

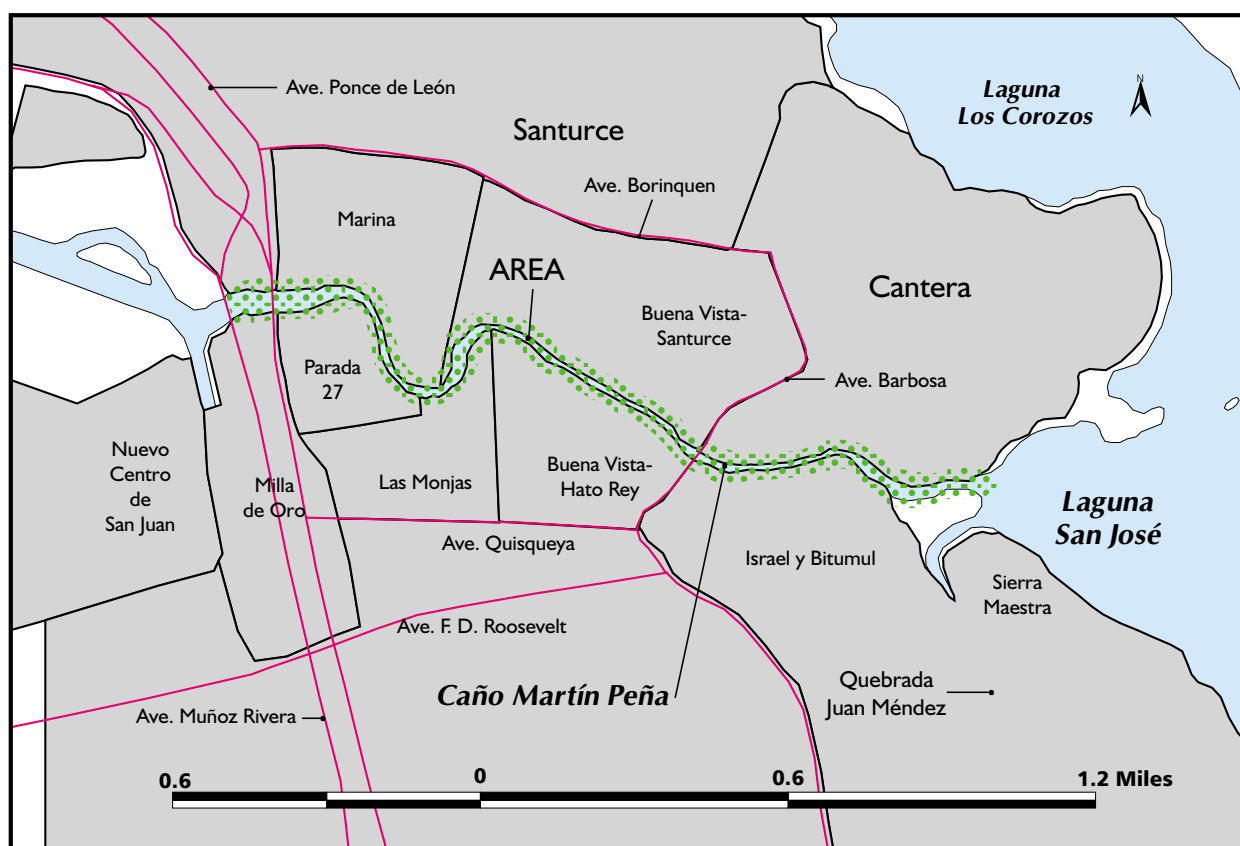
APPENDICES

APPENDIX A: ACTION MAPS



Action
WS-5

Improve flow in Martín Peña Channel.



Green shaded portions of the map labeled “AREA” show the approximate area where the action will take place.

WATER AND SEDIMENT QUALITY ACTION MAPS



Action
WS-6

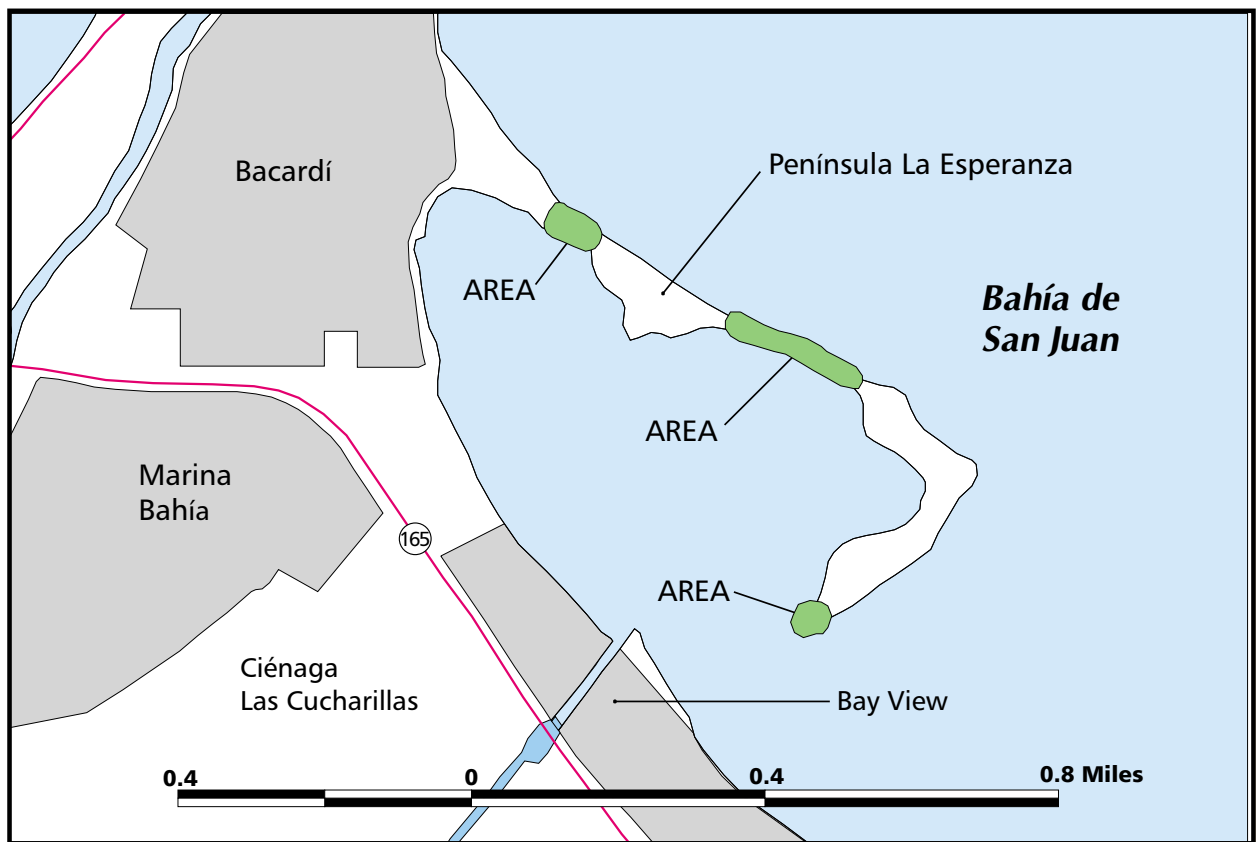
Fill artificial depressions at the Suárez Canal and at the Los Corozos, San José, and La Torrecilla Lagoons.



Green shaded portions of the map labeled “AREA” show the approximate area where the action will take place.



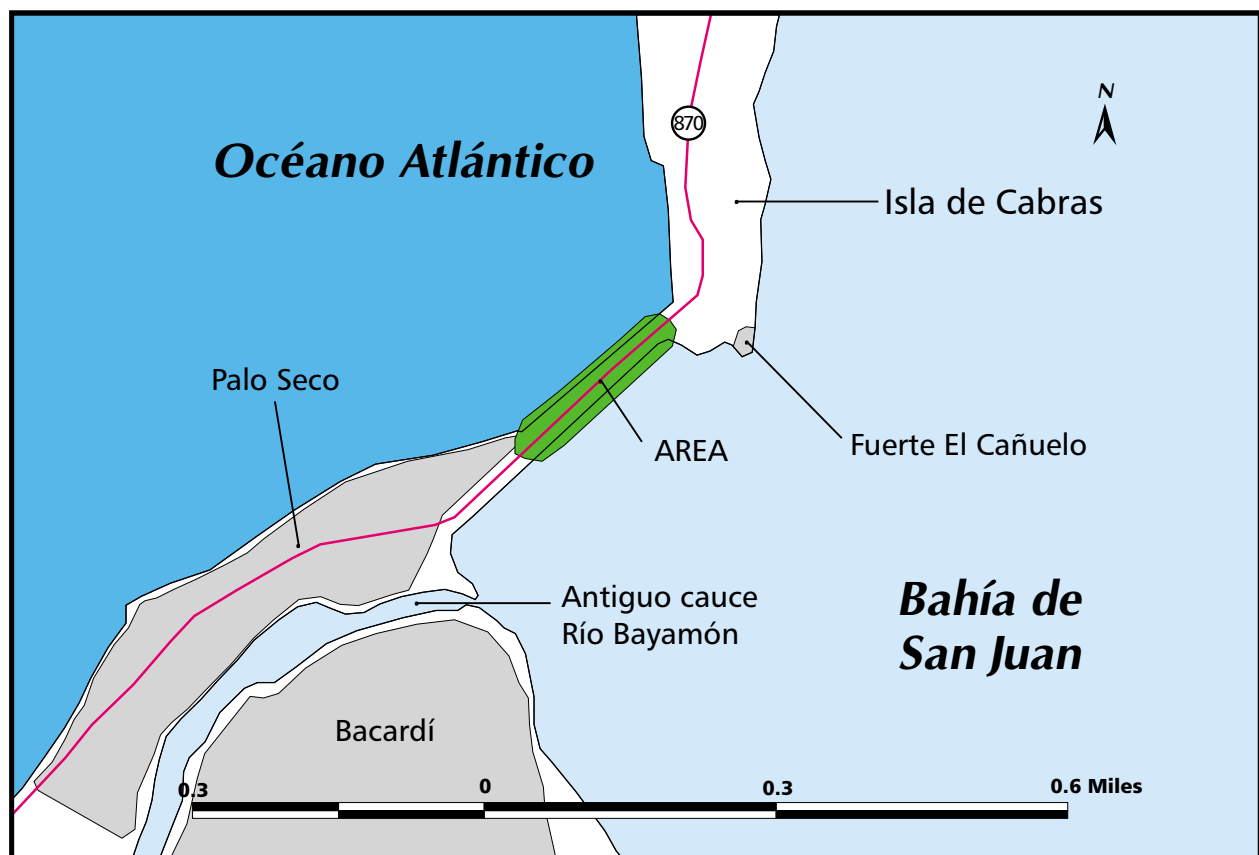
Action
WS-7 **Improve the flow of water between La Esperanza Peninsula cove and San Juan Bay.**



Green shaded portions of the map labeled “AREA” show the approximate area where the action will take place.

WATER AND SEDIMENT QUALITY ACTION MAPS

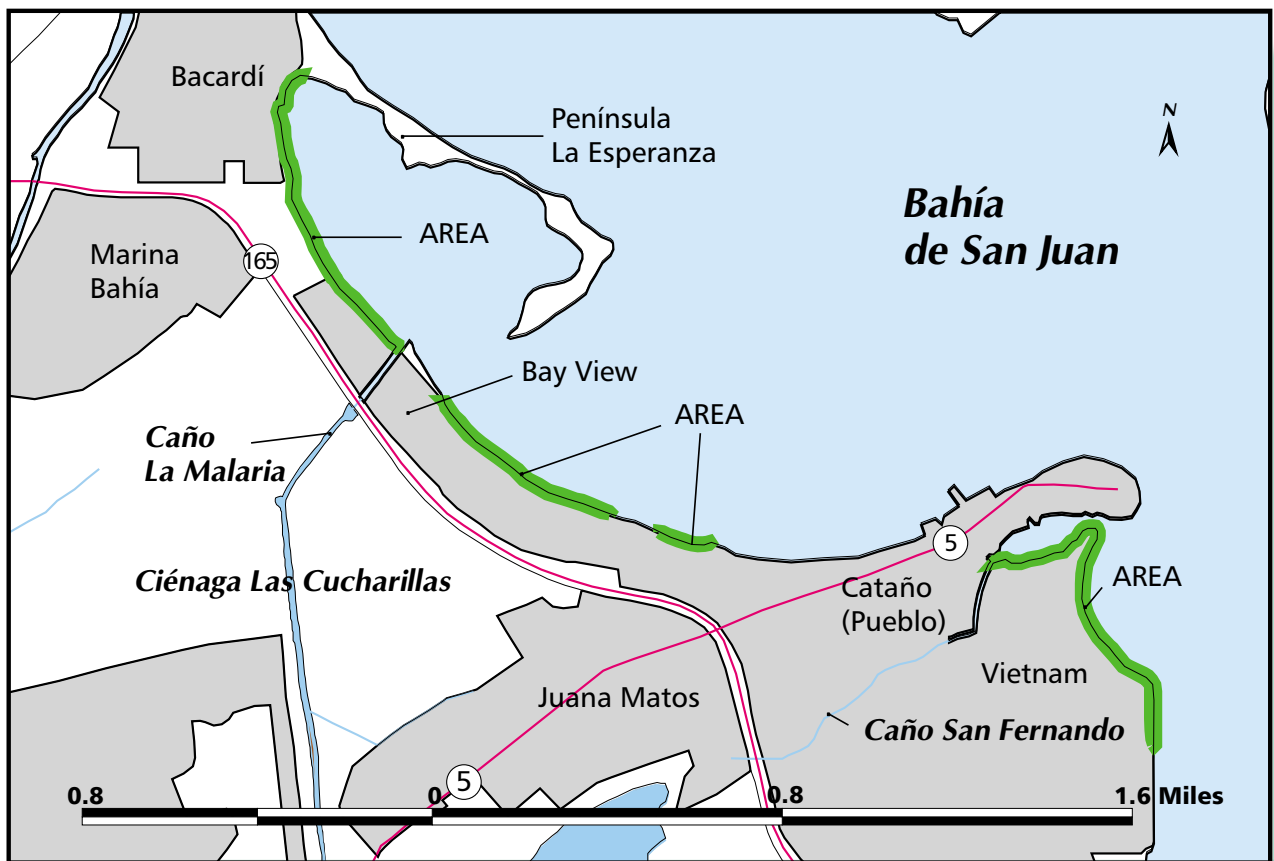
Action WS-8 Assess the feasibility of opening the Causeway to Isla de Cabras to increase water flow.



Green shaded portions of the map labeled "AREA" show the approximate area where the action will take place.



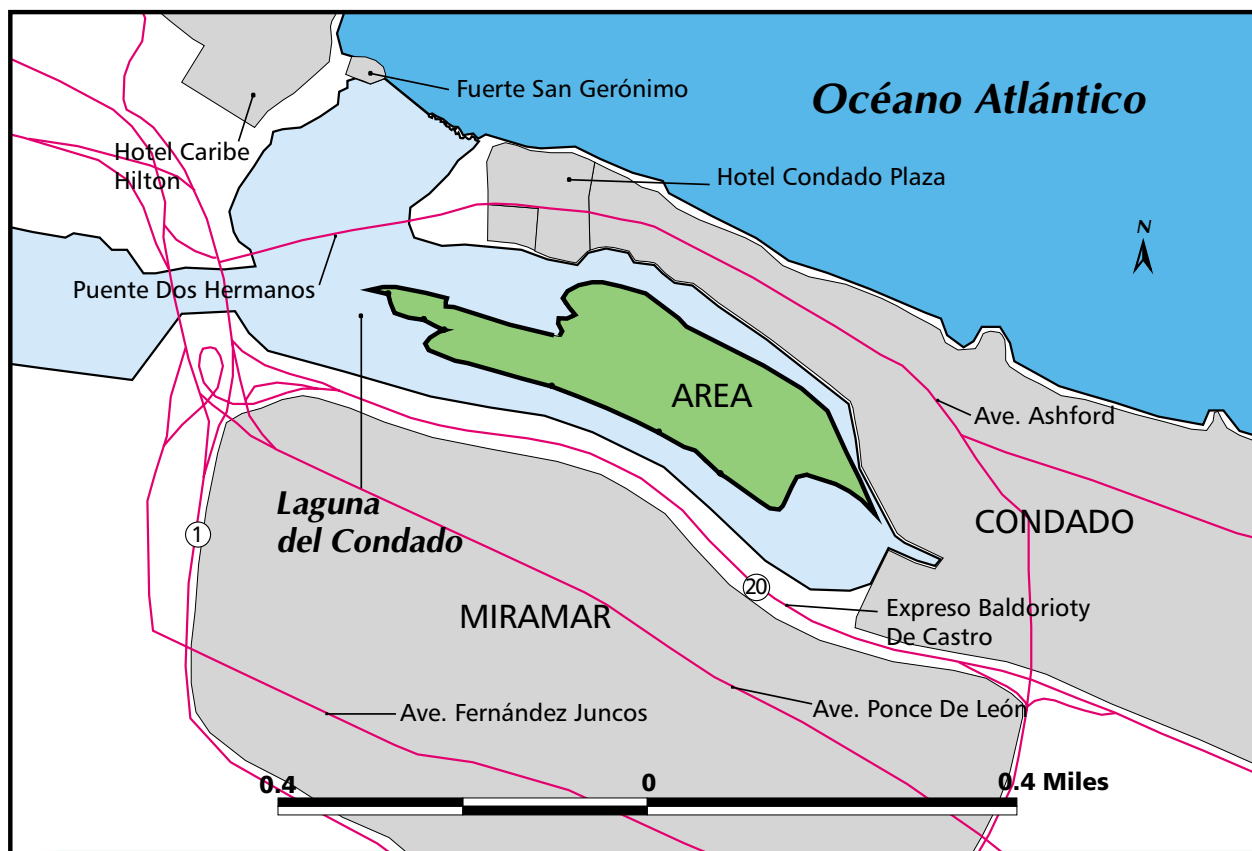
Action
HW-1 **Plant mangroves along the western shoreline of San Juan Bay.**



Green shaded portions of the map labeled "AREA" show the approximate area where the action will take place.

HABITAT, FISH, AND WILDLIFE ACTION MAPS

Action
HW-2 **Restore seagrass beds in the Condado Lagoon.**

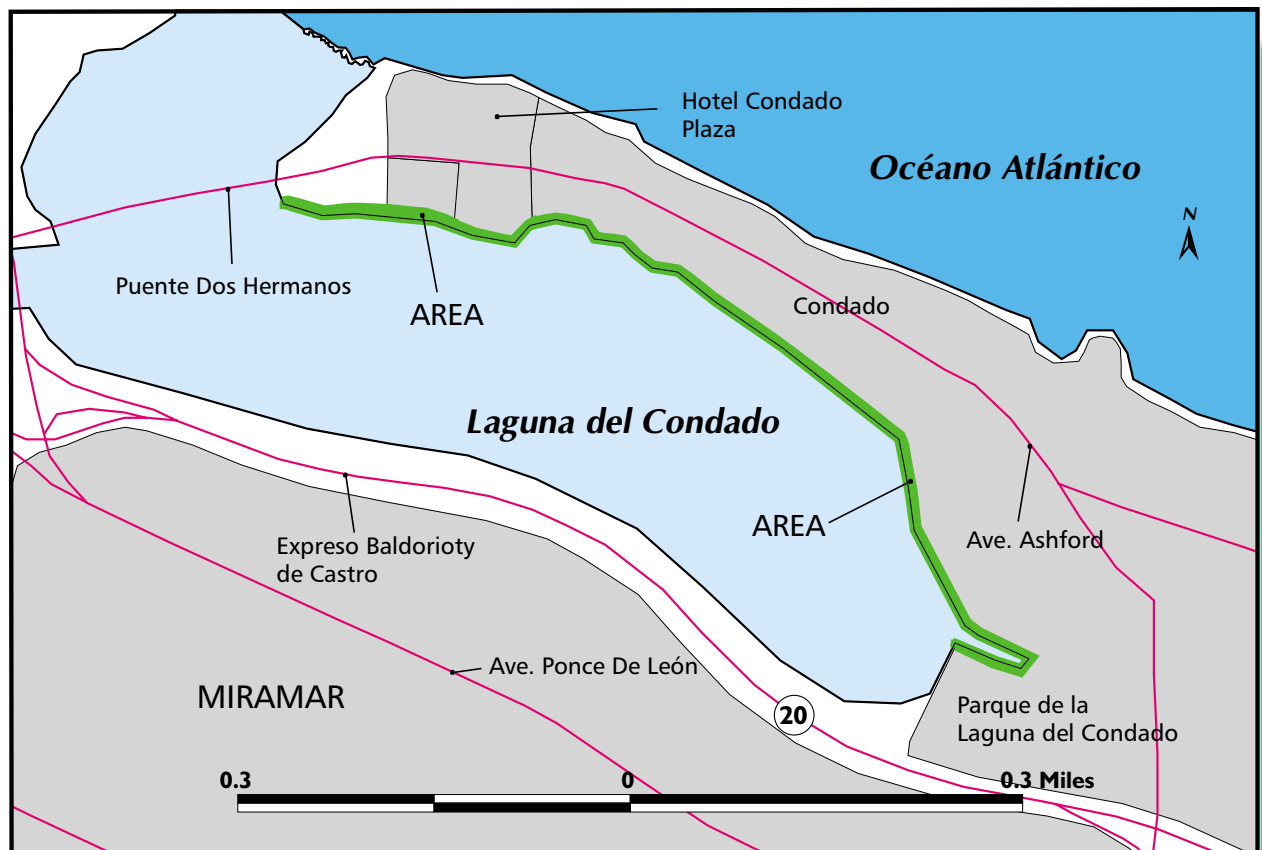


Green shaded portions of the map labeled "AREA" show the approximate area where the action will take place.



Action
HW-3

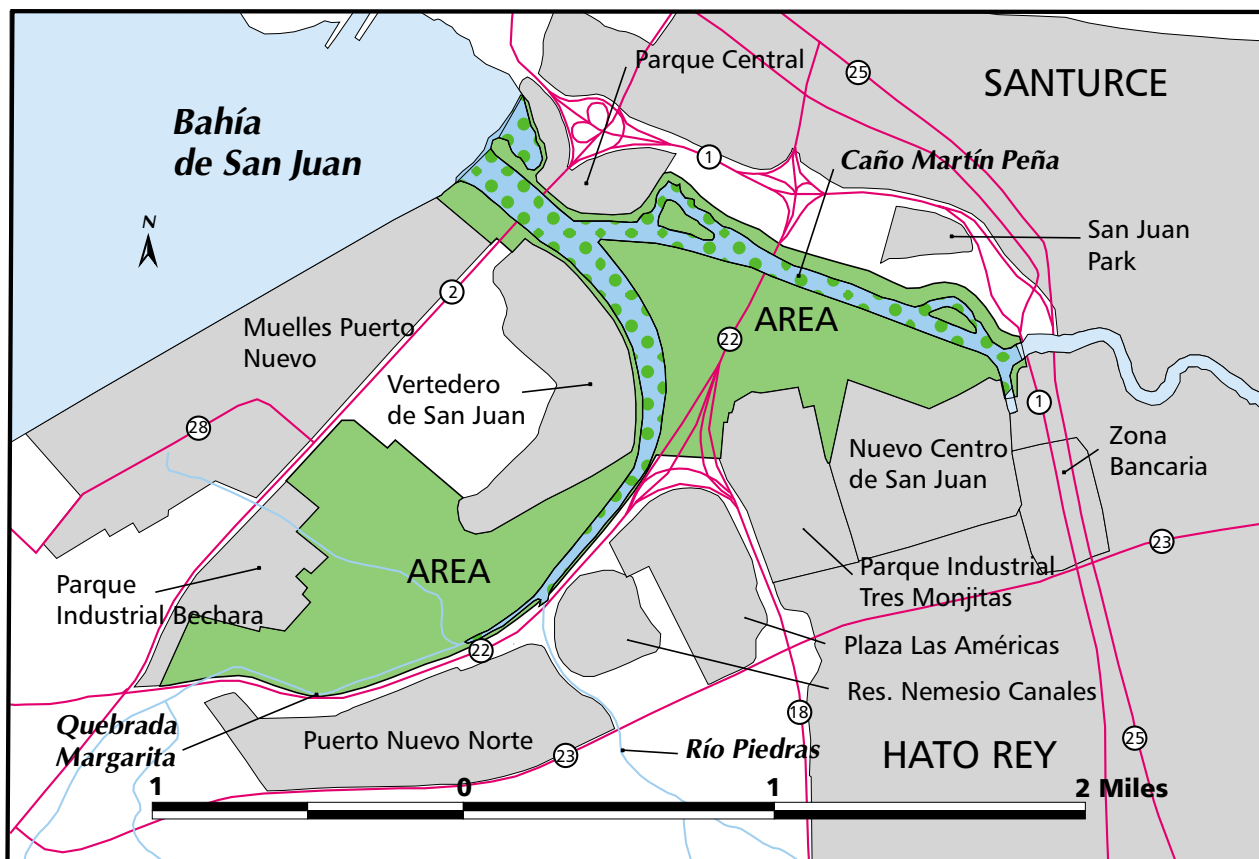
**Plant mangroves along the shores of
Condado Lagoon.**



Green shaded portions of the map labeled “AREA” show the approximate area where the action will take place.

HABITAT, FISH, AND WILDLIFE ACTION MAPS

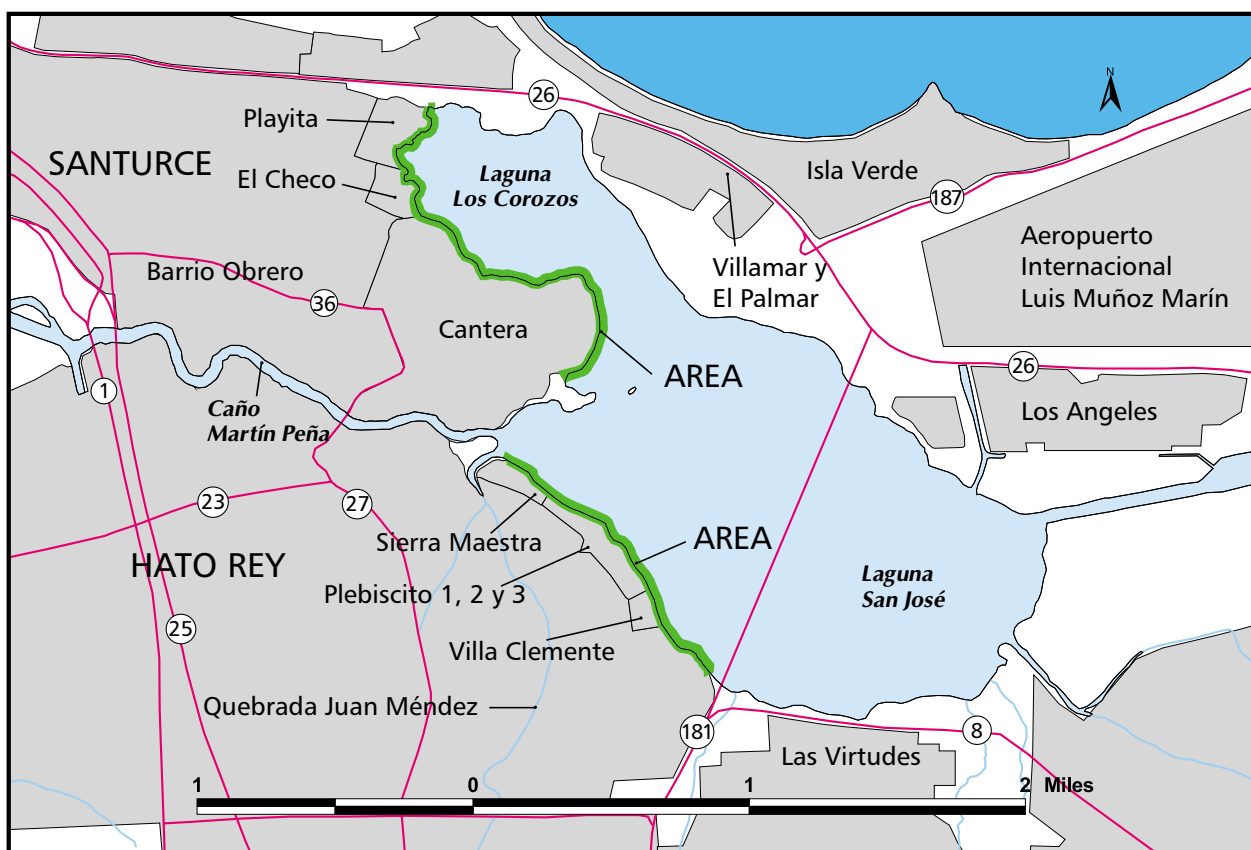
Action **HW-4** Designate a section of the Martín Peña Channel and lands adjacent to the Puerto Nuevo River as a Nature Reserve.



Green shaded portions of the map labeled "AREA" show the approximate area where the action will take place.



Action **HW-5** **Plant mangroves along the shores of the San José and Los Corozos Lagoons.**



Green shaded portions of the map labeled "AREA" show the approximate area where the action will take place.

HABITAT, FISH, AND WILDLIFE ACTION MAPS

Action Designate the Torrecilla Alta-Vacía
HW-6 Talega area as part of the Piñones State
Forest Nature Reserve.

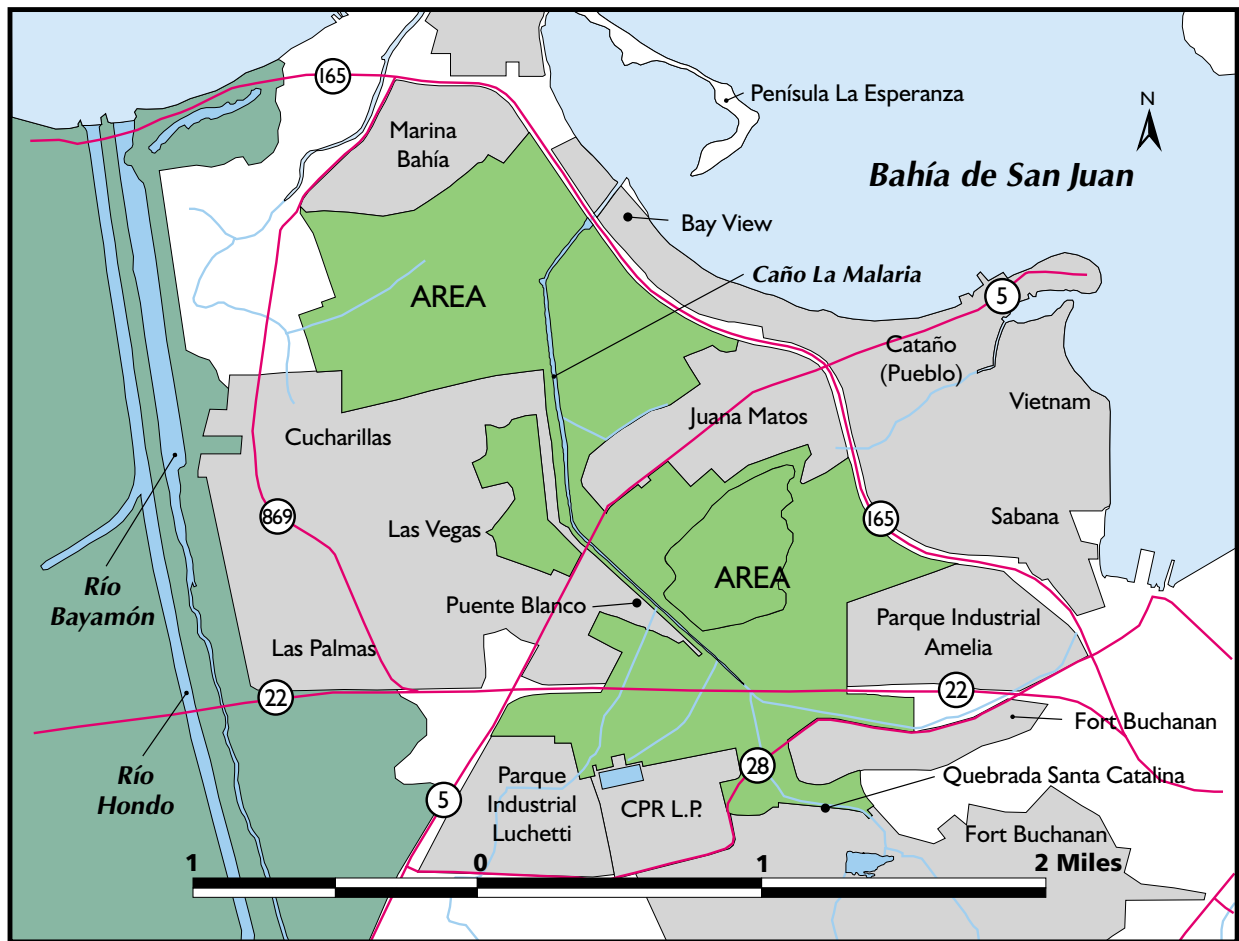


Green shaded portions of the map labeled “AREA” show the approximate area where the action will take place.



HABITAT, FISH, AND WILDLIFE ACTION MAPS

Action **HW-8** Designate Las Cucharillas Marsh as a Nature Reserve.



Green shaded portions of the map labeled “AREA” show the approximate area where the action will take place.

APPENDIX B: ACRONYMS AND ABBREVIATIONS

AGI	Acute Gastroenteritis
AFICA	Authority for the Financing of Industrial, Tourism, Educational, Health and Environmental Control Facilities
APDP	Action Plan Demonstration Project
ARPE	Permit and Regulations Administration
AWQC	Ambient Water Quality Criteria
BOD	Biochemical Oxygen Demand
CAC	Citizens Advisory Committee
CCMP	Comprehensive Conservation and Management Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CES	Control of Erosion and Sedimentation
CFR	Code of Federal Regulations
CHDO	Community Housing Development Organization
CMC	Center for Marine Conservation
CPP	Cantera Peninsula Project
CSN	Caribbean Stranding Network
CSO	Combined Sewer Overflow
CUCCO	Comunidades Unidas Contra la Contaminación
CWA	Clean Water Act
CWPRA	Coastal Wetlands Planning and Restoration Act
DDT	Dichloro-diphenyl-trichloroethane
DEDC	Puerto Rico Department of Economic Development and Commerce
DM	Design Memorandum
DMR	Discharge Monitoring Report
DNER	Department of Natural and Environmental Resources
DO	Dissolved Oxygen
DOA	Department of Agriculture
DOC	United States Department of Commerce
DOE	Department of Education
DOH	Department of Housing
DOI	United States Department of the Interior
DOT	Department of Transportation

DSR	Department of Sports and Recreation
DTPW	Department of Transportation and Public Works
DTS	Desarrollo Turistico Selectivo
EDA	Economic Development Authority
EQB	Environmental Quality Board
FAA	Federal Aviation Administration
FAC	Financial Advisory Committee
FEMA	Federal Emergency Management Administration
GDP	Gross Domestic Product
IBCHDO	Israel-Bitumul Community Housing Development Organization
ICPOC	Implementation Committee Point of Contact
LGC	Local Government Committee
MC	Management Committee
MEG	Model Evaluation Group
MGD	Million Gallons per Day
MOU	Memorandum of Understanding
MPWC	Motorized Personal Watercraft
NAMP	National Ambient Monitoring Program
NEP	National Estuary Program
NGO	Non-Governmental Organization
NMFS	National Marine Fisheries Service
NTU	Nefelometric Units
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
OD	Oxygen demand
ORCA	Office of Ocean Resources Conservation and Assessment
PA	Ports Authority
PC	Policy Committee
PCBs	Polychlorinated Biphenyls
PRASA	Puerto Rico Aqueduct and Sewer Authority
PRCNPC	Puerto Rico Coastal Non-Point Pollution Control Plan

PREPA	Puerto Rico Electric Power Authority
PRFD	Puerto Rico Family Department
PRHD	Puerto Rico Health Department
PRHTA	Puerto Rico Highway and Transportation Authority
PRIDCO	Puerto Rico Industrial Development Company
PRIFA	Puerto Rico Infrastructure and Finance Authority
PRPA	Puerto Rico Ports Authority
PRPB	Puerto Rico Planning Board
PRWC	Puerto Rico Water Company
PSA	Public Service Announcement
SAV	Submerged Aquatic Vegetation
SCORP	State Comprehensive Outdoor Recreation Plan
SHPO	State Historic Preservation Office
SJBE	San Juan Bay Estuary
SJMA	San Juan Metropolitan Area
SPOC	Single Point of Contact
STAC	Scientific and Technical Advisory Committee
SWMA	Solid Waste Management Authority
UIACECIA	Universidad Interamericana de PR, Centro de Educación Conservación e Interpretación Ambiental
UPR	University of Puerto Rico
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFDA	United States Food and Drug Administration
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WQS	Water Quality Standards

APPENDIX C: GLOSSARY

A

ALGAE - ANY OF A GROUP OF CHIEFLY AQUATIC PLANTS WITH CHLOROPHYLL THAT ARE OFTEN MASKED BY A BROWN OR RED PIGMENT. EXCESS NUTRIENTS (NITROGEN AND PHOSPHORUS) MAY ACCELERATE THE GROWTH OF ALGAE, RESULTING IN AN ALGAL BLOOM.

ALLOCHTONOUS – AN ORGANISM OR SPECIES THAT HAS MIGRATED FROM ANOTHER REGION.

AMPHIBIANS - ANY OF A CLASS OF COLD-BLOODED VERTEBRATES (SUCH AS FROGS, TOADS, OR NEWTS) INTERMEDIATE IN MANY CHARACTERISTICS BETWEEN FISH AND REPTILES AND HAVING GILLED AQUATIC LARVAE AND AIR-BREATHING ADULTS.

ANADROMOUS FISH - FISH THAT SPEND THEIR ADULT LIVES IN THE SEA BUT SWIM UPRIVER TO FRESH WATER TO BREED (SALMON, ALEWIVES, SMELT AND SHAD).

ANAEROBIC - LIVING OR GROWING WHERE THERE IS NO ATMOSPHERIC OXYGEN. ANAEROBIC BACTERIA OBTAIN OXYGEN FROM DECOMPOSING COMPOUNDS CONTAINING OXYGEN.

ANOXIC - A CONDITION WHERE DISSOLVED OXYGEN IS NON-EXISTENT.

ATMOSPHERIC DEPOSITION - MATERIALS DISCHARGED TO THE ATMOSPHERE FROM NATURAL SOURCES AND ANTHROPOGENIC (MANMADE) SOURCES, SUCH AS AUTOMOBILES, POWER PLANTS, AND INDUSTRIES THAT FALL ON THE SURFACE OF WATER OR LAND IN RAINFALL OR AS DRY PARTICLES.

AUTOCHTONOUS – AN ORGANISM OR SPECIES THAT IS NATIVE TO A REGION.

B

BATHYMETRY - THE MEASUREMENT OF DEPTHS OF WATER IN OCEANS, SEAS, LAGOONS, AND LAKES.

BENTHOS - PLANTS AND ANIMALS THAT INHABIT THE BOTTOM SEDIMENTS OF A BODY OF WATER.

BEST MANAGEMENT PRACTICE (BMP) - A PRACTICE OR COMBINATION OF PRACTICES THAT PROVIDE THE MOST EFFECTIVE AND PRACTICABLE MEANS OF CONTROLLING POINT AND NONPOINT POLLUTANTS AT LEVELS COMPATIBLE WITH ENVIRONMENTAL QUALITY GOALS.

BIO-ACCUMULATION - THE PROCESS BY WHICH A CONTAMINANT ACCUMULATES IN THE TISSUE OF AN INDIVIDUAL ORGANISM.

BIOCHEMICAL OXYGEN DEMAND (BOD) - THE QUANTITY OF OXYGEN DEMAND PRESENT IN A SAMPLE AS MEASURED BY A SPECIFIC TEST. A MAJOR OBJECTIVE OF CONVENTIONAL WASTEWATER TREATMENT IS TO REDUCE THE BIOCHEMICAL OXYGEN DEMAND SO THAT THE OXYGEN CONTENT OF THE WATER BODY WILL NOT BE SIGNIFICANTLY REDUCED.

BIODIVERSITY - THE VARIETY OF LIFE AND ITS PROCESSES, INCLUDING THE VARIETY OF LIVING ORGANISMS AND THE GENETIC DIFFERENCES BETWEEN THEM AND THE COMMUNITIES IN WHICH THEY OCCUR.

BIOTA - FLORA AND FAUNA TOGETHER.

BRACKISH - WATER WITH A SALINITY BETWEEN FRESH AND SALT WATER.

C

CARCINOGEN - A CANCER-CAUSING SUBSTANCE.

COLIFORM - OF OR HAVING TO DO WITH THE BACILLI COMMONLY FOUND IN THE INTESTINES OF HUMANS AND OTHER VERTEBRATES.

COMBINED SEWER OVERFLOW (CSO) - A PIPE THAT, DURING STORMS, MAY DISCHARGE UNTREATED SEWAGE AND STORMWATER. THE OVERFLOW OCCURS BECAUSE THE SEWAGE TREATMENT PLANT DOES NOT HAVE THE CAPACITY TO TREAT THE INCREASED FLOW CAUSED BY STORMWATER RUNOFF. INFILTRATION OF WATER IN A SANITARY SEWER LINE.

COMPREHENSIVE CONSERVATION AND MANAGEMENT PLAN - A MANAGEMENT PLAN WHICH SERVES AS THE MASTER DOCUMENT FOR THE PROTECTION, COORDINATION, CONSERVATION, AND RESTORATION OF THE SJBE ECOSYSTEM DEVELOPED BY THE SJBE PROGRAM MANAGEMENT CONFERENCE.

CONTAMINANT - A SUBSTANCE WHICH IS NOT NATURALLY PRESENT IN THE ENVIRONMENT OR IS PRESENT IN UNNATURAL CONCENTRATIONS THAT CAN, IN SUFFICIENT CONCENTRATION, ADVERSELY ALTER THE ENVIRONMENT.

CRUSTACEANS - AQUATIC INVERTEBRATES WITH HARD, JOINTED SHELLS (EXOSKELETON), JOINTED LEGS, AND SEGMENTED BODIES; EXAMPLES INCLUDE SHRIMP, CRABS, LOBSTERS, AND BARNACLES.

D

DDD - SEE DDT

DDE - SEE DDT

DDT (DICHLORO-DIPHENYL-TRICHLOROETHANE): THE FIRST CHLORINATED HYDROCARBON INSECTICIDE (PESTICIDE). COLLECTS IN THE FATTY TISSUE OF SOME ANIMALS AND WAS RESPONSIBLE FOR EGG SHELL THINNING AND REPRODUCTIVE FAILURE IN EAGLES. THE U.S. ENVIRONMENTAL PROTECTION AGENCY BANNED REGISTRATION AND INTERSTATE SALE IN 1972. IN THE ENVIRONMENT, DDT BREAKS DOWN TO FORM DDD AND DDE, WHICH ARE ALSO TOXIC. DDT IS STILL PRODUCED OUTSIDE OF THE UNITED STATES, IN SOME CASES BY U.S. CORPORATIONS.

DETritus - ORGANIC MATTER DERIVED FROM THE DECOMPOSITION OF VEGETATIVE AND ANIMAL MATERIAL. A FOOD SOURCE FOR MANY SMALL MARINE ANIMALS, IT USUALLY ACCUMULATES AS SEDIMENT IN MANGROVE AND SALT MARSHES.

DRAINAGE BASIN - THE LAND THAT SURROUNDS A BODY OF WATER AND CONTRIBUTES FRESHWATER TO THAT BODY OF WATER EITHER FROM RAINS, STREAMS, GROUNDWATER, OR SURFACE WATER RUNOFF.

DREDGING - REMOVAL OF BOTTOM SEDIMENT FROM WATER BODIES FOR THE CONSTRUCTION AND MAINTENANCE OF SHIPPING CHANNELS.

E

ECOSYSTEM - THE COMPLEX OF A COMMUNITY AND ITS ENVIRONMENT FUNCTIONING AS AN ECOLOGICAL UNIT IN NATURE.

EFFLUENT - LIQUID DISCHARGED INTO THE ENVIRONMENT, INCLUDING POLLUTANTS.

ESTUARY - A SEMI-ENCLOSED BODY OF WATER HAVING FREE CONNECTION WITH THE OPEN SEA WHERE SEAWATER IS MEASURABLY DILUTED WITH FRESH WATER.

EUTROPHICATION - A PROCESS BY WHICH A BODY OF WATER BECOMES, EITHER NATURALLY OR BY POLLUTION, RICH IN DISSOLVED NUTRIENTS (SUCH AS PHOSPHATES); SUCH BODIES OF WATER ARE OFTEN SHALLOW WITH A SEASONAL DEFICIENCY IN DISSOLVED OXYGEN.

EXOTIC - NON-NATIVE PLANT OR ANIMAL THAT HAS BEEN INTRODUCED (ACCIDENTALLY OR INTENTIONALLY) TO A REGION. IT MAY BE CONSIDERED A NUISANCE, SINCE IT MAY DISPLACE NATIVE SPECIES OR CROWD OUT THE NATIVE SPECIES (I.E., CAYEPUT TREE).

F

G

GEOGRAPHIC INFORMATION SYSTEMS (GIS) - A COMPUTER SYSTEM THAT ENABLES ONE TO CREATE ELECTRONIC MAPS TO DEPICT VARIOUS LAYERS OF DATA, SUCH AS WETLANDS COVERAGE, TOXIC WASTE SITES, ETC.

H

HABITAT - A PLACE OR ENVIRONMENT WHERE PLANTS AND ANIMALS LIVE, FEED, FIND SHELTER, AND REPRODUCE.

HEAVY METALS - ELEMENTS WHICH COMMONLY OCCUR IN SURFACE RUNOFF SEDIMENTS AND DOMESTIC OR INDUSTRIAL WASTES THAT HAVE TOXIC PROPERTIES WHEN FOUND IN SUFFICIENTLY HIGH CONCENTRATIONS. THE MOST COMMON HEAVY METAL POLLUTANTS ARE LEAD, IRON, ZINC, AND COPPER.

HYDROLOGIC - PERTAINING TO HYDROLOGY, THE PHYSICS OF WATER MOVEMENT. A "HYDROLOGIC MODEL" IS A TYPE OF COMPUTER PROGRAM WHICH TAKES INTO ACCOUNT THE KNOWN BEHAVIOR OF WATER IN THE FORM OF MATHEMATICAL FORMULAS AND ALLOWS SIMULATIONS OF THE MOVEMENT OF WATER IN A RIVER, LAKE, ESTUARY, OR UNDERGROUND.

I

ICHTHYOFAUNAL - REFERS TO MARINE OR AQUATIC FAUNA WHICH INCLUDES FISH.

IMPLEMENTING PARTNER - AN AGENCY, MUNICIPALITY, OR OTHER ENTITY AS ESTABLISHED BY LAW OR BY THE SJBE PROGRAM MANAGEMENT CONFERENCE AND DESIGNATED IN THIS MANAGEMENT PLAN TO IMPLEMENT A PROPOSED ACTION. IT ALSO MAY INCLUDE AGENCIES, MUNICIPALITIES, OR OTHER ENTITIES FROM WHICH PERMITS, ENDORSEMENTS, SUPPORT, OR OTHER TYPE OF INVOLVEMENT IS NEEDED FOR ACTION IMPLEMENTATION.

INDICATOR SPECIES - SOMETHING USED TO INDICATE WATER OR HABITAT QUALITY. FOR EXAMPLE, FECAL COLIFORM BACTERIA HAS BEEN USED TO INDICATE THE PRESENCE OF PATHOGENS THAT ARE HARMFUL TO HUMANS; HOWEVER, THESE BACTERIA ARE FOUND IN THE INTESTINAL TRACT OF ALL MAMMALS, NOT JUST HUMANS.

INDIGENOUS - ORIGINATING, DEVELOPING, OR PRODUCED NATURALLY IN A PARTICULAR LOCATION, REGION, OR ENVIRONMENT.

J

K

L

LAGOON - A SHALLOW BODY OF WATER WHICH IS SEPARATED FROM THE SEA BY A SAND BAR, BARRIER BEACH, LAND, OR CORAL REEF WHERE SALT WATER FROM THE SEA AND FRESH WATER RUNOFF FROM THE LAND MEET AND MIX.

LEACH - LIQUID WASH FROM A SOLID MATERIAL.

LOADING - THE TOTAL AMOUNT OF MATERIAL ENTERING A SYSTEM FROM ALL SOURCES.

M

MANGROVE - A TROPICAL AND SUB-TROPICAL TREE SPECIES WHICH GROWS NEAR THE SHORELINE. IT IS SALT TOLERANT AND PROVIDES IMPORTANT AND VITAL HABITAT AND FOOD FOR FISH, SHELLFISH, AND BIRDS. IT ALSO STABILIZES SHORELINES AND FILTERS POLLUTANTS THAT RUN OFF THE LAND.

MOLLUSKS - AQUATIC INVERTEBRATE ANIMALS INCLUDING CLAMS, SNAILS, OYSTERS, CONCHS, AND OTHER SOFT-BODIED ANIMALS. MOST MOLLUSKS HAVE A HARD PROTECTIVE SHELL.

MUDFLAT - A STRETCH OF LOW-LYING, MUDDY LAND ALONG A SHORE OR ISLAND, USUALLY SUBMERGED

AT HIGH TIDE AND LEFT UNCOVERED AT LOW TIDE.

N

NEKTON - THE RELATIVELY LARGE ORGANISMS, SUCH AS FISH, THAT POSSESS THE POWER TO SWIM FREELY IN OCEANS AND LAKES, INDEPENDENT OF WATER MOVEMENTS, IN CONTRAST TO PLANKTON.

NITROGEN - NITROGEN IS AN ODORLESS, TASTELESS GAS THAT CONSTITUTES 78 PERCENT OF THE EARTH'S ATMOSPHERE. NITROGEN IS ALSO PRESENT AS ORGANIC NITROGEN OR IN THE INORGANIC FORM OF AMMONIA, NITRITE, AND NITRATE. THE INORGANIC FORMS ARE AVAILABLE TO PLANTS AND ARE A REQUIRED NUTRIENT FOR PLANT GROWTH.

NONPOINT SOURCE (NPS) - AN INDIRECT OR DISPERSED DISCHARGE, NOT FROM A PIPE OR OTHER SPECIFIC CONFINED SOURCE, USUALLY AS A RESULT OF STORMWATER RUNOFF.

NUTRIENTS - ANY SUBSTANCE REQUIRED BY ORGANISMS FOR NORMAL GROWTH AND MAINTENANCE.

O

ORGANIC MATTER - OF OR DERIVED FROM LIVING ORGANISMS.

P

PATHOGEN - ANY AGENT CAPABLE OF PRODUCING DISEASE, ESPECIALLY A LIVING MICROORGANISM.

PHYTOPLANKTON - THE PART OF THE PLANKTON OF ANY BODY OF WATER WHICH CONSISTS OF PLANTS OR PLANTLIKE ORGANISMS, USUALLY ALGAE.

PLANKTON - THE SMALL ORGANISMS THAT FLOAT OR DRIFT IN WATER, ESPECIALLY AT OR NEAR THE SURFACE. PLANKTON INCLUDES SMALL CRUSTACEANS, ALGAE, AND PROTOZOA, AND SERVE AS A VERY IMPORTANT SOURCE OF FOOD FOR LARGER ANIMALS SUCH AS FISH.

POINT SOURCE - A PIPE OR CHANNEL FROM WHICH POLLUTANTS MAY BE DISCHARGED INTO A BODY OF WATER.

PROPAGULE - A BUD OR OTHER OFFSHOOT ABLE TO DEVELOP INTO A NEW PLANT.

Q

R

RUNOFF - WATER THAT RUNS OFF THE LANDS INTO STREAMS; THAT PORTION OF PRECIPITATING WATER THAT FLOWS OVERLAND TO THE SEA.

S

SEDIMENTATION - THE SLOW SETTLING AND SEPARATION OF SUSPENDED SOLIDS FROM A LIQUID UNDER THE FORCE OF GRAVITY.

SEWAGE - USED WATER FROM DOMESTIC, COMMERCIAL, OR INDUSTRIAL ESTABLISHMENTS, CARRYING SANITARY OR INDUSTRIAL WASTE MATERIALS.

SOLID WASTE - USELESS, UNWANTED, DISCARDED MATERIALS INCLUDING GARBAGE, RUBBISH, AND TRASH; ALSO CALLED REFUSE.

T

TRIBUTARY - A STREAM THAT FLOWS INTO A LARGER STREAM OR BODY OF WATER.

TURBIDITY - A MEASURE OF THE LIGHT SCATTERING EFFECT CAUSED BY FINELY DIVIDED SUSPENDED PARTICLES IN THE WATER.

U

V

W

WATERSHED - THE LAND AREA THAT CONTRIBUTES RUNOFF TO A STREAM OR LAKE; ALSO KNOWN AS A DRAINAGE BASIN AND CATCHMENT AREA.

WETLAND - HABITATS, SUCH AS MARSHES AND SWAMPS, THAT ARE PERPETUALLY FLOODED YET SHALLOW ENOUGH TO PERMIT STANDING VEGETATION.

X

Y

Z

ZOOPLANKTON - THE PART OF THE PLANKTON OF ANY BODY OF WATER WHICH CONSISTS OF ANIMALS.

APPENDIX D: REFERENCES

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APPENDIX E: MANAGEMENT CONFERENCE MEMBERSHIP

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APPENDIX F: SELECTED DISEASES RELATED TO SEWAGE DISCHARGES INTO SURFACE WATERS

Selected Diseases Related to Sewage Discharges into Surface Waters

Agent	Disease	Symptoms	Route of Transmission	
			Swimming or Immersion in Contaminated Water	Ingestion of Contaminated Fish or Shellfish
Bacteria				
Salmonella sp.	Typhoid and paratyphoid fevers, salmonellosis	Fever, diarrhea, enlargement of spleen, and sometimes rose-colored spots on the trunk.	●	●
Shigella sp.	Bacillary dysentery	Mild transitory diarrhea to acute attacks accompanied by fever, vomiting, and profuse bloody stools.	●	
Pseudomonas sp.	Otitis externa, skin infections	Mild circulatory infection to rapidly fatal septicemia, cutaneous abscesses, diarrhea, and pneumonia.	●	
Vibrio parahaemolyticus	Gastroenteritis	Watery diarrhea, abdominal cramps, nausea, vomiting, fever, and headache.		●
Vibrio cholerae	Cholera	Sudden onset, profuse watery stools, vomiting, rapid dehydration, subnormal body temperature, and circulatory collapse.		●
Leptospira sp.	Leptospirosis (Weil's disease)	Acute infection of the kidneys, infections of the liver and central nervous system, fever, headache, chills, vomiting, depression, muscular aches, and renal insufficiency.	●	
Campylobacter sp.	Gastroenteritis	Diarrhea, abdominal pains, fever, nausea, and vomiting.		●
Viruses				
Hepatitis A	Infectious hepatitis	Abrupt onset with fever, headache, nausea, vomiting and abdominal discomfort, followed in a few days by jaundice.	●	●
Norwalk-like human rotavirus	Acute, infectious non-bacterial gastroenteritis	Nausea, vomiting, diarrhea, abdominal pain, and low-grade fever.	●	●
Adenovirus, types 3 and 4	Pharyngoconjunctival fever	Pharyngitis, conjunctivitis, fever, diarrhea, nasopharyngeal discharge, and swelling of the tonsils and lymph nodes of the neck.	●	Not known if this is a route of transmission

Agent	Disease	Symptoms	Route of Transmission	
			Swimming or Immersion in Contaminated Water	Ingestion of Contaminated Fish or Shellfish
Coxsackievirus	Pleurodynia, others	Heart disorders, fever, lethargy, and other symptoms.	•	
Other				
Dinoflagellate	Ciguatera poisoning syndrome	Gastrointestinal problems, vomiting, cardiac disorders, severe itching, limb numbness, headaches, temperature sensory reversal, convulsions, delusions, and various other nervous disorders.		•
<i>Naegleria sp.</i> (pathogenic)	Primary amoebic meningoencephalitis	Inflammation of the brain, severe frontal headache, nausea, vomiting, and severe hemorrhaging from nasal passages.	•	

Sources: Organización Mundial de la Salud, 1987. *El Control de las enfermedades transmisibles en el hombre*, Decimocuarta edición, Pub. Cient. 507, p. 536.

Programa de Colegio Sea Grant, *La Ciguatera*, En: Datos Marinos, Num. 24.

Programa Sea Grant, 1986. *Intoxicación por Ciguatera*. En: Boletín Marino, Vol. VII, Núm. 1 y 2.

USEPA, 1992(c). *Characterization of Use Impairments of the U.S. Virgin Islands and Puerto Rico*, Prepared for Marine and Wetlands Protection Branch, USEPA Region 2.

APPENDIX G: MOST ABUNDANT TOXICS GENERALLY FOUND IN SAN JUAN BAY ESTUARY SEDIMENTS

Most Abundant Toxics Generally Found in San Juan Bay Estuary Sediments

Toxic	Uses/Sources	Human and Environmental Health Effects
Polychlorinated Biphenyls (PCBs)	Manufactured for producing coolants and lubricants in transformers, capacitors, and other electrical equipment. Also found in old fluorescent lighting fixtures and other electrical appliances such as televisions and refrigerators.	Babies born to women who consumed PCB-contaminated fish had problems with their nervous systems at birth, so reproductive and developmental problems may occur. Animals that ate food with small amounts of PCBs had liver, stomach, and thyroid gland injuries, as well as anemia, acne, and problems with their reproductive systems. PCBs cause cancer in laboratory animals, and it is assumed to have the same effect in humans.
DDT (including DDE and DDD)	Manufactured for the control of insects on agricultural crops and for insects that carry diseases such as malaria and typhus.	Short-term exposure to high doses affects the nervous system, resulting in excitability, tremors, and seizures. Effects on the nervous system appear to be reversible once exposure ends. Long-term exposure affects the liver. DDT causes cancer in laboratory animals, and it is assumed to have the same effect in humans.
Lead	Naturally occurring metal with many uses, but most importantly the production of batteries. Also used in ammunition, metal products (solder and pipes), roofing, and devices to shield x-rays. Once widely used as an ingredient in gasoline, paints, ceramic products, and caulking.	Affects almost every organ and system, but has the greatest impact on the central nervous system, particularly in children. Also damages kidneys and the immune system. Other harmful effects include premature births, smaller babies, decreased mental ability in infants, learning difficulties, and reduced growth in young children. In adults, lead may decrease reaction time, cause weakness in fingers, wrists, or ankles, and possibly affect memory. May cause anemia, abortion, and damage to the male reproductive system.
Mercury	Naturally occurring metal that combines with other elements to form inorganic compounds or salts (i.e., methylmercury). Used in the production of thermometers, dental fillings, and batteries. Also in fluorescent lights.	Damages the brain, kidneys, and unborn children. The nervous system is very sensitive to all forms of mercury and the effects on brain functioning may result in irritability, shyness, tremors, changes in vision or hearing, and memory problems.

Sources: Agency for Toxic Substances and Disease Registry: ToxFAQs and Public Health Statements.

PCBs: September 1997 and June 1989, respectively. See <http://www.atsdr.cdc.gov/tfacts17.html>; and <http://www.atsdr.cdc.gov/ToxProfiles/phs8821.html>

DDT, DDE, and DDD: September 1995 and December 1989, respectively. See <http://www.atsdr.cdc.gov/tfacts35.html>; and <http://www.atsdr.cdc.gov/ToxProfiles/phs8908.html>

Lead: April 1993 and June 1990, respectively. See <http://www.atsdr.cdc.gov/tfacts13.html>; and <http://www.atsdr.cdc.gov/ToxProfiles/phs8817.html>

Mercury: April 1999 and December 1990, respectively. See <http://www.atsdr.cdc.gov/tfacts46.html>; and <http://www.atsdr.cdc.gov/ToxProfiles/phs8916.html>

APPENDIX H: ACTION PLAN SUMMARY TABLES

Water and Sediment Quality Action Plan – Summary Table

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed.

Action	Title	Priority	Implementing Partners	Total Anticipated Cost
WS-1	Design and construct a storm and sanitary sewer system for the communities fringing the eastern section of the Martín Peña Channel and other areas adjacent to the SJBE.	1	PRWC, Municipality of San Juan, Community Groups, PRPB, FEMA, Municipalities, EQB, PRASA, DTPW, DOH	\$31,335,000
WS-2	Relocate families living adjacent to the Martín Peña Channel.	1	DOH, CHDO, CPP, Community Groups, Municipality of San Juan, USACE, DNER, PRPB, SJBE Program, ARPE	\$74,740,000
WS-3	Eliminate unauthorized raw sewage discharges (bypasses) from PRASA's collection system and pump stations into the SJBE.	1	PRASA, PRWC, EQB, Municipalities, Municipality of San Juan, USEPA	\$11,160,000*
WS-4	Eliminate illegal commercial and residential sewage discharges into the stormwater sewer system.	1	DNER, Municipality of San Juan, Municipality of Carolina, EQB, PRASA, USEPA	\$7,725,000*
WS-5	Improve flow in the Martín Peña Channel.	1	DNER, USACE, SJBE Program, PRPB, DTPW, DOH, Municipality of San Juan, CPP, IBCHDO, PRASA, SWMA, EQB, USFWS, NMFS, USEPA	\$112,600,000
WS-6	Fill artificial depressions at the Suarez Canal and at Los Corozos, San José, and La Torrecilla Lagoons.	1	DNER, USACE, SJBE Program, USEPA, EQB, PRPB	\$5,820,000
WS-7	Improve the flow of water between La Esperanza Peninsula Cove and San Juan Bay.	2	DNER, USACE, Municipality of Cataño, USFWS, NMFS, Community Groups, SJBE Program, EQB, PRPB, PRPA	\$1,300,000
WS-8	Assess the feasibility of opening the causeway to Isla de Cabras to increase water flow.	3	DNER, USACE, SJBE Program, PRPA, USFWS, NMFS, Municipality of Toa Baja, PRPB, DTPW	\$17,000*
WS-9	Minimize sediment loadings into the San Juan Bay Estuary system.	3	USEPA, EQB, PRPB, ARPE, DNER	\$200,000

Action	Title	Priority	Implementing Partners	Total Anticipated Cost
WS-10	Develop toxics criteria for sediment in the SJBE.	3	USEPA, EQB, SJBE Program, USGS, NOAA	\$250,000*
WS-11	Enforce the Used Motor Oil Management Law in the estuary's watershed (Law No. 172).	2	EQB, DNER, DNER Rangers, SWMA, State and Municipal Police	\$92,000
WS-12	Establish a policy to restore and protect riparian corridors along SJBE tributaries.	2	DNER, EQB, PRPB, Municipalities, USACE, USFS, NRCS, Community Groups, SJBE Program, Legal/Technical Task Force	\$150,000*
WS-13	Develop a plan for creating a Board of Pilot Commissioners to focus exclusively on harbor safety issues.	2	USCG, PRPA, Governor of Puerto Rico, Board of Pilot Commissioners	N/A
WS-14	Create a task force to monitor docks and other watercraft facilities within the SJBE system and ensure regulatory and permit compliance.	2	DNER (Coastal Zone Management Program, Navigation Commissioner, Rangers, Marine Resources Division), USACE, USFWS, NMFS, USCG, Recreational Users, DSR, Municipalities, SJBE Program, PRPB	\$80,000
WS-15	Assess the establishment of non-commercial watercraft special use areas in the SJBE.	2	DNER (Navigation Commissioner, Rangers), USFWS, NMFS, USCG, Recreational Users, DSR, Municipalities, SJBE Program	\$75,000*
WS-16	Develop and issue NPDES permits to regulate stormwater discharges in urbanized areas of the San Juan Bay Estuary watershed that contribute stormwater point source discharges to the system and its tributaries.	2	USEPA, EQB, PRPB, USFWS, Municipalities	N/A

*See individual actions and Tables 6-9 in Chapter 7 for further information on anticipated costs.

Habitat, Fish, and Wildlife Action Plan – Summary Table

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed.

Action	Title	Priority	Implementing Partners	Total Anticipated Cost
HW-1	Plant mangroves along the western shoreline of San Juan Bay.	3	DNER, SJBE Program, Municipalities of Cataño and Guaynabo, USACE, PRPA, Local Communities, Schools, Universities	\$133,780
HW-2	Restore seagrass beds in the Condado Lagoon.	3	DNER, NMFS, USEPA, SJBE Program, USACE, EQB, PRPB	\$1,612,000
HW-3	Plant mangroves along the shores of the Condado Lagoon.	3	DNER, SJBE Program, Puerto Rico Park Trust, USACE, Municipality of San Juan, Local Communities, Community Groups	\$43,500
HW-4	Designate a section of the Martin Peña Channel and lands adjacent to the Puerto Nuevo River as a nature reserve.	2	DNER, PRPA, Municipality of San Juan, PR Land Administration, PR Industrial Development Corporation, PRPB	\$187,000*
HW-5	Plant mangroves along the shores of the San José and Los Corozos Lagoons.	3	DNER, SJBE Program, USACE, Municipality of San Juan, Community Groups, Local Communities	\$77,500
HW-6	Designate the Torrecilla Alta-Vacia Talega area as part of the Piñones State Forest Nature Reserve.	2	DNER, PRPB, Local Communities	\$135,000*
HW-7	Restore seagrass beds within the SJBE.	3	DNER, NOAA, USFWS, USEPA, EQB	\$105,000
HW-8	Designate Las Cucharillas Marsh as a nature reserve.	2	DNER, SJBE Program, Local Communities, PRPB	\$115,000*
HW-9	Establish management measures within the SJBE system for the land crab <i>Cardisoma guanhumi</i> .	2	DNER, USFWS, NMFS, ARPE	N/A*
HW-10	Implement a sea turtle recovery plan.	2	DNER, USFWS, NMFS, Municipalities, NOAA, ARPE, NGOs, PRPB, USACE	\$142,000
HW-11	Assess the impacts of power plant entrainment on fishery resources.	2	USEPA, PRPB, EQB, USFWS, NMFS, PREPA, UPR-Marine Sciences Dept., SJBE Program, Community Groups	\$42,500

Action	Title	Priority	Implementing Partners	Total Anticipated Cost
HW-12	Assess the impact of thermal discharges on biological communities in San Juan Bay.	2	USEPA, PRPB, EQB, USFWS, NMFS, PREPA, UPR-Marine Sciences Department	\$42,500
HW-13	Enhance and protect critical plant species within the SJBE.	2	DNER, USFWS, Municipalities, ARPE, PRPB	\$315,000*
HW-14	Protect existing populations of endangered and threatened bird species and protect and restore their habitat within the SJBE system.	2	DNER, USFWS, Municipalities, ARPE, PRPB	\$125,000*
HW-15	Estimate the population and habitat use of the West Indian manatee within the SJBE and establish manatee protection zones.	2	DNER, CSN, USFWS, USGS-Sirenia Project, ARPE, DNER Navigation Commission Office	\$371,000
HW-16	Substitute cayeput trees (<i>Melaleuca quinquenervia</i>) with native species and prohibit planting of the tree in the SJBE.	2	DNER, PR Dept. of Agriculture, USDA, Garden Nurseries, SJBE Program, USFS, USFWS, PR Conservation Trust, USACE, PR Land Administration, International Society of Arboriculture, DTPW, Private Entities, Local Communities, Municipalities of Carolina, Cantáño, Guaynabo, Loíza, San Juan, and Toa Baja	\$510,000*
HW-17	Determine historic and present recreational fishing areas in the SJBE and develop a plan to adequately manage recreational fishery resources.	2	DNER, PRHD	\$45,000*
HW-18	Support enactment of the new fisheries law by the legislature and the governor.	2	Legislature, DNER, Governor of Puerto Rico	N/A

*See individual actions and Tables 6-9 in Chapter 7 for further information on anticipated costs.

Aquatic Debris Action Plan – Summary Table

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed.

Action	Title	Priority	Implementing Partners	Total Anticipated Cost
AD-1	Develop and implement community-based solid waste management and recycling programs in coordination with municipalities.	1	SWMA, Municipalities, EQB, SJBE Program, AmeriCorps, Community Groups, SJBE CAC, Local Communities, Interested Public and Private Entities, Private Waste Management and Recycling Companies	\$400,000*
AD-2	Continue to implement the Action Plan Demonstration Project developed in Piñones, Loíza.	2	Puerto Rico Green Team, SJBE Program, SWMA, Municipality of Loíza, Private Waste Management and Recycling Companies, Sponsors, Interested Public and Private Entities	\$137,000*
AD-3	Continue the annual aquatic debris clean-up event held in Islote de la Guachinanga.	2	Community Groups, Neighbors' Council of Cantera, Municipality of San Juan, DNER, SWMA, SJBE Program, AmeriCorps, CMC	\$50,000*
AD-4	Conduct periodic aquatic debris clean-up activities at suggested SJBE locations.	2	Municipalities, DNER, EQB, SWMA, SJBE Program, CMC, Community Groups, USGS	\$330,000*
AD-5	Establish Solid Waste Pollution Prevention Pilot Programs at different SJBE locations.	2	EQB, SWMA, Participating Entities, SJBE Program	\$350,000
AD-6	Implement measures to detect, correct, and control illegal dumping activities and enforce Puerto Rico's Anti-Littering Law (Law No. 11 of 1995).	1	DNER, DNER Rangers, SWMA, Legislature, Municipalities, State Police, Municipal Guards, EQB, SJBE Program, Local Communities, DTPW, Community Groups	\$145,000*
AD-7	Enforce the Law for the Management of Used Tires (Law No. 171) and other regulatory measures related to the illegal dumping of used tires within the estuary system and its drainage basin.	1	SWMA, EQB, Municipalities, SJBE Program, Treasury Department, NOAA, USCG, DNER, DNER Rangers, DTPW, ARPE, State Police, Municipal Guards	\$15,000

*See individual actions and Tables 6-9 in Chapter 7 for further information on anticipated costs.

Public Education and Involvement Action Plan – Summary Table

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed.

Action	Title	Priority	Implementing Partners	Total Anticipated Cost
PI-1	Develop and promote low impact recreational activities within selected areas of the SJBE.	2	DSR, DNER, PRPB, Local Communities, Municipalities, EQB	\$625,000
PI-2	Post educational and interpretive signs at highly visible, heavy traffic areas throughout the SJBE watershed (bridges, roads, parks, marinas, ports, waterfronts, etc.) to educate the public on the system's components, functions, and values.	2	SJBE Program, DNER, SJBE CAC, Municipalities, SWMA, EQB, ARPE, DTPW, Puerto Rico Tourism Company, DSR	\$100,000*
PI-3	Establish a program to provide citizens with effective and organized volunteer opportunities to support the SJBE's restoration projects (water quality monitoring, education, etc.).	2	SJBE Program	N/A
PI-4	Develop a long-term public education and outreach program.	2	SJBE Program, USEPA, DOE, DNER, DNER Rangers, State Police, Municipal Guards, EQB, USGS	\$350,000
PI-5	Develop an ecotourism program to promote sustainable, low-impact enjoyment of SJBE's natural resources as a means to further their conservation.	2	DNER, Puerto Rico Tourism Company, Ecotourism Consultive Board, SJBE Program, Local Communities, Ecotourism/Adventure Tour Operators, USFS, USFWS, PRPB, Municipalities, EQB, Land Owners, DSR, Government Development Bank, DOE	\$595,000*
PI-6	Develop an Environmental Education Program to target young audiences at schools and other non-formal educational institutions throughout the SJBE watershed.	2	DOE, SJBE Program	\$385,000*

(TABLE CONTINUED NEXT PAGE.)

Action	Title	Priority	Implementing Partners	Total Anticipated Cost
PI-7	Develop a Memorandum of Understanding between public and private entities and the SJBE Program to expand the scope of the Program's public education and outreach activities.	2	SJBE Program, Interested Public and Private Entities	N/A
PI-8	Promote better understanding of estuarine resources among regulatory enforcement agencies and personnel.	2	UPR Sea Grant Marine Education and Marine Advisory Programs, Caribbean Management Council, DNER Legal Section, SJBE Program	\$90,000

*See individual actions and Tables 6-9 in Chapter 7 for further information on anticipated costs.

APPENDIX I: POTENTIAL IMPLEMENTING PARTNERS

AmeriCorps

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Aquatic Debris Action Plan</i>				
AD-1	Develop and implement community-based solid waste management and recycling programs in coordination with municipalities.	1		All Steps
AD-3	Continue the annual aquatic debris clean-up event held in Islote de la Guachinanga.	2		All Steps

Board of Pilot Commissioners

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-13	Develop a plan for creating a Board of Pilot Commissioners to focus exclusively on harbor safety issues.	2		Step 13.4

Cantera Peninsula Project (CPP)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-2	Relocate families living adjacent to the Martín Peña Channel.	1		Steps 2.1, 2.2, 2.4-2.8
WS-5	Improve flow in the Martín Peña Channel.	1		Step 5.3

Carolina, Municipality of

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-4	Eliminate illegal commercial and residential sewage discharges into the stormwater sewer system.	1	Steps 4.1 - 4.2	Steps 4.3- 4.4
HW-16	Substitute cayeput trees (<i>Melaleuca quinquenervia</i>) with native species and prohibit planting of the tree in the SJB.	2		All Steps

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Caribbean Management Council

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Public Education and Involvement Action Plan</i>				
PI-8	Promote better understanding of estuarine resources among regulatory enforcement agencies and personnel.	2		All Steps

Caribbean Stranding Network (CSN)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-15	Estimate the population and habitat use of the West Indian manatee within the SJBE and establish manatee protection zones.	2		Steps 15.1-15.4, 15.7

Cataño, Municipality of

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-7	Improve the flow of water between La Esperanza Peninsula Cove and San Juan Bay.	2		Steps 7.1, 7.2
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-1	Plant mangroves along the western shoreline of San Juan Bay.	3		Steps 1.2-1.4
HW-16	Substitute cayeput trees (<i>Melaleuca quinquenervia</i>) with native species and prohibit planting of the tree in the SJBE.	2		All Steps

Center for Marine Conservation (CMC)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Aquatic Debris Action Plan</i>				
AD-3	Continue the annual aquatic debris clean-up event held in Islote de la Guachinanga.	2		Step 3.2
AD-4	Conduct periodic aquatic debris clean-up activities at suggested SJBE locations.	2		All Steps

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Community Groups

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-1	Design and construct a storm and sanitary sewer system for the communities fringing the eastern section of the Martín Peña Channel and other areas adjacent to the SJBE.	1		Steps 1.1-1.3, 1.5
WS-2	Relocate families living adjacent to the Martín Peña Channel	1		All Steps
WS-7	Improve the flow of water between La Esperanza Peninsula Cove and San Juan Bay.	2		Steps 7.1 and 7.2
WS-12	Establish a policy to restore and protect riparian corridors along SJBE tributaries.	2		Steps 12.1 and 12.3
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-3	Plant mangroves along the shores of the Condado Lagoon.	3		Step 3.4
HW-5	Plant mangroves along the shores of the San José and Los Corozos Lagoons.	3		Steps 5.1, 5.3, 5.4
HW-11	Assess the impacts of power plant entrainment on fishery resources.	2		Step 11.1
<i>Aquatic Debris Action Plan</i>				
AD-1	Develop and implement community-based solid waste management and recycling programs in coordination with municipalities.	1		Steps 1.2-1.4, 1.6
AD-3	Continue the annual aquatic debris clean-up event held in Islote de la Guachinanga.	2	All Steps	
AD-4	Conduct periodic aquatic debris clean-up activities at suggested SJBE locations.	2		All Steps
AD-6	Implement measures to detect, correct, and control illegal dumping activities and enforce Puerto Rico's Anti-Littering Law (Law No. 11 of 1995).	1		Step 6.4

Community Housing Development Organization (CHDO)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-2	Relocate families living adjacent to the Martín Peña Channel.	1		Steps 2.1, 2.2, 2.4 – 2.8

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Department of Education (DOE)

Action	Title	Priority	Lead Implementing Partner	Other implementing Partner
<i>Public Education and Involvement Action Plan</i>				
PI-4	Develop a long-term public education and outreach program.	2		Steps 4.1-4.4
PI-5	Develop an ecotourism program to promote sustainable, low-impact enjoyment of SJBE's natural resources as a means to further their conservation.	2		Step 5.10
PI-6	Develop an Environmental Education Program to target young audiences at schools and other non-formal educational institutions throughout the SJBE watershed.	2	All Steps	

Department of Housing (DOH)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-1	Design and construct a storm and sanitary sewer system for the communities fringing the eastern section of the Martín Peña Channel and other areas adjacent to the SJBE.	1		Steps 1.1, 1.3
WS-2	Relocate families living adjacent to the Martín Peña Channel.	1	All Steps	
WS-5	Improve flow in the Martín Peña Channel.	1	Step 5.3	

Department of Natural and Environmental Resources (DNER)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-2	Relocate families living adjacent to the Martín Peña Channel.	1		Step 2.3
WS-4	Eliminate illegal commercial and residential sewage discharges into the stormwater sewer system.	1	Steps 4.1-4.2	Step 4.4
WS-5	Improve flow in the Martín Peña Channel.	1	Steps 5.1-5.2, 5.5	Steps 5.3-5.4

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Department of Natural and Environmental Resources (DNER)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
WS-6	Fill artificial depressions at the Suarez Canal and at Los Corozos, San José, and La Torrecilla Lagoons.	1	Steps 6.2-6.3	Step 6.1
WS-7	Improve the flow of water between La Esperanza Peninsula Cove and San Juan Bay.	2	All Steps	
WS-8	Assess the feasibility of opening the causeway to Isla de Cabras to increase water flow.	3	All Steps	
WS-9	Minimize sediment loadings into the San Juan Bay Estuary system.	3		All Steps
WS-11	Enforce the Used Motor Oil Management Law in the estuary's watershed (Law No. 172).	2		All Steps
WS-12	Establish a policy to restore and protect riparian corridors along SJBE tributaries.	2	All Steps	
WS-14	Create a task force to monitor docks and other watercraft facilities within the SJBE system and ensure regulatory and permit compliance.	2	Steps 14.2-14.4	
WS-15	Assess the establishment of non-commercial watercraft special use areas in the SJBE.	2	Steps 15.2, 15.3	
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-1	Plant mangroves along the western shoreline of San Juan Bay.	3	All Steps	
HW-2	Restore seagrass beds in the Condado Lagoon.	3	Steps 2.2-2.4	Step 2.1
HW-3	Plant mangroves along the shores of the Condado Lagoon.	3	All Steps	
HW-4	Designate a section of the Martín Peña Channel and lands adjacent to the Puerto Nuevo River as a nature reserve.	2	Steps 4.1-4.2, 4.4	Step 4.3
HW-5	Plant mangroves along the shores of the San José and Los Corozos Lagoons.	3	All Steps	
HW-6	Designate the Torrecilla Alta-Vacia Talega area as part of the Piñones State Forest Nature Reserve.	2	Steps 6.1-6.2, 6.4	Step 6.3
HW-7	Restore seagrass beds within the SJBE.	3	All Steps	
HW-8	Designate Las Cucharillas Marsh as a nature reserve.	2	Steps 8.1-8.2, 8.4	Step 8.3
HW-9	Establish management measures within the SJBE system for the land crab <i>Cardisoma guanhumi</i> .	2	All Steps	
HW-10	Implement a sea turtle recovery plan.	2	All Steps	

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Department of Natural and Environmental Resources (DNER)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
HW-13	Enhance and protect critical plant species within the SJBE.	2	All Steps	
HW-14	Protect existing populations of endangered and threatened bird species and protect and restore their habitat within the SJBE system.	2	All Steps	
HW-15	Estimate the population and habitat use of the West Indian manatee within the SJBE and establish manatee protection zones.	2	Steps 15.1-15.4, 15.7	
HW-16	Substitute cayeput trees (<i>Melaleuca quinquenervia</i>) with native species and prohibit planting of the tree in the SJBE.	2	All Steps	
HW-17	Determine historic and present recreational fishing areas in the SJBE and develop a plan to adequately manage recreational fishery resources.	2	All Steps	
HW-18	Support enactment of the new fisheries law by the legislature and the governor.	2		Step 18.2
<i>Aquatic Debris Action Plan</i>				
AD-3	Continue the annual aquatic debris clean-up event held in Islote de la Guachinanga.	2		3.1
AD-4	Conduct periodic aquatic debris clean-up activities at suggested SJBE locations.	2		All Steps
AD-6	Implement measures to detect, correct, and control illegal dumping activities and enforce Puerto Rico's Anti-Littering Law (Law No. 11 of 1995).	1	All Steps	
AD-7	Enforce the Law for the Management of Used Tires (Law No. 171) and other regulatory measures related to the illegal dumping of used tires within the estuary system and its drainage basin.	1		Steps 7.2-7.6
<i>Public Education and Involvement Action Plan</i>				
PI-1	Develop and promote low-impact recreational activities within selected areas of the SJBE.	2		Steps 1.1-1.3, 1.5
PI-2	Post educational and interpretive signs at highly visible, heavy traffic areas throughout the SJBE watershed (bridges, roads, parks, marinas, ports, waterfronts, etc.) to educate the public on the system's components, functions, and values.	2		Step 2.1
PI-4	Develop a long-term public education and outreach program.	2		Steps 4.1, 4.2, 4.4

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Department of Natural and Environmental Resources (DNER)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
PI-5	Develop an ecotourism program to promote sustainable, low-impact enjoyment of SJBE's natural resources as a means to further their conservation.	2	Steps 5.1-5.2, 5.4-5.8, 5.10	Steps 5.3, 5.9

DNER – Coastal Zone Management Program

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-14	Create a task force to monitor docks and other watercraft facilities within the SJBE system and ensure regulatory and permit compliance.	2	Step 14.1	

DNER – Legal Section

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Public Education and Involvement Action Plan</i>				
PI-8	Promote better understanding of estuarine resources among regulatory enforcement agencies and personnel.	2	Steps 8.2-8.3	Step 8.1

DNER – Marine Resources Division

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-14	Create a task force to monitor docks and other watercraft facilities within the SJBE system and ensure regulatory and permit compliance.	2		Step 14.1

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

DNER – Navigation Commissioner

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-14	Create a task force to monitor docks and other watercraft facilities within the SJBE system and ensure regulatory and permit compliance.	2		Step 14.1
WS-15	Assess the establishment of non-commercial watercraft special use areas in the SJBE.	2	Step 15.1	
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-15	Estimate the population and habitat use of the West Indian manatee within the SJBE and establish manatee protection zones.	2	Steps 15.5, 15.6	

DNER – Rangers

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-11	Enforce the Used Motor Oil Management Law in the estuary's watershed (Law No. 172).	2		All Steps
WS-14	Create a task force to monitor docks and other watercraft facilities within the SJBE system and ensure regulatory and permit compliance.	2		Step 14.1
WS-15	Assess the establishment of non-commercial watercraft special use areas in the SJBE.	2	Step 15.1	
<i>Aquatic Debris Action Plan</i>				
AD-6	Implement measures to detect, correct, and control illegal dumping activities and enforce Puerto Rico's Anti-Littering Law (Law No. 11 of 1995).	1		All Steps
AD-7	Enforce the Law for the Management of Used Tires (Law No. 171) and other regulatory measures related to the illegal dumping of used tires within the estuary system and its drainage basin.	1		All Steps
<i>Public Education and Involvement Action Plan</i>				
PI-4	Develop a long-term public education and outreach program.	2		All Steps

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Department of Sports and Recreation (DSR)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-14	Create a task force to monitor docks and other watercraft facilities within the SJBE system and ensure regulatory and permit compliance.	2		Step 14.1
WS-15	Assess the establishment of non-commercial watercraft special use areas in the SJBE.	2		Step 15.1
<i>Public Education and Involvement Action Plan</i>				
PI-1	Develop and promote low-impact recreational activities within selected areas of the SJBE.	2	All Steps	
PI-2	Post educational and interpretive signs at highly visible, heavy traffic areas throughout the SJBE watershed (bridges, roads, parks, marinas, ports, waterfronts, etc.) to educate the public on the system's components, functions, and values.	2		Step 2.4
PI-5	Develop an ecotourism program to promote sustainable, low-impact enjoyment of SJBE's natural resources as a means to further their conservation.	2		Step 5.6

Department of Transportation and Public Works (DTPW)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-1	Design and construct a storm and sanitary sewer system for the communities fringing the eastern section of the Martín Peña Channel and other areas adjacent to the SJBE.	1		Step 1.1
WS-5	Improve flow in the Martín Peña Channel.	1		Steps 5.1, 5.4
WS-8	Assess the feasibility of opening the causeway to Isla de Cabras to increase water flow.	3		Step 8.3
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-16	Substitute cayeput trees (<i>Melaleuca quinquenervia</i>) with native species and prohibit planting of the tree in the SJBE.	2		Steps 16.6-16.7

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Department of Transportation and Public Works (DTPW)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Aquatic Debris Action Plan</i>				
AD-6	Implement measures to detect, correct, and control illegal dumping activities and enforce Puerto Rico's Anti-Littering Law (Law No. 11 of 1995).	1		Steps 6.1-6.3
AD-7	Enforce the Law for the Management of Used Tires (Law No. 171) and other regulatory measures related to the illegal dumping of used tires within the estuary system and its drainage basin.	1	Step 7.5	Steps 7.2-7.4, 7.6
<i>Public Education and Involvement Action Plan</i>				
PI-2	Post educational and interpretive signs at highly visible, heavy traffic areas throughout the SJBE watershed (bridges, roads, parks, marinas, ports, waterfronts, etc.) to educate the public on the system's components, functions, and values.	2		Step 2.3

Ecotourism Consultive Board

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Public Education and Involvement Action Plan</i>				
PI-5	Develop an ecotourism program to promote sustainable, low-impact enjoyment of SJBE's natural resources as a means to further their conservation.	2		Steps 5.1, 5.3

Environmental Quality Board (EQB)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-1	Design and construct a storm and sanitary sewer system for the communities fringing the eastern section of the Martín Peña Channel and other areas adjacent to the SJBE.	1		Step 1.1
WS-3	Eliminate unauthorized raw sewage discharges (bypasses) from PRASA's collection system and pump stations into the SJBE.	1		Steps 3.1, 3.3, 3.5-3.7

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Environmental Quality Board (EQB)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
WS-4	Eliminate illegal commercial and residential sewage discharges into the stormwater sewer system.	1	Steps 4.1-4.2, 4.4	
WS-5	Improve flow in the Martín Peña Channel.	1		Step 5.5
WS-6	Fill artificial depressions at the Suarez Canal and at Los Corozos, San José, and La Torrecilla Lagoons.	1		Steps 6.2-6.3
WS-7	Improve the flow of water between La Esperanza Peninsula Cove and San Juan Bay.	2		Step 7.2
WS-9	Minimize sediment loadings into the San Juan Bay Estuary system.	3	All Steps	
WS-10	Develop toxics criteria for sediment in the SJBE.	3	All Steps	
WS-11	Enforce the Used Motor Oil Management Law in the estuary's watershed (Law No. 172).	2	All Steps	
WS-12	Establish a policy to restore and protect riparian corridors along SJBE tributaries.	2		All Steps
WS-16	Develop and issue NPDES permits to regulate stormwater discharges in urbanized areas of the San Juan Bay Estuary watershed that contribute stormwater point source discharges to the system and its tributaries.	2		All Steps
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-2	Restore seagrass beds in the Condado Lagoon.	3		Steps 2.2-2.4
HW-7	Restore seagrass beds within the SJBE.	3		Steps 7.3-7.6
HW-11	Assess the impacts of power plant entrainment on fishery resources.	2		All Steps
HW-12	Assess the impact of thermal discharges on biological communities in San Juan Bay.	2		All Steps
<i>Aquatic Debris Action Plan</i>				
AD-1	Develop and implement community-based solid waste management and recycling programs in coordination with municipalities.	1		Steps 1.1-1.4, 1.6
AD-4	Conduct periodic aquatic debris clean-up activities at suggested SJBE locations.	2		All Steps
AD-5	Establish Solid Waste Pollution Prevention Pilot Programs at different SJBE locations.	2	All Steps	

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Environmental Quality Board (EQB)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
AD-6	Implement measures to detect, correct, and control illegal dumping activities and enforce Puerto Rico's Anti-Littering Law (Law No. 11 of 1995).	1		All Steps
AD-7	Enforce the Law for the Management of Used Tires (Law No. 171) and other regulatory measures related to the illegal dumping of used tires within the estuary system and its drainage basin.	1		All Steps
<i>Public Education and Involvement Action Plan</i>				
PI-1	Develop and promote low-impact recreational activities within selected areas of the SJBE.	2		Steps 1.2, 1.4
PI-2	Post educational and interpretive signs at highly visible, heavy traffic areas throughout the SJBE watershed (bridges, roads, parks, marinas, ports, waterfronts, etc.) to educate the public on the system's components, functions, and values.	2		Steps 2.2-2.4
PI-4	Develop a long-term public education and outreach program.	2		Step 4.2
PI-5	Develop an ecotourism program to promote sustainable, low-impact enjoyment of SJBE's natural resources as a means to further their conservation.	2	Step 5.3	

Federal Emergency Management Administration (FEMA)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-1	Design and construct a storm and sanitary sewer system for the communities fringing the eastern section of the Martín Peña Channel and other areas adjacent to the SJBE.	1		Step 1.7

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Garden Nurseries

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-16	Substitute cayeput trees (<i>Melaleuca quinquenervia</i>) with native species and prohibit planting of the tree in the SJBE.	2		All Steps

Government Development Bank

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Public Education and Involvement Action Plan</i>				
PI-5	Develop an ecotourism program to promote sustainable, low-impact enjoyment of SJBE's natural resources as a means to further their conservation.	2		Step 5.8

Governor of Puerto Rico

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-13	Develop a plan for creating a Board of Pilot Commissioners to focus exclusively on harbor safety issues.	2		Step 13.2
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-18	Support enactment of the new fisheries law by the legislature and the governor.	2		Step 18.1

Guaynabo, Municipality of

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-1	Plant mangroves along the western shoreline of San Juan Bay.	3		Steps 1.2-1.4
HW-16	Substitute cayeput trees (<i>Melaleuca quinquenervia</i>) with native species and prohibit planting of the tree in the SJBE.	2		All Steps

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Israel-Bitumul Community Housing Development Organization (IBCHDO)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-5	Improve flow in the Martín Peña Channel.	1		Step 5.3

International Society of Arboriculture

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
HW-16	Substitute cayeput trees (<i>Melaleuca quinquenervia</i>) with native species and prohibit planting of the tree in the SJBE.	2		Step 16.5

Land Owners

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Public Education and Involvement Action Plan</i>				
PI-5	Develop an ecotourism program to promote sustainable, low-impact enjoyment of SJBE's natural resources as a means to further their conservation.	2		Step 5.4

Legal/Technical Task Force for Riparian Corridors

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-12	Establish a policy to restore and protect riparian corridors along SJBE tributaries.	2		Step 12.3

Legislature

Action	Title	Priority	Lead Implementing Partner	Lead Implementing Partner
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-18	Support enactment of the new fisheries law by the legislature and the governor.	2	All Steps	

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Legislature

Action	Title	Priority	Lead Implementing Partner	Lead Implementing Partner
<i>Aquatic Debris Action Plan</i>				
AD-6	Implement measures to detect, correct, and control illegal dumping activities and enforce Puerto Rico's Anti-Littering Law (Law No. 11 of 1995).	1		Steps 6.1, 6.5

Local Communities

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-1	Plant mangroves along the western shoreline of San Juan Bay.	3		Steps 1.2-1.4
HW-3	Plant mangroves along the shores of the Condado Lagoon.	3		Step 3.3
HW-5	Plant mangroves along the shores of the San José and Los Corozos Lagoons.	3		Step 5.3
HW-6	Designate the Torrecilla Alta-Vacia Talega area as part of the Piñones State Forest Nature Reserve.	2		Step 6.4
HW-8	Designate Las Cucharillas Marsh as a nature reserve.	2		Steps 8.1, 8.4
HW-16	Substitute cayeput trees (<i>Melaleuca quinquenervia</i>) with native species and prohibit planting of the tree in the SJBE.	2		Steps 16.7-16.8
<i>Aquatic Debris Action Plan</i>				
AD-1	Develop and implement community-based solid waste management and recycling programs in coordination with municipalities.	1		Steps 1.4, 1.6
AD-6	Implement measures to detect, correct, and control illegal dumping activities and enforce Puerto Rico's Anti-Littering Law (Law No. 11 of 1995).	1		Steps 6.1-6.3, 6.5
<i>Public Education and Involvement Action Plan</i>				
PI-1	Develop and promote low-impact recreational activities within selected areas of the SJBE.	2		All Steps
PI-5	Develop an ecotourism program to promote sustainable, low-impact enjoyment of SJBE's natural resources as a means to further their conservation.	2		Steps 5.1-5.8, 5.10

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Loíza, Municipality of

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Aquatic Debris Action Plan</i>				
AD-2	Continue to implement the Action Plan Demonstration Project developed in Piñones, Loíza.	2		Steps 2.2-2.4
HW-16	Substitute cayeput trees (<i>Melaleuca quinquenervia</i>) with native species and prohibit planting of the tree in the SJBE.	2		All Steps

Municipalities

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-1	Design and construct a storm and sanitary sewer system for the communities fringing the eastern section of the Martín Peña Channel and other areas adjacent to the SJBE.	1		Step 1.7
WS-3	Eliminate unauthorized raw sewage discharges (bypasses) from PRASA's collection system and pump stations into the SJBE.	1		Step 3.3
WS-12	Establish a policy to restore and protect riparian corridors along SJBE tributaries.	2		All Steps
WS-14	Create a task force to monitor docks and other watercraft facilities within the SJBE system and ensure regulatory and permit compliance.	2		Step 14.1
WS-15	Assess the establishment of non-commercial watercraft special use areas in the SJBE.	2		Step 15.1
WS-16	Develop and issue NPDES permits to regulate stormwater discharges in urbanized areas of the San Juan Bay Estuary watershed that contribute stormwater point source discharges to the system and its tributaries.	2		Step 16.2
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-10	Implement a sea turtle recovery plan.	2		Steps 10.1-10.4
HW-13	Enhance and protect critical plant species within the SJBE.	2		Steps 13.1-13.4
HW-14	Protect existing populations of endangered and threatened bird species and protect and restore their habitat within the SJBE system.	2		All Steps

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Municipalities

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Aquatic Debris Action Plan</i>				
AD-1	Develop and implement community-based solid waste management and recycling programs in coordination with municipalities.	1		All Steps
AD-4	Conduct periodic aquatic debris clean-up activities at suggested SJBE locations.	2	All Steps	
AD-6	Implement measures to detect, correct, and control illegal dumping activities and enforce Puerto Rico's Anti-Littering Law (Law No. 11 of 1995).	1		All Steps
AD-7	Enforce the Law for the Management of Used Tires (Law No. 171) and other regulatory measures related to the illegal dumping of used tires within the estuary system and its drainage basin.	1		All Steps
<i>Public Education and Involvement Action Plan</i>				
PI-1	Develop and promote low-impact recreational activities within selected areas of the SJBE.	2		All Steps
PI-2	Post educational and interpretive signs at highly visible, heavy traffic areas throughout the SJBE watershed (bridges, roads, parks, marinas, ports, waterfronts, etc.) to educate the public on the system's components, functions, and values.	2		All Steps
PI-5	Develop an ecotourism program to promote sustainable, low-impact enjoyment of SJBE's natural resources as a means to further their conservation.	2		Steps 5.2-5.3, 5.6

National Marine Fisheries Service (NMFS)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-5	Improve flow in the Martín Peña Channel.	1		Step 5.5
WS-7	Improve the flow of water between La Esperanza Peninsula Cove and San Juan Bay.	2		Steps 7.1-7.2
WS-8	Assess the feasibility of opening the causeway to Isla de Cabras to increase water flow.	3		Step 8.2

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

National Marine Fisheries Service (NMFS)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
WS-14	Create a task force to monitor docks and other watercraft facilities within the SJBE system and ensure regulatory and permit compliance.	2		Step 14.1
WS-15	Assess the establishment of non-commercial watercraft special use areas in the SJBE.	2		Step 15.1
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-2	Restore seagrass beds in the Condado Lagoon.	3	Step 2.1	
HW-9	Establish management measures within the SJBE system for the land crab <i>Cardisoma guanhumi</i> .	2		Step 9.3
HW-10	Implement a sea turtle recovery plan.	2		Steps 10.1-10.2
HW-11	Assess the impacts of power plant entrainment on fishery resources.	2		All Steps
HW-12	Assess the impact of thermal discharges on biological communities in San Juan Bay.	2		All Steps

National Oceanic and Atmospheric Administration (NOAA)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-10	Develop toxics criteria for sediment in the SJBE.	3		Step 10.5
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-7	Restore seagrass beds within the SJBE.	3		Steps 7.1, 7.2
HW-10	Implement a sea turtle recovery plan.	2		Step 10.3
<i>Aquatic Debris Action Plan</i>				
AD-7	Enforce the Law for the Management of Used Tires (Law No. 171) and other regulatory measures related to the illegal dumping of used tires within the estuary system and its drainage basin.	1		Step 7.1

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Natural Resources Conservation Service (NRCS)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Action Plan</i>				
WS-12	Establish a policy to restore and protect riparian corridors along SJBE tributaries.	2		Steps 12.1, 12.3, 12.6

Neighbors' Council of Cantera

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Aquatic Debris Action Plan</i>				
AD-3	Continue the annual aquatic debris clean-up event held in Islote de la Guachinanga.	2		All Steps

Non-Governmental Organizations (NGOs)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-10	Implement a sea turtle recovery plan.	2		Step 10.4

Permit and Regulations Administration (ARPE)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-2	Relocate families living adjacent to the Martín Peña Channel.	1		Step 2.7
WS-9	Minimize sediment loadings into the San Juan Bay Estuary system.	3		Steps 9.5-9.7
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-9	Establish management measures within the SJBE system for the land crab <i>Cardisoma guanhumi</i> .	2		Step 9.3
HW-10	Implement a sea turtle recovery plan.	2		Step 10.3
HW-13	Enhance and protect critical plant species within the SJBE.	2		Step 13.3
HW-14	Protect existing populations of endangered and threatened bird species and protect and restore their habitat within the SJBE system.	2		Step 14.3

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Permit and Regulations Administration (ARPE)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
HW-15	Estimate the population and habitat use of the West Indian manatee within the SJBE and establish manatee protection zones.	2		Step 15.6
<i>Aquatic Debris Action Plan</i>				
AD-7	Enforce the Law for the Management of Used Tires (Law No. 171) and other regulatory measures related to the illegal dumping of used tires within the estuary system and its drainage basin.	1	Step 7.5	
<i>Public Education and Involvement Action Plan</i>				
PI-2	Post educational and interpretive signs at highly visible, heavy traffic areas throughout the SJBE watershed (bridges, roads, parks, marinas, ports, waterfronts, etc.) to educate the public on the system's components, functions, and values.	2		Step 2.3

Private or Participating Entities and Sponsors

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-16	Substitute cayeput trees (<i>Melaleuca quinquenervia</i>) with native species and prohibit planting of the tree in the SJBE.	2		Steps 16.7-16.8
<i>Aquatic Debris Action Plan</i>				
AD-1	Develop and implement community-based solid waste management and recycling programs in coordination with municipalities.	1		Step 1.5
AD-2	Continue to implement the Action Plan Demonstration Project developed in Piñones, Loíza.	2		Steps 2.2, 2.4
AD-5	Establish Solid Waste Pollution Prevention Pilot Programs at different SJBE locations.	2		Steps 5.1, 5.3-5.5
<i>Public Education and Involvement Action Plan</i>				
PI-7	Develop a Memorandum of Understanding between public and private entities and the SJBE Program to expand the scope of the Program's public education and outreach activities.	2		All Steps

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Private Waste Management and Recycling Companies

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Aquatic Debris Action Plan</i>				
AD-1	Develop and implement community-based solid waste management and recycling programs in coordination with municipalities.	1		Steps 1.5-1.6
AD-2	Continue to implement the Action Plan Demonstration Project developed in Piñones, Loíza.	2		Step 2.4

Puerto Rico Aqueduct and Sewer Authority (PRASA)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-1	Design and construct a storm and sanitary sewer system for the communities fringing the eastern section of the Martín Peña Channel and other areas adjacent to the SJBE.	1		Steps 1.4, 1.5, 1.7
WS-3	Eliminate unauthorized raw sewage discharges (bypasses) from PRASA's collection system and pump stations into the SJBE.	1	All Steps	
WS-4	Eliminate illegal commercial and residential sewage discharges into the stormwater sewer system.	1	Step 4.3	
WS-5	Improve flow in the Martín Peña Channel.	1	Step 5.4	

Puerto Rico Conservation Trust

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-16	Substitute cayeput trees (<i>Melaleuca quinquenervia</i>) with native species and prohibit planting of the tree in the SJBE.	2		Steps 16.2-16.3, 16.5-16.8

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Puerto Rico Department of Agriculture

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-16	Substitute cayeput trees (<i>Melaleuca quinquenervia</i>) with native species and prohibit planting of the tree in the SJBE.	2		Steps 16.1, 16.6, 16.8

Puerto Rico Electric Power Authority (PREPA)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-11	Assess the impacts of power plant entrainment on fishery resources.	2		All Steps
HW-12	Assess the impact of thermal discharges on biological communities in San Juan Bay.	2		All Steps

Puerto Rico Green Team

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Aquatic Debris Action Plan</i>				
AD-2	Continue to implement the Action Plan Demonstration Project developed in Piñones, Loíza.	2	All Steps	

Puerto Rico Health Department (PRHD)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-17	Determine historic and present recreational fishing areas in the SJBE and develop a plan to adequately manage recreational fishery resources.	2		Step 17.3

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Puerto Rico Industrial Development Corporation

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-4	Designate a section of the Martín Peña Channel and lands adjacent to the Puerto Nuevo River as a nature reserve.	2		Step 4.2

Puerto Rico Land Administration

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-4	Designate a section of the Martín Peña Channel and lands adjacent to the Puerto Nuevo River as a nature reserve.	2		Step 4.2
HW-16	Substitute cayeput trees (<i>Melaleuca quinquenervia</i>) with native species and prohibit planting of the tree in the SJBE.	2		Step 16.3

Puerto Rico Park Trust

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-3	Plant mangroves along the shores of the Condado Lagoon.	3		Steps 3.2, 3.4

Puerto Rico Planning Board (PRPB)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-1	Design and construct a storm and sanitary sewer system for the communities fringing the eastern section of the Martín Peña Channel and other areas adjacent to the SJBE.	1		Step 1.7
WS-2	Relocate families living adjacent to the Martín Peña Channel.	1		Steps 2.6-2.7
WS-5	Improve flow in the Martín Peña Channel.	1		Steps 5.1, 5.5

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Puerto Rico Planning Board (PRPB)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
WS-6	Fill artificial depressions at the Suarez Canal and at Los Corozos, San José, and La Torrecilla Lagoons.	1		Step 6.3
WS-7	Improve the flow of water between La Esperanza Peninsula Cove and San Juan Bay.	2		Step 7.2
WS-8	Assess the feasibility of opening the causeway to Isla de Cabras to increase water flow.	3		Step 8.3
WS-9	Minimize sediment loadings into the San Juan Bay Estuary system.	3		Steps 9.5-9.7
WS-12	Establish a policy to restore and protect riparian corridors along SJBE tributaries.	2		Steps 12.1, 12.3-12.5
WS-14	Create a task force to monitor docks and other watercraft facilities within the SJBE system and ensure regulatory and permit compliance.	2	Step 14.2	
WS-16	Develop and issue NPDES permits to regulate stormwater discharges in urbanized areas of the San Juan Bay Estuary watershed that contribute stormwater point source discharges to the system and its tributaries.	2		Step 16.1
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-2	Restore seagrass beds in the Condado Lagoon.	3		Step 2.4
HW-4	Designate a section of the Martín Peña Channel and lands adjacent to the Puerto Nuevo River as a nature reserve.	2	Step 4.3	
HW-6	Designate the Torrecilla Alta-Vacia Talega area as part of the Piñones State Forest Nature Reserve.	2	Step 6.3	
HW-8	Designate Las Cucharillas Marsh as a nature reserve.	2	Step 8.3	
HW-10	Implement a sea turtle recovery plan.	2		Step 10.5
HW-11	Assess the impacts of power plant entrainment on fishery resources.	2		All Steps
HW-12	Assess the impact of thermal discharges on biological communities in San Juan Bay.	2		All Steps
HW-13	Enhance and protect critical plant species within the SJBE.	2		Step 13.3
HW-14	Protect existing populations of endangered and threatened bird species and protect and restore their habitat within the SJBE system.	2		Step 14.3

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Puerto Rico Planning Board (PRPB)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Public Education and Involvement Action Plan</i>				
PI-1	Develop and promote low-impact recreational activities within selected areas of the SJBE.	2		Steps 1.1-1.2
PI-5	Develop an ecotourism program to promote sustainable, low-impact enjoyment of SJBE's natural resources as a means to further their conservation.	2		Steps 5.2-5.3

Puerto Rico Ports Authority (PRPA)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-7	Improve the flow of water between La Esperanza Peninsula Cove and San Juan Bay.	2		Step 7.2
WS-8	Assess the feasibility of opening the causeway to Isla de Cabras to increase water flow.	3		Steps 8.2-8.3
WS-13	Develop a plan for creating a Board of Pilot Commissioners to focus exclusively on harbor safety issues.	2	Step 13.4	Steps 13.1-13.3
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-1	Plant mangroves along the western shoreline of San Juan Bay.	3		Step 1.2
HW-4	Designate a section of the Martín Peña Channel and lands adjacent to the Puerto Nuevo River as a nature reserve.	2		Step 4.2

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Puerto Rico Tourism Company

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Public Education and Involvement Action Plan</i>				
PI-2	Post educational and interpretive signs at highly visible, heavy traffic areas throughout the SJBE watershed (bridges, roads, parks, marinas, ports, waterfronts, etc.) to educate the public on the system's components, functions, and values.	2		Step 2.4
PI-5	Develop an ecotourism program to promote sustainable, low-impact enjoyment of SJBE's natural resources as a means to further their conservation.	2	Step 5.9	Steps 5.1-5.8, 5.10

Puerto Rico Water Company (PRWC)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-1	Design and construct a storm and sanitary sewer system for the communities fringing the eastern section of the Martín Peña Channel and other areas adjacent to the SJBE.	1	All Steps (Step 1.1 lead for sanitary sewer construction only)	Step 1.1 (storm sewer construction)
WS-3	Eliminate unauthorized raw sewage discharges (bypasses) from PRASA's collection system and pump stations into the SJBE.	1	All Steps	

Recreational Users

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-14	Create a task force to monitor docks and other watercraft facilities within the SJBE system and ensure regulatory and permit compliance.	2		Step 14.1
WS-15	Assess the establishment of non-commercial watercraft special use areas in the SJBE.	2		Step 15.1

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

San Juan, Municipality of

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-1	Design and construct a storm and sanitary sewer system for the communities fringing the eastern section of the Martín Peña Channel and other areas adjacent to the SJBE.	1	All Steps	
WS-2	Relocate families living adjacent to the Martín Peña Channel.	1		Steps 2.1, 2.2, 2.4-2.8
WS-3	Eliminate unauthorized raw sewage discharges (bypasses) from PRASA's collection system and pump stations into the SJBE.	1		Step 3.1
WS-4	Eliminate illegal commercial and residential sewage discharges into the stormwater sewer system.	1	Steps 4.1-4.2	Steps 4.3-4.4
WS-5	Improve flow in the Martín Peña Channel.	1		Steps 5.3-5.5
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-3	Plant mangroves along the shores of the Condado Lagoon.	3		Steps 3.2-3.3
HW-4	Designate a section of the Martín Peña Channel and lands adjacent to the Puerto Nuevo River as a nature reserve.	2		Steps 4.2, 4.4
HW-5	Plant mangroves along the shores of the San José and Los Corozos Lagoons.	3		Steps 5.1, 5.3-5.4
HW-16	Substitute cayeput trees (<i>Melaleuca quinquenervia</i>) with native species and prohibit planting of the tree in the SJBE.	2		All Steps
<i>Aquatic Debris Action Plan</i>				
AD-3	Continue the annual aquatic debris clean-up event held in Islote de la Guachinanga.	2		All Steps

Schools and Universities

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-1	Plant mangroves along the western shoreline of San Juan Bay.	3		Step 1.4
HW-11	Assess the impacts of power plant entrainment on fishery resources.	2		All Steps
HW-12	Assess the impact of thermal discharges on biological communities in San Juan Bay.	2		All Steps

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Schools and Universities

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Public Education and Involvement Action Plan</i>				
PI-8	Promote better understanding of estuarine resources among regulatory enforcement agencies and personnel.	2		All Steps

SJBE Citizens Advisory Committee (CAC)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Aquatic Debris Action Plan</i>				
AD-1	Develop and implement community-based solid waste management and recycling programs in coordination with municipalities.	1		Step 1.3
<i>Public Education and Involvement Action Plan</i>				
PI-2	Post educational and interpretive signs at highly visible, heavy traffic areas throughout the SJBE watershed (bridges, roads, parks, marinas, ports, waterfronts, etc.) to educate the public on the system's components, functions, and values.	2		Step 2.1

SJBE Program

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-2	Relocate families living adjacent to the Martín Peña Channel.	1		Step 2.2
WS-5	Improve flow in the Martín Peña Channel.	1		Step 5.1
WS-6	Fill artificial depressions at the Suarez Canal and at Los Corozos, San José, and La Torrecilla Lagoons.	1	Step 6.1	
WS-7	Improve the flow of water between La Esperanza Peninsula Cove and San Juan Bay.	2		Steps 7.1-7.2
WS-8	Assess the feasibility of opening the causeway to Isla de Cabras to increase water flow.	3		Steps 8.1-8.2
WS-10	Develop toxics criteria for sediment in the SJBE.	3		Steps 10.1-10.4

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

SJBE Program

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
WS-12	Establish a policy to restore and protect riparian corridors along SJBE tributaries.	2		Steps 12.1, 12.3
WS-14	Create a task force to monitor docks and other watercraft facilities within the SJBE system and ensure regulatory and permit compliance.	2		Step 14.1
WS-15	Assess the establishment of non-commercial watercraft special use areas in the SJBE.	2		Step 15.1
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-1	Plant mangroves along the western shoreline of San Juan Bay.	3		All Steps
HW-2	Restore seagrass beds in the Condado Lagoon.	3		Step 2.1
HW-3	Plant mangroves along the shores of the Condado Lagoon.	3		All Steps
HW-5	Plant mangroves along the shores of the San José and Los Corozos Lagoons.	3		Steps 5.1-5.3
HW-8	Designate Las Cucharillas Marsh as a nature reserve.	2		Step 8.1
HW-11	Assess the impacts of power plant entrainment on fishery resources.	2		All Steps
HW-16	Substitute cayeput trees (<i>Melaleuca quinquenervia</i>) with native species and prohibit planting of the tree in the SJBE.	2		Steps 16.2-16.5, 16.7-16.8
<i>Aquatic Debris Action Plan</i>				
AD-1	Develop and implement community-based solid waste management and recycling programs in coordination with municipalities.	1		Steps 1.1-1.4, 1.6
AD-2	Continue to implement the Action Plan Demonstration Project developed in Piñones, Loíza.	2		All Steps
AD-3	Continue the annual aquatic debris clean-up event held in Islote de la Guachinanga.	2		All Steps
AD-4	Conduct periodic aquatic debris clean-up activities at suggested SJBE locations.	2		All Steps
AD-5	Establish Solid Waste Pollution Prevention Pilot Programs at different SJBE locations.	2		Steps 5.2-5.3, 5.5

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

SJBE Program

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
AD-6	Implement measures to detect, correct, and control illegal dumping activities and enforce Puerto Rico's Anti-Littering Law (Law No. 11 of 1995).	1		All Steps
AD-7	Enforce the Law for the Management of Used Tires (Law No. 171) and other regulatory measures related to the illegal dumping of used tires within the estuary system and its drainage basin.	1		Steps 7.1, 7.3, 7.4
<i>Public Education and Involvement Action Plan</i>				
PI-2	Post educational and interpretive signs at highly visible, heavy traffic areas throughout the SJBE watershed (bridges, roads, parks, marinas, ports, waterfronts, etc.) to educate the public on the system's components, functions, and values.	2	All Steps	
PI-3	Establish a program to provide citizens with effective and organized volunteer opportunities to support the SJBE's restoration projects (water quality monitoring, education, etc.).	2	All Steps	
PI-4	Develop a long-term public education and outreach program.	2	All Steps	
PI-5	Develop an ecotourism program to promote sustainable, low-impact enjoyment of SJBE's natural resources as a means to further their conservation.	2	Step 5.1	Steps 5.2-5.10
PI-6	Develop an Environmental Education Program to target young audiences at schools and other non-formal educational institutions throughout the SJBE watershed.	2		All Steps
PI-7	Develop a Memorandum of Understanding between public and private entities and the SJBE Program to expand the scope of the Program's public education and outreach activities.	2	All Steps	
PI-8	Promote better understanding of estuarine resources among regulatory enforcement agencies and personnel.	2	Step 8.1	

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Solid Waste Management Authority (SWMA)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-5	Improve flow in the Martín Peña Channel.	1		Step 5.5
WS-11	Enforce the Used Motor Oil Management Law in the estuary's watershed (Law No. 172).	2		All Steps
<i>Aquatic Debris Action Plan</i>				
AD-1	Develop and implement community-based solid waste management and recycling programs in coordination with municipalities.	1	All Steps	
AD-2	Continue to implement the Action Plan Demonstration Project developed in Piñones, Loíza.	2		Steps 2.2-2.4
AD-3	Continue the annual aquatic debris clean-up event held in Islote de la Guachinanga.	2		All Steps
AD-4	Conduct periodic aquatic debris clean-up activities at suggested SJBE locations.	2		All Steps
AD-5	Establish Solid Waste Pollution Prevention Pilot Programs at different SJBE locations.	2		All Steps
AD-6	Implement measures to detect, correct, and control illegal dumping activities and enforce Puerto Rico's Anti-Littering Law (Law No. 11 of 1995).	1	All Steps	
AD-7	Enforce the Law for the Management of Used Tires (Law No. 171) and other regulatory measures related to the illegal dumping of used tires within the estuary system and its drainage basin.	1	Steps 7.1-7.4, 7.6	Step 7.5
<i>Public Education and Involvement Action Plan</i>				
PI-2	Post educational and interpretive signs at highly visible, heavy traffic areas throughout the SJBE watershed (bridges, roads, parks, marinas, ports, waterfronts, etc.) to educate the public on the system's components, functions, and values.	2		Steps 2.2-2.4

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

State and Municipal Police

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-11	Enforce the Used Motor Oil Management Law in the estuary's watershed (Law No. 172).	2		All Steps
<i>Aquatic Debris Action Plan</i>				
AD-6	Implement measures to detect, correct, and control illegal dumping activities and enforce Puerto Rico's Anti-Littering Law (Law No. 11 of 1995).	1		Steps 6.1, 6.4-6.5
AD-7	Enforce the Law for the Management of Used Tires (Law No. 171) and other regulatory measures related to the illegal dumping of used tires within the estuary system and its drainage basin.	1		Step 7.6
<i>Public Education and Involvement Action Plan</i>				
PI-4	Develop a long-term public education and outreach program.	2		Step 4.1

Toa Baja, Municipality of

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-8	Assess the feasibility of opening the causeway to Isla de Cabras to increase water flow.	3		Step 8.2
HW-16	Substitute cayeput trees (<i>Melaleuca quinquenervia</i>) with native species and prohibit planting of the tree in the SJBE.	2		All Steps

Tour Operators

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Public Education and Involvement Action Plan</i>				
PI-5	Develop an ecotourism program to promote sustainable, low-impact enjoyment of SJBE's natural resources as a means to further their conservation.	2		Steps 5.1, 5.4-5.8, 5.10

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

Treasury Department

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Aquatic Debris Action Plan</i>				
AD-7	Enforce the Law for the Management of Used Tires (Law No. 171) and other regulatory measures related to the illegal dumping of used tires within the estuary system and its drainage basin.	1		Step 7.1

United States Army Corps of Engineers (USACE)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-2	Relocate families living adjacent to the Martín Peña Channel.	1	Step 2.3	
WS-5	Improve flow in the Martín Peña Channel.	1		Steps 5.1-5.2, 5.5
WS-6	Fill artificial depressions at the Suarez Canal and at Los Corozos, San José, and La Torrecilla Lagoons.	1	Step 6.1	Steps 6.2-6.3
WS-7	Improve the flow of water between La Esperanza Peninsula Cove and San Juan Bay.	2		All Steps
WS-8	Assess the feasibility of opening the causeway to Isla de Cabras to increase water flow.	3		All Steps
WS-12	Establish a policy to restore and protect riparian corridors along SJBE tributaries.	2		Steps 12.1, 12.3-12.4
WS-14	Create a task force to monitor docks and other watercraft facilities within the SJBE system and ensure regulatory and permit compliance.	2	Step 14.2	Step 14.1
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-1	Plant mangroves along the western shoreline of San Juan Bay.	3		Step 1.2
HW-2	Restore seagrass beds in the Condado Lagoon.	3		Steps 2.2-2.4
HW-3	Plant mangroves along the shores of the Condado Lagoon.	3		Step 3.2
HW-5	Plant mangroves along the shores of the San José and Los Corozos Lagoons.	3		Step 5.1
HW-10	Implement a sea turtle recovery plan.	2		Step 10.5
HW-16	Substitute cayeput trees (<i>Melaleuca quinquenervia</i>) with native species and prohibit planting of the tree in the SJBE.	2		Step 16.3

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

United States Coast Guard (USCG)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-13	Develop a plan for creating a Board of Pilot Commissioners to focus exclusively on harbor safety issues.	2	Steps 13.1-13.3	Step 13.4
WS-14	Create a task force to monitor docks and other watercraft facilities within the SJBE system and ensure regulatory and permit compliance.	2		Step 14.1
WS-15	Assess the establishment of non-commercial watercraft special use areas in the SJBE.	2		Step 15.1
<i>Aquatic Debris Action Plan</i>				
AD-7	Enforce the Law for the Management of Used Tires (Law No. 171) and other regulatory measures related to the illegal dumping of used tires within the estuary system and its drainage basin.	1		Step 7.1

United States Department of Agriculture (USDA)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-16	Substitute cayeput trees (<i>Melaleuca quinquenervia</i>) with native species and prohibit planting of the tree in the SJBE.	2		Step 16.1

United States Environmental Protection Agency (USEPA)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-3	Eliminate unauthorized raw sewage discharges (bypasses) from PRASA's collection system and pump stations into the SJBE.	1		Steps 3.1, 3.4-3.7
WS-4	Eliminate illegal commercial and residential sewage discharges into the stormwater sewer system.	1	Step 4.4	
WS-5	Improve flow in the Martín Peña Channel.	1		Step 5.5

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

United States Environmental Protection Agency (USEPA)

WS-6	Fill artificial depressions at the Suarez Canal and at Los Corozos, San José, and La Torrecilla Lagoons.	1		Steps 6.2-6.3
WS-9	Minimize sediment loadings into the San Juan Bay Estuary system.	3	Steps 9.4-9.7	Steps 9.1-9.3
WS-10	Develop toxics criteria for sediment in the SJBE.	3	All Steps	
WS-16	Develop and issue NPDES permits to regulate stormwater discharges in urbanized areas of the San Juan Bay Estuary watershed that contribute stormwater point source discharges to the system and its tributaries.	2	All Steps	
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-2	Restore seagrass beds in the Condado Lagoon.	3	Step 2.1	Steps 2.3-2.4
HW-7	Restore seagrass beds within the SJBE.	3		Steps 7.2-7.6
HW-11	Assess the impacts of power plant entrainment on fishery resources.	2	All Steps	
HW-12	Assess the impact of thermal discharges on biological communities in San Juan Bay.	2	All Steps	
<i>Public Education and Involvement Action Plan</i>				
PI-4	Develop a long-term public education and outreach program.	2		Steps 4.1-4.3

United States Fish and Wildlife Service (USFWS)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-5	Improve flow in the Martín Peña Channel.	1		Step 5.5
WS-7	Improve the flow of water between La Esperanza Peninsula Cove and San Juan Bay.	2		Steps 7.1-7.2
WS-8	Assess the feasibility of opening the causeway to Isla de Cabras to increase water flow.	3		Step 8.2
WS-14	Create a task force to monitor docks and other watercraft facilities within the SJBE system and ensure regulatory and permit compliance.	2		Step 14.1
WS-15	Assess the establishment of non-commercial watercraft special use areas in the SJBE.	2		Step 15.1

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

United States Fish and Wildlife Service (USFWS)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
WS-16	Develop and issue NPDES permits to regulate stormwater discharges in urbanized areas of the San Juan Bay Estuary watershed that contribute stormwater point source discharges to the system and its tributaries.	2		Step 16.1
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-7	Restore seagrass beds within the SJBE.	3		Steps 7.1-7.2
HW-9	Establish management measures within the SJBE system for the land crab <i>Cardisoma guanhumi</i> .	2		Step 9.3
HW-10	Implement a sea turtle recovery plan.	2		All Steps
HW-11	Assess the impacts of power plant entrainment on fishery resources.	2		All Steps
HW-12	Assess the impact of thermal discharges on biological communities in San Juan Bay.	2		All Steps
HW-13	Enhance and protect critical plant species within the SJBE.	2		Steps 13.1-13.6
HW-14	Protect existing populations of endangered and threatened bird species and protect and restore their habitat within the SJBE system.	2		All Steps
HW-15	Estimate the population and habitat use of the West Indian manatee within the SJBE and establish manatee protection zones.	2		Steps 15.2-15.4, 15.7
HW-16	Substitute cayeput trees (<i>Melaleuca quinquenervia</i>) with native species and prohibit planting of the tree in the SJBE.	2		Steps 16.2-16.3, 16.5
<i>Public Education and Involvement Action Plan</i>				
PI-5	Develop an ecotourism program to promote sustainable, low-impact enjoyment of SJBE's natural resources as a means to further their conservation.	2		Steps 5.1, 5.4

United States Forest Service (USFS)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-12	Establish a policy to restore and protect riparian corridors along SJBE tributaries.	2		Steps 12.1, 12.3, 12.6

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

United States Forest Service (USFS)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-16	Substitute cayeput trees (<i>Melaleuca quinquenervia</i>) with native species and prohibit planting of the tree in the SJBE.	2		Steps 16.2-16.3, 16.5-16.8
<i>Public Education and Involvement Action Plan</i>				
PI-5	Develop an ecotourism program to promote sustainable, low-impact enjoyment of SJBE's natural resources as a means to further their conservation.	2		Step 5.1

United States Geological Survey (USGS)

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Water and Sediment Quality Action Plan</i>				
WS-10	Develop toxics criteria for sediment in the SJBE.	3		Step 10.1
<i>Aquatic Debris Action Plan</i>				
AD-4	Conduct periodic aquatic debris clean-up activities at suggested SJBE locations.	2		Step 4.1
<i>Public Education and Involvement Action Plan</i>				
PI-4	Develop a long-term public education and outreach program.	2		Step 4.2

USGS – Sirenia Project

Action	Title	Priority	Lead Implementing Partner	Other Implementing Partner
<i>Habitat, Fish, and Wildlife Action Plan</i>				
HW-15	Estimate the population and habitat use of the West Indian manatee within the SJBE and establish manatee protection zones.	2		Step 15.4

1 = Urgent and Important/High Priority; 2 = Important; 3 = Needed

APPENDIX J: RESPONSIVENESS SUMMARY AND OTHER PUBLIC INVOLVEMENT ACTIVITIES

PUBLIC AND AGENCY COMMENTS ON DRAFT CCMP AND PROGRAM RESPONSES

Water and Sediment Quality (WS) Comments Related to New Actions				
Action	Comment	Org. or Community	Commenter and Date	Response
	Conduct a Total Maximum Load study for San Juan Bay.	Comunidades Unidas Contra la Contaminación (CUCCO)	Rosa Hilda Ramos, Yadira Almodovar, via fax 11/15/99	The development of further studies are part of the CCMP Monitoring Plan research strategy. The Monitoring Plan, once implemented, will provide additional information to support this request.
	Declare a moratorium on industrial discharges to San Juan Bay (particularly those from GULF) until their impact on the SJBE system and nearby communities can be determined.	CUCCO	Rosa Hilda Ramos, Yadira Almodovar 11/02/99	These dischargers are currently regulated under the National Pollutant Discharge Elimination System (NPDES) program. A moratorium would require changes to existing laws and regulations. The Monitoring Plan, once implemented, can provide additional information to support this request.
	Include an action that promotes pollution prevention activities at industries throughout the estuary and focuses on better enforcement. Many of the water sources that discharge into the SJBE system are carrying pollutants from different industries that are not in compliance with the various discharge permits required by state and federal jurisdictions (i.e., Storm Water Discharge Permit, NPDES). The industrial community knows its responsibility under the law but will not comply or implement any Best Management Practices until forced by the regulatory agencies, to avoid costly implementation of environmental controls. The regulatory audit process and penalty assessment process utilized by compliance officials should be simplified and more timely.	Regulatory Compliance, Inc.	Raymond B. Huddleston, via letter 11/08/99	The Management Committee agreed that there is a need for this action. Although it was not possible to include this action in the final CCMP, it will be added to the CCMP during implementation. The new action will establish industrial environmental fines and/or taxes based on pollutants emitted per year (Title 5). It will include the formation of a legislative committee to study the creation of new enforcement mechanisms and the possibility of imposing environmental taxes or emission fees. Results will be submitted to the State Police and other applicable agencies.

Water and Sediment Quality (WS) Comments Related to New Actions				
Action	Comment	Org. or Community	Commenter and Date	Response
	Include actions in the CCMP that directly address toxic reduction from nonpoint sources.	United States Environmental Protection Agency (USEPA)		Point sources of toxic pollutants are currently managed by federal and commonwealth regulations such as NPDES. At this time, there is not enough data or information to identify major nonpoint sources of toxic pollutants. As part of the Monitoring Plan, data will be collected to identify the sources and take any necessary measures to control and reduce pollutants from those sources. Various existing actions, such as those controlling sewage discharges and enforcing the law for the disposal of used oil, should help prevent and reduce toxic loadings to the SJBE.
	Need legislation for compulsory reporting of every industry oil spill, even if the spill doesn't reach the minimum required by law for reporting.	CUCCO	Rosa Hilda Ramos 11/02/99	At this time, the minimum requirement for reporting an oil spill is that the substance has caused a visible "sheen" in the water. Thus, it is mandatory to report and take appropriate enforcement action for all oil spills, since even a drop of oil can cause an oil "sheen".
	Develop an action to penalize industries, like the Caribbean Petroleum Gulf and Electric Energy Authority, for discharge violations in San Juan Bay. Require, in addition, mitigation projects that benefit affected communities.	CUCCO	Rosa Hilda Ramos 11/02/99	Present laws and regulations provide for appropriate remedies. Mitigation projects in the affected communities of San Juan Bay are encouraged and sought by the SJBE Program.
	Develop specific actions for building appropriate sewage infrastructure in communities (Juana Matos, Cucharillas, Puente Blanco, Paraíso, Cataño town center) where existing raw sewage discharges to some of the SJBE system waterways (La Malaria and San Fernando Channel) are contributing significantly to degradation of water quality.	CUCCO	Rosa Hilda Ramos 11/02/99	Action WS-1 recommends the inclusion of other communities fringing the estuary, where feasible, that lack sanitary and stormwater sewer systems.

Water and Sediment Quality (WS) Comments Related to New Actions

Action	Comment	Org. or Community	Commenter and Date	Response
	Determine impacts to water quality in San Juan Bay from Bayamón Water Treatment Plant bypasses. Eliminate bypasses.	CUCCO	Rosa Hilda Ramos, Yadir Almodovar 11/02/99, via fax 11/15/99	The SJBE Program is investigating possible bypasses from the Bayamón Treatment Plant into San Juan Bay. At this time, the Program welcomes information on the location of such bypasses. If the information is available, the Environmental Quality Board (EQB) has made a commitment to investigate the issue and take the appropriate measures.
	Open some type of diversion from Bayamón River channel to allow a steady stream of fresh water into the Old Bayamón River.	CUCCO	Rosa Hilda Ramos, Yadir Almodovar, via fax 11/15/99	The diversion of the Bayamón River occurred after a study confirmed that such an action would improve the waters of San Juan Bay. Restoring the original flow into the Bay would create a source of pollutants not contemplated during the characterization of the San Juan Bay Estuary system.
	Remove the dirt dikes of La Malaria Creek to allow the wetland to receive the whole load of water. "Ciénaga" Cucharillas has the capacity to receive, absorb, and cleanse the dirty water from La Malaria Creek. The Department of Natural and Environmental Resources (DNER) pumps in Bay View must not operate at full capacity once the dirt dikes of La Malaria Creek are removed.	CUCCO	Rosa Hilda Ramos, Yadir Almodovar, via fax 11/15/99	Based on available information, La Malaria Pumping Station operates to lower the water level in the area in order to prevent flooding. If pumping is eliminated, flooding may affect surrounding areas. On the other hand, the SJBE Program recognizes the importance of maintaining the Ciénaga Cucharillas wetland and has included some additional protective measures in Action HW-8.
	Develop specific actions for SJBE system watershed management and uses in accordance with SJBE Program goals. An erosion control program must be implemented in the Cataño area.	CUCCO	Rosa Hilda Ramos 11/02/99	The SJBE Program is awaiting land use management information to be received in the next months. Actions WS-9, WS-10, and WS-12 are focused on reducing sediment loadings to the SJBE.
	Perform studies that will assess the environmental impact of cutting and filling higher areas such as Montehiedra and Caimito Alto.	Comité de rescate de Caimito		A new action (WS-12) on establishing buffer zones within the estuary's tributaries addresses this comment.

Water and Sediment Quality (WS) Comments Related to New Actions				
Action	Comment	Org. or Community	Commenter and Date	Response
	Do something about the deforestation and erosion of the Caimito area, Cupey Alto, and Trujillo Alto.	Comité de rescate de Caimito		This is a big concern for the SJBE and the Program will need to work harder on this issue. Erosion, sedimentation, and the loss of green areas and habitat are happening at very rapid rates. There is a reforestation plan currently being implemented in the Río Piedras area, which the SJBE Program will support and provide assistance as needed. Action WS-9 and a new action (WS-12) on establishing buffer zones include information on this issue.
	Establish a system of buffer zones along the estuary's tributaries.	Municipality of San Juan		This recommendation is addressed in part by Action WS-9. However, specific measures, such as creating buffer zones or green corridors along the tributaries, are included in a new action, WS-12.
	Develop a well-coordinated effort to determine existent levels of bacteriological pollutants, which could represent a health hazard in the vicinity of the Península de La Esperanza.	CUCCO	Rosa Hilda Ramos 11/02/99	The proposed Water Quality Citizens Monitoring Program (see Action PI-3) provides the means to facilitate this action.
	Design and install signs in the Península de La Esperanza vicinity to warn citizens about the health hazards present in the area.	CUCCO	Rosa Hilda Ramos 11/02/99	If determined necessary by water quality monitoring activities, this action will be strongly recommended to the Health Department (which has jurisdiction over this issue).
	Open the Península de La Esperanza at the two places recommended by the United States Army Corps of Engineers (USACE) and Scientific and Technical Advisory Committee (STAC) members.	CUCCO, SJBE Program Citizens Advisory Committee (CAC)	Rosa Hilda Ramos, via fax 11/15/99; Mayra Vega, via letter 11/29/99	This recommendation has been included in the CCMP.

Water and Sediment Quality (WS) Comments Related to New Actions

Action	Comment	Org. or Community	Commenter and Date	Response
	Control and restrict the number of docks being constructed or already developed in the Torrecillas Lagoon and Suarez Canal, areas considered by the government as “zona marítimo terrestre”.	Fisherman, Piñones	Harry Betancourt, via letter 11/04/99	There is a new action (WS-14) in the CCMP to create a task force to monitor docks and other watercraft facilities within the SJBE system and ensure regulatory and permit compliance. This action also proposes the creation of public docks and other facilities at different locations throughout the estuary, when natural resources are not being affected.
	Include actions in the CCMP that regulate the use of motorized gasoline driven watercraft, specifically jet skies. Restrictions on the areas where the watercraft are permitted to operate and on their size and velocity should be included in an action plan. Watercraft, such as jet skies, are not compatible with shallow zones such as the Torrecillas, Piñones, and San Jose lagoons as well as the Suarez Canal.	Fisherman, Piñones	Harry Betancourt, via letter 11/04/99	There is a new action (WS-15) in the CCMP to assess the establishment of non-commercial watercraft special use areas in the SJBE.

Water and Sediment Quality (WS) - Revisions to Existing Actions

Action	Comment	Org. or Community	Commenter and Date	Response
WS-5 and WS-6	Include affected community representatives (such as AmeriCorps) as monitoring participants in the development of these actions.	AmeriCorps Proyecto Península de Cantera	Félix Pica 11/24/99	Community groups have been added to the Implementing Partners section of these actions. (See Actions WS-1 and WS-3.)
WS-7	Include the Department of Housing (DOH) as an implementing partner in all of the steps of this action.	DOH		This information has been added to Action WS-2.

Water and Sediment Quality (WS) - Revisions to Existing Actions				
Action	Comment	Org. or Community	Commenter and Date	Response
WS-7	Schedule a meeting with the DOH to explain to affected communities how the dredging of the Martín Peña will affect them.	Cantera	Private citizen	This request is addressed in Action WS-2 and is an ongoing activity of the SJBE Program.
WS-7	Allow residents from low-income areas that live in the Martín Peña Channel to stay after the dredging is completed and water quality improvements are seen.	Martín Peña	Sr. Caraballo	Environmental justice issues related to the relocation of families are of concern to the SJBE Program. Residents will be relocated within their communities to the extent that this is feasible. In fact, various groups, such as Península de Cantera, are working on relocation plans and achieving that goal. Based on the information available, in order to obtain the maximum benefits from water quality improvements to the estuary, Action WS-2 makes relocation a necessary requirement.
WS-7	Fix a price for the properties to be relocated to compensate affected families. Explain how sales of properties, prior to expropriation, in the areas to be affected by relocation, could be affected. Provide communities with information about the specific houses that will be affected by the relocation.	Bartolomé de Las Casas, Santurce	Alexis Guevara	These details remain the responsibility of the identified implementing partners for Actions WS-1, WS-2, and WS-5. They are planning to inform and involve the community throughout the process.
WS-7	Clarify whether other communities, besides those mentioned in the background section of this action, will be included.	DOH		All of the communities immediately adjacent to the eastern half of the Channel will benefit from this action and have been included. (See Action WS-2.)
WS-7	Specify what entity will be responsible for the relocation of any structures as part of the dredging of the Martín Peña Channel.	DOH		This information is provided under Actions WS-2 and WS-5.
WS-7	Present the methodology used to estimate the costs.	DOH		Detailed information was provided to the DOH in a conference call with the contractors.

Water and Sediment Quality (WS) - Revisions to Existing Actions

Action	Comment	Org. or Community	Commenter and Date	Response
WS-7	Provide the DOH with a copy of the public poll taken in the Cantera, Israel, and Bitumul communities to find out the resident's opinion on their relocation due to the dredging of the Martín Peña Channel.	DOH		The public opinion poll was conducted by the Community Housing Development Organization (CHDO) and Cantera Community project. This request has been forwarded to them.
WS-7	Conduct a socioeconomic study to determine the economic status of the residents and the condition of the structures to demolished as part of the Martín Peña Channel dredging.	DOH		The development of such a study has been included in Action WS-2.
WS-7	Develop more complete alternatives for moving the families affected by the dredging. The information currently in step 7.4 is preliminary and only for certain communities along the Channel.	DOH		The details of this step will be developed as part of the feasibility studies needed for the implementation of this action.
WS-7	Identify the municipality that will be receiving relocated families in step 7.5.	DOH		The details of this step are not available at this time, but will be developed as part of the feasibility studies needed for the implementation of this action. However, efforts should focus on relocating those families displaced to other areas within their community or to the nearest area available. This will reduce any negative impact or disruption on the social composition of the communities and its members.
WS-7	Undertake a land ownership-subdivision study be undertaken under step 7.6.	DOH		This information has been added to Action WS-2.

Water and Sediment Quality (WS) - Revisions to Existing Actions				
Action	Comment	Org. or Community	Commenter and Date	Response
WS-7	Develop strategies, coordinated with the USACE and the community, to maintain the Martín Peña Channel after dredging.	Oficina de Comunidades Especiales	Mariseli Curras 11/24/99	There are no studies or information about the expected rate of sedimentation of the Martín Peña Channel, once dredged. However, this comment will be forwarded to the USACE for proper action and the SJBE Program will monitor the need for this action. (See Action WS-2.)
WS-7	Develop a program for providing emotional and psychological support to citizens affected by the relocation of the Martín Peña Channel communities.	SJBE Program CAC	Mayra Vega, via letter 11/29/99	This should be part of the relocation plan to be carried out by the responsible agencies involved in the relocation. This comment will be forwarded to the appropriate implementing partners for this action. (See Action WS-2.)
WS-7	Encourage a more aggressive effort to involve the affected communities (other than Península de Canteras, Israel, and Bitumul) in the process.	Oficina de Comunidades Especiales, Municipality of San Juan	Arelys Arocho 11/24/99	The SJBE Program has been actively involved in providing information to all communities that might be affected by the dredging of the Martín Peña Channel. This process should continue and implementing partners should be encouraged to do the same as action implementation is initiated. (See Action WS-2.)
WS-8, WS-9, WS-10, WS-11 and HW-2.	Estimate the cost of evaluating the presence of toxics and the toxicity of dredged materials, and of any material that will be used as fill for each of these actions.	USEPA		An estimated cost of \$250,000.00 for sampling and laboratory analyses has been added to the overall cost of Actions WS-5, WS-6, and HW-2.
WS-9	Carefully evaluate the environmental impact of the possible use of Martín Peña's dredged material as fill for the San José Lagoon depressions.	Proyecto Península de Canteras	Santiago Reillo 11/24/99	This is inside USEPA's jurisdictional area. It is a critical aspect of the action. (See Action WS-6.) Possible fill materials will be analyzed for toxicity.

Water and Sediment Quality (WS) - Revisions to Existing Actions

Action	Comment	Org. or Community	Commenter and Date	Response
WS-9, WS-10, and WS-11	Do not use the sediment dredged from the Martín Peña Channel as fill for the depressions at the Los Corozos, San Jose, and Torrecillas Lagoons and the Suarez Canal. The sediments in the Martín Peña Channel are highly contaminated and loaded with organics and nutrients. It would not be a good idea to increase the sediment storage of these constituents in the aforementioned areas.	Roy F. Weston, Inc.	Jerry K. Snyder, via e-mail 11/21/99	This is inside USEPA's jurisdictional area. It is a critical aspect of the action. (See Action WS-6.) Possible fill materials will be analyzed for toxicity.
WS-9 and WS-11	Study the options for the different types of fill materials for filling the depressions of San José Lagoon, Los Corozos Lagoon, and Canal Suárez. Also study the impact of this fill material on water quality.	Martín Peña	Sr. Caraballo	This is inside USEPA's jurisdictional area. It is a critical aspect of the action. (See Action WS-6.) Possible fill materials will be analyzed for toxicity.
WS-13	Evaluate the environmental impact of the possible opening of the Isla de Cabra road on the Toa Baja marine ecosystems.	CUCCO	Rosa Hilda Ramos 11/02/99	Step 8.1 of Action WS-8 has been modified to address this comment.
WS-14	Include as responsible agencies in this action the Puerto Rico Planning Board (PRPB), Permit and Regulations Administration (ARPE), and DNER.	Comisión de Ciudadanos al Rescate de Caimito	Haydeé Colón Cardona 11/24/99	These agencies have been added as implementing partners to Action WS-9.
WS-14	Include PRPB, ARPE, DNER, and EQB as implementing partners of this action.	Municipality of San Juan		These agencies have been added as implementing partners to Action WS-9.
WS-15	Include as part of the regulatory needs the following text: "Amendments to EQB's Regulation for the Control of Erosion for the Prevention of Sedimentation may be needed based on the results of the study".	EQB		This text has been included in the Regulatory Needs section of Action WS-10.

Water and Sediment Quality (WS) - Revisions to Existing Actions				
Action	Comment	Org. or Community	Commenter and Date	Response
WS-15	Summarize historical sediment quality data in the CCMP. Does this data justify additional sampling?			Historical trends on the concentration of PCBs, dieldrin, DDT plus metabolites, lead, mercury, and arsenic are shown on maps in the State of the Estuary chapter. Although at the present time the data collected on the concentration of these contaminants might be substantial, no sampling has taken place to determine the occurrence, quantity, and health of the organisms found within the sampled sediments. The Monitoring Plan calls for sediment sampling every two years.
WS-16	Include the Solid Waste Management Authority (SWMA) as an implementing partner in this action. The total estimated cost of this action would be \$92,000.	SWMA		The SWMA has been added as an implementing partner for this action and costs are included with each step. (See Action WS-11.)

Water and Sediment Quality (WS) - Other Comments				
Action	Comment	Org. or Community	Commenter and Date	Response
	Notify the community of the existence of the USACE study about the feasibility of dredging a channel through the Península de La Esperanza. Make the document available to the community for public review.	CUCCO	Rosa Hilda Ramos, 11/02/99	The document has been provided to CUCCO and the SJBE Program has recommended that the document should be made available to the public. The Program attempts to share all relevant information with affected and interested parties. The Program's web site is also a vehicle for information sharing.

Water and Sediment Quality (WS) - Other Comments

Action	Comment	Org. or Community	Commenter and Date	Response
	Provide additional time for revision of the USACE study of the feasibility of dredging a channel in the Península de La Esperanza.	CUCCO	Rosa Hilda Ramos 11/02/99	An extension was provided and the Management Committee has drafted a letter submitting CUCCO recommendations on this project.
	Implement strong enforcement actions against violators (of water quality in the Cucharillas Wetland), such as Andrés Reyes Burgos.	CUCCO	Yadira Almodovar 11/15/99	Enforcement of existing laws is encouraged by the CCMP. Action AD-6 (new) has been added to the CCMP to implement measures to detect, correct, and control illegal dumping activities. Since enforcement is a priority issue, the Management Committee is considering developing an action to deal with this issue at all levels during CCMP implementation.
	Do not channel the Malaria Creek.	CUCCO	Rosa Hilda Ramos, Yadira Almodovar, via fax 11/15/99	Protecting the wetlands in Las Cucharillas Marsh is a priority for the SJBE Program. The area is currently proposed in the Cataño's "Plan de Ordenamiento Territorial" as "suelo rústico protegido", meaning that it should be protected and kept for conservation purposes. This plan is in its third phase ("fase avance").

Water and Sediment Quality (WS) - Other Comments				
Action	Comment	Org. or Community	Commenter and Date	Response
	Address how the relocation of low-income residents complies with environmental justice requirements.	USEPA	11/30/99	The CCMP reflects environmental justice concerns and recommends measures to minimize the disruption caused by the relocation process. For example, the community has been included in the process, and, to the extent possible, residents will be relocated within the community. Some community members are taking an active role in participation. Meetings will continue to keep residents informed about the relocation proceedings. The SJBE Program also has involved USEPA Headquarters' Environmental Justice Coordinator on this important matter. See the Public Education and Involvement section of the State of the Estuary and Action WS-2 of this CCMP.
	Do not allow the power plants to discharge too hot water to San Juan Bay in the Palo Seco and San Juan areas.	CUCCO	Rosa Hilda Ramos, Yadira Almodovar, via fax 11/15/99	The Puerto Rico Electric Power Authority (PREPA) has an NPDES permit with a thermal variance. PREPA is currently asking for a renewal of its thermal variance based on recent studies. These studies are part of Actions HW-11 and HW-12. The Management Committee will review them and make recommendations, as appropriate.
	Encourage law enforcement of water quality regulations such as illegal oil disposal practices.	Proyecto Península de Canteras	Santiago Reillo 11/24/99	This concern is addressed by Action WS-11 (Enforce the Used Motor Oil Management Law in the Estuary's Watershed).

Water and Sediment Quality (WS) - Other Comments

Action	Comment	Org. or Community	Commenter and Date	Response
	Transfer a percentage of every fine collected by the EQB in the SJBE watershed area to the SJBE Program for use in environmental community projects.	Comisión de Ciudadanos al Rescate de Caimito	Haydeé Colón Cardona 11/24/99	The Management Committee agreed that the EQB should consider the need for this action. Although it was not possible to include this action in the final CCMP, it will be added to the CCMP during implementation. In fact, it is included as a potential source for funding in Chapter 7 of this CCMP.

Habitat, Fish, and Wildlife (HW) Comments Related to New Actions

Action	Comment	Org. or Community	Commenter and Date	Response
	Include the Cucharillas Lagoon as part of the Cucharillas Marshland complex. Declare this system a natural reserve.	CUCCO	Rosa Hilda Ramos, Yadira Almodovar, 11/02/99, via fax 11/15/99	This comment is addressed in Action HW-8.
	Develop a detailed study of the Ciénaga de las Cucharilla's flora and fauna to assess the impact of pollution on this ecosystem.	CUCCO	Rosa Hilda Ramos 11/02/99	This comment is addressed in Action HW-8, as part of the assessment needed to declare the Cucharillas Wetland a natural reserve.
	Complete a study on butterfly populations of the Cucharillas wetland. The community will continue to assess the ecological as well as the social and economical value of having a butterfly garden in the Cucharillas wetland system.	CUCCO	Rosa Hilda Ramos, Yadira Almodovar, via fax 11/15/99	This comment is addressed in Action HW-8 as part of the assessment needed to declare the Cucharillas Wetland a natural reserve.

Habitat, Fish, and Wildlife (HW) Comments Related to New Actions				
Action	Comment	Org. or Community	Commenter and Date	Response
	Complete acid rain studies in the Cucharillas wetland.	CUCCO	Rosa Hilda Ramos, via fax 11/15/99	This comment is addressed in Action HW-8 as part of the assessment needed to declare the Cucharillas Wetland a natural reserve
	Do not allow development in the Cucharillas Wetland area.	CUCCO	Rosa Hilda Ramos, Yadira Almodovar, via fax 11/15/99	This comment is addressed in Action HW-8 as part of the assessment needed to declare the Cucharillas Wetland a natural reserve.
	Implement a forestation program in Cataño's wetland areas (particularly at the Cucharillas Wetland), and plant trees that support birds inhabiting the wetland.	CUCCO	Rosa Hilda Ramos, Yadira Almodovar, via fax 11/15/99	This comment is addressed in Action HW-8 as part of the assessment needed to declare the Cucharillas Wetland a natural reserve.
	Encourage the designation of Islote de la Guachinanga (located in the San José Lagoon) as a Natural Reserve to be managed, for recreational and conservational purposes, by the local communities.	Proyecto Península de Canteras, AmeriCorps	Félix Pica 11/24/99	The mangrove area that surrounds Guachinanga has been designated as a Special Planning Area by the DNER, so that it will be protected and conserved. This comment has been provided to DNER for recommendation and appropriate action.

Habitat, Fish, and Wildlife (HW) Revisions to Existing Actions

Action	Comment	Org. or Community	Commenter and Date	Response
HW-1	Include mangrove reforestation projects in the Cataño area.	SJBE Program CAC	Mayra Vega, via letter 11/29/99	This action is already included in Action HW-1.
HW-1	Re-examine the compatibility of the mangrove plantation action with the General Cargo Port Facility project proposed by Productora de Agregados Inc. at Road PR-165, Km. .11, Desembarcadero Street, Bo. Amelia in Guaynabo (PRIDCO Lots 8, 8A, and 8B at the Guaynabo Port Zone). The General Cargo Port Facility was proposed five years ago and is currently in the planning, environmental analysis, and permitting stages. We are interested in collaborating with the SJBE Program so that both projects are compatible.	Environment and Development Consultant	Carmen Reverón, via letter 11/28/99	The SJBE Program is working with the Puerto Rico Ports Authority to develop a map of the areas where mangroves will be planted to determine if the areas are compatible with the uses projected by the Ports Authority. If the general cargo facility is approved, we welcome the opportunity to collaborate, so that both projects are compatible.
HW-3	Establish coordination with the Puerto Rico Park Trust when implementing this action.	Municipality of San Juan		This comment is addressed in Step 3.2 of this action.
HW-4	Include the lands being presently proposed for the "Centro de Seguridad" as part of the Martín Peña once it is designated as a Natural Reserve as proposed in Action HW-4.		Sr. Caraballo	The mitigation that resulted will be included in HW-4.
HW-4	Coordinate action with the Municipality's proposed plan for the Parque de la Paz, as they could be conflicting.	Proyecto de Península de Cantera	Santiago Reillo 11/24/99	The Municipality of San Juan is an implementing partner of this action.

Habitat, Fish, and Wildlife (HW) Revisions to Existing Actions				
Action	Comment	Org. or Community	Commenter and Date	Response
HW-5	Involve community and other civic groups in implementing this action.	Municipality of San Juan		Local communities (which include civic groups) are included as an implementing partner in the coordination, planning, and planting phases of this action.
HW-5	Remove the DOH as an Implementing Partner of this action.	DOH		The DOH will be eliminated as an implementing partner for this action.
HW-6	Specify that those districts currently classified as DTS (Desarrollo Turístico Selectivo) will not be designated as a nature reserve.	PRPB		The proposal to extend the designation of the Piñones Forest Nature Reserve to the Torrecillas-Vacía Talega area does not include those lands classified as DTS under the PR Land Use Plan. A map is included with this action showing the approximate area that will be designated. These areas, however, are subject to the PR Ecotourism Law and should be developed accordingly, considering, among other factors, the areas proposed for protection as a nature reserve.
HW-6	Do not endorse this action. Cannot comment until the CCMP specifies the amendments to be proposed to the Land Use Plan for the Special Planning Area (SPA) of Piñones and the Coastal Zone Management Plan of PR and how these amendments will impact the project that is currently being proposed for area DTS-REC 1 of the Land Use Plan for the SPA of Piñones known as Vacía Talega Villas & Resort.	OGM Arquitectos	Oscar Marty, Arq., via letter 11/29/99	See above response.

Habitat, Fish, and Wildlife (HW) Revisions to Existing Actions				
Action	Comment	Org. or Community	Commenter and Date	Response
HW-6	Eliminate this action, as it is unnecessary and constitutes a violation of the civil rights of colored people of Loíza. The Land Use Plan for the SPA of Piñones identified areas for development that will not impact any natural resources. In exchange, developers shall acquire mangrove areas located in private properties and transfer those lands to the DNER. This shall solve any environmental problems related to developments in the area and will not further exacerbate the poverty conditions of the people of Loíza.	Emancipación y Movimiento Pro-Desarrollo Económico de Loíza	Bienvenido de Jesús Correa, via comment page sent 11/18/99	See above response.
HW-6	Eliminate this action. Various local organizations (Emancipación y Movimiento Pro-Desarrollo Económico de Loíza, Vecinos de la Comunidad La Arena de Loíza and Comité Vecinos Bo. Las Cuevas de Loíza) consider that the districts zoned as "Selective Tourism Districts" under the Land Use Plan for the SPA of Piñones should remain unaltered. The Land Use Plan includes restrictions on the type of uses and maximum density of all proposed projects and these restrictions solve any problems that might be related to the cumulative impacts of the projects. The Land Use Plan also considers the high unemployment and disadvantaged socioeconomic conditions found in the municipality of Loíza.	Environment and Development Consultant	Carmen Reverón, via letter 11/28/99	See above response.

Habitat, Fish, and Wildlife (HW) Revisions to Existing Actions				
Action	Comment	Org. or Community	Commenter and Date	Response
HW-6	Consider the language included in the Land Use Plan for the SPA of Piñones, which includes the zoning mechanisms developed to consolidate the Torrecillas Natural Reserve with the Piñones State Forest (in a way that allows private land owners to be reimbursed for the loss of the use of their lands). Comments include Project F-22 of March 1993 of the DNER which illustrates the studies and analysis used in the development of the Land Use Plan in order to consolidate these two protected areas. Caribe Associates is a private owner of lands classified as DTS, CR-1 and B-2 in Torrecillas under the Land Use Plan.	Caribe Associates	Basilio Dávila, via letter 11/19/99	See above response.
HW-15	Give special attention to Caimito, as the accelerated pace of recent and proposed developments is seriously threatening local and vulnerable bird species.	Comisión de Ciudadanos al Rescate de Caimito	Haydeé Colón Cardona 11/24/99	Actions WS-9, WS-10, and WS-12 address this issue.
HW-17	Consider that Caimito, an area rich in springs, represents an area that is very vulnerable to the biological damages represented by the <i>Melaleuca</i> tree. This species has been widely planted as an ornamental in recent developments.	Comision de Ciudadanos al Rescate de Caimito	Haydeé Colón Cardona	Action WS-12 addresses this issue.
HW-17	Inform those departments or divisions from the estuary's municipal governments in charge of maintaining green areas of the characteristics and effects of planting <i>Melaleuca quinquenervia</i> trees.	Municipality of San Juan		Garden Nurseries from the Municipalities have been included as implementing partners in all the steps of Action HW-16.

Habitat, Fish, and Wildlife (HW) Other Comments

Action	Comment	Org. or Community	Commenter and Date	Response
	Eliminate wells in the Cucharillas Wetland.	CUCCO	Rosa Hilda Ramos, Yadira Almodovar, 11/15/99	The SJBE Program has forwarded this request to DNER and EQB for a response and appropriate action, if necessary. Based on the information available, there are no wells in Cucharillas at this time. However, an assessment planned in Action HW-8 will cover this and other pollution problems that might be affecting the area.
	Develop a plan for the effective protection of the SJBE as an ecosystem.	CUCCO	Rosa Hilda Ramos 11/02/99	This is the goal of the CCMP. Hopefully, the actions presented here and any future revisions will be a key component in the protection of this system as a whole today and for future generations.

Aquatic Debris (AD) Comments Related to New Actions

Action	Comment	Org. or Community	Commenter and Date	Response
	Develop specific actions to deal with solid waste management in the communities of Juana Matos, Puente Blanco, and Cucharillas with special attention to maintenance of their waterways (La Malaria and San Fernando Channel).	CUCCO	Rosa Hilda Ramos 11/02/99	Action AD-1 provides the means for instituting this type of action. If a waste management program were developed for these specific locations, most of this comment would be addressed by this action.
	Perform collaborative work between the communities, Municipality, Government and other agencies in order to solve the solid waste problem in the communities near the Martín Peña Channel.	Martín Peña	Citizen	Action AD-1 considers this comment as part of its strategy.

Aquatic Debris (AD) Comments Related to New Actions

Action	Comment	Org. or Community	Commenter and Date	Response
	Assure that the economic benefits generated by recycling projects be used in the community that provided the recycling material.	Martín Peña	Citizen	Action AD-1 considers this comment as part of its strategy.
	Educate the people not to use the sea and the creeks as dumping sites. Recycling efforts must be implemented and efficient waste disposal services are needed. The DNER should train members of the community as community rangers.	CUCCO	Rosa Hilda Ramos, Yaira Almodovar, via fax 11/15/99	Action AD-1, in its educational component, provides the means to implement this recommendation. This recommendation is also addressed in the Public Involvement Action Plan.
	Provide supervision to the different industries within the SJBE system to monitor their solid waste management.	Martín Peña		This comment is addressed in the Monitoring Plan and in Action AD-5.
	Create incentives for the police to enforce illegal solid waste deposition fines.	Martín Peña	Unknown	Action AD-6 (new) addresses the need to train enforcement officers on recognizing and reporting illegal dumping incidents.

Aquatic Debris (AD) Revisions to Existing Actions

Action	Comment	Org. or Community	Commenter and Date	Response
AD-1	Promote more coordination between the SJBE Program and the Recycling Project in Península de Canteras.	Proyecto Península de Canteras, AmeriCorps	Carlos Arroyo	The SJBE Program will seek better coordination and has included AmeriCorps as an implementing partner for this action.

Aquatic Debris (AD) Revisions to Existing Actions

Action	Comment	Org. or Community	Commenter and Date	Response
AD-1	Clarify that Carolina has had an approved Recycling Plan from the SWMA since June 1998. Carolina also will be the first Municipality to have in operation a materials recovery and bailing facility at the landfill site. This facility will help us achieve the 35% reduction goal.	Carolina Municipality	Via letter 11/29/99 (received 12/02/99)	This information has been added to the background of the action.
AD-6	Clarify in Step 6.1 that the municipalities are responsible for developing inventories on illegal dumpsters of used tires. They should submit the inventories to the EQB so that the tires can be picked up.	SWMA		The municipalities have been included as an implementing partner in this action. The SWMA has been eliminated from this step. (See Action AD-7.)
AD-6	Clarify in Step 6.2 that EQB is responsible for fining individuals and entities that illegally dispose of used tires.			Fining violators of Law No. 171 is part of step 7.6, where the EQB is included as an implementing partner in enforcing this law. (See Action AD-7.)
AD-6	Add to Step 6.5 the identification of those areas where signs would be posted.			The identification of those sites where signs will be posted is the first step of Action PI-2.

Public Education & Involvement (PI) Comments Related to New Actions

Action	Comment	Org. or Community	Commenter and Date	Response
	Develop specific actions to actively involve local governments in the SJBE CCMP implementation.	CUCCO	Rosa Hilda Ramos 11/02/99	A local government agreement with the SJBE Program can be encouraged. Local governments have been incorporated as much as possible in the existing action plans.

Public Education & Involvement (PI) Comments Related to New Actions				
Action	Comment	Org. or Community	Commenter and Date	Response
	Join efforts with private and public entities (industries, local governments, and citizen groups) in developing strategies for raising funds that could sustain in the long run the existence of the SJBE Program.	CUCCO	Rosa Hilda Ramos 11/02/99	Revisions to the Post-CCMP implementation organization incorporate this suggestion.

Public Education & Involvement (PI) Revisions to existing Actions				
Action	Comment	Org. or Community	Commenter and Date	Response
PI-1	Clarify that having low-impact activities in areas such as Blasina canal could be difficult (in terms of obtaining permits) due to the high pollution of the waters. The Municipality has planned investments of millions of dollars, but permits were denied.	Carolina Municipality	Via letter 11/29/99	Information clarifying this issue has been included in the CCMP. Low impact activities will be dependant on obtaining improvements to water quality.
PI-4	Include information on the watershed components of the system and the impact of development and deforestation activities on coastal resources in all educational material distributed by the SJBE Program.	Comisión de Ciudadanos al Rescate de Caimito	Haydeé Colón Cardona	This comment has been taken into consideration through the Program's continuous outreach efforts.

Public Education & Involvement (PI) Revisions to existing Actions

Action	Comment	Org. or Community	Commenter and Date	Response
PI-4	Include every teaching level at schools and especially "Head Starts", where the future stakeholders of the SJBE are being brought.	Proyecto de Península de Canteras	Jorge Torres	The SJBE Program has always been involved with children of all ages. Please refer to the list of public participation activities conducted by the Program, found in this Appendix. In addition, please refer to Action PI-6 for more information. A recently developed curriculum will soon be distributed throughout the school system. The SJBE Program will continue its efforts on this matter.
PI-4	Include the Education Department, DNER, and the State Police as implementing parties within the education actions.		Sr. Caraballo	These implementing partners have been added to Action PI-4.
PI-4	Design specific actions to further involve affected communities (particularly communities affected by the Martín Peña Channel dredging) in the development and implementation of the CCMP.	Programa de Comunidades Especiales, Municipality of San Juan	Arelys Arocho, via fax 11/29/99	Actions WS-2 and PI-4 address this concern.

CCMP General Comments

Action	Comment	Org. or Community	Commenter and Date	Response
	Incorporate a section on the environmental history of the SJBE system and its communities as an additional educational strategy in the CCMP.	Proyecto de Península de Canteras	Santiago Reillo 11/24/99	This information is included in the Introduction, the State of the Estuary Chapter, and the Public Involvement Chapter.

CCMP General Comments				
Action	Comment	Org. or Community	Commenter and Date	Response
	Encourage legislation of the SJBE Program CCMP as a guarantee of its successful implementation.	Comisión de Ciudadanos al Rescate de Caimito	Haydeé Colón Cardona 11/24/99	A local government agreement with the SJBE Program can be encouraged. Local governments have been incorporated as much as possible in existing action plans. The SJBE Program is also seeking the creation and implementation of an Executive Order to implement the Plan signed by the Governor.
	Create strategies to assure the implementation of the proposed measures in the CCMP and the effective participation of the involved agencies.		Sr. Caraballo 11/04/99	See above comment.
Chapter 7	In the English version of the CCMP, correct the discussion of the new management structure to reflect that two community representatives will be part of the new board of directors. A correction over the total number of members and participating organizations in the Board of Directors should be stated clearly: 7 members from 5 different interest groups.	PRPB		As a result of revisions and modification to the Post-CCMP implementation organization, as shown in the final CCMP, this comment is no longer applicable.
	Acknowledge that the Comisión al Rescate de Caimito is soliciting the technical support of SJBE Program personnel in their evaluations of deforestation and development actions in the Caimito area.	Comisión de Ciudadanos al Rescate de Caimito	Haydeé Colón Cardona 11/24/99	In moving towards implementation of the CCMP, the SJBE Program could assist and coordinate the assistance of state agencies in this process.
	Clearly establish the development of the SJBE CCMP as the work product of several committees which form the SJBE Program.	CUCCO	Rosa Hilda Ramos 11/02/99	This comment was addressed in the draft CCMP and has been made clearer for the final.

CCMP General Comments				
Action	Comment	Org. or Community	Commenter and Date	Response
	Notify community leaders of every Management and Public Policy Committee meeting.	CUCCO	Rosa Hilda Ramos 11/02/99	It is the policy of the Management Conference that meetings are open to the public. The SJBE Program is conducting ongoing discussions with the CAC chair regarding this issue. Our plan is to have rotating community leaders at each Management Conference (MC) meeting. Public service announcements on radio, television, and in newspapers will be used to announce all meetings, and meeting notices will be posted on the Program's website. In addition, once CCMP implementation begins, the SJBE Program will establish regular meeting schedules to standardize the meeting day (e.g., every 3 rd Wednesday or Tuesday, etc.).
	Acknowledge that the Ports Authority is in agreement with all issues and priorities set forth in the Plan. However, since none of the actions are included in the Capital Improvement Plan of their Agency, the Ports Authority cannot guarantee their commitment at this point.	Ports Authority	Completed comment page delivered to the 11/01/99 MC/STAC meeting	The SJBE Program is developing a Capital Improvements Plan for the CCMP and is in coordination with all implementing partners to make sure that the actions in the CCMP will form part of each agency's capital improvement plan. In addition, the Governor of Puerto Rico has asked the Puerto Rico Infrastructure and Finance Authority (PRIFA) to follow-up on CCMP action implementation as part of their duties.
	Provide an opportunity for USEPA to review the draft final before it is submitted for approval.	USEPA	Headquarters (HQ)	An opportunity for review at that stage has always been included as part of the CCMP schedule.

Revisions to other CCMP Components/Chapters				
Chapter	Comment	Org. or Community	Commenter/ Date	Response
State of the Estuary: Mudflats, Marshes, and Mangroves	Mention dominant species of herbaceous wetlands. Add a note to the Functions and Values of Wetlands table so that it is clear that not all wetland types or specific wetland areas will serve those functions and values listed in the table. See other editorial comments on hard copy.	USEPA	Via letter 11/17/99	This information has been incorporated into the final CCMP.
All Action Plans	Indicate whether actions are commitments or recommendations. Provide overall cost estimates for various actions. Provide information on lead partners.	USEPA HQ/Region II	Via letter 11/30/99	All actions are recommendations with the exceptions of those that have been completed, are ongoing, or for which a commitment exists. Commitments will continue to be sought by the Program Office and others as part of the ongoing coordination process for implementation. All actions in the final CCMP include cost information. Lead implementing partners are identified for all actions in the final CCMP.
Monitoring Plan	Acknowledge that the participation of agencies whose jurisdiction covers the SJBE watershed is vital in this process.	Comisión de Ciudadanos al Rescate de Caimito	Haydeé Colón Cardona	This coordination and participation is being sought by the SJBE Program.

Revisions to other CCMP Components/Chapters

Chapter	Comment	Org. or Community	Commenter/ Date	Response
Monitoring Plan	<p>The CCMP should discuss/describe port development/expansion activities. Use actual monitoring to evaluate after-the-fact effects of dredging and filling. The hydrodynamic model is only a predictive tool and cannot be used to actually evaluate the effects of actions.</p> <p>The management strategies that are presented are not substantiated by more than a cursory discussion of studies and data. Including a detailed discussion of the information that was used to develop strategies would be very useful for evaluating the problems addressed, their appropriateness, cost effectiveness, and likelihood of long-term success.</p> <p>The monitoring plan should define program objectives and performance criteria, identify testable hypotheses, detail specifications for each monitoring variable, identify data management systems and statistical tests that will be used to monitor the data, describe the expected performance of the sampling design, and provide a plan and timetable for analyzing data and assessing performance.</p> <p>Incorporate a research strategy in the Monitoring Plan.</p>	USEPA	Via letter 11/17/99	<p>The CCMP highlights the rate of expansion and the importance of the port to the SJBE.</p> <p>A final Monitoring Plan was reviewed by all agencies in February-March 2000 and all outstanding issues were resolved.</p>

Revisions to other CCMP Components/Chapters				
Chapter	Comment	Org. or Community	Commenter/ Date	Response
Finance Strategy	Provide a range of finance sources (e.g., user fees), estimate the revenue generating capacity of these sources, discuss the mechanisms for managing funds (e.g., bond banks), and link the sources and mechanisms to the estimated costs of implementing the specific actions in the CCMP.	USEPA HQ	Via letter 11/30/99	The existing strategy identifies sources (user fees are not a feasible alternative) and addresses some of this information. To the extent possible, this information will be addressed in the Capital Improvement Plan.
Base Program Analysis	Describe the existing regulatory and institutional framework, evaluate the effectiveness of the framework, and recommend how the framework could be strengthened.	USEPA HQ/Region II	Via letter 11/30/99	The Base Program Analysis was developed and appropriate information from that analysis has been incorporated in various parts of this CCMP (see Chapter 7). The full Base Program Analysis is available as Volume IV of the CCMP package.
Monitoring Plan, Finance Strategy, Base Program Analysis, new actions, and revised sections based on USEPA Region II and HQ previous comments	Separate these reports from the CCMP and make them available for a 30-day public review.	USEPA HQ/Region II	Via letter 11/30/99	The Monitoring Plan, the Base Program Analysis, and the Financial Strategy, as well as new actions, revised actions, and revisions to the post-CCMP implementation structure were made available for comments. Three separate 30-day review periods were provided.

SJBE PUBLIC INVOLVEMENT ACTIVITIES
May 1995 – July 1999

Date	Activity	Audience	Participants/ Audience Reached
May 31, 1995	Conference	Science School District, Cataño	20
July 5, 1995	Conference	Camping Association, Inc.	53
October 4, 1995	Conference	SJBE Program Citizens Advisory Committee (CAC)	26
October 9, 1995	Conference	Environmental Health M.S. Course, Public Health Graduate School	25
November 8, 1995	Conference	SJBE Program CAC	14
November 18, 1995	Conference	Health Teachers, Teaching School, UPR	84
January 30, 1996	Report	Citizen's Workshop, CAC, Carnegie Library, San Juan	16
February 15, 1996	Conference	Health B.S., RCM	17
March 1, 1996	Newsletter	AIDIS Congress, San Juan	100
April 30, 1996	Conference	Basilio Milán Hernández School, Toa Baja	35
May 6, 1996	Report	SJBE Program 2 nd Technical Conference	150
May 19, 1996	Costa Dentro Event	General Public	2,000
June 18, 1996	Community Clean-up	Sierra Maestra Community, San José, San Juan	9
June 18, 1996	SJBE Program Video presentation	SJBE Program 4 th Citizen's Seminar	4
July 16, 1996	Conference	Summer Camp, Residencial Villa Esperanza, San Juan	50
August 1, 1996	Conference	4-H Clubs Summer Camp, Eugenio María de Hostos School, Office of Agriculture, Canóvanas	36
August 7, 1996	Conference	Public Health Graduate School, RCM	25
September 20, 1996	Conference	Ecology class, Bayamón Central University, Bayamón	30
September 28, 1996	Report	SJBE Program CAC	13
September 30, 1996	Conference	Luz E. Colón Elementary School	60
October 16, 1996	Conference		
November 12, 1996	Conference	Los Olmos School, 3 rd /4 th grade, San Juan	60
November 14, 1996	Environmental Fair	San Juan Bosco School, Península de Canteras, San Juan	400
January 16, 1997	Conference	Hostos Elementary School	36

Date	Activity	Audience	Participants/ Audience Reached
April 11, 1997	Conference	The Garden Club of Puerto Rico, San Juan	50
June 17, 1997	N/A	1 st Environmental Education Seminar, JCA	N/A
June 22-28, 1997	Exhibition (brochures, video)	Biodiversity Week Exhibition, Plaza Las Américas Shopping Center	1500
June 26, 1997	Conference	Crime Prevention Committee, Las Monjas Community, San Juan	15
July 7, 1997	Video	Boy Scouts Council, Guaynabo	20
July 10-12, 1997	Reforestation Activity	Mangrove Reforestation Project, Península de Canteras Community, San Juan	100
July 15, 1997	Conference	Teaching School, UPR	50
July 17-20, 1997	Exhibition (brochures)	San Juan Bay Music Festival, San Juan	50
July 18, 1997	brochures, posters, T-shirts	Family Day, Puente Blanco Community, Cataño	100
August 6, 1997	Conference	Restaurant owners' meeting, El Redondel, Piñones, Loíza	15
August 12, 1997	Solid Waste Management Plan Discussion	Restaurant owners' meeting, El Redondel, Piñones, Loíza	7
August 13, 1997	Solid Waste Management Plan Discussion	Restaurant owners' meeting, El Redondel, Piñones, Loíza	3
August 18, 1997	Solid Waste Management Plan Discussion	Restaurant owners' meeting, El Redondel, Piñones, Loíza	15
August 20, 1997	Solid Waste Management Plan Discussion	Restaurant owners' meeting, El Redondel, Piñones, Loíza	3
August 17, 1997	Exhibition (brochures, posters)	La Guachinanga Environmental Fair, Península de Canteras, San Juan	150
August 26, 1997	Community Leaders Meeting	Youth Association, Bo. Las Cucharillas, Cataño	5
August ?, 1997	Community Leaders Meeting	Mita Congregation, Israel and Bitumul Communities, San Juan	17
August 27, 1997	Community Leaders Meeting	Israel and Bitumul Communities, San Juan	200
September 5, 1997	Community Leaders Meeting	Bo. Vietnam, Guaynabo	5
September 10, 1997	Conference	Boy Scouts Council, Club de Leones, Bayamón	20

Date	Activity	Audience	Participants/ Audience Reached
September 16, 1997	Conference	Boy Scouts Council, Club de Leones, Guaynabo	30
September 18, 1997	Conference	Ecology Course, Bayamón Central University, Bayamón	30
September 20, 1997	Beach Clean-up	Beach clean-up, El Redondel-Piñones, Loíza	150
September 25, 1997	Conference	Neighbors Council, Puente Blanco Community, Cataño	5
September 30, 1997	Conference (brochures)	Citizens to the Rescue of Caimito, San Juan	15
October 3, 1997	Conference	Emiliano Figueroa Torres School, 6thgrade	30
October 1, 1997	Conference	Escuela (?), Bayamón	42
October 4, 1997	Exhibition (brochures, video, T-shirts)	Girl Scouts Council, Pabellón de la Artes, Caguas	300
October 13, 1997	Conference (brochures)	Vietnam Fishermen Association, Guaynabo	14
October 18, 1997	Exhibition/ conference	1 st Environmental Education Congress, UPR	100
October 25, 1997	Conference (brochures)	Boy Scouts Council, Sagrado Corazón School, San Juan	50
October 28, 1997	Conference (brochures)	Sagrados Corazones School, Guaynabo	40
October 30, 1997	Conference (brochures)	Carmen del Sol School, Toa Baja	30
November 11, 1997	Conference (brochures)	Academia Bautista, Seniors, San Juan	35
November 15-19, 1997	Conference (brochures)	Center for Marine Conservation, Washington D. C.	25
November 25, 1997	Conference (brochures)	Luz A. Calderón School, Carolina	40
November 20, 1997	SJBE Program Video Presentation	Manatí Ecology Club, CAC meeting	9
December 2, 1997	Conference (brochures)	Bayamón Military Academy, Bayamón	60
December 4, 1997	Conference (brochures)	Braulio Dueño Colón School, Bayamón	43
December 9, 1997	Conference (brochures)	Isaac del Rosario School, Cataño	38
December 10, 1997	Conference (brochures)	Boy Scouts Council, Baptist Church, Carolina	25
December 12-13, 1997	Exhibition (brochures)	Cataño	25
January 10, 1998	Storm Drain Stenciling Project Orientation	Boy Scouts Council, Sagrado Corazón School, San Juan	20
January 13, 1998	Conference (brochures)	Baptist Academy, seniors, San Juan	30
January 15, 1998	Community Leaders Meeting	Sierra Maestra Community, San Juan	5
January 27, 1998	Community Animation	SJBE Program-Kettering International Encounter, Piñones, Loíza	100

Date	Activity	Audience	Participants/ Audience Reached
February 4, 1998	Conference (brochures)	Environmental Club, Perpetuo Socorro School, San Juan	20
February 18, 1998	Exhibition (brochures, video)	Environmental Education and Health Fair, Península de Canteras, San Juan	150
February 25, 1998	Conference (brochures)	University Gardens School, San Juan	80
March 2, 1998	Conference (brochures)	Marine Resources Class, Environmental Sciences School, UPR	25
March 4, 1998	Conference (brochures)	Irma López Braulio School, Bayamón	80
March 11, 1998	Storm Drain Stenciling Project Orientation	Boy Scouts Council, Club de Leones, Bayamón	15
March 17, 1998	Storm Drain Stenciling Project Orientation	Boy Scouts Council, Baptist Church, Carolina	24
March 18, 1998	Storm Drain Stenciling Project Orientation	Boy Scouts Council, Sagrado Corazón School, San Juan	15
March 27, 1998	Conference (brochures)	Tourist Guides Program, Paseo de la Princesa, San Juan	60
April 1, 1998	Conference (brochures)	Kayaks Association	20
April 4, 1998	Storm Drain Stenciling Project Orientation	Girl and Boy Scouts Councils	200
April 16, 1998	Conference (brochures)	Alejandro Tapia y Rivera School, San Juan	39
April 22-26, 1998	Piñones Model Community Presentation	Center for Marine Conservation, Cozumel, México	25
May 4, 1998	Conference (brochures)	Facundo Bueso School, San Juan	20
May 5, 1998	Conference (brochures)	Sagrado Corazón School, San Juan	40
May 6, 1998	R.V. Anderson "Open House"	R.V. Anderson "Open House"	125
May 17, 1998	Conference (brochures)	Caimito Schools (2), San Juan	80
May 19, 1998	Conference (brochures)	Villa Clemente Community, San Juan	20
May 26, 1998	Conference (brochures)	Buena Vista Community, San Juan	6
June 2, 1998	Conference (brochures)	Plebiscito 1,2,3 Communities, San Juan	12
June 6, 1998	Conference (brochures)	4-H Club Summer Camp, Carolina	20
June 9, 1998	Conference (brochures)	Sector Marina Community, Bo. Obrero, San Juan	13
June 17, 1998	Conference (brochures)	Summer Camp, Residencial Las Rosas Community, Carolina	25
June 24-28, 1998	Exhibition (brochures, video)	Animals Fair, San Patricio Plaza Shopping center	300
June 29 – July 5, 1998	Exhibition (brochures, video)	Biodiversity Week Fair, Plaza Las Américas Shopping center	1500
July 1, 1998	Conference (brochures)	Methodist Church, Guaynabo	30

Date	Activity	Audience	Participants/ Audience Reached
July 1, 1998	Conference (brochures)	CUNDA Fishermen Association, Cataño	12
July 15, 1998	Conference (brochures)	Summer camp, Jardines de Cupey, San Juan	25
July 17, 1998	Piñones Model Community Presentation	SWA Recycling Program Coordinators, Río Herrera, Loíza	25
July 23, 1998	Conference (brochures)	Buena Vista Community, San Juan	10
July 26, 1998	Exhibition (brochures, video)	Escambrón Beach Clean-up, Yo Limpio Puerto Rico, San Juan	50
July 28, 1998	Community Leaders Meeting	Citizens for Conservation of San Patricio Urban Forest	3
July 29, 1998	Conference (brochures)	Club de Leones, San Juan	50
August 4, 1998	Conference (brochures)	Sector Marina Community, Bo. Obrero, San Juan	10
August 6-9, 1998	(brochures)	Torneo Pesca 'Cangrejo's Yacht Club'	200
August 13, 1998	Conference (brochures)	Community Board, San Juan	50
August 20, 1998	Conference (brochures)	Buena Vista Community, Bo. Obrero, San Juan	10
August 21, 1998	N/A	Limpieza Islote de La Guachinanga, Península de Canteras, San Juan	N/A
August 23, 1998	Exhibition (brochures)	Festival de La Guachinanga, Península de Canteras, San Juan	100
September 14, 1998	Conference (brochures)	Las Monjas Community, San Juan	10
September 17, 1998	Conference (brochures)	Sierra Maestra Community, San Juan	10
October 15, 1998	N/A	Sembratón Caimito, San Juan	N/A
November 17, 1998	Conference (brochures)	Environmental Club, María Reina Academy, Guaynabo	20
November 20, 1998	Storm Drain Stenciling Project Orientation	4-H Club, Venus Garden, San Juan	12
December 9, 1998	Conference (brochures)	Montessori School, San Juan	40
January 30, 1999	Exhibition (brochures)	Environmental Education Congress II, UMET	50
January 28- February 1, 1999	(brochures)	Torneo de Pesca Cangrejo's Yacht Club	200
February 4, 1999	Conference (brochures)	Canejas Community, Caimito, San Juan	
February 10, 1999	Conference (brochures)	Buena Vista Community, Bo. Obrero, San Juan	10
February 10, 1999	Conference (brochures)	Biology Graduate School, Julio García Arrarás, UPR	30
February 17, 1999	Conference (brochures)	Baptist Academy, Carolina	30
February 18, 1999	Conference (brochures)	Covadonga School, Trujillo Alto	30
February 19, 1999	Storm Drain Stenciling Project Orientation	4-H Club, Venus Garden, San Juan	10

Date	Activity	Audience	Participants/ Audience Reached
February 21, 1999	Environmental Education Activities	Recycling Family Day, Loíza	40
February 19, 1999	Exhibition	School for Leaders of the 2000, Special Communities Program, San Juan	40
February 22, 1999	Conference (brochures)	Architecture Department, Universidad Politécnica	20
February 23, 1999	Conference (brochures)	Juan B. Huyke School, San Juan	30
February 24, 1999	Conference (brochures)	Nuestra Señora de la Covadonga School, Trujillo Alto	30
February 25, 1999	Conference (brochures)	Central de Artes Visuales School, San Juan	30
March 4, 1999	Community Leaders Meeting	Citizens for the Rescue of Juana Matos Community, Cataño	2
March 9, 1999	Conference (brochures)	Martín González School, Carolina	30
March 10, 1999	Conference (brochures)	Calvin School, Carolina	37
March 11, 1999	Conference (brochures)	López Sicardó School	36
March 16, 1999	Conference (brochures)	(Marleen Llavina) School, San Juan	30
March 17, 1999	Conference (brochures)	Belén Cabello School, Loíza	39
March 25, 1999	Exhibition (brochures, video)	Conserva El Encanto, Keep America Beautiful	40
March 23, 1999	Conference (brochures)	Matienzo Public Housing, Pta. de Tierra, San Juan	
March 27, 1999	Environmental Education Activities	El Condado Beach Clean-up, Conserva El Encanto	100
March 30, 1999	Conference (brochures)	Juan Antonio Correjer School, Cupey, San Juan	30
April 6, 1999	Community Leaders Meeting	Citizens for the Rescue of the Juana Matos Community, Cataño	8
April 8, 1999	Storm Drain Stenciling Project	Venus Garden, San Juan	30
April 11-18, 1999	Brochures	Environmental Fair, Carolina	100
April 17, 1999	Storm Drain Stenciling Project	Venus Garden, San Juan	20
April 22, 1999	Tourism Office Fair (brochures)	Paseo de la Princesa, San Juan	100
April 22, 1999	Exhibition	Juana Matos Community Earth Day Celebration, Cataño	50
April 23, 1999	Conference (brochures)	Sciences Club Congress, Facultad de Generales, UPR	45
April 30, 1999	Conference (brochures)	Martín González School, Carolina	30
May 5-7, 1999	Conference (brochures)	Volunteer Monitoring, Center for Marine Conservation	

Date	Activity	Audience	Participants/ Audience Reached
May 12, 1999	Storm Drain Stenciling Project	Carolina (Nstra. Sra. De la Covadonga School)	30
May 5, 1999	Conference (brochures)	Reforestation Project Demonstration, Guaynabo	
May 14, 1999	Conference (brochures)	Pediatric Department, 'Ashford Presbyterian Community Hospital'	30
June 9, 1999	Conference (Martín Peña Channel Dredging)	Martín Peña Channel, Comunidad Parada 27, San Juan	50
June 22, 1999	Conference (brochures)	PRODUCIR, Inc., Cubuy	17
June 24, 1999	SJBE Program Presentation	Parcelas Canejas Community, Caimito	10
June 25, 1999	SJBE Program Presentation	Juan B. Huyke School, Guaynabo	30
July 2, 1999	APDP Juana Matos	Las Cabezas de San Juan, Fajardo	30
July 9, 1999	APDP Juana Matos	Bosque del Pueblo, Adjuntas	30
July 17, 1999	APDP Juana Matos	Reforestation Project, Las Cucharillas Marshland	40
July 20, 1999	Juana Matos APDP Presentations	Juana Matos Community, Cataño	15
July 21, 1999	Environmental Games	Loíza Community	60
July 30, 1999	APDP Juana Matos	Carite Forests Field Trip	50
August 7, 1999	"Costa Limpia", Piñones	El Redondel, Piñones	100
August 31, 1999	APDP Juana Matos	Juana Matos, Cataño	10
Sept. 24, 1999	Environmental Games	Tourism Co. Schools Program, Luis Muñoz Marín Park	400
Sept. 24-26, 1999	"A la Orilla del Caño" Clean-up	Las Monjas, Parada 27, Israel, Bitumul, Embalse de San José, Sierra Maestra, Buena Vista	500+
Sept. 29, 1999	CCMP Presentation Ceremony	Casa Blanca, San Juan	60
October 8, 1999	SJBE Program Presentation	Isaac del Rosario School Teachers, Cataño	50
October 23, 1999	SJBE Program Presentation	Dad's For Boys Program	50
October 25, 1999	SJBE Program Presentation	Marine Resources Course, UPR	30

Date	Activity	Audience	Participants/ Audience Reached
Nov. 2, 1999	CCMP Public Meeting	Bacardí Corp., Cataño	30
Nov. 4, 1999	CCMP Public Meeting	Sagrado Corazón, Santurce	60+
Nov. 13, 1999	Cultural Activity	Dad's For Boys Program	40
Nov. 15, 1999	CCMP Public Meeting	Las Monjas Community Services Center	20
Nov. 24, 1999	CCMP Public Meeting	Península de Canteras Community Center	30
January 26, 2000	SJBE Program Presentation	Jurutungo Community	20
February 11, 2000	Pollution Prevention Visits to Auto Mechanic Shops	Ponce De León Ave., Las Monjas Community, Hato Rey	5
March 3, 2000	SJBE Program Presentation	San Juan Technological School, Teacher's Workshop	30
March 8-9, 2000	SJBE Program's Teachers Workshop	Public School Teachers from the Municipality of Cataño	12
March 15, 2000	Stormdrain Stenciling Project	High School Students from Hato Rey Public School	30
March 23, 2000	Martín Peña Channel Dredging Project Presentation	Barrio Obrero Community	70
March 11, 2000	SJBE Program Presentation/Exhibition	2 nd Community Leaders Meeting Congress	100
March 29, 2000	SJBE Program Presentation	Good Mate Marina Program, DRNA	20
April 6, 2000	SJBE Program Presentation	Intermediate School Students, Environmental Week, Carolina Municipality	50
April 12, 2000	San Juan Bay Day II	Children 4th - 6th Grade, Teachers, Parents	1,200

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Nov. 2, 1999	CCMP Public Meeting	Bacardí Corp., Cataño	30
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Nov. 15, 1999	CCMP Public Meeting	Las Monjas Community Services Center	20
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March 11, 2000	SJBE Program Presentation/Exhibition	2 nd Community Leaders Meeting Congress	100
March 29, 2000	SJBE Program Presentation	Good Mate Marina Program, DRNA	20
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APPENDIX K: SPONSORED STUDIES AND ACTION PLAN DEMONSTRATION PROJECTS

List of Technical Studies Sponsored by the San Juan Bay Estuary Program

Study	Status/Expected Date of Completion	Responsible Party
Ecosystem Assessment Study	Completed/ March 1997	DNER-Consultant
Water and Sediment Quality Study	Completed/ April 1998	USGS
Mapping	Completed/ July 1999	CEDI-Consultant
Sewage Discharge Inventory	Completed/March 1996	EQB
Expedited Solid Waste Enforcement Plan	Completed/July 1998	EQB
Hydrodynamic/Water Quality Model Study	Completed/April 2000	USACE
Loading Study	Completed/July 2000	CEDI-Consultant
Fisheries Resources Survey	Completed/February 1999	DNER
Base Program Analysis	Completed/April 1999	DNER-Consultant
Bivalve Shellfish and Fish Tissue Sampling	Completed/February 1999	DNER-Consultant
Public Health Risk Assessment	Completed/April 1999	DNER-Consultant
Land Use/Watershed Management Study	Completed/August 2000	CEDI-Consultant
Benthic Study	In Progress/November 2000	USEPA-NMFS
CCMP Monitoring Plan	Completed/May 2000	SJBE Program
Capital Improvements Plan	Completed/May 2000	SJBE Program

Action Plan Demonstration Projects

Action Plan Category	Activity
Habitat Restoration	<p>Native Tree Planting. Native trees were planted in upland areas to create buffer zones. Based on its success, this program may be extended to other SJBE Program locations. The planting phase ended in July 1999 and the one-year monitoring phase was completed in July 2000. Approximately 90% of the trees have survived.</p> <p>Mangrove Tree Planting in San Jose Lagoon. Mangrove seedlings were planted but were then severely affected by hurricane Georges (survival <95%). This project will be continued by the community. Lessons learned from this project will be transferred to other similar projects within the estuary.</p>
	<p>Piñones Recycling Project. In order to curb the environmental problems associated with marine debris and litter in the community of Piñones, the SJBE Program started a waste management and recycling pilot project at numerous food and beverage establishments in this popular tourist area. This pilot project, which lasted six months, included an educational campaign aimed at reducing the amount of solid wastes generated in the area and modifying the waste disposal and recycling habits of business owners and visitors. All educational activities were carefully designed to respond to the local social and cultural environment.</p> <p>Each small restaurant that participated in the APDP was provided with the necessary infrastructure (including cans for recyclable materials, a local collection center, and the recyclable material collection service) to support the recycling initiative. The Puerto Rico Green Team, a non-profit environmental organization dedicated to promoting recycling initiatives in Puerto Rico, collected glass bottles, aluminum cans, and cardboard from approximately twenty establishments three times a week. The material was taken to the Green Team's headquarters for processing and then transported to recycling industries.</p> <p>The Green Team's material collection and transportation services proved to be very effective. The positive impact of the initiative was evident, as reflected by increases in businesses' participation levels, their commitment to recycling, and improvements to the aesthetic conditions in Piñones. During the first week of August 1999, the project celebrated the recycling of the 100,000th bottle with the business community.</p> <p>Based on the success of this APDP, USEPA's Waste Wise Program awarded additional funds to continue this project until September 2000. Through this project, the SJBE Program has identified the need to establish a community recycling center that will economically sustain itself through the income generated after transporting the recyclable materials to the different recycling</p>

industries. The experiences gained during the development of this project, and its impact on community awareness towards waste management issues, will serve as foundations for the future establishment of this community recycling center.

Solid Waste Collection in Cantera. In many sectors of the community of Peninsula de Cantera, residents do not receive proper and consistent municipal garbage collection services. As a result, some of the residents located along the Martin Peña Channel choose to dump their trash directly into the estuarine system. In order to abate this problem, the community-owned recycling enterprise known as People's Recycling Peninsula de Cantera Inc., P.T. proposed to purchase two small Cushman vehicles and two Ford pickups that would fit through the community's narrow alleys. These vehicles have been used to collect and transport trash and recyclable materials from different sectors in this community where access to traditional, large-sized garbage trucks is impossible. In addition, People's Recycling has conducted source reduction and waste recycling educational activities as well as clandestine dump vigilance. The vehicles provided the needed equipment to support an effective solid waste and recycling program.

Public Involvement

The Living Community, Juana Matos, Cataño. In the Municipality of Cataño, the community of Juana Matos, located amidst Las Cucharillas Marshland, one of the most extensive marsh remnants within the SJBE system, has joined efforts with other nearby communities to take action toward environmental and social restoration. Deeply compromised by the development of the endangered ecosystem that surrounds the community, Juana Matos is reaching for the tools and resources that will help them achieve their goals. This project focuses on building capacity among community leaders to manage their resources and involve the entire community in environmental awareness efforts. During the Summer of 1999, in close partnership with Juana Matos' community leaders, the SJBE Program designed and implemented an environmental educational project, The Living Community, to provide much needed concepts, skills, and informational resources to advance and empower this process. Ten weeks of sessions on Las Cucharillas Marshland ecology, community organizing, resource management, field trips to other successful community projects, and environmental restoration activities within Las Cucharillas Marshland rendered very successful results. The participants expressed having a clearer perspective of their communal vision and the tasks that lay ahead for its realization. Both the Juana Matos Community and the SJBE Program are looking forward to continuing this project and reinforcing areas such as planning, funding strategies, proposal writing, and others which the community may still need to work on.