I										
WATER TEMPERATURE	D										
SUSPENDED SOLIDS	I										
SUSPENDED SOLIDS	D										
TOXIC SUBSTANCES	I		X								
NUTRIENTS	I		V	X							
NUTRIENTS	D										
PATHOGENS	I					X					
pH	I										
pH	D										
DISSOLVED OXYGEN	D										
DISSOLVED SOLIDS	I									X	
DISSOLVED SOLIDS	D										X
SUBSTRATE PARTICLE SIZE	I										
SUBSTRATE PARTICLE SIZE	D										
SEDIMENTATION	I										
SEDIMENTATION	D										
SEDIMENT CHEMISTRY											
FAUNAL ABUNDANCE	I			O		O					
FAUNAL ABUNDANCE	D										
FAUNAL REPRODUCTIVE POTENTIAL	I										
FAUNAL REPRODUCTIVE POTENTIAL	D										
FAUNAL DIVERSITY	I										
FAUNAL DIVERSITY	D										
FLORAL ABUNDANCE	I				O						
FLORAL ABUNDANCE	D										
FLORAL DIVERSITY	I										
FLORAL DIVERSITY	D										
SUNLIGHT PENETRATION	D										
PRIMARY PRODUCTIVITY	I				O						
PRIMARY PRODUCTIVITY	D										
SOIL ASSIMILATIVE CAPACITY	I				O						X
SOIL ASSIMILATIVE CAPACITY	D		X	X		X				X	
BATHYMETRY VARIABILITY	I										
WATER DEPTH	I										
WATER DEPTH	D										
SHORE PROTECTION CAPACITY	I										
SHORE PROTECTION CAPACITY	D										
SHORELINE CHANGES											
LITTORAL DRIFT	I										
LITTORAL DRIFT	D										
RUNOFF	I				X						
EROSION/SCOURING	I				X						
EROSION/SCOURING	D										
FLOOD FREQUENCY	I										
FLOOD FREQUENCY	D										
FLOOD INTENSITY	I										
FLOOD INTENSITY	D										
FLOW REGIME			X	X	X	X				X	
CIRCULATION/MIXING	I										
CIRCULATION/MIXING	D										
NOISE											

PRIMARY ENVIRONMENTAL CHANGES	SECONDARY ENVIRONMENTAL CHANGES	SUBSTRATE PARTICLE SIZE	SUBSTRATE PARTICLE SIZE	SEDIMENTATION	SEDIMENTATION	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE	FAUNAL ABUNDANCE	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL DIVERSITY
AQUIFER RECHARGE	I										
AQUIFER RECHARGE	D										
GROUNDWATER DISCHARGE	I										
GROUNDWATER DISCHARGE	D										
GROUNDWATER SALINITY	I							O		O	
SURFACE WATER SALINITY	I										
SURFACE WATER SALINITY	D										
WATER TEMPERATURE	I										
WATER TEMPERATURE	D										
SUSPENDED SOLIDS	I										
SUSPENDED SOLIDS	D										
TOXIC SUBSTANCES	I							X		X	
NUTRIENTS	I							O		O	
NUTRIENTS	D										
PATHOGENS	I							O		O	
pH	I										
pH	D										
DISSOLVED OXYGEN	D										
DISSOLVED SOLIDS	I							O		O	
DISSOLVED SOLIDS	D						O				
SUBSTRATE PARTICLE SIZE	I										
SUBSTRATE PARTICLE SIZE	D										
SEDIMENTATION	I										
SEDIMENTATION	D										
SEDIMENT CHEMISTRY											
FAUNAL ABUNDANCE	I						O		O	O	O
FAUNAL ABUNDANCE	D								O	O	O
FAUNAL REPRODUCTIVE POTENTIAL	I						X				O
FAUNAL REPRODUCTIVE POTENTIAL	D							X			
FAUNAL DIVERSITY	I						O		O		
FAUNAL DIVERSITY	D						O	X	O	X	
FLORAL ABUNDANCE	I						X		X		X
FLORAL ABUNDANCE	D							X		X	
FLORAL DIVERSITY	I						X		X		X
FLORAL DIVERSITY	D							X		X	
SUNLIGHT PENETRATION	D										
PRIMARY PRODUCTIVITY	I						X		X		X
PRIMARY PRODUCTIVITY	D							X		X	
SOIL ASSIMILATIVE CAPACITY	I										
SOIL ASSIMILATIVE CAPACITY	D										
BATHYMETRY VARIABILITY	I										
WATER DEPTH	I										
WATER DEPTH	D										
SHORE PROTECTION CAPACITY	I										
SHORE PROTECTION CAPACITY	D										
SHORELINE CHANGES											
LITTORAL DRIFT	I										
LITTORAL DRIFT	D										
RUNOFF	I										
EROSION/SCOURING	I							X		O	
EROSION/SCOURING	D						O		O		O
FLOOD FREQUENCY	I							X		O	
FLOOD FREQUENCY	D						O		X		X
FLOOD INTENSITY	I							X		X	
FLOOD INTENSITY	D						X		X		X
FLOW REGIME											
CIRCULATION/MIXING	I										
CIRCULATION/MIXING	D										
NOISE								X		X	

PRIMARY ENVIRONMENTAL CHANGES	SECONDARY ENVIRONMENTAL CHANGES	FAUNAL DIVERSITY	FLORAL ABUNDANCE	FLORAL ABUNDANCE	FLORAL DIVERSITY	FLORAL DIVERSITY	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY	PRIMARY PRODUCTIVITY	SOIL ASSIMILATIVE CAPACITY	SOIL ASSIMILATIVE CAPACITY
AQUIFER RECHARGE	I		O		O			O			
AQUIFER RECHARGE	D			O		O			O		
GROUNDWATER DISCHARGE	I			O		O			O		
GROUNDWATER DISCHARGE	D		O		O			O			
GROUNDWATER SALINITY	I	O		X		X			X		
SURFACE WATER SALINITY	I										
SURFACE WATER SALINITY	D										
WATER TEMPERATURE	I										
WATER TEMPERATURE	D										
SUSPENDED SOLIDS	I										
SUSPENDED SOLIDS	D										
TOXIC SUBSTANCES	I	X	O	X		X		O	X		
NUTRIENTS	I		X	O	O	O		X	O		
NUTRIENTS	D			X		X			X		
PATHOGENS	I	O									
pH	I										
pH	D										
DISSOLVED OXYGEN	D										
DISSOLVED SOLIDS	I	O		X		X			X		
DISSOLVED SOLIDS	D		X		X			X			
SUBSTRATE PARTICLE SIZE	I										
SUBSTRATE PARTICLE SIZE	D										
SEDIMENTATION	I										
SEDIMENTATION	D										
SEDIMENT CHEMISTRY											
FAUNAL ABUNDANCE	I	O		O					O		
FAUNAL ABUNDANCE	D	O									
FAUNAL REPRODUCTIVE POTENTIAL	I										
FAUNAL REPRODUCTIVE POTENTIAL	D	X									
FAUNAL DIVERSITY	I										
FAUNAL DIVERSITY	D										
FLORAL ABUNDANCE	I	O	O		O	O		X		O	
FLORAL ABUNDANCE	D	X		O	O	O			O		X
FLORAL DIVERSITY	I		O	O				O	O		
FLORAL DIVERSITY	D	X	O	O				O	O		
SUNLIGHT PENETRATION	D										
PRIMARY PRODUCTIVITY	I	O	O		O	O		O			
PRIMARY PRODUCTIVITY	D	X		X	O	O					
SOIL ASSIMILATIVE CAPACITY	I									O	
SOIL ASSIMILATIVE CAPACITY	D										X
BATHYMETRY VARIABILITY	I										
WATER DEPTH	I										
WATER DEPTH	D										
SHORE PROTECTION CAPACITY	I										
SHORE PROTECTION CAPACITY	D										
SHORELINE CHANGES											
LITTORAL DRIFT	I										
LITTORAL DRIFT	D										
RUNOFF	I										
EROSION/SCOURING	I	O		X		X			O		O
EROSION/SCOURING	D		X		X			X		O	
FLOOD FREQUENCY	I	O		X		X			O		X
FLOOD FREQUENCY	D		O		O			X		O	
FLOOD INTENSITY	I	X		X		X			O		O
FLOOD INTENSITY	D		X		X			X		O	
FLOW REGIME			O	O	O	X		O	X	O	X
CIRCULATION/MIXING	I										
CIRCULATION/MIXING	D										
NOISE		X									

PRIMARY ENVIRONMENTAL CHANGES	SECONDARY ENVIRONMENTAL CHANGES	BATHYMETRY VARIABILITY	WATER DEPTH	WATER DEPTH	SHORE PROTECTION CAPACITY	SHORE PROTECTION CAPACITY	SHORELINE CHANGES	LITTORAL DRIFT	LITTORAL DRIFT	RUNOFF	EROSION/SCOURING
AQUIFER RECHARGE	I										
AQUIFER RECHARGE	D										
GROUNDWATER DISCHARGE	I										
GROUNDWATER DISCHARGE	D										
GROUNDWATER SALINITY	I										
SURFACE WATER SALINITY	I										
SURFACE WATER SALINITY	D										
WATER TEMPERATURE	I										
WATER TEMPERATURE	D										
SUSPENDED SOLIDS	I										
SUSPENDED SOLIDS	D										
TOXIC SUBSTANCES	I										
NUTRIENTS	I										
NUTRIENTS	D										
PATHOGENS	I										
pH	I										
pH	D										
DISSOLVED OXYGEN	D										
DISSOLVED SOLIDS	I										
DISSOLVED SOLIDS	D										
SUBSTRATE PARTICLE SIZE	I										
SUBSTRATE PARTICLE SIZE	D										
SEDIMENTATION	I										
SEDIMENTATION	D										
SEDIMENT CHEMISTRY											
FAUNAL ABUNDANCE	I										
FAUNAL ABUNDANCE	D										
FAUNAL REPRODUCTIVE POTENTIAL	I										
FAUNAL REPRODUCTIVE POTENTIAL	D										
FAUNAL DIVERSITY	I										
FAUNAL DIVERSITY	D										
FLORAL ABUNDANCE	I										
FLORAL ABUNDANCE	D									X	
FLORAL DIVERSITY	I										
FLORAL DIVERSITY	D										
SUNLIGHT PENETRATION	D										
PRIMARY PRODUCTIVITY	I										
PRIMARY PRODUCTIVITY	D										
SOIL ASSIMILATIVE CAPACITY	I										
SOIL ASSIMILATIVE CAPACITY	D									X	
BATHYMETRY VARIABILITY	I										
WATER DEPTH	I										
WATER DEPTH	D										
SHORE PROTECTION CAPACITY	I										
SHORE PROTECTION CAPACITY	D										
SHORELINE CHANGES											
LITTORAL DRIFT	I										
LITTORAL DRIFT	D										
RUNOFF	I									O	X
EROSION/SCOURING	I										X
EROSION/SCOURING	D										
FLOOD FREQUENCY	I										X
FLOOD FREQUENCY	D										
FLOOD INTENSITY	I										X
FLOOD INTENSITY	D										
FLOW REGIME											
CIRCULATION/MIXING	I										
CIRCULATION/MIXING	D										
NOISE											

PRIMARY ENVIRONMENTAL CHANGES	SECONDARY ENVIRONMENTAL CHANGES	EROSION/SCOURING	FLOOD FREQUENCY	FLOOD FREQUENCY	FLOOD INTENSITY	FLOOD INTENSITY	FLOW REGIME	CIRCULATION/MIXING	CIRCULATION/MIXING	NOISE
AQUIFER RECHARGE	I						O			
AQUIFER RECHARGE	D						O			
GROUNDWATER DISCHARGE	I						X			
GROUNDWATER DISCHARGE	D						O			
GROUNDWATER SALINITY	I									
SURFACE WATER SALINITY	I									
SURFACE WATER SALINITY	D									
WATER TEMPERATURE	I									
WATER TEMPERATURE	D									
SUSPENDED SOLIDS	I									
SUSPENDED SOLIDS	D									
TOXIC SUBSTANCES	I									
NUTRIENTS	I									
NUTRIENTS	D									
PATHOGENS	I									
pH	I									
pH	D									
DISSOLVED OXYGEN	D									
DISSOLVED SOLIDS	I									
DISSOLVED SOLIDS	D									
SUBSTRATE PARTICLE SIZE	I									
SUBSTRATE PARTICLE SIZE	D									
SEDIMENTATION	I									
SEDIMENTATION	D									
SEDIMENT CHEMISTRY										
FAUNAL ABUNDANCE	I									
FAUNAL ABUNDANCE	D									
FAUNAL REPRODUCTIVE POTENTIAL	I									
FAUNAL REPRODUCTIVE POTENTIAL	D									
FAUNAL DIVERSITY	I									
FAUNAL DIVERSITY	D									
FLORAL ABUNDANCE	I	X		O		O	X			
FLORAL ABUNDANCE	D									
FLORAL DIVERSITY	I	O		O		O	O			
FLORAL DIVERSITY	D									
SUNLIGHT PENETRATION	D									
PRIMARY PRODUCTIVITY	I									
PRIMARY PRODUCTIVITY	D									
SOIL ASSIMILATIVE CAPACITY	I	O		O		O	O			
SOIL ASSIMILATIVE CAPACITY	D									
BATHYMETRY VARIABILITY	I									
WATER DEPTH	I									
WATER DEPTH	D									
SHORE PROTECTION CAPACITY	I									
SHORE PROTECTION CAPACITY	D									
SHORELINE CHANGES										
LITTORAL DRIFT	I									
LITTORAL DRIFT	D									
RUNOFF	I		X		X		X			
EROSION/SCOURING	I									
EROSION/SCOURING	D	O								
FLOOD FREQUENCY	I		X							
FLOOD FREQUENCY	D	X		X						
FLOOD INTENSITY	I				X					
FLOOD INTENSITY	D	X				O				
FLOW REGIME			X	X	X	X	O			
CIRCULATION/MIXING	I									
CIRCULATION/MIXING	D									
NOISE										

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

LOWLAND FINE SOILS

INTRA-TYPE ENVIRONMENTAL CHANGE LINKAGES

PRIMARY ENVIRONMENTAL CHANGES → / SECONDARY ↑	ENVIRONMENTAL CHANGES	AQUIFER RECHARGE	AQUIFER RECHARGE	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE	GROUNDWATER SALINITY	SURFACE WATER SALINITY	SURFACE WATER SALINITY	WATER TEMPERATURE	WATER TEMPERATURE	SUSPENDED SOLIDS	SUSPENDED SOLIDS	TOXIC SUBSTANCES	NUTRIENTS	NUTRIENTS	PATHOGENS	pH	pH	DISSOLVED OXYGEN	DISSOLVED SOLIDS	DISSOLVED SOLIDS	SUBSTRATE PARTICLE SIZE	SUBSTRATE PARTICLE SIZE	SEDIMENTATION	SEDIMENTATION	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE	FAUNAL ABUNDANCE	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL DIVERSITY	FAUNAL DIVERSITY	FLORAL ABUNDANCE	FLORAL ABUNDANCE	FLORAL DIVERSITY	FLORAL DIVERSITY	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY	PRIMARY PRODUCTIVITY	SOIL ASSIMILATIVE CAPACITY	SOIL ASSIMILATIVE CAPACITY	BATHYMETRY VARIABILITY	WATER DEPTH	WATER DEPTH	SHORE PROTECTION CAPACITY	SHORE PROTECTION CAPACITY	SHORELINE CHANGES	LITTORAL DRIFT	LITTORAL DRIFT	RUNOFF	EROSION/SCOURING	EROSION/SCOURING	FLOOD FREQUENCY	FLOOD FREQUENCY	FLOOD INTENSITY	FLOOD INTENSITY	FLOW REGIME	CIRCULATION/MIXING	CIRCULATION/MIXING	NOISE
AQUIFER RECHARGE	I	X																		O	X												O		O			O																							
AQUIFER RECHARGE	D		X																															O		O			O																		O			
GROUNDWATER DISCHARGE	I			X																														O		O			O																		X			
GROUNDWATER DISCHARGE	D				X																												O		O			O																			X			
GROUNDWATER SALINITY	I					X														X								O		O		O		X		X			X																					
SURFACE WATER SALINITY	I																																																											
SURFACE WATER SALINITY	D																																																											
WATER TEMPERATURE	I																																																											
WATER TEMPERATURE	D																																																											
SUSPENDED SOLIDS	I																																																											
SUSPENDED SOLIDS	D																																																											
TOXIC SUBSTANCES	I												X															X		X		X	O	X		O		O	X																					
NUTRIENTS	I												V	X														O		O			X	O	X	O		X	O																					
NUTRIENTS	D																																	X		X			X																					
PATHOGENS	I															V												O		O		O																												
pH	I																																																											
pH	D																																																											
DISSOLVED OXYGEN	D																																																											
DISSOLVED SOLIDS	I					X														X								O		O		O		X		X			X																					
DISSOLVED SOLIDS	D																				X						O						X		X			X																						
SUBSTRATE PARTICLE SIZE	I																																																											
SUBSTRATE PARTICLE SIZE	D																																																											
SEDIMENTATION	I																																																											
SEDIMENTATION	D																																																											
SEDIMENT CHEMISTRY																																																													
FAUNAL ABUNDANCE	I													O		O											O		O	O	O	O		O					O																						
FAUNAL ABUNDANCE	D																												O	O	O	O																													
FAUNAL REPRODUCTIVE POTENTIAL	I																										X				O																														
FAUNAL REPRODUCTIVE POTENTIAL	D																											X				X																													
FAUNAL DIVERSITY	I																										O		O																																
FAUNAL DIVERSITY	D																										O	X	O	X																															
FLORAL ABUNDANCE	I	X													O												X		X		X	O	O		O	O		X		X												X		O		O	X			
FLORAL ABUNDANCE	D																											X		X		X		O	O	O			X		X									X										
FLORAL DIVERSITY	I																										X		X		X		O	O				O	O													O		O		O	O			
FLORAL DIVERSITY	D																											X		X		X	O	O				O	O																					
SUNLIGHT PENETRATION	D																																																												
PRIMARY PRODUCTIVITY	I														O												X		X		X	O	X		O	O		O																							
PRIMARY PRODUCTIVITY	D																											X		X		X		X	O	O																								
SOIL ASSIMILATIVE CAPACITY	I	O													O						O																			X												X		O		O	X			
SOIL ASSIMILATIVE CAPACITY	D		O										O	X		X				O																					X									O										
BATHYMETRY VARIABILITY	I																																																											
WATER DEPTH	I																																																											
WATER DEPTH	D																																																											
SHORE PROTECTION CAPACITY	I																																																											
SHORE PROTECTION CAPACITY	D																																																											
SHORELINE CHANGES																																																													
LITTORAL DRIFT	I																																																											
LITTORAL DRIFT	D																																																											
RUNOFF	I		X												X																																			X	X		O		O		X			
EROSION/SCOURING	I														X													X		X		X		X		X			X	O	O										X									
EROSION/SCOURING	D																										O		O		O		X		X			X		O											O								
FLOOD FREQUENCY	I	X				V																						X		X		X		X		X			X		X										X		O							
FLOOD FREQUENCY	D		X																								X		O		O		X		X			X		O											X		O						
FLOOD INTENSITY	I					V																						X		X		O		O		X			X		O										X				X					
FLOOD INTENSITY	D																										X		X		O		O		X			X		O											X				O				
FLOW REGIME				X	X	X							O	X	X	X				X													O	O	O	X		O	X	O	X												X	X	X	X	O			
CIRCULATION/MIXING	I																																																											
CIRCULATION/MIXING	D																																																											
NOISE																												X		X		X																													

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

UPLAND COARSE SOILS

INTRA-TYPE ENVIRONMENTAL CHANGE LINKAGES

→ PRIMARY ENVIRONMENTAL CHANGES

↑ SECONDARY ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES	ENVIRONMENTAL CHANGES	AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY I	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES I	NUTRIENTS I	NUTRIENTS D	PATHOGENS I	pH I	pH D	DISSOLVED OXYGEN D	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D
AQUIFER RECHARGE	I	O																		O	O									
AQUIFER RECHARGE	D		O																											
GROUNDWATER DISCHARGE	I			O																										
GROUNDWATER DISCHARGE	D				O																									
GROUNDWATER SALINITY	I					O														O										
SURFACE WATER SALINITY	I																													
SURFACE WATER SALINITY	D																													
WATER TEMPERATURE	I																													
WATER TEMPERATURE	D																													
SUSPENDED SOLIDS	I																													
SUSPENDED SOLIDS	D																													
TOXIC SUBSTANCES	I												O															X		X
NUTRIENTS	I												V	O														O		O
NUTRIENTS	D																													
PATHOGENS	I															O												O		O
pH	I																													
pH	D																													
DISSOLVED OXYGEN	D																													
DISSOLVED SOLIDS	I					X														O								O		O
DISSOLVED SOLIDS	D																				O						O			
SUBSTRATE PARTICLE SIZE	I																													
SUBSTRATE PARTICLE SIZE	D																													
SEDIMENTATION	I																													
SEDIMENTATION	D																													
SEDIMENT CHEMISTRY																														
FAUNAL ABUNDANCE	I													O		O											O		O	O
FAUNAL ABUNDANCE	D																												O	O
FAUNAL REPRODUCTIVE POTENTIAL	I																										X			
FAUNAL REPRODUCTIVE POTENTIAL	D																											X		
FAUNAL DIVERSITY	I																										O		O	
FAUNAL DIVERSITY	D																										O	X	O	X
FLORAL ABUNDANCE	I	O													O												X		X	
FLORAL ABUNDANCE	D																											X		X
FLORAL DIVERSITY	I																										X		X	
FLORAL DIVERSITY	D																											X		X
SUNLIGHT PENETRATION	D																													
PRIMARY PRODUCTIVITY	I														O												X		X	
PRIMARY PRODUCTIVITY	D																											X		X
SOIL ASSIMILATIVE CAPACITY	I	O													O						O									
SOIL ASSIMILATIVE CAPACITY	D		X										X	X		O				X										
BATHYMETRY VARIABILITY	I																													
WATER DEPTH	I																													
WATER DEPTH	D																													
SHORE PROTECTION CAPACITY	I																													
SHORE PROTECTION CAPACITY	D																													
SHORELINE CHANGES																														
LITTORAL DRIFT	I																													
LITTORAL DRIFT	D																													
RUNOFF	I		X												O															
EROSION/SCOURING	I														O													X		X
EROSION/SCOURING	D																										O		O	
FLOOD FREQUENCY	I	X					V																					X		X
FLOOD FREQUENCY	D		X																								O		O	
FLOOD INTENSITY	I						V																					X		O
FLOOD INTENSITY	D																										O		X	
FLOW REGIME					X	X	X						X	X	X	X				O										
CIRCULATION/MIXING	I																													
CIRCULATION/MIXING	D																													
NOISE																												X		X

PRIMARY ENVIRONMENTAL CHANGES	FAUNAL DIVERSITY I	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION D	PRIMARY PRODUCTIVITY I	PRIMARY PRODUCTIVITY D	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY I	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF I	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE
AQUIFER RECHARGE (I)			O		O			O																			O			
AQUIFER RECHARGE (D)				O		O			O																		O			
GROUNDWATER DISCHARGE (I)				O		O			O																		X			
GROUNDWATER DISCHARGE (D)			O		O			O																			X			
GROUNDWATER SALINITY (I)				O		O			O																					
SURFACE WATER SALINITY (I)																														
SURFACE WATER SALINITY (D)																														
WATER TEMPERATURE (I)																														
WATER TEMPERATURE (D)																														
SUSPENDED SOLIDS (I)																														
SUSPENDED SOLIDS (D)																														
TOXIC SUBSTANCES (I)		X	O	X		X		O	X																					
NUTRIENTS (I)			O	O	O	O		O	O																					
NUTRIENTS (D)				O		O			O																					
PATHOGENS (I)		O																												
pH (I)																														
pH (D)																														
DISSOLVED OXYGEN (D)																														
DISSOLVED SOLIDS (I)		O		X		X			X																					
DISSOLVED SOLIDS (D)			X		X			X																						
SUBSTRATE PARTICLE SIZE (I)																														
SUBSTRATE PARTICLE SIZE (D)																														
SEDIMENTATION (I)																														
SEDIMENTATION (D)																														
SEDIMENT CHEMISTRY																														
FAUNAL ABUNDANCE (I)	O	O		O					O																					
FAUNAL ABUNDANCE (D)	O	O																												
FAUNAL REPRODUCTIVE POTENTIAL (I)	O																													
FAUNAL REPRODUCTIVE POTENTIAL (D)		X																												
FAUNAL DIVERSITY (I)																														
FAUNAL DIVERSITY (D)																														
FLORAL ABUNDANCE (I)	X	O	O		O	O		X		X												X		O		O	X			
FLORAL ABUNDANCE (D)		X		O	O	O			X		X									O										
FLORAL DIVERSITY (I)	X		O	O				O	O													O		O		O	O			
FLORAL DIVERSITY (D)		X	O	O				O	O																					
SUNLIGHT PENETRATION (D)																														
PRIMARY PRODUCTIVITY (I)	X	O	O		O	O		O																						
PRIMARY PRODUCTIVITY (D)		X		X	O	O																								
SOIL ASSIMILATIVE CAPACITY (I)										O												O		O		O	O			
SOIL ASSIMILATIVE CAPACITY (D)											X									X										
BATHYMETRY VARIABILITY (I)																														
WATER DEPTH (I)																														
WATER DEPTH (D)																														
SHORE PROTECTION CAPACITY (I)																														
SHORE PROTECTION CAPACITY (D)																														
SHORELINE CHANGES																														
LITTORAL DRIFT (I)																														
LITTORAL DRIFT (D)																														
RUNOFF (I)																				X	X		X		O		X			
EROSION/SCOURING (I)		O		O		O			O		O										X									
EROSION/SCOURING (D)	O		X		X			X		O												O								
FLOOD FREQUENCY (I)		X		X		X			X		O										X		X							
FLOOD FREQUENCY (D)	X		X		O			X		O												O		O						
FLOOD INTENSITY (I)		X		X		X			O		O										X				O					
FLOOD INTENSITY (D)	O		O		O			O		O												O				O				
FLOW REGIME			O	X	O	X		O	X	O	X												X	X	O	X	X			
CIRCULATION/MIXING (I)																														
CIRCULATION/MIXING (D)																														
NOISE		X																												

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

UPLAND MEDIUM SOILS

INTRA-TYPE ENVIRONMENTAL CHANGE LINKAGES

→ PRIMARY ENVIRONMENTAL CHANGES

↑ SECONDARY ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES	I/D	AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES	NUTRIENTS I	NUTRIENTS D	PATHOGENS	pH I	pH D	DISSOLVED OXYGEN	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY I	PRIMARY PRODUCTIVITY D	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE
AQUIFER RECHARGE	I	D																		D	D												D		D			D																				D			
AQUIFER RECHARGE	D		D																																																						D			
GROUNDWATER DISCHARGE	I			D																														D		D			D																		X			
GROUNDWATER DISCHARGE	D				D																												D		D			D																			X			
GROUNDWATER SALINITY	I					O														D														D		D			D																						
SURFACE WATER SALINITY	I																																																											
SURFACE WATER SALINITY	D																																																											
WATER TEMPERATURE	I																																																											
WATER TEMPERATURE	D																																																											
SUSPENDED SOLIDS	I																																																											
SUSPENDED SOLIDS	D																																																											
TOXIC SUBSTANCES	I												D															X		X		X	D	X		X		D	X																					
NUTRIENTS	I												V	D														D		D			X	D	X	D		X	D																					
NUTRIENTS	D																																	X		X			X																					
PATHOGENS	I															D												D		D		D																												
pH	I																																																											
pH	D																																																											
DISSOLVED OXYGEN	I																																																											
DISSOLVED SOLIDS	I					X														D								D		D		D		X		X			X																					
DISSOLVED SOLIDS	D																				D						D						X		X			X																						
SUBSTRATE PARTICLE SIZE	I																																																											
SUBSTRATE PARTICLE SIZE	D																																																											
SEDIMENTATION	I																																																											
SEDIMENTATION	D																																																											
SEDIMENT CHEMISTRY																																																												
FAUNAL ABUNDANCE	I													D		D											D		D	D	D	D		D					D																					
FAUNAL ABUNDANCE	D																												D	D	D	D																												
FAUNAL REPRODUCTIVE POTENTIAL	I																										X				D																													
FAUNAL REPRODUCTIVE POTENTIAL	D																											X				X																												
FAUNAL DIVERSITY	I																										D		D																															
FAUNAL DIVERSITY	D																										D	X	D	X																														
FLORAL ABUNDANCE	I	D													D												X		X		X	D	D		D	D		X		X												X		X		X	X			
FLORAL ABUNDANCE	D																											X		X		X		D	D	D			X		X									X										
FLORAL DIVERSITY	I																										X		X		D		D	D				D	D													D		D		D	D			
FLORAL DIVERSITY	D																											X		X		X	D	D				D	D																					
SUNLIGHT PENETRATION	I																																																											
PRIMARY PRODUCTIVITY	I														D												X		X		X	D	X		D	D		D																						
PRIMARY PRODUCTIVITY	D																											X		X		D		X	D	D																								
SOIL ASSIMILATIVE CAPACITY	I	D													D						X																			D												D		D		D	D			
SOIL ASSIMILATIVE CAPACITY	D		X										X	X		X				X																					X									X											
BATHYMETRY VARIABILITY	I																																																											
WATER DEPTH	I																																																											
WATER DEPTH	D																																																											
SHORE PROTECTION CAPACITY	I																																																											
SHORE PROTECTION CAPACITY	D																																																											
SHORELINE CHANGES																																																												
LITTORAL DRIFT	I																																																											
LITTORAL DRIFT	D																																																											
RUNOFF	I		X												D																																			X	X		X		X		X			
EROSION/SCOURING	I														D													X		X		X		X		X			X		D										X									
EROSION/SCOURING	D																										D		D		D		X		X			X		D												D								
FLOOD FREQUENCY	I	X					V																					X		X		X		X		X			X		D										X		X							
FLOOD FREQUENCY	D		X																								X		X		X		X		X			X		D												X		D						
FLOOD INTENSITY	I						V																					X		X		X		X		X			X		D										X				X					
FLOOD INTENSITY	D																										X		X		X		X		X			X		D												X				D				
FLOW REGIME					X	X	X						D	X	D	X				D													D	D	D	X		D	X	D	X												D	D	D	D	D			
CIRCULATION/MIXING	I																																																											
CIRCULATION/MIXING	D																																																											
NOISE																												X		X		X																												

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

UPLAND FINE SOILS

INTRA-TYPE ENVIRONMENTAL CHANGE LINKAGES

→ PRIMARY ENVIRONMENTAL CHANGES

↑ SECONDARY ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES	ENVIRONMENTAL CHANGES	AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY I	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES I	NUTRIENTS I	NUTRIENTS D	PATHOGENS I	pH I	pH D	DISSOLVED OXYGEN D	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION D	PRIMARY PRODUCTIVITY I	PRIMARY PRODUCTIVITY D	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY I	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF I	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE
AQUIFER RECHARGE	I	IO																		O	IO												O		O			O																			I			
AQUIFER RECHARGE	D		IO																															O		O			O																		I			
GROUNDWATER DISCHARGE	I			O																														O		O			O																		X			
GROUNDWATER DISCHARGE	D				O																												O		O			O																			X			
GROUNDWATER SALINITY	I					O														O														O		O			O																					
SURFACE WATER SALINITY	I																																																											
SURFACE WATER SALINITY	D																																																											
WATER TEMPERATURE	I																																																											
WATER TEMPERATURE	D																																																											
SUSPENDED SOLIDS	I																																																											
SUSPENDED SOLIDS	D																																																											
TOXIC SUBSTANCES	I												O															IO		IO		IO	O	IO		IO		O	IO																					
NUTRIENTS	I												V	O														O		O			IO	O	IO	O		IO	O																					
NUTRIENTS	D																																	IO		IO			IO																					
PATHOGENS	I																											O		O		O																												
pH	I																																																											
pH	D																																																											
DISSOLVED OXYGEN	D																																																											
DISSOLVED SOLIDS	I						X													O								O		O		O		IO		IO			IO																					
DISSOLVED SOLIDS	D																				O						O						IO		IO			IO																						
SUBSTRATE PARTICLE SIZE	I																																																											
SUBSTRATE PARTICLE SIZE	D																																																											
SEDIMENTATION	I																																																											
SEDIMENTATION	D																																																											
SEDIMENT CHEMISTRY																																																												
FAUNAL ABUNDANCE	I													O		O											O		O	O	O	O		O					O																					
FAUNAL ABUNDANCE	D																												O	O	O	O																												
FAUNAL REPRODUCTIVE POTENTIAL	I																										IO				O																													
FAUNAL REPRODUCTIVE POTENTIAL	D																											IO				IO																												
FAUNAL DIVERSITY	I																										O		O																															
FAUNAL DIVERSITY	D																										O	IO	O	IO																														
FLORAL ABUNDANCE	I	IO													O												IO		IO		IO	O	O		O	O		IO		IO												IO		O		O	IO			
FLORAL ABUNDANCE	D																											IO		IO		IO		O	O	O			IO		IO									IO										
FLORAL DIVERSITY	I																										IO		IO		IO		O	O				O	O													O		O		O	O			
FLORAL DIVERSITY	D																											IO		IO		IO	O	O				O	O																					
SUNLIGHT PENETRATION	D																																																											
PRIMARY PRODUCTIVITY	I														O												IO		IO		IO	O	IO		O	O		IO																						
PRIMARY PRODUCTIVITY	D																											IO		IO		IO		IO	O	O																								
SOIL ASSIMILATIVE CAPACITY	I	IO													O						O																			IO												IO		O		O	IO			
SOIL ASSIMILATIVE CAPACITY	D		O										IO	IO		IO				O																					IO									IO										
BATHYMETRY VARIABILITY	I																																																											
WATER DEPTH	I																																																											
WATER DEPTH	D																																																											
SHORE PROTECTION CAPACITY	I																																																											
SHORE PROTECTION CAPACITY	D																																																											
SHORELINE CHANGES																																																												
LITTORAL DRIFT	I																																																											
LITTORAL DRIFT	D																																																											
RUNOFF	I		IO												IO																																			I	IO		IO		IO		IO			
EROSION/SCOURING	I														IO													IO		IO		IO		IO		IO			IO	O	O										I									
EROSION/SCOURING	D																										O		O		O		IO		IO			IO		O												IO								
FLOOD FREQUENCY	I	IO				V																						IO		IO		IO		IO		IO			IO		O										I		IO							
FLOOD FREQUENCY	D		IO																								IO		IO		IO		IO		IO			IO		O												IO		O						
FLOOD INTENSITY	I					V																						IO		IO		IO		IO		IO			IO		O										I				I					
FLOOD INTENSITY	D																										IO		IO		IO		IO		IO			IO		O												IO				I				
FLOW REGIME				IO	IO	IO							IO	IO	IO	IO				O													O	IO	O	IO		O	IO	O	IO												IO	IO	IO	O	IO			
CIRCULATION/MIXING	I																																																											
CIRCULATION/MIXING	D																																																											
NOISE																												IO		IO		IO																												

I=INCREASE
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O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

APPENDIX 1 continued

SET IV:

D. Inter-type Environmental Change Linkages

Type	Page
Land vs Land	65.
Land vs Edge Vegetated Low Load	66.
Land vs Edge Non-Vegetated High Load	67.
Land vs Water	68.
Edge Vegetated Low Load vs Land	69.
Edge Vegetated Low Load vs Edge Vegetated Low Load	70.
Edge Vegetated Low Load vs Edge Non-Vegetated High Load	71.
Edge Vegetated Low Load vs Water	72.
Edge Non-Vegetated High Load vs Land	73.
Edge Non-Vegetated High Load vs Edge Vegetated Low Load	74.
Edge Non-Vegetated High Load vs Edge Non-Vegetated High Load	75.
Edge Non-Vegetated High Load vs Water	76.
Water vs Land	77.
Water vs Edge Vegetated Low Load	78.
Water vs Edge Non-Vegetated High Load	79.
Water vs Water	80.

LAND VERSUS LAND

INTER-TYPE ENVIRONMENTAL CHANGE LINKAGES

→ PRIMARY ENVIRONMENTAL CHANGES

↑ SECONDARY ENVIRONMENTAL CHANGES

	AQUIFER RECHARGE	AQUIFER RECHARGE	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE	GROUNDWATER SALINITY	SURFACE WATER SALINITY	SURFACE WATER SALINITY	WATER TEMPERATURE	WATER TEMPERATURE	SUSPENDED SOLIDS	SUSPENDED SOLIDS	TOXIC SUBSTANCES	NUTRIENTS	NUTRIENTS	PATHOGENS	pH	pH	DISSOLVED OXYGEN	DISSOLVED SOLIDS	DISSOLVED SOLIDS	SUBSTRATE PARTICLE SIZE	SUBSTRATE PARTICLE SIZE	SEDIMENTATION	SEDIMENTATION	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE	FAUNAL ABUNDANCE	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL DIVERSITY	FAUNAL DIVERSITY	FLORAL ABUNDANCE	FLORAL ABUNDANCE	FLORAL DIVERSITY	FLORAL DIVERSITY	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY	PRIMARY PRODUCTIVITY	SOIL ASSIMILATIVE CAPACITY	SOIL ASSIMILATIVE CAPACITY	BATHYMETRY VARIABILITY	WATER DEPTH	WATER DEPTH	SHORE PROTECTION CAPACITY	SHORE PROTECTION CAPACITY	SHORELINE CHANGES	LITTORAL DRIFT	LITTORAL DRIFT	RUNOFF	EROSION/SCOURING	EROSION/SCOURING	FLOOD FREQUENCY	FLOOD FREQUENCY	FLOOD INTENSITY	FLOOD INTENSITY	FLOW REGIME	CIRCULATION/MIXING	CIRCULATION/MIXING	NOISE
AQUIFER RECHARGE	I	X																		V	X																																												
AQUIFER RECHARGE	I		X																																																															
GROUNDWATER DISCHARGE	I			V																																																														
GROUNDWATER DISCHARGE	I				V																																																													
GROUNDWATER SALINITY	I					X														V							X		X		X		V		V			V																												
SURFACE WATER SALINITY	I																																																																	
SURFACE WATER SALINITY	I																																																																	
WATER TEMPERATURE	I																																																																	
WATER TEMPERATURE	I																																																																	
SUSPENDED SOLIDS	I																																																																	
SUSPENDED SOLIDS	I																																																																	
TOXIC SUBSTANCES	I											V															X		X		X	X	X		X		X	X																														
NUTRIENTS	I											V	V														X		X			V	X	V	X		V	X																															
NUTRIENTS	I																																V		V			V																														
PATHOGENS	I														V												X		X			X																																			
pH	I																																																																	
pH	I																																																																	
DISSOLVED OXYGEN	I																																																																	
DISSOLVED SOLIDS	I					X													V								X		X		X		X		X			X																													
DISSOLVED SOLIDS	I																				V					X						X		X			X																														
SUBSTRATE PARTICLE SIZE	I																																																																	
SUBSTRATE PARTICLE SIZE	I																																																																	
SEDIMENTATION	I																																																																	
SEDIMENTATION	I																																																																	
SEDIMENT CHEMISTRY																																																																		
FAUNAL ABUNDANCE	I												X		X											X		X	X	X	X		X				X																													
FAUNAL ABUNDANCE	I																											X	X	X	X																																			
FAUNAL REPRODUCTIVE POTENTIAL	I																									X				X																																				
FAUNAL REPRODUCTIVE POTENTIAL	I																										X				X																																			
FAUNAL DIVERSITY	I																									X		X																																					
FAUNAL DIVERSITY	I																									X	X	X	X																																				
FLORAL ABUNDANCE	I	X												X												X		X		X	X	X		X	X		X		X												X		X		X	X									
FLORAL ABUNDANCE	I																										X		X		X		X	X	X			X		X									X															
FLORAL DIVERSITY	I																									X		X		X		X	X				X	X											X				X		X		X	X						
FLORAL DIVERSITY	I																										X		X		X	X	X				X	X																										
SUNLIGHT PENETRATION	I																																																																
PRIMARY PRODUCTIVITY	I														X											X		X		X	X	X		X	X		X																												
PRIMARY PRODUCTIVITY	I																										X		X		X		X	X	X																													
SOIL ASSIMILATIVE CAPACITY	I	V													V						V																		V																X		X		X	X		
SOIL ASSIMILATIVE CAPACITY	I		V										X	X		X				V																				X											X												
BATHYMETRY VARIABILITY	I																																																																
WATER DEPTH	I																																																																
WATER DEPTH	I																																																																
SHORE PROTECTION CAPACITY	I																																																																
SHORE PROTECTION CAPACITY	I																																																																
SHORELINE CHANGES																																																																	
LITTORAL DRIFT	I																																																																
LITTORAL DRIFT	I																																																																
RUNOFF	I	X													V																																						X	X		X		X		X		
EROSION/SCOURING	I														V												X		X		X		X		X			X	X	X												X											
EROSION/SCOURING	I																									X		X		X		X		X			X		X													X										
FLOOD FREQUENCY	I	X				X																					X		X		X		X		X			X		X												X		X								
FLOOD FREQUENCY	I		X																							X		X		X		X		X			X		X													X		X							
FLOOD INTENSITY	I					X																					X		X		X		X		X			X		X													X							
FLOOD INTENSITY	I																									X		X		X		X		X			X		X														X						
FLOW REGIME				X	X	X						X	X	X	X				X													X	X	X	X		X	X	X	X												X	X	X	X	X				
CIRCULATION/MIXING	I																																																																
CIRCULATION/MIXING	I																																																																
NOISE																											X		X		X																																		

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

LAND VERSUS EDGE-VEGETATED LOW LOAD

INTER-TYPE ENVIRONMENTAL CHANGE LINKAGES

→ PRIMARY ENVIRONMENTAL CHANGES ↓ / SECONDARY ENVIRONMENTAL CHANGES ↑

PRIMARY ENVIRONMENTAL CHANGES		AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY I	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES I	NUTRIENTS I	NUTRIENTS D	PATHOGENS I	pH I	pH D	DISSOLVED OXYGEN D	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I
AQUIFER RECHARGE	I																														
AQUIFER RECHARGE	D																														
GROUNDWATER DISCHARGE	I																														
GROUNDWATER DISCHARGE	D																														
GROUNDWATER SALINITY	I					O																				O					
SURFACE WATER SALINITY	I																														
SURFACE WATER SALINITY	D																														
WATER TEMPERATURE	I																														
WATER TEMPERATURE	D																														
SUSPENDED SOLIDS	I																														
SUSPENDED SOLIDS	D																														
TOXIC SUBSTANCES	I												X																		
NUTRIENTS	I												O	X																	
NUTRIENTS	D																														
PATHOGENS	I															O															
pH	I																														
pH	D																														
DISSOLVED OXYGEN	D																														
DISSOLVED SOLIDS	I					O																				O		O		O	
DISSOLVED SOLIDS	D																														
SUBSTRATE PARTICLE SIZE	I																														
SUBSTRATE PARTICLE SIZE	D																														
SEDIMENTATION	I																														
SEDIMENTATION	D																														
SEDIMENT CHEMISTRY																															
FAUNAL ABUNDANCE	I													O													O	O	O	O	O
FAUNAL ABUNDANCE	D																														
FAUNAL REPRODUCTIVE POTENTIAL	I																										O	O			
FAUNAL REPRODUCTIVE POTENTIAL	D																														
FAUNAL DIVERSITY	I																														
FAUNAL DIVERSITY	D																														
FLORAL ABUNDANCE	I																										O		O		O
FLORAL ABUNDANCE	D																											O		O	
FLORAL DIVERSITY	I																										O		O		O
FLORAL DIVERSITY	D																														
SUNLIGHT PENETRATION	D																														
PRIMARY PRODUCTIVITY	I																										O		O		O
PRIMARY PRODUCTIVITY	D																											O		O	
SOIL ASSIMILATIVE CAPACITY	I														X		V	V			X										
SOIL ASSIMILATIVE CAPACITY	D												X	X		X	V	V		X											
BATHYMETRY VARIABILITY	I																														
WATER DEPTH	I																														
WATER DEPTH	D																														
SHORE PROTECTION CAPACITY	I																														
SHORE PROTECTION CAPACITY	D																														
SHORELINE CHANGES																															
LITTORAL DRIFT	I																														
LITTORAL DRIFT	D																														
RUNOFF	I												X	X	O	O								X	O						
EROSION/SCOURING	I												X	X	X	O								X							
EROSION/SCOURING	D																								X						
FLOOD FREQUENCY	I													X	O	O								X							
FLOOD FREQUENCY	D														O										O						
FLOOD INTENSITY	I													X	O	O								X							
FLOOD INTENSITY	D														O										O						
FLOW REGIME				X	X	X																									
CIRCULATION/MIXING	I																														
CIRCULATION/MIXING	D																														
NOISE																															

PRIMARY ENVIRONMENTAL CHANGES	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION D	PRIMARY PRODUCTIVITY I	PRIMARY PRODUCTIVITY D	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY I	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF I	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE
AQUIFER RECHARGE I																													
AQUIFER RECHARGE D																													
GROUNDWATER DISCHARGE I																													
GROUNDWATER DISCHARGE D																													
GROUNDWATER SALINITY I			O		O			O																					
SURFACE WATER SALINITY I																													
SURFACE WATER SALINITY D																													
WATER TEMPERATURE I																													
WATER TEMPERATURE D																													
SUSPENDED SOLIDS I																													
SUSPENDED SOLIDS D																													
TOXIC SUBSTANCES I																													
NUTRIENTS I																													
NUTRIENTS D																													
PATHOGENS I																													
pH I																													
pH D																													
DISSOLVED OXYGEN D																													
DISSOLVED SOLIDS I	O		V		V			V																					
DISSOLVED SOLIDS D																													
SUBSTRATE PARTICLE SIZE I																													
SUBSTRATE PARTICLE SIZE D																													
SEDIMENTATION I																													
SEDIMENTATION D																													
SEDIMENT CHEMISTRY																													
FAUNAL ABUNDANCE I	O		O					O																					
FAUNAL ABUNDANCE D		O					O																						
FAUNAL REPRODUCTIVE POTENTIAL I																													
FAUNAL REPRODUCTIVE POTENTIAL D																													
FAUNAL DIVERSITY I																													
FAUNAL DIVERSITY D																													
FLORAL ABUNDANCE I																					X		X		X	X			
FLORAL ABUNDANCE D	O																		X										
FLORAL DIVERSITY I																					O		O		O	O			
FLORAL DIVERSITY D																													
SUNLIGHT PENETRATION D																													
PRIMARY PRODUCTIVITY I																													
PRIMARY PRODUCTIVITY D	O																												
SOIL ASSIMILATIVE CAPACITY I																													
SOIL ASSIMILATIVE CAPACITY D																													
BATHYMETRY VARIABILITY I																													
WATER DEPTH I																													
WATER DEPTH D																													
SHORE PROTECTION CAPACITY I																													
SHORE PROTECTION CAPACITY D																													
SHORELINE CHANGES																													
LITTORAL DRIFT I																													
LITTORAL DRIFT D																													
RUNOFF I																	O		X	X		X		X		X			
EROSION/SCOURING I																	X			X									
EROSION/SCOURING D																		O			X								
FLOOD FREQUENCY I																				X		X				X			
FLOOD FREQUENCY D																					X		X			X			
FLOOD INTENSITY I																				X				X		X			
FLOOD INTENSITY D																					X				X	X			
FLOW REGIME		O	O	O	O		O	O												X	X	X	X	X	X	X			
CIRCULATION/MIXING I																													
CIRCULATION/MIXING D																													
NOISE																													

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

LAND
VERSUS
EDGE-NONVEGETATED
HIGH LOAD

INTER-TYPE
ENVIRONMENTAL CHANGE
LINKAGES

PRIMARY ENVIRONMENTAL CHANGES → / SECONDARY ENVIRONMENTAL CHANGES ↑		AQUIFER RECHARGE	AQUIFER RECHARGE	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE	GROUNDWATER SALINITY	SURFACE WATER SALINITY	SURFACE WATER SALINITY	WATER TEMPERATURE	WATER TEMPERATURE	SUSPENDED SOLIDS	SUSPENDED SOLIDS	TOXIC SUBSTANCES	NUTRIENTS	NUTRIENTS	PATHOGENS	pH	pH	DISSOLVED OXYGEN	DISSOLVED SOLIDS	DISSOLVED SOLIDS	SUBSTRATE PARTICLE SIZE	SUBSTRATE PARTICLE SIZE	SEDIMENTATION	SEDIMENTATION	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE	FAUNAL ABUNDANCE	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL DIVERSITY	FAUNAL DIVERSITY	FLORAL ABUNDANCE	FLORAL ABUNDANCE	FLORAL DIVERSITY	FLORAL DIVERSITY	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY	PRIMARY PRODUCTIVITY	SOIL ASSIMILATIVE CAPACITY	SOIL ASSIMILATIVE CAPACITY	BATHYMETRY VARIABILITY	WATER DEPTH	WATER DEPTH	SHORE PROTECTION CAPACITY	SHORE PROTECTION CAPACITY	SHORELINE CHANGES	LITTORAL DRIFT	LITTORAL DRIFT	RUNOFF	EROSION/SCOURING	EROSION/SCOURING	FLOOD FREQUENCY	FLOOD FREQUENCY	FLOOD INTENSITY	FLOOD INTENSITY	FLOW REGIME	CIRCULATION/MIXING	CIRCULATION/MIXING	NOISE
		I	D	I	D	I	I	D	I	D	I	D	I	I	D	I	I	D	D	I	D	I	D	I	D		I	D	I	D	I	D	I	D	I	D	D	I	D	I	D	I	I	D	I	D		I	D	I	I	D	I	D	I	D		I	D	
AQUIFER RECHARGE	I																																																											
AQUIFER RECHARGE	D																																																											
GROUNDWATER DISCHARGE	I																																																											
GROUNDWATER DISCHARGE	D																																																											
GROUNDWATER SALINITY	I					O																																																						
SURFACE WATER SALINITY	I																																																											
SURFACE WATER SALINITY	D																																																											
WATER TEMPERATURE	I																																																											
WATER TEMPERATURE	D																																																											
SUSPENDED SOLIDS	I																																																											
SUSPENDED SOLIDS	D																																																											
TOXIC SUBSTANCES	I											O																																																
NUTRIENTS	I											O	O																																															
NUTRIENTS	D																																																											
PATHOGENS	I														O																																													
pH	I																																																											
pH	D																																																											
DISSOLVED OXYGEN	D																																																											
DISSOLVED SOLIDS	I					O																				O		O		O		O																													
DISSOLVED SOLIDS	D																																																											
SUBSTRATE PARTICLE SIZE	I																																																											
SUBSTRATE PARTICLE SIZE	D																																																											
SEDIMENTATION	I																																																											
SEDIMENTATION	D																																																											
SEDIMENT CHEMISTRY																																																												
FAUNAL ABUNDANCE	I												O													O	O	O	O	O	O																													
FAUNAL ABUNDANCE	D																																																											
FAUNAL REPRODUCTIVE POTENTIAL	I																									O	O																																	
FAUNAL REPRODUCTIVE POTENTIAL	D																																																											
FAUNAL DIVERSITY	I																																																											
FAUNAL DIVERSITY	D																																																											
FLORAL ABUNDANCE	I																									O		O		O																					O		O		O	O			
FLORAL ABUNDANCE	D																										O		O		O																		O									
FLORAL DIVERSITY	I																									O		O		O																					O		O		O	O			
FLORAL DIVERSITY	D																																																											
SUNLIGHT PENETRATION	D																																																											
PRIMARY PRODUCTIVITY	I																									O		O		O																													
PRIMARY PRODUCTIVITY	D																										O		O		O																												
SOIL ASSIMILATIVE CAPACITY	I													O		V	V			X																																								
SOIL ASSIMILATIVE CAPACITY	D											X	O		X	V	V		X																																								
BATHYMETRY VARIABILITY	I																																																											
WATER DEPTH	I																																																											
WATER DEPTH	D																																																											
SHORE PROTECTION CAPACITY	I																																																											
SHORE PROTECTION CAPACITY	D																																																											
SHORELINE CHANGES																																																												
LITTORAL DRIFT	I																																																											
LITTORAL DRIFT	D																																																											
RUNOFF	I											O	X	O	X								O	O																							O		O	O		O		O		O			
EROSION/SCOURING	I											O	O	X	O								O																								O			O									
EROSION/SCOURING	D																							O																								O			O								
FLOOD FREQUENCY	I												O		O								O																											O		O				O			
FLOOD FREQUENCY	D																							O																											O		O			O			
FLOOD INTENSITY	I												O		O								O																											O			O		O			
FLOOD INTENSITY	D																							O																											O				O	O			
FLOW REGIME				O	O	O																																													O	O	O	O	O	O	O			
CIRCULATION/MIXING	I																																																											
CIRCULATION/MIXING	D																																																												
NOISE																																																													

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

LAND VERSUS WATER

INTER-TYPE ENVIRONMENTAL CHANGE LINKAGES

→ PRIMARY ENVIRONMENTAL CHANGES

↑ SECONDARY ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES		AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY I	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES I	NUTRIENTS I	NUTRIENTS D	PATHOGENS I	pH I	pH D	DISSOLVED OXYGEN D	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION D	PRIMARY PRODUCTIVITY I	PRIMARY PRODUCTIVITY D	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY I	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF I	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE
AQUIFER RECHARGE	I																																																											
AQUIFER RECHARGE	D																																																											
GROUNDWATER DISCHARGE	I																																																											
GROUNDWATER DISCHARGE	D																																																											
GROUNDWATER SALINITY	I						O													X																																								
SURFACE WATER SALINITY	I																																																											
SURFACE WATER SALINITY	D																																																											
WATER TEMPERATURE	I																																																											
WATER TEMPERATURE	D																																																											
SUSPENDED SOLIDS	I																																																											
SUSPENDED SOLIDS	D																																																											
TOXIC SUBSTANCES	I												X																																															
NUTRIENTS	I												O	X																																														
NUTRIENTS	D														O																																													
PATHOGENS	I															X																																												
pH	I																																																											
pH	D																																																											
DISSOLVED OXYGEN	D																																																											
DISSOLVED SOLIDS	I																			X																																								
DISSOLVED SOLIDS	D																				X																																							
SUBSTRATE PARTICLE SIZE	I																																																											
SUBSTRATE PARTICLE SIZE	D																																																											
SEDIMENTATION	I																																																											
SEDIMENTATION	D																																																											
SEDIMENT CHEMISTRY																																																												
FAUNAL ABUNDANCE	I																																																											
FAUNAL ABUNDANCE	D																																																											
FAUNAL REPRODUCTIVE POTENTIAL	I																																																											
FAUNAL REPRODUCTIVE POTENTIAL	D																																																											
FAUNAL DIVERSITY	I																																																											
FAUNAL DIVERSITY	D																																																											
FLORAL ABUNDANCE	I									V	V			V																							V																							
FLORAL ABUNDANCE	D								V			V			V																																													
FLORAL DIVERSITY	I																																																											
FLORAL DIVERSITY	D																																																											
SUNLIGHT PENETRATION	D																																																											
PRIMARY PRODUCTIVITY	I										V			V																																														
PRIMARY PRODUCTIVITY	D											V			V																																													
SOIL ASSIMILATIVE CAPACITY	I														X		V	V			X																																							
SOIL ASSIMILATIVE CAPACITY	D												X	X		X	V	V		X																																								
BATHYMETRY VARIABILITY	I																																																											
WATER DEPTH	I																																																											
WATER DEPTH	D																																																											
SHORE PROTECTION CAPACITY	I																																																											
SHORE PROTECTION CAPACITY	D																																																											
SHORELINE CHANGES																																																												
LITTORAL DRIFT	I																																																											
LITTORAL DRIFT	D																																																											
RUNOFF	I							V			X		X	X		X	V	V		X																							X					X					X		X		X			
EROSION/SCOURING	I										X		X	X		O				X																												X												
EROSION/SCOURING	D											X			O						X																												X											
FLOOD FREQUENCY	I										X		X	X		X	V	V		X																																								
FLOOD FREQUENCY	D											X			X		O	O			X																																							
FLOOD INTENSITY	I										X		X	X		X	V	V		X																																								
FLOOD INTENSITY	D											X			X		O	O			X																																							
FLOW REGIME				X	X			X																																																	X			
CIRCULATION/MIXING	I																																																											
CIRCULATION/MIXING	D																																																											
NOISE																																																												

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

EDGE VEGETATED LOW LOAD
VERSUS
LAND

INTER-TYPE
ENVIRONMENTAL CHANGE
LINKAGES

SECONDARY ENVIRONMENTAL CHANGES →

PRIMARY ENVIRONMENTAL CHANGES ↓

	AQUIFER RECHARGE	AQUIFER RECHARGE	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE	GROUNDWATER SALINITY	SURFACE WATER SALINITY	SURFACE WATER SALINITY	WATER TEMPERATURE	WATER TEMPERATURE	SUSPENDED SOLIDS	SUSPENDED SOLIDS	TOXIC SUBSTANCES	NUTRIENTS	NUTRIENTS	PATHOGENS	pH	pH	DISSOLVED OXYGEN	DISSOLVED SOLIDS	DISSOLVED SOLIDS	SUBSTRATE PARTICLE SIZE	SUBSTRATE PARTICLE SIZE	SEDIMENTATION	SEDIMENTATION	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE	FAUNAL ABUNDANCE	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL DIVERSITY	FAUNAL DIVERSITY	FLORAL ABUNDANCE	FLORAL ABUNDANCE	FLORAL DIVERSITY	FLORAL DIVERSITY	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY	PRIMARY PRODUCTIVITY	SOIL ASSIMILATIVE CAPACITY	SOIL ASSIMILATIVE CAPACITY	BATHYMETRY VARIABILITY	WATER DEPTH	WATER DEPTH	SHORE PROTECTION CAPACITY	SHORE PROTECTION CAPACITY	SHORELINE CHANGES	LITTORAL DRIFT	LITTORAL DRIFT	RUNOFF	EROSION/SCOURING	EROSION/SCOURING	FLOOD FREQUENCY	FLOOD FREQUENCY	FLOOD INTENSITY	FLOOD INTENSITY	FLOW REGIME	CIRCULATION/MIXING	CIRCULATION/MIXING	NOISE
AQUIFER RECHARGE	O																																																																		
AQUIFER RECHARGE	O																																																																		
GROUNDWATER DISCHARGE	O																																																																		
GROUNDWATER DISCHARGE	O																																																																		
GROUNDWATER SALINITY	O					X													X																																															
SURFACE WATER SALINITY	O																																																																		
SURFACE WATER SALINITY	O																																																																		
WATER TEMPERATURE	O																																																																		
WATER TEMPERATURE	O																																																																		
SUSPENDED SOLIDS	O																																																																		
SUSPENDED SOLIDS	O																																																																		
TOXIC SUBSTANCES	O											X														O		O		O																																					
NUTRIENTS	O																																																																		
NUTRIENTS	O																																																																		
PATHOGENS	O																																																																		
pH	O																																																																		
pH	O																																																																		
DISSOLVED OXYGEN	O																																																																		
DISSOLVED SOLIDS	O					O																																																													
DISSOLVED SOLIDS	O																		O																																															
SUBSTRATE PARTICLE SIZE	O																																																																		
SUBSTRATE PARTICLE SIZE	O																																																																		
SEDIMENTATION	O																																																																		
SEDIMENTATION	O																																																																		
SEDIMENT CHEMISTRY																																																																			
FAUNAL ABUNDANCE	O																									X		X		X																																					
FAUNAL ABUNDANCE	O																										X		X		X																																			
FAUNAL REPRODUCTIVE POTENTIAL	O																																																																		
FAUNAL REPRODUCTIVE POTENTIAL	O																																																																		
FAUNAL DIVERSITY	O																									O		O		O																																					
FAUNAL DIVERSITY	O																										O		O		O																																			
FLORAL ABUNDANCE	O																									O		O		O																																					
FLORAL ABUNDANCE	O																										O		O		O																																			
FLORAL DIVERSITY	O																									O		O		O																																			
FLORAL DIVERSITY	O																										O		O		O																																			
SUNLIGHT PENETRATION	O																										O		O		O																																			
PRIMARY PRODUCTIVITY	O																									O		O		O																																			
PRIMARY PRODUCTIVITY	O																										O		O		O																																			
SOIL ASSIMILATIVE CAPACITY	O																																																																		
SOIL ASSIMILATIVE CAPACITY	O																																																																		
BATHYMETRY VARIABILITY	O																																																																		
WATER DEPTH	O																																																																		
WATER DEPTH	O																																																																		
SHORE PROTECTION CAPACITY	O																																																																		
SHORE PROTECTION CAPACITY	O																																																																		
SHORELINE CHANGES																																																																			
LITTORAL DRIFT	O																																																																		
LITTORAL DRIFT	O																																																																		
RUNOFF	O																																																																		
EROSION/SCOURING	O																																																																		
EROSION/SCOURING	O																																																																		
FLOOD FREQUENCY	O																																																																		
FLOOD FREQUENCY	O																																																																		
FLOOD INTENSITY	O																																																																		
FLOOD INTENSITY	O																																																																		
FLOW REGIME				X	X	X						X	X	X	X				X																																																
CIRCULATION/MIXING	O																																																																		
CIRCULATION/MIXING	O																																																																		
NOISE																																																																			

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

EDGE VEGETATED LOW LOAD
VERSUS
EDGE VEGETATED LOW LOAD

INTER-TYPE
ENVIRONMENTAL CHANGE
LINKAGES

→ PRIMARY ENVIRONMENTAL CHANGES
↑ SECONDARY ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES	ENVIRONMENTAL CHANGES	AQUIFER RECHARGE	AQUIFER RECHARGE	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE	GROUNDWATER SALINITY	SURFACE WATER SALINITY	SURFACE WATER SALINITY	WATER TEMPERATURE	WATER TEMPERATURE	SUSPENDED SOLIDS	SUSPENDED SOLIDS	TOXIC SUBSTANCES	NUTRIENTS	NUTRIENTS	PATHOGENS	pH	pH	DISSOLVED OXYGEN	DISSOLVED SOLIDS	DISSOLVED SOLIDS	SUBSTRATE PARTICLE SIZE	SUBSTRATE PARTICLE SIZE	SEDIMENTATION	SEDIMENTATION	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE	FAUNAL ABUNDANCE	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL DIVERSITY	FAUNAL DIVERSITY	FLORAL ABUNDANCE	FLORAL ABUNDANCE	FLORAL DIVERSITY	FLORAL DIVERSITY	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY	PRIMARY PRODUCTIVITY	SOIL ASSIMILATIVE CAPACITY	SOIL ASSIMILATIVE CAPACITY	BATHYMETRY VARIABILITY	WATER DEPTH	WATER DEPTH	SHORE PROTECTION CAPACITY	SHORE PROTECTION CAPACITY	SHORELINE CHANGES	LITTORAL DRIFT	LITTORAL DRIFT	RUNOFF	EROSION/SCOURING	EROSION/SCOURING	FLOOD FREQUENCY	FLOOD FREQUENCY	FLOOD INTENSITY	FLOOD INTENSITY	FLOW REGIME	CIRCULATION/MIXING	CIRCULATION/MIXING	NOISE
		I	D	I	D	I	I	D	I	D	I	D	I	I	D	I	I	D	D	I	D	I	D	I	D		I	D	I	D	I	D	I	D	I	D	D	I	D	I	D	I	I	D	I	D		I	D	I	I	D	I	D	I	D		I	D	
AQUIFER RECHARGE	I	V				V														X	X																																				X			
AQUIFER RECHARGE	D		V																																																						X			
GROUNDWATER DISCHARGE	I			X																													O	O	O	O		O	O																		X			
GROUNDWATER DISCHARGE	D				V																																																				X			
GROUNDWATER SALINITY	I					V														X						X		V		V		V		V		V			V																					
SURFACE WATER SALINITY	I																																																											
SURFACE WATER SALINITY	D																																																											
WATER TEMPERATURE	I																																																										
WATER TEMPERATURE	D																																																										
SUSPENDED SOLIDS	I																																																										
SUSPENDED SOLIDS	D																																																										
TOXIC SUBSTANCES	I												X													X		X		X		X		X		X			X		X										O									
NUTRIENTS	I												V	V												X							X	O	X	O		X	O																					
NUTRIENTS	D																									X								X		X			X																					
PATHOGENS	I															V												O		O		O																												
pH	I																																																											
pH	D																																																											
DISSOLVED OXYGEN	D																																																											
DISSOLVED SOLIDS	I					X														V						X		V		V		V		V		V			V																					
DISSOLVED SOLIDS	D																									X							O		O			O																						
SUBSTRATE PARTICLE SIZE	I																									X	X	O	X	O	X	O		O		O			O		V				V				X			X								
SUBSTRATE PARTICLE SIZE	D																									X							O		O			O								V		X			X									
SEDIMENTATION	I													X									X	V		X		O		O		O	O	O	O	O		O	O		X						X	X												
SEDIMENTATION	D														X										V	X	O		O	O	O									X									X											
SEDIMENT CHEMISTRY													X	X	X												X	X	X	X	X	X	X	X	X	X		X	X																					
FAUNAL ABUNDANCE	I													O		O											O		X	O	O	O		O		O			O																					
FAUNAL ABUNDANCE	D																											O		O		O																												
FAUNAL REPRODUCTIVE POTENTIAL	I																										X				X																													
FAUNAL REPRODUCTIVE POTENTIAL	D																											X				X																												
FAUNAL DIVERSITY	I																										X		X		O																													
FAUNAL DIVERSITY	D																										O	X	O	X		O																												
FLORAL ABUNDANCE	I	O													O									V		X	X	O	X	O	X	O	V		O	X		X		X					X				X			X				X	X			
FLORAL ABUNDANCE	D		O											X											V	X		X		X		X		V	O	O			X		X					X		X		V	X				X		X			
FLORAL DIVERSITY	I																										X		X		X		O	O	O			O	O													O					O			
FLORAL DIVERSITY	D																											X		X		X	V	O		O		O	O																					
SUNLIGHT PENETRATION	D																																																											
PRIMARY PRODUCTIVITY	I														O											X	X	O	X	O	X	O	X		O	O		V																						
PRIMARY PRODUCTIVITY	D													X												X		X		X		X		X	O	O			V																					
SOIL ASSIMILATIVE CAPACITY	I	V													X											X														X												X					X			
SOIL ASSIMILATIVE CAPACITY	D		V										X	X		X				X						X															X									X										
BATHYMETRY VARIABILITY	I																																																											
WATER DEPTH	I																																																											
WATER DEPTH	D																																																											
SHORE PROTECTION CAPACITY	I																										X		X		X		X		X			X							X							X		X		X	X			
SHORE PROTECTION CAPACITY	D																											X		X		X		X		X			X							X				X	X		X		X		X			
SHORELINE CHANGES																								X	X		X	X	X	X	X	X	X	X	X	X		X	X						X	X	V	X	X		X	X	X	X	X	X	X			
LITTORAL DRIFT	I																																												O		X	O				V								
LITTORAL DRIFT	D																																													O	X		O		V									
RUNOFF	I		V												X							X																												X	X		O		O		X			
EROSION/SCOURING	I														X										X			X		X		X		X		X			X	O	O					X	X	X		V	V									
EROSION/SCOURING	D																							X			O		O		O		O		X			X		O	O				X				X			V								
FLOOD FREQUENCY	I	V				V																		X				X		X		X	O	V	O	V		O	V							X	X				X		V				X			
FLOOD FREQUENCY	D		V																						X		X		X		X		O	O	O	O		O	O						X							X					X			
FLOOD INTENSITY	I					V									X									X				X		X		X		X		X			X							X	X				X				V		X			
FLOOD INTENSITY	D																								X		X		X		X		O		O			O						X							X					X			
FLOW REGIME				X	X	X							X	X	X	X				X	X																								X	X	X	X	X		X	X	X	X	X	X	X			
CIRCULATION/MIXING	I																																																											
CIRCULATION/MIXING	D																																																											
NOISE																												X		X		X																												

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

EDGE VEGETATED LOW LOAD
VERSUS
EDGE NON-VEGETATED HIGH LOAD

INTER-TYPE
ENVIRONMENTAL CHANGE
LINKAGES

PRIMARY
ENVIRONMENTAL CHANGES →

SECONDARY
ENVIRONMENTAL CHANGES →

	AQUIFER RECHARGE	AQUIFER RECHARGE	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE	GROUNDWATER SALINITY	SURFACE WATER SALINITY	SURFACE WATER SALINITY	WATER TEMPERATURE	WATER TEMPERATURE	SUSPENDED SOLIDS	SUSPENDED SOLIDS	TOXIC SUBSTANCES	NUTRIENTS	NUTRIENTS	PATHOGENS	pH	pH	DISSOLVED OXYGEN	DISSOLVED SOLIDS	DISSOLVED SOLIDS	SUBSTRATE PARTICLE SIZE	SUBSTRATE PARTICLE SIZE	SEDIMENTATION	SEDIMENTATION	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE	FAUNAL ABUNDANCE	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL DIVERSITY	FAUNAL DIVERSITY	FLORAL ABUNDANCE	FLORAL ABUNDANCE	FLORAL DIVERSITY	FLORAL DIVERSITY	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY	PRIMARY PRODUCTIVITY	SOIL ASSIMILATIVE CAPACITY	SOIL ASSIMILATIVE CAPACITY	BATHYMETRY VARIABILITY	WATER DEPTH	WATER DEPTH	SHORE PROTECTION CAPACITY	SHORE PROTECTION CAPACITY	SHORELINE CHANGES	LITTORAL DRIFT	LITTORAL DRIFT	RUNOFF	EROSION/SCOURING	EROSION/SCOURING	FLOOD FREQUENCY	FLOOD FREQUENCY	FLOOD INTENSITY	FLOOD INTENSITY	FLOW REGIME	CIRCULATION/MIXING	CIRCULATION/MIXING	NOISE
AQUIFER RECHARGE	D																																																																	
AQUIFER RECHARGE	D																																																																	
GROUNDWATER DISCHARGE	D																																																																	
GROUNDWATER DISCHARGE	D																																																																	
GROUNDWATER SALINITY	D					X													X																																														
SURFACE WATER SALINITY	D																																																																	
SURFACE WATER SALINITY	D																																																																	
WATER TEMPERATURE	D																																																																	
WATER TEMPERATURE	D																																																																	
SUSPENDED SOLIDS	D																																																																	
SUSPENDED SOLIDS	D																																																																	
TOXIC SUBSTANCES	D											X															D		D		D																																			
NUTRIENTS	D											D	X																																																				
NUTRIENTS	D													D																																																			
PATHOGENS	D														X												D		D		D																																			
pH	D																																																																	
pH	D																																																																	
DISSOLVED OXYGEN	D																																																																	
DISSOLVED SOLIDS	D					X													X																																														
DISSOLVED SOLIDS	D																																																																	
SUBSTRATE PARTICLE SIZE	D																																																																	
SUBSTRATE PARTICLE SIZE	D																																																																	
SEDIMENTATION	D																							X																										X														
SEDIMENTATION	D																								X																								X														
SEDIMENT CHEMISTRY																																																																		
FAUNAL ABUNDANCE	D																									D	D	D		D																																					
FAUNAL ABUNDANCE	D																										D		D		D																																				
FAUNAL REPRODUCTIVE POTENTIAL	D																																																																	
FAUNAL REPRODUCTIVE POTENTIAL	D																																																																	
FAUNAL DIVERSITY	D																														D																																			
FAUNAL DIVERSITY	D																															D																																		
FLORAL ABUNDANCE	D																									D		D		D																																				
FLORAL ABUNDANCE	D																										D		D		D																																			
FLORAL DIVERSITY	D																									D		D		D																																			
FLORAL DIVERSITY	D																										D		D		D																																		
SUNLIGHT PENETRATION	D																																																																	
PRIMARY PRODUCTIVITY	D																									D		D		D																																			
PRIMARY PRODUCTIVITY	D																										D		D		D																																		
SOIL ASSIMILATIVE CAPACITY	D																																																																	
SOIL ASSIMILATIVE CAPACITY	D																																																																	
BATHYMETRY VARIABILITY	D																																																																	
WATER DEPTH	D																																																																	
WATER DEPTH	D																																																																	
SHORE PROTECTION CAPACITY	D																																																																	
SHORE PROTECTION CAPACITY	D																																																																	
SHORELINE CHANGES																																																																		
LITTORAL DRIFT	D																																																																	
LITTORAL DRIFT	D																																																																	
RUNOFF	D																																																																	
EROSION/SCOURING	D																																																																	
EROSION/SCOURING	D																																																																	
FLOOD FREQUENCY	D																																																																	
FLOOD FREQUENCY	D																																																																	
FLOOD INTENSITY	D																																																																	
FLOOD INTENSITY	D																																																																	
FLOW REGIME																																																																		
CIRCULATION/MIXING	D																																																																	
CIRCULATION/MIXING	D																																																																	
NOISE																											D		D		D																																			

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
D=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

EDGE VEGETATED LOW LOAD
VERSUS
WATER

INTER-TYPE
ENVIRONMENTAL CHANGE
LINKAGES

PRIMARY
ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES	↑ SECONDARY ENVIRONMENTAL CHANGES	AQUIFER RECHARGE (I)	AQUIFER RECHARGE (D)	GROUNDWATER DISCHARGE (I)	GROUNDWATER DISCHARGE (D)	GROUNDWATER SALINITY (I)	SURFACE WATER SALINITY (I)	SURFACE WATER SALINITY (D)	WATER TEMPERATURE (I)	WATER TEMPERATURE (D)	SUSPENDED SOLIDS (I)	SUSPENDED SOLIDS (D)	TOXIC SUBSTANCES (I)	NUTRIENTS (I)	NUTRIENTS (D)	PATHOGENS (I)	pH (I)	pH (D)	DISSOLVED OXYGEN (D)	DISSOLVED SOLIDS (I)	DISSOLVED SOLIDS (D)	SUBSTRATE PARTICLE SIZE (I)	SUBSTRATE PARTICLE SIZE (D)	SEDIMENTATION (I)	SEDIMENTATION (D)	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE (I)	FAUNAL ABUNDANCE (D)	FAUNAL REPRODUCTIVE POTENTIAL (I)	FAUNAL REPRODUCTIVE POTENTIAL (D)	FAUNAL DIVERSITY (I)	FAUNAL DIVERSITY (D)	FLORAL ABUNDANCE (I)	FLORAL ABUNDANCE (D)	FLORAL DIVERSITY (I)	FLORAL DIVERSITY (D)	SUNLIGHT PENETRATION (D)	PRIMARY PRODUCTIVITY (I)	PRIMARY PRODUCTIVITY (D)	SOIL ASSIMILATIVE CAPACITY (I)	SOIL ASSIMILATIVE CAPACITY (D)	BATHYMETRY VARIABILITY (I)	WATER DEPTH (I)	WATER DEPTH (D)	SHORE PROTECTION CAPACITY (I)	SHORE PROTECTION CAPACITY (D)	SHORELINE CHANGES	LITTORAL DRIFT (I)	LITTORAL DRIFT (D)	RUNOFF	EROSION/SCOURING (I)	EROSION/SCOURING (D)	FLOOD FREQUENCY (I)	FLOOD FREQUENCY (D)	FLOOD INTENSITY (I)	FLOOD INTENSITY (D)	FLOW REGIME	CIRCULATION/MIXING (I)	CIRCULATION/MIXING (D)	NOISE
AQUIFER RECHARGE	I																																																												
AQUIFER RECHARGE	D																																																												
GROUNDWATER DISCHARGE	I																																																												
GROUNDWATER DISCHARGE	D																																																												
GROUNDWATER SALINITY	I				X													X																																							
SURFACE WATER SALINITY	I																																																												
SURFACE WATER SALINITY	D																																																												
WATER TEMPERATURE	I																																																												
WATER TEMPERATURE	D																																																												
SUSPENDED SOLIDS	I																																																												
SUSPENDED SOLIDS	D																																																												
TOXIC SUBSTANCES	I											X														O		O		O																											
NUTRIENTS	I											O	X																																													
NUTRIENTS	D													X																																												
PATHOGENS	I														X											O		O		O																											
pH	I																																																												
pH	D																																																												
DISSOLVED OXYGEN	D																																																												
DISSOLVED SOLIDS	I																		X																																							
DISSOLVED SOLIDS	D																			X																																						
SUBSTRATE PARTICLE SIZE	I																									O		O		O																												
SUBSTRATE PARTICLE SIZE	D																																																												
SEDIMENTATION	I										X																																				X										
SEDIMENTATION	D									X																																				X											
SEDIMENT CHEMISTRY												X					V																																								
FAUNAL ABUNDANCE	I																									X	O	X		O																												
FAUNAL ABUNDANCE	D																										X		X		O																											
FAUNAL REPRODUCTIVE POTENTIAL	I																																																												
FAUNAL REPRODUCTIVE POTENTIAL	D																																																												
FAUNAL DIVERSITY	I																													O																												
FAUNAL DIVERSITY	D																														O																											
FLORAL ABUNDANCE	I								V	X		X												X		X		O																									V			
FLORAL ABUNDANCE	D							V		X		X												X		X		O																								V			
FLORAL DIVERSITY	I																											O		O																												
FLORAL DIVERSITY	D																												O		O																											
SUNLIGHT PENETRATION	D																																																												
PRIMARY PRODUCTIVITY	I									X			X												X		X		O																												
PRIMARY PRODUCTIVITY	D										X			X												X		X		O																											
SOIL ASSIMILATIVE CAPACITY	I													X		V	V			X																																						
SOIL ASSIMILATIVE CAPACITY	D											X	X		X	V	V		X																																							
BATHYMETRY VARIABILITY	I																																																												
WATER DEPTH	I																																																												
WATER DEPTH	D																																																												
SHORE PROTECTION CAPACITY	I																																																												
SHORE PROTECTION CAPACITY	D																																																												
SHORELINE CHANGES																																																													
LITTORAL DRIFT	I																																																												
LITTORAL DRIFT	D																																																												
RUNOFF	I						V			O		X	O		O	V	V		X																								X					X					X		X		X			
EROSION/SCOURING	I									X		O	X		O				X																												X											
EROSION/SCOURING	D										X			O						X																												X										
FLOOD FREQUENCY	I									X		O	X		O	V	V		X																																							
FLOOD FREQUENCY	D										X			X		O	O			X																																						
FLOOD INTENSITY	I									X		O	X		O	V	V		X																																							
FLOOD INTENSITY	D										X			X		O	O			X																																						
FLOW REGIME				X	X			X																																																			
CIRCULATION/MIXING	I																																																							X			
CIRCULATION/MIXING	D																																																												
NOISE																																																													

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

EDGE NON-VEGETATED HIGH LOAD
VERSUS
LAND

INTER-TYPE
ENVIRONMENTAL CHANGE
LINKAGES

SECONDARY ENVIRONMENTAL CHANGES →

PRIMARY ENVIRONMENTAL CHANGES ↓

	AQUIFER RECHARGE	AQUIFER RECHARGE	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE	GROUNDWATER SALINITY	SURFACE WATER SALINITY	SURFACE WATER SALINITY	WATER TEMPERATURE	WATER TEMPERATURE	SUSPENDED SOLIDS	SUSPENDED SOLIDS	TOXIC SUBSTANCES	NUTRIENTS	NUTRIENTS	PATHOGENS	pH	pH	DISSOLVED OXYGEN	DISSOLVED SOLIDS	DISSOLVED SOLIDS	SUBSTRATE PARTICLE SIZE	SUBSTRATE PARTICLE SIZE	SEDIMENTATION	SEDIMENTATION	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE	FAUNAL ABUNDANCE	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL DIVERSITY	FAUNAL DIVERSITY	FAUNAL ABUNDANCE	FLORAL ABUNDANCE	FLORAL ABUNDANCE	FLORAL DIVERSITY	FLORAL DIVERSITY	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY	PRIMARY PRODUCTIVITY	SOIL ASSIMILATIVE CAPACITY	SOIL ASSIMILATIVE CAPACITY	BATHYMETRY VARIABILITY	WATER DEPTH	WATER DEPTH	SHORE PROTECTION CAPACITY	SHORE PROTECTION CAPACITY	SHORELINE CHANGES	LITTORAL DRIFT	LITTORAL DRIFT	RUNOFF	EROSION/SCOURING	EROSION/SCOURING	FLOOD FREQUENCY	FLOOD FREQUENCY	FLOOD INTENSITY	FLOOD INTENSITY	FLOW REGIME	CIRCULATION/MIXING	CIRCULATION/MIXING	NOISE
AQUIFER RECHARGE	I																																																																				
AQUIFER RECHARGE	D																																																																				
GROUNDWATER DISCHARGE	I																																																																				
GROUNDWATER DISCHARGE	D																																																																				
GROUNDWATER SALINITY	I					D														D																																															
SURFACE WATER SALINITY	I																																																																				
SURFACE WATER SALINITY	D																																																																				
WATER TEMPERATURE	I																																																																				
WATER TEMPERATURE	D																																																																				
SUSPENDED SOLIDS	I																																																																				
SUSPENDED SOLIDS	D																																																																				
TOXIC SUBSTANCES	I											D															D		D		D																																					
NUTRIENTS	I																																																																				
NUTRIENTS	D																																																																				
PATHOGENS	I																										D		D		D																																					
pH	I																																																																				
pH	D																																																																				
DISSOLVED OXYGEN	D																																																																				
DISSOLVED SOLIDS	I					D														D																																																
DISSOLVED SOLIDS	D																																																																				
SUBSTRATE PARTICLE SIZE	I																																																																				
SUBSTRATE PARTICLE SIZE	D																																																																				
SEDIMENTATION	I																																																																				
SEDIMENTATION	D																																																																				
SEDIMENT CHEMISTRY																																																																					
FAUNAL ABUNDANCE	I																									D		D		D																																					
FAUNAL ABUNDANCE	D																										D		D		D																																					
FAUNAL REPRODUCTIVE POTENTIAL	I																									D		D		D																																					
FAUNAL REPRODUCTIVE POTENTIAL	D																										D		D		D																																					
FAUNAL DIVERSITY	I																									D		D		D																																					
FAUNAL DIVERSITY	D																										D		D		D																																					
FLORAL ABUNDANCE	I																									D		D		D																																					
FLORAL ABUNDANCE	D																										D		D		D																																					
FLORAL DIVERSITY	I																									D		D		D																																					
FLORAL DIVERSITY	D																										D		D		D																																					
SUNLIGHT PENETRATION	I																																																																				
PRIMARY PRODUCTIVITY	I																									D		D		D																																					
PRIMARY PRODUCTIVITY	D																																																																				
SOIL ASSIMILATIVE CAPACITY	I																																																																				
SOIL ASSIMILATIVE CAPACITY	D																																																																				
BATHYMETRY VARIABILITY	I																																																																				
WATER DEPTH	I																																																																				
WATER DEPTH	D																																																																				
SHORE PROTECTION CAPACITY	I																																																																				
SHORE PROTECTION CAPACITY	D																																																																				
SHORELINE CHANGES																																																																					
LITTORAL DRIFT	I																																																																				
LITTORAL DRIFT	D																																																																				
RUNOFF	I																																																																				
EROSION/SCOURING	I																																																																				
EROSION/SCOURING	D																																																																				
FLOOD FREQUENCY	I																																																																				
FLOOD FREQUENCY	D																																																																				
FLOOD INTENSITY	I																																																																				
FLOOD INTENSITY	D																																																																				
FLOW REGIME				D	D	D						D	D	X	X				X																																																
CIRCULATION/MIXING	I																																																																				
CIRCULATION/MIXING	D																																																																				
NOISE																																																																					

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

EDGE NON-VEGETATED HIGH LOAD
VERSUS
EDGE VEGETATED LOW LOAD

INTER-TYPE
ENVIRONMENTAL CHANGE
LINKAGES

→ PRIMARY ENVIRONMENTAL CHANGES

→ SECONDARY ENVIRONMENTAL CHANGES

	AQUIFER RECHARGE	AQUIFER RECHARGE	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE	GROUNDWATER SALINITY	SURFACE WATER SALINITY	SURFACE WATER SALINITY	WATER TEMPERATURE	WATER TEMPERATURE	SUSPENDED SOLIDS	SUSPENDED SOLIDS	TOXIC SUBSTANCES	NUTRIENTS	NUTRIENTS	PATHOGENS	pH	pH	DISSOLVED OXYGEN	DISSOLVED SOLIDS	DISSOLVED SOLIDS	SUBSTRATE PARTICLE SIZE	SUBSTRATE PARTICLE SIZE	SEDIMENTATION	SEDIMENTATION	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE	FAUNAL ABUNDANCE	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL DIVERSITY	FAUNAL DIVERSITY	FLORAL ABUNDANCE	FLORAL ABUNDANCE	FLORAL DIVERSITY	FLORAL DIVERSITY	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY	PRIMARY PRODUCTIVITY	SOIL ASSIMILATIVE CAPACITY	SOIL ASSIMILATIVE CAPACITY	BATHYMETRY VARIABILITY	WATER DEPTH	WATER DEPTH	SHORE PROTECTION CAPACITY	SHORE PROTECTION CAPACITY	SHORELINE CHANGES	LITTORAL DRIFT	LITTORAL DRIFT	RUNOFF	EROSION/SCOURING	EROSION/SCOURING	FLOOD FREQUENCY	FLOOD FREQUENCY	FLOOD INTENSITY	FLOOD INTENSITY	FLOW REGIME	CIRCULATION/MIXING	CIRCULATION/MIXING	NOISE
AQUIFER RECHARGE	I																																																																			
AQUIFER RECHARGE		O																																																																		
GROUNDWATER DISCHARGE			I																																																																	
GROUNDWATER DISCHARGE				O																																																																
GROUNDWATER SALINITY					I																																																														
SURFACE WATER SALINITY						I													O																																															
SURFACE WATER SALINITY							O																																																												
WATER TEMPERATURE								I																																																											
WATER TEMPERATURE									O																																																										
SUSPENDED SOLIDS										I																																																									
SUSPENDED SOLIDS											O																																																								
TOXIC SUBSTANCES												I																																																							
NUTRIENTS													I														O		O		O																																					
NUTRIENTS														O																																																				
PATHOGENS															I																																																			
pH																O											O		O		O																																				
pH																	I																																																	
DISSOLVED OXYGEN																		I																																																
DISSOLVED SOLIDS																			O																																															
DISSOLVED SOLIDS																				O																																														
SUBSTRATE PARTICLE SIZE																					I																																													
SUBSTRATE PARTICLE SIZE																						O																																												
SEDIMENTATION																							I																																										
SEDIMENTATION																								O																																									
SEDIMENT CHEMISTRY																									I																																									
FAUNAL ABUNDANCE																										I																																								
FAUNAL ABUNDANCE																											O		O		O																																			
FAUNAL REPRODUCTIVE POTENTIAL																												I		O		O																																		
FAUNAL REPRODUCTIVE POTENTIAL																													O		O		O																																	
FAUNAL DIVERSITY																														I																																			
FAUNAL DIVERSITY																															O		O																															
FLORAL ABUNDANCE																																I																																		
FLORAL ABUNDANCE																											O		O		O		O																																	
FLORAL DIVERSITY																																		I																															
FLORAL DIVERSITY																											O		O		O		O		O																													
SUNLIGHT PENETRATION																																				I																													
PRIMARY PRODUCTIVITY																																					O																											
PRIMARY PRODUCTIVITY																											O		O		O							O																									
SOIL ASSIMILATIVE CAPACITY																																							I																							
SOIL ASSIMILATIVE CAPACITY																																								O																						
BATHYMETRY VARIABILITY																																									I																					
WATER DEPTH																																										I																		
WATER DEPTH																																											O																	
SHORE PROTECTION CAPACITY																																												I																
SHORE PROTECTION CAPACITY																																													O														
SHORELINE CHANGES																																														I												
LITTORAL DRIFT																																															I										
LITTORAL DRIFT																																																O									
RUNOFF																																																	O								
EROSION/SCOURING																																																		I							
EROSION/SCOURING																																																			O						
FLOOD FREQUENCY																																																				I				
FLOOD FREQUENCY																																																					O			
FLOOD INTENSITY																																																						I		
FLOOD INTENSITY																																																							O	
FLOW REGIME																																																								I
CIRCULATION/MIXING																																																									I
CIRCULATION/MIXING																																																									O
NOISE																											O		O		O																																		

I=INCREASE
O=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

EDGE NON-VEGETATED HIGH LOAD
VERSUS
EDGE NON-VEGETATED HIGH LOAD

INTER-TYPE ENVIRONMENTAL CHANGE LINKAGES

→ SECONDARY ENVIRONMENTAL CHANGES

→ PRIMARY ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES	ENVIRONMENTAL CHANGES	AQUIFER RECHARGE	AQUIFER RECHARGE	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE	GROUNDWATER SALINITY	SURFACE WATER SALINITY	SURFACE WATER SALINITY	WATER TEMPERATURE	WATER TEMPERATURE	SUSPENDED SOLIDS	SUSPENDED SOLIDS	TOXIC SUBSTANCES	NUTRIENTS	NUTRIENTS	PATHOGENS	pH	pH	DISSOLVED OXYGEN	DISSOLVED SOLIDS	DISSOLVED SOLIDS	SUBSTRATE PARTICLE SIZE	SUBSTRATE PARTICLE SIZE	SEDIMENTATION	SEDIMENTATION	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE	FAUNAL ABUNDANCE	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL DIVERSITY	FAUNAL DIVERSITY	FLORAL ABUNDANCE	FLORAL ABUNDANCE	FLORAL DIVERSITY	FLORAL DIVERSITY	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY	PRIMARY PRODUCTIVITY	SOIL ASSIMILATIVE CAPACITY	SOIL ASSIMILATIVE CAPACITY	BATHYMETRY VARIABILITY	WATER DEPTH	WATER DEPTH	SHORE PROTECTION CAPACITY	SHORE PROTECTION CAPACITY	SHORELINE CHANGES	LITTORAL DRIFT	LITTORAL DRIFT	RUNOFF	EROSION/SCOURING	EROSION/SCOURING	FLOOD FREQUENCY	FLOOD FREQUENCY	FLOOD INTENSITY	FLOOD INTENSITY	FLOW REGIME	CIRCULATION/MIXING	CIRCULATION/MIXING	NOISE
AQUIFER RECHARGE	I	I				V														V	X																																				X			
AQUIFER RECHARGE	D		V																																																						X			
GROUNDWATER DISCHARGE	I			X																																																					X			
GROUNDWATER DISCHARGE	D				V																																																			X			
GROUNDWATER SALINITY	I					V														X						O		O		O		O																												
SURFACE WATER SALINITY	I																																																											
SURFACE WATER SALINITY	D																																																											
WATER TEMPERATURE	I																																																											
WATER TEMPERATURE	D																																																											
SUSPENDED SOLIDS	I																																																											
SUSPENDED SOLIDS	D																																																											
TOXIC SUBSTANCES	I												X													X		X		X		X									X																			
NUTRIENTS	I												V	X												X							X		X			X																						
NUTRIENTS	D																									X																																		
PATHOGENS	I															X												O		O		O																												
pH	I																																																											
pH	D																																																											
DISSOLVED OXYGEN	D																																																											
DISSOLVED SOLIDS	I					X														V						O		O		O		O																												
DISSOLVED SOLIDS	D																				O						O		O		O																													
SUBSTRATE PARTICLE SIZE	I																									X	X		X		X										O				X				O			X								
SUBSTRATE PARTICLE SIZE	D																									X							O		O			O								X		X			X									
SEDIMENTATION	I													V									X			X		O		O		O	O		O			O			V						X	X												
SEDIMENTATION	D														X											X	O		O		O									X									X											
SEDIMENT CHEMISTRY													X	X	X												X	X	X	X	X	X	X		X			X																						
FAUNAL ABUNDANCE	I													O		O											O		X	O	O	O																												
FAUNAL ABUNDANCE	D																											O		O		O																												
FAUNAL REPRODUCTIVE POTENTIAL	I																										X				X																													
FAUNAL REPRODUCTIVE POTENTIAL	D																											X				X																												
FAUNAL DIVERSITY	I																										X		X		O																													
FAUNAL DIVERSITY	D																										O	X	O	X		O																												
FLORAL ABUNDANCE	I	O													X									X		X	X		X		X				X			X		X					X				X			X				O	X			
FLORAL ABUNDANCE	D																																																											
FLORAL DIVERSITY	I																										X		X		X		X					X														O					O			
FLORAL DIVERSITY	D																																																											
SUNLIGHT PENETRATION	D																																																											
PRIMARY PRODUCTIVITY	I														X											X	X		X		X		X		X																									
PRIMARY PRODUCTIVITY	D																																																											
SOIL ASSIMILATIVE CAPACITY	I	O													X											X																										X					O			
SOIL ASSIMILATIVE CAPACITY	D		X										V	V		V				X						X																								X										
BATHYMETRY VARIABILITY	I																																																											
WATER DEPTH	I																																																											
WATER DEPTH	D																																																											
SHORE PROTECTION CAPACITY	I																										X		X		X		X		X			X							X							X		X		X	X			
SHORE PROTECTION CAPACITY	D																											X		X		X														X				X	X		X		X		X			
SHORELINE CHANGES																								X	X		X	X	X	X	X	X	X		X			X							X	X	O	X	X		X	X	X	X	X	X	X			
LITTORAL DRIFT	I																																												X		X	V				X								
LITTORAL DRIFT	D																																													X	X		V		X									
RUNOFF	I		X												X							X																								X				X	X		X		X		X			
EROSION/SCOURING	I														X										X			X		X		X								O	O					X	X	X		X	V									
EROSION/SCOURING	D																							X			O		O		O		X		X			X		O	O				X				X			V								
FLOOD FREQUENCY	I	X				V																		X				X		X		X														X	X				X		O				X			
FLOOD FREQUENCY	D		X																						X		X		X		X		O		O			O							X							X					X			
FLOOD INTENSITY	I					V									X									X				X		X		X														X	X				X				X		X			
FLOOD INTENSITY	D																								X		X		X		X		O		O			X							X							X					X			
FLOW REGIME				X	X	X							X	X	X	X				X																									X	X	X	X	X		X	X	X	X	X	X	V			
CIRCULATION/MIXING	I																																																											
CIRCULATION/MIXING	D																																																											
NOISE																											X		X		X																													

I=INCREASE
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POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

EDGE NON-VEGETATED HIGH LOAD VERSUS WATER

INTER-TYPE ENVIRONMENTAL CHANGE LINKAGES

→ SECONDARY ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES	ENVIRONMENTAL CHANGES	AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY I	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES I	NUTRIENTS I	NUTRIENTS D	PATHOGENS I	pH I	pH D	DISSOLVED OXYGEN D	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I
AQUIFER RECHARGE	I																														
AQUIFER RECHARGE	D																														
GROUNDWATER DISCHARGE	I																														
GROUNDWATER DISCHARGE	D																														
GROUNDWATER SALINITY	I						O													O											
SURFACE WATER SALINITY	I																														
SURFACE WATER SALINITY	D																														
WATER TEMPERATURE	I																														
WATER TEMPERATURE	D																														
SUSPENDED SOLIDS	I																														
SUSPENDED SOLIDS	D																														
TOXIC SUBSTANCES	I												O																		
NUTRIENTS	I												O	O																	
NUTRIENTS	D														O																
PATHOGENS	I															O															
pH	I																														
pH	D																														
DISSOLVED OXYGEN	D																														
DISSOLVED SOLIDS	I																			O											
DISSOLVED SOLIDS	D																				O										
SUBSTRATE PARTICLE SIZE	I																										O		O		O
SUBSTRATE PARTICLE SIZE	D																											O		O	
SEDIMENTATION	I											O																			
SEDIMENTATION	D										O																				
SEDIMENT CHEMISTRY													O						O												
FAUNAL ABUNDANCE	I																										O		O		
FAUNAL ABUNDANCE	D																											O			
FAUNAL REPRODUCTIVE POTENTIAL	I																														
FAUNAL REPRODUCTIVE POTENTIAL	D																														
FAUNAL DIVERSITY	I																														
FAUNAL DIVERSITY	D																														
FLORAL ABUNDANCE	I									O	O			O													O		O		O
FLORAL ABUNDANCE	D																														
FLORAL DIVERSITY	I																										O		O		O
FLORAL DIVERSITY	D																														
SUNLIGHT PENETRATION	D																														
PRIMARY PRODUCTIVITY	I										O			O													O		O		O
PRIMARY PRODUCTIVITY	D																														
SOIL ASSIMILATIVE CAPACITY	I														O		O	O			O										
SOIL ASSIMILATIVE CAPACITY	D												O	O		O	O	O		O											
BATHYMETRY VARIABILITY	I																														
WATER DEPTH	I																														
WATER DEPTH	D																														
SHORE PROTECTION CAPACITY	I																														
SHORE PROTECTION CAPACITY	D																														
SHORELINE CHANGES																															
LITTORAL DRIFT	I																														
LITTORAL DRIFT	D																														
RUNOFF	I							V			O		O	O		O	O	O		O											
EROSION/SCOURING	I										O		O	O		O				O											
EROSION/SCOURING	D											O			O						O										
FLOOD FREQUENCY	I										O		O	O		O				O											
FLOOD FREQUENCY	D											O			O						O										
FLOOD INTENSITY	I										O		O	O		O				O											
FLOOD INTENSITY	D											O			O						O										
FLOW REGIME				O	O			O																							
CIRCULATION/MIXING	I																														
CIRCULATION/MIXING	D																														
NOISE																															

PRIMARY ENVIRONMENTAL CHANGES	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION D	PRIMARY PRODUCTIVITY I	PRIMARY PRODUCTIVITY D	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY I	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF I	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE
AQUIFER RECHARGE I																													
AQUIFER RECHARGE D																													
GROUNDWATER DISCHARGE I																													
GROUNDWATER DISCHARGE D																													
GROUNDWATER SALINITY I																													
SURFACE WATER SALINITY I																													
SURFACE WATER SALINITY D																													
WATER TEMPERATURE I																													
WATER TEMPERATURE D																													
SUSPENDED SOLIDS I																													
SUSPENDED SOLIDS D																													
TOXIC SUBSTANCES I																													
NUTRIENTS I																													
NUTRIENTS D																													
PATHOGENS I																													
pH I																													
pH D																													
DISSOLVED OXYGEN D																													
DISSOLVED SOLIDS I																													
DISSOLVED SOLIDS D																													
SUBSTRATE PARTICLE SIZE I																													
SUBSTRATE PARTICLE SIZE D	O																												
SEDIMENTATION I																		O											
SEDIMENTATION D																	O												
SEDIMENT CHEMISTRY																													
FAUNAL ABUNDANCE I																													
FAUNAL ABUNDANCE D																													
FAUNAL REPRODUCTIVE POTENTIAL I																													
FAUNAL REPRODUCTIVE POTENTIAL D																													
FAUNAL DIVERSITY I																													
FAUNAL DIVERSITY D																													
FLORAL ABUNDANCE I																										O			
FLORAL ABUNDANCE D																													
FLORAL DIVERSITY I																													
FLORAL DIVERSITY D																													
SUNLIGHT PENETRATION D																													
PRIMARY PRODUCTIVITY I																													
PRIMARY PRODUCTIVITY D																													
SOIL ASSIMILATIVE CAPACITY I																													
SOIL ASSIMILATIVE CAPACITY D																													
BATHYMETRY VARIABILITY I																													
WATER DEPTH I																													
WATER DEPTH D																													
SHORE PROTECTION CAPACITY I																													
SHORE PROTECTION CAPACITY D																													
SHORELINE CHANGES																													
LITTORAL DRIFT I																													
LITTORAL DRIFT D																													
RUNOFF I												O					O					O		O		O			
EROSION/SCOURING I																	X												
EROSION/SCOURING D																		X											
FLOOD FREQUENCY I																													
FLOOD FREQUENCY D																													
FLOOD INTENSITY I																													
FLOOD INTENSITY D																													
FLOW REGIME																										O			
CIRCULATION/MIXING I																													
CIRCULATION/MIXING D																													
NOISE																													

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

WATER VERSUS LAND

INTER-TYPE ENVIRONMENTAL CHANGE LINKAGES

→ SECONDARY ENVIRONMENTAL CHANGES

→ PRIMARY ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES		AQUIFER RECHARGE	AQUIFER RECHARGE	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE	GROUNDWATER SALINITY	SURFACE WATER SALINITY	SURFACE WATER SALINITY	WATER TEMPERATURE	WATER TEMPERATURE	SUSPENDED SOLIDS	SUSPENDED SOLIDS	TOXIC SUBSTANCES	NUTRIENTS	NUTRIENTS	PATHOGENS	pH	pH	DISSOLVED OXYGEN	DISSOLVED SOLIDS	DISSOLVED SOLIDS	SUBSTRATE PARTICLE SIZE	SUBSTRATE PARTICLE SIZE	SEDIMENTATION	SEDIMENTATION	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE	FAUNAL ABUNDANCE	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL DIVERSITY	FAUNAL DIVERSITY	FLORAL ABUNDANCE	FLORAL ABUNDANCE	FLORAL DIVERSITY	FLORAL DIVERSITY	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY	PRIMARY PRODUCTIVITY	SOIL ASSIMILATIVE CAPACITY	SOIL ASSIMILATIVE CAPACITY	BATHYMETRY VARIABILITY	WATER DEPTH	WATER DEPTH	SHORE PROTECTION CAPACITY	SHORE PROTECTION CAPACITY	SHORELINE CHANGES	LITTORAL DRIFT	LITTORAL DRIFT	RUNOFF	EROSION/SCOURING	EROSION/SCOURING	FLOOD FREQUENCY	FLOOD FREQUENCY	FLOOD INTENSITY	FLOOD INTENSITY	FLOW REGIME	CIRCULATION/MIXING	CIRCULATION/MIXING	NOISE
		I	D	I	D	I	I	D	I	D	I	D	I	I	D	I	I	D	D	I	D	I	D	I	D		I	D	I	D	I	D	I	D	I	D	D	I	D	I	D	I	I	D	I	D		I	D	I	I	D	I	D	I	D		I	D	
AQUIFER RECHARGE	I					O																																																		X			
AQUIFER RECHARGE	D																																																							X			
GROUNDWATER DISCHARGE	I																																																							X			
GROUNDWATER DISCHARGE	D																																																										
GROUNDWATER SALINITY	I					O																																																					
SURFACE WATER SALINITY	I					O																																																					
SURFACE WATER SALINITY	D																																																										
WATER TEMPERATURE	I																																																										
WATER TEMPERATURE	D																																																										
SUSPENDED SOLIDS	I																																																										
SUSPENDED SOLIDS	D																																																										
TOXIC SUBSTANCES	I																										O		O		O																												
NUTRIENTS	I																																																										
NUTRIENTS	D																																																										
PATHOGENS	I																																																										
pH	I																																																										
pH	D																																																										
DISSOLVED OXYGEN	D																																																										
DISSOLVED SOLIDS	I																																																										
DISSOLVED SOLIDS	D																																																										
SUBSTRATE PARTICLE SIZE	I																																																										
SUBSTRATE PARTICLE SIZE	D																																																										
SEDIMENTATION	I																																																										
SEDIMENTATION	D																																																										
SEDIMENT CHEMISTRY																																																											
FAUNAL ABUNDANCE	I																									O		O		O																													
FAUNAL ABUNDANCE	D																										O		O		O																												
FAUNAL REPRODUCTIVE POTENTIAL	I																																																										
FAUNAL REPRODUCTIVE POTENTIAL	D																																																										
FAUNAL DIVERSITY	I																																																										
FAUNAL DIVERSITY	D																															O																												
FLORAL ABUNDANCE	I																																																										
FLORAL ABUNDANCE	D																																																										
FLORAL DIVERSITY	I																																																										
FLORAL DIVERSITY	D																																																										
SUNLIGHT PENETRATION	D																																																										
PRIMARY PRODUCTIVITY	I																																																										
PRIMARY PRODUCTIVITY	D																																																										
SOIL ASSIMILATIVE CAPACITY	I																																																										
SOIL ASSIMILATIVE CAPACITY	D																																																										
BATHYMETRY VARIABILITY	I																																																										
WATER DEPTH	I																																																			O		O					
WATER DEPTH	D																																																				O		O				
SHORE PROTECTION CAPACITY	I																																																				O		O				
SHORE PROTECTION CAPACITY	D																																																			O		O					
SHORELINE CHANGES																																																				O	O	O	O				
LITTORAL DRIFT	I																																																				O		O				
LITTORAL DRIFT	D																																																			O		O					
RUNOFF	I																																																										
EROSION/SCOURING	I																																																		O									
EROSION/SCOURING	D																																																			O								
FLOOD FREQUENCY	I	O				O								O														X		X		X		O		O			O												O		O				O			
FLOOD FREQUENCY	D		O																								O		O		O		O		O			O														O		O			O			
FLOOD INTENSITY	I	O				O								O														X		X		X		O		O			O												O				O		O			
FLOOD INTENSITY	D		O																								O		O		O		O		O			O														O				O	O			
FLOW REGIME						O								O	O																																				O	O	O	O	O	O	O			
CIRCULATION/MIXING	I																																																										
CIRCULATION/MIXING	D																																																										
NOISE																																																												

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

WATER
VERSUS
EDGE VEGETATED LOW LOAD

INTER-TYPE ENVIRONMENTAL CHANGE LINKAGES

→ PRIMARY ENVIRONMENTAL CHANGES / ↑ SECONDARY ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES		AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY I	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES I	NUTRIENTS I	NUTRIENTS D	PATHOGENS I	pH I	pH D	DISSOLVED OXYGEN D	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION D	PRIMARY PRODUCTIVITY I	PRIMARY PRODUCTIVITY D	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY I	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF I	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE
AQUIFER RECHARGE	I					X																																																		X			
AQUIFER RECHARGE	D																																																							O			
GROUNDWATER DISCHARGE	I																																																							X			
GROUNDWATER DISCHARGE	D																																																										
GROUNDWATER SALINITY	I					X																																																					
SURFACE WATER SALINITY	I					X																		O		O		X		X		X		X		X			X																					
SURFACE WATER SALINITY	D																								O	O	O	O	O	O	O	O	O	O	O	O		O	O																					
WATER TEMPERATURE	I																									O	O	X	O	X	O	X	O	X	O	X		O	X																					
WATER TEMPERATURE	D																									O	O	X	X	X	O	X		X		X			X																					
SUSPENDED SOLIDS	I												X	X		X								X				X		X		X																X			X									
SUSPENDED SOLIDS	D														X										X		O		O		O																		X			O								
TOXIC SUBSTANCES	I												X													X		X		X		X		X		X			X																					
NUTRIENTS	I												X	X												X							X	O	X	O		X	O																					
NUTRIENTS	D														X											X								O		O			O																					
PATHOGENS	I															X												X		X		X																												
pH	I																									X		X		X		X		X		X			X												X									
pH	D												X													X		X		X		X		X		X			X												X									
DISSOLVED OXYGEN	D												X													X		X		X		X																												
DISSOLVED SOLIDS	I					X																						X		X		X		X		X			X																					
DISSOLVED SOLIDS	D																										X		X		X		X		X			X																						
SUBSTRATE PARTICLE SIZE	I																																																											
SUBSTRATE PARTICLE SIZE	D																																																											
SEDIMENTATION	I																																								X						X	X												
SEDIMENTATION	D																																							X									X											
SEDIMENT CHEMISTRY																																																												
FAUNAL ABUNDANCE	I																										O		O		O																													
FAUNAL ABUNDANCE	D																											O		O		O																												
FAUNAL REPRODUCTIVE POTENTIAL	I																										O																																	
FAUNAL REPRODUCTIVE POTENTIAL	D																											O																																
FAUNAL DIVERSITY	I																														O																													
FAUNAL DIVERSITY	D																															O																											O	
FLORAL ABUNDANCE	I												V		O												O		O		O														X		O					X					X			
FLORAL ABUNDANCE	D																											O		O		O														X	O				X						X			
FLORAL DIVERSITY	I																														O																													
FLORAL DIVERSITY	D																															O																												
SUNLIGHT PENETRATION	D																																																											
PRIMARY PRODUCTIVITY	I																										O		O		O																													
PRIMARY PRODUCTIVITY	D																											O		O		O																												
SOIL ASSIMILATIVE CAPACITY	I																																																											
SOIL ASSIMILATIVE CAPACITY	D																																																											
BATHYMETRY VARIABILITY	I																																												O	X	X	X	X		X	X					X			
WATER DEPTH	I	O																										O		O		O		O		O			O							X			O				X		X		X			
WATER DEPTH	D		O																								O		O		O		O		O			O							X			O						X		X	X			
SHORE PROTECTION CAPACITY	I																																												O		X					X		X		X	O			
SHORE PROTECTION CAPACITY	D																																													X	X				X		X		X		X			
SHORELINE CHANGES																											X	X	X	X	X	X	O	X	O	X		O	X						O	X	O						X	X	X	X	X			
LITTORAL DRIFT	I																							X																					O		X	X												
LITTORAL DRIFT	D																							X	X																					X	O		X											
RUNOFF	I																																																											
EROSION/SCOURING	I																					O						X		X		X		X		X			X	O						X	X	X			X									
EROSION/SCOURING	D																						O										X		X			X			O				X				X			X								
FLOOD FREQUENCY	I					V																		X				X		X		X		X		X			X												X		X				X			
FLOOD FREQUENCY	D														V										X		O		O		O		O		O			O														X		X			X			
FLOOD INTENSITY	I					V																		X				X		X		X		X		X			X												X				X		X			
FLOOD INTENSITY	D														V										X		O		O		O		O		O			O														X				X	X			
FLOW REGIME				X		V								X	X									X	X		O	X	O	X	O	X	X	X	X	X		X	X						X	X		X	X		X	X	X	X	X	X	X			
CIRCULATION/MIXING	I													X											X	X	O		O		O																	X			X									
CIRCULATION/MIXING	D														X									X		X		X		X		O																	X			X								
NOISE																																																												

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

WATER
VERSUS
EDGE NON-VEGETATED HIGH LOAD

INTER-TYPE
ENVIRONMENTAL CHANGE
LINKAGES

↑ SECONDARY ENVIRONMENTAL CHANGES

→ PRIMARY ENVIRONMENTAL CHANGES

PRIMARY ENVIRONMENTAL CHANGES		AQUIFER RECHARGE (I)	AQUIFER RECHARGE (D)	GROUNDWATER DISCHARGE (I)	GROUNDWATER DISCHARGE (D)	GROUNDWATER SALINITY (I)	SURFACE WATER SALINITY (I)	SURFACE WATER SALINITY (D)	WATER TEMPERATURE (I)	WATER TEMPERATURE (D)	SUSPENDED SOLIDS (I)	SUSPENDED SOLIDS (D)	TOXIC SUBSTANCES (I)	NUTRIENTS (I)	NUTRIENTS (D)	PATHOGENS (I)	pH (I)	pH (D)	DISSOLVED OXYGEN (D)	DISSOLVED SOLIDS (I)	DISSOLVED SOLIDS (D)	SUBSTRATE PARTICLE SIZE (I)	SUBSTRATE PARTICLE SIZE (D)	SEDIMENTATION (I)	SEDIMENTATION (D)	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE (I)	FAUNAL ABUNDANCE (D)	FAUNAL REPRODUCTIVE POTENTIAL (I)	FAUNAL REPRODUCTIVE POTENTIAL (D)	FAUNAL DIVERSITY (I)
AQUIFER RECHARGE	I					V																									
AQUIFER RECHARGE	D																														
GROUNDWATER DISCHARGE	I																														
GROUNDWATER DISCHARGE	D																														
GROUNDWATER SALINITY	I					X																									
SURFACE WATER SALINITY	I					X																		O		O		X		X	
SURFACE WATER SALINITY	D																								O	O	O	O	O	O	O
WATER TEMPERATURE	I																									O	O	X	O	X	O
WATER TEMPERATURE	D																									O	O	X	O	X	O
SUSPENDED SOLIDS	I												X	X		X								X				O		O	
SUSPENDED SOLIDS	D														X										X		O		O		O
TOXIC SUBSTANCES	I												X													X		X		X	
NUTRIENTS	I												X	X												X					
NUTRIENTS	D														X											X					
PATHOGENS	I															X												X		X	
pH	I																									X		X		X	
pH	D												X													X		X		X	
DISSOLVED OXYGEN	D												X													X		X		X	
DISSOLVED SOLIDS	I					X																						X		X	
DISSOLVED SOLIDS	D																										X		X		X
SUBSTRATE PARTICLE SIZE	I																														
SUBSTRATE PARTICLE SIZE	D																														
SEDIMENTATION	I																														
SEDIMENTATION	D																														
SEDIMENT CHEMISTRY																															
FAUNAL ABUNDANCE	I																										O		O		O
FAUNAL ABUNDANCE	D																											O		O	
FAUNAL REPRODUCTIVE POTENTIAL	I																														
FAUNAL REPRODUCTIVE POTENTIAL	D																														
FAUNAL DIVERSITY	I																														O
FAUNAL DIVERSITY	D																														
FLORAL ABUNDANCE	I												V		O												X		X		X
FLORAL ABUNDANCE	D																											X		X	
FLORAL DIVERSITY	I																														O
FLORAL DIVERSITY	D																														
SUNLIGHT PENETRATION	D																														
PRIMARY PRODUCTIVITY	I																										X		X		X
PRIMARY PRODUCTIVITY	D																											X		X	
SOIL ASSIMILATIVE CAPACITY	I																														
SOIL ASSIMILATIVE CAPACITY	D																														
BATHYMETRY VARIABILITY	I																														
WATER DEPTH	I	X																										O		O	
WATER DEPTH	D		X																								O		O		O
SHORE PROTECTION CAPACITY	I																														
SHORE PROTECTION CAPACITY	D																														
SHORELINE CHANGES																											X	X	X	X	X
LITTORAL DRIFT	I																							X							
LITTORAL DRIFT	D																							V	X						
RUNOFF	I																														
EROSION/SCOURING	I																					O						X		X	
EROSION/SCOURING	D																						O								
FLOOD FREQUENCY	I					V																		X				X		X	
FLOOD FREQUENCY	D														V										X		O		O		O
FLOOD INTENSITY	I					V																		X				X		X	
FLOOD INTENSITY	D														V										X		O		O		O
FLOW REGIME				X		V								X	X									X	O		O	X	O	X	O
CIRCULATION/MIXING	I													X											X	O	O		O		O
CIRCULATION/MIXING	D														X									X		X		X		X	
NOISE																															

PRIMARY ENVIRONMENTAL CHANGES		FAUNAL DIVERSITY (D)	FLORAL ABUNDANCE (I)	FLORAL ABUNDANCE (D)	FLORAL DIVERSITY (I)	FLORAL DIVERSITY (D)	SUNLIGHT PENETRATION (D)	PRIMARY PRODUCTIVITY (I)	PRIMARY PRODUCTIVITY (D)	SOIL ASSIMILATIVE CAPACITY (I)	SOIL ASSIMILATIVE CAPACITY (D)	BATHYMETRY VARIABILITY (I)	WATER DEPTH (I)	WATER DEPTH (D)	SHORE PROTECTION CAPACITY (I)	SHORE PROTECTION CAPACITY (D)	SHORELINE CHANGES	LITTORAL DRIFT (I)	LITTORAL DRIFT (D)	RUNOFF (I)	EROSION/SCOURING (I)	EROSION/SCOURING (D)	FLOOD FREQUENCY (I)	FLOOD FREQUENCY (D)	FLOOD INTENSITY (I)	FLOOD INTENSITY (D)	FLOW REGIME	CIRCULATION/MIXING (I)	CIRCULATION/MIXING (D)	NOISE
AQUIFER RECHARGE	I																										X			
AQUIFER RECHARGE	D																										X			
GROUNDWATER DISCHARGE	I																										X			
GROUNDWATER DISCHARGE	D																													
GROUNDWATER SALINITY	I																													
SURFACE WATER SALINITY	I	X																												
SURFACE WATER SALINITY	D	O	O		O			O																						
WATER TEMPERATURE	I	X	O		O			O																						
WATER TEMPERATURE	D	X																												
SUSPENDED SOLIDS	I	O																X			X									
SUSPENDED SOLIDS	D																		X			O								
TOXIC SUBSTANCES	I	X																												
NUTRIENTS	I		X		X			X																						
NUTRIENTS	D		O		O			O																						
PATHOGENS	I	X																												
pH	I	X																			X									
pH	D	X																			X									
DISSOLVED OXYGEN	D	X																												
DISSOLVED SOLIDS	I	X																												
DISSOLVED SOLIDS	D		X		X			X																						
SUBSTRATE PARTICLE SIZE	I																													
SUBSTRATE PARTICLE SIZE	D																													
SEDIMENTATION	I										X						X	X												
SEDIMENTATION	D									X									X											
SEDIMENT CHEMISTRY																														
FAUNAL ABUNDANCE	I																													
FAUNAL ABUNDANCE	D	O																												
FAUNAL REPRODUCTIVE POTENTIAL	I																													
FAUNAL REPRODUCTIVE POTENTIAL	D																													
FAUNAL DIVERSITY	I																													
FAUNAL DIVERSITY	D	O																												
FLORAL ABUNDANCE	I														X		X					X					X			
FLORAL ABUNDANCE	D	X														X	X				X						X			
FLORAL DIVERSITY	I																													
FLORAL DIVERSITY	D	O																												
SUNLIGHT PENETRATION	D																													
PRIMARY PRODUCTIVITY	I																													
PRIMARY PRODUCTIVITY	D	X																												
SOIL ASSIMILATIVE CAPACITY	I																													
SOIL ASSIMILATIVE CAPACITY	D																													
BATHYMETRY VARIABILITY	I														X	X	X	X	X		X	X					X			
WATER DEPTH	I	O														X			O				X		X		X			
WATER DEPTH	D														X			O						X		X	X			
SHORE PROTECTION CAPACITY	I														X		X					X		X		X	X			
SHORE PROTECTION CAPACITY	D															X	X				X		X		X		X			
SHORELINE CHANGES		X	O		O			O							X	X	X						X	X	X	X	X			
LITTORAL DRIFT	I														X		X	X												
LITTORAL DRIFT	D															X	X		X											
RUNOFF	I																													
EROSION/SCOURING	I	X								O						X	X	X			X									
EROSION/SCOURING	D		X		X			X			O				X				X			X								
FLOOD FREQUENCY	I	X																			X		X				X			
FLOOD FREQUENCY	D		O		O			O														X		X			X			
FLOOD INTENSITY	I	X																			X				X		X			
FLOOD INTENSITY	D		O		O			O														X				X	X			
FLOW REGIME		X	X		X			X							X	X		X	X		X	X	X	X	X	X	X			
CIRCULATION/MIXING	I																	X			X									
CIRCULATION/MIXING	D	X																	X			X								
NOISE																														

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

WATER VERSUS WATER

INTER-TYPE ENVIRONMENTAL CHANGE LINKAGES

PRIMARY ENVIRONMENTAL CHANGES → / SECONDARY ↑	ENVIRONMENTAL CHANGES	AQUIFER RECHARGE	AQUIFER RECHARGE	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE	GROUNDWATER SALINITY	SURFACE WATER SALINITY	SURFACE WATER SALINITY	WATER TEMPERATURE	WATER TEMPERATURE	SUSPENDED SOLIDS	SUSPENDED SOLIDS	TOXIC SUBSTANCES	NUTRIENTS	NUTRIENTS	PATHOGENS	pH	pH	DISSOLVED OXYGEN	DISSOLVED SOLIDS	DISSOLVED SOLIDS	SUBSTRATE PARTICLE SIZE	SUBSTRATE PARTICLE SIZE	SEDIMENTATION	SEDIMENTATION	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE	FAUNAL ABUNDANCE	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL DIVERSITY	FAUNAL DIVERSITY	FLORAL ABUNDANCE	FLORAL ABUNDANCE	FLORAL DIVERSITY	FLORAL DIVERSITY	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY	PRIMARY PRODUCTIVITY	SOIL ASSIMILATIVE CAPACITY	SOIL ASSIMILATIVE CAPACITY	BATHYMETRY VARIABILITY	WATER DEPTH	WATER DEPTH	SHORE PROTECTION CAPACITY	SHORE PROTECTION CAPACITY	SHORELINE CHANGES	LITTORAL DRIFT	LITTORAL DRIFT	RUNOFF	EROSION/SCOURING	EROSION/SCOURING	FLOOD FREQUENCY	FLOOD FREQUENCY	FLOOD INTENSITY	FLOOD INTENSITY	FLOW REGIME	CIRCULATION/MIXING	CIRCULATION/MIXING	NOISE
AQUIFER RECHARGE	I	V				V														V																									X													V			
AQUIFER RECHARGE	D		X																																																						X			
GROUNDWATER DISCHARGE	I	O		V		V		V																		O																	X														X			
GROUNDWATER DISCHARGE	D						X																																				X													X			
GROUNDWATER SALINITY	I					V	X													X						X																																	
SURFACE WATER SALINITY	I					X	O										X			X				O		X		X		X		X		X		X			X																						
SURFACE WATER SALINITY	D																	X			X				O	X	O	O	O	O	O	O	O	O	O	O		O	O																					
WATER TEMPERATURE	I																		V							X	O	V	O	V	O	V	V	O	V	O		V	O																				V	
WATER TEMPERATURE	D																									V	O	V	O	V	O	V		V		V			V																				V	
SUSPENDED SOLIDS	I								V				V	V		V	V	V	V					X				V		V		V		V		V	V		V									V			V									
SUSPENDED SOLIDS	D														V		V	V							X		O		O		O		O		O			O											V			O								
TOXIC SUBSTANCES	I												X				V	V	V	O						V		X		X		X		X		X			X																						
NUTRIENTS	I												O	O					V							X							X		O			X																							
NUTRIENTS	D														O											V								X	O	X			X																					
PATHOGENS	I															O												X		X		X																												
pH	I												V				V			X						V		V		V		V		V		V			V																						
pH	D												V					V		X						V		V		V		V		V		V			V												V									
DISSOLVED OXYGEN	D												X													X		X		X		X																												
DISSOLVED SOLIDS	I																O			V				O		X		X		X		X		X		X			V																						
DISSOLVED SOLIDS	D																	O							O	X	X		X		X		X		X			X																							
SUBSTRATE PARTICLE SIZE	I																									V	X	O	X	O	X	O		X		X			X			X			X	[illegible]			V		X	X								
SUBSTRATE PARTICLE SIZE	D																									X	O	X	O	X	O	X	X		X			X									X		V			X									
SEDIMENTATION	I													X									X	O		X		X		X		X		X		X			X						X			X	V												
SEDIMENTATION	D														X										X		X		X		X		X		X			X												V											
SEDIMENT CHEMISTRY									O				X				V	V	V								X	X	X	X	X	X	X	X	X	X		X	X																						
FAUNAL ABUNDANCE	I													V		O										V	V		X	O	O	X		V		O			O																						
FAUNAL ABUNDANCE	D																									V		V	O	O		O	O					O																							
FAUNAL REPRODUCTIVE POTENTIAL	I																										X				O	O																												
FAUNAL REPRODUCTIVE POTENTIAL	D																											X				V																											
FAUNAL DIVERSITY	I																										X				X																													
FAUNAL DIVERSITY	D																											O				X																											
FLORAL ABUNDANCE	I												V		X									X		X	X	O	X	O	X	O	X		O	O	X	X							X		X		V			X					X		X	
FLORAL ABUNDANCE	D																		X						X	X		X	O	X	O	X		X	O	O			X							X	X	V			X						X	X		
FLORAL DIVERSITY	I																										X		X		X		O		O			O																						
FLORAL DIVERSITY	D																											X		X		X		O		O			O																					
SUNLIGHT PENETRATION	I																																	X		X			X																					
PRIMARY PRODUCTIVITY	I														X											X	X	O	X	O	X	O	X			O		V																							
PRIMARY PRODUCTIVITY	D																									X		X		X		X		X	O				V																					
SOIL ASSIMILATIVE CAPACITY	I																																																										
SOIL ASSIMILATIVE CAPACITY	D																																																										
BATHYMETRY VARIABILITY	I																							O			X	V	X	V	X	V			X							X							V									X	X	O	
WATER DEPTH	I	[illegible]							O	X																	O		O		V			X		X	X		X				X			X			V			X					X		X	
WATER DEPTH	D		X						X	O																		V		V		V	X		X			X					X	X			V			X						X	X		
SHORE PROTECTION CAPACITY	I																																											X		X				X	X		X		X	X			
SHORE PROTECTION CAPACITY	D																																												X	X				X	X	X		X		X			
SHORELINE CHANGES																												X		X		O		X		O			X			X	X	X	X	X	X	V	V		X	X	X	X	X	X	X	X	X	
LITTORAL DRIFT	I																							V																					V		V	V			V									
LITTORAL DRIFT	D																								V																					V	V		V			V								
RUNOFF	I																																																										
EROSION/SCOURING	I										X		V	X		V	V	V		X		X				X		X		X		X		X		X			X			O			V	X	X	V			X									
EROSION/SCOURING	D											X												X		X	X		X		X		X		X			X							X	V			V			X								
FLOOD FREQUENCY	I						X													X																										X					X		X				X	X		
FLOOD FREQUENCY	D							X													X																								X							X		O			X		X	
FLOOD INTENSITY	I						X													X																										X					O				X		X	X		
FLOOD INTENSITY	D							X													X																								X							X				O	X		X	
FLOW REGIME					X	X	X	X	X	V	X																X	X	X	X	X	X	X	X	X	X	X		X	X					V	V					V	V		V	V	X	X	X	X	V	X	X	
CIRCULATION/MIXING	I																	X	X							X	X	X		X	O	X	O																			V								X		
CIRCULATION/MIXING	D																	X	X	X					X		X	O	X	O	X	O	X																				V								X	
NOISE																															O		O																												X

I=INCREASE
D=DECREASE
X=MAJOR
V=VARIABLE
O=MINOR

POTENTIAL FOR INTERTYPE LINKAGE SHOWN ON DIAGONAL

SET V:

E. Environmental Changes versus Objectives

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OCEAN OFFSHORE

ENVIRONMENTAL CHANGES
VERSUS
OBJECTIVES

OBJECTIVES ←   ENVIRONMENTAL CHANGES ↓

OBJECTIVES	AQUIFER RECHARGE (I)	AQUIFER RECHARGE (D)	GROUNDWATER DISCHARGE (I)	GROUNDWATER DISCHARGE (D)	GROUNDWATER SALINITY (I)	SURFACE WATER SALINITY (I)	SURFACE WATER SALINITY (D)	WATER TEMPERATURE (I)	WATER TEMPERATURE (D)	SUSPENDED SOLIDS (I)	SUSPENDED SOLIDS (D)	TOXIC SUBSTANCES (I)	NUTRIENTS (I)	NUTRIENTS (D)	PATHOGENS (I)	pH (I)	pH (D)	DISSOLVED OXYGEN (D)	DISSOLVED SOLIDS (I)	DISSOLVED SOLIDS (D)
GENERAL																				
MAINTAIN RECHARGE RATES																				
REGULATE GROUNDWATER DISCHARGE & LEVELS																				
MAINTAIN AQUIFER QUALITY																				
MAINTAIN GRADIENTS OF SALINITY																				
MAINTAIN AMBIENT WATER TEMPERATURES								O	O											
CONTROL TURBIDITY										X										
REGULATE TOXIC SUBSTANCE DISCHARGES										V		X	O					X		
MAINTAIN NATURAL NUTRIENT GRADIENTS										X			X	O						
CONTROL PATHOGEN DISCHARGES										V					X					
MAINTAIN NATURAL pH LEVELS																				
MAINTAIN DISSOLVED OXYGEN LEVELS								O		O		O	O					X		
REGULATE DISSOLVED SOLIDS CONCENTRATIONS																				
PRESERVE AQUATIC HABITATS												X								
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY								O	O	O		X	O		X			X		
PRESERVE FLORAL ABUNDANCE AND DIVERSITY								O	O	O		X	O	O						
PRESERVE NATURAL PRIMARY PRODUCTIVITY								O	O	O		X	O	O						
MAINTAIN SOIL ASSIMILATIVE CAPACITY																				
PRESERVE NATURAL SHORE PROTECTION CAP.																				
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.										O										
PRESERVE FRESH WATER FLOWS																				
PRESERVE ESTUARINE CIRCULATION/MIXING																				
REGULATE NOISE																				
SPECIAL: TO PRESERVE.....																				
SHELLFISH REEFS								O	O	O		X	O		X			X		
ESTUARINE SHELLFISH BEDS																				
OCEAN SHELLFISH BEDS								O	O	O		X	O		X			X		
PRIME FISHING AREAS								O	O	X		X	O		X			X		
SUBMERGED VEGETATION																				
TIDAL WETLANDS																				
BOGS AND NONTIDAL WETLANDS																				
WHITE CEDAR STANDS																				
MIGRATORY PATHWAYS AND SPAWNING AREAS								O	O	X		X	O		X			X		
SHIPWRECKS AND REEFS								O	O	X		X	O		X			X		
BEACHES																				
DUNES																				
COASTAL BLUFFS																				
PINE BARRENS																				
OPEN SPACE																				
PRIME FARMLAND AND SPECIALTY SOILS																				
CENTRAL BARRIER ISLAND CORRIDOR																				
OAK, HICKORY AND PINE FORESTS																				

OBJECTIVES	SUBSTRATE PARTICLE SIZE (I)	SUBSTRATE PARTICLE SIZE (D)	SEDIMENTATION (I)	SEDIMENTATION (D)	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE (I)	FAUNAL ABUNDANCE (D)	FAUNAL REPRODUCTIVE POTENTIAL (I)	FAUNAL REPRODUCTIVE POTENTIAL (D)	FAUNAL DIVERSITY (I)	FAUNAL DIVERSITY (D)	FLORAL ABUNDANCE (I)	FLORAL ABUNDANCE (D)	FLORAL DIVERSITY (I)	FLORAL DIVERSITY (D)	SUNLIGHT PENETRATION (D)	PRIMARY PRODUCTIVITY (I)	PRIMARY PRODUCTIVITY (D)	SOIL ASSIMILATIVE CAPACITY (I)	SOIL ASSIMILATIVE CAPACITY (D)
GENERAL																				
MAINTAIN RECHARGE RATES																				
REGULATE GROUNDWATER DISCHARGE & LEVELS																				
MAINTAIN AQUIFER QUALITY																				
MAINTAIN GRADIENTS OF SALINITY																				
MAINTAIN AMBIENT WATER TEMPERATURES																				
CONTROL TURBIDITY												O								
REGULATE TOXIC SUBSTANCE DISCHARGES					X							O								
MAINTAIN NATURAL NUTRIENT GRADIENTS			O	O																
CONTROL PATHOGEN DISCHARGES																				
MAINTAIN NATURAL pH LEVELS																				
MAINTAIN DISSOLVED OXYGEN LEVELS					O								O							
REGULATE DISSOLVED SOLIDS CONCENTRATIONS																				
PRESERVE AQUATIC HABITATS	O	X	X		X															
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY	O	X	X		X	O	X		X		X	O	X		O			X		
PRESERVE FLORAL ABUNDANCE AND DIVERSITY												O	X		X	X	O	X		
PRESERVE NATURAL PRIMARY PRODUCTIVITY												O	X		O	X	O	X		
MAINTAIN SOIL ASSIMILATIVE CAPACITY																				
PRESERVE NATURAL SHORE PROTECTION CAP.																				
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.		O	X																	
PRESERVE FRESH WATER FLOWS																				
PRESERVE ESTUARINE CIRCULATION/MIXING																				
REGULATE NOISE																				
SPECIAL: TO PRESERVE.....																				
SHELLFISH REEFS	O	X	X		X	O	X		X		O	O	O		O			O		
ESTUARINE SHELLFISH BEDS																				
OCEAN SHELLFISH BEDS	X	X	X		X	O	X		X		O	O	O		O			O		
PRIME FISHING AREAS		X	X		X		X		X		X	O								
SUBMERGED VEGETATION																				
TIDAL WETLANDS																				
BOGS AND NONTIDAL WETLANDS																				
WHITE CEDAR STANDS																				
MIGRATORY PATHWAYS AND SPAWNING AREAS		X	X		X	O	X		X		O	O	O		O			O		
SHIPWRECKS AND REEFS	X	X	X		X		X		X		X	O								
BEACHES																				
DUNES																				
COASTAL BLUFFS																				
PINE BARRENS																				
OPEN SPACE																				
PRIME FARMLAND AND SPECIALTY SOILS																				
CENTRAL BARRIER ISLAND CORRIDOR																				
OAK, HICKORY AND PINE FORESTS																				

OBJECTIVES	BATHYMETRY VARIABILITY (I)	WATER DEPTH (I)	WATER DEPTH (D)	SHORE PROTECTION CAPACITY (I)	SHORE PROTECTION CAPACITY (D)	SHORELINE CHANGES	LITTORAL DRIFT (I)	LITTORAL DRIFT (D)	RUNOFF (I)	EROSION/SCOURING (I)	EROSION/SCOURING (D)	FLOOD FREQUENCY (I)	FLOOD FREQUENCY (D)	FLOOD INTENSITY (I)	FLOOD INTENSITY (D)	FLOW REGIME	CIRCULATION/MIXING (I)	CIRCULATION/MIXING (D)	NOISE
GENERAL																			
MAINTAIN RECHARGE RATES																			
REGULATE GROUNDWATER DISCHARGE & LEVELS																			
MAINTAIN AQUIFER QUALITY																			
MAINTAIN GRADIENTS OF SALINITY																			
MAINTAIN AMBIENT WATER TEMPERATURES		O	O																
CONTROL TURBIDITY										O							O		
REGULATE TOXIC SUBSTANCE DISCHARGES										O							O		
MAINTAIN NATURAL NUTRIENT GRADIENTS										O							O		
CONTROL PATHOGEN DISCHARGES										O							O		
MAINTAIN NATURAL pH LEVELS																			
MAINTAIN DISSOLVED OXYGEN LEVELS																		X	
REGULATE DISSOLVED SOLIDS CONCENTRATIONS																			
PRESERVE AQUATIC HABITATS	X	O	O							X									
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY	O	O	O							O							O	O	
PRESERVE FLORAL ABUNDANCE AND DIVERSITY																			
PRESERVE NATURAL PRIMARY PRODUCTIVITY																			
MAINTAIN SOIL ASSIMILATIVE CAPACITY																			
PRESERVE NATURAL SHORE PROTECTION CAP.																			
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.	O	O	O							X									
PRESERVE FRESH WATER FLOWS																			
PRESERVE ESTUARINE CIRCULATION/MIXING																			
REGULATE NOISE																			
SPECIAL: TO PRESERVE.....																			
SHELLFISH REEFS		O	O							O							O	O	
ESTUARINE SHELLFISH BEDS																			
OCEAN SHELLFISH BEDS	X	O	O							O							O	O	
PRIME FISHING AREAS	O	O	O							O							O	O	
SUBMERGED VEGETATION																			
TIDAL WETLANDS																			
BOGS AND NONTIDAL WETLANDS																			
WHITE CEDAR STANDS																			
MIGRATORY PATHWAYS AND SPAWNING AREAS	O	O	O							O							O	O	
SHIPWRECKS AND REEFS		O	O							O							O	O	
BEACHES																			
DUNES																			
COASTAL BLUFFS																			
PINE BARRENS																			
OPEN SPACE																			
PRIME FARMLAND AND SPECIALTY SOILS																			
CENTRAL BARRIER ISLAND CORRIDOR																			
OAK, HICKORY AND PINE FORESTS																			

I=INCREASE
D=DECREASE

PROBABILITY TO VIOLATE OBJECTIVES
X=HIGH
V=VARIABLE
O=LOW

OCEAN NEARSHORE

ENVIRONMENTAL CHANGES VERSUS OBJECTIVES

OBJECTIVES ← / ENVIRONMENTAL CHANGES ↓	AQUIFER RECHARGE	AQUIFER RECHARGE	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE	GROUNDWATER SALINITY	SURFACE WATER SALINITY	SURFACE WATER SALINITY	WATER TEMPERATURE	WATER TEMPERATURE	SUSPENDED SOLIDS	SUSPENDED SOLIDS	TOXIC SUBSTANCES	NUTRIENTS	NUTRIENTS	PATHOGENS	pH	pH	DISSOLVED OXYGEN	DISSOLVED SOLIDS	DISSOLVED SOLIDS	SUBSTRATE PARTICLE SIZE	SUBSTRATE PARTICLE SIZE	SEDIMENTATION	SEDIMENTATION	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE	FAUNAL ABUNDANCE	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL REPRODUCTIVE POTENTIAL	FAUNAL DIVERSITY	FAUNAL DIVERSITY	FLORAL ABUNDANCE	FLORAL ABUNDANCE	FLORAL DIVERSITY	FLORAL DIVERSITY	SUNLIGHT PENETRATION	PRIMARY PRODUCTIVITY	PRIMARY PRODUCTIVITY	SOIL ASSIMILATIVE CAPACITY	SOIL ASSIMILATIVE CAPACITY	BATHYMETRY VARIABILITY	WATER DEPTH	WATER DEPTH	SHORE PROTECTION CAPACITY	SHORE PROTECTION CAPACITY	SHORELINE CHANGES	LITTORAL DRIFT	LITTORAL DRIFT	RUNOFF	EROSION/SCOURING	EROSION/SCOURING	FLOOD FREQUENCY	FLOOD FREQUENCY	FLOOD INTENSITY	FLOOD INTENSITY	FLOW REGIME	CIRCULATION/MIXING	CIRCULATION/MIXING	NOISE
	I	D	I	D	I	I	D	I	D	I	D	I	I	D	I	I	D	D	I	D	I	D	I	D		I	D	I	D	I	D	I	D	I	D	D	I	D	I	D	I	I	D	I	D		I	D	I	I	D	I	D	I	D		I	D	
GENERAL																																																										
MAINTAIN RECHARGE RATES																																																										
REGULATE GROUNDWATER DISCHARGE & LEVELS			O																																								O																		
MAINTAIN AQUIFER QUALITY			O		O														O																							O														O			
MAINTAIN GRADIENTS OF SALINITY			O		O														O																							O														O			
MAINTAIN AMBIENT WATER TEMPERATURES								X	X																																	O	O																
CONTROL TURBIDITY										X																							O																			X							X		
REGULATE TOXIC SUBSTANCE DISCHARGES										V		X	O					X							X						O																			V							V		
MAINTAIN NATURAL NUTRIENT GRADIENTS										X			X	O									O	O																											X							X		
CONTROL PATHOGEN DISCHARGES										V					X																																			V							V		
MAINTAIN NATURAL pH LEVELS																																																										
MAINTAIN DISSOLVED OXYGEN LEVELS								O		O		O	O					X							O								O																									O	
REGULATE DISSOLVED SOLIDS CONCENTRATIONS			O		O														O																							O																	
PRESERVE AQUATIC HABITATS											X									O	X	X		X																		X		O			X	O			X									
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY								O	O	O		X	O		X			X			O	X	X		X	O	X		X		X	O	X		O			X			O		O							X							O	O	
PRESERVE FLORAL ABUNDANCE AND DIVERSITY								O	O	O		X	O	O																			O	X		X	X	O	X																						
PRESERVE NATURAL PRIMARY PRODUCTIVITY								O	O	O		X	O	O																			O	X		O	X	O	X																						
MAINTAIN SOIL ASSIMILATIVE CAPACITY																																																										
PRESERVE NATURAL SHORE PROTECTION CAP.																					X	X																									X			X	X		X		V	V						O		
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.										O											X	X	X																					X	X	O		X	X	O	X		X	V						X	O	
PRESERVE FRESH WATER FLOWS																																																										
PRESERVE ESTUARINE CIRCULATION/MIXING																																																										
REGULATE NOISE																																																										
SPECIAL: TO PRESERVE.....																																																										
SHELLFISH REEFS								O	O	O		X	O		X			X			O	X	X		X	O	X		X		O	O	O		O			O					O			O	O			O						O	O	
ESTUARINE SHELLFISH BEDS																																																										
OCEAN SHELLFISH BEDS								O	O	O		X	O		X			X			X	X	X		X	O	X		X		O	O	O		O			O			X		O			O	O	O		O						O	O	
PRIME FISHING AREAS								O	O	X		X	O		X			X				O	X		X		X		X		X	O									O	O	O							O						O	O	
SUBMERGED VEGETATION																																																										
TIDAL WETLANDS																																																										
BOGS AND NONTIDAL WETLANDS																																																										
WHITE CEDAR STANDS																																																										
MIGRATORY PATHWAYS AND SPAWNING AREAS								O	O	X		X	O		X			X				O	X		X	O	X		X		O	O	O		O			O			O	O	O							O						O	O	
SHIPWRECKS AND REEFS								O	O	X		X	O		X			X			X	X	X		X		X		X		X	O											O							O						O	O	
BEACHES																																																										
DUNES																																																										
COASTAL BLUFFS																																																										
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CENTRAL BARRIER ISLAND CORRIDOR																																																										
OAK, HICKORY AND PINE FORESTS																																																										

I=INCREASE
D=DECREASE

PROBABILITY TO VIOLATE OBJECTIVES
X=HIGH
V=VARIABLE
O=LOW

OPEN BAY

ENVIRONMENTAL CHANGES

VERSUS

OBJECTIVES

OBJECTIVES ← / ENVIRONMENTAL CHANGES →	AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY I	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES I	NUTRIENTS I	NUTRIENTS D	PATHOGENS I	pH I	pH D	DISSOLVED OXYGEN D	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY I	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION I	PRIMARY PRODUCTIVITY D	PRIMARY PRODUCTIVITY I	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY I	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES I	SHORELINE CHANGES D	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF I	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME I	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE I	NOISE D
GENERAL																																																																			
MAINTAIN RECHARGE RATES																																																																			
REGULATE GROUNDWATER DISCHARGE & LEVELS			O																																							O																			X				
MAINTAIN AQUIFER QUALITY	X		X		X														X																							X																			X				
MAINTAIN GRADIENTS OF SALINITY	O		O	O	O	X	O												O																							O														X	X	X	X	X				
MAINTAIN AMBIENT WATER TEMPERATURES								X	X	O															O																	X	X																						
CONTROL TURBIDITY										X																							O																				X		X		X							
REGULATE TOXIC SUBSTANCE DISCHARGES										V		X	O					X							X								O																		V												
MAINTAIN NATURAL NUTRIENT GRADIENTS										X	X		X	O									X	O														O													X		X		X							
CONTROL PATHOGEN DISCHARGES										V					X																																			V												
MAINTAIN NATURAL pH LEVELS																																																																
MAINTAIN DISSOLVED OXYGEN LEVELS								X		X		O	X					X							X									X																											X		
REGULATE DISSOLVED SOLIDS CONCENTRATIONS	O		O		O														O																							O																						
PRESERVE AQUATIC HABITATS												X									O	X	X		X									X		X					X	X	X	X	X	X	O			X		X		X			X					
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY						X	O	X	O	X		X	O		X			X			O	X	X		X	O	X		X		X	O	X		X			X			X	X		O	O				X						X	O		X	O	
PRESERVE FLORAL ABUNDANCE AND DIVERSITY						X	O	O	X	X		X	O	O							X		X		X	O							O	X		X	X	O	X			X			O	O				X						X	O				
PRESERVE NATURAL PRIMARY PRODUCTIVITY						X	O	O	X	X		X	O	O							X		X		X	O							O	X		O	X	O	X			X			O	O				X						X	O				
MAINTAIN SOIL ASSIMILATIVE CAPACITY																																																																
PRESERVE NATURAL SHORE PROTECTION CAP.																					X	X												X								X			X	X		X		V	V	X		X					
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.										X	O										X	X	X											X							O	X	O	O	X	X	O	X		X	O	X		X			X		X	O	
PRESERVE FRESH WATER FLOWS	O		X	X																																																		X	X	X	X	X				
PRESERVE ESTUARINE CIRCULATION/MIXING								X	X																									X							X	X	O	O	O	X							X	O	X	O	X	X	X		
REGULATE NOISE																																																																O
SPECIAL: TO PRESERVE.....																																																																	
SHELLFISH REEFS			O	O		X	O	X	O	X		X	O		X			X			O	X	X		X	O	X		X		O	O	O		O			X			O	O	O	O	O				X		X	X	X	X	X	X	X		
ESTUARINE SHELLFISH BEDS			O	O		X	O	X	O	X		X	O		X			X			X	O	X		X	O	X		X		O	O	O		O			X			X	O	O	O	O	O	O			X		X	O	X	O	X	X	X		
OCEAN SHELLFISH BEDS																																																																	
PRIME FISHING AREAS						O		X	O	X		X	O		X			X				O	X		X		X		X		X	O	X		O			X		X	O	X			O				O		O		O		O		O	O		
SUBMERGED VEGETATION						X	O	X	X	X		X	O	O							X	O	X	O	X	O	O		O		O	O	X		X	X	O	X		O	X	O			O	O			X		O		O		X	O	O		
TIDAL WETLANDS																																																																	
BOGS AND NONTIDAL WETLANDS																																																																	
WHITE CEDAR STANDS																																																																	
MIGRATORY PATHWAYS AND SPAWNING AREAS			O	O		X		X	O	X		X	O		X			X				O	X		X	O	X		X		X	O	X		X			X			O	O	X			O				O		X	O	X	O	X	O	O	O		
SHIPWRECKS AND REEFS																																																																	
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X=HIGH
V=VARIABLE
O=LOW

SEMI-ENCLOSED AND BACK BAYS

ENVIRONMENTAL CHANGES

VERSUS

OBJECTIVES

OBJECTIVES ← / ENVIRONMENTAL CHANGES ↓	AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY I	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES I	NUTRIENTS I	NUTRIENTS D	PATHOGENS I	pH I	pH D	DISSOLVED OXYGEN I	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY I	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION I	PRIMARY PRODUCTIVITY I	PRIMARY PRODUCTIVITY D	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY I	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES I	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF I	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME I	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE I
GENERAL																																																														
MAINTAIN RECHARGE RATES																																																														
REGULATE GROUNDWATER DISCHARGE AND LEVELS			O																																							O																			
MAINTAIN AQUIFER QUALITY	X		X		X														X																							X																	X		
MAINTAIN GRADIENTS OF SALINITY	X		X	X	X	X	X												X																							X																	X		
MAINTAIN AMBIENT WATER TEMPERATURES								X	X	X															O																	X	X												X	X	X	X	O		
CONTROL TURBIDITY										X																						X																						X		X		X				
REGULATE TOXIC SUBSTANCE DISCHARGES										X		X	O			V	V	X							X							V																					V								
MAINTAIN NATURAL NUTRIENT GRADIENTS										X	X		X	O									X	O		X						O					O															X		X		X					
CONTROL PATHOGEN DISCHARGES										V					X											O																											V								
MAINTAIN NATURAL pH LEVELS							O	O		O	O	O				O	O								X																											O							O	O
MAINTAIN DISSOLVED OXYGEN LEVELS									X		X		O	X				X							X								X									O																		X	
REGULATE DISSOLVED SOLIDS CONCENTRATIONS	X		X		X														X																							X																			
PRESERVE AQUATIC HABITATS												X									O	X	X		X								X		X						X	O	X	X	O	X				X		X		X		X					
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY						X	O	X	X	X		X	O		X	O	O	X			O	X	X		X	O	X		X		X	O	X		X				X		X		X	O	O				X				X		X		X	O	X	O
PRESERVE FLORAL ABUNDANCE AND DIVERSITY						X	O	O	X	X		X	O	O		O	O				X		X		X	O						O	X		X	X	O	X				X			O	O				X				X		X	O			
PRESERVE NATURAL PRIMARY PRODUCTIVITY						X	O	O	X	X		X	O	O		O	O				X		X		X	O						O	X		O	X	O	X				X			O	O				X				X		X	O			
MAINTAIN SOIL ASSIMILATIVE CAPACITY																																																													
PRESERVE NATURAL SHORE PROTECTION CAP.																						X											X									X			X	X		O		X	O	X		X					
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.										X	O						O				O	X	X	O									X								X	X	X	O	X	X	O	O	X	O	X		X		X	O	O		
PRESERVE FRESH WATER FLOWS	X		X	X																																																X	X	X	X	X				
PRESERVE ESTUARINE CIRCULATION/MIXING								O	O																								X								X	X	X	O	O	X				X	X	X	X	X	O	X		
REGULATE NOISE																																																													O
SPECIAL: TO PRESERVE.....																																																														
SHELLFISH REEFS			O	O		X	O	X	X	X		X	O		X	O	O	X			O	X	X		X	O	X		X		O	O	X		X			X				O	O	O	O	X				X		X	X	X	X	X	X	X	
ESTUARINE SHELLFISH BEDS			O	O		X	O	X	X	X		X	O		X	O	O	X			X	O	X		X	O	X		X		O	O	X		X			X			X	O	O	O	O	X	O			X		X	O	X	O	X	X	X	
OCEAN SHELLFISH BEDS																																																													
PRIME FISHING AREAS						O		X	X	X		X	O		X	O	O	X				O	X		X		X		X		X	O	X		O			X			X	O	X			O				O		O		X		X	O
SUBMERGED VEGETATION			O	O		X	O	X	X	X	O	X	O	O		O	O				X	O	X	O	X	O	O		O		O	O	X		X	X	O	X			O	X	O		O	X				X		O		O		X	O	O	
TIDAL WETLANDS																																																														
BOGS AND NONTIDAL WETLANDS																																																														
WHITE CEDAR STANDS																																																														
MIGRATORY PATHWAYS AND SPAWNING AREAS			O	O		X		X	X	X		X	O		X	O	O	X				O	X		X	O	X		X		X	O	X		X			X			O	X	X			X				X		X	O	X	O	X	O	X	O
SHIPWRECKS AND REEFS																																																														
BEACHES																																																														
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PROBABILITY TO VIOLATE OBJECTIVES
X=HIGH
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TIDAL INLETS, GUTS, AND CANALS

ENVIRONMENTAL CHANGES

VERSUS

OBJECTIVES

OBJECTIVES ← / ENVIRONMENTAL CHANGES →	AQUIFER RECHARGE (I)	AQUIFER RECHARGE (D)	GROUNDWATER DISCHARGE (I)	GROUNDWATER DISCHARGE (D)	GROUNDWATER SALINITY (I)	SURFACE WATER SALINITY (I)	SURFACE WATER SALINITY (D)	WATER TEMPERATURE (I)	WATER TEMPERATURE (D)	SUSPENDED SOLIDS (I)	SUSPENDED SOLIDS (D)	TOXIC SUBSTANCES (I)	NUTRIENTS (I)	NUTRIENTS (D)	PATHOGENS (I)	pH (I)	pH (D)	DISSOLVED OXYGEN (D)	DISSOLVED SOLIDS (I)	DISSOLVED SOLIDS (D)	SUBSTRATE PARTICLE SIZE (I)	SUBSTRATE PARTICLE SIZE (D)	SEDIMENTATION (I)	SEDIMENTATION (D)	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE (I)	FAUNAL ABUNDANCE (D)	FAUNAL REPRODUCTIVE POTENTIAL (I)	FAUNAL REPRODUCTIVE POTENTIAL (D)	FAUNAL DIVERSITY (I)	FAUNAL DIVERSITY (D)	FLORAL ABUNDANCE (I)	FLORAL ABUNDANCE (D)	FLORAL DIVERSITY (I)	FLORAL DIVERSITY (D)	SUNLIGHT PENETRATION (D)	PRIMARY PRODUCTIVITY (I)	PRIMARY PRODUCTIVITY (D)	SOIL ASSIMILATIVE CAPACITY (I)	SOIL ASSIMILATIVE CAPACITY (D)	BATHYMETRY VARIABILITY (I)	WATER DEPTH (I)	WATER DEPTH (D)	SHORE PROTECTION CAPACITY (I)	SHORE PROTECTION CAPACITY (D)	SHORELINE CHANGES	LITTORAL DRIFT (I)	LITTORAL DRIFT (D)	RUNOFF (I)	EROSION/SCOURING (I)	EROSION/SCOURING (D)	FLOOD FREQUENCY (I)	FLOOD FREQUENCY (D)	FLOOD INTENSITY (I)	FLOOD INTENSITY (D)	FLOW REGIME	CIRCULATION/MIXING (I)	CIRCULATION/MIXING (D)	NOISE
GENERAL																																																											
MAINTAIN RECHARGE RATES																																																											
REGULATE GROUNDWATER DISCHARGE & LEVELS			O																																							O														X			
MAINTAIN AQUIFER QUALITY	X		X		X														X																							X														X			
MAINTAIN GRADIENTS OF SALINITY	X		X	X	X	X	X												X																							X										X	X	X	X	X			
MAINTAIN AMBIENT WATER TEMPERATURES								X	X	O															O																	X	X													O			
CONTROL TURBIDITY										X																						X																		X		X		X					
REGULATE TOXIC SUBSTANCE DISCHARGES										V		X	O					X							X							V																		V									
MAINTAIN NATURAL NUTRIENT GRADIENTS										X	X		X	O									X	O		X						O					O													X		X		X					
CONTROL PATHOGEN DISCHARGES										V					X											O																								V									
MAINTAIN NATURAL pH LEVELS																																																											
MAINTAIN DISSOLVED OXYGEN LEVELS								X		X		O	X					X							O								X									V																X	
REGULATE DISSOLVED SOLIDS CONCENTRATIONS	X		X		X														X																							X																	
PRESERVE AQUATIC HABITATS												X									O	X	X		X								X		X						O	O	O		O	X				X		X		X					
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY						X	O	X	X	X		X	O		X			X			O	X	X		X	O	X		X		X	O	X		X			X			O		O		O	O				X						X	O	X	O
PRESERVE FLORAL ABUNDANCE AND DIVERSITY						X	O	O	X	X		X	O	O							X		O		X	O						O	X		X	X	O	X				X			O	O				X						X	O		
PRESERVE NATURAL PRIMARY PRODUCTIVITY						X	O	O	X	X		X	O	O							X		O		X	O						O	X		O	X	O	X				X			O	O				X						X	O		
MAINTAIN SOIL ASSIMILATIVE CAPACITY																																																											
PRESERVE NATURAL SHORE PROTECTION CAP.																					O	X											X									X			X	X		O		X	O	X		X					
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.										X	O										X	X	X	O									X								X		X	X	X	X	X	X		X	O	X		X		X	O	O	
PRESERVE FRESH WATER FLOWS	X		X	O																																																X	X	X	X	X			
PRESERVE ESTUARINE CIRCULATION/MIXING								O	O																								X								X	X	X			X						X	X	X	X	X	O	X	
REGULATE NOISE																																																											O
SPECIAL: TO PRESERVE.....																																																											
SHELLFISH REEFS			O	O		X	O	X	X	X		X	O		X			X			O	X	X		X	O	X		X		O	O	X		X			X				O	O	O	O	X				X		X	X	X	X	X	X	X	
ESTUARINE SHELLFISH BEDS			O	O		X	O	X	X	X		X	O		X			X			X	O	O		X	O	X		X		O	O	X		X			X			O		O	O	O	X	O			X		X	O	X	O	X	X	X	
OCEAN SHELLFISH BEDS																																																											
PRIME FISHING AREAS						O		X	X	X		X	O		X			X				O	X		X		X		X		X	O	X		O			X			O	O	O							O		O		O		X		X	O
SUBMERGED VEGETATION			O	O		X	O	X	X	X		X	O	O							X	O	O	O	X	O	O		O		O	O	X		X	X	O	X			O	X	O		O	X				X		O		O		X	O	O	
TIDAL WETLANDS																																																											
BOGS AND NONTIDAL WETLANDS																																																											
WHITE CEDAR STANDS																																																											
MIGRATORY PATHWAYS AND SPAWNING AREAS			O	O		X		X	X	X		X	O		X			X				O	X		X	O	X		X		X	O	X		X			X			O		O			O				X		X	O	X	O	X	O	X	O
SHIPWRECKS AND REEFS																																																											
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TIDAL RIVERS

ENVIRONMENTAL CHANGES

VERSUS

OBJECTIVES

OBJECTIVES ← / ENVIRONMENTAL CHANGES ↓	AQUIFER RECHARGE (I)	AQUIFER RECHARGE (D)	GROUNDWATER DISCHARGE (I)	GROUNDWATER DISCHARGE (D)	GROUNDWATER SALINITY (I)	SURFACE WATER SALINITY (I)	SURFACE WATER SALINITY (D)	WATER TEMPERATURE (I)	WATER TEMPERATURE (D)	SUSPENDED SOLIDS (I)	SUSPENDED SOLIDS (D)	TOXIC SUBSTANCES (I)	NUTRIENTS (I)	NUTRIENTS (D)	PATHOGENS (I)	PH (I)	PH (D)	DISSOLVED OXYGEN (D)	DISSOLVED SOLIDS (I)	DISSOLVED SOLIDS (D)	SUBSTRATE PARTICLE SIZE (I)	SUBSTRATE PARTICLE SIZE (D)	SEDIMENTATION (I)	SEDIMENTATION (D)	SEDIMENT CHEMISTRY (I)	SEDIMENT CHEMISTRY (D)	FAUNAL ABUNDANCE (I)	FAUNAL ABUNDANCE (D)	FAUNAL REPRODUCTIVE POTENTIAL (I)	FAUNAL REPRODUCTIVE POTENTIAL (D)	FAUNAL DIVERSITY (I)	FAUNAL DIVERSITY (D)	FLORAL ABUNDANCE (I)	FLORAL ABUNDANCE (D)	FLORAL DIVERSITY (I)	FLORAL DIVERSITY (D)	SUNLIGHT PENETRATION (D)	PRIMARY PRODUCTIVITY (I)	PRIMARY PRODUCTIVITY (D)	SOIL ASSIMILATIVE CAPACITY (I)	SOIL ASSIMILATIVE CAPACITY (D)	BATHYMETRY VARIABILITY (I)	WATER DEPTH (I)	WATER DEPTH (D)	SHORE PROTECTION CAPACITY (I)	SHORE PROTECTION CAPACITY (D)	SHORELINE CHANGES (I)	LITTORAL DRIFT (I)	LITTORAL DRIFT (D)	RUNOFF (I)	EROSION/SCOURING (I)	EROSION/SCOURING (D)	FLOOD FREQUENCY (I)	FLOOD FREQUENCY (D)	FLOOD INTENSITY (I)	FLOOD INTENSITY (D)	FLOW REGIME (I)	CIRCULATION/MIXING (I)	CIRCULATION/MIXING (D)	NOISE (I)
GENERAL																																																												
MAINTAIN RECHARGE RATES																																																												
REGULATE GROUNDWATER DISCHARGE & LEVELS			X																																																									
MAINTAIN AQUIFER QUALITY	X		X		X														X																								X														X			
MAINTAIN GRADIENTS OF SALINITY	X		X	X	X	X	X												X																								X													X	X	X	X	X	
MAINTAIN AMBIENT WATER TEMPERATURES								X	X	O															O																		X	X															O		
CONTROL TURBIDITY										X																								X																					X		X		X			
REGULATE TOXIC SUBSTANCE DISCHARGES										V		X	O			V	V	X							X									V																				V							
MAINTAIN NATURAL NUTRIENT GRADIENTS										X	X		X	O									X	O		X								O					O														X		X		X			
CONTROL PATHOGEN DISCHARGES										V					X											O																											V								
MAINTAIN NATURAL pH LEVELS						O	O			O	O	O				O	O								O																		O															O	O	
MAINTAIN DISSOLVED OXYGEN LEVELS								X		X		O	X					X							X										X																								X	
REGULATE DISSOLVED SOLIDS CONCENTRATIONS	X		X	X	X														X																								X																	
PRESERVE AQUATIC HABITATS												X									O	X	X		X										X		X					O	O	O		O	X				X			X		X				
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY						X	O	X	X	X		X	O		X	O	O	X			O	X	X		X	O	X		X				X	O	X		X			X		O		O		O	O				X						X	O	X	O
PRESERVE FLORAL ABUNDANCE AND DIVERSITY						X	O	O	X	X		X	O	O							X		O		X	O			X	O					O	X		X	X	O	X			X			O	O				X						X	O		
PRESERVE NATURAL PRIMARY PRODUCTIVITY						X	O	O	X	X		X	O	O							X		O		X	O									O	X		O	X	O	X			X			O	O				X						X	O		
MAINTAIN SOIL ASSIMILATIVE CAPACITY																																																												
PRESERVE NATURAL SHORE PROTECTION CAP.																					O	X		O											X								X			X	X		O		X	O	X		X					
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.						O				X	O						O				X	X	X	O											X						X		X	X	X	X	X	X	X	O	X		X		X		X	O	O	
PRESERVE FRESH WATER FLOWS	X		X	X																																						X	X	X	X	X								X	X	X	X	X		
PRESERVE ESTUARINE CIRCULATION/MIXING								X	X																										X						X	X	X			X						X	X	X	X	X	O	X	
REGULATE NOISE																																																												O
SPECIAL: TO PRESERVE.....																																																												
SHELLFISH REEFS			O	O		X	O	X	X	X		X	O		X	O	O	X			O	X	X		X	O	X		X				O	O	X		X			X			O	O	O	O	X				X		X	X	X	X	X	X	
ESTUARINE SHELLFISH BEDS	O		O	O		X	O	X	X	X		X	O		X	O	O	X			X	O	O		X	O	X		X				O	O	X		X			X		O		O	O	O	X	O			X		X	O	X	O	X	X	X	
OCEAN SHELLFISH BEDS																																																												
PRIME FISHING AREAS				O		O		X	X	X		X	O		X	O	O	X				O	X		X		X		X			X	O	X		O			X		O	O	O			O				O		O		X		X	O
SUBMERGED VEGETATION	O		O	O		X	O	X	X	X	O	X	O	O		O	O				X	O	O	O	X	O	O		O			O	O	O	X		X	X	O	X		O	X	O		O	X				X		O		O		X	O	O	
TIDAL WETLANDS																																																												
BOGS AND NONTIDAL WETLANDS																																																												
WHITE CEDAR STANDS																																																												
MIGRATORY PATHWAYS AND SPAWNING AREAS	O		O	O		X		X	X	X		X	O		X	O	O	X			O	O	X		X	O	X		X			X	O	X		X			X		O		O			X				X		X	O	X	O	X	O	X	O
SHIPWRECKS AND REEFS																																																												
BEACHES																																																												
DUNES																																																												
COASTAL BLUFFS																																																												
PINE BARRENS																																																												
OPEN SPACE																																																												
PRIME FARMLAND AND SPECIALTY SOILS																																																												
CENTRAL BARRIER ISLAND CORRIDOR																																																												
OAK, HICKORY AND PINE FORESTS																																																												

I=INCREASE
D=DECREASE

PROBABILITY TO VIOLATE OBJECTIVES
X=HIGH
V=VARIABLE
O=LOW

NON-TIDAL RIVERS

ENVIRONMENTAL CHANGES

VERSUS

OBJECTIVES

OBJECTIVES ← / ENVIRONMENTAL CHANGES →	AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY I	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES I	NUTRIENTS I	NUTRIENTS D	PATHOGENS I	pH I	pH D	DISSOLVED OXYGEN D	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION I	PRIMARY PRODUCTIVITY D	PRIMARY PRODUCTIVITY I	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY I	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES I	LITTORAL DRIFT D	LITTORAL DRIFT I	RUNOFF I	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME I	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE
GENERAL																																																														
MAINTAIN RECHARGE RATES		X																																										O														X			
REGULATE GROUNDWATER DISCHARGE & LEVELS			X	X																																																						X			
MAINTAIN AQUIFER QUALITY					X	O						X	O		O				X																																						X			
MAINTAIN GRADIENTS OF SALINITY					X	X													X																																				X		X			
MAINTAIN AMBIENT WATER TEMPERATURES								X	O	X															O																	X	X													X			
CONTROL TURBIDITY										X																							X																					X		X		X			
REGULATE TOXIC SUBSTANCE DISCHARGES										V		X	O			V	V	X							X								O																				V							
MAINTAIN NATURAL NUTRIENT GRADIENTS										X	X		X	O									X	O		X							O					O														X		X		X			
CONTROL PATHOGEN DISCHARGES										V					X											O																											V							
MAINTAIN NATURAL pH LEVELS						X				X	X	O				X	X		O						X																											X						X	X	
MAINTAIN DISSOLVED OXYGEN LEVELS								X		X		O	X					X							X									X																									X	
REGULATE DISSOLVED SOLIDS CONCENTRATIONS					X	X						O				O	O		X																																	X							
PRESERVE AQUATIC HABITATS	O		O	O	X							X									U	X	X		X									X		X						O	O	O		O	X					X		X		X				
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY						X		X	O	X		X	O		X	X	X	X	X		O	X	X		X	O	X		X	O	X		X		X			X			O		O		O	O					X					X	O	X	O
PRESERVE FLORAL ABUNDANCE AND DIVERSITY						X		O	O	X		X	O	O		X	X		X		X		O		X	O							O	X		X	X	O	X			X			O	O					X					X	O		
PRESERVE NATURAL PRIMARY PRODUCTIVITY						X		O	O	X		X	O	O		X	X		X		X		O		X	O							O	X		O	X	O	X			X			O	O					X					X	O		
MAINTAIN SOIL ASSIMILATIVE CAPACITY																																																													
PRESERVE NATURAL SHORE PROTECTION CAP.																					O	X												X									X		X	X					X		X		X				
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.										X	O						O		O		O	X	O	O										X							O		X	X	X	X	O	O		X	O	X		X		X	O	O	
PRESERVE FRESH WATER FLOWS	X	X	X	X																													O								X	X	X	X	X	X						X	X	X	X	X			
PRESERVE ESTUARINE CIRCULATION/MIXING																																																					X	X	X	X			
REGULATE NOISE																																																												O
SPECIAL: TO PRESERVE.....																																																												
SHELLFISH REEFS																																																												
ESTUARINE SHELLFISH BEDS																																																												
OCEAN SHELLFISH BEDS																																																												
PRIME FISHING AREAS	O		O	O	O	X		X	O	X		X	O		X	X	X	X	X			X	X		X	O	X		X		X	O	X		O			X			O	O	O			O				O		O		X		O	O
SUBMERGED VEGETATION	O		O	O	X	X		X	O	X	O	X	O	O		X	X		X		X	O	O	O	X	O	O		O		O	O	X		X	X	O	X			O	X	O		O	X				X		O		O		X	O	O	
TIDAL WETLANDS																																																												
BOGS AND NONTIDAL WETLANDS																																																												
WHITE CEDAR STANDS																																																												
MIGRATORY PATHWAYS AND SPAWNING AREAS	O		O	O	X	X		X	O	X		X	O		X	X	X	X	X		O	X	X		X	O	X		X		X	O	X		O			X			O	O	O		O	X				X		O	O	O	O	X	O	X	O
SHIPWRECKS AND REEFS																																																												
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I=INCREASE
D=DECREASE

PROBABILITY TO VIOLATE OBJECTIVES
X=HIGH
V=VARIABLE
O=LOW

NON-TIDAL INLAND BASINS

ENVIRONMENTAL CHANGES

VERSUS

OBJECTIVES

OBJECTIVES ← / ENVIRONMENTAL CHANGES →	AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY I	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES I	TOXIC SUBSTANCES D	NUTRIENTS I	NUTRIENTS D	PATHOGENS I	PH I	PH D	DISSOLVED OXYGEN I	DISSOLVED OXYGEN D	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY I	SEDIMENT CHEMISTRY D	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION I	SUNLIGHT PENETRATION D	PRIMARY PRODUCTIVITY I	PRIMARY PRODUCTIVITY D	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY I	BATHYMETRY VARIABILITY D	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES I	SHORELINE CHANGES D	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF I	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME I	FLOW REGIME D	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE
GENERAL																																																																						
MAINTAIN RECHARGE RATES		X																																											X	X																					
REGULATE GROUNDWATER DISCHARGE & LEVELS			X	X																																																															
MAINTAIN AQUIFER QUALITY					X	X						X	O			O					X																																														
MAINTAIN GRADIENTS OF SALINITY					X	X															X																																														
MAINTAIN AMBIENT WATER TEMPERATURES								X	X	X																		O																	X	X																					
CONTROL TURBIDITY										X																										X																															
REGULATE TOXIC SUBSTANCE DISCHARGES										X		X	O				X	X	X									X								V																															
MAINTAIN NATURAL NUTRIENT GRADIENTS										X	O		X	O											X	O			X							X					X																										
CONTROL PATHOGEN DISCHARGES										V						X													O																																					
MAINTAIN NATURAL pH LEVELS						X				X	O	V					X	X			O							X																																			X	X	
MAINTAIN DISSOLVED OXYGEN LEVELS								X		X		V	X							X								X									X																											X	
REGULATE DISSOLVED SOLIDS CONCENTRATIONS				O	X	X						O					X	X			X																																											
PRESERVE AQUATIC HABITATS	O		O	O	X							X											O	X	X			X									X		X						O	O	X		X	X					X		O		O				
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY				O	X	X		X	O	X		X	O			X	X	X	X	X			O	X	X			X	O	X		X		X	O	X		X				X		O		X		O	O					X							X	O	X	O
PRESERVE FLORAL ABUNDANCE AND DIVERSITY				O	X	X		O	O	X		X	O	O			X	X			X			O				X								O	X		X		X	O	X			X			O	O					X							X	O		
PRESERVE NATURAL PRIMARY PRODUCTIVITY				O	X	X		O	O	X		X	O	O			X	X			X			X				X								O	X		O	X	O	X				X			O	O					X							X	O		
MAINTAIN SOIL ASSIMILATIVE CAPACITY																																																																				
PRESERVE NATURAL SHORE PROTECTION CAP.																									X												X												X	X					X		X		X			X			
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.										X	O							X							X	O	O										X							O				X	X					X		X		X			X	O	O	
PRESERVE FRESH WATER FLOWS	X	X	X	X																																	O																					X	X	X	X				
PRESERVE ESTUARINE CIRCULATION/MIXING																																																																				
REGULATE NOISE																																																																				O
SPECIAL: TO PRESERVE.....																																																																				
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ESTUARINE SHELLFISH BEDS																																																																				
OCEAN SHELLFISH BEDS																																																																				
PRIME FISHING AREAS	O		O	X	X	X		X	X	X		X	O			X	X	X	X	X			X	X			X	O	X		X		X	O	X		O			X			O		O		O			X		O		O		X		O		O	O
SUBMERGED VEGETATION	O		O	O	X	X		X	O	X	O	X	O	O			X	X			X		X	O	O	O	X		O		O		O	O	X		X	X	O	X			O	X	O		O	O			X						X	O	O		
TIDAL WETLANDS																																																																				
BOGS AND NONTIDAL WETLANDS																																																																				
WHITE CEDAR STANDS																																																																				
MIGRATORY PATHWAYS AND SPAWNING AREAS	O		O	X	X	X		X	X	X		X	O			X	X	X	X	X		O	X	X			X	O	X		X		X	O	X		O			X			O		O		O	X			X		O		O		X	O	X	O
SHIPWRECKS AND REEFS																																																																				
BEACHES																																																																				
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I=INCREASE
D=DECREASE

PROBABILITY TO VIOLATE OBJECTIVES
X=HIGH
V=VARIABLE
O=LOW

OCEAN BEACHES AND FOREDUNES

ENVIRONMENTAL CHANGES ↓

ENVIRONMENTAL CHANGES VERSUS OBJECTIVES

OBJECTIVES ←

OBJECTIVES	AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY I	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES I	NUTRIENTS I	NUTRIENTS D	PATHOGENS I	pH I	pH D	DISSOLVED OXYGEN D	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D
GENERAL																				
MAINTAIN RECHARGE RATES		X																		
REGULATE GROUNDWATER DISCHARGE & LEVELS			X	X																
MAINTAIN AQUIFER QUALITY	O				X							X	X		O				X	
MAINTAIN GRADIENTS OF SALINITY	O				X														X	
MAINTAIN AMBIENT WATER TEMPERATURES																				
CONTROL TURBIDITY																				
REGULATE TOXIC SUBSTANCE DISCHARGES												X	O							
MAINTAIN NATURAL NUTRIENT GRADIENTS													X							
CONTROL PATHOGEN DISCHARGES															X					
MAINTAIN NATURAL pH LEVELS																				
MAINTAIN DISSOLVED OXYGEN LEVELS																				
REGULATE DISSOLVED SOLIDS CONCENTRATIONS	O				X														X	
PRESERVE AQUATIC HABITATS																				
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY												X			O					
PRESERVE FLORAL ABUNDANCE AND DIVERSITY					O							X							O	
PRESERVE NATURAL PRIMARY PRODUCTIVITY					O							X							O	
MAINTAIN SOIL ASSIMILATIVE CAPACITY												X								
PRESERVE NATURAL SHORE PROTECTION CAP.																				
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.																				
PRESERVE FRESH WATER FLOWS		X	X	X																
PRESERVE ESTUARINE CIRCULATION/MIXING																				
REGULATE NOISE																				
SPECIAL: TO PRESERVE.....																				
SHELLFISH REEFS																				
ESTUARINE SHELLFISH BEDS																				
OCEAN SHELLFISH BEDS																				
PRIME FISHING AREAS																				
SUBMERGED VEGETATION																				
TIDAL WETLANDS																				
BOGS AND NONTIDAL WETLANDS																				
WHITE CEDAR STANDS																				
MIGRATORY PATHWAYS AND SPAWNING AREAS																				
SHIPWRECKS AND REEFS																				
BEACHES												X	O		X					
DUNES	O	X	O	O	X							X	O		X				X	
COASTAL BLUFFS																				
PINE BARRENS																				
OPEN SPACE					X							X	O		X					
PRIME FARMLAND AND SPECIALTY SOILS																				
CENTRAL BARRIER ISLAND CORRIDOR																				
OAK, HICKORY AND PINE FORESTS																				

OBJECTIVES	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION D	PRIMARY PRODUCTIVITY I	PRIMARY PRODUCTIVITY D	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D
GENERAL																				
MAINTAIN RECHARGE RATES													O							X
REGULATE GROUNDWATER DISCHARGE & LEVELS																				
MAINTAIN AQUIFER QUALITY																				V
MAINTAIN GRADIENTS OF SALINITY																				V
MAINTAIN AMBIENT WATER TEMPERATURES																				
CONTROL TURBIDITY																				
REGULATE TOXIC SUBSTANCE DISCHARGES																				V
MAINTAIN NATURAL NUTRIENT GRADIENTS			O			O														V
CONTROL PATHOGEN DISCHARGES						O														V
MAINTAIN NATURAL pH LEVELS																				
MAINTAIN DISSOLVED OXYGEN LEVELS																				
REGULATE DISSOLVED SOLIDS CONCENTRATIONS																				V
PRESERVE AQUATIC HABITATS																				
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY					X	O	X		X		X		X		X			X		
PRESERVE FLORAL ABUNDANCE AND DIVERSITY					X								X		O			X		
PRESERVE NATURAL PRIMARY PRODUCTIVITY					X								X		O			O		
MAINTAIN SOIL ASSIMILATIVE CAPACITY	O		O										X							X
PRESERVE NATURAL SHORE PROTECTION CAP.		X											X							
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.	X	X	O	X									X							
PRESERVE FRESH WATER FLOWS																				X
PRESERVE ESTUARINE CIRCULATION/MIXING																				
REGULATE NOISE																				
SPECIAL: TO PRESERVE.....																				
SHELLFISH REEFS																				
ESTUARINE SHELLFISH BEDS																				
OCEAN SHELLFISH BEDS																				
PRIME FISHING AREAS																				
SUBMERGED VEGETATION																				
TIDAL WETLANDS																				
BOGS AND NONTIDAL WETLANDS																				
WHITE CEDAR STANDS																				
MIGRATORY PATHWAYS AND SPAWNING AREAS																				
SHIPWRECKS AND REEFS																				
BEACHES	V	X		X	X	O	X		X		X									O
DUNES	O	X		X	X	O	X		X		X		X		X			X		X
COASTAL BLUFFS																				
PINE BARRENS																				
OPEN SPACE		O		O	X	O	X		X		X		X		X			X		X
PRIME FARMLAND AND SPECIALTY SOILS																				
CENTRAL BARRIER ISLAND CORRIDOR																				
OAK, HICKORY AND PINE FORESTS																				

OBJECTIVES	BATHYMETRY VARIABILITY I	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF I	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE
GENERAL																			
MAINTAIN RECHARGE RATES									X										
REGULATE GROUNDWATER DISCHARGE & LEVELS																X			
MAINTAIN AQUIFER QUALITY												O		O		X			
MAINTAIN GRADIENTS OF SALINITY												O		O		X			
MAINTAIN AMBIENT WATER TEMPERATURES																			
CONTROL TURBIDITY																			
REGULATE TOXIC SUBSTANCE DISCHARGES																X			
MAINTAIN NATURAL NUTRIENT GRADIENTS									X	X				X		X			
CONTROL PATHOGEN DISCHARGES																X			
MAINTAIN NATURAL pH LEVELS																			
MAINTAIN DISSOLVED OXYGEN LEVELS																			
REGULATE DISSOLVED SOLIDS CONCENTRATIONS												O		O		X			
PRESERVE AQUATIC HABITATS																			
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY					X	X				X		X		X					O
PRESERVE FLORAL ABUNDANCE AND DIVERSITY					X	X				X		X		X					
PRESERVE NATURAL PRIMARY PRODUCTIVITY					X	X				X		X		X					
MAINTAIN SOIL ASSIMILATIVE CAPACITY										O	O								
PRESERVE NATURAL SHORE PROTECTION CAP.					X	X		X	X	X		X		X					
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.				X	X	X		X	X	X	V	X		X					
PRESERVE FRESH WATER FLOWS									X							X			
PRESERVE ESTUARINE CIRCULATION/MIXING																			
REGULATE NOISE																			X
SPECIAL: TO PRESERVE.....																			
SHELLFISH REEFS																			
ESTUARINE SHELLFISH BEDS																			
OCEAN SHELLFISH BEDS																			
PRIME FISHING AREAS																			
SUBMERGED VEGETATION																			
TIDAL WETLANDS																			
BOGS AND NONTIDAL WETLANDS																			
WHITE CEDAR STANDS																			
MIGRATORY PATHWAYS AND SPAWNING AREAS																			
SHIPWRECKS AND REEFS																			
BEACHES				O	X	X		X	O	X	O	X		X		O			O
DUNES				O	X	X		X	X	X	O	X		X		X			O
COASTAL BLUFFS																			
PINE BARRENS																			
OPEN SPACE				O	X	X		X	O	X		X		X		X			O
PRIME FARMLAND AND SPECIALTY SOILS																			
CENTRAL BARRIER ISLAND CORRIDOR																			
OAK, HICKORY AND PINE FORESTS																			

I=INCREASE
D=DECREASE

PROBABILITY TO VIOLATE OBJECTIVES
X=HIGH
V=VARIABLE
O=LOW

ESTUARINE BEACHES AND BARS

ENVIRONMENTAL CHANGES VERSUS OBJECTIVES

OBJECTIVES ← / ENVIRONMENTAL CHANGES →	AQUIFER RECHARGE (I)	AQUIFER RECHARGE (D)	GROUNDWATER DISCHARGE (I)	GROUNDWATER DISCHARGE (D)	GROUNDWATER SALINITY (I)	SURFACE WATER SALINITY (I)	SURFACE WATER SALINITY (D)	WATER TEMPERATURE (I)	WATER TEMPERATURE (D)	SUSPENDED SOLIDS (I)	SUSPENDED SOLIDS (D)	TOXIC SUBSTANCES (I)	NUTRIENTS (I)	NUTRIENTS (D)	PATHOGENS (I)	pH (I)	pH (D)	DISSOLVED OXYGEN (D)	DISSOLVED SOLIDS (I)	DISSOLVED SOLIDS (D)	SUBSTRATE PARTICLE SIZE (I)	SUBSTRATE PARTICLE SIZE (D)	SEDIMENTATION (I)	SEDIMENTATION (D)	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE (I)	FAUNAL ABUNDANCE (D)	FAUNAL REPRODUCTIVE POTENTIAL (I)	FAUNAL REPRODUCTIVE POTENTIAL (D)	FAUNAL DIVERSITY (I)	FAUNAL DIVERSITY (D)	FLORAL ABUNDANCE (I)	FLORAL ABUNDANCE (D)	FLORAL DIVERSITY (I)	FLORAL DIVERSITY (D)	SUNLIGHT PENETRATION (D)	PRIMARY PRODUCTIVITY (I)	PRIMARY PRODUCTIVITY (D)	SOIL ASSIMILATIVE CAPACITY (I)	SOIL ASSIMILATIVE CAPACITY (D)	BATHYMETRY VARIABILITY (I)	WATER DEPTH (I)	SHORE PROTECTION CAPACITY (I)	SHORE PROTECTION CAPACITY (D)	SHORELINE CHANGES (I)	LITTORAL DRIFT (D)	RUNOFF (I)	EROSION/SCOURING (I)	FLOOD FREQUENCY (I)	FLOOD FREQUENCY (D)	FLOOD INTENSITY (I)	FLOOD INTENSITY (D)	FLOW REGIME	CIRCULATION/MIXING (I)	CIRCULATION/MIXING (D)	NOISE
GENERAL																																																										
MAINTAIN RECHARGE RATES																																																										
REGULATE GROUNDWATER DISCHARGE & LEVELS			X	X																																																						
MAINTAIN AQUIFER QUALITY	X				X														X																																							
MAINTAIN GRADIENTS OF SALINITY	X				X														X																																							
MAINTAIN AMBIENT WATER TEMPERATURES																																																										
CONTROL TURBIDITY																																																										
REGULATE TOXIC SUBSTANCE DISCHARGES												X	O												X															O																		
MAINTAIN NATURAL NUTRIENT GRADIENTS													X	O									X		X	O													O							X											
CONTROL PATHOGEN DISCHARGES															X											O													O																		
MAINTAIN NATURAL pH LEVELS																																																										
MAINTAIN DISSOLVED OXYGEN LEVELS																																																										
REGULATE DISSOLVED SOLIDS CONCENTRATIONS	X				X														X																																							
PRESERVE AQUATIC HABITATS																																																										
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY					O							X			O				O					O		X	O	X		X		X													X	X			X		X		X		X			O
PRESERVE FLORAL ABUNDANCE AND DIVERSITY																																																										
PRESERVE NATURAL PRIMARY PRODUCTIVITY																																																										
MAINTAIN SOIL ASSIMILATIVE CAPACITY												X									O			O																																			
PRESERVE NATURAL SHORE PROTECTION CAP.																							X																							X	X		O		X		X		X		X		
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.																					O	X	O	X																				X	X	X	X	X		X		X		X		X		
PRESERVE FRESH WATER FLOWS	X		X	X																																																						
PRESERVE ESTUARINE CIRCULATION/MIXING																																																										
REGULATE NOISE																																																										X
SPECIAL: TO PRESERVE.....																																																										
SHELLFISH REEFS																																																										
ESTUARINE SHELLFISH BEDS	O		O	O	O							X	O		X				O		O			O		X	O	X		X		X									O					X	X	O			X		O		O		X		
OCEAN SHELLFISH BEDS																																																										
PRIME FISHING AREAS																																																										
SUBMERGED VEGETATION																																																										
TIDAL WETLANDS																																																										
BOGS AND NONTIDAL WETLANDS																																																										
WHITE CEDAR STANDS																																																										
MIGRATORY PATHWAYS AND SPAWNING AREAS																																																										
SHIPWRECKS AND REEFS																																																										
BEACHES												X	O		X						O	X		X	X	O	X		X		X								O			O	X	X		O	X		X		X		X			O
DUNES																																																										
COASTAL BLUFFS																																																										
PINE BARRENS																																																										
OPEN SPACE												X	O		X									O	X	O	X		X		X								O			O	X	X		O	X		X		X		X			O
PRIME FARMLAND AND SPECIALTY SOILS																																																										
CENTRAL BARRIER ISLAND CORRIDOR																																																										
OAK, HICKORY AND PINE FORESTS																																																										

I=INCREASE
D=DECREASE

PROBABILITY TO VIOLATE OBJECTIVES
X=HIGH
V=VARIABLE
O=LOW

TIDAL WETLANDS

ENVIRONMENTAL CHANGES VERSUS OBJECTIVES

OBJECTIVES ← / ENVIRONMENTAL CHANGES →	AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY I	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES I	NUTRIENTS I	NUTRIENTS D	PATHOGENS I	PH I	PH D	DISSOLVED OXYGEN D	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY I	SEDIMENT CHEMISTRY D	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION D	PRIMARY PRODUCTIVITY I	PRIMARY PRODUCTIVITY D	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY I	BATHYMETRY VARIABILITY D	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES D	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF I	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME I	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE I
GENERAL																																																																	
MAINTAIN RECHARGE RATES																																																																	
REGULATE GROUNDWATER DISCHARGE & LEVELS			X	X																																																													
MAINTAIN AQUIFER QUALITY	X				X														X																						X													O		O		X				
MAINTAIN GRADIENTS OF SALINITY	X				X														X																																			O		O		X				
MAINTAIN AMBIENT WATER TEMPERATURES																																																																
CONTROL TURBIDITY																																																																
REGULATE TOXIC SUBSTANCE DISCHARGES												X	O													X															X																			X				
MAINTAIN NATURAL NUTRIENT GRADIENTS													X	X										X	X	X	O						O	X				O	X	O	X										X	X						X				
CONTROL PATHOGEN DISCHARGES															X												O														X																		X				
MAINTAIN NATURAL pH LEVELS																																																																
MAINTAIN DISSOLVED OXYGEN LEVELS																																																																
REGULATE DISSOLVED SOLIDS CONCENTRATIONS	X				X														X																						X													O		O		X				
PRESERVE AQUATIC HABITATS																																																																
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY					O							X			O				O		O		O	O	X	O	X		X		X	V	X		X		O	X						X	X			X	X	X		X		X				O
PRESERVE FLORAL ABUNDANCE AND DIVERSITY			O		O							X		X					O		O		O		X	O					V	X	O	X		O	X						X	X			X	X	O		X		X				
PRESERVE NATURAL PRIMARY PRODUCTIVITY			O		O							X		X					O		O		O		X	O					V	X	O	O		O	X						X	X			X	X	O		X		X				
MAINTAIN SOIL ASSIMILATIVE CAPACITY												X									X		X									X						O	X										O									
PRESERVE NATURAL SHORE PROTECTION CAP.																						X	O									X												X	X		O		X		X		X		X		
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.												O									X	X										X							X				X	X	X	O	X	X		X		X		X		
PRESERVE FRESH WATER FLOWS	X	O	X	X																												X																	X		X		X				
PRESERVE ESTUARINE CIRCULATION/MIXING																																																																
REGULATE NOISE																																																																X
SPECIAL: TO PRESERVE.....																																																																
SHELLFISH REEFS																																																																
ESTUARINE SHELLFISH BEDS																																																																
OCEAN SHELLFISH BEDS																																																																
PRIME FISHING AREAS																																																																
SUBMERGED VEGETATION																																																																
TIDAL WETLANDS	O		X	X	O							X	O	X	O				O		O	O	O	O	X	O	X		X		X	V	X		X		O	X	O	X				O	X	X		O	X	X		X		X		X		O
BOGS AND NONTIDAL WETLANDS																																																																
WHITE CEDAR STANDS																																																																
MIGRATORY PATHWAYS AND SPAWNING AREAS																																																																
SHIPWRECKS AND REEFS																																																																
BEACHES																																																																
DUNES																																																																
COASTAL BLUFFS																																																																
PINE BARRENS																																																																
OPEN SPACE	O		O	O	O							X	O	O	O				O		O	O	O		X	O	X		X		X	V	X		X		O	X	O	X				O	X	X		O	X	X		X		X		X		O
PRIME FARMLAND AND SPECIALTY SOILS																																																																
CENTRAL BARRIER ISLAND CORRIDOR																																																																
OAK, HICKORY AND PINE FORESTS																																																																

I=INCREASE
D=DECREASE

PROBABILITY TO VIOLATE OBJECTIVES
X=HIGH
V=VARIABLE
O=LOW

NONTIDAL WETLANDS

ENVIRONMENTAL CHANGES

VERSUS

OBJECTIVES

OBJECTIVES ← / ENVIRONMENTAL CHANGES →	AQUIFER RECHARGE (I)	AQUIFER RECHARGE (D)	GROUNDWATER DISCHARGE (I)	GROUNDWATER DISCHARGE (D)	GROUNDWATER SALINITY (I)	SURFACE WATER SALINITY (I)	SURFACE WATER SALINITY (D)	WATER TEMPERATURE (I)	WATER TEMPERATURE (D)	SUSPENDED SOLIDS (I)	SUSPENDED SOLIDS (D)	TOXIC SUBSTANCES (I)	NUTRIENTS (I)	NUTRIENTS (D)	PATHOGENS (I)	pH (I)	pH (D)	DISSOLVED OXYGEN (D)	DISSOLVED SOLIDS (I)	DISSOLVED SOLIDS (D)	SUBSTRATE PARTICLE SIZE (I)	SUBSTRATE PARTICLE SIZE (D)	SEDIMENTATION (I)	SEDIMENTATION (D)	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE (I)	FAUNAL ABUNDANCE (D)	FAUNAL REPRODUCTIVE POTENTIAL (I)	FAUNAL REPRODUCTIVE POTENTIAL (D)	FAUNAL DIVERSITY (I)
GENERAL																														
MAINTAIN RECHARGE RATES		X																												
REGULATE GROUNDWATER DISCHARGE & LEVELS			X	X																										
MAINTAIN AQUIFER QUALITY					X							X	X		O				X											
MAINTAIN GRADIENTS OF SALINITY					X														X											
MAINTAIN AMBIENT WATER TEMPERATURES																														
CONTROL TURBIDITY																														
REGULATE TOXIC SUBSTANCE DISCHARGES												X	O												X					
MAINTAIN NATURAL NUTRIENT GRADIENTS													X	X									X	X	X	O				
CONTROL PATHOGEN DISCHARGES															X											O				
MAINTAIN NATURAL pH LEVELS																														
MAINTAIN DISSOLVED OXYGEN LEVELS																														
REGULATE DISSOLVED SOLIDS CONCENTRATIONS					X														X											
PRESERVE AQUATIC HABITATS																														
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY					X							X			O				X		O		O		X	O	X	O	X	O
PRESERVE FLORAL ABUNDANCE AND DIVERSITY			O		X							X	O	X					X		O		O		X	O				
PRESERVE NATURAL PRIMARY PRODUCTIVITY			O		X							X	O	X					X		O		O		X	O				
MAINTAIN SOIL ASSIMILATIVE CAPACITY												X									X		X							
PRESERVE NATURAL SHORE PROTECTION CAP.																						X								
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.																					O	X								
PRESERVE FRESH WATER FLOWS		X	X	X																										
PRESERVE ESTUARINE CIRCULATION/MIXING																														
REGULATE NOISE																														
SPECIAL: TO PRESERVE.....																														
SHELLFISH REEFS																														
ESTUARINE SHELLFISH BEDS																														
OCEAN SHELLFISH BEDS																														
PRIME FISHING AREAS																														
SUBMERGED VEGETATION																														
TIDAL WETLANDS																														
BOGS AND NONTIDAL WETLANDS		X	X	X	X							X	O	X	O				X		O	O	O	O	X	O	X		X	
WHITE CEDAR STANDS																														
MIGRATORY PATHWAYS AND SPAWNING AREAS																														
SHIPWRECKS AND REEFS																														
BEACHES																														
DUNES																														
COASTAL BLUFFS																														
PINE BARRENS		X	X	X	X							X	X	X	O				X		O		O		X	X	X	O	X	O
OPEN SPACE		O	O	O	X							X	O	X	O				X		O		O		X	O	X		X	
PRIME FARMLAND AND SPECIALTY SOILS																														
CENTRAL BARRIER ISLAND CORRIDOR																														
OAK, HICKORY AND PINE FORESTS																														

OBJECTIVES ← / ENVIRONMENTAL CHANGES →	FAUNAL DIVERSITY (D)	FLORAL ABUNDANCE (I)	FLORAL ABUNDANCE (D)	FLORAL DIVERSITY (I)	FLORAL DIVERSITY (D)	SUNLIGHT PENETRATION (D)	PRIMARY PRODUCTIVITY (I)	PRIMARY PRODUCTIVITY (D)	SOIL ASSIMILATIVE CAPACITY (I)	SOIL ASSIMILATIVE CAPACITY (D)	BATHYMETRY VARIABILITY (I)	WATER DEPTH (I)	WATER DEPTH (D)	SHORE PROTECTION CAPACITY (I)	SHORE PROTECTION CAPACITY (D)	SHORELINE CHANGES	LITTORAL DRIFT (I)	LITTORAL DRIFT (D)	RUNOFF (I)	EROSION/SCOURING (I)	EROSION/SCOURING (D)	FLOOD FREQUENCY (I)	FLOOD FREQUENCY (D)	FLOOD INTENSITY (I)	FLOOD INTENSITY (D)	FLOW REGIME	CIRCULATION/MIXING (I)	CIRCULATION/MIXING (D)	NOISE
GENERAL																													
MAINTAIN RECHARGE RATES			O							X									X			O							
REGULATE GROUNDWATER DISCHARGE & LEVELS																										X			
MAINTAIN AQUIFER QUALITY										X																X			
MAINTAIN GRADIENTS OF SALINITY																										X			
MAINTAIN AMBIENT WATER TEMPERATURES																													
CONTROL TURBIDITY																													
REGULATE TOXIC SUBSTANCE DISCHARGES										X																X			
MAINTAIN NATURAL NUTRIENT GRADIENTS		O	X				O	X	O	X									X	X						X			
CONTROL PATHOGEN DISCHARGES										X																X			
MAINTAIN NATURAL pH LEVELS																													
MAINTAIN DISSOLVED OXYGEN LEVELS																													
REGULATE DISSOLVED SOLIDS CONCENTRATIONS										X																X			
PRESERVE AQUATIC HABITATS																													
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY	X		X		X			X							X	X			X	X		X		X		X			O
PRESERVE FLORAL ABUNDANCE AND DIVERSITY		O	X	O	X		O	X							X	X			X	X		O	O	X		X			
PRESERVE NATURAL PRIMARY PRODUCTIVITY			X		O		O	X							X	X			X	X		O	O	X		X			
MAINTAIN SOIL ASSIMILATIVE CAPACITY			X							X										O									
PRESERVE NATURAL SHORE PROTECTION CAP.			X												X	X				X		X		X		X			
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.			X							X				X	X	X			X	X		X	O	X		X			
PRESERVE FRESH WATER FLOWS			X							X						X			X			X	X	X	O	X			
PRESERVE ESTUARINE CIRCULATION/MIXING																													
REGULATE NOISE																													X
SPECIAL: TO PRESERVE.....																													
SHELLFISH REEFS																													
ESTUARINE SHELLFISH BEDS																													
OCEAN SHELLFISH BEDS																													
PRIME FISHING AREAS																													
SUBMERGED VEGETATION																													
TIDAL WETLANDS																													
BOGS AND NONTIDAL WETLANDS	X		X		X			X	O	X				O	X	X			X	X		X	O	X		X			O
WHITE CEDAR STANDS																													
MIGRATORY PATHWAYS AND SPAWNING AREAS																													
SHIPWRECKS AND REEFS																													
BEACHES																													
DUNES																													
COASTAL BLUFFS																													
PINE BARRENS	X	O	X	O	X		O	X	O	X				O	X	X			X	X		X	O	X		X			X
OPEN SPACE	X		X		O			X	O	X				O	X	X			X	X		X		X		X			O
PRIME FARMLAND AND SPECIALTY SOILS																													
CENTRAL BARRIER ISLAND CORRIDOR																													
OAK, HICKORY AND PINE FORESTS																													

I=INCREASE
D=DECREASE

PROBABILITY TO VIOLATE OBJECTIVES
X=HIGH
V=VARIABLE
O=LOW

WETLAND FOREST

ENVIRONMENTAL CHANGES

VERSUS

OBJECTIVES

OBJECTIVES ←

ENVIRONMENTAL CHANGES ↓

OBJECTIVES	AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY I	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES I	NUTRIENTS I	NUTRIENTS D	PATHOGENS I	pH I	pH D	DISSOLVED OXYGEN D	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION D	PRIMARY PRODUCTIVITY I	PRIMARY PRODUCTIVITY D	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY I	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF I	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE
GENERAL																																																											
MAINTAIN RECHARGE RATES		X																															O							X									X			X							
REGULATE GROUNDWATER DISCHARGE & LEVELS			X																																																					X			
MAINTAIN AQUIFER QUALITY					X							X	X		O				X																					X																X			
MAINTAIN GRADIENTS OF SALINITY					X														X																																					X			
MAINTAIN AMBIENT WATER TEMPERATURES																																																											
CONTROL TURBIDITY																																																											
REGULATE TOXIC SUBSTANCE DISCHARGES												X	O												X															X																X			
MAINTAIN NATURAL NUTRIENT GRADIENTS													X	X									X	X	X	O						O	X				O	X	X	X									X	X						X			
CONTROL PATHOGEN DISCHARGES															X											O														X																X			
MAINTAIN NATURAL pH LEVELS																																																											
MAINTAIN DISSOLVED OXYGEN LEVELS																																																											
REGULATE DISSOLVED SOLIDS CONCENTRATIONS					X														X																					X																X			
PRESERVE AQUATIC HABITATS																																																											
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY					O							X			O				O							O	X	O	X	X	X		X		X			X							X	X			X	X		X		X		X			O
PRESERVE FLORAL ABUNDANCE AND DIVERSITY			O		X							X	O	X					X		O		O		X	O						O	X	O	X		O	X							X	X			X	X		O	O	X		X			
PRESERVE NATURAL PRIMARY PRODUCTIVITY			O		X							X	O	X					X		O		O		X	O							X		O		O	X							X	X			X	X		O	O	X		X			
MAINTAIN SOIL ASSIMILATIVE CAPACITY												X									O		X										X							X										O									
PRESERVE NATURAL SHORE PROTECTION CAP.																						X											X												X	X				X		X		X		X			
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.																					O	X	O										X							X				X	X	X			X	X		X	O	X		X			
PRESERVE FRESH WATER FLOWS		X	X	X																													X							X						X			X			X	X	X	O	X			
PRESERVE ESTUARINE CIRCULATION/MIXING																																																											
REGULATE NOISE																																																											X
SPECIAL: TO PRESERVE.....																																																											
SHELLFISH REEFS																																																											
ESTUARINE SHELLFISH BEDS																																																											
OCEAN SHELLFISH BEDS																																																											
PRIME FISHING AREAS																																																											
SUBMERGED VEGETATION																																																											
TIDAL WETLANDS																																																											
BOGS AND NONTIDAL WETLANDS		X	X	X	X							X	O	X	O				X		O	O	O	O	X	O	X		X		X		X		X			X	O	X				O	X	X			X	X		X	O	X		X			O
WHITE CEDAR STANDS		X	X	X	X							X	O	X					X		O	O	O	O	X	O	X		X		X		X		O			X	O	X				O	X	X			X	X		X	O	X		X			O
MIGRATORY PATHWAYS AND SPAWNING AREAS																																																											
SHIPWRECKS AND REEFS																																																											
BEACHES																																																											
DUNES																																																											
COASTAL BLUFFS																																																											
PINE BARRENS		X	X	X	X							X	X	X	O				X		O	O	O		X	X	X	O	X	X	X	O	X	O	X		O	X	O	X				O	X	X			X	X		X	O	X		X			X
OPEN SPACE		O	O	O	X							X	O	X	O				X		O	O	O		X	O	X		X		X		X		O			X	O	X				O	X	X			X	X		X		X		X			O
PRIME FARMLAND AND SPECIALTY SOILS																																																											
CENTRAL BARRIER ISLAND CORRIDOR																																																											
OAK, HICKORY AND PINE FORESTS																																																											

I=INCREASE
D=DECREASE

PROBABILITY TO VIOLATE OBJECTIVES
X=HIGH
V=VARIABLE
O=LOW

CENTRAL BARRIER ISLAND CORRIDOR

ENVIRONMENTAL CHANGES

VERSUS

OBJECTIVES

OBJECTIVES ← / ENVIRONMENTAL CHANGES →	AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY I	SURFACE WATER SALINITY D	SURFACE WATER SALINITY I	WATER TEMPERATURE D	WATER TEMPERATURE I	SUSPENDED SOLIDS D	SUSPENDED SOLIDS I	TOXIC SUBSTANCES I	NUTRIENTS I	NUTRIENTS D	PATHOGENS I	pH I	pH D	DISSOLVED OXYGEN D	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY I	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION D	PRIMARY PRODUCTIVITY I	PRIMARY PRODUCTIVITY D	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY I	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES I	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF I	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME I	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE I
GENERAL																																																																	
MAINTAIN RECHARGE RATES		X																															O							X									X														
REGULATE GROUNDWATER DISCHARGE & LEVELS		X	X	O																																																											
MAINTAIN AQUIFER QUALITY	X				X							X	X		X				X																					X														X		X						
MAINTAIN GRADIENTS OF SALINITY					X														X																																			X		X		X				
MAINTAIN AMBIENT WATER TEMPERATURES																																																															
CONTROL TURBIDITY																																																															
REGULATE TOXIC SUBSTANCE DISCHARGES												X	O																											X										X								X				
MAINTAIN NATURAL NUTRIENT GRADIENTS													X	X																										X										X	X							X				
CONTROL PATHOGEN DISCHARGES															X																									X																			X				
MAINTAIN NATURAL pH LEVELS																																																															
MAINTAIN DISSOLVED OXYGEN LEVELS																																																															
REGULATE DISSOLVED SOLIDS CONCENTRATIONS					X														X																					X														X		X		X				
PRESERVE AQUATIC HABITATS																																																															
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY					O							X	O		X				O							O	X	O	X	O	X		X		X			X									O	X		X		X		X				O
PRESERVE FLORAL ABUNDANCE AND DIVERSITY				O	X							X	O	X					X							O						O	X	O	X		O	X		O							X	X		X		X		X				
PRESERVE NATURAL PRIMARY PRODUCTIVITY				O	X							X	O	X					X							O						O	X		O		O	X		O							X	X		X		X		X				
MAINTAIN SOIL ASSIMILATIVE CAPACITY																																	X							X											O		O								
PRESERVE NATURAL SHORE PROTECTION CAP.																																																															
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.																																	X																	X	X	O	X	O	X		X				
PRESERVE FRESH WATER FLOWS		X	X	O																													X							X									X							X						
PRESERVE ESTUARINE CIRCULATION/MIXING																																																															
REGULATE NOISE																																																															X
SPECIAL: TO PRESERVE.....																																																															
SHELLFISH REEFS																																																															
ESTUARINE SHELLFISH BEDS																																																															
OCEAN SHELLFISH BEDS																																																															
PRIME FISHING AREAS																																																															
SUBMERGED VEGETATION																																																															
TIDAL WETLANDS																																																															
BOGS AND NONTIDAL WETLANDS																																																															
WHITE CEDAR STANDS																																																															
MIGRATORY PATHWAYS AND SPAWNING AREAS																																																															
SHIPWRECKS AND REEFS																																																															
BEACHES																																																															
DUNES	X	X	X	O	X							X	O	O	X				X							O	X		X		X		X		X			X		X							X	X		X		X		X				O
COASTAL BLUFFS																																																															
PINE BARRENS																																																															
OPEN SPACE		X	X		X							X	O	X	X				X							O	X		X		X		X		X			X		X							X	X		X		X		X				O
PRIME FARMLAND AND SPECIALTY SOILS																																																															
CENTRAL BARRIER ISLAND CORRIDOR	X	X	X		X							X	O	X	X				X							O	X		X		X		X		X			X		X							X	X		X		X		X				O
OAK, HICKORY AND PINE FORESTS																																																															

I=INCREASE
D=DECREASE

PROBABILITY TO VIOLATE OBJECTIVES
X=HIGH
V=VARIABLE
O=LOW

LOWLAND COARSE SOILS

ENVIRONMENTAL CHANGES

VERSUS

OBJECTIVES

OBJECTIVES ← / ENVIRONMENTAL CHANGES ↓	AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY I	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES I	NUTRIENTS I	NUTRIENTS D	PATHOGENS I	pH I	pH D	DISSOLVED OXYGEN D	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION D	PRIMARY PRODUCTIVITY I	PRIMARY PRODUCTIVITY D	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY I	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF I	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE
GENERAL																																																											
MAINTAIN RECHARGE RATES		X																															X							X									X							X			
REGULATE GROUNDWATER DISCHARGE AND LEVELS		X	X	O																																																				X			
MAINTAIN AQUIFER QUALITY	O				X							X	X		X				X																					X																			
MAINTAIN GRADIENTS OF SALINITY					X														X																																					X			
MAINTAIN AMBIENT WATER TEMPERATURES																																																											
CONTROL TURBIDITY																																																											
REGULATE TOXIC SUBSTANCE DISCHARGES												X	O																											X									X							X			
MAINTAIN NATURAL NUTRIENT GRADIENTS													X	X												O														X									X	X						X			
CONTROL PATHOGEN DISCHARGES															X																									X																X			
MAINTAIN NATURAL pH LEVELS																																																											
MAINTAIN DISSOLVED OXYGEN LEVELS																																																											
REGULATE DISSOLVED SOLIDS CONCENTRATIONS					X														X																					X																X			
PRESERVE AQUATIC HABITATS																																																											
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY					O							X	O		X				O							X	X	O	X	O	X		X		X			X											O	X		X		X		X			O
PRESERVE FLORAL ABUNDANCE AND DIVERSITY					X							X	O	X					X							O						O	X	O	X		O	X		O									X	X		X		X		X			
PRESERVE NATURAL PRIMARY PRODUCTIVITY					X							X	O	X					X							O						O	X				O	X		O									X	X		X		X		X			
MAINTAIN SOIL ASSIMILATIVE CAPACITY																																								X										O		O							
PRESERVE NATURAL SHORE PROTECTION CAP.																																																											
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.																																	X																X	X	O	X	O	X		X			
PRESERVE FRESH WATER FLOWS		X	X	O																													X							X									X			X	O	X	O	X			
PRESERVE ESTUARINE CIRCULATION/MIXING																																																											
REGULATE NOISE																																																											X
SPECIAL: TO PRESERVE.....																																																											
SHELLFISH REEFS																																																											
ESTUARINE SHELLFISH BEDS																																																											
OCEAN SHELLFISH BEDS																																																											
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MIGRATORY PATHWAYS AND SPAWNING AREAS																																																											
SHIPWRECKS AND REEFS																																																											
BEACHES																																																											
DUNES																																																											
COASTAL BLUFFS																																																											
PINE BARRENS	O	X	X	O	X							X	X		X				X							X	X	O	X	X	X	O	X	O	X		X	X		X									X	X		X		X		X			X
OPEN SPACE		O	O		X							X	O	X	X				X							O	X		X		X		X		X			X		X									X	X		X		X		X			O
PRIME FARMLAND AND SPECIALTY SOILS																																																											
CENTRAL BARRIER ISLAND CORRIDOR																																																											
OAK, HICKORY AND PINE FORESTS		O	O		X							X	O	X	X				X							O	X		X		X		X		X			X		X									X	X		X		X		X			O

I=INCREASE
D=DECREASE

PROBABILITY TO VIOLATE OBJECTIVES
X=HIGH
V=VARIABLE
O=LOW

LOWLAND MEDIUM SOILS

ENVIRONMENTAL CHANGES

VERSUS

OBJECTIVES

OBJECTIVES ← / ENVIRONMENTAL CHANGES →	AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY I	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES I	NUTRIENTS I	NUTRIENTS D	PATHOGENS I	PH I	PH D	DISSOLVED OXYGEN I	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY I	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION I	PRIMARY PRODUCTIVITY I	PRIMARY PRODUCTIVITY D	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY I	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES I	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF I	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME I	FLOW REGIME D	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE
GENERAL																																																																			
MAINTAIN RECHARGE RATES		X																															X								X								X								X							
REGULATE GROUNDWATER DISCHARGE & LEVELS		X	X	O																																																					X							
MAINTAIN AQUIFER QUALITY	O				X							X	X		X				X																					X																								
MAINTAIN GRADIENTS OF SALINITY					X														X																																									X						
MAINTAIN AMBIENT WATER TEMPERATURES																																																																		
CONTROL TURBIDITY																																																																		
REGULATE TOXIC SUBSTANCE DISCHARGES												X	O																											X										X									X						
MAINTAIN NATURAL NUTRIENT GRADIENTS													X	X												O														X										X	X								X						
CONTROL PATHOGEN DISCHARGES															X																									X																				X						
MAINTAIN NATURAL pH LEVELS																																																																		
MAINTAIN DISSOLVED OXYGEN LEVELS																																																																		
REGULATE DISSOLVED SOLIDS CONCENTRATIONS					X														X																					X																				X						
PRESERVE AQUATIC HABITATS																																																																		
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY					O							X	O		X				O							X	X	O	X	O	X		X		X			X										O	X		X		X		X				O						
PRESERVE FLORAL ABUNDANCE AND DIVERSITY					X							X	O	X					X							O						O	X	O	X		O	X		O									X	X		X		X		X									
PRESERVE NATURAL PRIMARY PRODUCTIVITY					X							X	O	X					X							O						O	X				O	X		O									X	X		X		X		X									
MAINTAIN SOIL ASSIMILATIVE CAPACITY																																								X											O		O												
PRESERVE NATURAL SHORE PROTECTION CAP.																																																																	
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.																																	X																	X	X	O	X	O	X		X							
PRESERVE FRESH WATER FLOWS		X	X	O																													X							X									X			X	O	X	O	X							
PRESERVE ESTUARINE CIRCULATION/MIXING																																																																	
REGULATE NOISE																																																																	X
SPECIAL: TO PRESERVE.....																																																																	
SHELLFISH REEFS																																																																	
ESTUARINE SHELLFISH BEDS																																																																	
OCEAN SHELLFISH BEDS																																																																	
PRIME FISHING AREAS																																																																	
SUBMERGED VEGETATION																																																																	
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BOGS AND NONTIDAL WETLANDS																																																																	
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MIGRATORY PATHWAYS AND SPAWNING AREAS																																																																	
SHIPWRECKS AND REEFS																																																																	
BEACHES																																																																	
DUNES																																																																	
COASTAL BLUFFS																																																																	
PINE BARRENS	O	X	X	O	X							X	X		X				X							X	X	O	X	X	X	O	X	O	X		X	X		X								X	X		X		X		X				X				X
OPEN SPACE		O	O		X							X	O	X	X				X							O	X		X		X		X		X			X		X								X	X		X		X		X				X				O
PRIME FARMLAND AND SPECIALTY SOILS	O	X	X		X							X		X	X				X							X	O	O	O	O	O		V					V		X								X	X		X		X		X				O				
CENTRAL BARRIER ISLAND CORRIDOR																																																																	
OAK, HICKORY AND PINE FORESTS		O	O		X							X	O	X	X				X							O	X		X		X		X		X			X		X								X	X		X		X		X				O				

I=INCREASE
D=DECREASE

PROBABILITY TO VIOLATE OBJECTIVES
X=HIGH
V=VARIABLE
O=LOW

LOWLAND FINE SOILS

ENVIRONMENTAL CHANGES

VERSUS

OBJECTIVES

OBJECTIVES ← / ENVIRONMENTAL CHANGES ↓	AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY I	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES I	NUTRIENTS I	NUTRIENTS D	PATHOGENS I	pH I	pH D	DISSOLVED OXYGEN D	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION D	PRIMARY PRODUCTIVITY I	PRIMARY PRODUCTIVITY D	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY I	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF I	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME I	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE I
GENERAL																																																																
MAINTAIN RECHARGE RATES			X																															X						X										X								X			
REGULATE GROUNDWATER DISCHARGE & LEVELS		X		X	O																																																					X			
MAINTAIN AQUIFER QUALITY	O					X						X	X		X				X																					X																						
MAINTAIN GRADIENTS OF SALINITY						X													X																																							X			
MAINTAIN AMBIENT WATER TEMPERATURES																																																														
CONTROL TURBIDITY																																																														
REGULATE TOXIC SUBSTANCE DISCHARGES												X	O																											X										X								X			
MAINTAIN NATURAL NUTRIENT GRADIENTS													X	X												O														X										X	X							X			
CONTROL PATHOGEN DISCHARGES															X																									X																			X			
MAINTAIN NATURAL pH LEVELS																																																														
MAINTAIN DISSOLVED OXYGEN LEVELS																																																														
REGULATE DISSOLVED SOLIDS CONCENTRATIONS						X													X																					X																			X			
PRESERVE AQUATIC HABITATS																																																														
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY						O						X	O		X				O							X	X	O	X	O	X			X		X				X									O	X		X		X			X			O
PRESERVE FLORAL ABUNDANCE AND DIVERSITY						X						X	O	X					X							O						O	X	O	X		O	X		O									X	X		X		X			X			
PRESERVE NATURAL PRIMARY PRODUCTIVITY						X						X	O	X					X							O						O	X				O	X		O									X	X		X		X			X			
MAINTAIN SOIL ASSIMILATIVE CAPACITY																																								X											O		O								
PRESERVE NATURAL SHORE PROTECTION CAP.																																																														
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.																																		X																	X	X	O	X	O	X		X			
PRESERVE FRESH WATER FLOWS		X		X	O																													X						X										X			X	O	X	O	X				
PRESERVE ESTUARINE CIRCULATION/MIXING																																																														
REGULATE NOISE																																																														X
SPECIAL: TO PRESERVE.....																																																														
SHELLFISH REEFS																																																														
ESTUARINE SHELLFISH BEDS																																																														
OCEAN SHELLFISH BEDS																																																														
PRIME FISHING AREAS																																																														
SUBMERGED VEGETATION																																																														
TIDAL WETLANDS																																																														
BOGS AND NONTIDAL WETLANDS																																																														
WHITE CEDAR STANDS																																																														
MIGRATORY PATHWAYS AND SPAWNING AREAS																																																														
SHIPWRECKS AND REEFS																																																														
BEACHES																																																														
DUNES																																																														
COASTAL BLUFFS																																																														
PINE BARRENS																																																														
OPEN SPACE		O	O		X							X	O	X	X				X						O	X		X		X		X		X		X			X		X								X	X		X		X		X		O
PRIME FARMLAND AND SPECIALTY SOILS	O	X	O		X							X	O	X	X				X						X	O	O	O	O	O		V					V		X								X	X		X		X		X		O
CENTRAL BARRIER ISLAND CORRIDOR																																																														
OAK, HICKORY AND PINE FORESTS		O	O		X							X	O	X	X				X						O	X		X		X		X		X		X			X		X								X	X		X		X		X		O

I=INCREASE
D=DECREASE

PROBABILITY TO VIOLATE OBJECTIVES
X=HIGH
V=VARIBLE
O=LOW

UPLAND COARSE SOILS

ENVIRONMENTAL CHANGES

VERSUS

OBJECTIVES

OBJECTIVES ← / ENVIRONMENTAL CHANGES ↓	AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY I	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES I	NUTRIENTS I	NUTRIENTS D	PATHOGENS I	pH I	pH D	DISSOLVED OXYGEN I	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY I	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION I	PRIMARY PRODUCTIVITY I	PRIMARY PRODUCTIVITY D	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY I	BATHYMETRY VARIABILITY D	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES I	SHORELINE CHANGES D	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF I	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME I	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE I
GENERAL																																																																
MAINTAIN RECHARGE RATES		X																														X							X																					X		
REGULATE GROUNDWATER DISCHARGE & LEVELS		X	X	O																																																							X		
MAINTAIN AQUIFER QUALITY	O				X							X	X		X				X																				X																							
MAINTAIN GRADIENTS OF SALINITY					X														X																																									X		
MAINTAIN AMBIENT WATER TEMPERATURES																																																														
CONTROL TURBIDITY																																																														
REGULATE TOXIC SUBSTANCE DISCHARGES												X	O																										X																				X		
MAINTAIN NATURAL NUTRIENT GRADIENTS													X	X												O													X																				X		
CONTROL PATHOGEN DISCHARGES															X																								X																				X		
MAINTAIN NATURAL pH LEVELS																																																														
MAINTAIN DISSOLVED OXYGEN LEVELS																																																														
REGULATE DISSOLVED SOLIDS CONCENTRATIONS					X														X																				X																				X		
PRESERVE AQUATIC HABITATS																																																														
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY					O							X	O		X				O							X	X	O	X	O	X		X		X			X													O	X		X		X		X			O
PRESERVE FLORAL ABUNDANCE AND DIVERSITY					O							X	O	X					O							O					O	X	O	X		O	X	O			O										X	X		X		X		X			
PRESERVE NATURAL PRIMARY PRODUCTIVITY					O							X	O	X					O							O					O	X				O	X	O													X	X		X		X		X			
MAINTAIN SOIL ASSIMILATIVE CAPACITY																																							X														O		O						
PRESERVE NATURAL SHORE PROTECTION CAP.																																																														
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.																																X																				X	X	O	X	O	X		X			
PRESERVE FRESH WATER FLOWS		X	X	O																												X							X												X			X	O	X	O	X			
PRESERVE ESTUARINE CIRCULATION/MIXING																																																														
REGULATE NOISE																																																														X
SPECIAL: TO PRESERVE.....																																																														
SHELLFISH REEFS																																																														
ESTUARINE SHELLFISH BEDS																																																														
OCEAN SHELLFISH BEDS																																																														
PRIME FISHING AREAS																																																														
SUBMERGED VEGETATION																																																														
TIDAL WETLANDS																																																														
BOGS AND NONTIDAL WETLANDS																																																														
WHITE CEDAR STANDS																																																														
MIGRATORY PATHWAYS AND SPAWNING AREAS																																																														
SHIPWRECKS AND REEFS																																																														
BEACHES																																																														
DUNES																																																														
COASTAL BLUFFS												X		X	X												X		X		X		X		X																X	X		X		X		X			
PINE BARRENS	O	X	X	O	O							X	X		X				O							X	X	O	X	X	X	O	X	O	X		X	X		X										X	X		X		X		X			X
OPEN SPACE		O	O		O							X	O	X	X				O							O	X		X		X		X		X			X		X										X	X		X		X		X			O
PRIME FARMLAND AND SPECIALTY SOILS																																																														
CENTRAL BARRIER ISLAND CORRIDOR																																																														
OAK, HICKORY AND PINE FORESTS		O	O		O							X	O	X	X				O							O	X		X		X		X		X			X		X										X	X		X		X		X			O

I=INCREASE
D=DECREASE

PROBABILITY TO VIOLATE OBJECTIVES
X=HIGH
V=VARIABLE
O=LOW

UPLAND MEDIUM SOILS

ENVIRONMENTAL CHANGES

VERSUS

OBJECTIVES

OBJECTIVES ← / ENVIRONMENTAL CHANGES →	AQUIFER RECHARGE I	AQUIFER RECHARGE D	GROUNDWATER DISCHARGE I	GROUNDWATER DISCHARGE D	GROUNDWATER SALINITY I	SURFACE WATER SALINITY I	SURFACE WATER SALINITY D	WATER TEMPERATURE I	WATER TEMPERATURE D	SUSPENDED SOLIDS I	SUSPENDED SOLIDS D	TOXIC SUBSTANCES I	NUTRIENTS I	NUTRIENTS D	PATHOGENS I	pH I	pH D	DISSOLVED OXYGEN D	DISSOLVED SOLIDS I	DISSOLVED SOLIDS D	SUBSTRATE PARTICLE SIZE I	SUBSTRATE PARTICLE SIZE D	SEDIMENTATION I	SEDIMENTATION D	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE I	FAUNAL ABUNDANCE D	FAUNAL REPRODUCTIVE POTENTIAL I	FAUNAL REPRODUCTIVE POTENTIAL D	FAUNAL DIVERSITY I	FAUNAL DIVERSITY D	FLORAL ABUNDANCE I	FLORAL ABUNDANCE D	FLORAL DIVERSITY I	FLORAL DIVERSITY D	SUNLIGHT PENETRATION D	PRIMARY PRODUCTIVITY I	PRIMARY PRODUCTIVITY D	SOIL ASSIMILATIVE CAPACITY I	SOIL ASSIMILATIVE CAPACITY D	BATHYMETRY VARIABILITY I	WATER DEPTH I	WATER DEPTH D	SHORE PROTECTION CAPACITY I	SHORE PROTECTION CAPACITY D	SHORELINE CHANGES I	LITTORAL DRIFT I	LITTORAL DRIFT D	RUNOFF I	EROSION/SCOURING I	EROSION/SCOURING D	FLOOD FREQUENCY I	FLOOD FREQUENCY D	FLOOD INTENSITY I	FLOOD INTENSITY D	FLOW REGIME	CIRCULATION/MIXING I	CIRCULATION/MIXING D	NOISE
GENERAL																																																																					
MAINTAIN RECHARGE RATES			X																															X							X										X									X					
REGULATE GROUNDWATER DISCHARGE & LEVELS			X	X	O																																				X										X									X					
MAINTAIN AQUIFER QUALITY		O				X							X	X		X				X																					X																								
MAINTAIN GRADIENTS OF SALINITY						X														X																																								X					
MAINTAIN AMBIENT WATER TEMPERATURES																																																																		
CONTROL TURBIDITY																																																																		
REGULATE TOXIC SUBSTANCE DISCHARGES													X	O																											X										X									X					
MAINTAIN NATURAL NUTRIENT GRADIENTS														X	X												O													X										X	X								X					
CONTROL PATHOGEN DISCHARGES																X																									X																				X					
MAINTAIN NATURAL pH LEVELS																																																																		
MAINTAIN DISSOLVED OXYGEN LEVELS																																																																		
REGULATE DISSOLVED SOLIDS CONCENTRATIONS						X														X																					X																				X					
PRESERVE AQUATIC HABITATS																																																																		
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY						O							X	O		X				O							X	X	O	X	O	X		X		X			X										O	X		X		X		X				O
PRESERVE FLORAL ABUNDANCE AND DIVERSITY						O							X	O	X					O							O						O	X	O	X		O	X		O									X	X		X		X		X				
PRESERVE NATURAL PRIMARY PRODUCTIVITY						O							X	O	X					O							O						O	X				O	X		O									X	X		X		X		X				
MAINTAIN SOIL ASSIMILATIVE CAPACITY																																									X											O		O									
PRESERVE NATURAL SHORE PROTECTION CAP.																																																																	
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.																																		X																X	X	O	X	O	X		X				
PRESERVE FRESH WATER FLOWS			X	X	O																													X							X										X			X	O	X	O	X				
PRESERVE ESTUARINE CIRCULATION/MIXING																																																																	
REGULATE NOISE																																																																	X
SPECIAL: TO PRESERVE.....																																																																	
SHELLFISH REEFS																																																																	
ESTUARINE SHELLFISH BEDS																																																																	
OCEAN SHELLFISH BEDS																																																																	
PRIME FISHING AREAS																																																																	
SUBMERGED VEGETATION																																																																	
TIDAL WETLANDS																																																																	
BOGS AND NONTIDAL WETLANDS																																																																	
WHITE CEDAR STANDS																																																																	
MIGRATORY PATHWAYS AND SPAWNING AREAS																																																																	
SHIPWRECKS AND REEFS																																																																	
BEACHES																																																																	
DUNES																																																																	
COASTAL BLUFFS													X		X	X												X		X		X		X		X														X	X		X		X		X				
PINE BARRENS		O	X	X	O	O							X	X		X				O							X	X	O	X	X	X	O	X	O	X		X	X		X									X	X		X		X		X			X
OPEN SPACE			O	O		O							X	O	X	X				O							O	X		X		X		X		X			X		X										X	X		X		X		X			O
PRIME FARMLAND AND SPECIALTY SOILS		O	X	X		O							X		X	X				O							X	O	O	O	O	O		V				V		X										X	X		X		X		X			O
CENTRAL BARRIER ISLAND CORRIDOR																																																																	
OAK, HICKORY AND PINE FORESTS			O	O		O							X	O	X	X				O							O	X		X		X		X		X			X		X										X	X		X		X		X			O

I=INCREASE
D=DECREASE

PROBABILITY TO VIOLATE OBJECTIVES
X=HIGH
V=VARIABLE
O=LOW

UPLAND FINE SOILS

ENVIRONMENTAL CHANGES VERSUS OBJECTIVES

(Columns 1–20)

OBJECTIVES ← / ENVIRONMENTAL CHANGES →	AQUIFER RECHARGE (I)	AQUIFER RECHARGE (D)	GROUNDWATER DISCHARGE (I)	GROUNDWATER DISCHARGE (D)	GROUNDWATER SALINITY (I)	SURFACE WATER SALINITY (I)	SURFACE WATER SALINITY (D)	WATER TEMPERATURE (I)	WATER TEMPERATURE (D)	SUSPENDED SOLIDS (I)	SUSPENDED SOLIDS (D)	TOXIC SUBSTANCES (I)	NUTRIENTS (I)	NUTRIENTS (D)	PATHOGENS (I)	pH (I)	pH (D)	DISSOLVED OXYGEN (D)	DISSOLVED SOLIDS (I)	DISSOLVED SOLIDS (D)
GENERAL																				
MAINTAIN RECHARGE RATES		X																		
REGULATE GROUNDWATER DISCHARGE & LEVELS		X	X	O																
MAINTAIN AQUIFER QUALITY	O				X							X	X		X				X	
MAINTAIN GRADIENTS OF SALINITY					X														X	
MAINTAIN AMBIENT WATER TEMPERATURES																				
CONTROL TURBIDITY																				
REGULATE TOXIC SUBSTANCE DISCHARGES												X	O							
MAINTAIN NATURAL NUTRIENT GRADIENTS													X	X						
CONTROL PATHOGEN DISCHARGES															X					
MAINTAIN NATURAL pH LEVELS																				
MAINTAIN DISSOLVED OXYGEN LEVELS																				
REGULATE DISSOLVED SOLIDS CONCENTRATIONS																			X	
PRESERVE AQUATIC HABITATS																				
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY					O							X	O		X				O	
PRESERVE FLORAL ABUNDANCE AND DIVERSITY					O							X	O	X					O	
PRESERVE NATURAL PRIMARY PRODUCTIVITY					O							X	O	X					O	
MAINTAIN SOIL ASSIMILATIVE CAPACITY																				
PRESERVE NATURAL SHORE PROTECTION CAP.																				
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.																				
PRESERVE FRESH WATER FLOWS		X	X	O																
PRESERVE ESTUARINE CIRCULATION/MIXING																				
REGULATE NOISE																				
SPECIAL: TO PRESERVE.....																				
SHELLFISH REEFS																				
ESTUARINE SHELLFISH BEDS																				
OCEAN SHELLFISH BEDS																				
PRIME FISHING AREAS																				
SUBMERGED VEGETATION																				
TIDAL WETLANDS																				
BOGS AND NONTIDAL WETLANDS																				
WHITE CEDAR STANDS																				
MIGRATORY PATHWAYS AND SPAWNING AREAS																				
SHIPWRECKS AND REEFS																				
BEACHES																				
DUNES																				
COASTAL BLUFFS												X		X	X					
PINE BARRENS																				
OPEN SPACE		O	O		O							X	O	X	X				O	
PRIME FARMLAND AND SPECIALTY SOILS	O	X	X		O							X		X	X				O	
CENTRAL BARRIER ISLAND CORRIDOR																				
OAK, HICKORY AND PINE FORESTS		O	O		O							X	O	X	X				O	

(Columns 21–40)

OBJECTIVES ← / ENVIRONMENTAL CHANGES →	SUBSTRATE PARTICLE SIZE (I)	SUBSTRATE PARTICLE SIZE (D)	SEDIMENTATION (I)	SEDIMENTATION (D)	SEDIMENT CHEMISTRY	FAUNAL ABUNDANCE (I)	FAUNAL ABUNDANCE (D)	FAUNAL REPRODUCTIVE POTENTIAL (I)	FAUNAL REPRODUCTIVE POTENTIAL (D)	FAUNAL DIVERSITY (I)	FAUNAL DIVERSITY (D)	FLORAL ABUNDANCE (I)	FLORAL ABUNDANCE (D)	FLORAL DIVERSITY (I)	FLORAL DIVERSITY (D)	SUNLIGHT PENETRATION (D)	PRIMARY PRODUCTIVITY (I)	PRIMARY PRODUCTIVITY (D)	SOIL ASSIMILATIVE CAPACITY (I)	SOIL ASSIMILATIVE CAPACITY (D)
GENERAL																				
MAINTAIN RECHARGE RATES													X							X
REGULATE GROUNDWATER DISCHARGE & LEVELS																				
MAINTAIN AQUIFER QUALITY																				X
MAINTAIN GRADIENTS OF SALINITY																				
MAINTAIN AMBIENT WATER TEMPERATURES																				
CONTROL TURBIDITY																				
REGULATE TOXIC SUBSTANCE DISCHARGES																				X
MAINTAIN NATURAL NUTRIENT GRADIENTS						O														X
CONTROL PATHOGEN DISCHARGES																				X
MAINTAIN NATURAL pH LEVELS																				
MAINTAIN DISSOLVED OXYGEN LEVELS																				
REGULATE DISSOLVED SOLIDS CONCENTRATIONS																				X
PRESERVE AQUATIC HABITATS																				
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY						X	X	O	X	O	X		X		X			X		
PRESERVE FLORAL ABUNDANCE AND DIVERSITY						O						O	X	O	X		O	X		O
PRESERVE NATURAL PRIMARY PRODUCTIVITY						O						O	X				O	X		O
MAINTAIN SOIL ASSIMILATIVE CAPACITY																				X
PRESERVE NATURAL SHORE PROTECTION CAP.																				
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.													X							
PRESERVE FRESH WATER FLOWS													X							X
PRESERVE ESTUARINE CIRCULATION/MIXING																				
REGULATE NOISE																				
SPECIAL: TO PRESERVE.....																				
SHELLFISH REEFS																				
ESTUARINE SHELLFISH BEDS																				
OCEAN SHELLFISH BEDS																				
PRIME FISHING AREAS																				
SUBMERGED VEGETATION																				
TIDAL WETLANDS																				
BOGS AND NONTIDAL WETLANDS																				
WHITE CEDAR STANDS																				
MIGRATORY PATHWAYS AND SPAWNING AREAS																				
SHIPWRECKS AND REEFS																				
BEACHES																				
DUNES																				
COASTAL BLUFFS							X		X		X		X		X					
PINE BARRENS																				
OPEN SPACE						O	X		X		X		X		X			X		X
PRIME FARMLAND AND SPECIALTY SOILS						X	O	O	O	O	O		V					V		X
CENTRAL BARRIER ISLAND CORRIDOR																				
OAK, HICKORY AND PINE FORESTS						O	X		X		X		X		X			X		X

(Columns 41–59)

OBJECTIVES ← / ENVIRONMENTAL CHANGES →	BATHYMETRY VARIABILITY (I)	WATER DEPTH (I)	WATER DEPTH (D)	SHORE PROTECTION CAPACITY (I)	SHORE PROTECTION CAPACITY (D)	SHORELINE CHANGES	LITTORAL DRIFT (I)	LITTORAL DRIFT (D)	RUNOFF (I)	EROSION/SCOURING (I)	EROSION/SCOURING (D)	FLOOD FREQUENCY (I)	FLOOD FREQUENCY (D)	FLOOD INTENSITY (I)	FLOOD INTENSITY (D)	FLOW REGIME	CIRCULATION/MIXING (I)	CIRCULATION/MIXING (D)	NOISE
GENERAL																			
MAINTAIN RECHARGE RATES									X							X			
REGULATE GROUNDWATER DISCHARGE & LEVELS																X			
MAINTAIN AQUIFER QUALITY																			
MAINTAIN GRADIENTS OF SALINITY																X			
MAINTAIN AMBIENT WATER TEMPERATURES																			
CONTROL TURBIDITY																			
REGULATE TOXIC SUBSTANCE DISCHARGES									X							X			
MAINTAIN NATURAL NUTRIENT GRADIENTS									X	X						X			
CONTROL PATHOGEN DISCHARGES																X			
MAINTAIN NATURAL pH LEVELS																			
MAINTAIN DISSOLVED OXYGEN LEVELS																			
REGULATE DISSOLVED SOLIDS CONCENTRATIONS																X			
PRESERVE AQUATIC HABITATS																			
PRESERVE FAUNAL ABUNDANCE AND DIVERSITY									O	X		X		X		X			O
PRESERVE FLORAL ABUNDANCE AND DIVERSITY									X	X		X		X		X			
PRESERVE NATURAL PRIMARY PRODUCTIVITY									X	X		X		X		X			
MAINTAIN SOIL ASSIMILATIVE CAPACITY										O		O							
PRESERVE NATURAL SHORE PROTECTION CAP.																			
MAINTAIN NATURAL GEOMORPHOLOGICAL PRO.									X	X	O	X	O	X		X			
PRESERVE FRESH WATER FLOWS									X			X	O	X	O	X			
PRESERVE ESTUARINE CIRCULATION/MIXING																			
REGULATE NOISE																			X
SPECIAL: TO PRESERVE.....																			
SHELLFISH REEFS																			
ESTUARINE SHELLFISH BEDS																			
OCEAN SHELLFISH BEDS																			
PRIME FISHING AREAS																			
SUBMERGED VEGETATION																			
TIDAL WETLANDS																			
BOGS AND NONTIDAL WETLANDS																			
WHITE CEDAR STANDS																			
MIGRATORY PATHWAYS AND SPAWNING AREAS																			
SHIPWRECKS AND REEFS																			
BEACHES																			
DUNES																			
COASTAL BLUFFS									X	X		X		X		X			
PINE BARRENS																			
OPEN SPACE									X	X		X		X		X			O
PRIME FARMLAND AND SPECIALTY SOILS									X	X		X		X		X			O
CENTRAL BARRIER ISLAND CORRIDOR																			
OAK, HICKORY AND PINE FORESTS									X	X		X		X		X			O

I=INCREASE
D=DECREASE

PROBABILITY TO VIOLATE OBJECTIVES
X=HIGH
V=VARIABLE
O=LOW

APPENDIX 2

LAND AND WATER TYPES OF THE NEW JERSEY COASTAL ZONE

Impacts cannot be evaluated for uses abstracted from their environment. Therefore, the land and waterscapes of coastal New Jersey were classified into a variety of land and water types that represent logical geographic categories based on a sensitivity to disturbance and inherent natural functions.

In preliminary drafts a disaggregated list of types was developed which was later consolidated into a usable sized list based upon the magnitude of the analysis to follow. This list is presented in Table 1.

The water types were determined by evaluation of floral and faunal assemblages, water quality, and waste assimilative capacity characteristics. The basic separation into tidal and nontidal waters generally recognizes the inherent differences in saline and fresh waters, although portions of the tidal sections of major coastal rivers are freshwater. A tidal separation basis makes biological sense in that several important coastal fishes, such as striped bass and American shad, utilize basically freshwater tidal river reaches for spawning, while juvenile and adult life stages place primary habitat resource demands on estuarine and marine waters. Definitions of types are presented in Table 2.

The breakdown within the tidal and nontidal categories are based primarily on assumed waste assimilative capacity differences. For example, the discharge of a given volume of treated wastewater into a well-flushed open bay would have a lower potential impact on living resources, such as hard clam beds, than the discharge of the same volume of wastewater to a poorly-flushed semi-enclosed bay or back bay area. This latter situation has occurred throughout much of the coastal zone and has resulted in the closure of many shellfishing areas.

The water's edge types were defined by geographical association with major water types and by vegetation. Land types were defined primarily by examination of the differences in groundwater and surface water secondary impacts which would result from development on the land surface. For example, certain sand and gravel soils serve as recharge areas for groundwater. The paving of these areas would result in a lowering of surface water percolation to the groundwater and a higher rate of surface water runoff. The former could result in a reduction in drinking water supply during drought years and the latter could result in increased suspended solids and fluctuations in water levels in nearby surface waters.

Table 1. Land and Water Types

1. WATER

- Tidal

  Ocean
  nearshore MLW to average annual wave base depth ∿ 18 feet
  offshore AAWB to 3 mile limit

  Open bay

  Semi-enclosed and back bay

  Guts, inlets, and canals

  Tidal rivers

- Non-tidal

  Inland basins

  Rivers

2. WATER'S EDGE

- Ocean beaches and foredunes
- Estuarine beaches and bars
- Tidal wetlands
- Non-tidal wetlands
- Wet forest -0<1 foot above seasonal high water table (maple and white cedar)

3. LAND TYPES

- Central barrier island corridor
- Lowland - 1 to 3 feet above seasonal high water table

  Coarse texture soils (basically sands and gravels)

  Medium texture soils (basically loams)

  Fine texture soils (basically silts, clays, and organic sediments)

- Upland - >3 feet above seasonal high water table

  Coarse texture soils

  Medium texture soils

  Fine texture soils

Table 2. Definitions of Land, Edge and Water Types

This classification was developed by initially reviewing the proposed land and water type classification contained in Appendix 2 of the 1 June 1977 RFP, and various reports and manuscripts prepared by OCZM -- particularly the final EIS on the coastal management program for the bay and ocean shore segment (August 1978) and the pilot study of Lower Cape May County - a method for coastal resource management (June 1978). We also reviewed classification systems and definitions developed by other authors and agencies -- particularly the functional classification of coastal ecological systems of the United States by Odum and Copeland (1972; in Environmental Framework of Coastal Plain Estuaries, Geological Society of America memoir 133, B. W. Nelson-editor), the classification of wetlands and deep-water habitats of the United States by the US Fish and Wildlife Service (1977, operational draft), and the glossary of geology by the American Geological Institute (1972; M. Gary, R. McAfee, Jr., and C. L. Wolf - editors). Topographic quadrangles of the US Geological Survey, nautical charts of the National Ocean Survey, and topographic series atlas sheets, the geological map, and the drainage basin map of the NJ Bureau of Geology and Topography also were inspected.

After lengthy internal staff discussions, and informal reviews with the BCPD staff, a three-part classification system was developed.

The three principal components of this system are defined as follows:

Water types - water areas and submerged lands and associated features which are below the elevation of mean low water as calculated on an annual basis.

Water/Land Edge types - submerged lands, lands, and associated features that are at or between the elevations of mean low water and extreme high water as calculated on an annual basis, excluding surface waters, or lands which have a seasonal high water table within one foot of the surface. (Includes foredunes as an exception to this definition).

Land types - land and associated features that are above the elevation of extreme high water as calculated on an annual basis and with a seasonal high water table more than one foot below the ground surface.

Additional definitions of terms used in the classification are listed in the following glossary. Photographs and illustrations of types are presented in Appendix 8, following page 137.

Table 2. Definitions (Cont.)

Glossary of Land, Edge and Water Types

Water

TIDAL - Surface waters subject to the alternate rising and falling surface elevation due to the gravitational forces of the sun and moon.

Ocean: large body of salt water which covers 3/4 of the earth's surface.

Nearshore: Ocean waters extending from the beach or inlet mouths toward the open ocean to the line of average wave base (~18 feet) on an annual basis, and the submerged lands from the mean low water line to the average annual wave base.

Offshore: Ocean waters and submerged lands extending from the line of average annual wave base (~18 feet) to the state 3 mile limit.

Open Bay: Tidal water body and submerged bottom (below mean low waterline) around which land is more or less continuous and which has a direct open inlet connection to the ocean. (Lower New York Bay/Raritan Bay and Delaware Bay).

Semi-Enclosed and Back Bay: Tidal water body and submerged bottom (below MLW line) around which land is more or less continuous and which has either a confined direct connection (Great Bay) or indirect connection to the ocean through guts or other bays.

Guts, Inlets, Canals: Tidal waterways and their substrates (below the MLW line) which connect two bodies of water such as; ocean-bay, bay-river, bay-bay (not found in rivers).

Tidal Rivers: Waterway of considerable volume, having permanent or seasonal flow, and moving in or having a definite, continuous channel to the ocean.

Table 2. Definitions (Cont.)

NONTIDAL - Surface waters not subject to the alternate rising and falling surface elevation due to the gravitational forces of the sun and moon.

Inland Basins: Nontidal surface waters of considerable volume whose greater part is non-flowing (lakes, ponds, and impoundments).

Rivers: Nontidal surface waters moving in a definite continuous channel to the ocean.

WATER/LAND EDGE - Soils and substrate from the mean low water line to the extreme high water line or having a seasonal high water table within one foot of the surface, or being a foredune.

Ocean Beaches and Foredunes: Soils and substrate from the MLW line to the extreme high water line and wind blown mounds of sand adjacent from the first landward peak downslope to the nearshore ocean waters.

Estuarine Beaches and Bars: Soils and substrate from the MLW line to the extreme high water line which are non-vegetated and adjacent to the tidal non-oceanic waters.

Tidal Wetlands: Fully or partially vegetated soils and substrate which extend from the MLW line to the extreme high water line adjacent to tidal water.

Non-Tidal Wetlands: Fully or partially vegetated soils and substrate which; extend from the MLW line to the extreme high water line or have a seasonal high water table within one foot of the surface; and are not flowed by tidal waters nor dominated by forest.

Wet Forest: Fully or partially vegetated soils and substrate which; extend from the MLW line to the extreme high water line or have a seasonal high water table within one foot of the surface; and are dominated by forest and not flowed by tidal waters.

Table 2. Definitions (Cont.)

LAND - Soils and substrate with a seasonal high water table more than one foot below the earth's surface and which compose the area above the extreme high water line.

Central Barrier Island Corridor: Land located on sands which are essentially protected from wave action by dunes and separated from the headlands by wetlands or tidal bays, includes backdunes.

Lowland: Lands apart from the Central Barrier Island Corridor which have a seasonal high water table from 1 to 3 feet below the surface.

Coarse Soils: Soils having high infiltration rates even when thoroughly wetted and consisting chiefly of deep, well to excessively drained sands or gravels. These soils have a high rate of water transmission.

Medium Soils: Soils having moderate to slow infiltration rates when wetted thoroughly and consisting of a range of soils from well-drained to those with a layer that impedes downward movement of water. These soils range from moderately coarse to fine textures and have moderate to slow rates of water transmission.

Fine Soils: Soils having very slow infiltration rates when thoroughly wetted and consisting chiefly of clay soils with a high swelling potential, soils with a claypan or clay layer at or near the surface, and shallow soils over nearly impervious material. These soils have a very slow rate of water transmission.

Upland: Lands apart from the Central Barrier Island Corridor which have a seasonal high water table more than 3 feet below the surface.

Coarse Soils: Soils having high infiltration rates even when thoroughly wetted and consisting chiefly of deep, well to excessively drained sands or gravels. These soils have a high rate of water transmission.

Medium Soils: Soils having moderate to slow infiltration rates when wetted thoroughly and consisting of a range of soils from well-drained to those with a layer that impedes downward movement of water. These soils range from moderately coarse to fine textures and have moderate to slow rates of water transmission.

Fine Soils: Soils having very slow infiltration rates when thoroughly wetted and consisting chiefly of clay soils with a high swelling potential, soils with a claypan over nearly impervious material. These soils have a very slow rate of water transmission.

APPENDIX 3

EXPECTED FUTURE USES IN THE COASTAL ZONE

The initial step that is necessary to examine the consequences of land and water uses occurring in the Study Area is the assemblage of a listing of the land uses and water uses that exist or are likely to be proposed in the coastal zone. Such a list was developed by combining the types of facilities that are regulated pursuant to the Coastal Area Facility Review Act of 1972 (CAFRA), the types of uses that were compiled previously in reports issued by the Office of Coastal Zone Management, and lists compiled by others. These entries were revised, supplemented, and regrouped for the present report.

The listing in Table 3 is intended to be comprehensive. This will insure, insofar as possible, that all existing and potential uses are considered in the development of the DEP-BCPD management plan. It also constitutes a record of the uses that were considered. When these uses were utilized in determining Impacting Activities which could occur in a given land, edge, or water type, a standard size for each use was determined in order to evaluate comparable magnitudes of impacts. The chosen standard impact plot was 100 acres. If a use was considered whose lot size was normally smaller than 100 acres, such as rural housing, then the cumulative impact of as many rural houses that would normally occur on a 100-acre plot was considered. For uses covering areas larger than 100 acres, such as power plants, a representative 100-acre portion of the power plant site was considered. The water demand, waste production, etc., of the 100-acre site was considered in the same proportion of the whole facility's water demand, etc., as 100 acres/bears to total site size. For pipelines, transmission lines, roads, and other linear uses, a 1-mile long portion of the right-of-way was considered. For some uses, such as those over water, professional judgment was utilized to determine the magnitude of impacts. Table 4 gives a complete listing of the standard magnitude of uses.

Table 3. Potential Land and Water Uses.

In the New Jersey Coastal Zone

HOUSING

- Rural
- Single Family Detached
- Single Family Attached
- Urban High Density

COMMERCIAL

- Retail and service
- Wholesale and distribution

INSTITUTIONAL/PROFESSIONAL FACILITIES (office buildings, libraries)

INDUSTRIAL

- Fabrication and assembly
  - electrical equipment and supplies
  - metal products
  - transportation equipment
  - machinery except electrical
  - instruments and related products
  - furniture
- Chemicals and allied products
  - industrial inorganic chemicals (gases, acid, and salts) HSO_4, alumina, potassium and sodium compounds, HO_3
  - organic industrial chemicals (fluorocarbons, chlor-alkalies, activated carbon, and petrochemicals)
  - plastics and synthetics
  - pharmaceuticals and cosmetics
  - soaps and detergents
  - paints and allied products
  - agricultural chemicals
- Textiles
  - Apparel and other textile products
  - Weaving and knitting mills
  - Textile finishing
  - Leather and leather products
- Primary metals
  - Iron and steel manufacturing
  - ferroalloy (involves silver, arsenic, cadmium, lead, nickel, chromium)
  - aluminum and aluminum alloys
  - copper, lead, zinc, and magnesium smelting and processing
  - metal plating
- Stone, clay, and glass products
  - glass manufacturing and products
  - cement
  - clay products
  - cut stone
  - concrete, gypsum, and plaster products
- Food and food byproducts
  - meat and poultry products (slaughtering, blanching, cooking, curing, pickling, packing of meats)
  - dairy products
  - preserved fruits and vegetables
  - grain mills products
  - fish and shellfish processing
  - bakeries
  - sugar refineries and confectioners
  - fats and oils
  - alcoholic beverages
  - soft drinks
- Printing and publishing
- Paper and allied products
  - pulp mills
  - paper and building board plants
- Extractive
  - hard rock quarrying
  - unconsolidated
- Lumber and wood products
  - saw mills and planing
  - millworks
  - wood containers
  - wood preservation
- Bulk storage, handling and transfer facilities
  - pipelines and pumping stations
  - storage tanks (hazardous, non-hazardous)
  - transfer facilities (hazardous, non-hazardous)
  - aerial transmission lines
  - buried transmission cables

Table 3. Potential Land and Water Uses (concluded).
In the New Jersey Coastal Zone

- Petroleum and petroleum products
  - petroleum refining
  - facility for recovery of spent petroleum products
  - oils and greases
  - phenols, creosotes, and tars
  - synthetic gas manufacturing
  - liquified natural gas
  - gas processing

ENERGY GENERATION

- Nuclear electrical generation
  - cooling tower
  - once-through cooling intake and discharge structures
  - cooling ponds/lakes

RECREATION

- Large crowd gathering facility
  - outdoor (amusement park)
  - indoor (fieldhouses, casinos)
- Small crowd gathering facility
  - outdoor (tennis courts, golf, skeet range)
  - indoor (gymnasium, arcade)

PUBLIC FACILITIES

- Centralized water supply, treatment, and distribution
- Centralized sewage collection, treatment, and disposal
- Solid waste management
  - incinerator
  - landfill/overboard dumping
  - compost

TRANSPORTATION

- Auto transportation
  - expressway
  - collector
  - local road
- Rail
- Ship
  - port (large)
  - marina (medium)
  - dock (small)
- Navigation
- Aircraft
  - airport
  - small landing field

NATURAL RESOURCE UTILIZATION

- Shellfishing
  - commercial
  - recreational
- Aquaculture
- Forestry
- Agriculture
  - row crops
  - salt hay
  - nurseries
  - orchards
  - livestock
    - lot
    - range
- Mosquito control ditching

Table 4.

STANDARD MAGNITUDES OF USES
For Use versus Impacting Activity Matrices

Uses of a standard size were hypothesized in order to estimate the magnitude of a use's Impacting Activities on the site. Symbols are X = major, O = minor, and V = variable.

In all cases an attempt was made to minimize the use of the "variable" category.

Housing: All on 100-acre plots to show cumulative impacts in comparison.

Rural: 1 or fewer dwelling units per acre.

Single Family Detached: more than 1 but fewer than 6 dwelling units per acre.

Single Family Attached: 6 to 15 dwelling units per acre.

Urban High Density: More than 15 dwelling units per acre.

Commercial: All on 100-acre plots showing cumulative impacts

Retail and Service

Wholesale and Distribution

Institutional/Professional Facilities: all on 100-acre plots showing cumulative impacts.

Industrial: All on 100-acre plots or with representative 100-acre portions that include impacts such as water demand, waste disposal, etc., on a proportional basis to the total site acreage. Structures are considered to occupy most of site area.

The following linear Industrial facilities do not fit under the 100-acre categorization; rather, they are analyzed in 1-mile sections.

Pipelines and pumping stations

Aerial transmission lines

Buried transmission cables

Energy Generation: All considered as 100-acre portions with proportional Impacting Activities.

Nuclear Electrical Generation

Cooling tower
Once through cooling
Cooling ponds/lakes

Table 4. Continued

Fossil Fuel Electrical Generation

Cooling tower
Once through cooling
Cooling ponds/lakes

Recreation: All considered as 100-acre portions or plots totaling 100 acres in size.

Large crowd -gathering Facility

Outdoor
Indoor

Small crowd-gathering facility

Outdoor
Indoor

Public Facilities

Centralized Water: 100-acre plant or accumulations of plants equal to 100 acres.
Centralized Sewage: 100-acre plant or accumulations of plants equal to 100 acres.
Solid Waste Management: 100-acre plots or accumulations of plots.

Incinerator - (considered to be a building)
Landfill
Compost

Transportation

Auto Transportation: A portion of the roadway and right-of-way extending for 1 mile.

Expressway
Collector
Local road

Rail: A portion of the railroad track and right-of-way extending for 1 mile.
Ship (Docking, Port): 100-acre plot or plots totaling 100 acres.

Port (Large)
Marina (Medium)
Dock (Small)

Navigation: Professional judgment based on vessel size and number of trips per day.
Aircraft: 100-acre plot or accumulation of plots to show cumulative impacts in comparison

Airport
Small landing field

Table 4. Concluded.

Natural Resource Utilization

Shellfishing: Professional judgment based on techniques used and effort expended.

Commercial
Recreational

Fishing: Professional judgment based on techniques used and effort expended.

Commercial
Recreational

Aquaculture: 100-acre plot or plots totaling 100 acres to show cumulative impacts.

Forestry: 100-acre plot.

Agriculture: 100-acre plots.

Row Crops
Salt Hay
Nurseries
Orchards
Livestock Lot
Livestock Range

Mosquito Control Ditching: 100-acre plot.

APPENDIX 4

IMPACTING ACTIVITIES

The potential land and water uses of the coastal zone have impacting activities associated with the construction and operation of the uses. To understand the effects and environmental changes that may occur from land and water uses, it is necessary to examine the associated impacting activities and the environmental changes that may result from these activities.

The potential land and water uses were examined, and a comprehensive list of impacting activities resulting from the uses was prepared. Table 5 contains the impacting activities and associated definitions.

To understand the potential impacts that might result from a specific land or water use, the impacting activities were correlated with the selected uses (Matrix 1). Magnitudes were assigned for each impacting activity in order to classify it as major, minor, or variable. These magnitudes categories are listed and explained in Table 6.

Table 5. Definitions of Impacting Activities

Air Waste Disposal: The exhausting of superfluous diffused matter or gases in the atmosphere.

- Particulates: Finely divided solid or liquid particles. These include dust, smoke particles, sprays, and mists.

- Gases: The vapor component of air waste emissions including CO_2, NO_2, CO, SO_2, and other compounds.

Compaction: Physical compression of soil.

Channelization: Containment of waterways within man-made troughs to restrict and direct streamflow.

Clearing: Removal or elimination of vegetation from the land surface.

Culverting: Containment of waterways within man-made pipes.

Diking: Creation of an earthen embankment for the retention or exclusion of water, on or from an edge or land area.

Drainage: Removal of water from the land surface by gravity flow.

Dredging: Mechanical removal of unconsolidated materials from beneath the water.

Excavation: Mechanical removal of unconsolidated materials from the land.

Fertilizing: Application of nutrient materials to the soil to increase vegetation growth.

Filling - Consolidated: Placement of solid materials, the units of which are generally greater than 10 centimeters in diameter, upon or in land, edge, or substrate below water in site preparation.

Filling - Unconsolidated: Placement of solid materials, the units of which are generally smaller than 10 centimeters in diameter, upon or in land, edge or substrate below water in site preparation.

Hazards - Catastrophic: The potential for causing an unplanned action which would pose a severe threat to the survival of a natural coastal community.

Hazards - Limited - The potential for causing an unplanned action which would be detrimental to the productivity or expansion but not the existence of a natural community.

Herbiciding: Application of chemicals that are toxic to selected or all forms of vegetation.

Table 5. Definitions of Impacting Activities (continued)

Impervious Surfacing: Placement of an impermeable layer on the surface of the land.

Insecticiding: Application of chemicals that are toxic to selected or all forms of insects.

Inundation: Covering of the land or earth surface with water.

Irrigating: Application of water for use by or to increase vegetation growth.

Landscaping/Right of Way Management: Modification of vegetation by quantitative or qualitative alteration of plant cover.

Liquid Waste Disposal: The disposal of superfluous non-gaseous fluid material usually produced during the operational aspects of a use.

- Pesticides: Waste products from the manufacture or use of insecticides and herbicides.
- Heavy Metals: Any metal with a density at least five times greater than water.
- Nutrients: Nitrogen and phosphorous; the major causes of water eutrophication.
- Thermal Effluent: Water used for the dissipation or provision of heat.
- Organic: Compounds natural or synthesized which contain carbon atoms.

Pedestrian Traffic: The movement of people over unpaved surfaces.

Plowing/Discing: Physical disturbance of the soil.

Solid Waste Disposal: The disposal of superfluous semisolid or solid waste usually produced during the operational aspects of a use.

- Hazardous: Materials which would pose a severe or limited threat to the survival or productivity of a natural coastal community.
- Non-Hazardous Unconsolidated: Materials, the units of which are generally smaller than 10 cm in diameter, and which do not pose a threat to the productivity of a natural coastal community.
- Non-Hazardous Consolidated: Materials, the units of which are generally greater than 10 cm in diameter, and which do not pose a threat to the productivity of a natural community.

Structural Support: Vertical columns and walls that may elevate or bear a structure such as a building or a road.

Table 5. Definitions of Impacting Activities (concluded)

Vehicular Traffic: Movement of motor vehicles.

Water Demand: Use or consumption of water.

- Surface: Water obtained from surface water bodies.
- Subsurface: Water obtained from an aquifer.

Water Transfer/Diversion: Geographical relocation of surface water, including pumping.

Table 6.

Definitions of Magnitudes of Impacting Activities
for Use versus IA Matrices

PJ = Professional Judgment

Standard magnitude class= IA occurs on 50% or less of site= minor
IA occurs on over 50% of the site= major
IA occurrence may be either > or < 50%= variable

Impacting Activity	Magnitude criteria (Frequency and duration also included)
Compaction	standard
Woody clearing	standard
herbaceous clearing	standard
Plowing/discing	standard
Diking	affects or crosses 50% of site or less= minor, > 50%= major
Filling unconsolidated	PJ based on volume and area covered
Filling consolidated	PJ based on volume and area covered
Excavation	standard
Impervious Surfacing	standard
Dredging	standard
Fertilizing	standard
Insecticiding	standard
Herbiciding	standard
Irrigating	standard
Structural support	standard
Vehicular traffic	PJ number of vehicle trips per day
Water transfer diversion	standard
Inundation	standard
Landscaping/ROW management	standard
Drainage	standard

Surface water demand
Subsurface water demand

Minor ≤23.4 MG/yr/100 acres; Major = >23.4 MG/yr/100 acres, equivalent to 40% of percolation given an average 43 inches of rainfall on 100 acres per year with part of the site covered by impervious surfacing. 23.4 MG/yr is also equivalent to usage by 229 dwelling units with an average 3.5 persons per unit and consumption at 80G/day/person.

Table 6 (Continued)

Impacting Activity	Magnitude criteria (Frequency and duration also included)
Culverting	affects or crosses 50% of less of site = minor, >50% = major
Channelization	affects or crosses 50% or less of the site = minor, >50% = major
Pedestrian traffic	PJ based on impervious surfacing and number of trips across remaining vegetation per day
Liquid Waste Disposal	(point and nonpoint sources)
pesticides	PJ based on concentration of pesticides and volume of water
heavy metals	PJ based on concentration of heavy metals and volume of water
nutrients	PJ based on the concentrations of nitrogen and phosphorus compounds and the volume of water
thermal effluents	PJ based on the temperature change and the volume of water
organic	PJ based on the concentration of organic compounds and the volume of water
Solid Waste Disposal	
hazardous	PJ based on volume and toxicity
unconsolidated nonhazardous	PJ based on volume and area covered
consolidated	PJ based on volume and area covered
Air Waste Disposal	(point and non-point)
particulates	PJ based on amounts and toxicity
gases	PJ based on volume and toxicity
hazards	PJ based on severity of consequences, toxicity, volume or other applicable factors, limited = minor catastrophic = major

APPENDIX 5

ENVIRONMENTAL CHANGES

The identification of land and water uses and the associated impacting activities establish a basis for analyzing the environmental changes that may result from each use. To accomplish the assessment of environmental changes resulting from uses, environmental changes that may result from impacting activities were identified in each land and water type. A list of descriptions of possible environmental changes and their associated definitions are found in Table 7.

In quantifying magnitudes of environmental changes it was found in all cases that a considerable amount of professional judgment was necessary. The basis for the determinations of magnitude are given in Table 8.

Table 7. Environmental Changes Definitions

Aquifer Recharge: Change in the rate of infiltration of precipitation or surface water into an aquifer.

Bathymetry Variability: Change in the bottom depth and contours beneath surface water.

Circulation/Mixing: Change in the rate of interaction of water masses and the rate of diffusion of molecules in surface waters.

Dissolved Oxygen: Reduction in the concentration of gaseous oxygen within surface water.

Dissolved Solids: Change in the concentration in fresh water of non-gaseous substances which are not captured by a standard 20μ filter within fresh water which are not filterable.

Erosion Scouring: Change in the rate at which earth materials are dissolved or loosened from the land or substrate beneath surface waters, and carried away by the action of water or wind.

Faunal Abundance: Change in the number of animals present within a community or area.

Faunal Diversity: Change in the number of animal species or groups of species within a community or area.

Faunal Reproductive Potential: Change in the intrinsic ability of an animal population to reproduce.

Floral Abundance: Change in the number of plants present within a community or area; ordinarily estimated by change in the extent and distribution pattern of vegetative types.

Floral Diversity: Change in the number of plant species or groups of species within a community or area.

Flood Frequency: Change in the annual number of times extreme high stream flow occurs.

Flood Intensity: Change in the height and duration of extreme high streamflow.

Flow Regime: Change in the movement of water through or over the land, edge, or bottom.

Groundwater Discharge: Change in the rate of flow of groundwater from an aquifer into surface water, may also include pumping for consumption.

Groundwater Salinity: Change in the concentration of dissolved sea salts in groundwater.

Table 7. Environmental Changes Definitions (continued)

Littoral Drift: Change in the speed, quantity, or direction of movement of unconsolidated materials (e.g. sand, gravel, shell) in estuarine and nearshore marine water by wave-directed currents.

Noise: Acoustical disturbance of animals due to vehicular activity.

Nutrients: Change in the concentration of nitrogen or phosphorus compounds which are directly available for plant growth.

Pathogens (increase): Increase in the concentration of disease-causing organisms (generally viruses, bacteria, or fungi).

pH: Change in the measured value of hydrogen ion activity in water. Measured values less than 7 standard pH units reflect acid, greater than 7, alkaline, and equal to 7, neutral conditions.

Primary Productivity: Change in the rate of production of biomass plants.

Runoff: Change in the volume of precipitation that flows overland before entering surface water.

Sedimentation: Change in the rate of deposition of earth materials onto the substrate of surface water.

Sediment Chemistry: Change in the chemical make-up of substrate.

Shoreline Changes: Change in the size or configuration of the waters edge.

Shore Protection Capacity (increase or decrease): Change in the intrinsic ability of the substrate in the water/land edge to dissipate wave or current energy, and to resist erosion.

Soil Assimilative Capacity: Change in the ability of soil to absorb water and filter and dispose of water borne matter.

Substrate Particle Size: Change in the size of particles that constitute the substrate in surface water.

Sunlight Penetration: Change in the depth to which sunlight penetrates a water body.

Surface Water Salinity: Change in the concentration of dissolved sea salts in the entire water column.

Suspended Solids: Change in the concentration of substances within water which are filterable and increase turbidity.

Toxic Substances (increase): Increase in the concentration of substances that are poisonous to plants or animals.

Table 7. Environmental Changes Definitions (concluded)

Water Depth: Change in the elevation of the substrate of surface water.

Water Temperature: Change in the temperature of surface water.

Table 8.

Bases for Magnitudes of Environmental Change

For IA vs EC matrices, only the impacts on sites where major IA's occur are considered, minor IA's are dropped. In these matrices, EC's of major, variable, or minor magnitude may vary from environment to environment or type to type. Therefore in determining the magnitude of environmental changes, professional judgment must be used based on the following criteria.

Environmental Change (Increase or Decrease)	Bases for Professional Judgment Concerning Magnitude (Frequency and Duration are also considered)
Aquifer recharge	Volume affected
Groundwater discharge	Volume affected
Groundwater salinity	Volume affected and the extent of the change
Surface water salinity	Volume affected and the extent of the change
Water temperature	Volume affected and the extent of the change
Suspended solids	TSS concentration and the volume of water affected
Toxic substances	Substance concentration, toxicity, and the volume of water affected
Nutrients	Concentration of nitrogen or phosphorus containing compounds
Pathogens	Pathogen concentration, toxicity, and extent
pH	Change in hydrogen ion concentration and the volume of water affected
Dissolved oxygen	DO concentration and the volume of water affected
Dissolved solids	TDS concentration and the volume of water affected
Substrate particle size	Variation in the particle size and the extent of the area affected
Sedimentation	Change in the rate of deposition and the size of the area affected
Sediment chemistry	Type of change and the area affected
Faunal abundance	Abundance previously present and the extent of the affected area
Faunal reproductive potential	Previous faunal reproductive potential and the area affected
Faunal diversity	Previous diversity and the extent of the affected area
Floral abundance	Previous vegetation abundance and the area so affected
Floral diversity	Previous flora and the area so affected

Table 8 (Continued).

Environmental Change (Increase or Decrease)	Bases for Professional Judgment Concerning Magnitude (Frequency and Duration are also considered)
Sunlight penetration	Depth of penetration of sunlight into water and the extent of the affected area
Primary productivity	Previous plant productivity and the area so affected
Soil assimilative capacity	Volume of water affected, and filtering efficiency of substrate material
Bathymetry variability	Type and extent of variability
Water depth	Change in depth and the extent of the affected area
Shore protection capacity	Configuration, erodibility, permeability, and extent of affected area
Shoreline changes	Area affected by accretion or retreat
Littoral drift	Volume of sand flow
Runoff	Volume of water and the area affected
Erosion/scouring	Erodibility and the area affected
Flood frequency	Periodicity of flooding and the area affected
Flood intensity	Severity of flooding and the area affected
Flow regime	Volume, direction, and regularity of freshwater flow
Circulation mixing	Thoroughness of intermixing of water bodies and the area involved
Noise	Loudness, duration, timing, and frequency of sound and extent of the area affected.

APPENDIX 6.

ENVIRONMENTAL GOALS AND OBJECTIVES

The Congress of the United States declared through Section 303 of the Coastal Zone Management Act of 1972 that it is the national policy "to preserve, protect, develop, and where possible to restore or enhance, the resources of the Nation's coastal zone for this and succeeding generations" (PL 92-583 as amended by PL 94-370).

The Governor of New Jersey and the Commissioner of the Department of Environmental Protection have declared that the principal coastal zone management goal of the State of New Jersey is to "protect the state's coastal resources while accommodating needed future development".

The difficulty with the New Jersey goal is the stated desire to accommodate future needed development while protecting resources. The definition of "needed future development" and the resolution of the conflicts inherent in the stated goal have the potential for constant political reinterpretation. In order to "protect the state's coastal resources" it is necessary to establish a set of objectives which are grounded on firm ecological principles and supported by sound data. It is also necessary to gain the understanding and support of the public through clearly defined, resource-oriented decisionmaking.

A. GENERAL ECOLOGICAL OBJECTIVES

A part of this study involved a review of the natural ecological objectives contained in a variety of documents prepared by the New Jersey Office of Coastal Zone Management. Some 44 stated objectives were identified which encompassed management, legislative, administrative, and locational purposes. We have refined and synthesized these into 22 general objectives based on natural environmental parameters which, if met, would ensure the attainment of the stated overall goals for the coastal zone. These are listed in Table 9.

These objectives are largely tied to the maintenance, enhancement, or restoration of basic natural resources which are essential to the healthy functioning of the coastal ecosystem. It must always be remembered that natural resource objectives are not simply designed to protect the plants and animals, but rather to ensure that man's use of those resources for the future. This point is particularly appropriate in the coastal zone setting where many of man's activities are recreational in nature and centered on natural resources. It is difficult to conceive of a future coastal zone that can continue to meet the basic recreational needs of society if the land is congested, the wetlands filled and developed, or the waters polluted and devoid of fish and shellfish. Uses and activities which singularly or cumulatively impinge on the objectives listed in Table 9 must be regarded as conflicts with a serious potential for impairment of urban society's basic need for open space and recreation. They should not be compromised piecemeal or through political expediency. Rather, such conflicts and their consequences should be conveyed to the public in such a manner that the potential losses in societal values are clearly defined during political decisionmaking.

Table 9. General Objectives

- Maintain, or where necessary enhance, aquifer recharge rates on land and in wetlands.
- Regulate groundwater discharge to maintain or restore groundwater levels.
- Maintain and where needed restore the quality of water entering aquifers.
- Maintain gradients of salinity in coastal waters.
- Maintain or where possible restore surface water temperatures to their ambient range for each season.
- Control the turbidity of coastal waters where acceptable and restore to acceptable levels where excessive.
- Regulate the discharge of acutely toxic substances in water and air, and on land and edge. Eliminate the discharge of chronic toxicants which bio-accumulate.
- Maintain or where appropriate restore the natural nutrient gradients in land, edge, and water types.
- Control the discharge of pathogens in land, edge and water types.
- Maintain or where appropriate restore the natural pH levels in fresh waters.
- Maintain adequate levels of dissolved oxygen (for faunal reproduction and survival) in all coastal waters.
- Preserve natural dissolved solids concentrations.
- Preserve, protect, and where possible restore or enhance the physical aquatic habitats of the coastal zone through regulation of changes in substrate particle size, bathymetry, water depth, sedimentation, and sediment chemistry.
- Preserve, protect, and where appropriate, restore or enhance the abundance and diversity of aquatic and/or terrestrial flora within the coastal zone.
- Preserve, protect, and where appropriate, restore or enhance the abundance and diversity of aquatic and/or terrestrial fauna within the coastal zone.
- Preserve, protect and where appropriate, restore the natural levels of primary productivity for the coastal environment.
- Maintain or enhance the soil assimilative capacity of the coastal zone.
- Preserve, protect and where appropriate, enhance or restore the natural shore protection capacity of the coast.
- Maintain, and where appropriate, restore the natural processes affecting the geomorphology of coastal land, edge and water areas.

Table 9. General Objectives (concluded)

- Preserve, protect, and where appropriate, restore the natural volume, rate, and timing of flow of fresh waters.
- Preserve, protect, and where appropriate, restore the natural estuarine processes, including circulation, mixing and tidal flushing.
- Regulate the quantity of noise within the natural environment so as not to disturb the fish and wildlife species present nor the enjoyment aspects of public recreation.
- Preserve, protect, and where possible, restore or enhance special resource areas.

B. RELATIONSHIP OF SPECIAL COASTAL RESOURCES TO ENVIRONMENTAL GOALS AND OBJECTIVES

Special coastal resources are of particular significance to the State of New Jersey. These resources and their associated functions and processes are critical to the achievement of the natural ecological goals and objectives of the State. We have examined the relationship of the resources described in the previous section and the goals and objectives listed above. From this examination, it is obvious that alterations in the identified resources or their functions affect the ability of DEP-BCPD to achieve or maintain the objectives of the coastal management program. In order to define the objectives for special coastal resources clearly, a series of special objectives was developed (Table 10).

The definition of the relationships between Special Coastal Resources and objectives provides a framework within which the implications of land or water use decisions can be evaluated. Future uses in the study area will modify, directly or indirectly, the natural functions of the Special Coastal Resources, thereby directly affecting the viability of the stated natural ecological objectives. Therefore, New Jersey should contemplate this causal relationship of land and water use decisions to objectives when conducting an evaluation of proposed uses in the coastal zone. It is possible, through the use of cause and effect matrices, to translate these environmental changes into actions affecting the ability of the State to achieve natural ecological objectives.

Table 10. Special Objectives (for Special Coastal Resources)

- Preserve, protect, and where possible, restore or enhance oyster and blue mussel reefs.
- Preserve, protect, and where possible, restore or enhance estuarine shellfish beds.
- Preserve, protect, and where possible, restore or enhance ocean shellfish beds.
- Preserve, protect, and where possible, restore or enhance prime fishing areas.
- Preserve, protect, and where possible, restore or enhance submerged vegetation.
- Preserve, protect, and where possible, restore or enhance tidal wetlands.
- Preserve, protect, and where possible, restore or enhance bogs and nontidal wetlands.
- Preserve, protect, and where possible, restore or enhance white cedar stands.
- Preserve, protect, and where possible, restore or enhance migratory pathways and spawning areas.
- Preserve, protect, and where possible enhance shipwrecks and reefs.
- Preserve, protect, and where possible, restore or enhance beaches.
- Preserve, protect, and where possible, restore or enhance dunes.
- Preserve and protect coastal bluffs.
- Preserve and protect the Pine Barrens.
- Preserve, protect, and where possible, expand and enhance open space.
- Preserve and protect large contiguous areas of prime farmland and specialty crop soils.
- Preserve, protect, or enhance the central barrier island corridor.
- Preserve, protect, and where possible restore or enhance upland oak, hickory, and pine forests.

APPENDIX 7

MATRIX PREPARATION ASSUMPTIONS AND NOTES

Uses vs Impacting Activities

For waste disposal; air, liquid and solid: waste components for various uses are highly variable depending on the age and design of facilities, pollution control techniques, fuels utilized, and other aspects. It was therefore necessary to emphasize the possible waste streams which could be released should waste effluent standards be modified in the future.

WATER

For this matrix uses were assumed to go into a water body, if possible, and the Impacting Activities necessary to accomplish this are shown.

The use: once through cooling, nuclear power plants, may be located offshore and require a breakwater;hence,consolidated filling.

Waste disposal impacting activities include airborne waste that pollutes water.

EDGE

Unconsolidated filling in the edge may be variable for housing on the dunes.

For excavating and dredging, both or either may be used. When the total dredged or excavated area was likely to be >50%, then "variable" was marked for both activities.

For edge and water types dredging is marked "minor" in order to indicate the importance of bottom disruption due to commercial and recreational shellfishing and is not an indication of the areal extent of these uses.

LAND

Some small landing fields are grassed; therefore this use is variable for impervious surfacing.

For inundation it is assumed that the larger water users may construct a lagoon or small reservoir in order to satisfy water demands.

For vehicular traffic: uses with only light shipping or few employees are considered minor.

For all IA vs EC matrices and EC vs EC matrices,documented major and minor environmental changes are either primary (caused directly by the impacting activity) or secondary (caused directly by the primary or causative environmental change).

Impacting Activity vs Environmental Change Matrices

Organic waste disposal may include the disposal in liquid form of wastes which are not covered under other categories, such as storm-water containing deicing salts.

For solid waste disposal the major changes associated in particular with hazardous wastes are increased toxic substances and pathogens. Other changes which may occur are shown in the other two solid waste categories.

WATER

Floral abundance in the ocean refers to algae.and in estuarine and freshwater it refers to both algae and rooted aquatic plants.

Drainage impacts are shown in water although the changes which produce them occur on land.

Dissolved solids are used to indicate the salt concentration in freshwater and groundwater. Salinity is used to indicate salt concentrations in the sea, in brackish waters, and in groundwater.

For filling the increase in circulation/mixing is only in moving bodies of water where; for example, a groin interrupts flow and increases or decreases circ./mix. depending on which side of the groin is under consideration.

Water Transfer/Diversion includes damming.

EDGE

In the edge fauna can be directly contaminated by toxic substances through the food chain in an adjacent land, edge, or water type, as well as secondarily through a primary increase in toxic substances in the edge type.

Wetland forests include white cedar, maple, and various other species of trees, many of which are found in the Pine Barrens.

In the ocean beaches and dunes type, dunes may be occupied by woody or herbaceous vegetation. Beaches are unvegetated; hence both edge inter-type categories apply here.

Filling unconsolidated applies to beaches and dunes.
Filling consolidated applies to beaches only.
Impervious surfacing reduces dune vegetation.
Fertilization, herbiciding, and insecticiding occur on the dunes.
Structural support includes seawalls and bulkheads.
Water transfer/diversion on beaches and dunes involves only ocean water over the beach and groundwater.
Landscaping/ROW management may occur on the dunes.

Filling may decrease nutrient availability to plants.

Vehicular traffic includes ships and other motor vehicles.

Primary Environmental Changes vs Secondary EC's

In Inter-type Linkage matrices, (for example Water vs Edge) "V" is often used to indicate that a special type of edge (ocean beach) may be the only place this linkage occurs.

WATER

For ocean waters "flow" means groundwater flow.

In waters and especially nearshore ocean waters the shore protection capacity increase may increase erosion in water but lessen the erosion on the edge.

Increased suspended solids in ocean waters result in a reduction of algae due to adsorption; sedimentation does not.

Algal blooms (especially dinoflagellates) may increase endotoxins. When dieoffs occur, the result is a decrease in dissolved oxygen concentrations.

If the depth of a stratified water body is increased, the temperature of the bottom layers may be higher in winter and lower in summer.

Flooding from ocean waters will directly increase surface water salinity in estuarine waters,while flooding from the land indirectly affects surface water salinity through increased freshwater flow.

Increased groundwater discharge can include both manual pumping and natural discharge.

Decreased groundwater discharge only concerns natural discharge.

Nontidal rivers are assumed to be generally freshwater.

Water vs Water

In cases such as salinity change or water temperature change the increase or decrease is considered to be generally detrimental to the majority of the fauna and flora present in that type although it may be beneficial to flora and fauna from other water types.

In water vs edge sedimentation and sediment chemistry changes do not directly cause environmental changes on the edge with the exceptions of littoral drift and shoreline changes.

EDGE

For wetland forests the shading of streams is a major consideration for inter-type linkage, as is the leaf litter-detritus cycle.

Edge vs Land

There are 2 basic types of edge:

1. Waters edge; which is adjacent to water and may be either vegetated low load or vegetated high load.

2. Bogs and other edge determined by water table to be edge and not adjacent to water; these are vegetated only.

Therefore: flow regime changes in edge vs land matrices may be variably affected by increased aquifer recharge on the vegetated edge depending on whether it is in 1 or 2 above. Whether or not an edge is water's edge or bog type edge also significantly affects aquifer recharge.

Vegetated Edge vs Non-Vegetated Edge and Vice Versa

Vegetated edge and non-vegetated edge are normally adjacent only in waters edge areas.

Faunal EC's are linked because of prey-predator relationships which are similar for both veg. edge vs non-veg. edge and non-veg. edge vs veg. edge. In other words each edge type's fauna is partially dependent upon the fauna of the adjacent edge type as a food source. This is also true for floral-faunal links for the two edge types.

LAND

Increased groundwater salinity has a major probability of violating primary productivity and floral abundance and diversity in lowland soils but only a minor probability in uplands due to difference in the proximity of the groundwater levels to the land's surface.

Land vs Edge and vs Water

For nutrients and toxic substances to reach the edge and water it is assumed there is either runoff or groundwater flow.

Land vs Water

The environmental changes in water which are linked to flooding of the land are considered to be those concerning water quality.

Floral EC's which affect water temperature, suspended solids, and nutrients are due to shading and leaf detritus cycling. This also applies to veg. edge vs water linkages.

Environmental Changes vs Objectives

In ocean waters floral abundance and diversity decreases may limit food for shellfish and fish.

Primary productivity does not include the associated problems of floral abundance such as increased turbidity.

Aquatic habitat pertains to the physical features of the environment, not the water quality.

Circulation/mixing in the objectives list is specifically for estuarine water; it is not violated by changes in ocean or freshwater circulation/mixing.

In determining which general objectives are violated by the environmental changes (ECs) occurring within each type, each EC was treated as a primary EC leading to the general objectives (being treated as secondary ECs, occurring as a result of the primary EC). To determine which special objectives were violated by each EC, the general objectives which were violated by that EC were evaluated as to their impact on each special objective.

APPENDIX 8

PHOTOGRAPHS AND ILLUSTRATIONS OF TYPES

Please note that lowland and upland, fine and medium soil types are not depicted as they cannot be differentiated adequately by photographs.

	Number
Ocean Offshore Waters	1
Ocean Nearshore Waters	2
Open Bays	3
Semi-Enclosed and Back Bays	4
Inlets, Guts, and Canals	5, 6, 7
Tidal Rivers	8, 9
Non-Tidal Rivers	10
Non-Tidal Inland Basins	11
Ocean Beaches and Foredunes	12, 13
Estuarine Beaches and Bars	14, 15
Tidal Wetlands	16, 17
Non-Tidal Wetlands	18
Wet Forests	19, 20
Central Barrier Island Corridor	21, 22
Lowland Coarse Soils	23
Upland Coarse Soils	24

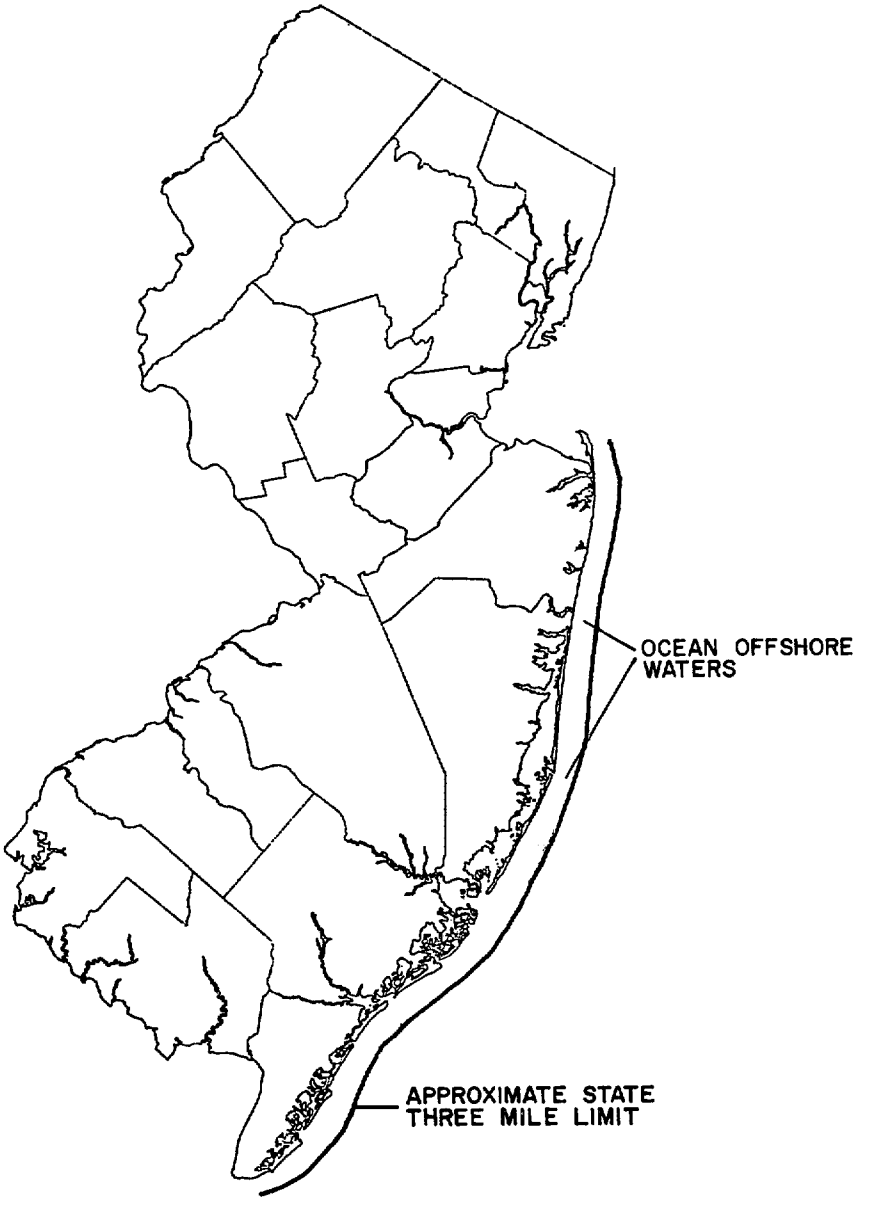
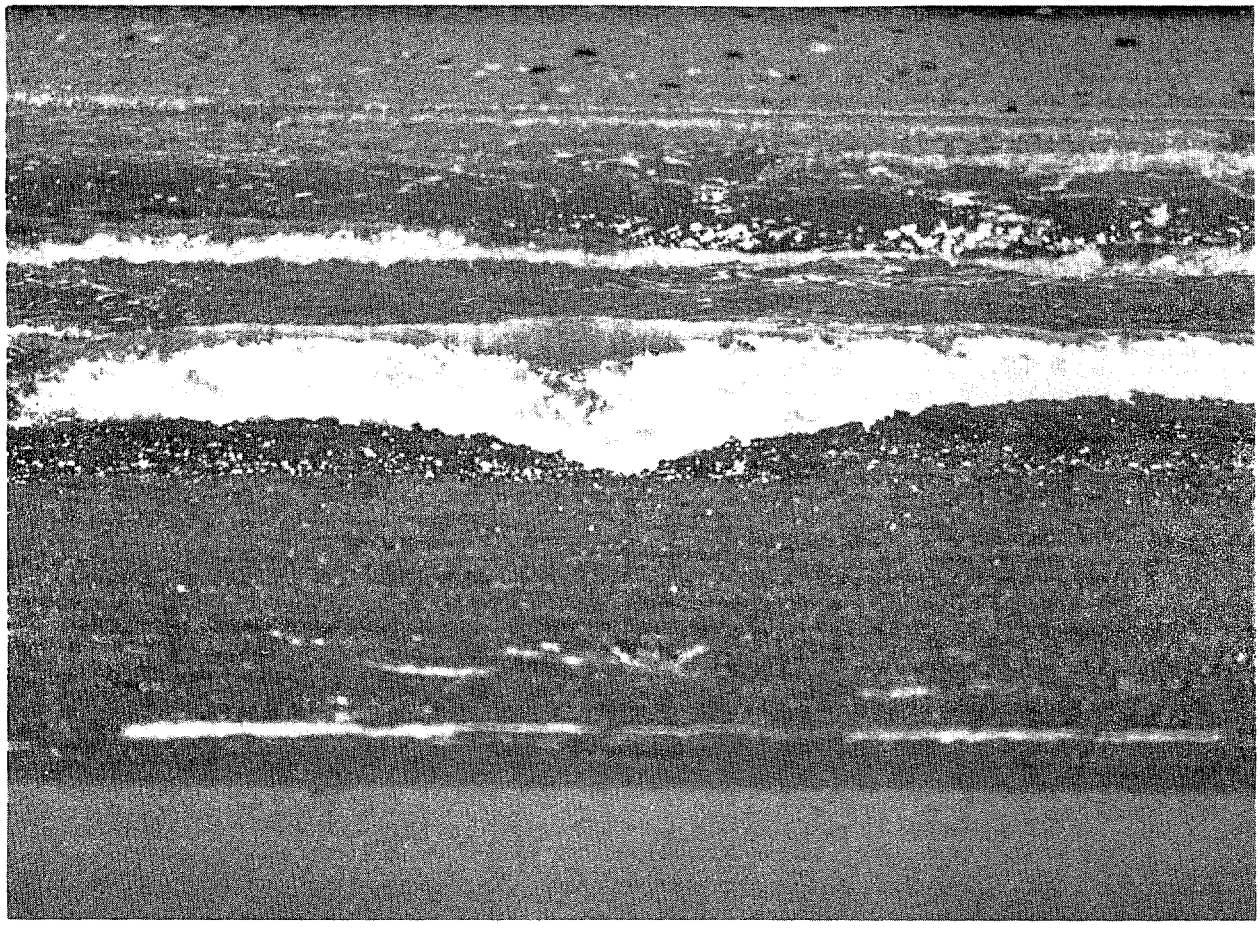


Illustration 1. Ocean offshore waters (excluding nearshore waters, see definitions, Table 2).



Photograph 2. Ocean nearshore waters, Island Beach State Park, Ocean County.

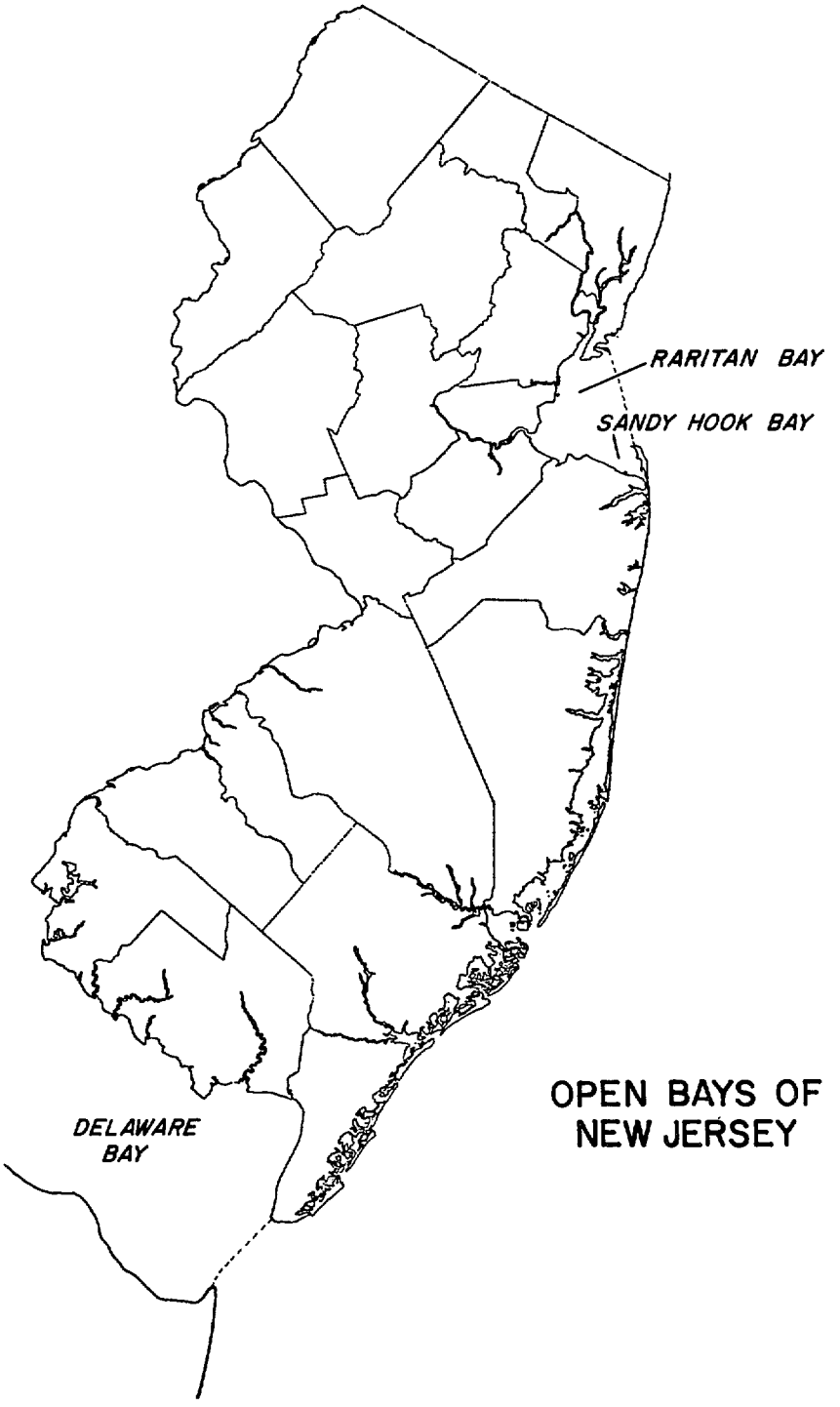
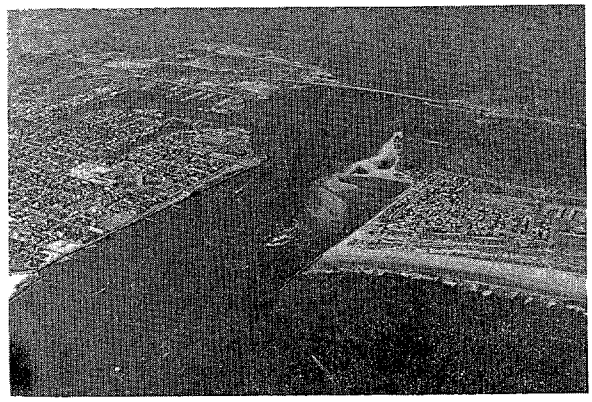
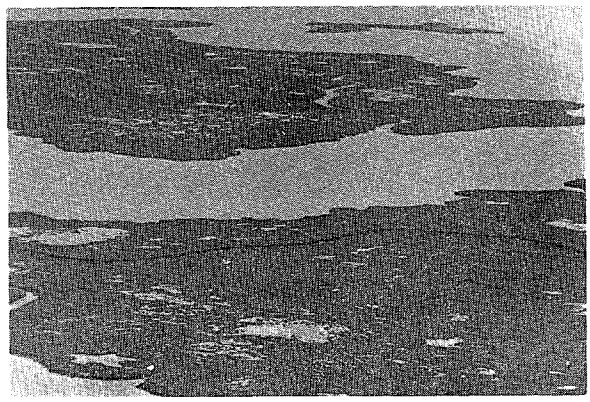


Illustration 3. Open bay waters.

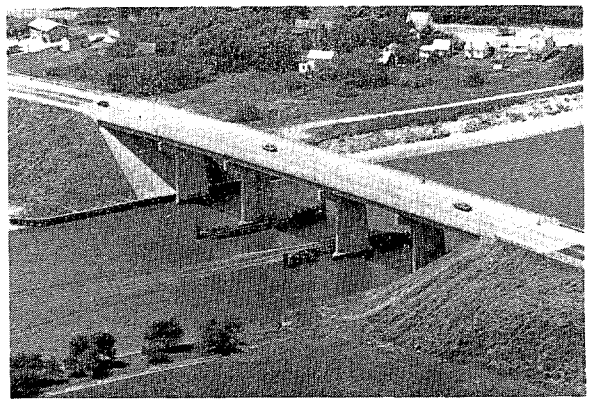
Photograph 4. Semi-enclosed and back bay waters, Lakes Bay, Atlantic County.



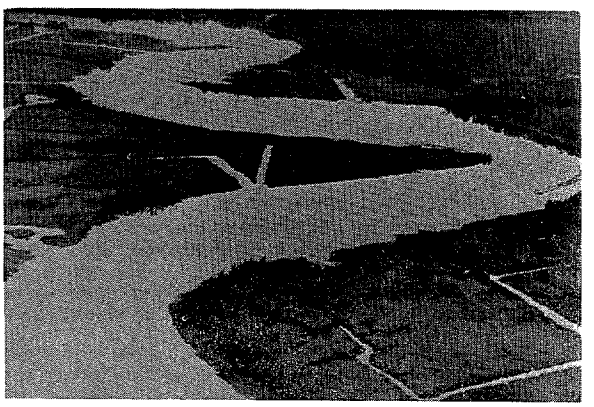
Photograph 5. Inlet, Absecon, Atlantic County.



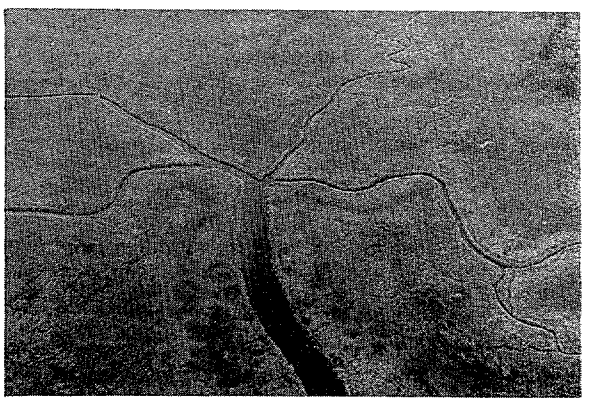
Photograph 6. Gut, Main Marsh Thoro-fare, Brigantine, Atlantic County.



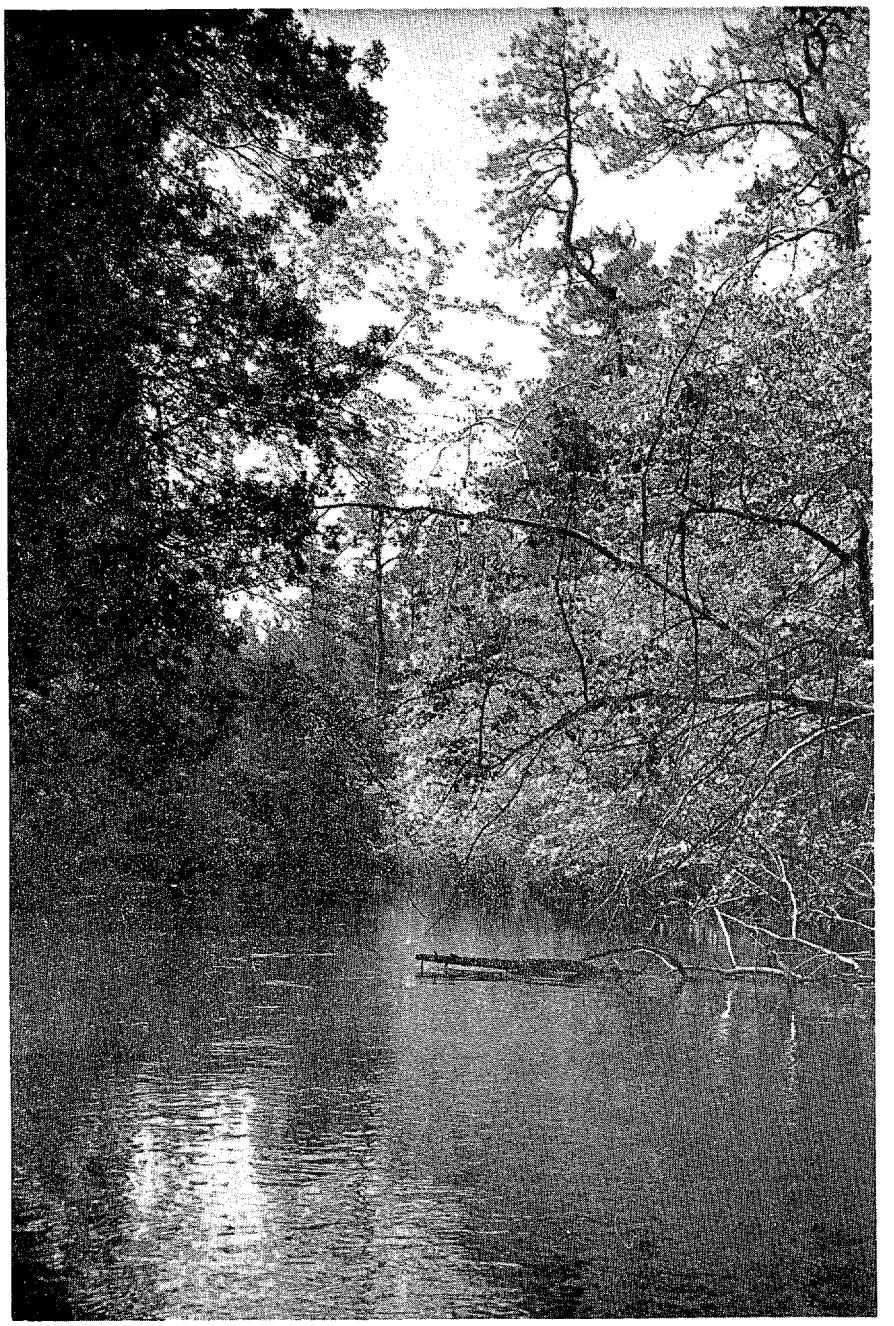
Photograph 7. Canal, Cape May Canal, Cape May County.



Photograph 8. Tidal river, Maurice River, near Buckshutem, Cumberland County.

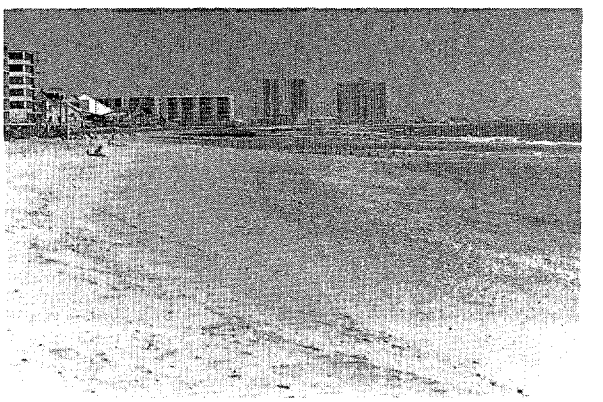


Photograph 9. Tidal river, tributaries to Maurice River, Cumberland County.

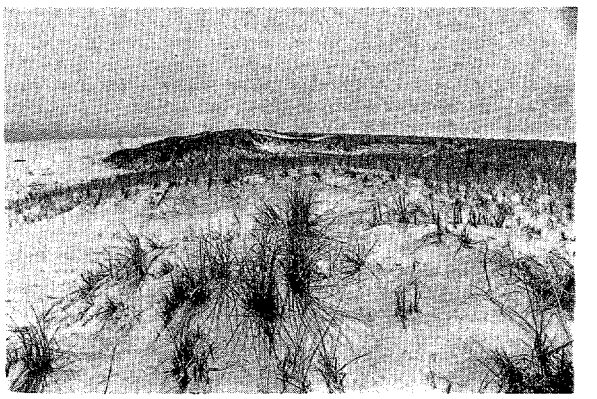


Photograph 10. Nontidal river; Nescochague River near Batsto, Burlington County.

Photograph 11. Inland basin, Pine Barrens, Burlington County.

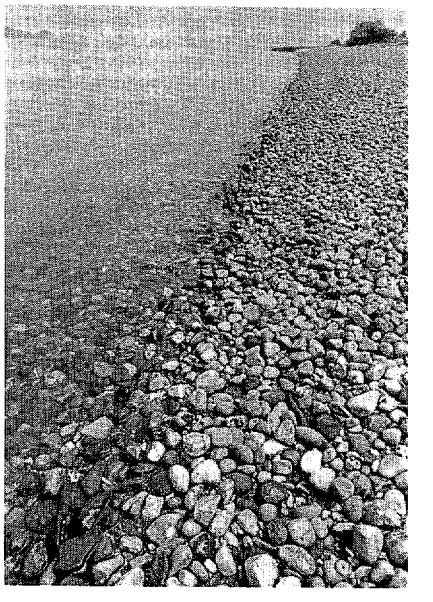


Photograph 12. Ocean beach, Longport, Atlantic County.

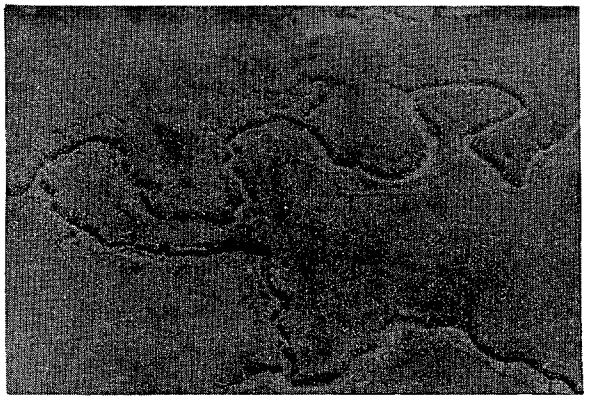


Photograph 13. Ocean beach and dunes, Island Beach State Park, Ocean County.

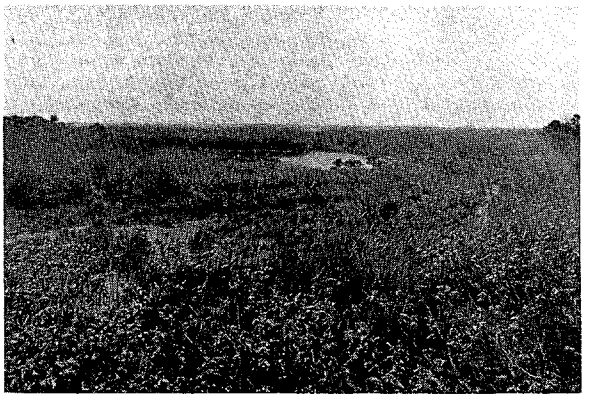
Photograph 14. Estuarine beaches and bars, Delaware Bay, Lower Township, Cape May County.



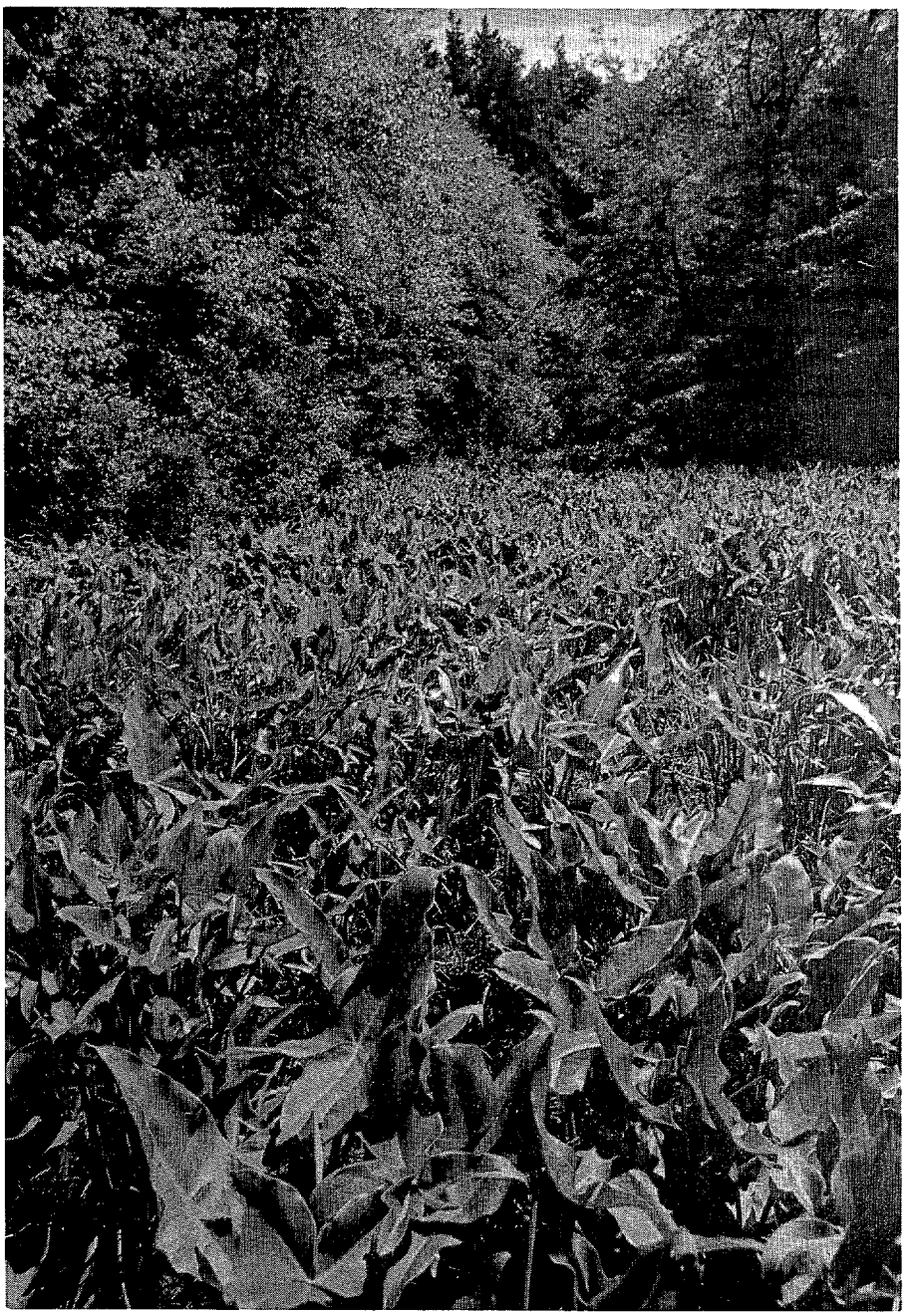
Photograph 15. Estuarine beach, Delaware River National Park, Gloucester County.



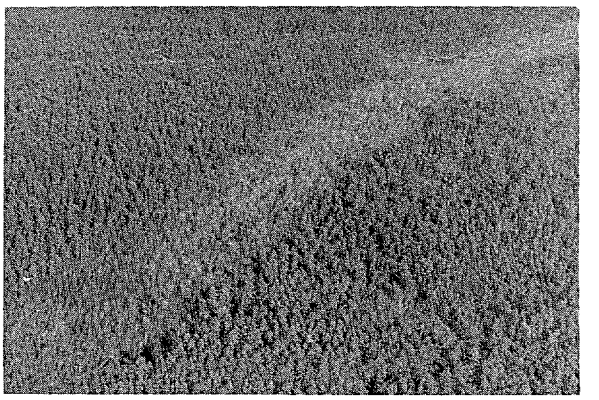
Photograph 16. Tidal wetlands, Egg Harbor Township, Ocean County.



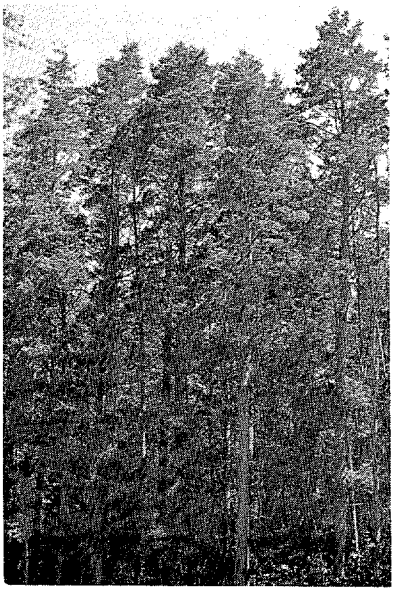
Photograph 17. Tidal wetlands, Island Beach State Park, Ocean County.



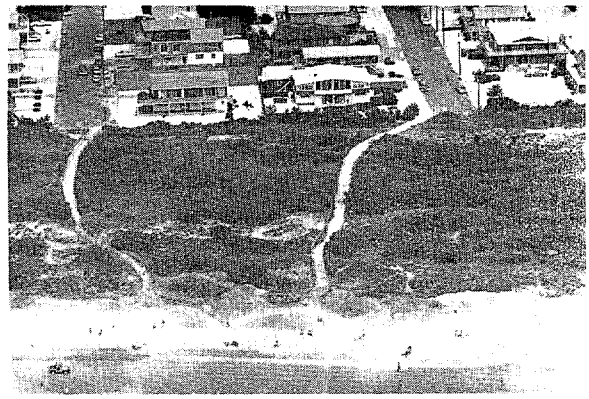
Photograph 18. Nontidal wetlands, near Batsto, Mullica River, Burlington County.



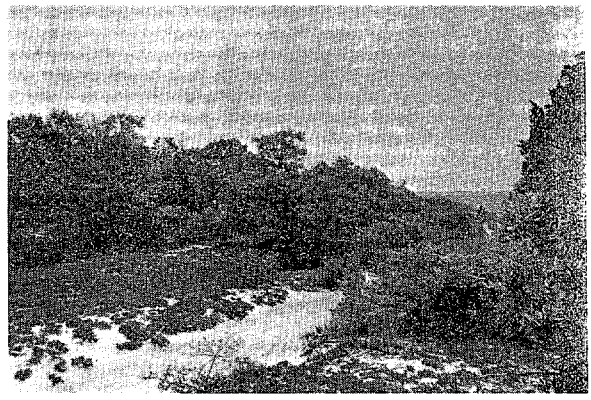
Photograph 19. Wet forest, center of photo along tributary of Great Egg Harbor River, Ocean County.



Photograph 20. Wet forest, cedar swamp along Route 542 near Herman, Burlington County.



Photograph 21. Developed central barrier island corridor, Alalon, Cape May County.



Photograph 22. Central barrier island corridor, Island Beach State State Park, Ocean County.

Photograph 23. Lowland coarse soils, Hammonton, Atlantic County.

Photograph 24. Upland coarse soils near Union City, Hudson County.