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7.0. APPENDICES

Appendix 1. Outreach activities involving the natural resource trustees.

APRIL 2000

- Three community meetings are held in Benedict, Charles County.
- Two community meetings are held in Mechanicsville, St. Mary's County.
- Community meeting is held in Baden, Prince George's County.
- Community meeting is held in Prince Frederick, Calvert County.
- Community meeting is held in Broomes Island, Calvert County.
- Community meeting is held at Calvert County Fairgrounds.

MAY 2000

- *Swanson Creek Marsh Response and Restoration Community Guide* distributed to over 26,000 residents.
- Community meeting is held in Benedict, Charles County.
- Community meeting is held in Mechanicsville, St. Mary's County.
- Community meeting is held in Avenue, St. Mary's County.

JUNE 2000

- Trustees participate in "Taste of the Patuxent" and community meeting held in Benedict, Charles County.

JULY 2000

- The *Swanson Creek Bulletin* is distributed to over 26,000 local residents.
- Community meeting is held in Mechanicsville, St. Mary's County.
- Governor establishes the Patuxent River Oil Spill Citizens Advisory Committee.

SEPTEMBER 2000

- The *Swanson Creek Bulletin* is distributed to over 26,000 local residents.
- Community meeting is held at Calvert County Fairgrounds.
- Joint meeting of Governor's Patuxent River Oil Spill Citizens Advisory Committee and Patuxent River Commission.

OCTOBER 2000

- Trustees testify before Maryland Senate Economic and Environmental Affairs Committee.

NOVEMBER 2000

- Second meeting of Governor's Patuxent River Oil Spill Citizens Advisory Committee.

DECEMBER 2000

- Third meeting of Governor's Patuxent River Oil Spill Citizens Advisory Committee
- Trustees hold workshop for local scientific community about NRDA activities
- Trustees published a *Notice of Intent to Conduct Restoration Planning* in the Federal Register

JANUARY 2001

- The *Swanson Creek Bulletin* is distributed to over 26,000 local residents.
- Community meeting is held in Benedict, Charles County.
- Trustees testify before MD House Committee on Environmental Matters

APRIL 2001

- Trustees ask Governor's Patuxent River Oil Spill Citizens Advisory Committee to review lost use study and suggest ideas for potential restoration projects.

JULY 2001

- Community meeting is held in Mechanicsville, St. Mary's County.

AUGUST 2001

- Community meeting is held in Prince Frederick
- Governor's Patuxent River Citizens Advisory Committee meets to and reviews Trustee work on injuries to birds.

NOVEMBER 2001

- Governor's Patuxent River Citizens Advisory Committee meets to review and discuss potential restoration alternatives.

MARCH 2002

- Governor's Patuxent River Citizens Advisory Committee meets to review and discuss elements of the draft potential restoration alternatives and Trustee work on injuries to birds.

MAY 2002

- Trustees release draft Restoration Plan for public review and comment
- Trustees brief Patuxent River Commission on details of draft Restoration Plan
- Trustees present an overview of the draft Restoration Plan during a public meeting in Calvert County sponsored the Governor's Patuxent River Oil Spill Citizens Advisory Committee.

JUNE 2002

- Trustees meet with Governor's Patuxent River Oil Spill Citizens Advisory Committee to discuss draft Restoration Plan
- The *Swanson Creek Bulletin* is distributed to over 26,000 local residents

Misc. Activities

- NOAA establishes a Chalk Point website and periodically updates site as with final study plans and reports
- Pepco establishes three outreach centers immediately following the spill; Trustee information is made available at each center
- Pepco publishes community guide detailing cleanup and NRDA efforts
Pepco publishes 5 newsletters mailed to 30,000 citizens; Trustees provide periodic updates for each issue

List of Fact Sheets

- April 2000 - Chalk Point/Swanson Creek Oil Spill

- May 2000 - A public claim versus a private claim: What are the differences?
- September 2000 - Status Report on the Chalk Point/Swanson Creek Oil Spill NRDA Assessing the Injuries
- November 2000 Study Summary - Wetland Injury Assessment
- December 2000 Study Summary - Nesting Birds (eagles, ospreys, great blue herons)
- December 2000 Study Summary - Bivalve Tissue Surveys
- December 2000 Study Summary - Fish Tissue Surveys
- December 2000 Study Summary - Fish Community
- December 2000 Study Summary - Benthic Invertebrate Community
- December 2000 Study Summary - Wetland Injury Assessment
- December 2000 Study Summary - Shoreline Clean-up Assessment Team
- December 2000 Study Summary - Wildlife Mortality Assessment (furbearers and waterfowl)
- May 2001 Study Summary - Injuries to Recreational Use
- January 2002 Study Summary – Nesting Bird Studies (Eagles, Ospreys, and Great Blue Herons)
- January 2002 Study Summary – Waterfowl Mortality Summary

Appendix 2. File structure and index of the Administrative Record developed by the Trustees for the Chalk Point oil spill.

- 1 Administrative Record Index Structure
 - 1.1 Internal Record Structure
 - 1.2 Summary of Administrative Record Contents

- 2 Law and Regulations
 - 2.1 Applicable Law and Regulations
 - 1 Oil Pollution Act of 1990 (OPA, 1990) 1/23/1990
[Document ID 2045](#)
 - 2.2 Notice to Responsible Parties
 - 1 Sharon Shutler, to Kenneth A. Rubin, Duane A. Siler, 6/22/00, Letter on Invitation to Participate in the Natural Resource Damages Assessment for the Chalk Point Oil Spill
[Document ID 1953](#)
 - 2.3 Public Legal Notices
 - 1 Executive Order 01.01.2000.12 : Patuxent River Oil Spill Citizens Advisory Committee and Oil Spill Prevention Advisory Committee. (7/7/2000): 4
[Document ID 2084](#)
 - 2 Notice of Intent to Conduct Restoration Planning. NOAA. (9/1/2000). 8
[Document ID 1964](#)
 - 3 Notice of availability of a draft restoration plan and environmental assessment for the oil spill at PEPCo's Chalk Point generating facility, Request for comments. 67 Federal Register 94 (15 May 2002): 34674-34675
[Document ID 2069](#)
 - 4 Notice of availability of a Draft Restoration Plan and Environmental Assessment for the oil spill at Pepco's Chalk Point generating facility, Request for comments
[Document ID 2044](#)

- 3 Trustee Council
 - 3.1 Agreements
 - 3.1.1 Memorandum of Understanding Among Trustees
 - 1 Memorandum of Agreement Amongst National Oceanic & Atmospheric Admin., Dept. of the Interior, MD Dept. of Natural Resources, MD Dept. of Environment
[Document ID 1951](#)
 - 3.1.2 Memorandum of Understanding Between Trustees and the Responsible Party
 - 1 Memorandum of Agreement Between The Trustees and The Responsible Parties Governing Cooperative Natural Resource Damage Assessment and Restoration Planning Activities for the Chalk Point Oil Spill, MD. (9/1/00), 17
[Document ID 1967](#)
 - 3.2 Correspondence
 - 1 Fran Burns, to the Honorable Bernie Fowler, 8/23/2000, Letter on Coordination of state and federal efforts: 2
[Document ID 2080](#)
 - 2 Jim Hoff, to the Honorable C. Bernard Fowler, 2/13/2001, Letter on Status of NRD activities and request for technical experts: 2
[Document ID 2078](#)
 - 3 Jim Hoff, to the Honorable Mary C. Lorsung, 4/30/2001, Letter on Request for restoration ideas: 3
[Document ID 2079](#)
 - 4 Henry A. Virts, to James Hoff, 3/18/2002, Letter on Easement agreement: 1
[Document ID 2081](#)
 - 5 Duane A. Siler, Sharon Shutler, to Sharon Shutler, Duane A. Siler, 4/11/2002, Letter on Revision request to Draft Restoration Plan: 6 + [1]
[Document ID 2082](#)
 - 6 Robert L. Swann, to Verna E. Harrison, 7/8/2002, Letter on NRD restoration funding in Calvert County, MD
[Document ID 2088](#)

- 7 Roy Dyson, to the Honorable Bernie Fowler, 7/8/2002, Letter on Ruddy duck restoration
[Document ID 2087](#)
- 4 Response Phase
- 5 Emergency Restoration
- 6 Injury Assessment
- 6.1 Preassessment
- 1 U.S. Fish and Wildlife Service Response During the Chalk Point Oil Spill (Mortality Report) plus 2 Attachments. Chesapeake Bay Field Office, (Fish and Wildlife Service)(10/5/00),
[Document ID 1963](#)
 - 2 Swanson Creek oil spill natural resource damage assessment: Extent of oiling report [with 7 color maps]. FINAL. Marsh Assessment Subgroup. (1/23/2002): 90 + [7 color maps]
[Document ID 2047](#)
 - 3 Summary of NRDA-related surveys initiated during the emergency phase of the Swanson Creek oil spill. Entrix, Inc. (2/1/2002). 278
[Document ID 2043](#)
- 6.2 Marshes
- 1 July, 2000, Field effort for the Swanson Creek oil spill. Entrix, Inc. (9/6/2000): 40
[Document ID 2073](#)
 - 2 Final Wetland Vegetative Injury Assessment Plan Swanson Creek Oil Spill. Natural Resource Trustees, Potomac Electric Power Company, (10/4/00), 15
[Document ID 1952](#)
 - 3 Swanson Creek Incident: Summary of SCAT activities and data management. Fred Wehrenberg ; Alain Lamarche (ENTRIX, Inc. ; Polaris Applied Sciences, Inc.). (10/16/2000): 79+cd+4 foldout maps
[Document ID 2092](#)
 - 4 September, 2000, Field effort for the Swanson Creek oil spill. Entrix, Inc. (2/14/2001): 53
[Document ID 2074](#)
 - 5 July, 2001, Field effort for the Swanson Creek oil spill. Entrix, Inc. (8/30/2001): 48
[Document ID 2075](#)
 - 6 PEPCo Oil Spill Project, NRDA core samples, Total petroleum hydrocarbon data. ENTRIX, Inc. (7/17/2000 - 9/18/2000)
[Document ID 2071](#)
 - 7 Injury to Wetlands Resulting from the Chalk Point Oil Spill [with Carl Hershner peer review, 16 February 2002, and Trustees' responses to comments by C. Hershner, 19 February 2002]. Jacqueline Michel, Kevin Smith, Mitch Keiler, Al Rizzo, Rick Ayella, James Hoff (Wetlands Assessment Team). (3/8/2002): 70+[4 and 3]
[Document ID 2035](#)
 - 8 Deborah Carlson, to Wade Blake, 4/24/2002, Letter on sent copy of Final Swanson Creek and Patuxent River Long-term Monitoring Plan (LTM Plan) on behalf of PEPCo and ST Services
- 6.3 Aquatic Resources (Benthic, Fish, and Shellfish Resources)
- 1 Patuxent River Oil Spill Proposal to Assess Oil Spill Impacts on Benthic Invertebrates. Versar, Inc., MD. Dept. of Nat. Res. (6/15/00), 8
[Document ID 1968](#)
 - 2 Statement of Work: Patuxent River Damage Assessment of the Chalk Point Oil Spill on Shallow Water and Intertidal Benthos. The Academy of Natural Science, (10/1/00), 4
[Document ID 1962](#)
 - 3 Swanson Creek Incident: Summary of SCAT activities and data management. Fred Wehrenberg ; Alain Lamarche (ENTRIX, Inc. ; Polaris Applied Sciences, Inc.). (10/16/2000): 79+cd+4 foldout maps
[Document ID 2092](#)
 - 4 Patuxent River oil spill: assessment of impacts on benthos. Final Report. Roberto J. Llanso, Jon Volstad (Versar, Inc.). (11/1/2001). 181
[Document ID 2042](#)
 - 5 Estimation of the fisheries standing stock in the Patuxent River in April 2000 [with George Abbe peer review]. Aquatic Resources Subgroup. (3/1/2002): 112
[Document ID 2046](#)

- 6 Quantification of injury to benthic resources from the Chalk Point oil spill on the Patuxent River [with A. Fred Holland peer review, March 2002, and response to Holland comments, March 2002]. Charles H. Peterson (University of North Carolina at Chapel Hill). (3/5/2002). 17+[6 and 8]
[Document ID 2041](#)
- 7 Chalk Point oil spill of April 7, 2000 in Patuxent River, MD: modeling of the fates and acute biological effects of the spilled oil on the water column. FINAL REPORT. Deborah French McCay, Jill Jennings (Applied Science Associates). (4/1/2002): 131
[Document ID 2048](#)
- 8 Deborah Carlson, to Wade Blake, 4/24/2002, Letter on sent copy of Final Swanson Creek and Patuxent River Long-term Monitoring Plan (LTM Plan) on behalf of PEPCo and ST Services
[Document ID 2089](#)
- 9 Final Report: A survey of the shallow water and intertidal benthic invertebrates at three sites in the vicinity of the Chalk Point Steam Electric Station. Richard W. Osman (Curator, Benthic Ecology, The Academy of Natural Sciences, Estuarine Research Center). (11/26/2001). 36
[Document ID 2040](#)

6.4

Birds and Wildlife

- 1 Wildlife Injury Assessment Plan for the Chalk Point Oil Spill. Natural Resource Trustee Agencies and Pepco Representatives, (10/5/00), 7
[Document ID 1965](#)
- 2 Draft Study Plan Patuxent River Diamondback Terrapin Project. Roger Wood, (The Wetlands Institute and Richard Stockton College of New Jersey)(10/1/00), 3
[Document ID 1954](#)
- 3 Swanson Creek Incident: Summary of SCAT activities and data management. Fred Wehrenberg ; Alain Lamarche (ENTRIX, Inc. ; Polaris Applied Sciences, Inc.). (10/16/2000): 79+cd+4 foldout maps
[Document ID 2092](#)
- 4 Reproductive Success of Bald Eagles (*Haliaeetus Leucocephalus*) Nesting in the Vicinity of the Chalk Point Oil Spill Final Report. Ann Wearmouth, Peter McGowan, Wildlife Injury Workgroup for the Natural Resource Trustee Council, (4/11/2001), 5
[Document ID 1986](#)
- 5 Estimate of Total Acute Mortality to Birds Resulting from the Chalk Point Oil Spill, Swanson Creek, Maryland, April 7, 2000. Wildlife Injury Workgroup for the Natural Resource Trustee Council, (5/7/2001), 15
[Document ID 1985](#)
- 6 Reproductive Success of Great Blue Herons (*Ardia Herodias*) Nesting in Swanson Creek, Maryland During the Chalk Point Oil Spill Final Report. Wildlife Injury Workgroup for the Natural Resource Trustee Council, (5/16/2001), 13
[Document ID 1987](#)
- 7 Reproductive Success of Osprey (*Pandion haliaetus*) Nesting in the Vicinity of the Chalk Point Oil Spill: Final Report [with Charles Henny peer review, 1 October 2002]. (United States Fish and Wildlife Service)(11/1/2001): 30+[2]
[Document ID 2034](#)
- 8 Acute mortality of diamondback terrapins from the Chalk Point oil spill [with J. Whitfield Gibbons peer review, 11 Nov. 2002]. Jacqueline Michel, Richard Greer, Mark Hoffman, Peter McGowan, Roger Wood. (Wildlife Injury Workgroup). (11/9/2001). 4+[2]
[Document ID 2036](#)
- 9 Comparison of northern diamondback terrapin (*Malaclemys terrapin terrapin*) hatching success among variably oiled nesting sites along the Patuxent River following the Chalk Point oil spill of April 7, 2000 [w/ J. Whitfield Gibbons peer review, 7 Sept 2001]. Roger C. Wood, L. Stanton Hales, Jr. (12/7/2001). 33+[6]
[Document ID 2037](#)
- 10 Estimate of total injury to diamondback terrapins from the Chalk Point oil spill [with J. Whitfield Gibbons peer review, 11 Nov. 2001]. Heath Byrd, Eric English, Richard Greer, Heidi Hinkeldey, Wayne Kicklighter, Norman Meade, Jacqueline Michel, Ted Tomasi, Roger Wood (Wildlife Injury Workgroup). (2/25/2002). 16+[2]
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Appendix 3. List of restoration ideas and alternatives provided to the Trustees.

The following lists restoration ideas and alternatives provided to the Trustees by members of the Governor’s Committee, Patuxent River Commission, RPs, federal, state, and local officials, and the public. Cost estimates are presented as originally proposed. All of these projects were screened to narrow the list of alternatives and gathering efforts on the most likely alternatives. The two criteria initially applied to all proposed projects were (1) likely result in a quantifiable increase in one or more of the injured resources (i.e., nexus to injury), and (2) do not conflict with existing law. A third initial criterion for projects with costs less than \$250,000 was applied to proposals with potential environmental losses (see Section 5.2). Projects that met these requirements were included in Chapter 5 for a closer evaluation of potential environmental impacts to the quality of the human environment and their suitability as NRDA restoration projects.

	Project Name	Project Description	Contact	County	Preliminary
Potential Recreational Use Restoration Projects					
1	Greenwell State Park Playground	Install playground equipment (estimated cost \$35,000)	Pete Smith, MDNR	St. Mary's	No nexus to injuries (recreation); not considered further
2	Greenwell State Park Handicapped Access	Construct ADA accessible paths (estimated cost \$10,000 - \$20,000)	Pete Smith, MDNR	St. Mary's	No nexus to injuries (recreation); not considered further
3	Greenwell State Park Comfort Station	Build comfort station (estimated cost \$100,000)	Pete Smith, MDNR	St. Mary's	No nexus to injuries (recreation); not considered further
4	Merkle NRMA Visitor Center Exhibits	Renovate visitor center exhibits (estimated cost \$12,000)	Pete Smith, MDNR	St. Mary's	Little or no nexus to injuries (recreation based); not considered further
5	Paddle-in Campsites	Establish paddle-in primitive campsites on state NRMA properties at Indian Creek, Hall Creek, and Milltown Landing (estimated cost \$18,000)	Donnie Hammett, MDNR	Prince George's, Calvert, Charles	Indian Creek and Milltown Landing evaluated in Restoration Plan for ecological sensitivity; presence of an endangered species considered further.

	Project Name	Project Description	Contact	County	Prelimi
6	Maxwell Hall NRMA	Open to public access 670 acres of land by Teague Point at the mouth of Swanson Creek, across from the Chalk Point facility. Land was purchased with MDNR and county funds and is managed by Charles Co. Dept. of Parks and Recreation. Could involve creating a parking area, boardwalk and foot trail to reach water's edge, equestrian park, and paddle-in campsites.	Tom Rowland, Charles Co. Dept. of Parks and Rec. (Project submitted by George B. Wilmot, PRC, CAC)	Charles	Evaluated in Restor:
7	St. Mary's Marina Boat Ramp	Upgrade and repair the boat ramp at St. Mary's marina. The county funded dredging and construction of bulkhead to maintain the channel into the private Marina. In exchange, it received a 25-year lease for public access to the boat ramp. Before the Recreation and Parks Department takes over operation of the boat ramp, repairs are needed. (estimated cost \$50,000 - \$100,000)	Billy Ball, St. Mary's Co. Dept. of Rec. and Parks	St. Mary's	Evaluated in Restor:
8	Forest Landing Boat Ramp	Extend (and possibly repair) boat ramp at Forest Landing. The county-owned facility currently has parking and a ramp at the end of Forest Landing road, near Hollywood. The ramp is too short for many boat trailers. (estimated cost \$50,000)	Billy Ball, St. Mary's Co. Dept. of Rec. and Parks	St. Mary's	Evaluated in Restor:
9	King's Landing Boardwalk and Foot Trail	Reconstruct a boardwalk and foot trail to access Cocktown Creek. Funding is also desired for the purchase of canoes. This is a state-owned, county-operated park at the site of a former YMCA camp, with a swimming pool, fishing pier, and canoe access, among other facilities. (estimated cost \$50,000 - \$60,000)	Sherrod Sturrock, Calvert Co. Open Space Committee	Calvert	Evaluated in Restor:
10	King's Landing Boardwalk and Foot Trail	Construction of a 2,211-foot boardwalk and foot trail along the shoreline and marsh. Funding is also desired for the purchase of canoes. This is a state-owned, county-operated park at the site of a former YMCA camp, with a swimming pool, fishing pier, canoe access, among other facilities. (estimated cost \$250,000)	Sherrod Sturrock, Calvert Co. Open Space Committee	Calvert	The project's costs a amount available for (\$453,500), based on assessment study. To considered further.

	Project Name	Project Description	Contact	County	Prelimi
11	Solomons Island Boardwalk Lighting	Install lighting on boardwalk near Solomons Island.	Sherrod Sturrock, Calvert Co. Open Space Committee	Calvert	Evaluated in Restor:
12	Jefferson Patterson State Park Boardwalk and Foot Trail	Construct a boardwalk and foot trail along the base of a bluff by the shore. The area has a series of sheltered beaches accessible by small boats. (estimated cost \$50,000)	Mike Smolek, Jefferson Patterson State Park	Calvert	Evaluated in Restor:
13	Jefferson Patterson State Park Paddle Trail	Develop a paddle trail from Jefferson Patterson State Park to the headwaters of St. Leonard Creek, with interpretive guidebook (highlighting conservation efforts and historical events, including War of 1812 sites) and signs at launch site. (\$30,000 for guidebook or \$100,000 total).	Mike Smolek, Jefferson Patterson State Park	Calvert	Evaluated in Restor:
14	Cedar Haven Fishing Pier	Construct fishing pier at an access point in the Cedar Haven community, just north of Eagle Harbor on the western shoreline of the Patuxent. The site currently has a dirt access road and open grass and shoreline, and is used for fishing. The fishing pier is one of several improvements envisioned by the county, including picnic benches and designated parking. (estimated cost \$60,000 - \$80,000)	Chuck Montrie, MD National Capital Parks and Planning Commission	Prince George's	Evaluated in Restor:
15	Jug Bay	Improvements at Jug Bay (Patuxent River Park) such as the purchase of another pontoon boat, additional parking, and new rest room facility.	Chuck Montrie, MD National Capitol Park and Planning Commission	Prince George's	Little or no nexus to north of the spill zone
16	Broomes Island Public Access Easement	Purchase easement for beach access on Broomes Island (downstream side toward Island Creek, next to Bernie's Marina)		Calvert	Unable to determine likely to be greater than losses. Therefore, to further.
17	Golden Beach Boat Ramp	Repair boat ramp at Long Point in the private community of Golden Beach (estimated cost \$12,000-\$15,000)	James Harris	St. Mary's	Evaluated in Restor:
18	Nan's Cove Boat Access	Provide boat access and canoe/ kayak launch capabilities at Nan's Cove.	Commissioner Robert Swann	Calvert	Evaluated in Restor:

	Project Name	Project Description	Contact	County	Prelimi
Potential Ecological Restoration Projects					
19	Maxwell Hall/Teague Point	This site is an area where the soils in existing farm fields could be cut down to establish a tidal connection and marsh (i.e. "scrape-down").	Kevin Smith, MDNR; John Collins, NOAA; and Al Rizzo, USFWS	Charles	Upon further investi the elevation was to was not considered :
20	Benedict Parcel	This site was offered for sale to the Trustees. The site was investigated to ascertain whether or not there was any opportunity to enhance or restore wetlands within the parcel.	Kevin Smith, MDNR; John Collins, NOAA; and Al Rizzo, USFWS	Charles	The existing wetland value, but there was restoration or enhance was not considered :
21	Patuxent River NRMA	This site was intensively investigated for possible tidal wetland restoration, creation or enhancement.	Kevin Smith, MDNR; John Collins, NOAA; and Al Rizzo, USFWS	Charles	The amount of earth wetland creation pro was not considered :
22	Indian Creek Bulkhead	At this site, an existing bulkhead on private property would be removed.	Kevin Smith, MDNR; John Collins, NOAA; and Al Rizzo, USFWS	St. Mary's	While removal of a project, the site was residential area, whi capabilities. Theref considered further.
23	Washington Creek/Trent Hall	A number of different opportunities for tidal, nontidal and shoreline restoration and creation were investigated at this site.	Kevin Smith, MDNR; John Collins, NOAA; and Al Rizzo, USFWS	St. Mary's	Tidal wetlands coul farm field adjacent t removing a few feet adjacent tidal elevat excavated soil (a sar replenish approxima facing shoreline. Th effective method to material, mitigate fo terrapins and provid in an area that is bei proposal is evaluate
24	Washington Creek	This was a potential "scrape-down" site.	Kevin Smith, MDNR; John Collins, NOAA; and Al Rizzo, USFWS	St. Mary's	The existing habitat Therefore, this site v

	Project Name	Project Description	Contact	County	Prelimi
25	Marsh Point	This was a potential “scrape-down” site adjacent to the Patuxent River. This is an existing high beach/dune type area.	Kevin Smith, MDNR; John Collins, NOAA; and Al Rizzo, USFWS	St. Mary's	The existing habitat Therefore, this site v
26	Cat Creek	This was a potential “scrape-down” site adjacent to the Patuxent River. This is an existing high beach/dune type area.	Kevin Smith, MDNR; John Collins, NOAA; and Al Rizzo, USFWS	St. Mary's	The existing habitat Therefore, this site v
27	Parker’s Wharf	This is a shoreline with extensive rip-rap (bricks, cinder blocks and other assorted rubble items) that was considered as a potential site for establishing fringe wetlands, removing rubble and installing some type of protection (breakwater, sill, etc.).	Kevin Smith, MDNR; John Collins, NOAA; and Al Rizzo, USFWS	Calvert	The cost to remove breakwaters or sills expensive. In addition that would be established small (approximately) was not considered :
28	Ben Creek	This is an existing eroding shoreline along the eastern shore of the Patuxent River. To establish fringe marsh, existing shoreline would have to be cut back significantly and some type of wave protection would need to be installed.	Kevin Smith, MDNR; John Collins, NOAA; and Al Rizzo, USFWS	Calvert	Based on the amount (less than 1 acre), and implementing this project further.
29	Battle Creek (north)	This site was evaluated as a potential “scrape-down” site.	Kevin Smith, MDNR; John Collins, NOAA; and Al Rizzo, USFWS	Calvert	Due to the high elevation determined that the to that of the adjacent Therefore, this site v
30	Battle Creek (south)	This site consists of an existing eroding shoreline with a rather steep near shore bottom. An oyster reef would act as wave attenuation for a fringe marsh area along the shoreline.	William Clark, Calvert Co. Soil Conservation District	Calvert	Evaluated in Restor:
31	Sandy Lake	This site is an existing pond area connected by a narrow inlet to the Patuxent River.	Kevin Smith, MDNR; John Collins, NOAA; and Al Rizzo, USFWS	Calvert	While opportunities enlarge the tidal connection increase tidal flushing was determined that acreage to be gained warrant further inve

	Project Name	Project Description	Contact	County	Prelimi
32	Hallowing Point	This is the site of an existing trailer park that is situated in the 100-year floodplain of the Patuxent River. Calvert Co. and the State of Maryland are negotiating with the property owner to purchase this property, remove the trailers and return the area to open space.	Kevin Smith, MDNR; John Collins, NOAA; and Al Rizzo, USFWS	Calvert	While this is a good the timing of the pu trailers was unclear. not considered furth
33	Wetlands Restoration/ Phragmites control	Apply herbicide in the Fall, then burn the killed Phragmites; repeat as needed.	Jack Leighty, PRC, CAC	To be determined	Evaluated in Restor:
34	The Sandy Point Integrated Ecosystem Restoration Project	Plant 5 acres of SAV; construct 3 acres of oyster bars; part of ongoing restoration, research and education work at this site (3-year budget \$670,000)	Dennis King, CBL; Eileen M. Seltzer-Hamilton, CBL; Ken Tenore, CBL, CAC	Calvert	Evaluated in Restor:
35	Enhance Elbow Bar Oyster Reef	Elbow Bar Reef off Chalk Point: survey, rebuild, monitor for disease, stock with oyster spat from Chalk Point nursery.	Kim Coble, Chesapeake Bay Foundation, CAC	Patuxent River	Oyster reef enhance Plan
36	A Cooperative Approach for Oyster Restoration in the Patuxent River	Use 4 private oyster leases as seed beds; oysters are set at State and UMD hatcheries; 15-acre seed beds are prepared, then 5 acres planted at each site with hatchery-produced spat for 3 consecutive years; then sub-adults are moved to private beds (40%), public beds (30%), and sanctuary and broodstock programs (30%); oyster disease research accompanies the program; 6-year budget \$2,192,806	William Pfeiffer, Oyster Recovery Partnership	Patuxent River	Evaluated in Restor:
37	Finding new sites for planting riparian buffers	Individuals and organizations want to volunteer to plant riparian buffers. This project would fund publishing a list of riparian buffer planting sites that volunteers can work on.	Larry Cartano, PRC	To be determined	Use of volunteers w implementation of s programs already ex not considered furth with project contact
38	Stormwater Treatments	Use current technology to remove (126,000 gallons of) hydrocarbons from existing stormwater sources.	Kim Coble, Chesapeake Bay Foundation, CAC	To be determined	Specific locations w used could not be id not considered furth

	Project Name	Project Description	Contact	County	Prelimi
39	Watershed Education Outreach	Develop comprehensive plan to involve local schools in restoration projects; ensure inclusion of oil spill science in curriculum	Dr. Lee J. Summerville, PRC	Local schools	The Trustees will use resources from local schools, and also identified the funds available to local schools for watershed education. A spill program (learn from a spill) interactive site, link to Chesapeake Bay Foundation program, National Geographic (broadcasts environmental classroom programs; Montgonmerie based science modules on oceanography; Save the Bay response training, etc.) Awareness through curriculum guides & Marine Oil Spill Prevention Education Specialist (Sea Grant Program)
40	Citizen Outreach	Create grant source to fund citizen organization projects: pollution reduction, habitat restoration, outreach.	Kim Coble, Chesapeake Bay Foundation, CAC	All counties	Little or no direct need for specific restoration but could not be scaled up from the spill). The project further.
41	General Habitat Creation/Acquisition	Restore or acquire habitat (shoreline buffers, beaches, wetlands) within the Patuxent watershed equivalent in size to that impacted or destroyed.	Contact: Kim Coble, Chesapeake Bay Foundation, CAC	All counties	Specific sites were not identified for this type of project.
42	Swanson Creek Land Acquisition	The Bunting-Summers property is a 68 acre undeveloped parcel that straddles Prince Georges Co. and Charles Co., covering a long, narrow strip of shore and floodplain. It is in private ownership and is currently used for duck and goose hunting (Total cost is about \$200,000)	Chuck Montrie, MD National Capital Parks and Planning Commission (Project submitted by Raymond B. Palfrey, Jr., PRC)	Prince George's, Charles	It is not clear that the development, which would demonstrate restoration, was not considered :

	Project Name	Project Description	Contact	County	Prelimi
43	Trent Hall Land Acquisition	Assist in the purchase of conservation easement on 650-acre tract on southern shore of Trent Hall Creek.		St. Mary's	This project is expected Legacy Program. To be considered further.
44	Benedict Bridge Land Acquisition	Purchase 20 acres on the north side of Benedict Bridge, marshy shore with a pier.		Charles	It is not clear that the development, which demonstrate restoration was not considered.
45	Buzzard Island Land Acquisition	Purchase 12 acres on point of land including Buzzard Island, with a road out to it, on the eastern shore of the Patuxent across from Golden Beach.		Calvert	It is not clear that the development, which demonstrate restoration was not considered.
46	Prince George's Co. Land Acquisition	A number of parcels are available from north of Eagle Harbor up to Rt. 50.	Chuck Montrie, MD National Capitol Parks and Planning Commission	Prince George's	It is not clear that the development, which demonstrate restoration was not considered.
47	Piney Point Lighthouse Museum	Create environmental exhibits.	Michael Humphries	St. Mary's	Little or no nexus to recreation). Therefore, further.
48	Oyster Rafts	Large floating anchored rafts with many long "ribbons" hanging from the underside that are colonized by oysters. These rafts have been used in Tampa Bay as an approach to help improve water clarity.	Jesse Webber, Entrix	To be determined	Oyster reef restoration appropriate restoration however, are opposed. Therefore, this was not.
49	Hatchery Production	Both MDNR and Mirant have active hatchery facilities for producing fish.	Jesse Webber, Entrix	To be determined	Evaluated in Restoration
50	Cremona Farm	This project involved the installation of u-shaped breakwaters/sills offshore and the emplacement of sand between the breakwaters and an existing reveted shoreline.	Dr. Willem Roosenburg, Dr. and Mrs. Norton Dodge	St. Mary's	Evaluated in Restoration
51	Terrapin Nest Protection	Replace the terrapins that were killed by the spill by increasing the hatching success of the eggs laid.	Jesse Webber, Entrix	To be determined	Evaluated in Restoration

	Project Name	Project Description	Contact	County	Prelimi
52	Habitat Protection/ Conservation Easements	Protect important waterfowl habitat (e.g., wetlands and associated upland habitats) to enhance natural production and/or provide protection for migratory birds through existing Federal or State programs (e.g., Maryland's Conservation Reserve Enhancement Program) or through non-profit (e.g., Ducks Unlimited or Nature Conservancy).	Jesse Webber, Entrix	To be determined	Specific sites were r This proposal is con selected to restore a nesting habitat.
53	Mute Swan Control	Designate restoration areas as "Swan Free" Zones - areas for researching and documenting the success or failure of various methods of control (e.g., fencing, pyrotechnics, addling eggs, oiling eggs, removal, etc.) Also investigate the time and cost associated with each method.	Edie Thompson, MDNR	To be determined	There is little or no benefits) between su not considered furth
54	Mute Swan Outreach	Develop waterfowl education package (fact sheets, on- line information, etc.) on why mute swans need to be controlled, methods of control, and success stories. Press coverage, discussions and demonstrations in restoration/enhancement areas, refuges, parks, etc. Develop instructional materials and modules for teachers, etc. Trail signs.	Edie Thompson, MDNR Chris Swarth, Jug Bay Wetland Sanctuary	To be determined	There is little or no benefits) between su injuries; not consid
55	Canada Goose Control	1) See mute swan control. 2) Geese Peace - group that uses trained dogs to keep geese away from an area.	Edie Thompson, MDNR	To be determined	There is little or no benefits) to injured r further.
56	Wild Rice Restoration	Research project looking at the wild rice/resident geese connection. Involves fencing off wild rice to keep Canada geese from cropping rice. Propagation of rice requires collecting seed and replanting annually, installing and maintaining fencing, and hazing.	Mike Haramis, USGS	Patuxent River	There is little or no benefits) between su not considered furth
57	SAV Restoration	Jug Bay Wetlands Sanctuary working with MDNR to reintroduce native SAV in beaver area above project. They are also doing some restoration and research.	Peter Bergstrom, USFWS; Mike Naylor, MDNR; Chris Swarth, Jug Bay Wetland Sanctuary	Patuxent River	Evaluated in Restor:

	Project Name	Project Description	Contact	County	Prelimi
58	Identification Guide	Identification guide to reduce accidental kills of ruddy ducks.	Sam Droege,(USGS, PWRC		A guide already exists considered further.
59	Gillnet License Buyout	Purchase permit authorizing gill netting and/ or cancel permits following buy out. Benefits: eliminates gill nets and fishing.	Doug Forsell, USFWS-CBFO	Patuxent River	Requires a change of this was not considered
60	Ruddy Duck Nesting Habitat	Enhance/purchase nesting areas in the Prairie Pothole Region.	Doug Forsell, USFWS-CBFO	To be determined	Evaluated in Restoration

Appendix 4. Compliance with key statutes, regulations, and policies.

Oil Pollution Act of 1990 (OPA), 33 U.S.C. §§2701, et seq., 15 C.F.R. Part 990

OPA establishes a liability regime for oil spills that injure or are likely to injure natural resources and/or the services that those resources provide to the ecosystem or humans. OPA provides a framework for conducting sound natural resource damage assessments that achieve restoration. The process emphasizes both public involvement and participation by the RPs. The Trustees have conducted this assessment in accordance with OPA regulations.

National Environmental Policy Act (NEPA), 42 U.S.C. §§4321, et seq., 40 C.F.R. Parts 1500-1508

An Environmental Assessment (EA) was prepared for the restoration projects as part of the Restoration Plan and Environmental Assessment (RP/EA). This EA evaluates the effects of implementing the restoration projects considered in the plan. A Finding of No Significant Impact (FONSI) is included in this final RP/EA.

Clean Water Act (CWA), 33 U.S.C. §§1251, et seq.

The CWA is the principal law governing pollution control and water quality of the nation's waterways. Section 404 of the law authorizes a permit program for the beneficial uses of dredged or fill material in navigable waters. The Army Corps of Engineers (COE) administers the program. In general, restoration projects, which move significant amounts of material into or out of waters or wetlands—for example, hydrologic restoration or creation of tidal marshes—require 404 permits. Under section 401 of the CWA, restoration projects that involve discharge or fill to wetlands or navigable waters must obtain certification of compliance with state water quality standards. The application process to obtain these permits has been initiated and issuance of the required permits is expected at the completion of the process.

Rivers and Harbors Act, 33 U.S.C. §§401, et seq.

The Rivers and Harbors Act regulates development and use of the nation's navigable waterways. Section 10 of the Act prohibits unauthorized obstruction or alteration of navigable waters and vests the COE with authority to regulate discharges of fill and other materials into such waters. Restoration actions that comply with the substantive requirements of Section 404 of the CWA will also comply with the substantive requirements of Section 10 of the Rivers and Harbors Act.

Coastal Zone Management Act (CZMA), 16 U.S.C. §§1451, et seq., 15 C.F.R. 923

The goal of the CZMA is to preserve, protect, develop and, where possible, restore and enhance the nation's coastal resources. The federal government provides grants to states with federally approved coastal management programs. Section 1456 of the CZMA requires that any federal action inside or outside of the coastal zone shall be consistent, to the maximum extent practicable, with the enforceable policies of approved state management programs. No federal license or permit may be granted without giving the state the opportunity to concur that the project is consistent with the state's coastal policies. The regulations outline the consistency procedures that will be followed by the Trustees. The Trustees believe that the restoration projects selected for implementation will be consistent with the Maryland CZMA program, and have begun the process of seeking concurrence by the state. The tidal marsh creation and the

shoreline beach enhancement projects will occur on private land and therefore require no review through this process. The oyster reef sanctuary and the lost recreational use projects will be reviewed and concurrence by the State is expected.

Endangered Species Act (ESA), 16 U.S.C. §§1531, et. seq., 50 C.F.R. Parts 17, 222, 224

The ESA directs all federal agencies to conserve endangered and threatened species and their habitats to the extent their authority allows. Under the Act, the Department of Commerce through NOAA and the Department of the Interior through the United States Fish and Wildlife Service (USFWS) publish lists of endangered and threatened species. Section 7 of the Act requires that federal agencies consult with these departments to minimize the effects of federal actions on endangered and threatened species. This approval has been obtained for the ecological restoration projects (tidal marsh creation, shoreline beach enhancement, and oyster reef sanctuary) from USFWS for federally listed species, and through the Maryland Department of Natural Resources for state listed species. NOAA's National Marine Fisheries Service has also reviewed these projects and approved them providing concerns for Essential Fish Habitat (EFH) are included (see response below for EFH). The lost recreational use projects will be evaluated for compliance with ESA and clearance is expected under similar guidelines.

Fish and Wildlife Conservation Act, 16 U.S.C. §§2901, et seq.

The proposed restoration projects will either encourage the conservation of non-game fish and wildlife, or have no adverse effect.

Fish and Wildlife Coordination Act (FWCA), 16 U.S.C. 661, et seq.

The FWCA requires that federal agencies consult with the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and state wildlife agencies for activities that affect, control, or modify waters of any stream or bodies of water, in order to minimize the adverse impacts of such actions on fish and wildlife resources and habitat. This consultation is generally incorporated into the process of complying with Section 404 of the Clean Water Act, NEPA or other federal permit, license, or review requirements. The proposed restoration projects will have either a positive effect on fish and wildlife resources or no effect. Coordination is in progress between NOAA National Marine Fisheries Service and the U.S. Fish and Wildlife Service.

Magnuson-Stevens Fishery Conservation and Management Act, as amended and reauthorized by the Sustainable Fisheries Act (Public Law 104-297) (Magnuson-Stevens Act), 16 U.S.C. §§1801 et seq.

The Magnuson-Stevens Act provides for the conservation and management of the Nation's fishery resources within the Exclusive Economic Zone (from the seaward boundary of every state to 200 miles from that baseline). The management goal is to achieve and maintain the optimum yield from U.S. marine fisheries. The Act also established a program to promote the protection of Essential Fish Habitat (EFH) in the review of projects conducted under Federal permits, licenses, or other authorities that affect or have the potential to affect such habitat. After EFH has been described and identified in fishery management plans by the regional fishery management councils, Federal agencies are obligated to consult with the Secretary of Commerce with respect to any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken by such agency that may adversely affect any EFH.

The proposed restoration projects, under OPA, are being undertaken to make the environment and the public whole for injuries to natural resources and natural resource services by returning injured natural resources and natural resource services to their pre-spill, or baseline condition and compensating for interim losses of natural resources. While the overall goal is to restore and enhance the injured habitat, some restoration activities may convert one habitat to another and must be considered as a potential adverse impact to EFH and analyzed appropriately. The ecological restoration projects have been reviewed for EFH compliance and have been approved with the stipulation that in-water work on the marsh and beach be done outside the spawning and nursery season (March 1 to June 15) for bass and perch. This stipulation will be incorporated in the construction plans for these projects. The lost recreational use projects will be evaluated for EFH impacts and approval is expected with similar precautions.

Marine Mammal Protection Act, 16 U.S.C. §§1361 et seq.

The Marine Mammal Protection Act provides for long-term management and research programs for marine mammals. It places a moratorium on the taking and importing of marine mammals and marine mammal products, with limited exceptions. The Department of Commerce is responsible for whales, porpoise, seals, and sea lions. The Department of the Interior is responsible for all other marine mammals. The selected restoration project will not have an adverse effect on marine mammals.

Migratory Bird Conservation Act, 126 U.S.C. §§715 et seq.

The selected restoration projects will have no adverse affect on migratory birds. Migratory birds are expected to benefit from creation of new marsh habitat and protection of nesting habitat for ruddy ducks.

Archeological Resources Protection Act, 16 U.S.C. 470 et seq.

The wetland restoration site has been surveyed to determine its value as an archaeological resource, and the oyster restoration site will be selected to avoid any submerged archaeological resources. Survey results from the marsh, beach, and oyster projects have been reviewed by the Maryland Division of Historical and Cultural Programs. The wetland and beach sites have been determined to be ineligible for the National Register, and no further study is needed. It is unlikely that the oyster sanctuary will be sited in such a way as to involve any potential historical resources. Funds have been allocated to survey the area designated for the sanctuary in the event such a possibility exists. If siting of the sanctuary is likely to affect underwater historical resources, a different location will be chosen. The lost use restoration projects will be evaluated for their potential as archaeological resources and are not expected to require protection under the Act.

Executive Order 11990 (42 FR 26,961) - Protection of Wetlands

On May 24, 1977, President Carter issued Executive Order 11990, Protection of Wetlands. This Executive Order requires each federal agency to take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities for: acquiring, managing, and disposing of federal lands and facilities; providing federally undertaken, financed, or assisted construction and improvements; and conducting federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities. The

Trustees have concluded that the selected restoration projects will meet the goals of this executive order.

Executive Order 12898 (59 Fed. Reg. 7,629) – Environmental Justice

On February 11, 1994, President Clinton issued Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. This Executive Order requires each federal agency to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority and low-income populations. EPA and the Council on Environmental Quality (CEQ) have emphasized the importance of incorporating environmental justice review in the analyses conducted by federal agencies under NEPA and of developing mitigation measures that avoid disproportionate environmental effects on minority and low-income populations. The Trustees have concluded that there are no low-income or ethnic minority communities that would be adversely affected by the selected restoration projects.

Executive Order Number 11514 (35 FR 4,247) - Protection and Enhancement of Environmental Quality

An Environmental Assessment (EA) has been prepared as part of the RP/ EA and environmental coordination is taking place as required by NEPA.

Executive Order Number 12962 (60 FR 30,769) – Recreational Fisheries

The selected restoration projects will help ensure the protection of recreational fisheries and the services they provide. These projects will have no adverse effects on recreational fisheries.

Executive Order Number 13112 (64 FR 6,183) – Invasive Species

The proposed ecological restoration projects will not cause or promote the introduction or spread of invasive species. Annual surveys for invasive species (specifically *Phragmites*) and actions to control them should they be present in the created tidal marsh have been budgeted into costs for this project. The proposed lost use projects will also not cause or promote the introduction or spread of invasive species.

Appendix 5. Summary of public and Responsible Party (RP) comments and Trustee responses: Chalk Point draft Restoration Plan and Environmental Assessment.

Twenty-one public comments were received during the May 8, 2002 to July 8, 2002 period. Specific public commenters were:

1. Bernie Fowler, Chair, Maryland Patuxent River Oil Spill Citizens Advisor Committee
2. Maryland Senator Roy Dyson
3. Maryland Delegate George W. Owings, III
4. Marc Lieber, Chair, Patuxent River Commission
5. Calvert County Board of Commissioners
6. St. Mary's County Board of Commissioners
7. Chris Conklin, *Southeastern Maps*
8. Earl Sage, President, Beach Management Corporation of Golden Beach
9. Culver S. Ladd, Ph.D.
10. Spencer Gulick
11. R. Michael LaBelle
12. Don Polakovics
13. Stephen Edmondson
14. Brian Blankinship
15. Thomas Crabill
16. Shonda Davis
17. Deborah C. Nisson
18. Daphne McGuire
19. Willem M. Roosenburg
20. William A. Clark, Calvert Soil Conservation District
21. Erich Gundlach, *E-Tech Int.*

Written comments were also received from the Responsible Parties (RPs) (Pepco and ST Services) during the public comment period.

Additional comments were received from: (1) William A. Clark, Calvert County Soil Conservation District on July 15, 2002, (2) Southern Maryland Area Soil Conservation Districts on July 16, 2002, (3) Erich Gundlach on July 22, 2002, and (4) Ernest J. Willoghby, President, Southern Maryland Audubon Society on July 29, 2002.

Copies of all written comments are available for review in Administrative Record and the following web site: www.darp.noaa.gov/neregon/chalkpt.htm.

Summary of Public Comments and Trustee Responses

Comment: *Several commenters expressed general support for increasing public access to the Patuxent, with different commenters highlighting powered watercraft and canoes/ kayaks. Other commenters expressed specific support for the two paddle-in campsites and the canoe/ kayak boat launch at Greenwell State Park, as proposed in the draft Restoration Plan (RP).*

Response: As partial compensation for recreational losses resulting from the spill, the Trustees selected three projects specifically aimed at improving public access to the Patuxent River: (1) improving the Forest Landing Boat Ramp; (2) constructing an ADA-accessible canoe/ kayak launch at Greenwell State Park; and (3) constructing a canoe/kayak launch at Nan's Cove, just north of Broomes Island, in Calvert County. The paddle-in campsites proposed in the draft RP (one near Golden Beach, the other at Milltown landing) were also selected for implementation. The final Restoration Plan/ Environmental Assessment (RP/ EA) provides a description of each of these projects.

Comment: *Two commenters requested restoration of private property at Long Point to pre-spill conditions.*

Response: Under the Oil Pollution Act (OPA), the natural resource Trustees for this spill (NOAA, USFWS, MDNR, and MDE) are responsible for assessing injuries to public resources resulting from the oil spill and determining appropriate actions to restore the losses. The U.S. Environmental Protection Agency (EPA) and Pepco are responsible for all clean up operations related to this spill. As of August 2002, EPA and Pepco were continuing their clean up efforts. The Trustees have forwarded these comments to EPA and Pepco for their consideration in directing future clean up operations.

The loss of recreational and beach/shoreline services at Long Point, from the time of the spill until recovery to pre-spill conditions, was quantified in the Trustees' comprehensive injury assessment. Restoration of these "interim" natural resource service losses will be achieved through implementation of the full set of recreation and beach/ shoreline projects described in the final restoration plan.

Comment: *One commenter asked the Trustees what was the likelihood of another spill occurring and why the power plant was not required to operate on natural gas.*

Response: As stated above, the Trustees were responsible for assessing damage to public resources caused by the oil spill and determining appropriate actions to restore the losses. While oil spills of this size are relatively rare, the Trustees do not have the pipeline operational information or expertise to assess the likelihood of another spill at the Chalk Point facility or the authority to require the plant to operate using natural gas.

Comment: *Several commenters expressed concern that the counties or communities that had the greatest loss were not the ones where proposed restoration projects were located. One commenter was concerned that no recreational restoration funds were identified for Golden Beach, Indian Creek, Washington Creek and Persimmon Creek; others were concerned that there were not enough projects in Calvert County. One commenter specifically requested that the Trustees: (1) give more consideration to the Jefferson Paterson Park boardwalk and foot trail proposal, and (2) consider constructing a new canoe and kayak launch at Broomes Island (Nan's Cove).*

Response: The Trustees solicited restoration project ideas from members of the public, planners in all affected counties, the Governor's Citizens Advisory Committee established to assist the

Trustees with identifying appropriate restoration projects, and Trustee agency staff. The final RP/ EA includes a complete list of projects reviewed by the Trustees and the rationale used by the Trustees to accept or reject each proposed project. All project proposals received were evaluated using the criteria described in the final RP/ EA. Selected projects are located throughout each of the four counties affected by the spill (Prince George's, Charles, St. Mary's and Calvert).

A review of the restoration proposals submitted to the Trustees indicates that no proposed recreation projects specifically located in Indian Creek or Persimmon Creek were received. Thus, there were no selected projects in these specific areas. Planning officials in Golden Beach did provide some suggestions for projects in Golden Beach. However, because Golden Beach is a private community, recreational "benefits" of a restoration project in this community would be limited to its residents. Regulations under the Oil Pollution Act require the Trustees to seek cost-effective restoration projects (i.e., provides the greatest benefit for a given expenditure). Recreational projects at public facilities best meet this objective since they are available to all members of society, including residents of Golden Beach.

While there are no recreation projects proposed for Golden Beach, Indian Creek, or Persimmon Creek, the wetlands and terrapin restoration projects are located in Washington Creek (one of the areas identified by the commenter).

As stated in the draft and final RP/ EA, the Jefferson Patterson Park boardwalk and foot trail proposal was considered as a potential project for restoring lost recreational uses. The project was not selected by the Trustees for implementation because: (1) the project would likely disrupt shoreline vegetation and wildlife, and (2) other similar recreational projects are already available at the same location and throughout the area.

The Trustees reviewed the additional project located at Nan's Cove, in Calvert County, that was proposed during the public comment period on the draft RP/ EA. This project involves creating a fixed platform at the base of an existing pier to provide access for launching canoes and kayaks. As described in the final RP/ EA this restoration project met the Trustees' selection criteria, and was selected by the Trustees for implementation in response to the public comments.

Comment: *One commenter requested copies of written comments as the Trustees receive them.*

Response: In response to this comment, the Trustees placed the full text of all written comment on their project website (www.darp.noaa.gov/neregon/chalkpt.htm) shortly after they were received.

Comment: *One commenter provided several comments regarding the preferred project for restoring diamondback terrapins. They are listed as (1) through (6) below, each with its own response.*

(1) The prevailing southwest summer winds will cause erosion at the proposed site . . . the two proposed bulkheads will have little if any affect in reducing the erosion.

Response: Since the site is located in an area that has a significant southeast fetch (approximately 11 - 12 miles), structures (e.g., breakwaters) will likely be needed just offshore of the proposed beach restoration area to protect the shoreline from erosion caused by excessive wave energies. The initial project design developed for the Trustees by a coastal engineer includes two offshore breakwaters, one at each end of the beach. The final project design, including location and orientation of the breakwaters, will be based on a further assessment of coast processes at the site. No bulkheads are proposed as part of this plan.

(2) Terrapins show site fidelity to nesting areas. Because the preferred site is currently a low density nesting area, the number of females nesting there may remain low. Second, those terrapins that nest on the modified beach would have been nesting in other habitats. Thus, there would be no net gain of terrapins. Also project gains could be offset by increased predation.

Response: We agree with the comment that terrapins show site fidelity to nesting areas. However, they are opportunistic and will nest in other areas. For instance, terrapins are nesting at the recently restored beach at the southern end of Jefferson-Patterson Park.

This project is expected to provide additional nesting habitat and increase the quality of existing habitat. While additional nesting may result in an initial shift in nesting activity from other productive nesting beaches, it is expected to provide a net increase in terrapin populations over time.

Several experts in terrapin ecology and representatives of the Governor's Terrapin Task Force have advised the Trustees that loss of suitable nesting habitat is a significant problem for this species. These experts, recognizing the likelihood of an initial shift in nesting activity and increased predation, have endorsed this type of nesting habitat restoration.

(3) The soil used for the beach enhancement comes from an agricultural field. Terrapins develop best in substrates with high sand content. Also, the past agricultural practices on the land have depended heavily on herbicides and pesticides, many of which are known endocrine disrupters.

Response: The Trustees will create a 5 – 6 acre tidal wetland on an existing peninsula (currently in agricultural production) by excavating 3 - 4 feet from the existing ground surface to allow daily tidal exchange with Washington Creek. The excavation will generate approximately 25,000 cubic yards of Evesboro loamy sand material (USDA Soil Survey of St. Mary's County, issued March 1978). This soil has a typical profile as characterized below:

0 - 2 inches:	dark gray loamy sand
2 - 25 inches:	light yellowish brown loamy sand
25 - 35 inches:	pale yellow loamy coarse sand with about 20% gravel
39 - 60 inches:	pale yellow sand

The Trustees have assessed both the grain size of the sand and the potential presence of pesticides and herbicides that could affect terrapin production.

Soil texture tests done on site in early June 2002 showed these soils range from 8 to 19 percent fine material (passing through a #100 screen), and are very sandy with a low available water capacity and low percent of organic matter. Based on this profile, Trustee technical representatives have concluded that fill from the wetland site is appropriate for beach nourishment. Terrapin experts (Drs. Whit Gibbons and Roger Wood, personal communication) have also advised the Trustees that the texture of these soils will make an ideal terrapin nesting substrate. As the project design is completed and implemented, the fill to be applied to the beach will be monitored to confirm its suitability for beach nourishment and terrapin nesting.

Since the area where the sand is being excavated has been in agricultural use, and in response to this public comment, the Trustees have investigated pesticide and herbicide use in the area to assess the potential for contamination. Within the past five years, the only pesticide or herbicide that has been applied there is *Roundup Ultra*, which was applied in 2001, as part of standard procedures for participation in the CREP program. The previous four years, the land was not farmed and no chemicals were applied. Six years ago, corn was grown there, but the crop was flooded out by high water and no chemicals were applied.

Based on information from the U.S. Department of Agriculture, both the active ingredient (glyphosate) and the surfactant (polyethyloxyated tallowamine) in *Roundup Ultra* are strongly adsorbed by the soil and readily broken down by soil microorganisms. The half-lives are 3 to 130 days for glyphosate and less than one week for the polyethyloxyated tallowamine.

Notwithstanding the relatively short half-life of *Roundup Ultra*, the Trustees consulted with Dr. Whit Gibbons (University of Georgia) on the question of what affect such chemicals in the soil might have on terrapin nesting success. According to Dr. Gibbons, “. . . the transfer of contaminants from soil to eggs at levels that could result in appreciable developmental abnormalities in eggs or hatchlings seems highly unlikely under standard application regimes of pesticides and herbicides used in most parts of the country. Concentrations of contaminants in eggshells or eggs might indeed be able to be measured as a result of transfer from the soil, but the impact on diamondback terrapin populations would presumably be unnoticeable if having any effect at all.”

Based on the analysis described above (grain size and pesticide/ herbicide assessment), soil maps of the area, and professional opinions of resource professionals planning the project, Trustee technical representatives (including those from agencies responsible for permitting) have concluded that fill from the wetland site is appropriate for beach nourishment and terrapin nesting habitat.

(4) Transplanting hatchlings to the new beach requires a tremendous amount of work. Imprinting of turtles on nesting beaches is based on research on sea turtles. It has never been demonstrated in any other species of turtles and is questionable in terrapins.

Response: Relocating terrapin nests is identified in the draft RP/ EA as a method that could be implemented to produce an increase in terrapin hatchlings. However, this action will not be implemented unless it is necessary to increase hatchling productivity. It is our intent to monitor

post-restoration terrapin nesting activity. If the monitoring data shows significant nesting activity and success, then it is unlikely that nest relocation would be implemented.

(5) While the proposed site is eroding, nonetheless it is an intact dynamic shoreline and is an unmodified, naturally occurring terrapin nesting habitat. There are other potential sites that would be more suitable.

Response: The proposed terrapin restoration site at Washington Creek was chosen, initially, to compensate for impacts to tidal marshes from the oil spill. One of the most cost-effective options for disposing of the 25,000 cubic yards sand excavated to create the wetland is to place it on a nearby eroding beach. Due to the sandy nature of the soils that will be excavated, these soils will be used as beach fill along the southeast facing shoreline of Washington Creek. This provides a cost-effective alternative to moving the soils off-site. The placement of the excavated soils along the southeast facing beach has the additional benefits of enhancing and increasing terrapin nesting habitat, as well as creating additional beach to address the beach injury resulting from the spill. Currently, much of the existing beach lies within or slightly above the mean high tide line and is not considered high quality terrapin nesting habitat. Enhancing and increasing the available terrapin nesting habitat and beach area is expected to compensate for injuries to terrapin and beaches resulting from the oil spill. Offshore structures will be constructed to prevent continued erosion at the beach site.

The existing shoreline at the “preferred” site is dynamic and is a naturally occurring terrapin nesting habitat. The Trustees intend to maintain the dynamic nature of this shoreline as well as increase the available terrapin nesting habitat.

The Trustees considered other sites for restoring terrapin nesting habitat, including the Persimmon Creek site identified by the commenter, during development of the draft RP/ EA. While it is true that the shoreline has been hardened, which most likely resulted in a disruption to existing terrapin nesting habitat, the amount of rock in place along the shoreline has, in fact, stabilized the shoreline. There appears to be an accumulation of sand in front of the revetment that, if it continues, may provide adequate terrapin nesting habitat in the future. The “preferred” site, on the other hand, is an eroding site that appears to be losing desirable terrapin nesting habitat. The preferred site also has the advantage of being very close to the wetlands restoration project, a source of sand for the new beach. The close proximity of these two projects make the preferred site the most cost effective alternative, a key consideration under OPA.

The Trustees have not reviewed the suggested site at Buzzard’s Island Creek. However, we are interested in knowing more about this site and investigating other opportunities to improve this habitat outside of the Chalk Point Oil Spill situation.

(6) On May 23, 2002, the commenter was excavating a terrapin nest and encountered oil remaining from the spill surrounding the nest.

Response: On May 28, 2002, Jim Hoff (NOAA) sent an e-mail to the commenter asking for more information about the location of this nest (e.g., beach location, above or below the high tide line) and documentation/ photographs of the particular oiled nest. No further information was provided in response to this request.

Comment: *One commenter indicated that the Hallowing Point Boat Ramp served as a staging area for the clean up effort, resulting in a loss of that facility's use for an entire season.*

The Hallowing Point boat ramp is a state facility located in Calvert County. Its location directly by Benedict Bridge makes it an important site for residents of all four counties affected by the spill.

According to Daryl Anthony, Manager of MDNR's Southern Maryland Recreational Complex, a closure of the Hallowing Point Boat Ramp was scheduled for May 1, 2000 through August 1, 2000 in order to undertake renovations. Normally the facility is open all year. Following the Chalk Point oil spill the site was used to assist with cleanup efforts, and the boat ramp was closed starting April 8, 2000. Once cleanup equipment was removed from the site, renovations commenced and according to the contractor who performed the construction work, the oil spill did not affect the performance of the renovation project. The facility was reopened just ahead of schedule, on July 27, 2000. The net effect of the spill was a three-week closure of the boat ramp from April 8 to April 30.

The recreational use at Hallowing Point and the period of the spill-related closure there are reflected in the data used to assess recreational losses following the spill. Losses caused by the closure are included in the Lost Recreational Use Valuation Report, which covers the entire spill impact zone.

Comment: *One commenter stated that the \$453,500 loss for the loss of recreation seems too low compared to the cost of clean up and the loss to those whose likelihood is associated with the river.*

Response: Compensation to the public following an oil spill must be based on the value and extent of losses that were incurred, evaluated using appropriate methodologies. While there is always some uncertainty in the calculation of losses, the Trustees have examined the full range of damages and evaluated them using peer-reviewed damage assessment methods. There is no basis, legally or economically, for assessing greater damages based on the amount of money spent on cleanup activities.

Comment: *Several commenters expressed concern that \$589,000 is being used "out of state" to purchase nesting habitat easements in the Midwest. One commenter requested an explanation of why there can be no ruddy duck remedy involving money spent in MD. As alternatives, commenters requested: (1) reconsideration of the Integrated Wetland Restoration Project at Battle Creek and/ or (2) a new project involving construction of a nature trail at Solomon's. Another commenter expressed support for this project, as proposed in the draft RP/ EA.*

Response: The project selected by the Trustees to restore the ruddy ducks lost as a result of the oil spill involves restoring nesting habitat in the Prairie Pothole region of the U.S. and purchasing perpetual easements to protect the restored areas from farming or development. The selection of this project was based on requirements of OPA and the best technical information available on the biology of ruddy ducks.

OPA is the federal statute that provides a framework for conducting natural resource damage assessment and restoring losses resulting from oil spills. Under OPA, the Trustees are required to restore the ruddy ducks lost as a result of the oil spill. Therefore, the only way that this “money” could be redirected back into Maryland would be to find a cost effective restoration project to execute in Maryland to increase the ruddy duck population. As described below, the Trustees could not identify such an alternative option.

The biology of the ruddy duck is the principle reason why a ruddy duck restoration alternative located in Maryland could not be identified. The experts and the scientific literature clearly indicates that ruddy ducks, like other migratory waterfowl that winter in the Chesapeake Bay area, breed in the Prairie Pothole region of the U.S. These ducks are a transient species in Maryland and they simply pass through the Patuxent River area during their migratory flights. They do not use Chesapeake Bay wetlands or its submerged grasses for breeding or feeding. Thus, the types of local mitigation projects that were offered as alternatives for ruddy duck restoration such as creation of wetlands (e.g. the Wetland Restoration Project at Battle Creek), shoreline stabilization, restoration of submerged grasses would have no impact on the ruddy duck population. Similarly, the commenters proposal for a new project involving construction of a nature trail at Solomon’s would not be appropriate as restoration for ruddy duck losses.

Finally, experts have advised the Trustees that the loss of nesting habitat has been identified as the main reason for the historical decline of populations of North American waterfowl, including ruddy ducks. This Prairie Pothole region of the U.S. is the most productive breeding habitat for waterfowl in North America, producing up to 70 percent of the continent’s waterfowl. Thus, not only will Maryland benefit from increased numbers of ruddy ducks visiting our waters, but protection of this critical nesting habitat will also enhance populations of mallards, gadwall, northern pintail, American wigeon, northern shoveler, green-winged teal, lesser scaup, canvasback and redhead ducks which also visit our waters throughout the migratory seasons.

For the reasons described above, the Trustees selected this project, as proposed in the draft RP/EA, for restoration of ruddy ducks injuries resulting from the Chalk Point oil spill.

Comment: *One commenter advocated that public outreach should play a key role in implementation of all of the restoration projects with a major emphasis placed on engaging volunteers to participate in the proposed restoration efforts.*

Response: The Trustees will seek to engage volunteers in implementation of restoration projects, as appropriate and feasible.

Comment: *One commenter urged the Trustees to expand the draft DARP to include a description of the criteria used in evaluating alternatives, and present each alternative showing how it performs in light of each criterion; explain why each alternative was rejected and the source of each alternative.*

Response: The final RP/EA includes an expanded description of the Trustees’ selection criteria and evaluation process.

Comment: *One commenter raised several technical issues with the Trustees' wetlands injury report, concluding that the Trustees over estimated the injury. The comments are addressed as (1) through (6), below.*

(1) The vegetative recovery curves for the WIA areas are overly conservative (including the 20 percent one year recovery estimate for the "more impacted" area, 50 percent one year recovery estimate for the "less impacted" area, and 10 year full recovery estimate for both areas).

Response: The Trustees, in cooperation with the RPs, conducted a field study designed to determine the loss of marsh services resulting from the April 7, 2000 spill. Data on oiling, vegetative status, sediment chemistry, benthic invertebrate abundance, and other factors were collected at specific locations in oiled and unoiled areas of marsh in July and September 2000 and July 2001. All of the site-specific data collected during the joint Trustee/ RP assessment has been placed in the Administrative Record (located at: <http://www.darp.noaa.gov/neregion/chalkpt.htm>).

Estimates of loss of marsh function were based on observations made during the assessment (including comparisons to unoiled reference marshes, comparisons with the effects of other oil spills in similar environments, and best professional judgment). The findings were peer-reviewed and, after several modifications to the injury report, endorsed by Dr. Carl Herschner, wetlands expert at the Virginia Institute of Marine Sciences.

Final injury estimates, including severity of injury and rate of recovery, represent the Trustees best estimates.

(2) The areas identified in the Trustees injury report as WIA "more-impacted" include areas that were not oiled.

Response: The geographic extent of oiling in the WIA area was estimated from aerial photographs taken on April 24, 2000, with heavily oiled vegetation showing up as black patches on the photos. The boundaries of the oiled areas were defined and agreed to on the photos by a joint team of both Trustee and RP technical representatives. The RP technical representatives then used ARCVIEW GIS to estimate a total of 6.4 acres within the delineated boundary. The Trustees and RPs agreed on this estimate for injury assessment purposes.

(3) Special consideration (e.g. reduction in compensation requirements) should be made for areas in WIA that were set aside from replanting and trench infilling in response to requirements from government agencies.

Response: As stated above, the Trustees and RPs jointly agreed on the estimated geographic extent of injury in the WIA area (6.4 acres). We also jointly agreed (based on field observations) that about one-half of the area was "more-impacted", with the other half being "less impacted". The commenter correctly indicates that the "more-impacted" area includes areas that were purposely not replanted to serve as a "control" for determining the effectiveness of the replanting efforts. In response to this comment, the Trustees recalculated the amount of restoration that would be required if this set aside was considered "less-impacted" rather than

“more-impacted”. Using set aside area of 0.6 acres as stated by the commenter (i.e., 3.81 acres “less impacted” and 2.61 acres “more impacted”), there would be 0.05 acre reduction in required area of restoration. The Trustees decided that the small change did not warrant revision of the injury report.

(4) Exhibit A5 in Appendix A of the Trustees Wetlands Injury Report shows an aerial photograph of the WIA area. The photo is not from July 2001, as stated in the caption.

Response: The Trustees have included an addendum in the injury report indicating that the photo was taken on September 27, 2000.

Summary of RP Comments and Trustee Responses

Pepco Comments

***Comment:** . . . the DARP explicitly reports lost service years as the appropriate metric for measuring injury, and uses this scaling approach for marshes, shorelines, and terrapins. Using the lost service year approach for ruddy ducks results in an injury of less than 700 duck years based on the life history parameters used by the Trustees. However the preferred restoration project for ruddy ducks in the DARP would restore approximately twice the lost service years injured over a 100-year period (1352 duck-years). We believe that use of lost service years to scale restoration on this project as well as other NRDA projects supports the use of lost service years to appropriately scale duck restoration.*

Response: The scaling approach applied by the Trustees for the ruddy duck restoration seeks to replace the number of individuals lost due to the spill. The Trustees propose to replace ruddy ducks killed by the spill on a “one for one” basis with restored adults. The Trustees considered other, more complicated scaling approaches, including specific models proposed by RP technical representatives (Entrix). The Trustees’ detailed evaluation of alternative scaling approaches, including the Entrix models, is provided in memos the Trustee sent to Entrix on March 26, 2002 and April 17, 2002 (attached).

As detailed in the attached memos, we concluded that the Entrix models were fundamentally flawed and underestimated the number of ruddy duck nests that need to be protected to fully compensate for the interim loss of ruddy ducks. The Entrix models estimated the number of nests needed to restore losses using a “bird-year” approach, whereby each new bird is credited for each year of its life. Thus, with an average lifespan of seven years, each new bird is credited 7 “bird-years.” The Entrix models then apply their estimated “bird-years” restoration credit to the Trustees estimate of injury, yielding a considerably lower estimate of needed restoration. The reason for the lower restoration requirements under the Entrix models is that the Trustees did not estimate injury in “bird-years”. Rather, the Trustees sought to replace the number of birds lost, assuming that the ruddy ducks killed by the spill are replaced one year after they were killed and that hatchlings foregone (lost production) from the acute injury would have lived but one year. These two components of the injury were added together in the Trustee injury estimate, i.e. they are not rendered in “bird years”; they do not consider each bird killed would have lived multiple

years. The result of the Entrix model, unsurprisingly, reduces the estimate of the number of protected nests needed to compensate for the injury below that estimated by the Trustee model. To reiterate, this error results in over-crediting the restoration side of the Entrix models (or under-crediting the injury side) with bird years produced.

Finally, the Trustees considered a “bird-year” approach to calculating both injury and restoration. Initial calculations indicated that, if done properly, applying this methodology would not result in a fundamentally different estimate of the number of new nests that need to be created to accomplish compensatory restoration. In addition, much of the underlying data that would need to be used in this type of modeling are not of sufficient quality to really improve the outcome of a more sophisticated approach. Thus, the Trustees rejected this approach based on the conclusion that such an analysis would substantially increase assessment costs without producing a more defensible estimate of required restoration

***Comment:** It is not clear why the Trustees have included specific design criteria in the DARP. Specific design criteria should be developed as part of the implementation plan for the project based on comprehensive site surveys and specific performance criteria. Since these comprehensive site surveys have not been conducted, it would be premature to guess at appropriate design criteria in the DARP.*

Response: The Trustees have not included design criteria for any of the preferred alternatives in the DARP. The Trustees have included general project descriptions for each preferred alternative. This information was intended to enable the public to engage in a meaningful review and comment process pursuant to the OPA regulations. 15 C.F.R §§ 990.15, 990.55(c). The project description for the Cedar Haven Fishing Pier (preferred alternative 5.3.7.6) references explicit dimensions of the fishing pier. As this could be construed as design criteria, we have removed those references.

***Comment:** . . . it is unclear why the DARP includes performance criteria. NRDA projects typically incorporate performance criteria into the consent decree, not as part of the Restoration Plan. Of most concern is the fact that the DARP includes performance criteria for terrapins and ruddy ducks for habitat restoration projects. The Trustees explicitly told the RPs during NRDA Council meetings that performance on these projects would be measured by habitat condition and not the productivity of the ducks and terrapins. In fact, the only performance criteria identified in all the draft restoration project summaries and the preliminary DARP (April 2002) was based on habitat conditions. It is unclear why the Trustees made these statements for RP agreement and then modified the criteria in the public DARP.*

From a technical perspective, it is not clear why the Trustees are proposing long-term performance criteria for terrapin and ruddy duck productivity. The DARP explicitly states that habitat restoration would restore the resources injured, and the preferred projects have the potential to provide substantially more benefit to the resource than alternative projects that only compensate for the resources injured. In addition, the DARP states that, for terrapins, the proposed project includes over twice as much habitat as needed to compensate for the injury. Thus, there appears to be minimal basis for intensive, long-term monitoring of productivity. If the Trustees are uncertain whether the preferred project will succeed, there are more cost-

effective alternatives that can measurably restore injured resources in a fraction of the time and possibly a fraction of the cost.

Response: The Trustees have included general performance measures in the DARP for each of the preferred alternatives. The performance measures are intended to explain to the public how the Trustees will assess the success of each restoration alternative. Because the headings in the Draft DARP are labeled “Performance Criteria and Monitoring,” the Trustees have modified these headings in the final RP/ EA to “Performance Measures and Monitoring.” The Trustees, however, are in the process of developing more specific performance criteria for each restoration project. The specific performance criteria provide explicit restoration endpoints that measure the success of the restoration. Monitoring will be undertaken for ecological restoration projects to determine if the performance criteria are being met and whether mid-course corrections are necessary. To ensure accountability, the specific performance criteria will be incorporated into the consent decree for those restoration projects which the Responsible Parties implement.

We do not understand the comment suggesting the Trustees “modified the criteria in the public DARP”. We’ve reviewed the April draft to determine the extent of changes that were made between this version and the May version that was released for public comment. The performance measures described in the text for the wetland, oyster, and ruddy duck projects appears identical. The only new text that was added was the following: “If nest densities fall below expectations, corrective actions will be taken with the contingency funds identified in Table 5.6.”

Finally, as stated above, the Trustees will monitor ecological restoration projects to determine if the performance criteria are being met. While the Trustees believe that this project has a high likelihood of success, there is always some uncertainty with ecological restoration projects. Monitoring will allow for any mid course corrections that may be necessary to ensure that the project achieves the anticipated restoration benefits..

***Comment:** The general cost information provided in the DARP does not provide adequate information to determine whether the proposed costs are appropriate, reasonable, or cost-effective.*

Response: The costs presented in the draft Plan are the best estimates of the costs that the Trustees would incur if we implemented the preferred alternatives. We are prepared to respond to any specific questions about how these cost were estimated.

***Comment:** p. 2, last para. . . . We are unaware of NRDA surveys conducted after July 2001.*

Response: The text has been revised.

***Comment:** p. 12, first complete para. The text regarding habitats impacted by the spill should be clarified.*

Response: The text has been revised.

Comment: p. 18, second para.. The text repeatedly states there were 76 acres oiled . . . to be consistent with the findings from the injury assessment, the acreage should be revised.

Response: Entrix has drafted an explanation of the discrepancies between the Extent of Oiling Report, Final Wetlands Injury Report, and draft RP/ EA with respect to the reported total acres of oiled wetlands. This explanation will be added as an addendum to each of these documents.

Comment: p. 22, first para.. The text states that there was estimated to be a 100% loss of vegetation in restricted access areas. The text should be corrected to state the Trustees assumed there was 100% loss of vegetation although no vegetation was oiled.

Response: The text was revised.

Comment: p. 30, last para. The text repeatedly uses the terms such as "dead" or "mortality" in reference to bird losses that include production foregone (also Table 1.1, Table 4.7). The term should be corrected to "loss" or a comparable term since production foregone never existed.

Response: The text has been revised.

Comment: p. 33, item (5). The text states there was a significantly lower frequency of presumed spring emergers at oiled sites based on the field surveys. Apparently, less than 5% of the presumed spring emergers actually hatched in the lab. Thus, the presumption from the field survey was incorrect. The final results indicate that not only was there apparently not a significant difference in actual spring emergers, but the overall hatchling rate was virtually identical between oiled and control sites. The text about spring emergers should be updated or deleted since it provides an incomplete overview of the study results.

Response: The Trustees are unaware of any program to hatch possible "spring emergers" under laboratory conditions as part of the series of terrapin injury studies undertaken in response to the Chalk Point oil spill. The terrapin injury report prepared by Drs. Wood and Hales does discuss finding a higher frequency of dead embryos and a significantly lower frequency of presumed spring emergers at oiled sites compared to unoiled "control" sites, based on a field survey they conducted in 2000. The report does not describe a laboratory program to hatch presumed spring emergers collected during the course of their field study. If in fact such a program was conducted, there are no data from it available to the Trustees to help facilitate a comparison between the apparent low hatching rate (< 5%) of the alleged laboratory hatching program and the results of the Wood and Hales field study.

Furthermore, a low hatching rate for presumed spring emergers in the laboratory does not necessarily invalidate the conclusions drawn about dead embryos and lower frequencies of presumed spring emergers observed in the field. For these reasons, the Trustees disagree with the assertion that the "presumption from the field survey was incorrect" and reject the recommendation to revise or delete text related to this subject in the draft Plan.

Comment: p. 40, first para. The text states that real estate specialists identified properties with the appropriate elevation. The real estate agents did not consider elevation . . .

Response: The text has been revised.

Comment: *p. 40, last para. . . . it is not clear why the text includes specific design criteria. In addition, the specific criteria do not appear to be based on standard procedures. For example, standard wetland restoration procedures state the appropriate planting density for the proposed species should be 3-foot centers (MDE 1998) up to 6-foot centers (Thurnhorst 1993).*

Response: The Trustees' planting density of 18 inches for the wetland project is based on the Maryland Compensatory Mitigation Guidance document and professional judgment and experience. The guidance document recommends that wetland species in tidal emergent wetlands be planted on a 12" x 12" to 24" x 24" grid spacing, depending on site conditions. Rick Ayella (MDE) has advised the Trustees that 18-inch centers is the accepted spacing for marsh planting in Maryland. Rick has worked on hundreds of projects for marsh establishment and indicates that he has never done or approved of a spacing greater than 18 inches.

Comment: *p. 42, first complete para. While it is true that the cost of disposing of material at the beach is less than hauling offsite (as stated in the text), disposal of the soil could be on the adjacent agricultural land and may be preferred by the landowner. It is not necessary to haul it offsite and the cost-effectiveness of alternative disposal should be corrected.*

Response: Based on discussions with the landowner, the Trustees have concluded that land based disposal (other than on the nearby beach) of sand excavated from the wetland project is not a preferred option.

Comment: *p. 43, sixth para. The text states that corrective action will be taken if performance standards are not achieved or monitoring suggests unsatisfactory progress. The purpose of the performance criteria is to determine when corrective actions are appropriate. It is inappropriate to further require corrective action based on the suggestion of unsatisfactory progress.*

Response: The text has been revised to state that corrective actions will be taken "if performance criteria are not achieved or monitoring suggests unsatisfactory progress toward meeting established performance criteria".

Comment: *p. 44, last para. The text states a benefit of the wetland project is that it significantly reduces costs associated with moving excavated material. As mentioned above, it is not appropriate to present the avoidance of off-site disposal as a benefit when off-site disposal would apparently not be necessary. In addition, on-site disposal may be more cost-effective than hauling to the beach.*

Response: As stated above off-site disposal is not a preferred option.

Comment: *p. 47, last para.. The text states that alternate material will be used for reef construction if deemed suitable. . . . Alternate material is less preferred than shell by the State of Maryland, the scientific community, and commercial and recreational watermen. In addition,*

it is more expensive to permit, purchase, store, and handle alternate material. The only valid reason to use alternate material instead of shell is if shell is not available due to USACOE disallowing a permit to MDNR. This situation (while possible) is not likely. The text on alternate material should be corrected as well as the associated costs.

Response: The text has been revised to clarify that oyster shell will be used, if available. If sufficient shell is not available, alternate material will be used. Estimated project costs included in the draft Plan include the additional costs of using alternate material in the event that this is necessary.

Comment: *p. 49, third para. The text states two seedings will be conducted 5 years apart "to maintain the oyster population." However, this approach will provide a boom-or-bust cycle that is neither beneficial for the oyster population nor the community it supports. It is generally recognized by oyster experts that it would be more beneficial to have a reduced level of seeding every year or two "to better maintain the oyster population" and "compensate for the uncertainty of oyster survival."*

Response: The proposed Year 1/ Year 5 seeding schedule was developed based on established annual mortality rates for oysters in the Patuxent River associated with oyster diseases. Under the proposal, seeding would occur in Year 1 with densities declining to near zero by year 5 when the second seeding is proposed. The Trustees considered a shorter timeframe between the two seedings (e.g. Years 1 and 3). However, this was rejected when we considered the likelihood of seeding disease-free oysters on top of diseased oysters, thus perpetuating infection of the reef.

Comment: *p. 49, third para and p. 50, first para. The text states quarterly and bi-annual monitoring are appropriate to determine success of oyster restoration. However, annual monitoring is the standard practice for the State of Maryland in determining the success of oyster restoration projects. Increased monitoring may be academically interesting but largely unrelated to project success. The appropriate sampling frequency and effort should be incorporated into Tables 5.2, 5.3, 5.5, and 5.13 and associated text.*

Response: Biannual monitoring is necessary to determine the cause of any observed mortality and anticipate spat needs for corrective action. Spring monitoring will assess winter die-off from predation and low dissolved oxygen and salinity. Fall monitoring will determine mortality associated primarily with disease. Knowing cause of mortality allows for appropriate corrective actions.

Comment: *p. 49, last para. The text states a historical survey of the oyster site is required. However, it is highly unlikely a historical survey is warranted since Federal and state agencies have conducted numerous oyster enhancement efforts in the area of interest and a historical survey was not needed.*

Response: Since the site for the oyster reef has not yet been determined, there a very real possibility that an underwater survey may be required to evaluate the selected site for historical significance (personal communication between John Collins (NOAA) and the Maryland

Historical Trust). In the interest of adequately anticipating potential costs for restoration, this cost was included.

Comment: *p. 49, last para. The text states video imaging will be conducted to determine site suitability. This technology is not standard practice for oyster restoration projects in the State of Maryland, costs over twice as much as standard procedures, and is not necessary to determine site suitability.*

Response: While past oyster restoration projects conducted by the state have not always included video imaging, using this technology to assess site conditions is now a standard practice of the state.

Comment: *p. 50, first para. The text proposes high density seeding once every five years. However, moderate density seeding every couple of years would be more beneficial to the oyster population, reef community, and water quality as well as the seed production facilities. In addition, this would provide more latitude in corrective actions, improve logistics, and allow more ready determination of when project objectives are satisfied.*

Response: See response to comment “pg. 49, third para.”

Comment: *p. 51, second complete para.. The text makes a statement about large oysters, disease resistance, and inheritance that should be clarified since it seems to imply that the genetic composition of oysters may improve as they grow larger. The statement should be reworded to more clearly convey that presumably oysters that are disease resistant would theoretically survive longer, grow larger, and produce more offspring that may also be disease resistant.*

Response: The text has been revised to convey the clear meaning that larger oysters are less susceptible to disease and will therefore pass that trait on if they reproduce.

Comment: *p. 51, fourth complete para. The text states existing seed production capabilities can support this project. It is unclear whether the existing hatcheries can support this proposed production since it would apparently equal approximately half of the MDNR production capabilities for the entire state in years 1 and 5. From a hatchery production perspective, it would be better to have lower production on a more consistent basis, especially after the initial seeding.*

Response: There is ample hatchery capacity in Maryland to meet the project as scaled. There are two facilities within Maryland that can produce large quantities of oyster spat: Piney Point (DNR) and Horn Point (UMd). There are other ongoing oyster restoration efforts that use this capacity to complete multiple projects of much greater size than this each year. Although various other projects also need spat from these two primary sources, priorities and allocations are pre-planned each year to match the needs.

Comment: *p. 52, sixth para. and p. 56, third para. The text states that the alternative projects were not selected because they were not as consistent with established restoration goals as the*

preferred project. . . . these statements are not necessarily true since there are regional restoration goals for the specific resources proposed for restoration in alternative projects. Secondly, the evaluation criteria presented (pages 38-39) do not include a criteria concerning restoration goals. The assessment should either focus on the stated evaluation criteria, or the evaluation criteria should be expanded to include consistency with federal, state, and local restoration goals.

The discussions on pages 52 (sixth para.) and 56 (third para.) have been substantially revised to satisfy requirements of NEPA. The discussion of evaluation criteria has also been revised to reflect the full range of criteria used by the Trustees to evaluate restoration projects, including consistency with local, regional, and national goals and initiatives.

Comment: *p. 53, second para. There appears to be a minor discrepancy between the benthic injury total presented on pages 53 and 54.*

Response: Benthic injury is not reported on page 53 of the draft Restoration Plan. Benthic injury is reported on page 54 as 2,256.1 kgs. On page 55 of the draft Plan, the reported value of 2,248.3 kgs represents the discounted injury estimate (expressed as Year 2000 equivalents), as stated in the text.

Comment: *p. 58, fourth complete para. As stated previously, we disagree that the ruddy duck scaling is appropriate or reasonable.*

Response: The Trustees' rationale for the ruddy duck scaling approach and specific comments on the alternative approach proposed by Entrix is provided above in response to General Comment 1.

Comment: *p. 59, fifth para.. The spelling for "realty" should be corrected . . .*

Response: The text has been revised.

Comment: *p. 60, para. 4. In regard to the ruddy duck project, we disagree with the statement that that the "costs associated with this project are reasonable." The restoration scaling and preferred project are disproportionate to the injury to ruddy ducks and it is unclear what the basis is for the Trustee's determination that the costs are reasonable.*

Response: The ruddy duck nesting project, as proposed, would restore 533 lost ruddy ducks, at a total project cost of \$589,000. We reviewed the *North Cape* Restoration Plan, for comparison of costs. Two bird habitat restoration projects are being implemented to compensate for bird losses during the *North Cape* spill. The first, to compensate for the loss of approximately 414 loons is to protect approximately 33 nests at a total project cost of approximately \$9.4 million. To compensate for the other marine birds lost (~ 1,700 birds), they will protect 414 eider nests, at a cost of \$719,000. Within the context of this example, the Trustees believe the ruddy duck restoration is reasonable and appropriate.

Comment: p. 61, fourth complete para. The text associated with trophic scaling to birds is well-written and simply presented. The same type of text should be provided for the trophic scaling for fish.

Response: It is not clear from the comment what changes are being proposed. Thus, the text was not changed.

Comment: p. 65, first complete para. If a nest relocation-imprinting study is warranted, the nests should be protected to increase the numbers of turtles imprinted to the new beach to enhance productivity.

Response: The Trustees have not suggested that further "study" may be warranted to implement this restoration project. Rather, they stated that nest relocation and/or hatchling "head starting," (commonly referred to as adaptive management actions) may be necessary to help ensure that the enhanced high beach terrapin nesting habitat will produce the required increase in terrapin hatchlings. Nest protection, either alone or in combination with other adaptive management actions, will also be considered.

Comment: p. 66, third para. The text states that performance criteria will be monitored over the course of the project. This text should be corrected to reflect that performance criteria are only warranted until injuries are restored, which in this instance would be expected to be within about 1/4 of the life of the restoration project.

Response: The Trustees believe that a monitoring program will need to be in place for seven years after the terrapin nesting beach is restored. This is the length of time the Trustees assume is required to confirm that the full terrapin productivity gains the project is designed to achieve have been reached and are sustainable for the 25-year project lifetime. The text will be modified to clarify this point.

Comment: p. 66, third para. As stated in the general comments, it should be unnecessary to have an intensive, long-term monitoring program for nesting density since the Trustees have already determined that successful habitat restoration would restore terrapin injuries. If quantitative field measurements of terrapin enhancement are necessary, there are alternative projects that would likely be more cost-effective.

Response: While the Trustees believe that the preferred terrapin restoration project will be successful, there is a degree of scientific uncertainty associated with any project of this nature. That uncertainty is associated in this instance with such unknowns as: just how suitable the newly restored beach will be for nesting; how quickly additional terrapins will begin nesting there; how quickly the beach will erode from natural wind and wave forces, etc.? The Trustees believe that a monitoring program for terrapin nesting/hatching productivity on the restored beach is essential to help ensure that the goals of the proposed restoration project are achieved. Furthermore, the Trustees intend to design the most cost-effective monitoring program practicable.

Comment: p. 67, third complete para. *The costs apparently indicate that 20,000 plants will be planted It is not clear why the terrapin project includes 20,000 plants on the beach when terrapins do not prefer vegetated habitat for nesting. In fact, USFWS (1997) report that planting should be avoided in restoration projects for terrapin nesting habitat.*

The Trustees are aware that an inverse relationship apparently exists between the density of beach vegetation and the density of terrapin nesting that can be expected on the restored beach. However, due to the anticipated problem of wind erosion at the site, the Trustees believe that it will be necessary to plant low-density, stabilizing grasses along a ten-foot wide strip between the existing upland and the newly restored beach. The density of the planting (and consequently, the required number of plants) will be determined during the final design phase of project implementation.

ST Services Comments

Comment: . . . the DARP calculates “a required project area of 750 ha.” However, based on restoration costs of \$100 per hectare and total restoration costs of \$146,000 (as indicated on pages 59 and Table 5.4), it appears that the project involves acquisition of easements and restoration of 1,460 hectares, rather than the 750 hectares needed for compensatory habitat.

Response: The restoration cost presented in the draft DARP as \$100 per hectare should be \$100 per acre (or \$247 per hectare). The text has been corrected. Total estimated restoration costs remain \$146,000. This is calculated by multiplying the number of acres of grassland (1462 acres, based on roughly a 4:1 ratio of grasslands: wetlands applied to the 1853 total acres or 750 total hectares) by the restoration cost per hectare of grasslands as follows: (1462 acres x \$100/acre = \$146,000).

Comment: *Successful habitat restoration can be engineered, but utilization of the habitats cannot be assured. Thus, if the indirect approach to restoration of lost animals is selected, the result should be measured on that basis, i.e., whether the required amount of habitat has been created or protected . . .*

Response: The Trustees assume this comment is directed to the preferred alternatives for ruddy duck and terrapin restoration projects. Ruddy ducks and terrapins (among others) were the species injured. Ruddy ducks and terrapins (among others) are the species that the Trustees intend to restore. The preferred restoration methodologies create habitat in order to increase the actual numbers of these injured species. While the restoration focuses on the enhancement of habitat as a means to restore these species, the bottom line is the species. Accordingly, the Trustees have determined that it is appropriate to measure the success of the restoration based on the number of ruddy ducks and terrapins the projects are expected to produce. This gives the Trustees the best indicator of success and ensures that the public is fully compensated for the loss of natural resources and services.

Comment: . . . design and performance criteria for the restoration projects . . . should not be specified in the Restoration Plan.

Response: See response to Pepco comments, above.

Comment: *It is factually inaccurate to say that “at the time of the spill, the pipeline was . . . operated by Support Terminal (ST) Services.” ST does not agree that it was the sole operator of the pipeline.*

Response: Without making independent findings of fact, the Trustees relied upon the Unilateral Administrative Order (UAO) issued by the United States Environmental Protection Agency (EPA) on May 1, 2000, to Pepco and ST Services requiring abatement activities relating to the pipeline rupture resulting in the oil spill in the vicinity of the Chalk Point Generating Station. Section V of that UAO, Findings of Fact, states that at the time, the pipeline was “owned by Pepco and operated by ST.” Accordingly, the Trustees will not modify the final RP/ EA to the contrary.

Comment: *Please note that ST has voluntarily participated in the natural resource damage assessment process. Despite contrary references in the DARP, ST Services does not agree or admit that it is a “Responsible Party” or “RP” for purposes of liability under the Oil Pollution Act.*

Response: Throughout the natural resource damage assessment, the Trustees have been complying with the regulations. The regulations lay out a comprehensive administrative process for undertaking injury assessment, restoration planning, restoration implementation and for involving the “Responsible Parties.” The regulations envision that upon completion of the final RP/ EA, the Trustees present their claim to the Responsible Parties. If the Responsible Parties do not agree to the demand within 90 days, the Trustees may either file a judicial action for damages or seek an appropriation from the Oil Spill Liability Trust Fund. 15 C.F.R. §§ 990.62, 990.64. In keeping with the regulations, and prior to an adjudication of liability, the Trustees will continue to use, the phrase “Responsible Parties” when referring to Pepco and ST Services in the final RP/ EA.

Attachment 1: Text of March 26, 2002 memo from Jim Hoff (NOAA) to Ralph Markarian (Entrix):

The Trustees have prepared and discussed written descriptions and interim results of the scaling methodology for ruddy duck restoration with RP technical representatives over the past five months. Briefly, the scaling approach applied by the Trustees for ruddy duck restoration seeks to replace the number of individuals lost due to the spill. The Trustees propose replacing adult ruddy ducks killed by the spill on a "one-for-one" basis with restored adults. Production foregone from the breeding season following the spill (i.e., offspring that would have been produced by the adults killed by the spill) are replaced after accounting for fledgling mortality prior to their entering the adult population that begins its migration in the fall to the Chesapeake Bay area (and other regions). Overall, this is a defensible approach consistent with OPA regulations. The Trustees considered other, more complicated scaling approaches, but believe that implementation of such methods in this case will require additional time, effort and expense without commensurate improvements in the accuracy, certainty or defensibility of restoration scaling results.

Given their high annual mortality rate, and information on the maximum lifespan of ruddy ducks (13 years, based on information from a USGS ruddy duck website) the life expectancies of young adult ruddy ducks (e.g., between 0.5 and 2 years old) are very similar. By definition, all of these adult birds have an equal chance of living one more year (i.e., 50 percent). Likewise, they have an equal chance of living two more years (i.e., 25%), three more years (i.e., 12.5%), etc.¹ Thus, available data suggest that injured and restored ruddy ducks are likely to have similar life expectancies, further limiting the potential utility of a bird-years approach for the Chalk Point case.

The scaling calculations undertaken by the Trustees rely on several parameters. For calculation of restoration credit, one key parameter is the number of adult birds expected to be produced by a "restored" nest each year. Information from the literature (Johnsgard and Carbonell, 1996), utilized in the joint Trustee-RP bird injury quantification report (Wildlife Injury Workgroup, 2001) indicates that 1.5 adults per nest is a reasonable estimate for this parameter. Simple calculations, provided below, suggest that this level of reproduction is consistent with a stable or slightly growing population of ruddy ducks.

Information obtained by the Trustees and RP from the literature indicates that adult mortality rates are 50 percent. Thus, for illustrative purposes, a population of 100 adult ruddy ducks would need to replace 50 adults every year to maintain a stable population. Trustee and RP injury calculations rely on an estimate from Johnsgard and Carbonell (1996) that approximately 40 percent of the adult population is female. Assuming that each female nests, this suggests that this hypothetical population is supported by 40 nests.² Based on these factors, an average nest would need to produce 1.25 adults per year to maintain a steady population.³ In fact, the population likely would need slightly higher productivity to account for some amount of nest failure and the fact that some number of females may not nest every year (i.e., nesting propensity is less than 100 percent).

Actual biological processes are much more complex than the simple example described above. Annual productivity in a given year (or set of years) can vary substantially for a variety of reasons. For example, nesting success typically is much lower in dry years because of poor habitat conditions, low nesting propensity and higher predation rates. In wet years virtually every hen will attempt to nest and most will re-nest several times if the earlier nests are destroyed (Ron Reynolds, personal communication). In addition, spatial variability may lead to higher productivity in certain breeding areas than others. Populations also can be impacted by immigration of individuals to and from particular regions. Overall, the Trustees rely on the best information available concerning typical productivity levels, and use this information consistently in injury and restoration calculations.

Finally, the Trustees also considered use of numerical "population-level" models to calculate injury and restoration scale. The Trustees note that the methodology utilized in the joint Trustee-RP injury report is based on impacts to individual birds, but considered and incorporated potential population-level factors in the calculation of ruddy duck production foregone. While other, more complicated numerical models exist, the Trustees have serious reservations

¹ The likelihood of an individual bird living x more years = (annual survival rate) x , up to the maximum lifespan of the bird.

² 40 nests = 100 birds * 0.4 (proportion of females)

³ 1.25 adults per nest = 50 adults / 40 nests

about the defensibility of population-level models as applied to ruddy duck restoration for the Chalk Point spill. Results from such models are dependent on assumptions made about the direction and rate of population levels in future years (i.e., are they stable, increasing or decreasing, and how quickly), which in turn rely on assumptions made about density-dependent effects (i.e., the extent to which survival, production and other key biological parameters are influenced by population densities).

As indicated above, ruddy population levels are influenced heavily by density independent factors (e.g., precipitation levels at their breeding grounds), complicating efforts to predict whether populations are likely to increase, decrease or stay the same in the years following the spill (Ron Reynolds, personal communication). In addition, the Trustees are unaware of information suggesting that ruddy offspring production is negatively related to breeding density (an assumption of the density dependent model initially proposed by the RP). Instead there is some evidence pointing to a positive relationship between brood/duckling survival and population levels due to the effects of predation (e.g., safety in numbers). Furthermore, when poor habitat conditions exist (e.g., due to drought), breeding populations decline, breeding propensity is lower, and brood/duckling survival is also lower. Finally, in the judgment of the Trustees, available information is insufficient to quantify density-related effects. For these reasons, we believe that application of a density dependent model to ruddy duck populations for Chalk Point scaling analyses will increase assessment costs but will not lead to a more defensible result than the approach currently employed by the Trustees.

References

Johnsgard, P.A. and M. Carbonell. 1996. Ruddy Ducks and Other Stiffetails, Their Behavior and Biology. Oklahoma Press, OK.

USGS ruddy duck website - <http://www.pwrc.usgs.gov/resshow/rattner/bioeco/rudduck.htm>

Wildlife Injury Workgroup. 2001. Estimate of Total Acute Mortality to Birds Resulting from the Chalk Point Oil Spill, Swanson Creek, Maryland. Chalk Point NRDA Council.

Attachment 2: Memo from Jim Hoff and Norman Meade to Ralph Markarian and Ted Tomasi commenting on the Entrix model for scaling ruddy duck restoration

April 17, 2002

To: Ralph Markarian and Ted Tomasi, Entrix
From: Jim Hoff and Norman Meade, NOAA
Subject: Chalk Point Oil Spill: Ruddy Duck Injury Quantification and Restoration Scaling

This memorandum summarizes our views on the ruddy duck injury quantification and restoration scaling model (hereafter, the "Entrix model") proposed by Ted Tomasi and Jeff Wakefield in their memo of April 11, 2002. We discussed these opinions with Ted by telephone on Monday afternoon, April 16, 2002.

After careful evaluation of the Entrix model, we concluded that it's fundamentally flawed and underestimates the number of ruddy duck nests that need to be protected to fully compensate for the interim loss. The reasons for our opinion are described below.

On the debit side of the Entrix model, where injury is quantified, an assumption was adopted from the "RP/EA model" (the RP/EA model is used to estimate the injury and restoration scaling values reported in the current draft RP/EA). That assumption states that the ruddy ducks killed by the spill (acute injury) are replaced one year after they were killed and that hatchlings foregone (lost production) from the acute injury would have lived but one year. These two prongs of the injury were simply added together in the RP/EA model, i.e. they are not rendered in "bird years."

Likewise, on the credit (restoration scaling) side, the RP/EA model adds up the discounted number of ruddy duck hatchlings produced each year by the nest preservation (compensatory restoration) project over its 100 year life span. It, in effect, credits each of those additional hatchlings for only one (discounted) year of life. This is equivalent to what was assumed on the injury side and avoids the need to make the much more complex bird years calculations. The Entrix model, however, takes a bird years approach on the credit side, fundamentally departing from the assumption in the RP/EA model. The effect of this is to credit each additional hatchling with up to 7 more (than the RP/EA model) years worth of contributions to the ruddy duck population. The result, unsurprisingly, reduces (in this instance, by about one-half) the Entrix model's estimate of the number of protected nests needed to compensate for the injury below that estimated by the RP/EA model. This modeling error is caused by over-crediting the restoration side of the Entrix model (or under-crediting the injury side) with bird years produced. To correct this problem (and improve other components of the Entrix model) is not a trivial exercise.

We see no reason to embark on an entirely new (i.e., Entrix-type) modeling exercise at this late stage of the NRDA process. The simplified RP/EA model renders a reasonably accurate estimate of the number of nests that need to be preserved to accomplish compensatory restoration for ruddy ducks. Our rough calculations indicate that the more sophisticated ruddy duck years modeling exercise being promoted by Entrix, if done properly, would not result in a fundamentally different estimate of the number of nests that need to be preserved to accomplish compensatory restoration. Much of the underlying data that would need to be used in a properly rendered Entrix-type model are not of sufficient quality to really improve the outcome of a more sophisticated approach, in our opinion.

Furthermore, a very time consuming effort would be required to develop, test, and peer review any new model before it could be substituted for the one in the current draft RP/EA (recall that development of the RP/EA model began back in October, 2001). Such an exercise would surely mean at least a month or more delay in the current NRDA schedule. The inevitable result would be that a public version of the draft RP/EA likely could not be expected before early June (at the earliest). Given that the Trustees and RPs have made public representations and plans for the draft RP/EA to be published in early May, such a delay would cause considerable inconvenience to all parties concerned. We don't believe such a delay is warranted by any possible improvement (which is by no means a certainty) in the accuracy of the current RP/EA model estimates.

Please do not hesitate to contact us if you wish to discuss this matter further.

Appendix 6. Preparers, agencies, and persons consulted.

National Oceanic and Atmospheric Administration

Dr. Jim Hoff, Damage Assessment Center, Silver Spring, MD
Sharon Shutler, Office of General Counsel, Silver Spring, MD
Norman Meade, Damage Assessment Center, Silver Spring, MD
Eric English, Damage Assessment Center, Silver Spring, MD
Lisa Pelstring, Damage Assessment Center, Silver Spring, MD
John Collins, Restoration Center, Silver Spring, MD

U.S. Department of the Interior

Dr. Beth McGee, U.S. Fish and Wildlife Service, Annapolis, MD
Sherry Krest, U.S. Fish and Wildlife Service, Annapolis, MD
Pete McGowan, U.S. Fish and Wildlife Service, Annapolis, MD
Al Rizzo, U.S. Fish and Wildlife Service, Annapolis, MD
Shelly Hall, Office of the Solicitor, Washington, D.C.
Ron Reynolds, U.S. Fish and Wildlife Service, Bismarck, North Dakota
Dr. Charles Henny, USGS Forest and Rangeland Ecosystem Science Center, OR
Dr. Peter Albers, USGS, Patuxent Wildlife Research Center, Laurel, MD
Dr. Mark Hatfield, USGS, Patuxent Wildlife Research Center, Laurel, MD

Maryland Department of Natural Resources

Carolyn V. Watson, Office of the Secretary, Annapolis, MD
Joe Gill, Annapolis, Office of General Counsel, MD
Phil Jones, Fisheries Service, Annapolis, MD
Kevin Smith, Chesapeake and Coastal Watershed Services, Annapolis, MD
Chris Judy, Fisheries Service, Annapolis, MD
Ann Sloan, Chesapeake and Coastal Watershed Services, Annapolis, MD

Maryland Department of the Environment

Dr. Bob Summers, Baltimore, MD
Charlie Poukish, Baltimore, MD
Rick Ayella, Baltimore, MD
Stephanie Williams, Baltimore, MD

Non-Agency Persons

Bernie Fowler, Chair, Patuxent River Oil Spill Citizens Advisor Committee
Ms. Mary Lorsung, Chair, Patuxent River Commission
Dr. Jacqui Michel, Research Planning Inc., Columbia S.C.
Heidi Hinkleday, Research Planning Inc., Columbia S.C.

Ed Garbish, Environmental Concern, Inc. St. Michels, MD
Dr. Carl Hershner, Virginia Institute of Marine Sciences, Gloucester Point, VA
Dr. William Roosenburg, Ohio University
Dr. Whit Gibbons, University of Georgia
Dr. Roger Wood, The Wetlands Institute and Richard Stockton College of New Jersey
Dr. Stan Hales, The Wetlands Institute and Richard Stockton College of New Jersey
Dr. Pete Peterson, University of North Carolina at Chapel Hill, Morehead City, NC
Dr. Richard Osman, Academy of Natural Sciences Estuarine Research Center, St. Leonard, MD
Dr. Roberto Llanso, Versar, Columbia, MD
Dr. A. Fred Holland, Hollings Marine Laboratory, Charleston, S.C.
Steve Cardano, Nanjemoy Environmental Education Center, MD
Ann Wearmouth, Mirant Mid-Atlantic, Forestville, MD
Deborah French-McCay, Applied Sciences Associates, Narragansett, R.I.
George Abbe, Academy of Natural Sciences Estuarine Research Center, St. Leonard, MD
Mike Donlan, Industrial Economics, Boston, MA
Dr. Denise Breitburg, Academy of Natural Sciences Estuarine Research Center, St. Leonard, MD
Doug Lipton, University of Maryland, College Park, MD
Dr. Kenneth McConnell, University of Maryland, College Park, MD
Jim Potts, Pepco, Washington D.C.
Jim Siciliano, ST Services, Dallas, TX
Ralph Markarian, Entrix, New Castle, DE
Heath Byrd, Entrix, New Castle, DE
Dr. Ted Tomasi, Entrix, New Castle, DE
Gary Harmon, Entrix, New Castle, DE
Rich Greer, Entrix, New Castle, DE
Wayne Kicklighter, Entrix, New Castle, DE

Appendix 7. Trustee Adoption Resolution

The undersigned, as authorized officials of their respective federal and state natural resource Trustee agencies, hereby approve and adopt the "Final Restoration Plan and Environmental Assessment for the April 7, 2000, Oil Spill at Chalk Point on the Patuxent River" and select the restoration projects described as "Preferred Alternatives" in this final Plan.

For the National Oceanic and Atmospheric Administration:

By:  11/13/02
Date

For the Maryland Department of Natural Resources:

By: _____ Date

For the Maryland Department of the Environment:

By: _____ Date

For the U.S. Department of the Interior:

By: _____ Date

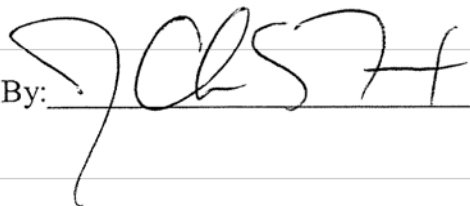
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For the National Oceanic and Atmospheric Administration:

By: _____ Date _____

For the Maryland Department of Natural Resources:

By:  _____ Date 11/12/02

For the Maryland Department of the Environment:

By: _____ Date _____

For the U.S. Department of the Interior:

By: _____ Date _____

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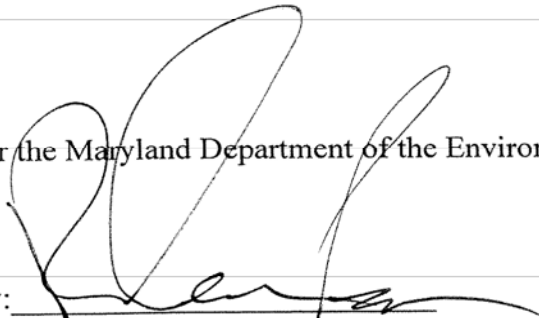
For the National Oceanic and Atmospheric Administration:

By: _____ Date _____

For the Maryland Department of Natural Resources:

By: _____ Date _____

For the Maryland Department of the Environment:

By:  _____ Date Nov. 7 02

For the U.S. Department of the Interior:

By: _____ Date _____

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For the National Oceanic and Atmospheric Administration:

By: _____ Date _____

For the Maryland Department of Natural Resources:

By: _____ Date _____

For the Maryland Department of the Environment:

By: _____ Date _____

For the U.S. Department of the Interior:

By: Ma Parker Date OCT 18 2002

Appendix 8. Finding of No Significant Impact

The National Oceanic and Atmospheric Administration is the lead federal agency for National Environmental Policy Act compliance for the final Restoration Plan and Environmental Assessment (EA) for the April 7, 2000 oil spill at Chalk Point. The cooperating agencies include the U.S. Department of the Interior (U.S. Fish and Wildlife Service) and the State of Maryland's Departments of Natural Resources and Environment.

The Environmental Assessment for this project evaluated various restoration alternatives, including the "no action" alternative as described in Section 5.4 of the final Restoration Plan/ EA. The public was afforded several opportunities to review and provided input on the alternatives, including the preferred alternatives. A public meeting was held in Calvert County, MD, on May 15, 2001 to present the draft Restoration Plan/ EA to the public. The draft Restoration Plan/ EA was also made available to the public for a 60-day public comment period in both hard copy form and posting on the government web site. Public comments received as a result of the public comment process were generally favorable to the preferred alternatives and have been summarized in Appendix 5 of the Plan.

To comply with the requirements of NEPA, the Trustees analyzed the effects of each preferred alternative on the quality of the human environment. NEPA's implementing regulations direct federal agencies to evaluate the potential significance of proposed actions by considering both context and intensity. For the actions proposed in this Final Restoration Plan/EA, the appropriate context for considering potential significance of the action is local, as opposed to national or worldwide. With respect to evaluating the intensity of the impacts of the proposed action, the NEPA regulations (40 C.F.R. § 1508.27) suggest consideration of ten factors. These are generally addressed for each proposed action in Chapter 5 of the final Restoration Plan/ EA and can be summarized as follows:

1. *Likely impacts of the proposed projects:* As described in Chapter 5 of the final Restoration Plan/ EA, the proposed actions will be substantially beneficial and have no significant adverse effects.
2. *Likely effects of the projects on public health and safety:* None of the proposed actions are expected to affect public health and safety.
3. *Unique characteristics of the geographic area in which the projects are to be implemented:* Each of the preferred actions has been evaluated in the context of its geographic area. These evaluations are presented in Chapter 5 of the final Restoration Plan/ EA. Appropriate agencies with knowledge related to this criterion for choosing sites were also consulted.
4. *The degree to which the effects on the quality of the human environment are likely to be highly controversial:* The effect of each project on the quality of the human environment is presented in Chapter 5 of the final Plan. The result of this analysis indicates that the proposed actions would not significantly affect the quality of the human environment. Furthermore, no comments were received during the 60-day public review period indicating that the proposed projects were highly controversial.

5. *Degree to which possible effects of implementing the project are highly uncertain or involve unknown risks:* The proposed actions employ standard restoration tools and techniques that are not considered to be highly uncertain or involve unknown risks.
6. *Precedential effect of the project on future actions that may significantly affect the human environment:* None of the proposed actions are expected to have a precedential effect on future actions that may significantly affect the human environment.
7. *Possible significance of cumulative impacts from implementing this and other similar projects:* No past, present, or foreseeable actions appear likely to have any cumulative impacts when combined with the proposed action that would cause significant impacts to the human environment.
8. *Effects of the project on National Historic Places, or likely impacts to significant cultural, scientific or historic resources.* Appropriate steps will be taken prior to project implementation to ensure that the preferred actions do not affect significant impacts to cultural, scientific or historic resources.
9. *Degree to which the project may adversely affect endangered or threatened species or their critical habitat:* As described in Appendix 4 of the final Restoration Plan/ EA, implementation of the proposed actions will not adversely affect endangered or threatened species or their critical habitat.
10. *Likely violations of environmental protection laws:* As described in Appendix 4 of the final Restoration Plan/ EA, implementation of the proposed actions will fully comply with environmental protection laws.

DETERMINATION

Having reviewed the proposed actions described in this environmental assessment, and comparing them to the significance criteria listed in Section 1508.27 of the CEQ regulations that implement NEPA, I have determined that the proposed actions do not constitute a major federal action that significantly affects the quality of the human environment. Accordingly, an Environmental Impact Statement was not prepared for this action.

for Rebecca Kent
 William T. Hogarth, Ph.D.
 Assistant Administrator for Fisheries
 National Marine Fisheries Service
 National Oceanic and Atmospheric Administration

11/5/02
 Date

 Mamie A. Parker
 Regional Director, Region 5
 U.S. Fish and Wildlife Service

 Date

Appendix 8. Finding of No Significant Impact

The National Oceanic and Atmospheric Administration is the lead federal agency for National Environmental Policy Act compliance for the final Restoration Plan and Environmental Assessment (EA) for the April 7, 2000 oil spill at Chalk Point. The cooperating agencies include the U.S. Department of the Interior (U.S. Fish and Wildlife Service) and the State of Maryland's Departments of Natural Resources and Environment.

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To comply with the requirements of NEPA, the Trustees analyzed the effects of each preferred alternative on the quality of the human environment. NEPA's implementing regulations direct federal agencies to evaluate the potential significance of proposed actions by considering both context and intensity. For the actions proposed in this Final Restoration Plan/EA, the appropriate context for considering potential significance of the action is local, as opposed to national or worldwide. With respect to evaluating the intensity of the impacts of the proposed action, the NEPA regulations (40 C.F.R. § 1508.27) suggest consideration of ten factors. These are generally addressed for each proposed action in Chapter 5 of the final Restoration Plan/ EA and can be summarized as follows:

1. *Likely impacts of the proposed projects:* As described in Chapter 5 of the final Restoration Plan/ EA, the proposed actions will be substantially beneficial and have no significant adverse effects.
2. *Likely effects of the projects on public health and safety:* None of the proposed actions are expected to affect public health and safety.
3. *Unique characteristics of the geographic area in which the projects are to be implemented:* Each of the preferred actions has been evaluated in the context of its geographic area. These evaluations are presented in Chapter 5 of the final Restoration Plan/ EA. Appropriate agencies with knowledge related to this criterion for choosing sites were also consulted.
4. *The degree to which the effects on the quality of the human environment are likely to be highly controversial:* The effect of each project on the quality of the human environment is presented in Chapter 5 of the final Plan. The result of this analysis indicates that the proposed actions would not significantly affect the quality of the human environment. Furthermore, no comments were received during the 60-day public review period indicating that the proposed projects were highly controversial.


5. *Degree to which possible effects of implementing the project are highly uncertain or involve unknown risks:* The proposed actions employ standard restoration tools and techniques that are not considered to be highly uncertain or involve unknown risks.
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9. *Degree to which the project may adversely affect endangered or threatened species or their critical habitat:* As described in Appendix 4 of the final Restoration Plan/ EA, implementation of the proposed actions will not adversely affect endangered or threatened species or their critical habitat.
10. *Likely violations of environmental protection laws:* As described in Appendix 4 of the final Restoration Plan/ EA, implementation of the proposed actions will fully comply with environmental protection laws.

DETERMINATION

Having reviewed the proposed actions described in this environmental assessment, and comparing them to the significance criteria listed in Section 1508.27 of the CEQ regulations that implement NEPA, I have determined that the proposed actions do not constitute a major federal action that significantly affects the quality of the human environment. Accordingly, an Environmental Impact Statement was not prepared for this action.

 William T. Hogarth, Ph.D.
 Assistant Administrator for Fisheries
 National Marine Fisheries Service
 National Oceanic and Atmospheric Administration

 Date



 Mamie A. Parker, Ph.D.
 Regional Director, Region 5
 U.S. Fish and Wildlife Service

OCT 18 2002

 Date