

INTRODUCTION AND SUMMARY**CHAPTER 1**

1.1 INTRODUCTION

This Revised Draft Restoration Plan and Environmental Assessment (Revised Draft RP/EA) has been prepared by state and federal natural resource Trustees to address restoration of natural resources and resource services injured by the barge *North Cape* oil spill on January 19, 1996. This Revised Draft RP/EA considered and, where appropriate, incorporated public comments and information obtained from Trustee and Responsible Party (RP) experts regarding the September 14, 1998 Draft RP/EA. The purpose of restoration, as outlined in this Revised Draft RP/EA, is to make the public whole for injuries to natural resources and natural resource services resulting from the *North Cape* oil spill by returning injured natural resources and natural resource services to their pre-spill, or “baseline”, conditions and compensating for interim losses of natural resources. For this spill, the Rhode Island Department of Environmental Management, the National Oceanic and Atmospheric Administration, and the U.S. Department of the Interior have the responsibility as natural resource Trustees to determine natural resource injuries, plan for appropriate restoration projects, prepare the draft and final restoration plans, and implement or oversee restoration. Throughout this document, these agencies are referred to as the “Trustees.”

The regulations for conducting a sound natural resource damage assessment which will achieve restoration are found at 15 C.F.R. Part 900 *et seq.*, which were promulgated pursuant to the Oil Pollution Act of 1990 (“OPA”), 33 U.S.C. § 2701 *et seq.* These regulations set forth a process for developing a restoration plan with input from both the public and the parties responsible for the spill, who are Odin Marine Corp., Thor Towing Corp., and Eklof Marine, collectively referred to in this document as the “RP.”

This Revised Draft RP/EA is intended to inform members of the public and solicit their comments on the results of natural resource injury studies and proposed restoration actions. The restoration alternatives described herein are based on conceptual plans for which the costs have not been calculated in detail. The size and design of recommended restoration alternatives may change substantially based on public input and/or additional scientific findings. The Trustees believe that public input at this stage is essential to the restoration process. Comments received by the Trustees will be considered by the Trustees prior to incorporation into a Final Restoration Plan. This Draft RP/EA also serves as an Environmental Assessment as defined under the National Environmental Policy Act (NEPA), 42 U.S.C. § 4321 *et seq.*, and addresses the potential

impact of proposed restoration actions on the quality of the physical, biological, and cultural environment.

The Final Restoration Plan will be presented to the RP for funding, or for the RP to implement the restoration projects set forth in the final plan. If, within 90 days of a Trustee demand, as defined at 15 C.F.R. § 990.56(b)(2), the RP does not agree to fund or implement restoration, the Trustees may file a judicial action for damages pursuant to Section 1002 of OPA, 33 U.S.C. § 2702 or seek funding of the restoration plan from the Oil Spill Liability Trust Fund pursuant to section 1013 of OPA, 33 U.S.C. § 2713.

1.1.1 Process

During the Preassessment Phase, the Trustees determined that the provisions of the Oil Pollution Act applied to this spill, that natural resources under their jurisdiction were affected by the spill, that response actions would not eliminate injury to those resources, and that feasible restoration alternatives exist to address injuries to those natural resources. On the basis of those determinations, the Trustees began the Restoration Planning Phase. In this phase, the Trustees evaluated and quantified the nature and extent of injuries to natural resources and services, and determined the need for, type of and scale of appropriate restoration actions. Using the information developed during the Restoration Planning Phase, the Trustees developed this Draft RP/EA.

The first component of the Restoration Planning Phase is injury assessment. The Trustees formed four technical working groups, or “TWGs”, to evaluate injury to: (1) the offshore marine environment, including lobsters; (2) salt ponds; (3) birds; and (4) human uses. As provided at 15 C.F.R. § 990.14(c)(1), the Trustees invited the RP to participate in the injury assessment component of the natural resource damage assessment. Consequently, members of the TWGs included Trustee staff and experts, as well as representatives of the RP. The Responsible Party was involved in the design, performance, and funding of many studies completed through the Technical Work Groups (TWGs). The TWGs produced studies which the Trustees considered in determining the nature and extent of injuries to natural resources. As required by the regulations at 15 C.F.R. § 990.14(c)(4), the Trustees retained final authority to make determinations regarding injury and restoration. The studies considered by the Trustees considered, along with Trustee and RP comments on them, are part of the Administrative Record.

The second component of the Restoration Planning Phase is restoration selection. Considering the nature and extent of injuries to natural resources caused by the *North Cape* oil spill, the Trustees developed a plan for restoring the injured resources and services, which is set

forth in this Draft RP/EA. In it, the Trustees identify a reasonable range of restoration

alternatives, evaluate those alternatives, and using the criteria at 15 C.F.R § 990.54, select the preferred alternatives from among them.¹

In selecting their preferred restoration alternatives, the Trustees considered all of the criteria outlined in the regulations, including the cost of carrying out each alternative. As required by these criteria, the Trustees have selected the least expensive alternative when two or more alternatives are expected to provide the same restoration benefit. In addition, the Trustees also considered whether the cost of a preferred alternative was commensurate with the value of the injured resource and service. The OPA Damage Assessment regulations do not expressly require natural resource Trustees to make this determination. However, as NOAA recognized when the OPA regulations were promulgated, “the evaluation and selection of restoration alternatives according to the factors provided in the rule will ensure that the preferred actions are commensurate with the value of the natural resource losses.” 61 Fed. Reg. 490 (1996). After considering the extent of the injuries, as well as the cost of the preferred restoration alternatives, the Trustees determined that the cost of the preferred alternatives is commensurate with the value of the lost resources. Additionally, the estimated costs associated with the preferred restoration alternatives are generally consistent with costs incurred in other similarly situated restoration projects.

In selecting and scaling the preferred restoration alternatives, the Trustees considered, as required at 15 C.F.R. § 990.53(d)(4), the risk that a restoration project will not work as expected. In part to account for this risk, the Trustees have included a contingency amount in the anticipated costs of restoration conducted by the Trustees. In addition, the Trustees will establish performance standards and require monitoring to measure whether those standards have been met. If those standards are not met, additional restoration actions will be implemented until the standards are achieved.

Consistent with the OPA regulations (15 C.F.R. § 990.54(a)(5)), the Trustees also considered the extent to which restoration alternatives provide benefits to more than one natural resource and/or service. As described in more detail in Chapter 5 of this Draft Restoration Plan, several of the restoration alternatives selected by the Trustees benefit multiple resources and/or resource services. When scaling and evaluating restoration alternatives, the Trustees focused on the resources and resource services that were injured by the *North Cape* oil spill. Although some restoration projects may provide "collateral" benefits to resources and resource services that were not injured by the spill, these benefits were considered secondary to the primary goal of restoring injuries caused by the *North Cape* spill.

¹ The selection criteria for determining preferred restoration alternatives are described in more detail in Chapter 5.

1.2 OVERVIEW OF THE INCIDENT

At approximately 6:00 p.m. on Friday, January 19, 1996, the tank barge *North Cape*, carrying 94,000 barrels (3.9 million gallons) of two blends of No. 2 home heating oil, struck ground off Moonstone Beach in South Kingstown, Rhode Island and began to leak oil into the surrounding water. Winds reaching 50 knots formed large, breaking waves that dispersed the oil. These waves, combined with shallow waters at the site of the grounding dispersed oil throughout the water column and into contact with bottom sediments. Oil skimming and booming operations began on Saturday, January 20 in an effort to control surface oil sheens, remove oil from the water column and protect sensitive offshore and salt pond ecosystems. In total, an estimated 828,000 gallons of the two blends of No. 2 fuel oil were released into the coastal and offshore environments before the *North Cape* was refloated and moved to Newport, Rhode Island on Friday, January 26, one week after the grounding.

Emergency response teams reported preliminary indications of biological injury from the combined effects of the severe weather and spill. Nearly 2.9 million dead and moribund lobsters were removed from southern Rhode Island beaches following the spill. These stranded lobsters represent a fraction of the actual mortality throughout the entire marine environment. As a result of public health concerns associated with consumption of potentially contaminated lobsters, areas of Block Island Sound remained closed to lobster harvesting for five months following the spill. In the nineteen days following the spill, 405 oiled birds (of which only thirteen survived) were recovered along with large numbers of dead surf clams, crabs, and fish. In addition, United States Fish and Wildlife Service (USFWS) staff surveying Cards Pond reported a large mortality of amphipods, small crustaceans that represent a critical component of coastal food webs.

1.3 NATURAL RESOURCE INJURIES

The Trustees reviewed the results of over 30 studies of potential resource injuries caused by the *North Cape* spill and consulted with a variety of experts in relevant scientific and technical disciplines. Based on this work, the Trustees believe that the spill caused significant injuries to biota in the offshore and salt pond environments and to a variety of birds.

Losses in numbers and biomass (direct kill and production foregone) were largest in the offshore environment. Approximately 19.4 million surf clams (970,000 kilograms) and 9.0 million lobsters (direct kill only, totaling 312,000 kilograms) were lost as a result of the spill (French 1998, Cobb and Clancy 1998, Cobb *et al.* 1998). Large numbers (4.9 billion) of worms and amphipods died from spill effects, although their relatively small size (0.01 gram each) resulted in a biomass loss of 800,000 kg (French 1998). Losses of rock and hermit crabs totaled 7.6 million animals, with a biomass of 97,000 kilograms. Fish losses, primarily skates, cunner and Atlantic sea herring, totaled 4.2 million animals (111,000 kilograms).

In the salt ponds, injury to worms and amphipods via contaminated sediment pore water totaled approximately 6.6 billion organisms, with an associated biomass loss of 164,000 kilograms. In addition, approximately 7,100 kilograms of crabs and shrimp, 12,400 kilograms of soft-shell clams and oysters, and 5,000 kilograms of forage fish also were lost due to the spill.

Trustee analysis indicates that 1996 productivity of the piping plover, a federally-listed threatened species, was reduced by approximately five to ten fledged chicks. Mortality to birds is estimated at 2,292 birds, responsible for an estimated interim loss of 7,105 bird-years. Losses of loons (414), eiders (354), and grebes (228) were largest and were responsible for 5,307 bird-years lost.

Recovery time for these injuries also has been estimated by the Trustees. In the offshore environment, recovery of surf clams is expected to take approximately three to five years, similar in duration to lobster recovery (four to five years). Offshore fish and crabs will likely recover within one to three years. Amphipods and worms recovered within five months. In the salt ponds, recovery of injured species was expected within two years. For seabirds and wintering waterfowl, estimated recovery time varies for different species, ranging from approximately one to six years. Because piping plovers are a federally-recognized threatened species, the injury to fledged chicks may delay management efforts to restore this population to self-sustaining levels.

Boat-based recreational fishing was the only human use activity for which the Trustee assessment confirmed and quantified a loss. Trustee analysis indicates that 3,305 party/charter boat fishing trips were lost. Fishing activity returned to baseline levels within approximately six months after the spill.

1.3.1 Injury Quantification Issues

The Trustees recognize that there is some degree of “uncertainty” associated with their injury determinations, and that actual injuries caused by the *North Cape* spill may have been greater or less than the injury estimates set forth in this Revised Draft RP/EA. However, the Trustees do not believe that this uncertainty is a basis for rejecting the injury estimates, as some degree of uncertainty is inherent in any process of estimating injuries caused by an oil spill. The Trustees have endeavored to arrive at the most accurate estimate of the injuries caused by the *North Cape* oil spill, based upon the best scientific information available.

The Responsible Party has expressed concern about the use of a model to quantify injuries. The Trustees submit that injury determinations based on “field data” generally involve some degree of extrapolation and modeling, and that injury determinations based upon a model generally rely upon a certain amount of field data, and that both methods of determining injury involve inherent uncertainties. In assessing the injuries caused by the spill, the Trustees sought to rely on the most reliable methodologies available -- which involved the use of both field data and modeling -- to determine the extent of the injuries.

1.4 PROPOSED RESTORATION ALTERNATIVES

Restoration actions under OPA are termed primary or compensatory. Primary restoration is any action taken to enhance the return of injured natural resources and services to their baseline condition. Trustees may elect to rely on natural recovery rather than primary restoration in situations where feasible or cost-effective primary restoration actions are not possible, or where the injured resources will recover relatively quickly without human intervention.

Compensatory restoration is any action taken to compensate for interim losses of natural resources and services. The scale of the required compensatory restoration will depend both on the scale of resource injury and how quickly each resource and associated service returns to baseline. Primary restoration actions that speed resource recovery will reduce the requirement for compensatory restoration.

The Trustees evaluated 25 restoration alternatives with the potential to enhance the recovery of natural resources injured by the spill and to provide additional resources to compensate for the losses pending recovery. As indicated in Exhibit 1-1, the Trustees propose restoration actions directed at injuries to lobsters, surf clams, piping plovers, loons and sea ducks. In addition, the Trustees propose to enhance the water quality and biological productivity of the area affected by the *North Cape* spill through actions such as land acquisition and shellfish restoration. Projects to improve human access to the shoreline and to enhance anadromous fish runs also are proposed to compensate for recreational fishing opportunities lost because of the spill. If implemented by the Trustees, the total cost of these restoration actions is estimated to be \$27.6 million. This cost estimate is preliminary and will be refined in the final RP/EA. The total cost of these projects may be different if they are implemented by the RP.

Exhibit 1-1			
PREFERRED RESTORATION ALTERNATIVES			
Injured Resource/ Service	Primary Restoration	Compensatory Restoration	Estimated Project Costs
Offshore			
Lobsters	Natural Recovery	Adult lobster restocking	\$9,915,625
Surf Clams	Natural Recovery	Shellfish Restoration	included in shellfish restoration
Other Benthic Organisms/Fish	Natural Recovery	Land Acquisition Shellfish Restoration	included in salt pond land acquisition and shellfish restoration
Salt Ponds			
Worms/Amphipods	Natural Recovery	Shellfish Restoration	\$5,954,110
Crabs/Shrimp		Land Acquisition	\$1,782,500
Shellfish			
Forage Fish/Winter Flounder			
Birds			
Piping Plovers	Habitat Protection and Monitoring	Habitat Protection and Monitoring	\$232,706
Loons	Natural Recovery	Loon Habitat Protection	\$7,485,170
Marine Birds other than Loons	Natural Recovery	Sea Duck Habitat Protection	\$631,250
Pond Birds	Natural Recovery	Land Acquisition	included in salt pond land acquisition
Human Use			
Party and Charter Boat Fishing	Natural Recovery	Shore Access Anadromous Fish Runs	\$281,685
Subtotal			\$26,283,046
Project Oversight			\$1,314,152
Total			\$27,597,198

1.5 PLAN OF THIS DOCUMENT

The remainder of this document presents further information about the natural resource injury studies and proposed restoration actions for the *North Cape* oil spill.

Chapter 2 briefly summarizes the spill incident, the legal authority and regulatory requirements of the Trustees, and the role of the Responsible Party and the public in the damage assessment process.

Chapter 3 provides a brief description of the physical and biological environments affected by the spill, as required by NEPA (42 U.S.C. Section 4321, *et seq.*), and describes the cultural and economic importance of Block Island Sound and Rhode Island salt pond natural resources.

Chapter 4 describes and quantifies the injuries caused by the spill, including an overview of Preassessment activities, a description of assessment strategies employed by the Trustees and a presentation of assessment results.

Chapter 5 provides a discussion of restoration options, and determines the appropriate scale of preferred options based on the nature and extent of injury presented in Chapter 4.

Appendix A provides a list of the documents designated for submission to the Administrative Record as of the printing of this Draft RP/EA.

Appendix B provides a list of Federal and State Endangered or Threatened Species in Rhode Island.

EXPERT REPORTS CITED

Cobb, J.S. and M. Clancy. January 5, 1998. *North Cape* Oil Spill: Assessing Impact on Lobster Populations.

Cobb, J.S., M. Clancy, and R.A. Wahle. 1998. Habitat-based Assessment of Lobster Abundance: A Case Study of an Oil Spill.

French, D.P., 1998. Updated Estimate of Injuries to Marine Communities Resulting from the *North Cape* Oil Spill Based on Modeling of Fates and Effects. Report to NOAA Damage Assessment Center, Silver Spring, MD, September 1998.