

New Solutions For Old Problems in Newark Bay[†]

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I. INTRODUCTION

The history of the Passaic River and Newark Bay is one of intense industrialization and complex environmental problems. As early as 1850, Newark was the site of burgeoning industries that used all manner of chemicals, paints, and pigments in their processes.¹ These industries were operating without environmental controls, and by 1900 the quality of the water in Newark Bay had declined.² By 1950, more than 130 paint and pigment manufacturers were located in New Jersey, and forty percent of New Jersey's textile plants were located up river in Passaic County.³ This industrialization continued until Newark became one of the most heavily industrialized areas in the nation and home to large numbers of chemical manufacturing plants, refineries, and other large industries. Compounding the

[†] Editor's note: The symposium that gave rise to this article occurred on March 30, 1998. At that time, the United States Environmental Protection Agency (EPA) was still considering how the dioxin contamination at the Diamond Alkali Superfund Site would be remedied. Prior to the publication of this journal, however, the EPA gave final approval to a 1990 consent decree, which permits the on-site burial of dioxin waste at the Diamond Alkali site. See Tom Johnson, *Dioxin Site in Newark to be Sealed Underground*, STAR-LEDGER (Newark), Aug. 5, 1998, at 15.

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¹ D.W. Crawford et al., *Historical Changes in the Ecological Health of the Newark Bay Estuary*, *New Jersey*, 29 ECOTOXICOLOGY & ENVTL. SAFETY 276, 278 tbl.1 (1994).

² See *id.* at 281 tbl.2.

³ See *id.* at 278 tbl.1.

problem of environmental impact to Newark Bay from the Passaic River are the additional impacts from the four other tributaries to the Bay and direct discharges to the Bay.

The effect of this varied and intense industrialization has been the creation of an extremely complex environmental situation in the Newark Bay Estuary. Releases of numerous chemicals from myriad sources and industries have created a muddle of chemicals in the Passaic River including dioxins, mercury, lead, and polychlorinated biphenyls (PCBs).⁴ Addressing environmental conditions in the Passaic River and Newark Bay has been a long process that will continue far into the future. Remediation under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)⁵ has begun at some industrial sites along the Passaic River, such as the Diamond Alkali Superfund Site.⁶ While the remedy chosen for that site is appropriate and construction is progressing, the CERCLA remedial action model is not the appropriate solution to problems manifested in the Passaic River, Newark Bay, and its other tributaries.

Because of the history of industrialization and the discharge of numerous chemicals from multiple sources, the Newark Bay Estuary presents a unique problem for environmental cleanup and natural resource restoration. While CERCLA may initially appear to offer a solution, CERCLA is an inappropriate tool because it was enacted to address the problems posed by releases of hazardous substances at and from specific commercial, industrial, and municipal facilities.⁷ The Newark Bay Estuary is not a specific commercial, industrial, or municipal facility; rather, it is one of the most active of the nation's ports and waterways for navigation and is surrounded by the most concentrated and oldest population of significant commercial, industrial, and residential development in this country. CERCLA simply was not designed to address this sort of unique and complex situation. Using either CERCLA's remedial action provision or its natural resource damage action provision to address the problems of the Newark Bay Estuary will not result in near term or cost-effective

⁴ See L. Anthony Wolfskill & Richard McNutt, *An Environmental Study of the Passaic River and Its Estuary*, 29 SETON HALL L. REV. 37, 41 (1998).

⁵ 42 U.S.C. §§ 9601-9675 (1994).

⁶ See *United States v. Occidental Chem. Corp.*, No. 89-5064-JWB, 1990 EPA Consent LEXIS 210 (D.N.J. Nov. 19, 1990).

⁷ See 42 U.S.C. §§ 9601-9675 (1994) (stating that the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) was enacted "to provide for liability, compensation, cleanup, and emergency response for hazardous substances released into the environment"); *id.* § 9607(a) (providing liability for "facilities . . . from which there is a release . . . of a hazardous substance").

solutions. Employing either CERCLA model will needlessly complicate any solution and engender litigation that undoubtedly will be time-consuming and expensive. Those interested in this system — and they are legion — should recognize that these problems demand new and creative solutions.

A new and creative solution should be devised in the form of a public works/public management model for the Newark Bay Estuary. A public works/public management model allows for the integration of management and resources to achieve cost-effective, real results. Such a model also allows parties to address issues and problems that a CERCLA model would not be capable of addressing, such as control of ongoing point and non-point sources, solutions for problems with navigational improvements, and controls on incinerators and combined sewer overflows. Moreover, it would permit the implementation of other legal and institutional mechanisms to facilitate cleanup of the area. A public works/public management model will allow citizens, environmentalists, industry, and government to move past contentious, expensive, and time-consuming litigation and get on with the business of addressing the conditions in the Newark Bay Estuary.

II. THE TRADITIONAL CERCLA REMEDIATION MODEL: AN INAPPROPRIATE SOLUTION

At first glance, CERCLA may appear to offer a mechanism for addressing the environmental problems created by the massive industrialization and development around the Newark Bay Estuary. CERCLA allows governmental entities and private parties to clean up or otherwise conduct remediation activities at facilities where hazardous substances have been disposed, treated, or released, and to seek reimbursement of some or all of their costs from other responsible entities.⁸ Specifically, CERCLA retroactively establishes the liability of current and past owners and operators of facilities that disposed of hazardous substances, persons who arranged for the disposal or treatment of hazardous substances, and persons who transported hazardous substances to disposal or treatment facilities for releases or certain threatened releases of hazardous substances.⁹ These potentially responsible parties (PRPs) are liable for "all costs of removal or remedial action incurred by the United States Government or a State or an Indian tribe not inconsistent with the Na-

⁸ See 42 U.S.C. § 9607(a).

⁹ See *id.*

tional Contingency Plan" and "any other necessary costs of response incurred by any other person consistent with the National Contingency Plan."¹⁰ Some may view a CERCLA remediation and cost recovery action, in which the government institutes remedial action then sues industries and businesses that have operated in the area to recover its remediation costs, as an appropriate way to address the environmental problems in the Newark Bay Estuary.

While CERCLA provides a possible model for addressing the issues in the Newark Bay Estuary through a traditional remediation action, CERCLA remediation is not the appropriate model for a solution in this situation. CERCLA was not designed for the circumstances presented by the Newark Bay Estuary; rather, CERCLA was designed to respond to defined releases of hazardous substances from identified facilities, to address abandoned and inactive hazardous waste sites, and to allocate liability for the costs incurred in responding to these facilities and sites.¹¹ The Newark Bay Estuary is not an area of defined and allocable releases nor is it an abandoned hazardous waste site. Indeed, it is an area marked by over a century of industrialization, with numerous sources historically contributing numerous hazardous substances over a period of one hundred years, as well as ongoing sources still impacting the environment. Because of the nature and history of the area, developing a remedy would be an extremely expensive and lengthy process. Consider, for example, that the remediation of a single site located on one tributary in the Estuary has been ongoing for thirteen years and has cost approximately forty-six million dollars, even before final construction of the selected remedy.¹² Moreover, this process would be complex and difficult to manage given the existence of hundreds or thousands of PRPs. While traditional CERCLA remediation actions frequently in-

¹⁰ *Id.* The National Contingency Plan (NCP) establishes procedures and standards to follow when responding to releases of hazardous substances. *See id.* § 9605(a); 40 C.F.R. § 300.1-3 (1997). These procedures and standards are applicable to those who respond to releases and seek reimbursement of their response costs under CERCLA. *See* 42 U.S.C. § 9605(a); 40 C.F.R. § 300.1-3 (1997).

¹¹ *See* 42 U.S.C. §§ 9601-9675 (1994) (stating that CERCLA was enacted "to provide for liability, compensation, cleanup, and emergency response for hazardous substances released into the environment"); 42 U.S.C. § 9607(a) (providing liability for "facilities . . . from which there is a release . . . of a hazardous substance"); H.R. REP. No. 96-1016, pt. I (1980), *reprinted in* 1980 U.S.C.C.A.N. 6119 ("It is the intent of the Committee in this legislation to initiate and establish a comprehensive response and financing mechanism to abate and control the vast problems associated with abandoned and inactive hazardous waste disposal sites.").

¹² *See* N. Scott Jones, *The Selected Remedy is the Most Environmentally Protective Solution for the Diamond Alkali Superfund Site*, 29 SETON HALL L. REV. 27, 32 (1998).

volve numerous PRPs, they generally do not involve the immense number that would be implicated by a CERCLA action concerning all of the Newark Bay Estuary or any of its tributaries. Coordination of a remedy by hundreds or thousands of PRPs, or allocation of damages among such PRPs, would be enormously difficult and would delay the implementation of any mechanism to clean up the Newark Bay Estuary.

In addition to these issues, others further illustrate why a traditional CERCLA approach to cleaning up the Newark Bay Estuary is inappropriate. Newark Bay is a busy, intensely developed area comprised of numerous industrial, navigational, and commercial interests. The National Contingency Plan (NCP) does not ensure that the views of these respective interests will be properly reflected in the development of a remedy, and the NCP does not contemplate a determination of the effect that a remediation plan will have on these interests. A remediation plan, while potentially benefiting the local site environment, actually could have a negative impact on commercial and navigational interests or adjacent environments. Yet persons representing these interests and other environments would have little input into the remediation plan developed for the area. Moreover, a CERCLA remediation approach to this situation would not address the issue of ongoing sources that are currently impacting and will continue to impact the environment. A solution that ignores these ongoing sources and this continued impact would not be a valuable, comprehensive, lasting, or effective solution to the problems of the Newark Bay Estuary. The CERCLA remediation model would call for a great expenditure of time and money to correct past contributions to the environmental impact without remediating the sources for current and future impacts on the environment. Such a solution is neither desirable nor feasible in these circumstances.

III. CERCLA NATURAL RESOURCE DAMAGES MODEL: A LITIGIOUS SOLUTION

In addition to the remediation model, some have suggested that CERCLA provides another possible model for addressing the environmental issues in the Newark Bay Estuary — a natural resource damage action. Besides establishing liability for removal and remediation costs, CERCLA establishes liability for “injury to, destruction of, or loss of natural resources”¹⁵ resulting from releases of hazardous

¹⁵ 42 U.S.C. § 9607(a)(4)(C).

substances and permits natural resource trustees¹⁴ to sue PRPs for these damages. "Natural resources" are defined under CERCLA to include "land, fish, wildlife, biota, air, water, ground water, [and] drinking water supplies."¹⁵ Costs recovered in a natural resource damage action may only be used by the trustee to restore, replace, or acquire the equivalent of the natural resources.¹⁶ A natural resource damage action essentially is a tort action brought on behalf of the public for damage sustained by the environment, and it provides another tool, in addition to remediation, for addressing contaminated sites.

A natural resource damage action, however, is in many ways more complicated than a remediation/cost recovery action. In a natural resource damage action, the trustee must not only prove the elements required in a remediation/cost recovery action — i.e., that a party was an owner, operator, arranger, or transporter and that a release of hazardous substances from a facility occurred,¹⁷ but the trustee must also prove injury to natural resources. Proving injury to natural resources is a complex and difficult task that is subject to much legal and technical wrangling. To establish injury to natural resources, the trustee must first establish "baseline." Baseline is the condition in which the natural resources would have been but for the release that caused injury.¹⁸ In addition to establishing baseline, a trustee must also establish causation by demonstrating a causal link between a particular release and a particular natural resource injury.¹⁹

Once causation is established, the trustee must prove damages, which are the costs of restoring natural resources to baseline conditions or the costs of replacing the natural resources with equivalent

¹⁴ See *id.* § 9607(f). Natural resource trustees are federal, state, or Indian tribe officials designated to act on behalf of the public as trustees for natural resources. See *id.*; 40 C.F.R. §§ 300.600-615 (1997). Trustees are responsible for assessing damages to natural resources and for devising and implementing a plan for restoring, rehabilitating, replacing, or acquiring equivalent natural resources. 40 C.F.R. § 300.615 (1997).

¹⁵ 42 U.S.C. § 9601(16) (1994).

¹⁶ See *id.* § 9607(f)(1).

¹⁷ See *supra* Part II (describing a CERCLA remediation/cost recovery action).

¹⁸ See 43 C.F.R. § 11.14(e) (1997) (defining "baseline" as "the condition or conditions that would have existed at the assessment area had the discharge of oil or release of hazardous substance under investigation not occurred").

¹⁹ See *Ohio v. United States Dep't of the Interior*, 880 F.2d 432, 470 (D.C. Cir. 1989) ("There is little evidence that Congress specifically intended to ease the standard of proof for showing that a particular spill caused a particular biological injury.").

resources.²⁰ Even if a trustee can establish causation and damages, a party may not be liable for natural resource damages if it has a valid defense. A number of defenses are available, including the traditional CERCLA defenses — act of God, act of war, and act of a third-party.²¹ Moreover, a party is not liable if the damages and the release causing the damages occurred prior to the enactment of CERCLA, or if the release and damages were allowable under a permit.²² If a trustee's claim prevails, allocation of damages among PRPs must be made. PRPs that are found liable for natural resource damages may seek contribution from other PRPs under CERCLA.²³

Thus, pursuing and defending a natural resource damage action is a complex process and may involve a good deal of battling over legal, factual, and procedural issues. The natural resource damage area of the law has been extremely litigious from its inception. The regulations initially promulgated for the assessment of natural resource damages in 1986 and 1987 were quickly challenged by several states, environmental groups, and chemical companies.²⁴ The Court of Appeals for the District of Columbia, in *Ohio v. United States Department of Interior*²⁵ and *Colorado v. United States Department of Interior*²⁶ struck down the regulations and remanded them to the Department of the Interior.²⁷ After the remand, final regulations were promulgated in 1994 and 1996.²⁸ Thus, it took nearly ten years simply to establish regulations that would govern natural resource damage actions. This early litigation was indicative of the path that natural resource damage actions would take. Much litigation has ensued in areas in which natural resource damage actions have been pursued.²⁹

²⁰ See *id.* at 459.

²¹ See 42 U.S.C. § 9607(b) (1994).

²² See *id.* § 9607(f).

²³ See *id.* § 9613(f).

²⁴ See *Ohio*, 880 F.2d at 432; *Colorado v. United States Dep't of the Interior*, 880 F.2d 481, 482 (D.C. Cir. 1989).

²⁵ 880 F.2d 432 (D.C. Cir. 1989).

²⁶ 880 F.2d 481 (D.C. Cir. 1989).

²⁷ See *Ohio*, 880 F.2d at 432; *Colorado*, 880 F.2d at 483.

²⁸ See 59 Fed. Reg. 14,262 (1994); 61 Fed. Reg. 20,560 (1996).

²⁹ See, for example, the voluminous litigation arising out of the natural resource damage action for alleged damages to Los Angeles Harbor, *United States v. Montrose Chemical Corp.*, 980 F. Supp. 1112 (C.D. Cal. 1997); *United States v. Montrose Chemical Corp.*, 835 F. Supp. 534 (C.D. Cal. 1993), *rev'd sub nom. California v. Montrose Chemical Corp.*, 104 F.3d 1507 (9th Cir. 1997); *United States v. Montrose Chemical Corp.*, 827 F. Supp. 1453 (C.D. Cal. 1993), *vacated*, 50 F.3d 741 (9th Cir. 1995), *on remand*, 883 F. Supp. 1396 (C.D. Cal. 1995), *rev'd sub nom. California v. Montrose Chemical Corp.*,

While a natural resource damage action generally involves complex processes, it is likely to be especially complex in the case of the Newark Bay Estuary because of the nature and history of the area — several tributaries, centuries of industrialization, releases of numerous chemicals by multiple sources, and discharges from ongoing sources. It can be anticipated that every element required for a natural resource damage action will be contested and that these contests will involve complex legal issues based on the unique nature of the Newark Bay Estuary. Because of the uniqueness of the environmental issues presented by the Newark Bay Estuary, a CERCLA natural resource damage action model for addressing the area undoubtedly will be a very contentious and protracted endeavor.

An essential issue that must be established in a natural resource damage action likely to be the subject of much litigation is the concept of “baseline.” The objective of pursuing natural resource damages is to restore the injured natural resources to “baseline” condition.³⁰ To determine the amount of damage that has occurred to the natural resources so that the resources may be restored, a baseline must be established from which to measure damage. The establishment of baseline for the Newark Bay Estuary will be complicated by the above-mentioned factors.³¹ As discussed by Wolfskill and McNutt in their symposium paper, technical interpretations of site data must be made to determine baseline.³² This interpretation will be an immense technical challenge because it may require sifting through data on layers of sediment, representing decades of releases, to determine the condition of the Estuary before a particular release or before all releases to the Estuary.

104 F.3d 1507 (9th Cir. 1997); *United States v. Montrose Chemical Corp.*, 793 F. Supp. 237 (C.D. Cal. 1992); *United States v. Montrose Chemical Corp.*, 788 F. Supp. 1485 (C.D. Cal. 1992); *United States v. Montrose Chemical Corp.*, 1991 WL 183147 (C.D. Cal., Mar. 29, 1991); against numerous companies for alleged damages to New Bedford Harbor, Massachusetts, *In re Acushnet River*, 725 F. Supp. 1264 (D. Mass. 1989), certified question answered by *Lumbermens Mutual Casualty Co. v. Belleville Industries*, 555 N.E.2d 568 (Mass. 1990), answer to certified question conformed to 938 F.2d 1423 (1st Cir. 1991), cert. denied, 502 U.S. 1973 (1992); *In re Acushnet River*, 722 F. Supp. 893 (D. Mass. 1989); *In re Acushnet River*, 722 F. Supp. 888 (D. Mass. 1989); *In re Acushnet River*, 716 F. Supp. 676 (D. Mass. 1989); *In re Acushnet River*, 712 F. Supp. 1019 (D. Mass. 1989); *In re Acushnet River*, 712 F. Supp. 1010 (D. Mass. 1989); *In re Acushnet River*, 712 F. Supp. 994 (D. Mass. 1989); *In re Acushnet River*, 675 F. Supp. 22 (D. Mass. 1987); and the litigation arising out of a natural resource damage action against numerous companies in Commencement Bay, Washington, *United States v. Port of Tacoma*, No. C-93-5462B (W.D. Wash. Oct. 8, 1993).

³⁰ See *supra* note 18 (defining baseline).

³¹ See *supra* notes 18-30 and accompanying text.

³² See Wolfskill & McNutt, *supra* note 4 at 39.

Moreover, the historical development and industrialization of the Newark Bay Estuary have seriously reduced the area's local ecological habitat and wetlands. As Wolfskill and McNutt point out, at least ninety percent of the original wetlands and habitat along the lower Passaic River have been replaced by landfilling, bulkheading, and shoreline riprap, and Newark Bay has been similarly developed.³³ Because there is no natural habitat to use as a benchmark for restoration to a prior condition, litigation will likely ensue over what constitutes baseline and whether the determination of baseline is accurate and appropriate. Baseline is the foundation of the entire natural resource damage claim because it establishes the level to which restoration should be made and therefore the level of damages.

Causation is another element of a natural resource damage action ripe for challenge in the event of such an action for the Newark Bay Estuary. A natural resource trustee is required to show a causal link between a particular release and a particular resource injury.³⁴ The burden of establishing a causal link in the context of the Newark Bay Estuary is complex and difficult because numerous sources have released numerous hazardous substances, forming a chemical soup from which one ingredient by one contributor cannot readily be plucked. Wolfskill and McNutt have identified approximately 500 facilities that may have contributed lead, 300 facilities that may have contributed mercury, and 300 facilities that may have contributed dioxins to the Newark Bay Estuary.³⁵ These numbers illustrate the complexity of determining responsibility for a release of any substance, and the fact remains that there are many more hazardous substances in the Estuary. The essential facts that make up Newark Bay's history — the century and a half of industrial use by numerous sources with diverse chemical processes — make proving causation a formidable challenge.

This difficulty is compounded by ongoing sources that currently impact and will continue to impact the local natural resources, a fact that undoubtedly would be used by defendants in a natural resource damage action to refute a showing of causation. Recent sampling and analysis of seven currently operating combined sewer overflows and stormwater outfalls along the lower Passaic River revealed that the concentrations of a number of chemicals currently exceed

³³ *See id.*

³⁴ *See* *Ohio v. United States Dep't of Interior*, 880 F.2d 432, 470 (D.C. Cir. 1989).

³⁵ Wolfskill & McNutt, *supra* note 4, at 42-43.

promulgated water quality standards.³⁶ Thus, these sources are ongoing contributing causes to natural resource damages, the impact of which cannot easily be separated from the impacts of past sources. Nonpoint source runoff and atmospheric deposits also have environmental impact, and their lines of causation may be difficult to trace and quantify. Establishing causation, therefore, will not be an easy burden for natural resource trustees to shoulder and is sure to be an arena in which battles will be fought in the event of a natural resource damage action. These battles will likely be costly and time-consuming, especially given the number of PRPs, and will funnel time and resources away from the real goal of the endeavor, which is restoring the Newark Bay Estuary and its natural resources.

As with causation, proving damages to natural resources in the Newark Bay Estuary will be extremely complex. Given the fact that so many industries have operated around the Estuary and discharged numerous hazardous substances, it will be a challenge to determine the damage done by a particular release, a particular source, or even a number of sources. Moreover, given that the measure of damages generally is the costs of restoring the natural resources to the condition in which they would have been but for the release,³⁷ the determination of baseline is critical to the determination of damages. If baseline information is flawed or unreliable, it will be difficult for trustees to prove the cost of restoring the natural resources to baseline.

Natural resource trustees are entitled to a rebuttable presumption on the accuracy of natural resource damage assessments conducted in accordance with the Department of the Interior regulations governing natural resource damage actions.³⁸ This presumption, however, only assists the trustee in going forward with the case. It does not shift the burden of proof on damages to the defendant, but merely requires the defendant to come forward with evidence to rebut the presumption.³⁹ The presumption in favor of

³⁶ See *id.*

³⁷ See 42 U.S.C. § 9607(f)(1) (1994) (requiring natural resource trustees to use all sums recovered as damages to "restore, replace, or acquire the equivalent" of the natural resources that are the subject of the action); *Ohio*, 880 F.2d at 459 ("Congress established a distinct preference for restoration cost as the measure of recovery in natural resource damage cases.").

³⁸ 42 U.S.C. § 9607(f)(2)(C).

³⁹ See FED. R. EVID. 301. Rule 301 provides:

In all civil actions and proceedings not otherwise provided for by Act of Congress or by these rules, a presumption imposes on the party against whom it is directed the burden of going forward with evidence to rebut or meet the presumption, but does not shift to such party the

the trustee's damage assessment further complicates litigation in the case of the Newark Bay Estuary because, given the complex nature and history of releases into the Estuary, a defendant could present credible evidence to rebut the presumption.

This issue is especially ripe in light of a recent Idaho district court case holding that record review is not the appropriate standard for a trustee's natural resource damages assessment.⁴⁰ Absent record review, a natural resource trustee is required to present evidence at trial to prove injury to natural resources. Such a requirement will complicate and lengthen natural resource damage trials because opponents will be able to cross-examine trustee witnesses and otherwise challenge the evidence presented at trial. This ruling confirms the complexity of potential natural resource damage litigation, especially in a case such as the one that would be presented for the Newark Bay Estuary. Because there are so many contributors, causes, and impacts to the Newark Bay Estuary, it may be difficult to have a clear-cut assessment of damages against any one party.

Even if a trustee can link a particular release to a natural resource injury and prove damages, a defendant may have defenses that preclude its liability. The ability to assert certain defenses to a natural resource damage action further complicates the use of a natural resource damage action model to deal with the issues presented by the Newark Bay Estuary. CERCLA section 107(f) provides that natural resource trustees cannot recover damages "where such damages and the release of a hazardous substance from which such damages resulted have occurred wholly before December 11, 1980."⁴¹ Some courts have held that this "pre-enactment" defense applies only when both the release and the damage take place prior to December 11, 1980.⁴² In cases in which damages span the enactment date, the ability of trustees to recover natural resource damages for pre-enactment injury may depend on the divisibility of the damages. One court has held that when natural resource damages are readily divisible, trustees cannot recover for natural resource damages in-

burden of proof in the sense of the risk of nonpersuasion, which remains throughout the trial upon the party on whom it was originally cast.

Id.

⁴⁰ See *United States v. Asarco, Inc.*, No. 96-0122-N-EJL, 1998 U.S. Dist. LEXIS 6172 (D. Idaho Mar. 31, 1998).

⁴¹ 42 U.S.C. § 9607(f) (1994).

⁴² See *In re Acushnet River*, 716 F. Supp. 676, 684-87 (D. Mass. 1989); *Idaho v. Bunker Hill Co.*, 635 F. Supp. 665, 675 (D. Idaho 1986) (citing *United States v. Reilly Tar & Chem. Corp.*, 546 F. Supp. 1100, 1120 (D. Minn. 1982)).

curred prior to December 11, 1980.⁴³ The court also held that in situations in which the natural resource damages are not divisible and the damages continue after the enactment date, trustees can recover for the nondivisible damages in their entirety.⁴⁴ The pre-enactment defense is likely to be used by some defendants in the event that a natural resource damage action is pursued for the Newark Bay Estuary and appears to be a good candidate for contentious, time-consuming, and technically complex litigation. Given the history of the Newark Bay Estuary, numerous sources that existed and operated before December 11, 1980 may have contributed to the natural resource damages in the Estuary; these sources are likely to defend vigorously the position that any releases or damages from their facilities occurred prior to enactment. There may be some sources whose operation spans the enactment date; these sources may argue that damages are divisible and that they are not liable for pre-enactment damages.

If a trustee survives a defendant's affirmative defenses and establishes causation and damages, allocation of damages among responsible parties must be made. In the case of the Newark Bay Estuary, this allocation would be a monumental endeavor. Given that the impact to the environment occurred over a century and half as a result of the activities of hundreds, if not thousands, of sources, many of which no longer exist, allocation of damages for this impact will be a complicated process. Moreover, the allocation of damages issue will likely generate many more rounds of litigation because those parties found liable for damages to natural resources may seek contribution from any other person who is liable or potentially liable for the damages.⁴⁵ For example, if the government chooses to sue ten PRPs for natural resource damages and prevails on its claim, these PRPs could turn around and sue other PRPs for contribution for these damages. Moreover, the PRPs sued for natural resource damages could file cross-claims against co-defendants in a natural resource damage action to the same extent that such cross-claims can be pursued in any CERCLA contribution action. Because there may be thousands of PRPs in the Newark Bay Estuary, litigation over contribution could further extend the cost and length of reaching a resolution to the problems in the Estuary.

Finally, litigation could be further complicated and prolonged if defendants in natural resource damage actions have a right to a jury

⁴³ See *Acushnet*, 716 F. Supp. at 685.

⁴⁴ See *id.* at 686.

⁴⁵ See 42 U.S.C. § 9613(f).

trial. Courts are split on whether defendants are constitutionally entitled to a jury trial on natural resource damage claims, although recent decisions hold that defendants are entitled to jury trials.⁴⁶ If natural resource damage actions are subject to a jury trial, a jury trial on the Newark Bay Estuary's natural resource damages could be extremely complex and lengthy given the nature and history of the industrial usage of the area and the varied attitudes of potential jurors toward industry and the environment. The evidence necessary for a jury trial would be extremely voluminous and complex, especially if record review of the damages assessment is unavailable to the trustee.

All of these complex legal issues, both substantive and procedural, illustrate the difficulty of applying a natural resource damage action model to the Newark Bay Estuary and indicate why this model is ill-suited to solve the unique and myriad problems presented by the Estuary. Every element of a natural resource damage action presents complex legal issues that would have to be litigated before a resolution could be found. Natural resource damage actions in general are complex, time-consuming, and expensive, and these problems would be magnified to immense proportions in the case of the Newark Bay Estuary. These factors illustrate why a public works/public management program is the appropriate and best-suited tool for resolving the issues presented by the Newark Bay Estuary.

IV. THE PUBLIC WORKS/PUBLIC MANAGEMENT PROGRAM: THE RIGHT SOLUTION

Given the history and economy of the Newark Bay area, the numerous causes and contributors to conditions in the Bay and the Estuary, and the cost of alleviating the impacts of years of use, a public works/public management program is the best tool to address the problems of the Newark Bay Estuary. The enormous scale of the af-

⁴⁶ Compare *United States v. Asarco, Inc.*, No. 96-0122-N-EJL, 1998 U.S. Dist. LEXIS 6172 at *15 (D. Idaho Mar. 31, 1998) (finding that a defendant's right to a jury trial is incompatible with being limited to a record review), and *Acushnet*, 712 F. Supp. at 1000 (finding that "the claims for the value of the natural resource damages that are forever lost, the value of the lost use of such resources over time and the costs of assessing how much is lost forever or how much lost use there has been over time . . . present legal issues that must be tried to a jury as matter of right"), with *United States v. Wade*, 653 F. Supp. 11, 13 (E.D. Pa. 1984) (striking a jury demand in a CERCLA case despite the assertion of a natural resource damage claim on the grounds that the relief sought, the costs of assessing injury to natural resources or rehabilitating or restoring resources, was equitable in nature).

fectured area, and the many impacts on natural resources from innumerable sources necessitate the integration of program management and resources to achieve results effectively and affordably. Beyond being more manageable, more cooperative, and more cost-effective, a public works/public management program would allow parties to address issues that could not be addressed effectively by a CERCLA natural resource damage action, such as control of ongoing point and non-point sources of pollution. It cannot be forgotten that the Newark Bay Estuary remains an industrialized area with ongoing operations that continue to contribute to the conditions in the Estuary. A public works/public management program would allow parties to address these ongoing operations while simultaneously rehabilitating the area after a century and a half of hard use. This kind of simultaneous planning and rehabilitation is not possible under either a CERCLA remediation model or a natural resource damage action model.

The public works/public management program would also allow the implementation of some of the recommendations made by the United States Environmental Protection Agency (EPA) in its report entitled *The Incidence and Severity of Sediment Contamination in Surface Waters of the United States*.⁴⁷ The report details the results of a nationwide analysis and assessment of the incidence and severity of sediment contamination in river, lake, ocean, and estuary bottoms.⁴⁸ In the report, the EPA emphasized the importance of coordinating efforts to address sediment quality through watershed management programs.⁴⁹ The New York/New Jersey Harbor Estuary Program was cited as an example of the watershed approach that has led to specific actions to address contaminated sediment.⁵⁰ In these watershed management programs, federal, state, and local government agencies pool their resources and coordinate their efforts to address their common sediment contamination problems.⁵¹ In addition, stakeholders and community members are involved in the program, and a holistic approach is taken in assessing and improving water quality.⁵² The public works/public management model could incorporate appropriate aspects of this type of watershed management program to

⁴⁷ EPA, *THE INCIDENCE AND SEVERITY OF SEDIMENT CONTAMINATION IN SURFACE WATERS OF THE UNITED STATES: NATIONAL SEDIMENT QUALITY SURVEY* (1997).

⁴⁸ *See id.* at xv.

⁴⁹ *See id.* at xxvii.

⁵⁰ *See id.* at xxvi.

⁵¹ *See id.* at xxvii.

⁵² *See id.* at xxvi.

allow an entire watershed solution to be developed for the Newark Bay Estuary.

The public works/public management program could also implement other recommendations made by the EPA, such as further investigation and assessment of contaminated sediment and the development of better monitoring tools. These recommendations could not be accomplished through a natural resource damage action because it is too narrowly focused on recovering monetary damages for injury done, instead of taking a holistic approach to solving multiple problems, present and future, concurrently. A public works/public management program could also implement other approaches to address the issues presented in the Newark Bay Estuary such as instituting fish bans and advisories and other legal or institutional controls. These kinds of alternative responses are not available under either a CERCLA remediation model or a natural resource damage action model, but are necessary due to the unique nature of the issues presented by the Newark Bay Estuary.

Because the Newark Bay Estuary does present unique problems, it needs a unique solution. A public works/public management program could be this solution. It would focus on an overall resolution of the problems of the area, including controlling ongoing sources that continue to impact the area's natural resources. The New York/New Jersey Harbor Estuary Program, which was cited with approval by the EPA in its sediment survey,⁵⁵ is a good example of a comprehensive watershed approach addressing environmental impacts. Importantly, a public works/public management program would avoid the complex litigation that will inevitably arise in a natural resource damage action, with its attendant expense and delay, and would address interests that cannot be accounted for in a CERCLA remedial action.

V. CONCLUSION

The Newark Bay Estuary presents unique problems for addressing environmental contamination and the opportunity for a unique solution. CERCLA does not offer the appropriate solution for the problems presented by the Newark Bay Estuary because it simply was not designed to address an area of this magnitude with a history of intense use and present circumstances of industrialization. The litigation that would inevitably be generated by the application of this inappropriate solution would be contentious, expensive, and time-

⁵⁵ See EPA, *supra* note 47, at xxvi.

consuming; would not account for numerous nonenvironmental interests; and would divert energy, money, and time that would be better spent on the real goal at hand — restoring Newark Bay and its tributaries. A public works/public management model is the appropriate tool to reach this goal because it allows a comprehensive solution to an area of immense size with immense environmental issues and moves on in a timely manner to develop the solution without expensive and complex litigation.