# Programmatic Environmental Assessment

## New Jersey Conservation Reserve Enhancement Program (CREP)

**Farm Service Agency**
**United States Department of Agriculture**

**July 2004**

# Cover Sheet

**Mandated Action:**

The United States Department of Agriculture, Commodity Credit Corporation (USDA/CCC) and the State of New Jersey have agreed to implement the New Jersey Conservation Reserve Enhancement Program (CREP), a component of the national Conservation Reserve Program (CRP).

USDA is provided the statutory authority by the provisions of the Food Security Act of 1985, as amended (1985 Act) (16 U.S.C. 3830 et seq.), the 2002 Farm Bill (signed into law on May 13, 2002), and the regulations at 7 CFR 1410. In accordance with the 1985 Act and the recently enacted 2002 Farm Bill, USDA/CCC is authorized to enroll lands through 2007.

The Farm Service Agency (FSA) of USDA proposes to enter into a CREP agreement with the State of New Jersey covering the counties of Atlantic, Bergen, Burlington, Camden, Cape May, Cumberland, Essex, Gloucester, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Salem, Somerset, Sussex, Union, and Warren.

CREP is a voluntary land conservation program for agricultural land operators and land owners. National Environmental Policy Act (NEPA) compliance for this project included the drafting of the Final Programmatic Environmental Impact Statement (PEIS) for the CRP. The Notice of Availability for this PEIS was published in the Federal Register on January 17, 2003 and the Record of Decision (ROD) was published on May 8, 2003. The ROD detailed FSA's implementation of the re-authorized CRP according to the provisions of the Farm Security and Rural Investment Act of 2002, Public Law 107-121 (2002 Farm Bill). This Programmatic Environmental Assessment (PEA) is tiered off the CRP PEIS as authorized by Council on Environmental Quality regulations 40 CFR 1502.20.

**Type of Document:** Programmatic Environmental Assessment (PEA)

**Lead Agency:** United States Department of Agriculture, Farm Service Agency

**Sponsoring Agencies:** New Jersey State Department of Agriculture; New Jersey State Department of Environmental Protection; New Jersey State Soil Conservation Committee

**Cooperating Agencies:** United States Departments of Agriculture, Natural Resource Conservation Service (NRCS); Soil & Water Conservation Districts in New Jersey State; Rutgers Cooperative Extension Service

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**Abstract**

New Jersey State has nearly 832,600 acres of cropland and pasture distributed throughout the State. This acreage has a disproportionate impact on the water quality of the State. This document outlines a program to improve water quality through the installation of conservation practices on agricultural land and the impacts that this program would have throughout the State.

This Programmatic Environmental Assessment was prepared in accordance with USDA FSA National Environmental Policy Act implementation procedures found in 7 CFR 799, as well as the National Environmental Policy Act of 1969, Public Law 91-190, 42 U.S.C. 4321-4347, 1 January 1970, as amended. Once this document is finalized a Notice of Availability will be printed in the Federal Register. Following the Notice of Availability FSA will provide a public comment period prior to any FSA decision.

# Table of Contents

**1.1 Introduction ..... 1-1**

1.1.1 Overview of the Farm Service Agency's Implementation of the New Jersey Conservation Reserve Enhancement Program (CREP) ..... 1-1

1.1.2 Purpose of Using an Environmental Assessment to Analyze this Action ..... 1-6

**1.2 Purpose of the Proposed Action ..... 1-7**

**1.3 Need for the Proposed Action ..... 1-7**

**1.4 Objectives of the New Jersey CREP ..... 1-13**

1.4.1 Objective #1: Reduce the Application of Agricultural Chemicals ..... 1-13

1.4.2 Objective #2: Preserve Farmland and Encourage Open Space ..... 1-13

1.4.3 Objective #3: Remove Pollutants from New Jersey Waterways ..... 1-13

1.4.4 Objective #4: Preserve Unique/Protected Lands ..... 1-14

**1.5 Relevant Laws, Regulations, and Other Documents ..... 1-14**

1.5.1 Clean Water Act of 1972 ..... 1-14

1.5.2 Coastal Barrier Resources Act of 1982 ..... 1-15

1.5.3 Coastal Zone Management Act of 1972 ..... 1-15

1.5.4 Comprehensive State Groundwater Protection Program ..... 1-15

1.5.5 CRP Programmatic Environmental Impact Statement ..... 1-16

1.5.6 Endangered Species Act of 1973 ..... 1-16

1.5.7 Executive Order 11514: Protection and Enhancement of Environmental Quality ..1-16

1.5.8 Executive Order 11988: Floodplain Management—Floodplains and Wetlands .1-17

1.5.9 Executive Order 11990: Protection of Wetlands ..... 1-17

1.5.10 Executive Order 12898, Environmental Justice for Minority and Low Income Populations ..... 1-17

1.5.11 Farmland Protection Policy Act (FPPA) of 1981 ..... 1-17

1.5.12 Federal Insecticide, Fungicide, and Rodenticide Act of 1947 ..... 1-18

1.5.13 Food Security Act of 1985 ..... 1-18

1.5.14 National Environmental Policy Act of 1969 and Regulations ..... 1-18

1.5.15 National Historic Preservation Act of 1966 and Regulations ..... 1-19

1.5.16 Safe Drinking Water Act of 1974 ..... 1-19

1.5.17 Sustainable Fisheries Act of 1996 ..... 1-19

1.5.18 Wild and Scenic Rivers Act of 1968 ..... 1-20

1.5.19 USDA Departmental Regulation 9500-3 ....1-20
1.5.20 New Jersey Laws ....1-20
1.5.21 Programs Available to New Jersey ....1-21
**1.6 Decisions that Must be Made ....1-23**
**1.7 Scoping and Resource Issues ....1-23**
1.7.1 Scoping ....1-23
1.7.2 Relevant Resource Issues ....1-25
1.7.3 Issues Eliminated from Further Consideration ....1-27
**Chapter 2.0 Alternatives Including the Proposed Action....2-1**
**2.1 Introduction....2-1**
**2.2 Description of Alternatives....2-1**
2.2.1 Alternative A (No Action)—Continue Current Agricultural Practices ....2-1
2.2.2 Alternative B (Proposed Action)—Implement the New Jersey CREP ....2-10
**2.3 Comparison of Alternatives....2-18**
2.3.1 Summary Comparison of Achievement of Project Objectives of Alternatives A and B 2-19
2.3.2 Summary Comparison of the Effects of Alternatives A and B on the Relevant Resource Issues....2-23
**Chapter 3.0 Affected Environment and Environmental Consequences ....3-1**
**3.1 Introduction....3-1**
3.1.1 Assumptions and Background Used in Analysis ....3-1
**3.2 State Water Quality Standards ....3-2**
3.2.1 Introduction....3-2
3.2.2 Existing Conditions....3-3
3.2.3 Effects of Alternative A (No Action) on State Water Quality Standard ....3-9
3.2.4 Effects of Alternative B (CREP Agreement) on State Water Quality Standard ..3-10
**3.3 Drinking Water ....3-11**
3.3.1 Existing Conditions....3-12
3.3.2 Effects of Alternative A (No Action) on Drinking Water ....3-16
3.3.3 Effects of Alternative B (CREP Agreement) on Drinking Water ....3-17
**3.4 Wetlands....3-17**
3.4.1 Existing Conditions....3-18
3.4.2 Effects of Alternative A (No Action) on Wetlands ....3-19

3.4.3 Effects of Alternative B (CREP Agreement) on Wetlands ....3-20
**3.5 Floodplains ....3-20**
3.5.1 Existing Conditions ....3-21
3.5.2 Effects of Alternative A (No Action) on Floodplains ....3-21
3.5.3 Effects of Alternative B (CREP Agreement) on Floodplains ....3-22
**3.6 Wildlife ....3-22**
3.6.1 Existing Conditions ....3-23
3.6.2 Effects of Alternative A (No Action) on Wildlife ....3-26
3.6.3 Effects of Alternative B (CREP Agreement) on Wildlife ....3-26
**3.7 Protected/Unique Lands ....3-28**
3.7.1 Existing Conditions ....3-29
3.7.2 Effects of Alternative A (No Action) on Protected/Unique Lands ....3-34
3.7.3 Effects of Alternative B (CREP Agreement) on Protected/Unique Lands ....3-34
**3.8 Marine Resources ....3-35**
3.8.1 Existing Conditions ....3-37
3.8.2 Effects of Alternative A (No Action) on Marine Resources ....3-38
3.8.3 Effects of Alternative B (CREP Agreement) on Marine Resources ....3-38
**3.9 Wild and Scenic Rivers ....3-39**
3.9.1 Existing Conditions ....3-40
3.9.2 The Effects of Alternative A (No Action) on Wild and Scenic Rivers ....3-41
3.9.3 The Effects of Alternative B (CREP Agreement) on Wild and Scenic Rivers ....3-42
**3.10 Environmental Justice ....3-42**
3.10.1 Existing Conditions ....3-43
3.10.2 The Effects of Alternative A (No Action) on Environmental Justice ....3-45
3.10.3 The Effects of Alternative B (CREP Agreement) on Environmental Justice ....3-45
**3.11 Socioeconomics ....3-46**
3.11.1 Existing Conditions ....3-46
3.11.2 The Effects of Alternative A (No Action) on Socioeconomics ....3-48
3.11.3 The Effects of Alternative B (CREP Agreement) on Socioeconomics ....3-49
**3.12 Cumulative Effects ....3-51**
3.12.1 Alternative A (No Action) ....3-51
3.12.2 Alternative B (CREP Agreement) ....3-51
**3.13 Unavoidable Adverse Impacts ....3-51**

3.13.1 Alternative A (No Action) ..... 3-52
3.13.2 Alternative B (CREP Agreement) ..... 3-52
**3.14 Relationship of Short-Term Uses and Long-Term Productivity ..... 3-52**
3.14.1 Alternative A (No Action) ..... 3-52
3.14.2 Alternative B (CREP Agreement) ..... 3-52
**3.15 Irreversible and Irretrievable Commitments of Resources ..... 3-52**
3.15.1 Alternative A (No Action) ..... 3-52
3.15.2 Alternative B (CREP Agreement) ..... 3-53

**Chapter 4.0 List of Preparers ..... 4-1**

**Chapter 5.0 List of Agencies and Persons Consulted and/or Provided Copies of This Environmental Assessment ..... 5-1**

**Chapter 6.0 References ..... 6-1**

**Appendix A: FSA Handbook CPs**

**Appendix B: Threatened and Endangered Species**

**Appendix C: Acronyms and Abbreviations**

**Appendix D: Glossary**

**Appendix E: CREP Payments**

**Appendix F: Drinking Water Contaminants, Human Health Impacts, and Agricultural Practices**

**Appendix G: Scoping/Consultation Information**

# List of Figures

Figure 1-1: Areas of Greatest Agricultural Activity in New Jersey (shaded areas). ..... 1-3

Figure 1-2: 2002 River Miles with Chemical Exceedances. Graph based on 10 chemical parameters evaluated in non-tidal rivers. ..... 1-8

Figure 1-3: Delaware Drainage Basin ..... 1-9

Figure 1-4: WMA 8, 9, 10, and 12 ..... 1-10

Figure 1-5: WMA 2 ..... 1-11

Figure 2-1: Parameters used to calculate the quantity of manure and manure nutrients for the 16 livestock categories . ..... 2-3

Figure 2-2: Manure nutrient production on livestock operations in New Jersey, 1997 . ..... 2-3

Figure 2-3: Total pesticide amounts (lbs. active ingredients) applied by county in 2000. CREP targeted counties are highlighted in bold. ..... 2-5

Figure 2-4: New Jersey Pesticide use in 1997 ..... 2-6

Figure 2-5: The Delaware River Basin ..... 2-7

Figure 2-6: WMA 8, 9, 10, and 12 ..... 2-8

Figure 2-7: The Wallkill Watershed ..... 2-9

Figure 3-1: River Miles with Chemical Exceedances. Graph based on 10 chemical parameters evaluated in non-tidal rivers. ..... 3-4

Figure 3-2: 1998 New Jersey's Polluted Waters ..... 3-5

Figure 3-3: New Jersey Impaired Waterbodies ..... 3-6

Figure 3-5: New Jersey's top pathogen contaminants in 1998 ..... 3-7

Figure 3-6: New Jersey's top nutrient contaminants in 1998 ..... 3-8

Figure 3-7: New Jersey's top pesticide contaminants in 1998 ..... 3-9

Figure 3-8: New Jersey's top sediment contaminants in 1998 ..... 3-9

Figure 3-9: Sole-Source Aquifers in New Jersey ..... 3-13

Figure 3-10: Well Head Protection Areas in New Jersey ..... 3-14

Figure 3-11: State of New Jersey 2000 PWS Compliance Report. ..... 3-16

Figure 3-12. Counties and Designated CBRA Communities Located in New Jersey ..... 3-37

Figure 3-13: New Jersey's Racial Diversity ..... 3-43

Figure 3-14: Population by Race for the 15 Largest Counties, Cities, and Townships in New Jersey: 2000 ..... 3-44

Figure 3-15: New Jersey Employment and Population in the 21st Century April 2003 Division of Labor Market and Demographic Research ..... 3-47

Table 4-1: List of Preparers ..... 4-1

Table 5-1: List of Agencies and Persons Consulted During the Course of the Analysis. ..... 5-1

# Chapter 1.0 Purpose of and Need for Action

## 1.1 Introduction

### 1.1.1 Overview of the Farm Service Agency's Implementation of the New Jersey Conservation Reserve Enhancement Program (CREP)

The U.S. Department of Agriculture (USDA)/Commodity Credit Corporation (CCC) and the State of New Jersey propose to implement the New Jersey Conservation Reserve Enhancement Program (CREP), administered by USDA's Farm Service Agency (FSA). The NJ CREP is to run for a total of 25 years, from its signing in 2004 through 2029 (the enrollment period lasts for 10 years and payments may extend 15 years after the enrollment period has ended).

Photo courtesy of NJ Dept. of Agric.

CREP is a component of FSA's Conservation Reserve Program (CRP), which targets specific environmental needs of each State. CREP was established under Title D of the Food Security Act of 1985. CREP is a joint Federal-State partnership that provides agricultural producers with financial incentives to install USDA approved conservation practices. Through the CREP, farmers receive annual rental payments and cost-share assistance to establish long-term, resource-conserving covers on eligible land.

CREP is a voluntary land conservation program for agricultural land operators and land owners. National Environmental Policy Act (NEPA) compliance for this project included the drafting of the Final Programmatic Environmental Impact Statement (PEIS) for the CRP. The Notice of Availability for this PEIS was published in the Federal Register on January 17, 2003 and the Record of Decision (ROD) was published on May 8, 2003. The ROD detailed FSA's implementation of the re-authorized CRP according to the provisions of the Farm Security and Rural Investment Act of 2002, Public Law 107-121 (2002 Farm Bill). This Programmatic Environmental Assessment (PEA) is tiered off the CRP PEIS as authorized by Council on Environmental Quality regulations 40 CFR 1502.20.

The New Jersey CREP would have a 10-year enrollment period to target 30,000 acres for the installation and maintenance of FSA-approved conservation practices (CPs). Of that acreage, 4,000 acres are targeted for permanent easement purchase. Permanent easements would be further targeted in areas with riparian areas adjacent to streams, and areas that would provide contiguous preserved riparian corridors. Enrollment in the program requires that CPs be maintained for 10-15 years or permanently.

CPs are measures installed and maintained as part of the CREP program to decrease environmental degradation which result from agricultural activities. The CPs are designed to reduce sediment, agricultural erosion, and nutrient loading in streams and waterways  These CPs would enable owners or producers to convert cropland areas that include or are adjacent water bodies (i.e. wetlands, floodplains, streams, etc.) into CPs in order to reduce the impact of agricultural activities. The conservation practices selected for the New Jersey CREP include:

- CP8A—Grassed Waterways
- CP15A—Establishment of Permanent Vegetative Cover (Contour Grass Strips)
- CP21—Filter Strips
- CP22—Riparian Buffer

Additionally, New Jersey will install fencing and implement soil bioengineering practices in conjunction with the CPs. Section 2.2.2 provides an overview of each CP. Appendix A summarizes the policies and regulations governing each practice, found in the FSA Handbook 2-CRP on the Agricultural Resource Conservation Program (Handbook). (USDA, rev. 4)

The agricultural industry in the State of New Jersey is concentrated in the less urbanized areas of the State. While the New Jersey CREP program would be available to farmers and ranchers across the State, and special efforts would be made to enroll lands that feed waterways within the Pinelands and Great Swamp watersheds, most of the agricultural areas are concentrated in the Delaware Watershed, the Wallkill Watershed, and four State-designated Watershed Management Areas (WMA) which drain toward the Atlantic Ocean (WMAs 8, 9, 10, and 12). These areas include the counties of Bergen, Burlington, Camden, Cape May, Cumberland, Gloucester, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Salem, Somerset, Sussex, and Warren. Due to the concentration of agricultural areas within these counties, only these WMAs will be addressed in this PEA. Site specific analysis as part of the individual CREP contracts would be required for implementation of the CREP contract to ensure that local issues eliminated from programmatic analysis will be addressed.

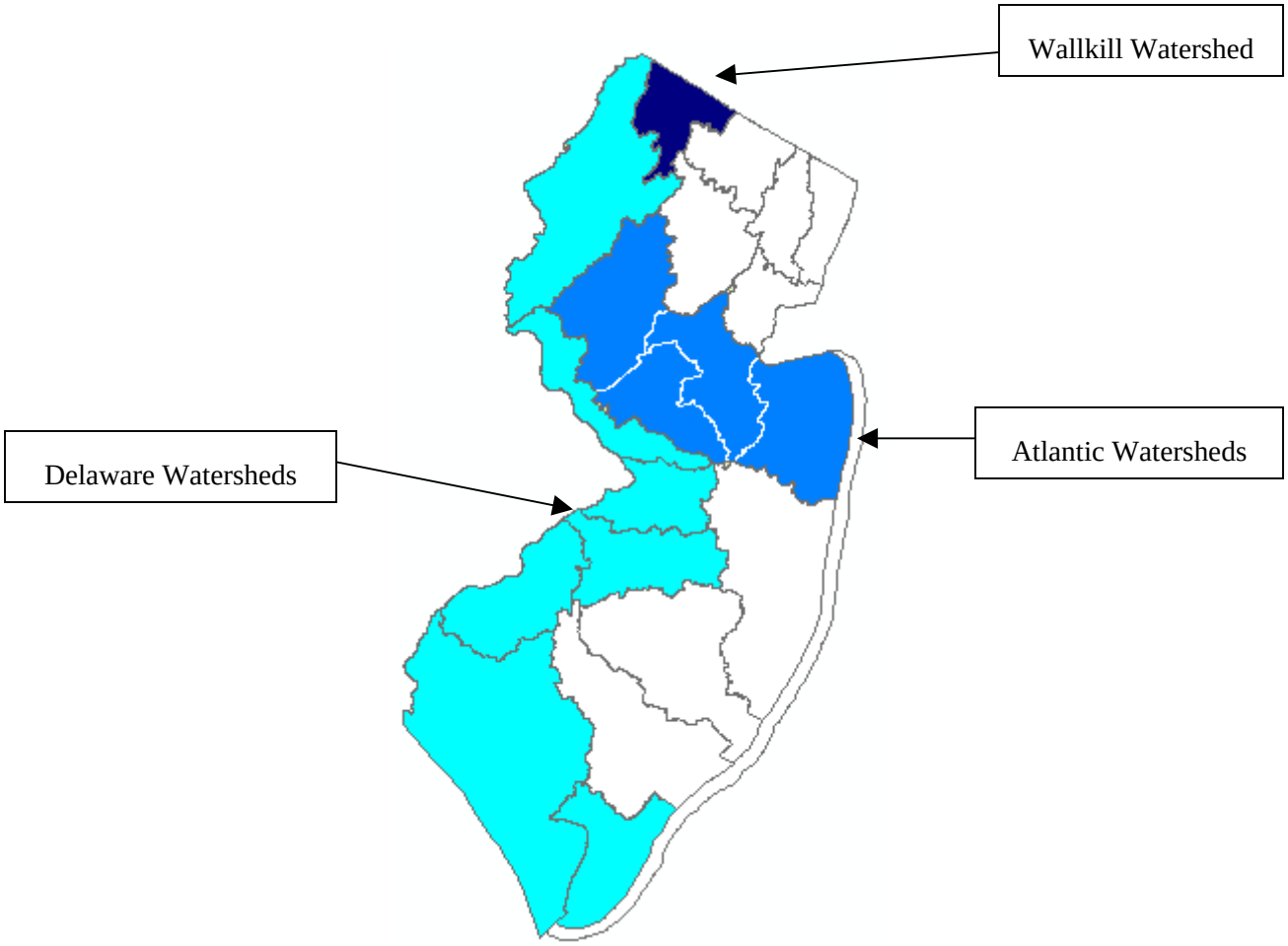


**Figure 1-1: Areas of Greatest Agricultural Activity in New Jersey (shaded areas).**

New Jersey is requesting a commitment of $77 million dollars from USDA for up to 15 years of annual rental and incentive payments, signing incentive payments (SIP), 50 percent of the cost to establish conservation practices, and practice incentive payments (PIP) equal to 40 percent of the cost of practice installation. New Jersey would provide $23 million dollars to be used towards the purchase of permanent CREP contracts, 10 percent of the cost to establish conservation practices, and technical assistance. This is a commitment of 23 percent of the total project cost of implementing CREP in New Jersey. Payment amounts to land owners would vary according to which CP is applied. A discussion of the application and payment process is discussed in Section 2.2.2 of this PEA.

Upon approval of the CREP agreement, the following actions would take place:

- The New Jersey Departments of Agriculture (NJDA) and Environmental Protection (NJDEP) would enter into a Memorandum of Understanding (MOU) with USDA, which establishes the basic terms of New Jersey's CREP. The MOU would specify the terms of enrollment, the rate and schedule of the Federal and State contributions, the restoration options available, and the features of the joint Federal-State implementation of this program.
- Subsequent to USDA approval and finalization of the MOU, FSA, the NJDA State Soil Conservation Committee (SSCC), the Soil Conservation Districts (SCDs), and the NJDEP would begin to solicit

interest in CREP. An education and outreach program would begin immediately after approval and would be an extensive effort throughout the 10-year enrollment period.

- State and Federal agencies would assist landowners in the application and enrollment process.
- Eligibility would be determined on a site specific basis and a conservation plan would be developed by cooperating State and Federal agencies.
- State and Federal agencies would provide technical assistance in the installation of conservation practices, monitoring, and annual reporting of results.

**Implementation Procedure for the New Jersey CREP**

Under Alternative B, the NJDA and the NJDEP would enter into a MOU with USDA to establish the basic terms of New Jersey's CREP. In particular, the MOU would specify terms of enrollment, the rate and schedule of the Federal and State contributions, the restoration options available, and the features of the joint Federal-State implementation of the program.

**Enrolling Land in the New Jersey CREP**

Subsequent to USDA approval and finalization of the MOU, FSA, NJDA—SSCC, the SCDs, and the NJDEP would begin to solicit interest in CREP. Eligible participants can include individuals, associations, trusts, local and State governments, Indian tribes, corporations, joint stock companies and operations, estates, and other legal entities. The monetary enhancements made to continuous CRP have increased participation in New Jersey dramatically. Therefore, it can be assumed that the monetary enhancements of CREP would result in a successful enrollment rate. Eligible producers can enroll in 10- to 15-year CRP contracts with FSA. Producers may also extend the benefits of the program through separate contracts with New Jersey. Applicants must be able to offer eligible acreage and satisfy the basic eligibility criteria for CRP. Currently, land must be cropland that has been planted or considered planted to an agricultural commodity during four of the six crop years from 1996-2001. Additionally the land must be physically and legally capable of being cropped. Marginal pastureland is also eligible for enrollment provided it is suitable for use as a riparian buffer planted with trees. In addition, applicants must generally have owned or operated the land for at least one year prior to enrollment. Persons who have an existing CRP contract or an approved offer with a contract pending are not eligible for CREP until the CRP contract expires.

An education and outreach program would begin immediately after approval of the agreement and would be an extensive effort throughout the 10 year enrollment period. The process for enrolling acres in the New Jersey CREP is shown in the following flow chart.

As part of the contracting process implementation of Alternative B would involve a site specific analysis, referred to as an EE. The EE would ensure that local issues eliminated as part of this PEA would be addressed prior to implementation of a CREP contract.

### CREP Application Flowchart

| CREP Application Flowchart(NJDA, 2003) | |
|---|---|
| Applicants submit application for the CREP at their local Farm Service Agency office. If the applicant wishes to permanently preserve their property, an application shall be filed at this time. | Continuous Sign-up |
| ↓ | |
| NRCS determines whether the application meets the criteria set forth in the CREP and the NJDA verifies Farmland Assessment Status. | 2-4 weeks |
| ↓ | |
| NRCS prepares conservation plan with the landowner. The SCD approves the plan as conforming to the NRCS Field Office Technical Guide (FOTG). NJDA-SCD and NJDEP partners will have the opportunity to review the conservation plan to ensure consistency with the rules and regulations of the CREP. Site specific EE is completed by FSA and NRCS | 2-3 months |
| ↓ | |
| Upon contract (CRP-1) approval from FSA, the FPP or GA Office will start proceedings to obtain any permanent conservation contracts if applicable. | |
| ↓ | |
| Within one year of the contract effective date, the approved permanent cover shall be established. (A 12- month extension may be available). | 1 year |
| ↓ | |
| NRCS, NJDA, and NJDEP provide technical assistance for the installation of conservation practices. | |
| ↓ | |
| Upon completion and certification of the project, the NJDA/SSCC and USDA-FSA will pay 10/90 of the costs for the practices within 30 days of certification. | |
| ↓ | |
| The FPP or GA Program contracts the permanent easement component of the CREP, if applicable. | |
| ↓ | |
| USDA-FSA begins issuing annual rental & incentive payments in the subsequent fiscal year (after Oct. 1) following the contract's effective date. | |
| ↓ | |
| NRCS and SCDs randomly monitor 5 percent of installed practices for continuous compliance | |

### 1.1.2 Purpose of Using an Environmental Assessment to Analyze this Action

FSA's NEPA regulations are found at 7 CFR Part 799. These environmental regulations classify the Agency's actions into levels of environmental review such as Categorical Exclusions (CATEXs), Environmental Assessments(EAs), and Environmental Impact Statements(EISs). The National Historic Preservation Act (NHPA) compliance and other cultural resource considerations also are incorporated into FSA's NEPA process.

FSA is preparing this PEA to address the implementation of the CREP to comply with the National Environmental Policy Act (NEPA), Council on Environmental Quality Regulations (CEQ), and 7 CFR 799: Environmental Quality and Related Environmental Concerns—Compliance with the National Environmental Policy Act.

FSA has a framework in place to ensure NEPA compliance at the field level, where site specific environmental evaluations (EE) would take place prior to implementing a CREP contract. The review would consist of completing a site specific EE, which would tier off of this PEA and the 2002 CRP PEIS.

A PEA allows FSA to reduce paperwork and identify potential impacts at a State level so that the implementation personnel can be aware of them at a site specific level. Regulations promulgated by the CEQ relevant to this project State include:

**Sec. 1500.4 Reducing paperwork.**

> (i) Using **program**, policy, or plan environmental impact statements and **tiering** from statements of broad scope to those of narrower scope, to eliminate repetitive discussions of the same issues (Secs. 1502.4 and 1502.20).

**Sec. 1502.4 Major Federal actions requiring the preparation of environmental impact statements.**

> (b) Environmental impact statements may be prepared, and are sometimes required, for **broad Federal actions** such as the adoption of new agency programs or regulations (Sec. 1508.18). Agencies shall prepare statements on broad actions so that they are relevant to policy and are timed to coincide with meaningful points in agency planning and decisionmaking.
>
> (c) When preparing statements on broad actions (including proposals by more than one agency), agencies may find it useful to evaluate the proposal(s) in one of the following ways:
>
> 1. Geographically, including actions occurring in the same general location, such as body of water, region, or metropolitan area.
>
> 2. Generically, including actions which have relevant similarities, such as common timing, impacts, alternatives, methods of implementation, media, or subject matter.
>
> 3. By stage of technological development including Federal or Federally assisted research, development or demonstration programs for new technologies which, if applied, could significantly affect the quality of the human environment. Statements shall be prepared on such programs and shall be available before the program has reached a stage of investment or commitment to implementation likely to determine subsequent development or restrict later alternatives.

FSA plans to use this PEA to address similar actions in the implementation of this program, and to tier to this document and the PEIS that has been prepared for the CRP for site specific implementation of the program whenever NEPA analysis is required.

## 1.2 Purpose of the Proposed Action

The purpose of CREP is to improve the water quality of streams and waterways by reducing sediment, pesticides, pathogens, and nutrients in agricultural stormwater runoff. Implementation of the approved FSA CPs is designed to reduce nonpoint pollution from farmland that enters the waters of the State. Specific reductions are sought in total phosphorous (p) and total suspended solids (TSS). CREP seeks to remove significant amounts of sediment, nitrogen (n) and p from runoff that would otherwise enter the streams (EPA, 1995; Welsch, 1991).

The targeted areas are the Delaware Watershed, the Wallkill Watershed, and four State-designated WMAs which drain toward the Atlantic Ocean (WMAs 8, 9, 10, and 12).

The implementation of riparian buffers, grass filter strips, contour grass strips, waterways, fencing, and soil bioengineering (see section 2.2.2) would assist in the attainment of the State goal of increasing the number of healthy biological communities from the expected reduction in nutrients, pesticides, sediments, and pathogens. In addition, riparian forest buffers would reduce stream temperatures that are often the limiting factor for trout production. (NJDA, 2003)

FSA's top priorities are the continued preservation of farmland, the establishment of soil and water conservation practices on active farmland, and the economic viability of the nation's farmers. CREP would allow farmers to use CPs to enhance water quality and receive payment for those efforts.

The primary goal of the New Jersey CREP agreement is to "make a significant contribution towards maintaining and restoring ecological functions of streams by reducing biological impairment" (NJDA, 2003).

Photo courtesy of FWS.

## 1.3 Need for the Proposed Action

There are 7,840 miles of rivers and streams, in addition to 675 miles of canals, in New Jersey. Of these, 6,330 miles (81 percent) are non-tidal rivers, 1,520 miles (19 percent) are tidal rivers, and 197 river miles share a border with a neighboring state. New Jersey's rivers are used for multiple purposes such as water supplies for drinking water, industry and agriculture; trout and warm-water fisheries; aquatic resources; recreation (e.g., boating, swimming); and wastewater disposal.

New Jersey's waterbodies underwent assessment by the NJDEP in 2002. The assessment was written up as *The New Jersey 2002 Integrated Water Quality Monitoring and Assessment Report*. The report looked at water quality status and trends with respect to surface water quality standards (SWQS), and attainment of designated uses for recreation, drinking water, agriculture, and industry. Approximately 430 stations, representing 2,308 river miles, were assessed for at least one of the following parameters (the highlighted pollutants are impacted by agricultural activities):

- **total phosphorus**
- pH
- **dissolved oxygen**
- temperature
- **fecal coliform**
- **nitrate**
- **total suspended solids**
- **total dissolved solids**
- **unionized ammonia**
- metals

In 2002, of the 2,308 assessed river miles, 1,913 river miles did not meet the SWQS for at least one parameter. As Figure 1-2 shows, the chemical parameters of most concern in the State are fecal coliform, total phosphorus, pH, and metals. These numbers changed little in the early draft of the *New Jersey 2004 Integrated Water Quality Monitoring and Assessment Report*. The 2004 draft indicated that 106 waterbodies were removed from the list of impaired waterbodies. However, 87 waterbodies were added, resulting in a marginal improvement of only 19 waterbodies.

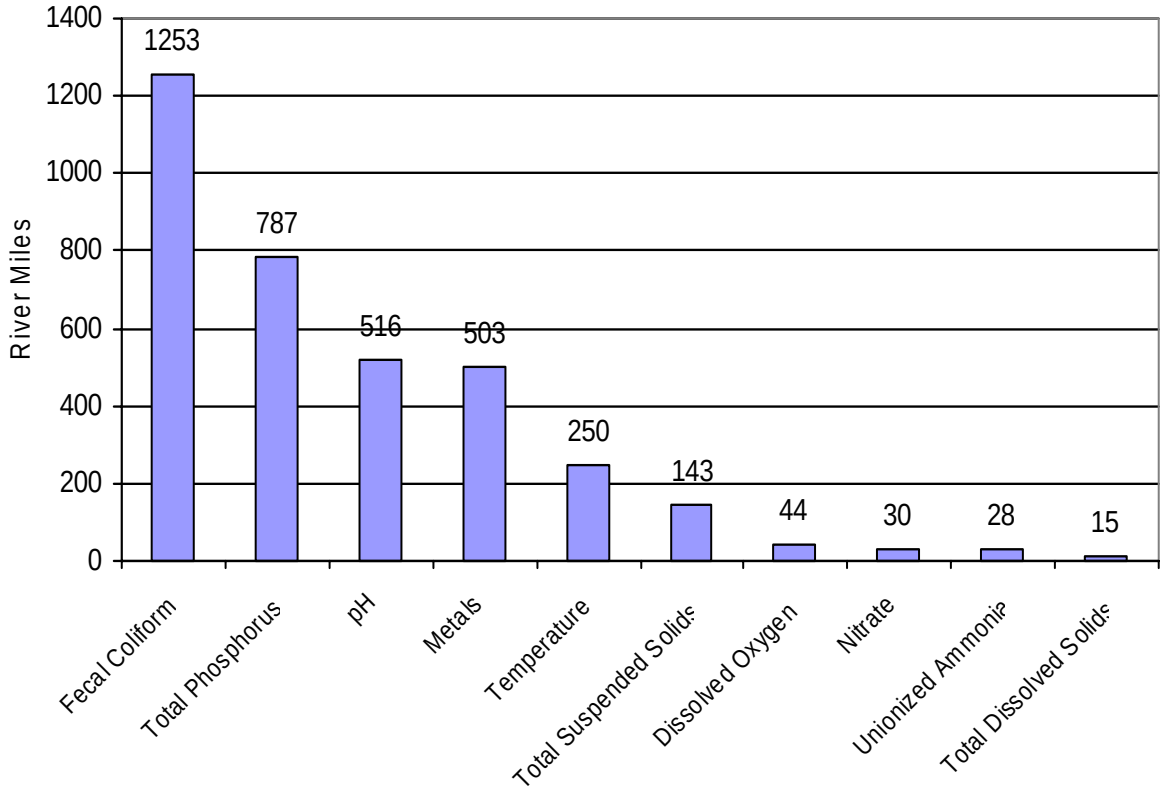


**Figure 1-2: 2002 River Miles with Chemical Exceedances. Graph based on 10 chemical parameters evaluated in non-tidal rivers (NJDEP, 2002a).**

The agricultural areas of New Jersey are concentrated in the Delaware Watershed, the Wallkill Watershed, and WMAs 8, 9, 10, and 12 that drain toward the Atlantic Ocean. The findings of the 1996 and 2002 New Jersey Water Quality Inventory Reports, and portions of the 2004 draft, are discussed below.

The Delaware Drainage Basin consists of eight WMAs: 1, 2, 11, part of 16, 17, 18, 19, and 20. Nonpoint source runoff has been identified by the NJDEP as the most significant source of nutrient loading to the Delaware Drainage Basin. As discussed in the New Jersey Water Quality Inventory Reports (1996, 2002, and 2004 draft), agricultural runoff has been shown as a significant contributor to water quality impairments. A status summary of each WMA is included below:

- WMA 11—"Crop production in the upstream sections of the Assunpink is known to have led to soil erosion and stream siltation" (1996). Assunpink Creek continues to be listed as non-attaining for multiple contaminants and contamination by p and fecal coliform are listed as medium and high priorities, respectively (2002 and 2004).
- WMA 20—"The upper 15 miles of the Crosswicks Creek receives pollution from agriculture and suburban development. The Natural Resources Conservation Service has found agricultural sheet and rill erosion to be high in the Crosswicks Creek basin. The lower reaches of Crosswicks Creek, some 7 miles, are known to receive fertilizer, herbicides, and silt loads from cropland runoff. In addition, stream bank erosion is suspected in Crosswicks Creek along stretches of pasture land. Doctor's Creek receives severe levels of crop land runoff carrying fertilizer, herbicides, pesticides, and silt" (1996). Both Crosswicks Creek and Doctor's Creek continue to be listed as non-attaining for multiple contaminants. Contamination by p and fecal coliform continue to be listed as medium and high priorities, respectively (2002 and 2004).

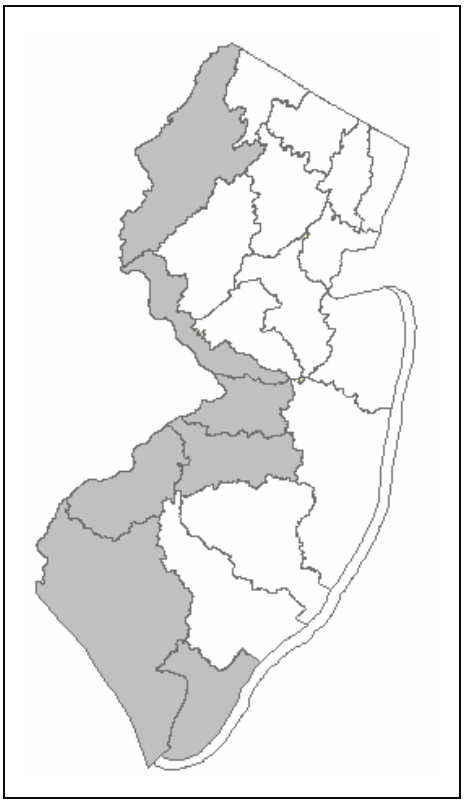

**Figure 1-3: Delaware Drainage Basin**

- WMA 18—"Non point sources are reported to be the sole contributor of water quality problems in Oldman's Creek. Agricultural sheet and rill erosion is considered a high priority in this region by the Natural Resources Conservation Service" (1996). Oldman's Creek continues to be listed as non-attaining for fecal coliform, p, and tss. These contaminates are still listed as high, medium, and medium priorities, respectively (2004).
- WMA 17—"Numerous nonpoint pollution sources are known to impact the Upper Cohansey River and have resulted in siltation and the impairment of local fisheries. Pollution sources include both agricultural and suburban development activities; specific sources include the runoff from croplands, pasture lands, feedlots, housing developments, roads and urban surfaces. Impacts in the Lower Cohansey watershed are much the same. Suspected sources, both agricultural and urban, include runoff from crop production, pasture lands, feedlots, animal holdings, tree harvesting, urban surfaces, house construction..." (1996). The Cohansey River continues to be listed as non-attaining for multiple contaminants and contamination by total coliform continue to be listed as a high priority (2004).

The majority of the agricultural lands within the Northeast, Raritan, and Atlantic Water Regions are located in the Upper and Lower Raritan watersheds, the Millstone watershed, and the western Monmouth watersheds (WMAs 8, 9, 10, and 12). As discussed in the New Jersey Water Quality Inventory Reports (1996, 2002, and 2004 draft), agriculture has been shown as a significant contributor to the impairment of the streams in the Raritan, Millstone, and Monmouth watersheds.

- WMA 8—"Agriculture is suspected of contributing nutrient and sediment loads to the South Branch (Raritan River). Local authorities suggest that while runoff from pasture land may be on the rise, the gradual loss of farmland in this watershed has caused a decline in the severity of cropland runoff. The Natural Resources Conservation Service considers agricultural sheet and rill erosion to be severe in the South Branch watershed. Local timber harvesting is known to have contributed to siltation, but this problem is also believed to be on the decline.... The Neshanic River receives what are believed to be excess levels of nutrient and sediment loads from agricultural sources. Of these suspected sources, runoff from local croplands is believed to be on the rise, while feedlot and pasture land runoff is believed to be on the decline" (1996). The Raritan River continues to be listed as non-attaining for many contaminants, including p, fecal coliform, metals, and temperature. Contamination continues to be listed as medium and high priorities (2004).

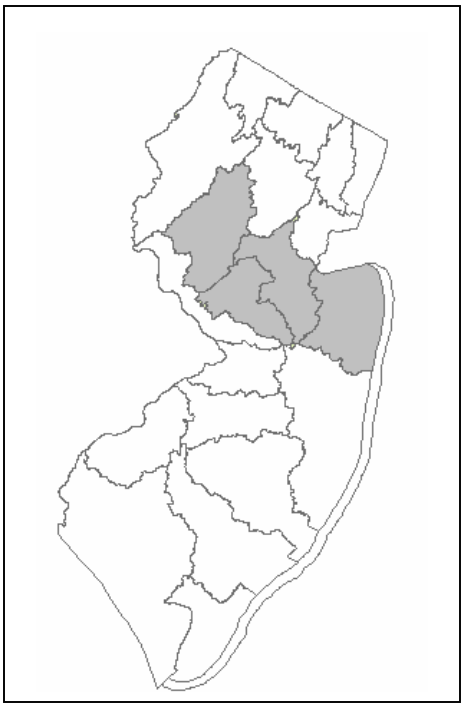

**Figure 1-4: WMA 8, 9, 10, and 12**

- WMA 10—Agricultural lands impact "the regions drained by Etra and Peddie Lakes, Cranbury Brook, and the lower reaches of the Millstone near its confluence with the Raritan River. Sediments, nutrients, and pesticides are suspected of coming from croplands, and are believed to be severe in the East Windsor area where chronic fish kills have occurred in the past. It is a combination of agricultural lands and urban runoff that is suspected of degrading the fish communities in the upper Millstone River" (1996). Various waterbodies in WMA 10 continue to be to be listed as non-attaining. Etra Lake continues to be listed as non-attaining for nutrients/sedimentation, Cranbury Brook for fecal coliform and pH, and the Millstone for many contaminants (2002 and 2004).
- WMA 12—"Horse farms, construction activities, and urban runoff are believed to be the principal nonpoint sources of pollution in this region.... Bacteria from horse farms and urban runoff had contaminated many of the shellfish harvesting beds in the downstream reaches of these rivers.... The Shrewsbury River is affected by many of the same problems that impact local waters. Agricultural runoff from croplands, pastures, and animal holding areas is believed to be contributing excess nutrients, silt, and bacteria to surface water"(1996). The Shrewsbury Estuary continues to be listed as a high priority for non-attainment of the total coliform standards (2004).

The Wallkill Watershed (WMA 2) is part of the Rondout Watershed, draining into New York State. In the past five years, it has experienced an increase in biological impairment. Preliminary assessment indicates that the degradation of water quality is due to a combination of agricultural and urban impacts. As discussed in the New Jersey Water Quality Inventory Reports (1996, 2002, and 2004 draft), agriculture has been shown to be a significant contributor to the impairment of the streams in the Wallkill Watershed.

- WMA 2—"...Agricultural runoff from crop production, pasture lands and animal holdings are believed to have contributed to what local officials term as widespread eutrophic conditions in the Upper Wallkill" (1996). The Wallkill River continues to be listed as non-attaining for many contaminants, including dissolved solids, fecal coliform, and temperature. Contamination continues to be listed as medium and high priorities (2002 and 2004).
- WMA 2—"Clove Brook suffers from excessive nutrient loading which causes low dissolved oxygen levels and excessive algal growth. The known sources are agricultural, including feedlot, pasture land and crop runoff" (1996). Clove Brook continues to be listed as non-attaining in its ability to support aquatic life (2002 and 2004).

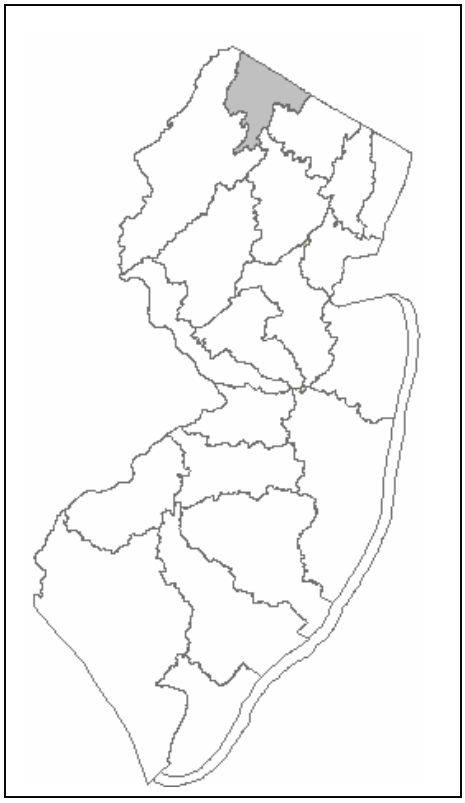

**Figure 1-5: WMA 2**

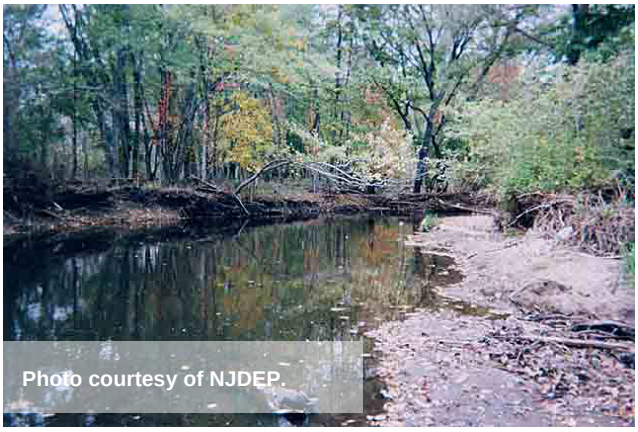
Photo courtesy of NJDEP.

The impacts of agricultural lands on water quality in this area of the State are significant. The implementation of CREP in these areas, along with ongoing State and Federal initiatives (discussed in Section 1.5.24) that target water quality, would be a critical step towards meeting the project objectives. Additionally, the agricultural runoff discharging into New York and the Atlantic Ocean would be filtered, which will serve to protect the water quality of surrounding States.

The implementation of the New Jersey CREP would also support the protection of a number of unique natural features located across the state of New Jersey. Some of these areas include:

- 39 State Parks
- 11 State Forests
- 3 National Recreation Areas
- 4 Wild and Scenic Rivers
- 6 National Wildlife Refuges
- 1 National Reserve
- 3 National Estuary Program areas
- 7 Sole-Source Aquifers
- 1,792 Miles of Tidally Influenced Shoreline
- 1 National Scenic Trail
- 11 National Natural Landmarks

Photo courtesy of NJDEP.

Protection of these areas, many that provide wildlife habitat, are crucial to the survival of New Jersey's sensitive species. Habitat degradation is the leading cause of endangerment for all groups of organisms in the mainland Unites States, ranking ahead of exotic species, pollution, over exploitation, and disease. In New Jersey, these changes affect thousands of acres per year, resulting in the reduction of available habitat for native plant and animal species and decreasing the resilience of ecosystems to accommodate other natural and human caused stressors.

Currently New Jersey is home to 76 species listed by the State as threatened and endangered (T & E) and 16 of these species are federally listed (Section 3.6 and Appendix B and G). CREP would serve to protect the

habitats of several federally listed endangered species, and numerous State-listed species. For example, the Delaware drainage basin contains federally listed T & E species, including the bog turtle, bald eagle, and small whorled pogonia. The Barnegat Bay and the New York—New Jersey Harbor Estuary drainage basins are the home of the bald eagle, peregrine falcon, piping plover, and roseate tern. CREP would serve as an important component of the effort to protect and restore these estuaries.

## 1.4 Objectives of the New Jersey CREP

In a general sense, the New Jersey CREP would provide financial and technical assistance to eligible farmers/ranchers in New Jersey in order to implement FSA CPs. Specifically the CREP program seeks to achieve, to the extent practicable, the following four objectives. Each objective is accompanied by an indicator to help in determining if the objective has been met.

### 1.4.1 Objective #1: Reduce the Application of Agricultural Chemicals

**Indicators:**

1-A Enrollment of up to 30,000 acres, with a goal of 4,000 acres as permanent easement purchases. This alone would result in an estimated reduction of 36,010 pounds of agricultural chemicals (3.6 percent of the 1,000,300 pounds of agricultural chemicals applied in 2000, see section 2.2.1).

### 1.4.2 Objective #2: Preserve Farmland and Encourage Open Space

**Indicators:**

2-A Enrollment of up to 30,000 acres, with a goal of 4,000 acres as permanent easement purchases. Enrolling lands in the CREP program would preserve farmland from development for a minimum of 10-15 years and the permanent easements acquired would contribute to the State's open space goals.

### 1.4.3 Objective #3: Remove Pollutants from New Jersey Waterways

**Indicators:**

3-A A reduction in the number of violations in future Environmental Protection Agency (EPA) National Public Water Systems Compliance Reports.

3-B A reduction in the number of river miles that do not meet the SWQS for at least one parameter.

3-C A reduction in nonpoint pollution throughout the state.

- 3-C1 A reduction in the amount of total phosphorous found in State waterbodies.
- 3-C2 A reduction in the amount of total suspended solids found in State waterbodies.

3-D A reduction in the number of waterbodies that are listed as impaired on the State 305 (b) report.

3-E A reduction in the erosion of highly disturbed first and second order streams.

3-F An increase in the exclusion of livestock from stream bank areas and riparian corridor, which would limit sediments from erosion as well as direct nutrient loads.

### 1.4.4 Objective #4: Preserve Unique/Protected Lands

**Indicators:**

4-A Overall improvements in water quality, which would directly improve the ecological functions of unique and protected lands, encourage continued tourism, and improve the habitats of several Federal and state listed T & E species.

4-B Continued and improved conditions within nationally recognized ecological resources such the Wallkill National Wildlife Refuge, the Great Swamp Watershed, the Pinelands National Reserve, and the Delaware and Barnegat Bays.

4-C Enrollment of up to 30,000 acres, with a goal of 4,000 acres as permanent easement purchases. Enrolling lands in the CREP program would preserve farmland from development, discouraging encroachment and reducing impacts to unique and protected lands.

4-D Providing expanded wildlife habitat, which would enhance the wildlife populations that inhabit unique and protected lands.

The project objectives would be reached through the implementation of the four CPs and two concurrent conservation activities implemented by the State of New Jersey, which were introduced in Section 1.1. The implementation of these practices throughout the 30,000 acres is expected to make a significant contribution to achieving the objectives of the CREP program. Each of these practices is discussed in detail in Section 2.2.2. Appendix A of this PEA contains the full description and requirements of each practice from the FSA Handbook.

## 1.5 Relevant Laws, Regulations, and Other Documents

### 1.5.1 Clean Water Act of 1972

The Clean Water Act (CWA) was passed in 1972, with a goal to “restore and maintain the chemical, physical, and biological integrity of the Nation's waters.” The Act contains a number of provisions that affect agriculture:

Clean Lakes Program is authorized by Section 314 of the CWA. It authorizes EPA grants to States for lake classification surveys, diagnostic/feasibility studies, and for projects to restore and protect lakes.

Nonpoint Source Pollution Program is established by Section 319 of the CWA. It requires States and U.S. territories to identify navigable waters that cannot attain water quality standards without reducing nonpoint source pollution, and then develop management plans to reduce such nonpoint source pollution.

National Estuary Program is established by Section 320 of the CWA. It provides for the identification of nationally significant estuaries that are threatened by pollution for the preparation of conservation and management plans and calls for Federal grants to States, interstate, and regional water pollution control agencies to implement such plans.

National Pollutant Discharge Elimination System Permit Program is established by Section 402 of the CWA. This program controls point source discharge from treatment plants and industrial facilities (including large animal and poultry confinement operations).

Dredge and Fill Permit Program was established by Section 404 of the CWA. Administered by the U.S. Army Corps of Engineers, it regulates dredging, filling, and other alterations of waters and wetlands jointly with EPA, including wetlands owned by farmers. Under administrative agreement, Natural Resources Conservation Service (NRCS) has authority to make wetland determinations pertaining to agricultural land.

### 1.5.2 Coastal Barrier Resources Act of 1982

Congress recognized the vulnerability of coastal barriers to development by passing the Coastal Barrier Resources Act in 1982 (CBRA). By restricting Federal expenditures and financial assistance which have the effect of encouraging development of coastal barriers, Congress aimed to minimize the loss of human life, wasteful expenditure of Federal revenues, and damage to fish, wildlife, and other natural resources associated with coastal barriers along the Atlantic and Gulf of Mexico coasts. The CBRA, while not prohibiting privately financed development, prohibits most new Federal financial assistance, including flood insurance, within a designated Coastal Barrier Resources System (CBRS).

In 1990, Congress passed the Coastal Barrier Improvement Act (CBIA). The CBIA tripled the size of the System established by the CBRA. The CBIA also prohibits the issuance of new Federal flood insurance within “otherwise protected areas” on buildings constructed after November 16, 1991, unless the building is used in a manner consistent with the purpose for which the area is protected. Otherwise Protected Areas (OPAs) are generally used for certain activities such as fish and wildlife research and refuges.

### 1.5.3 Coastal Zone Management Act of 1972

In response to intense pressure on coastal resources and because of the importance of coastal areas of the US, Congress passed the Coastal Zone Management Act of 1972 (CZMA). The CZMA defines the coastal zone as the coastal waters and the adjacent shorelands, strongly influenced by each other and in proximity to the shoreline, and includes islands, transitional and intertidal areas, salt marshes, wetlands, and beaches The coastal zone extends inland from the shorelines only to the extent necessary to control shorelands, and to control those geographical areas which are likely to be affected by or vulnerable to sea level rise.

The CZMA authorizes a State-Federal program to encourage coastal States and territories to develop comprehensive coastal management programs. The CZMA requires that, to the maximum extent practicable, any Federal action that affects any land/water use or coastal zone natural resource be consistent with the enforceable policies of an approved State coastal management program.

### 1.5.4 Comprehensive State Groundwater Protection Program

The program was initiated by EPA in 1991. It coordinates the operation of all Federal, State, tribal, and local programs that address groundwater quality. States have the primary role in designing and implementing the program based on distinctive local needs and conditions.

### 1.5.5 CRP Programmatic Environmental Impact Statement

The Federal Register dated April 24, 2002 announced the Notice of Intent of FSA to prepare a PEIS for the CRP and its counterpart the CREP. The Final PEIS was published in January 2003 and provides FSA decision makers with programmatic level analyses that provides context for State specific EAs. The ROD was published in the Federal Register on May 8, 2003 (68 FR 24847-24854).

### 1.5.6 Endangered Species Act of 1973

The Endangered Species Act (ESA) was enacted to conserve threatened or endangered species and the critical habitats in which they exist. When a species is designated as threatened with extinction, a recovery plan that includes restrictions on cropping practices, water use, and pesticide use is developed to protect the species from further population declines. All Federal agencies are required to implement ESA by ensuring that Federal actions do not jeopardize the continued existence of listed species.

The ESA defines an endangered species as one that is in danger of extinction throughout all or a significant portion of its range. Threatened means a species is likely to become endangered within the foreseeable future. T & E designations may be applied to all species of plants and animals, except pest insects. A species may be threatened at the State level, but that same designation does not automatically apply nationwide, as species numbers may be greater in other states.

The US Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) are mandated the responsibility of ensuring that other agencies plan or modify Federal projects so that they will have minimal impact on listed species and their habitats. Section 7 of the ESA requires that project areas must be checked against FWS and State listings of critical habitat and T&E species. FSA ensures that all CREP contract meet this requirement by including T&E species in its EE.

The ESA also requires the delineation of the “critical habitat” of sensitive species. Critical habitat is defined by the ESA as areas that are “essential” to the conservation of listed species. Private, city, and State lands are generally not affected by critical habitat until the property owner needs a Federal permit or requests Federal funding. Because the New Jersey CREP is partially funded by Federal dollars, consultation with FWS will be required when critical habitat is encountered. Critical habitat designations are published in the Federal Register and can be located at the FWS website—http://endangered.fws.gov/.

### 1.5.7 Executive Order 11514: Protection and Enhancement of Environmental Quality

This EO directed the Federal Government to provide leadership in protecting and enhancing the quality of the Nation's environment to sustain and enrich human life. Federal agencies were directed to initiate measures needed to direct their policies, plans and programs so as to meet national environmental goals. In order to achieve these goals agencies were directed to:

- Monitor, evaluate, and control on a continuing basis their activities so as to protect and enhance the quality of the environment;
- Encourage timely public information processes to foster understanding of Federal plans and programs with environmental impact;
- Insure that information regarding existing or potential environmental issues be shared and coordinated with other; and

- Comply with the regulations issued by the CEQ.

### 1.5.8 Executive Order 11988: Floodplain Management—Floodplains and Wetlands

Executive Order 11988 requires federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of flood plains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. In accomplishing this objective, "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by flood plains in carrying out its responsibilities" for the following actions:

- Acquiring, managing, and disposing of federal lands and facilities;
- Providing federally-undertaken, financed, or assisted construction and improvements;
- Conducting federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulation, and licensing activities

Each federal agency is responsible for preparing implementing procedures for carrying out the provisions of the Order. Federal Agencies consult with FEMA concerning implementation of this EO.

### 1.5.9 Executive Order 11990: Protection of Wetlands

In order to protect wetlands, EO 11990 was signed. EO 11990 sought to "minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands" and minimize “to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative.” To meet these objectives, the EO requires Federal agencies, in planning their actions, to:

- Avoid and minimize direct or indirect loss of wetlands whenever there is a practicable alternative
- Achieve a no net loss of wetland quantity and quality through wetland replacement
- Preserve and enhance the natural and beneficial values of wetlands

### 1.5.10 Executive Order 12898, Environmental Justice for Minority and Low Income Populations

EO 12898 directs Federal agencies "to make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States.” Each Federal agency must make achieving environmental justice one of their goals particularly when such analysis is required by NEPA. The EO and guidance emphasize the importance of NEPA's pubic participation process, directing each Federal agency to provide opportunities for community input in the NEPA process by providing access to public documents and providing notices and hearings

### 1.5.11 Farmland Protection Policy Act (FPPA) of 1981

The aim of the FPPA is to minimize Federal programs (including technical or financial assistance) contribution to the conversion of important farmland to non-agricultural uses. The act seeks to encourage

alternative, if possible, that would lessen the adverse effects to important farmlands. For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

NRCS uses a land evaluation and site assessment (LESA) system to establish a farmland conversion impact rating score on proposed sites of Federally funded and assisted projects. This score is used as an indicator for the project sponsor to consider alternative sites if the potential adverse impacts on the farmland exceed the recommended allowable level. The assessment is completed on form AD-1006, Farmland Conversion Impact Rating.

### 1.5.12 Federal Insecticide, Fungicide, and Rodenticide Act of 1947

The Federal Insecticide, Fungicide, and Rodenticide Act provides the legal basis under which pesticides are regulated. A pesticide can be restricted or banned if it poses unacceptable risks to human health or the environment. The re-registration process, mandated in 1988 for all active ingredients then on the market, has resulted in manufacturers dropping many less profitable products rather than paying the registration fees.

### 1.5.13 Food Security Act of 1985

FSA is authorized under this Act, as amended, and 7 CFR 1410 to institute the actions contemplated in this PEA (i.e. the proposed implementation of CREP). The FSA is authorized to enroll land into CREP through December 2007. Sections 1230, 1234, 1242 of the Act and 7 CFR 1410.50 authorize FSA to enter into agreements with States to use the CRP in a cost-effective manner to further specific conservation and environmental objectives of a given State and the nation. The following provisions are especially applicable to the implementation of CREP:

> Highly Erodible Land Conservation Compliance Provisions require that producers of agriculture commodities must protect all cropland classified as being highly erodible land (HEL)from excessive erosion. The provisions were amended in the 1990, 1996, and 2002 Farm Bills. The purpose of these provisions is to remove the incentive to produce annually tilled agricultural commodity crops on HEL unless it is protected from excessive soil erosion.
>
> Wetland Conservation Provisions (Swampbuster) help preserve the environmental functions and values of wetlands, including flood control, sediment control, groundwater recharge, water quality, wildlife habitat, recreation, and aesthetics. The 1996 Farm Bill modified Swampbuster to give USDA participants greater flexibility to comply with wetland conservation requirements and to make wetlands more valuable and functional. The 2002 Farm Bill changed the other Swampbuster provisions, including those associated with wetland determinations, mitigation (offsetting losses), "Minimal Effect" determinations, abandonment, and program eligibility.

### 1.5.14 National Environmental Policy Act of 1969 and Regulations

NEPA is intended to help Federal officials make decisions that are based on consideration of the environmental consequences of their actions, and to take actions that protect, restore, and enhance the

environment. NEPA mandates that the FSA consider and document the impacts that major projects and programs will have on the environment.

**CEQ Implementation Regulations**

The NEPA implementation regulations found at 40 CFR 1500.

### 1.5.15 National Historic Preservation Act of 1966 and Regulations

Photo courtesy of NJ SHPO.

This National Historic Preservation Act (NHPA) as amended (16 USC 470, P.L. 95-515), establishes as Federal policy the protection of historic properties and their values in cooperation with other nations and with State and local governments. Amendments designated the State Historic Preservation Office (SHPO) or the Tribal Historic Preservation Office (THPO) as the party responsible for administering programs in the States or reservations.

The Act also creates the Advisory Council on Historic Preservation (ACHP). Federal agencies are required to consider the effects of their undertakings on historic resources, and to give the SHPO/THPO and, if necessary, the ACHP a reasonable opportunity to comment on those undertakings.

**NHPA Implementation Regulations**

The NHPA implementation regulations found at 36 CFR 800, Protection of Historic Properties. This regulation, governing compliance with Section 106 of NHPA must be followed in planning any agency activity and in the ongoing management of agency resources.

### 1.5.16 Safe Drinking Water Act of 1974

The Safe Drinking Water Act (SDWA) requires EPA to set standards for drinking water quality and requirements for water treatment of public water systems while also requiring states to establish a wellhead protection program to protect public water system wells from contamination by chemicals, including pesticides, nutrients, and other agricultural contaminants.

### 1.5.17 Sustainable Fisheries Act of 1996

The Sustainable Fisheries Act amended the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) to establish new requirements for “essential fish habitat” (EFH) descriptions in Federal fishery management plans, it also requires Federal agencies to consult with National Marine Fisheries Service (NMFS) on activities that may adversely affect EFH. Under the Magnuson-Stevens Act,

NMFS must be consulted by any Federal agency undertaking, permitting, or funding activities that may adversely affect EFH, regardless of its location.

### 1.5.18 Wild and Scenic Rivers Act of 1968

The purpose of the Wild and Scenic Rivers Act (WSRA) is to preserve the free-flowing state of rivers that are listed in the National Wild and Scenic Rivers System or under study for inclusion in the System because of their outstanding scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. Rivers in the System are classified as wild river areas, scenic river areas, or recreational river areas. The WSRA establishes requirements applicable to water resource projects and protects both the river, or river segments, and the land immediately surrounding them. Section 7 of the WSRA specifically prohibits Federal agencies from providing assistance for the construction of any water resources projects that would adversely affect Wild and Scenic Rivers.

Section 5 (d) of WSRA requires the National Park Service to compile and maintain a Nationwide Rivers Inventory (NRI), a register of river segments that potentially qualify as national wild, scenic or recreational river areas. A river segment may be listed on the NRI if it is free-flowing and has one or more "outstandingly remarkable values" All agencies are required to consult with the National Park Service prior to taking actions which could effectively foreclose wild, scenic or recreational status for rivers on the NRI.

### 1.5.19 USDA Departmental Regulation 9500-3

Section 1540 (c) of the Farmland Protection Policy Act and DR 9500-3 established four general categories of farmlands meriting Federal protection. They are cumulatively referred to as “important farmland.” Important farmland categories are:

- Prime
- Unique
- Farmland of statewide importance
- Farmland of local importance

DR 9500-3 also made it USDA policy to promote land use objectives responsive to current and long-term economic, social, and environmental needs.

### 1.5.20 New Jersey Laws

NJDEP permits, if needed, would be coordinated through the SSCC, SCDs, NRCS, NJDEP Land Use Regulation, and NJDEP Division of Watershed Management. Individual CREP projects would also need to ensure compliance with the following laws, where necessary:

- Freshwater Wetlands Protection Act—N.J.S.A. 13:9B
- Flood Hazard Area Control Act—N.J.S.A. 58:16A
- Wetlands Act of 1970—N.J.S.A. 13:9A
- Waterfront Development Act—N.J.S.A. 12:5-3
- NJ Water Pollution Control Act—N.J.S.A. 58:10A

- Coastal Area Facility Review Act (CAFRA) —N.J.S.A. 13:19
- Tidelands Act—N.J.S.A. 12:3

### 1.5.21 Programs Available to New Jersey

The State of New Jersey is committed to improving water quality that has been degraded by agricultural runoff. As a result the State has the following programs available:

**The Conservation Reserve Program**

CRP provides technical and financial assistance to producers to address the agricultural impacts on water quality and to maintain and improve wildlife habitat. CRP practices include establishing of filter strips, riparian buffers, and permanent wildlife habitats. This program provides the basis for the CREP.

Three critical factors explain the failure of the traditional CRP to elicit much demand or effectuate full environmental benefits in New Jersey. The most important factor relates to land value. The market value of agricultural land in New Jersey is less determined by its agricultural use value (rental rate), than by its speculative potential for development. Developable farmland in New Jersey ranges from $5,000 to $40,000 per acre. Most lands average $20,000 per acre. In addition, most farmers view the creation of additional wildlife habitat (buffers) as deleterious to the production of agricultural products. Many of the farmers within the State have severe crop damage due to deer. Another confounding factor in participation is that a high percentage of cropland is rented to the producers by the landowner.

Landowners may or may not be living on the land. Therefore, incentive payments based solely upon agricultural rental rates do not reflect actual or potential costs to the farmer or landowner, as evidenced by the lack of enrollment in the current CRP. Incentive payments, like those offered under CREP, must not only be attractive to farmers, but to non-farming landowners as well.

The monetary enhancements made to continuous CRP (e.g. CRP-SIP and PIP) have increased participation in New Jersey dramatically. Therefore, it can be assumed that the monetary annual incentive payments of 100% SRR for practices CP8A, CP15A and CP21 and 150% SRR for CP22 would enhance CREP in a similar way, resulting in a successful enrollment rate."

**The Environmental Quality Incentive Program (EQIP)**

The Environmental Quality Incentive Program (EQIP) provides technical, financial, and educational assistance to producers for CPs that address natural resource concerns, such as water quality. Practices under this program include integrated crop management, grazing land management, well sealing, erosion control systems, agri-chemical handling facilities, vegetative filter strips and riparian buffers, animal waste management facilities and irrigation systems.

**The Green Acres Program**

The Green Acres Program was created in 1961 to meet New Jersey’s growing recreational and conservation needs. As the principal land acquisition agent for the NJDEP, Green Acres acquires land, which becomes part of the system of State parks, forests, natural areas, and wildlife management areas. To date, Green Acres has protected more than 508,663 acres of open space and developed hundreds of public parks, bringing the statewide system of preserved open space to more than 1,199,763 acres.

## The Wetlands Reserve Program (WRP)

The Wetlands Reserve Program (WRP) is an NRCS program designed to address the restoration of previously farmed wetlands. Easements are purchased for a 10-year, 30-year, or permanent duration. Due to limited funding for this program, there are only nine farms enrolled in WRP, consisting of approximately 500 acres.

## The Farmland Preservation Program

The Farmland Preservation Program (FPP) is an NRCS program designed to strengthen the agricultural industry and preserve important farmlands to enhance the economy and quality of life in the New Jersey. Four different programs are available:

- The Eight Year Program, where landowners voluntarily restrict non-agricultural development on their land for eight years. In exchange, participants are eligible for cost-sharing grants for soil and water conservation projects, as well as other benefits and protections.

Photo courtesy of NJ Dept. of Agric.

- The Easement Purchase Program, where landowners sell the development rights on their land to the County Agriculture Development Board (CADB), non-profit organizations or directly to the State. Compensation for this sale is based upon the appraised value of the development rights on the land. The landowner retains ownership of the land and is eligible for cost-sharing grants for soil and water conservation projects and other benefits.
- The Fee Simple Program, where farms are acquired by the State Agriculture Development Committee (SADC), based upon their fair market value and then auction them off to private owners, after agricultural deed restrictions have been placed on the land.
- The Easement Donation Program, where landowners donate their development easements to the SADC or the CADB.

All of these programs have been in place since 1983.

## The Soil and Water Conservation Cost-Sharing Program

The Soil and Water Conservation Cost-Sharing Program is available to participants in a FPP pursuant to the Agriculture Retention and Development Act. An FPP means any voluntary FPP or municipally approved FPP, the duration of which is at least eight years, which has as its principal purpose the long-term preservation of significant masses of reasonably contiguous agricultural land within agricultural development areas. The maintenance and support of increased agricultural production must be the first priority use of the land. Eligible practices include erosion control, animal waste control facilities, and water management practices. Cost-sharing is provided for up to 50 percent of the cost to establish eligible practices.

**The State Conservation Cost Share Program (CCSP)**

The State Conservation Cost Share Program (CCSP) was administered by the State Soil Conservation Committee and was integrated with the Federal EQIP. It provided technical and financial assistance to producers for the prevention and control of nonpoint sources of pollution. Cost sharing was provided for up to 75 percent and in some cases 90 percent of the cost of installing approved conservation practices. In fiscal year 2001, the State contributed $2 million towards this program. Approval was based upon their environmental benefits and water quality enhancements.

**The Conservation Assistance Program**

The Conservation Assistance Program will be established to allocate the balance of reduced CCSP funding. The limited funds will be used to target technical and financial assistance in priority conservation areas.

## 1.6 Decisions that Must be Made

The Secretary of Agriculture must decide whether to approve CREP for implementation in the State of New Jersey.

If the Secretary approves the New Jersey CREP, FSA's National Environmental Compliance Manager (NECM) must determine if the selected alternative would, or would not be, a major Federal action significantly affecting the quality of the human environment. If the NECM determines that it would not significantly affect the quality of the human environment, then a Finding of No Significant Impact (FONSI) can be prepared and signed and the project can proceed.

## 1.7 Scoping and Resource Issues

This section presents the record of planning and coordinating that occurred in conjunction with the planning of the New Jersey CREP. Resource issues are presented and can be tracked to section 2.3.2, Summary Comparison of the Effects of Alternatives A and B on the Resources and to related sections of Chapter 3, Affected Environment and Environmental Consequences.

### 1.7.1 Scoping

On February 3, 2004, Secretary of Agriculture Ann Veneman announced that the U.S. Department of Agriculture and the State of New Jersey would partner together with private organizations, farmers, ranchers, and other agricultural entities to implement the CREP. USDA Farm Service Agency (FSA) Administrator James R. Little and New Jersey Governor James E. McGreevey signed the CREP agreement at the 2004 New Jersey State Agricultural Convention in Long Branch.

The New Jersey FSA office began the process of developing a CREP in January, 1998. FSA began the initial scoping process by performing informal internal scoping among FSA personnel. More formal, extra-agency consultation took place over a five year period between USDA-FSA, USDA-NRCS, NJDA-State Soil Conservation Committee, NJDEP-Office of Environmental Planning and NJDEP-Division of Watershed Management. These consultations occurred in 1/1998, 4/1998, 12/2000, 4/2001, 6/2001, 9/2001, 9/2002 and 10/2002. Throughout these early stages, as the CREP proposal was being developed, each agency representative shared the most current CREP proposal with their respective agency. This

collaborative process, and the tacit consent of each of the agencies as a result of their involvement, eventually resulting in the development of strong first draft of the CREP proposal which was received by FSA in Washington DC on 11/7/02. Another collaborative effort was begun between FSA-National, FSA-New Jersey and other CREP partners, which included a meeting in June of 2003. Following that a revised draft proposal was submitted and then a draft agreement was submitted in July of 2003. FSA-Conservation and Environmental Programs Division reviewed the drafts and discussed issues and suggested changes with NJ-FSA in August of 2003.

As part of the official scoping process, FSA consulted with multiple agencies (copies of all consultation memoranda are included in Appendix G). One such agency was the United States Fish and Wildlife Services (FWS). Consultation, pursuant to Section 7 of the Endangered Species Act, was initiated with FWS on December 16, 2003. FWS's reply, dated March 23, 2004, revealed that the "Service cannot provide no-effect determination for the CREP overall", FWS concluded that "the propertied enrolled in the CREP will not adversely affect federally listed or candidate species". (FWS, 2004)

Photo courtesy of NJ Dept. of Agric.

The FWS stated that "should a federally listed species occur within the vicinity of a project site, further consultation with the Service will be necessary to ensure the site-specific conservation practices will not adversely affect a federally listed species or its habitat." The FWS enclosed "a list of municipalities in New Jersey where federally listed species are known to occur." They stated that "if any proposed projects occur in the municipalities on the list and will require disturbance to a wetland, a wet area, or potentially suitable habitat as described in the enclosure, the Service's New Jersey Field Office must be notified for further consultation on a project-by-project basis." To ensure compliance, each site specific EE will consult this list to ensure that T & E species are duly considered as the project moves forward.

Consultation, pursuant to Section 7 of the Endangered Species Act, was initiated with the National Marine Fisheries Service on December 16, 2003. While NMFS's response, dated January 13, 2004, revealed that there are several T & E species known to exist in the waters of New Jersey, NMFS concluded that "the approval of the New Jersey CREP by FSA is not likely to adversely affect any threatened or endangered species under our jurisdiction." As a result of this determination NMFS concluded that "no further consultation pursuant to Section 7 of the ESA is required." (NMFS, 2004)

On December 15, 2003 NJ-FSA submitted a letter to the New Jersey State Historic Preservation Office, pursuant to Section 106 of the National Historic Preservation Act, asking for concurrence from the SHPO with FSA's determination that the NJ CREP would not adversely affect cultural resources in the state. Their response, dated December 22, 2003, indicated that they agreed with FSA's determination. They further determined that the "implementation of the.....conservation practices.....should not be considered undertakings and thus not subject to further Section 106 consultation." The SHPO also determined that these findings were:

consistent with the terms of the state level MOA between the NRCS and SHPO dated September 2000 which states, "Conservation practices which are primarily management-related and involve normal tillage, planting, harvesting, mowing, and other agronomic techniques, are unlikely to have adverse effects on cultural resource" because they do not involve ground disturbance below the existing plow layer and they have no affect on buildings or structures.

Also on December 15, 2003 NJ-FSA submitted a letter to New Jersey Department of Environmental Protection's Land Use Regulation Program seeking a Federal Consistency Determination pursuant to Section 307 of the Coastal Zone Management Act. On January 14, 2004 the NJDEP published a "Notice of Public Comment Period for Request for Federal Consistency Determination" in the DEP Bulletin. This notice provided a public comment period of 15 days, extending to January 29, 2004, in which the public was asked to comment on the potential of CREP to impact the coastal zone as well as the entire consistency determination process. (NJDEP, 2004a) NJDEP received no comments from the public.

NJDEP responded with their determination on February 23, 2004 which stated that the NJ CREP, "is consistent with New Jersey's Coastal Zone Management Rules N.J.A.C. 7:7E-1.1 et seq., as amended to January 20, 2004, and the applicable Rules guiding issuance of a Section 401 Water Quality Certificate, provided that the conditions discussed below are met to the satisfaction of the Department of Environmental Protection." Those conditions were previously addressed in FSA's CREP implementing procedures found in USDA/FSA Handbook 2-CRP for the Agricultural Resource Conservation Program (USDA, rev. 4). These procedures will ensure compliance with the conditions set by the New Jersey Department of Environmental Protection's Land Use Regulation Program. (see Section 3.8 for a more complete discussion) (NJDEP, 2004b)

As part of the external scoping undertaken as part of this project this PEA will be made available to the public in accordance with NEPA requirements and FSA regulations. The public will have 15 calendar days to comment, after which FSA will analyze and prepare appropriate responses and the PEA will be finalized and a FONSI will be signed.

### 1.7.2 Relevant Resource Issues

The following resources may be affected by the New Jersey CREP: State water quality, drinking water, wetlands, floodplains, wildlife, protected/unique lands, marine resources, wild and scenic rivers, environmental justice, and socioeconomics. Chapter 3 discusses each of the ten issues, along with four mandatory impact considerations, in detail. Affected resources issues are introduced below.

**Issue #1: State Water Quality Standards susceptibility to agricultural practices**

Water quality in New Jersey is improving, but it needs continued improvement and protection (NJDEP, 2002a). Poor water quality has a detrimental effect on the ecosystem, such as beach closures and reproductive problems in wildlife. Two measures of water quality in New Jersey, the 2002 Clean Water Act Section 303(d) list and the Clean Water Act Section 305(b) reports, describe New Jersey's waters as impaired. Current issues affecting State water quality are discussed in Section 3.2.

**Issue #2: Drinking Waters susceptibility to agricultural practices**

There are seven sole-source aquifers (SSAs) in New Jersey and their project review areas cover most of the state: (1) Buried Valley SSA, (2) Ridgewood SSA, (3) Rockaway SSA, (4) Highlands SSA, (5) Northwest New Jersey SSA, (6) Coastal Plain SSA, and (7) Ramapo SSA. The aquifers have been

routinely affected by pollution. Agricultural practices and other sources introduce pollutants to the watersheds. Contaminated water seeps into the aquifers, resulting in polluted drinking water. Section 3.3 discusses current issues affecting drinking water.

**Issue #3: Wetlands susceptibility to agricultural practices**

Historically agricultural practices have had a negative impact on the wetlands in New Jersey. Wetland values are degraded throughout the State. New Jersey has lost 40 percent of its wetlands when compared to historical acreage. Wetlands have been polluted by pesticide and fertilizer applications, carried by agricultural runoff. Excessive pollutants have altered the natural chemistry of wetlands, enabling the invasion of exotic pest plants. Current issues affecting wetlands are discussed in Section 3.4 (NJCRP, 2003).

**Issue #4: Floodplains susceptibility to agricultural practices**

All Federal actions must meet the requirements of Executive Order 11988, Floodplain Management. Federal agencies are required to review all proposed projects to determine if it will be located within, or will affect, a 100 year or 500 year floodplain. Floodplains are used for agricultural purposes throughout New Jersey. Current issues affecting wetlands are discussed in Section 3.5.

Photo courtesy of NJDEP.

**Issue #5: Wildlife's susceptibility to agricultural practices**

Currently New Jersey is home to 76 species listed by the State as T & E (Section 3.7 and Appendix B). Habitat degradation from human population growth, invasive exotic species, and pollution continue to threaten current listed species populations. The New Jersey CREP will serve to enhance the habitats of several federally listed endangered species, and numerous State listed species. Current trends and issues affecting critical habitat and T & E species are discussed in Section 3.6.

**Issue #6: Protected/Unique Land's susceptibility to agricultural practices**

New Jersey has a number of special lands, from National Recreation Areas to National Wildlife Refuges. A wide variety of wildlife and vegetative species are found within these areas. Conditions within each vary from small pristine areas to larger, healthy segments of otherwise unaltered ecosystems. Farming, among other activities, returns polluted runoff to tributaries and streams that enter these areas. The result is contaminated water and degraded wildlife habitat. Current trends and issues affecting special lands are discussed in Section 3.7.

**Issue #7: Marine Resources susceptibility to agricultural practices**

New Jersey has 127 miles of ocean coastline. Agricultural runoff introduces pollution to the coastal regions. Polluted water has resulted in the degradation of freshwater estuaries and the species found there. Current trends are discussed in Section 3.8 (NJCP, 2002).

**Issue #8: Wild and Scenic Rivers susceptibility to agricultural practices**

There are four federally designated Wild and Scenic Rivers in New Jersey: the Great Egg Harbor River, the Lower Delaware River, the Middle Delaware River, and the Maurice River. Polluted agricultural runoff enters streams and tributaries that feed into the designated rivers. As a result, water and habitat values are degraded. A discussion of the issues affecting Wild and Scenic Rivers is found in Section 3.9.

**Issue #9: Environmental Justice susceptibility to agricultural practices**

All Federal programs, including CREP, must comply with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations. The CREP program has the potential to affect minority populations such as migrant farm workers. A discussion of the issues affecting environmental justice is found in Section 3.10.

**Issue #10: Socioeconomics susceptibility to agricultural practices**

Agriculture is a large component of New Jersey's economy. CREP may impact this economy in a number of ways affecting farm workers, land owners, service industries, etc. A discussion of socioeconomics can be found in Section 3.11.

### 1.7.3 Issues Eliminated from Further Consideration

**Air Quality**

As the CREP program would have no discernable effect on New Jersey's air quality, the topic was eliminated from further consideration as part of this PEA. A negligible positive effect on air quality is possible with the increased amount of pollution absorbing vegetation from the implementation of CREP CPs. However, a thorough analysis of the topic is outside the scope of this PEA as analysis on a state-wide scale without knowledge of the location of all CREP acreage would be unreliable and unrealistic approximations of possible positive effects. On a broader level it is reasonable to assume that the proposed action would not result in impacts on the attainment, non-attainment, or maintenance status of any of New Jersey's airsheds.

Some plants installed with CREP CPs may be more adept at filtering air contaminants than cropland. This amount would be minimal at best, and when spread out across the entire State of New Jersey the effect will be negligible at the programmatic level of this PEA. These changes could be monitored on a site specific level but that level of analysis is outside the scope of this document. For example, site specific evaluation of the increased carbon dioxide uptake that installed CPs have over existing cropland is possible when the site and selected CPs are known. This evaluation may reveal a minor theoretical improvement in localized air quality. However, with full enrollment amounting to only 30,000 acres, or 0.6 percent of the state, these potential localized effects could not appreciably impact the air quality of the entire state. If all 30,000 acres were concentrated into a single area, the impact may be appreciable; however, the CREP acreage in actual implementation would be scattered across the state.

Plant life has the ability to sequester air contaminants when it is near air pollution sources (e.g. roadsides and smokestacks). However, since it is more likely that CREP CPs will be located along streambeds, not roadsides, this consideration can also be eliminated from further study.

One theoretical measure of a plant's ability to impact air quality is average net primary productivity (ANPP). ANPP is a measure of a plant's ability to convert environmental materials, including some that

are classified as air pollutants (e.g. carbon dioxide), into inert plant matter such as leaves and stems. The ANPP of the existing conditions ("cultivated land") is roughly the same as the ANPP of the proposed conditions ("temperate grassland" and "woodland and shrubland"). In fact, "cultivated land" is slightly more productive than "temperate grasslands" but slightly less productive than "woodland and shrubland," indicating that the pollutant sequestration ability of CREP CPs will roughly even-out across the state when compared to agricultural land. (Campbell, 1999)

The unquantifiable nature of the impacts to air quality makes the topic difficult to address at a programmatic level as well. For example, the potential for extensive leveraged water quality improvements expected as part of CREP will be far greater than the potential for any minor changes to air quality. The probable water quality improvements are easily quantifiable using an existing monitoring system. The same cannot be said of the potential for inconsequential and localized changes in air quality. Also, the plants and tree selected for use with CREP CPs have been chosen for wildlife habitat and water filtering values, not air quality values.

Consideration of any potential impacts to air quality will take place in the environmental evaluation that will be conducted prior to each CREP contract being completed. Actions will be taken to avoid any potential negative impacts but marginal localized improvements will be allowed.

Each of these factors result in eliminating this topic from further consideration as part of this PEA.

**Noise**

After a careful analysis it was determined that there would be no impacts from noise as a result of CREP. Following the short-term construction noise, as the CPs are installed, there would be no continual impacts on the local soundscapes. With the permanent easements and long-term nature of the conservation practices, which would result in decreased agricultural activities on CREP lands, noise level can be expected to decrease slightly. As a result, FSA eliminated noise from further analysis as part of this PEA

**Hazardous and Toxic Materials**

While hazardous and toxic materials are found throughout New Jersey, a site specific analysis for the presence of these materials is necessary to determine the potential impacts as a result of the CREP program. The level of analysis necessary is unrealistic to include as part of this PEA. As a result, if

Alternative B (CREP Agreement) were implemented, evaluation of the enrolled acreage would occur, and contaminated sites would either be avoided or used in a way as to not further distribute or disturb hazardous or toxic items or sites. Impacts could occur if a hazardous or toxic site is undiscovered and then inadvertently disturbed. Actions would then be taken to mitigate any impact at that time. Otherwise, there would be little to no impact on hazardous waste sites. Therefore this subject has been eliminated from further analysis as part of this PEA.

**Cultural Resources**

Similarly, a site specific analysis for the presence of cultural resources is necessary to determine the potential impacts as a result of CREP. The New Jersey SHPO, part of the Department of Environmental Protection, maintains a cultural resources inventory for the State of New Jersey. The inventory would be referenced when completing site specific EEs. An FSA representative would verify that no cultural resources would be adversely affected as a result of the individual CREP contract. The review must take

into account that deeply buried sites may be present and that the CREP CP might impact them. Since any impacts to cultural resources, if they occur, would comply with the Section 106 review and consultation process designated by the NHPA, this subject has been eliminated from further analysis as part of this PEA. The SHPO has concurred with this determination in a consultation letter dated December 22, 2003 (see section 1.7.1 for more details).

# Chapter 2.0 Alternatives Including the Proposed Action

## 2.1 Introduction

This chapter describes the actions proposed in the PEA, beginning with the No Action Alternative—Continue Current Agricultural Practices, and ending with the Action Alternative—Implement New Jersey CREP. Alternatives will be compared in terms of their individual environmental impacts and their ability to achieve objectives listed in section 1.4.

## 2.2 Description of Alternatives

### 2.2.1 Alternative A (No Action)—Continue Current Agricultural Practices

Alternative A (No Action)—Continue Current Agricultural Practices would continue to degrade New Jersey's waters, especially the Delaware Watershed, the Wallkill Watershed, and four State designated WMAs that drain toward the Atlantic Ocean. The majority of farm production is concentrated in these watersheds, so the negative impacts to water quality associated with agriculture have a greater impact in these areas.

New Jersey produces and exports numerous agricultural products. The climate of New Jersey makes it ideal for growing fruits, vegetables, and field crops. Annual rainfall ranges from 40 to 50 inches. The average number of frost free days for the State is 180.Agricultural production in New Jersey utilizes 832,600 acres, or 17.5 percent of the State's 4,748,160 acres. There are approximately 9,100 farms in the State and farms average less than 100 acres. Approximately 66.5 percent of New Jersey farms are less than 50 acres. Many farm operations, especially in southern New Jersey, have high value crops, such as fruits and vegetables and nursery stock. These crops require intensive land disturbance and high nutrient inputs. The northern part of the State is dominated by cash grain crops and dairy. Most of the active farms rent additional lands. It is not uncommon for cash grain producers to farm 500 to 1,000 acres of rented land. The State's farm cash receipts totaled $821 million in 2002 (USDA, 1997).

**Livestock**

Livestock production occurs on 41 percent of all New Jersey farms (USDA, 1997). According to data from 2001, New Jersey has 44,000 head of cattle and 13,000 swine. Both numbers are down from 2000, cattle by 4,000 head and swine by 1,000. In 2001 there were 44,000 turkeys on New Jersey farms, down 15,000 from 2000. There were also 2,346,000 chickens, a number that has remained relatively steady over the recent past. Horse farms are abundant throughout the State. New Jersey's resident 60,000 horses make it the most densely populated State by horses in the country (NJDA, 2002).

Photo courtesy of NJ Dept. of Agric.

Livestock create substantial amounts of nutrient runoff, resulting in increased levels of n, p, and pathogens. According to USDA, milk cows produce 15 tons of manure per year (per animal unit); hogs for slaughter produce 15 tons per year; and layer hens produce 11 tons (see Table 2-1). USDA presents numbers in animal units to allow for easy comparison between animals of different size and excretory capacity.

USDA determined that in 1997 animals on New Jersey farms excreted 818,989 tons of manure. This resulted in 9,962,433 pounds of n and 2,721,921 pounds of p (see Table 2-2). This represents a significant burden on the water bodies of New Jersey. New Jersey ranks as number 46 in the nation for manure production and number 43 for per capita manure production according to USDA numbers. (Note: The per capita figure was derived by dividing the amount of manure produced, in tons, by the area of the State, in square miles. New Jersey is the fourth smallest state by area.) (USDA, 2000a).

| Livestock category | Tons of manure per animal unit per year as excreted | Pounds of nitrogen per ton of manure | | Pounds of phosphorus per ton of manure | |
|---|---|---|---|---|---|
| | | As excreted | After losses | As excreted | After losses |
| **Fattened cattle** | 10.59 | 10.98 | 4.39 | 3.37 | 2.86 |
| **Milk cows** | 15.24 | 10.69 | 4.3 | 1.92 | 1.65 |
| **Other beef and dairy** | | | | | |
| Beef calves, from calving to about 500 pounds | 11.32 | 8.52 | 2.56 | 2.33 | 1.98 |
| Beef heifers for replacement herds | 12.05 | 6.06 | 1.82 | 1.3 | 1.1 |
| Beef breeding herds (cows and bulls) | 11.5 | 10.95 | 3.3 | 3.79 | 3.23 |
| Beef stockers and grass fed beef | 11.32 | 8.52 | 2.56 | 2.33 | 1.98 |
| Dairy calves, from calving to about 500 pounds | 12.05 | 6.06 | 1.82 | 1.3 | 1.1 |
| Dairy heifers for replacement herds | 12.05 | 6.06 | 1.82 | 1.3 | 1.1 |
| Dairy stockers and grass fed animals marketed as beef | 12.05 | 6.06 | 1.82 | 1.3 | 1.1 |
| **Swine** | | | | | |
| Breeding hogs | 6.11 | 13.26 | 3.32 | 4.28 | 3.62 |
| Hogs for slaughter | 14.69 | 11.3 | 2.82 | 3.29 | 2.8 |
| **Poultry** | | | | | |
| Chickens, layers | 11.45 | 26.93 | 18.46 | 9.98 | 8.5 |
| Chickens, pullets | 8.32 | 27.2 | 13.6 | 10.53 | 8.95 |
| Chickens, broilers | 14.97 | 26.83 | 16.1 | 7.8 | 6.61 |
| Turkeys for breeding | 9.12 | 22.41 | 11.2 | 13.21 | 11.23 |
| Turkeys for slaughter | 8.18 | 30.36 | 16.18 | 11.83 | 10.06 |

* Includes nitrogen and phosphorus in urine.

**Figure 2-1: Parameters used to calculate the quantity of manure and manure nutrients for the 16 livestock categories (USDA, 2000a).**

| All animals on farms | | | Confined animals on farms | | | Pounds of recoverable manure nitrogen available for application | Pounds of recoverable manure phosphorus available for application | Pounds of farm-level excess nitrogen | Pounds of farm-level excess phosphorus |
|---|---|---|---|---|---|---|---|---|---|
| Tons of manure as excreted | Pounds of manure nitrogen as excreted | Pounds of manure phosphorus as excreted | Tons of manure as excreted | Pounds of manure nitrogen as excreted | Pounds of manure phosphorus as excreted | | | | |
| 818,989 | 9,962,433 | 2,721,921 | 476,094 | 6,695,511 | 1,803,541 | 3,270,903 | 1,505,075 | 1,820,724 | 920,936 |

**Figure 2-2: Manure nutrient production on livestock operations in New Jersey, 1997 (USDA, 2000a).**

## Crops

Crop production occurs on 91 percent of all New Jersey farms (USDA, 1997). In 2001 there were 334,700 acres of field crops, mostly hay (120,000 acres), soybeans (101,000 acres), and corn (79,000 acres). This number is down 22,800 acres from 1999. New Jersey also cultivated 21,700 acres of fruit crops and 47,400 acres of vegetables. These numbers were down 1,550 acres for fruit crops and relatively unchanged for vegetables since 1999. In 2001, the total value of field crops was $86.4 million, fruits were $46.7 million, and vegetables were $178 million for a total of $311,100,000 across the state (NJDA, 2002).

Photo courtesy of NJ Dept. of Agric.

## Agricultural Chemicals

In 1997, 4,933 (54 percent) of New Jersey farms used commercial fertilizers. Most fertilizer use (95 percent) occurred on cropland, but five percent of use occurred on pasture and rangeland. Out of all New Jersey farms;

- 1,906 (21 percent) used sprays, dust, etc. to control insects
- 1,178 (13 percent) used sprays, dust, etc. to control diseases
- 2,376 (26 percent) used sprays, dust, etc. to control weeds (USDA, 1997)

Agricultural chemical use, particularly overuse, has the potential to adversely affect the water quality of New Jersey by introducing these chemicals to nearby waterbodies.

The New Jersey Pesticide Control Program (NJPCP) 2000 survey, performed under the authority of the New Jersey Pesticide Control Code, (N.J.A.C. 7:30-1 et.seq.), which requires applicators to maintain pesticide records for two years and to submit use records to the State when requested, determined that New Jersey agricultural workers applied a total of 1,000,300 pounds of pesticides. The breakout by category of pesticide, along with the two highest use compounds within each category and their respective amounts applied, were:

- Herbicides: 31 percent (Glyphosate 59,966 lbs. and Metolachlor 54,411 lbs.)
- Insecticides: 13 percent (Oil 35,451 lbs and Chlorpyrifos 17,439 lbs.)
- Fungicides: 38 percent (Sulfur 161,059 lbs. and Captan 61,256 lbs.)
- Fumigants: 16 percent (Metam-Sodium 165,293 lbs. and Dichloropropene 12,159 lbs.)
- Other: 2 percent (Potassium salts 14,993 lbs. and Oxatetracycline 902lbs.)

The following figures show pesticide use by county and watershed. Note that areas that will be targeted for CREP enrollment are the greatest users of agricultural chemicals.

| County | Amount | % of Total Use |
|---|---|---|
| Atlantic | 121573 | 11% |
| **Bergen** | 1211 | <1% |
| **Burlington** | 97435 | 9% |
| **Camden** | 37334 | 3% |
| **Cape May** | 4649 | <1% |
| **Cumberland** | 245307 | 23% |
| Essex | 22 | <1% |
| **Gloucester** | 253421 | 23% |
| **Hudson** | 0 | <1% |
| **Hunterdon** | 26811 | 2% |
| **Mercer** | 16138 | 1% |
| **Middlesex** | 18598 | 2% |
| **Monmouth** | 45474 | 4% |
| **Morris** | 10367 | 1% |
| **Ocean** | 5743 | 1% |
| **Passaic** | 323 | <1% |
| **Salem** | 126508 | 12% |
| **Somerset** | 5374 | <1% |
| **Sussex** | 5421 | 1% |
| Union | 533 | <1% |
| **Warren** | 68058 | 6% |
| | | |
| TOTAL | 1090300 | 100% |

**Figure 2-3: Total pesticide amounts (lbs. active ingredients) applied by county in 2000. CREP targeted counties are highlighted in bold (NJPCP, 2000) .**

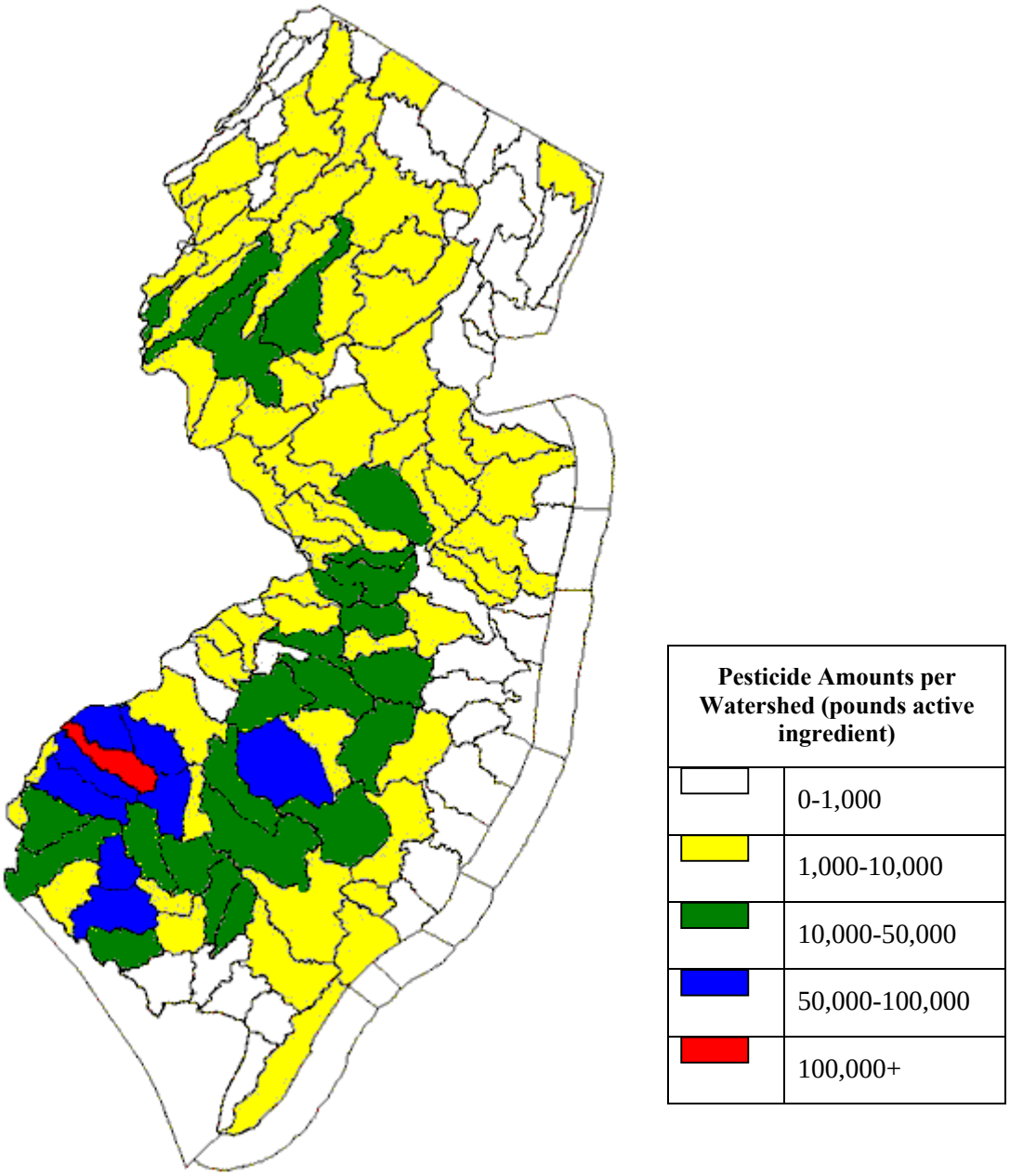


**Figure 2-4: New Jersey Pesticide use in 1997 (NJPCP, 2000)**

## Agricultural Regions

### Delaware Watershed

The Delaware River Basin is comprised of three water regions: The Upper Delaware, the Lower Delaware and the western portion of the Cape May watershed within the Atlantic Region. It contains 79 percent of the agricultural lands in the State, and provides drinking water for approximately 20 million people. On

average, more than 7.3 billion gallons of water are withdrawn from the basin per day. The region also plays an important role in the economy of New Jersey, for example the sport fishing industry in the Delaware Bay is estimated at $25 million. (NJDA, 2003)

The Delaware River Basin is 134 miles long, has about six million residents, and is the fifth largest population density of the northeastern estuaries. The Delaware estuary currently supports the world's largest population of horseshoe crabs. Not only are the crab eggs critical for the survival of migrating shorebirds, but the crabs are also used for medical research and human surgical implants. The Delaware Bay shoreline in New Jersey hosts the second largest population of migrating shorebirds in North America and it is internationally recognized as critical to the survival of these birds (DEP, 1996).

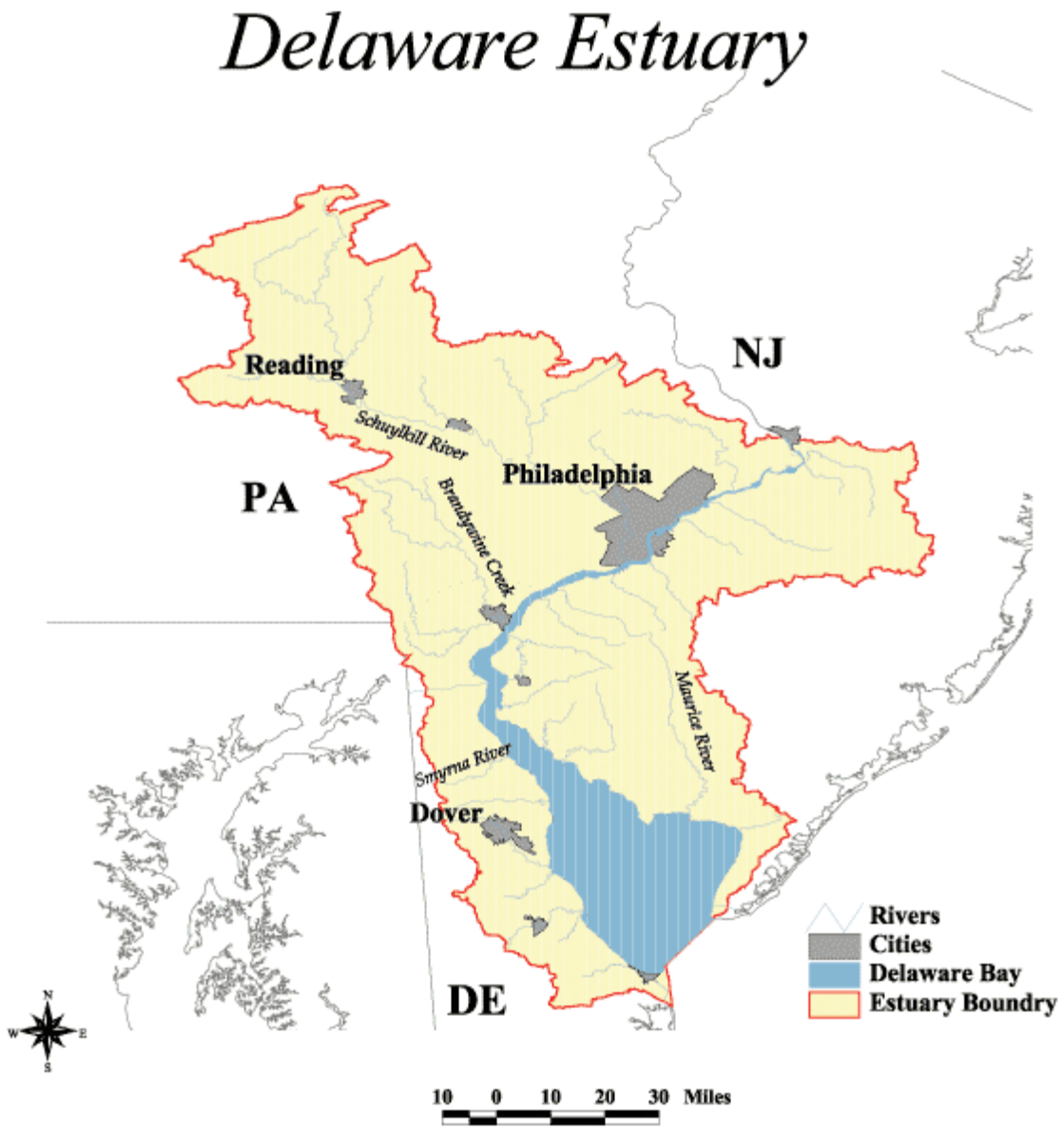


**Figure 2-5: The Delaware River Basin (DEP, 1996)**

The Delaware River Basin has over 90 percent of the HEL in New Jersey. This drainage basin is also the home of several federally listed T & E species including the bog turtle, bald eagle, and small whorled pogonia, as well as numerous State listed species. Since this watershed extends from the Appalachian ridge province to the outer coastal plain, the soils, geology, and weather are highly variable. The Inner coastal plain soils, which can be found within the Delaware River Basin, are some of the best in the world for growing crops.

**Northeast, Raritan, and Atlantic Regions**

The agricultural lands draining towards the Atlantic Ocean are comprised of four water regions; WMA 8: North and South Branch Raritan, WMA 9: Lower Raritan, South River, Lawrence, WMA 10: Millstone, and WMA 12: Monmouth. This area has approximately 1,000 farms comprising 90,000 acres of cropland and pastureland. This area contains approximately 17 percent of the agricultural lands in New Jersey. The remaining lands are mostly forestland in the south and urban land in the north.

**Figure 2-6: WMA 8, 9, 10, and 12**

Predominant crops grown in the southern portion of this area include a variety of fruits and vegetables such as tomatoes (1,000 acres), sweet corn (2,000 acres), cranberries (3,400 acres), and nursery (5,000 acres). Corn and soybeans are also important to this region. The northern farms in the watershed are dominated by cash grain. Total cash grain cultivation in these watersheds is approximately 55,000 acres. Since this area extends from the Piedmont province to the outer coastal plain, the soils, geology, and weather are highly variable. Again, inner coastal plain soils found in this region are some of the best in the world for growing crops.

This area contains the Great Swamp National Wildlife Refuge and the Pinelands National Reserve, two nationally recognized ecological resources. The Great Swamp National Wildlife Refuge is administered by the U.S. Fish and Wildlife Service and has approximately 150,000 visitors annually. It is the home of the bog turtle, a federally listed endangered species, as well as 26 state listed endangered species.

The Pinelands Reserve drainage basin is located in the southern part of this area. Development is severely restricted to designated growth areas, in order to maintain the quality of water in this area. The Pinelands is located above a 17 trillion-gallon aquifer, and contains the Pine Plains, which is the most extensive pygmy forest in the country. Lands within this area provide habitat for the Swamp pink, the Knieskern's beaked-rush, piping plover, Northeastern beach tiger beetle, and the bog turtle. This area has a designated as wild and scenic river in the area making it a national priority and the United Nations Educational, Scientific and Cultural Organization designated the area as a Biosphere Reserve making it an international priority as well (NJPC, 2003).

### Wallkill Watershed

The Wallkill Watershed (WMA 2) is found in the Highland Physiographic Region of northern New Jersey and drains into New York State. The watershed is about 112,000 acres and has a population of about 40,000 people. It is predominantly forested and is entirely within the Northwest New Jersey sole source aquifer. This area contains approximately four percent of the agricultural lands in New Jersey. About 20 percent of the State's $42 million dollar dairy industry and six percent of the State's $60 million dollar field crop sector is in this watershed. Over 75 percent of the land is classified as HEL. The region is within one hour drive of New York City. Significant efforts have been made to preserve farmland. Protection of the area's environmental quality is important. The watershed is classified as high priority trout production waters and it provides resting, nesting, and migratory habitat for the Atlantic Flyway black duck population. The area supports 19 State T & E species that occupy mostly wetland and floodplain habitat. The Wallkill River National Wildlife Refuge was established in 1990 to preserve and enhance the natural diversity of fish, wildlife, and plants of the area.

**Figure 2-7: The Wallkill Watershed**

### Continued Impacts

As discussed in section 1.3, agriculture has a direct impact on water quality. Agricultural runoff increases the amounts of fecal coliform, total p, tss, dissolved oxygen, nitrate, unionized ammonia, and total dissolved solids in a water body. These contaminants represent numbers 1, 2, 6, 7, 8, 9, 10 (respectively) of the State's most common State Water Quality Standards exceedances (See Section 3.2). Under Alternative A, these contaminants would continue to degrade many of the same waterbodies.

According to USDA in 1997, animals on New Jersey farms excreted 818,989 tons of manure. This waste results in high amounts of nutrients, which are transported from agricultural fields to the watershed through runoff. Livestock also trample stream banks, increasing erosion and siltation. While New Jersey livestock production has been slowly declining in recent years (NJDA, 2002), these marginal decreases have not resulted in a substantial improvement in New Jersey's water (NJDEP, 2002a) and this industry continues to negatively impact water quality. Under Alternative A, livestock

operations would continue to have a negative impact on water since most of the runoff from these operations enters waterbodies unfiltered. Alternative A would not change this situation.

Agriculture in New Jersey is also a significant contributor to water pollution through the use of agricultural chemicals such as pesticides and insecticides, which have a negative impact on wetlands, surface waters, and native wildlife populations, and groundwater. A majority of farms utilize agricultural chemicals in some way and many of these contaminants often enter nearby waterbodies in large concentrations. Nutrients alter natural water chemistry, increase water turbidity, stimulate the growth of exotic vegetation, and result in stagnant water conditions and fish kills (NJCRP, 2003). Alternative A would do nothing to reduce the amount of agricultural chemicals being used in the State, or to filter or slow the flow of these chemicals before they enter waterbodies.

With the selection the No Action Alternative, modes of agricultural production would remain as they have for decades. USDA CREP CPs would not be implemented. The installation of filter strips, riparian buffers, and other CPs that provide natural methods of water purification would not be funded. High levels of pesticides and nutrients run off would continue, further degrading many waterbodies and resulting in additional negative ecological impacts.

### 2.2.2 Alternative B (Proposed Action)—Implement the New Jersey CREP

Alternative B—Implement the New Jersey CREP would begin a 10-year enrollment period to target 30,000 acres for the installation and maintenance of selected CPs. Contracts would continue for 10 to 15 years or permanently. CREP requires that landowners enter into a rental agreement and/or permanent easement contract. Non-CREP activities, such as fencing and soil bioengineering practices, may also be used in conjunction with CREP CPs.

The 30,000 acres represents 0.6 percent of the entire State of New Jersey and 3.6 percent of the State's agricultural land. Of the 30,000 acres, 4,000 acres are targeted for permanent easement purchase by the State. The 4,000 would be encouraged in areas with riparian areas adjacent to streams, which could provide contiguous preserved riparian corridors. Working in conjunction with existing conservation programs would allow FSA and the State of New Jersey to coordinate efforts with other on-going initiatives to establish contiguous riparian buffers on a statewide basis.

The New Jersey CREP would provide the financial and technical assistance necessary to assist eligible New Jersey farmers and ranchers in voluntarily establishing CPs to control water runoff, chemical and organic contamination, sedimentation, soil erosion, and improve wildlife habitat.

The agricultural industry in New Jersey is concentrated in the less urbanized areas of the State. While the New Jersey CREP program would be available to farmers and ranchers across the State (and special efforts would be made to enroll lands that feed waterways within the Pinelands and Great Swamp watersheds), most of the agricultural areas are concentrated in the Delaware Watershed, the Wallkill Watershed, and the four State WMAs that drain toward the Atlantic Ocean (WMAs 8, 9, 10, and 12). These areas include the counties of Bergen, Burlington, Camden, Cape May, Cumberland, Gloucester, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Salem, Somerset, Sussex, and Warren.

The New Jersey CREP would involve a commitment of $77 million dollars from USDA. New Jersey would provide $23 million dollars to be used towards the purchase of permanent CREP easements for a total commitment of 23 percent of the total project cost of implementing CREP in New Jersey.

CREP provides producers with annual rental payments SIP, PIP, and incentive payment for the installation of CREP CPs. These amounts vary by producer. New Jersey's additional financial contribution would allow landowners to implement more sophisticated conservation measures than if they were to advance 50 percent of the cost. For example, ditch plugging, tile removal, or other hydrologic activities that can be costly have a higher probability of being implemented with contributions from New Jersey. Such practices are vital to assuring the effectiveness of buffer zones because they assure that runoff does not simply bypass a buffer. In addition, technical expertise from the NRCS, the NJDA—SSCC, and the NJDEP would be used to develop individual conservation plans.

Photo courtesy of NJDEP.

**Role of Federal and State Agencies in Implementing CREP**

The coordinated effort of agencies from both the Federal and State governments will be required for successful implementation of the CREP. The following agencies would be involved:

**State of New Jersey:** The State of New Jersey would provide technical assistance in the application process and the implementation, monitoring, and annual reporting of results to FSA—CCC. The NJDA —SSCC and SCDs would provide assistance for the installation of practices and the monitoring as needed. The NJDA-SCDs would provide the NRCS with supplemental technical oversight through the 16 statewide offices and specifically through the three specific Regional Agricultural Conservation Service Centers (Gloucester, Mercer, Hunterdon) that were established through the Conservation Cost Share Program. The NJDA, the State Agriculture Development Committee, and the NJDEP Green Acres Program would administer the permanent easement program. The NJDEP would provide technical assistance in obtaining NJDEP permits, should any be required. The NJDEP—Division of Water Monitoring and Standards would use its existing monitoring network to assess the changes in water quality in the CREP project area. The NJDA-Division of Agricultural and Natural Resources, with the assistance of the NJDEP—Division of Watershed Management, would provide annual status reports. In order to address the need for additional staff, the proposal assumes a $200,000/year cost for technical and administrative assistance for the first ten years.

**USDA/CCC:** The USDA/CCC is one of the financial partners for the New Jersey CREP, and as such, has an extensive responsibility overseeing program compliance. FSA bears the responsibility of determining crop history and ownership requirements, paying incentive, bonus, and annual rental payments; and coordinating with the State of New Jersey and other vendors to provide technical assistance to producers.

**Natural Resources Conservation Service (NRCS):** NRCS (or a designated Technical Service Provider) would play a technical role in the CREP implementation process by reviewing applications, visiting each site, determining the eligibility of lands, and ultimately developing the conservation plan according to the minimum specifications outlined in the applicable NRCS Field Office Technical Guide (FOTG). Provide technical assistance for the installation of the CP-plans and their certification when properly completed.

**U.S. Fish and Wildlife Service (FWS):** FWS would be consulted when threatened or endangered species or critical habitat issues are discovered. The FWS would assist in determining if a proposed action affects listed species or critical habitats, what those effects might be, and what options are available to avoid or minimize the action's effects.

**State Historic Preservation Office (SHPO):** The SHPO would be consulted as part of the on site EE prior to implementation of each CREP contract. The SHPO would be consulted to determine if there are any cultural resources in the project area and what steps need to be taken to mitigate the impacts to the resource should one be located in the area of potential effect of the project.

## Conservation Practices

Out of the 20 possible FSA CPs, four were selected as the best methods for achieving the New Jersey CREP objectives. These practices would enable producers to productively use areas that are wetlands or in the floodplain or areas that discharge to wetlands or the floodplain. Detailed rental and incentive payments, cost share and maintenance payments, and technical requirements and operating procedures for each practice are outlined in the FSA Handbook, Exhibit 9, and are included in this PEA in Appendix A.

CPs must meet the minimum specifications outlined in the NRCS FOTG as well as all other applicable Federal, State, and local requirements. NRCS or a third-party vendor would provide the technical consultation necessary for the implementation of the practices, such as how to construct the areas to most effectively achieve the goals of the CP. The formulation of these conservation options and their application to particular lands would be based on the consideration of landowner objectives, the suitability of a site for a practice, and the extent of the potential benefits expected from that practice.

This PEA briefly discusses the four conservation practices selected to be implemented in New Jersey: riparian buffers, filter strips, contour grass strips, and grass waterways. New Jersey may also implement additional concurrent activities, discussed below.

### 1. USDA—FSA National Practice CP8A: Grass Waterways

In farm areas, small drainages through pastures and crop fields funnel runoff into receiving streams. Grass waterways are strips of grass seeded in areas of cropland where water concentrates or flows off a field. In these areas, grass waterways have been shown to be highly effective at removing or filtering pollutants. In most cases, lands would be stabilized through minor earth moving, grading, and establishing grasses. The waterway is covered with an erosion control mat. The NRCS State Technical Standard recommends an average width of 20 feet for grass waterways.

Photo courtesy of USDA NRCS.

The benefits of grass waterways include shaping a natural drainage way and establishing grass to reduce gully erosion and the formation of gullies in fields. The natural channel carries water runoff from the field while the grass prevents the water from forming a gully, reducing sediment loss in channelized runoff. Vegetation in the waterways may also traps sediment washed from cropland, absorbs some chemicals and nutrients in the runoff water, and provides cover for small birds and animals. Grass waterways also provide important habitat for grassland nesting birds. These birds are a priority species in the State. Grass waterways are easier to cross with farm machinery than gullies, thus reducing mechanically induced compaction and erosion (USDA, 2003a & USDA, rev. 4).

**2. USDA—FSA National Practice CP15A: Establishment of Permanent Vegetative Cover (contour grass strip)**

Photo courtesy of USDA NRCS.

Contour grass strips are narrow bands of perennial vegetation planted along the contour and alternated down the slope with wider strips of crops.

Contour grass strips slow runoff and trap sediment, thus reducing erosion. Grass strips established on the contour can significantly reduce sheet and rill erosion, improving water quality. Sediment, nutrients, pesticides, and other contaminants are removed from the runoff as they pass through the grass strips, removing pollutants before they enter nearby waterbodies. Grass strips also provide food and nesting cover for wildlife (USDA, 2001a & USDA, rev. 4).

**3. USDA—FSA National Practice CP21: Filter Strips**

Photo courtesy of USDA NRCS.

Filter strips are narrow bands of grass or other permanent vegetation used to reduce sediment, nutrients, pesticides, and other contaminants. Filter strips are located on cropland or degraded pastures immediately adjacent and parallel to streams, lakes, ponds, ditches, sinkholes, wetlands, or groundwater recharge areas.

Filter strips intercept undesirable contaminates from runoff before they enter a waterbody. Filter strips slow the velocity of water, allowing the settling out of suspended soil particles; the infiltration of runoff and soluble pollutants; the absorption of pollutants on soil and plant surfaces; and the uptake of soluble pollutants by plants. Filter strips also disrupt the wind erosion process and trap airborne sediments before they reach the waterbody. In addition, filter strips provide valuable wildlife habitat including excellent winter cover, nectar and pollen for pollinating insects, and forage for grazing wild animals. Depending on the species, filter strips can also serve as important habitat for quail and grassland nesting birds, which are a declining species in New Jersey and the rest of the nation (USDA, 2003b & USDA, rev. 4).

**4. USDA—FSA National Practice CP22: Riparian Buffer**

Photo courtesy of USDA NRCS.

Riparian buffers are strips of grass, trees, or shrubs established adjacent to streams, ditches, wetlands, or other water bodies. New Jersey has set a goal of 11,538 acres to be planted as riparian buffers.

Conservation practices on riparian buffer areas would consist of site preparation and planting. Buffer areas would be planted with seedlings according to the approved USDA zone concept with a range of native hardwood species, with grasses or shrubs in an additional area to help prevent hydraulic bypass. Soils would be manipulated to eliminate hydraulic bypass of drainage through the buffers and may include ditch plugging, tile removal, or (in unusual cases) depression excavation. Application of herbicides may be needed after seedlings are planted. Buffer widths would be established according to site conditions and landowner objectives. Maintenance procedures would be prescribed for each landowner establishing riparian buffers/filter strips with CREP funding.

Riparian buffers reduce pollution and protect surface and subsurface water quality while enhancing the aquatic ecosystem. Research conducted in Maryland, as well as other literature sources, indicates that riparian buffers have the ability to remove significant amounts of sediment, nitrogen, and phosphorus from runoff that would otherwise enter the stream (EPA, 1995; Welsch, 1991). They remove nutrients, sediment, organic matter, pathogens, pesticides, and other pollutants from surface runoff and subsurface flow by deposition, absorption, plant uptake, denitrification, and other natural processes before the runoff enters the watershed. They are useful for smaller perennial streams not listed on US Geologic Service (USGS) maps as they create shade to lower water temperature to improve habitat for aquatic organisms, provide a source of detritus and large woody debris for aquatic and wildlife habitat, and help stabilize and restore damaged stream banks (USDA, 2003c & USDA, rev. 4).

**<u>Additional Concurrent Activities</u>**

New Jersey may also implement additional practices that are not directly part of the CREP program. These activities may be installed at the same time as the CREP CPs and include:

**1. Soil Bioengineering**

Soil bioengineering is the use of grasses and wildflowers to protect streambanks, lakes, and river edges susceptible to erosion. Vegetation binds and restrains soil particles through root systems and protects nearby waterbodies against the mass movement of soil. Living plants protect soil along shores and reduce erosion caused by rain, ice, wind, and quickly flowing water. Soil bioengineering would not be paid for by USDA, but the practice may be implemented concurrently with the installation of FSA CPs.

Soil bioengineering can also reduce sediments, pollutants, and nutrients from entering nearby waterbodies. This practice can also provide wildlife cover and habitat, and shade streams keeping the water cool for fish (USDA, 2003d).

**2. Fencing**

Fencing would seek to restrict livestock access to nearby waterbodies. This practice includes fencing narrow strips of land along streams to completely exclude livestock. The fenced areas can be planted with trees or grass, or may naturally regenerate.

Photo courtesy of FWS.

Fencing could be incorporated into the riparian buffer or filter strip practices, but would not be implemented as a stand-alone practice. New Jersey would only implement a limited amount of fencing and only in areas where it would be necessary to prohibit livestock access to the CRP acres devoted to Filter Strips (CP21) and Riparian Buffers (CP22). While some of the cost of fencing could be covered as part of implementing CP 21 filter strips and CP22 riparian buffers, other area fencing will not be considered as part of the CREP program. Instead, the practice would be implemented concurrently with the installation of FSA CPs.

Photo courtesy of FSA.

Livestock trample shorelines, increase sediment, and lead to direct nutrient loading of waterbodies. Exclusion of livestock would immediately remove these impacts to streams and lakes. Fencing would also greatly reduce the nutrient load of pasture that may enter nearby waterbodies. The practice can also improve stream bank stability, reduce sedimentation, improve wildlife habitat, and reduce water temperature (FWS, 2001).

**<u>Monitoring Program</u>**

Each project would be implemented with the assistance of NRCS, which would ensure the installation of the approved practices. The NRCS and the SCDs would monitor contract compliance using a random five percent sample of all tracts on an annual basis. Monitoring would consist of visual verification of CPs.

NJDEP would monitor the effectiveness of the New Jersey CREP through their comprehensive ambient monitoring network. There are between 700-800 Ambient Monitoring Stations, located at approximately every three miles of perennial streams throughout the State. The monitoring consists of macroinvertebrate sampling and habitat quality monitoring and assessment. The stations are monitored on a rotating basis every five years, which will reflect data for approximately 20 percent of the State annually. These would continue to be monitored by the NJDEP and the monitoring results reflected in annual reports to USDA. NJDEP would also explore opportunities for monitoring the specific effectiveness of the CREP practices dependent upon the location of CREP enrollment, practices installed and available resources.

The annual reports submitted would also describe results of compliance, water quality monitoring, and enrollment targets. GIS technology would be used to evaluate the effectiveness of the projects. The GIS

database is continuously updated with monitoring results, and would track the changes in impairment. It can also be used to analyze the trends in the enrollment areas and the type of conservation practices installed, in order to focus additional outreach at specific locations within the CREP project area.

The annual report would also identify any adjustments that may need to be made to the program, based upon the trends and issues identified during implementation. Reports would be written by the NJDA with the assistance of FSA, NJDEP and NRCS. The NJDA Division of Agricultural and Natural Resources and the NJDEP-Division of Watershed Management would jointly submit any proposed revisions to CREP based on the results of the annual report. The State Secretary of Agriculture and the Commissioner of the Department of Environmental Protection will sign off on any changes made to the program.

**Public Outreach and Support**

Public support and information are critical to the success of CREP in New Jersey. The program has been designed to address the concerns of producers and to use existing outreach programs to educate landowners and the general public about the benefits of CREP.

The work plan for the outreach component consists of four tiers of increasing levels of contact with potential CREP applicants.

The First tier consists of a mass mailing to all agricultural landowners in New Jersey, posting program information on relevant websites and publication of articles explaining the program in “Watershed Focus” and other newsletters. Out of State absentee landowners, who represent approximately seven percent of the farmland owners in the State, would be contacted as well.

The Second tier would involve distribution of outreach materials to various field locations throughout the State that agricultural landowners typically visit.

Under the Third tier, members of the Conservation Partnership would participate and provide outreach at various township and county fairs.

In the Fourth tier, members of the Partnership would promote the program at agricultural meetings, including the County Board of Agriculture and County Agriculture Development Board meetings.

By utilizing this tier methodology, FSA can target all levels of the agricultural community.

In addition to the tiered work plan above, existing outreach efforts would be used to distribute CREP materials. Using other State outreach campaigns as a guide, the FSA, NRCS, NJDA-SSCC, SCDs, and the NJDEP would work together to develop, produce, and distribute a series of outreach materials including brochures, fact sheets, testimonials, and posters. New Jersey has significant experience and resources to conduct landowner outreach to promote conservation activities. For example, New Jersey conducts outreach programs to promote forest and grass buffers, wetland restoration, and other conservation practices. Outreach efforts would also tap into existing networks for providing technical assistance to farmers, including the Rutgers Cooperative Extension Service and the Soil Conservation Districts.

New Jersey’s Conservation Program is carried out by the Conservation Partnership, which includes the State’s 16 SCDs, the NJDA’s State Soil Conservation Committee, the NRCS, and Rutgers Cooperative Extension. This Conservation Partnership is involved in virtually all activities that affect New Jersey’s soil, water, and related natural resources.

One of the goals of the Conservation Partnership is to "provide information and technical assistance to help communities and individuals reduce nonpoint source pollution." To fulfill this goal, the Conservation Partnership is implementing the following actions related to CREP:

- Watershed planning and implementation
- Stream assessment to rank stream bank erosion severity
- Promotion of voluntary easement and land conservation programs
- Targeting priority watersheds
- Using CRP and CREP to reduce potential non-point source pollution along agricultural waterways
- A public information and education campaign to support conservation programs

Through these programs, information about the CREP program would be distributed throughout the State. Letters of support from FSA's Conservation Partners would be forwarded to the FSA office (NJDA, 2003).

## 2.3 Comparison of Alternatives

Implementing either alternative will have specific environmental implications for the State's watersheds and the ability of this project to meet the project objectives outlined in Section 1.4. The following two tables provide a summary comparison of the alternatives. To provide consistency, the following impact terminology will be used in the comparison table below and throughout the document.

### Impact Categories

Environmental effects that may occur as a result of implementing one of the alternatives will be described in the succeeding resource sections in the following manner:

- No Effect—A change to a resource's condition, use, or value that is not measurable or perceptible.
- Beneficial Effect—An action that would improve the resource's condition, use, or value compared to its current condition, use, or value.
- Minor Adverse Effect—A measurable or perceptible, minor, localized degradation of a resource's condition, use, or value that is of little consequence.
- Moderate Adverse Effect—A localized degradation of a resource's condition, use, or value that is measurable and of consequence.
- High Adverse Effect—A measurable degradation of a resource's condition, use, or value that is large and/or widespread and could have permanent consequences for the resource.
- Short-term Effect—An effect that would result in the change of a resource's condition, use, or value lasting less than one year.
- Long-term Effect—An effect that would result in the change of a resource's condition, use, or value lasting more than one year and probably much longer.

### 2.3.1 Summary Comparison of Achievement of Project Objectives of Alternatives A and B

The following table provides a key part of the information needed by the Secretary of Agriculture and the public to make an informed, reasoned decision.

| Objectives | Indicators | Alternative A: No Action | Alternative B: Implement CREP |
|---|---|---|---|
| Objective #1: Reduce the Application of Agricultural Chemicals | 1-A Enrollment of up to 30,000 acres, with a goal of 4,000 acres as permanent easement purchases. | Current agricultural practices would continue. FSA CPs would not be implemented or funded. High levels of pesticides and nutrients would continue to discharge into New Jersey's waterbodies. | Up to 30,000 acres would be enrolled in FSA CPs alone would result in an estimated reduction of 36,010 pounds of agricultural chemicals. |
| Objective #2: Preserve Farmland and Encourage Open Space | 2-A Enrollment of up to 30,000 acres, with a goal of 4,000 acres as permanent easement purchases. | Current agricultural practices would continue and existing State and Federal programs would continue their limited efforts to preserve farmland and encourage open space. | Up to 30,000 acres would be enrolled in FSA CPs preserving farmland from development for a minimum of 10-15 years. New Jersey would like to enroll 4,000 acres as permanent easement purchases preserving open space. |
| Objective #3: Remove Pollutants from New Jersey Waterways | 3-A A reduction in the number of violations in future EPA National Public Water Systems Compliance Reports. | Current agricultural practices would continue. Minor reductions and fluctuations in the number of violations in future EPA National Public Water Systems Compliance Reports may occur as other programs are implemented but substantial reductions are unlikely. | Up to 30,000 acres would be enrolled in FSA CPs. The CPs should result in a substantial reduction in the number of violations in future EPA National Public Water Systems Compliance Reports. |
| | 3-B A reduction in the number of river miles that do not meet the SWQS for at least one parameter | Current agricultural practices would continue. Minor reductions and fluctuations in the number of river miles that do not meet the SWQS for at least one parameter may occur as other programs are implemented but substantial reductions are unlikely. | Up to 30,000 acres would be enrolled in FSA CPs. The CPs should result in a substantial reduction in the number of river miles that do not meet the SWQS for at least one parameter. |

| Objectives | Indicators | Alternative A: No Action | Alternative B: Implement CREP |
|---|---|---|---|
| | 3-C A reduction in nonpoint pollution throughout the state.<br>3-C1 A reduction in the amount of total phosphorous found in State waterbodies<br>3-C2 A reduction in the amount of total suspended solids found in State waterbodies | Current agricultural practices would continue. Minor reductions and fluctuations in nonpoint pollution throughout the State may occur as other programs are implemented but substantial reductions are unlikely. | Up to 30,000 acres would be enrolled in FSA CPs. The CPs should result in a substantial reduction in nonpoint pollution throughout the State. Specifically, the implementation of CREP in New Jersey is expected to result in a significant reduction in the amount of total phosphorous and TSS that discharges in to New Jersey waters. New Jersey anticipates an additional reduction of 26,000 pounds of p and seven million pounds of TSS after the installation of CREP practices. |
| | 3-D A reduction in the number of waterbodies that are listed as impaired on the State 305 (b) report | Current agricultural practices would continue. Minor reductions and fluctuations in the number of waterbodies that are listed as impaired on the State 305 (b) report may occur as other programs are implemented but substantial reductions are unlikely. | Up to 30,000 acres would be enrolled in FSA CPs. The CPs should result in a substantial reduction in the number of waterbodies that are listed as impaired on the State 305 (b) report. |
| | 3-E A reduction in the erosion of highly disturbed first and second order streams. | Current agricultural practices would continue. Minor reductions and fluctuations in the erosion of highly disturbed first and second order streams may occur as other programs are implemented but substantial reduction are unlikely. | Up to 30,000 acres would be enrolled in FSA CPs. The CPs should result in a substantial reduction in the erosion of highly disturbed first and second order streams. |
| | 3-F An increase in the exclusion of livestock from stream bank areas and riparian corridor. | Current agricultural practices would continue. Exclusion of livestock from stream bank areas and riparian corridor would remain largely a land-owner responsibility and as a result would only happen on occasion. | Alternative B would implement one of New Jersey's additional concurrent activities–streambank fencing, but only where it is necessary to prohibit livestock access to the CRP acres devoted to Filter Strips (CP21) and Riparian Buffers (CP22). . This activity would result in a concerted effort to increase the exclusion of livestock from stream bank areas and riparian corridor, which would limit sediments from erosion as well as direct nutrient loads. |

| Objectives | Indicators | Alternative A: No Action | Alternative B: Implement CREP |
|---|---|---|---|
| Objective #4: Preserve Unique/Protected Lands | 4-A Overall improvements in water quality, which would directly improve the ecological functions of unique and protected lands, encourage continued tourism, and improve the habitats of several Federal and State-listed T & E species. | Current agricultural practices would continue and the ecological functions of unique and protected lands would continue to be impaired by agricultural runoff. | Up to 30,000 acres would be enrolled in FSA CPs which would directly improve the ecological functions of unique and protected lands, encourage continued tourism, and improve the habitats of several Federal and State-listed T & E species. |
| | 4-B Continued and improved conditions within nationally recognized ecological resources such the Wallkill National Wildlife Refuge, the Great Swamp Watershed, the Pinelands National Reserve, and the Delaware and Barnegat Bays. | Current agricultural practices would continue and the conditions within nationally recognized ecological resources such the Wallkill National Wildlife Refuge, the Great Swamp Watershed, the Pinelands National Reserve, and the Delaware and Barnegat Bays would continue to be impacted by agricultural runoff. | Up to 30,000 acres would be enrolled in FSA CPs which would maintain and improve conditions within New Jersey's nationally recognized ecological resources. |
| | 4-C Enrollment of up to 30,000 acres, with a goal of 4,000 acres as permanent easement purchases. Enrolling lands in the CREP program would preserve farmland from development, discouraging encroachment and reducing impacts to unique and protected lands. | Current agricultural practices would continue and existing State and Federal programs would continue their limited efforts to preserve farmland and encourage open space. Alternative A would not have a substantial impact on development and encroachment that may impact unique and protected lands. | Up to 30,000 acres would be enrolled in FSA CPs preserving farmland from development for a minimum of 10-15 years. New Jersey would like to enroll 4,000 acres as permanent easement purchases preserving open space. Alternative B would protect land from development, discourage encroachment and reduce impacts to unique and protected lands. |
| | 4-D Providing expanded wildlife habitat, which would enhance the wildlife populations that inhabit unique and protected lands. | Current agricultural practices would continue and existing State and Federal programs would continue their limited efforts to provide and protect wildlife habitat. | Up to 30,000 acres would be enrolled in FSA CPs providing expanded wildlife habitat. The 30,000 acres would be developed into approximately 11,538 acres (as a target acreage) of riparian buffers CP22 and other the remaining 18,462 would be planted as |

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|---|---|---|---|
| | | | other CPs, These new acreages, especially those planted as CP22, would enhance the wildlife populations that inhabit unique and protected lands. |

### 2.3.2 Summary Comparison of the Effects of Alternatives A and B on the Relevant Resource Issues

The following table provides a key part of the information needed by the Secretary of Agriculture and the public to make an informed, reasoned decision.

| Issues | Alternative A: No Action | Alternative B: Implement CREP |
|---|---|---|
| Issue #1: State Water Quality Standards susceptibility to agricultural practices | Long-term, moderate adverse effects—State water quality values would continue to decline. Nutrients, sediments, pesticides, and other negative byproducts of agricultural runoff would continue to contaminate the waters of New Jersey. Any improvement in water quality would be dependant upon existing programs. However, because these programs do not directly address agricultural practices, runoff from farms would continue to introduce pollutants to the system. | Long-term, moderate to high beneficial effects—Large improvements to water quality across the State would be achieved with the implementation of Alternative B. CP implementation would reduce n, tss, agricultural chemicals, p, and other contaminants that accompany agricultural runoff. This reduction would translate into improved State water quality. |
| Issue #2: Drinking Waters susceptibility to agricultural practices | Long-term, minor adverse effects—Groundwater quality would continue to decline as a partial result of polluted agricultural runoff. | Long-term, minor beneficial effect – Minor positive effects on sole-source aquifers would occur. CPs would directly improve the quality of runoff. Well heads and recharge areas would be indirectly improved, benefiting aquifers. |
| Issue #3: Wetlands susceptibility to agricultural practices | Long-term, moderate adverse effects—Wetland values would continue to slowly decline as a result of existing and projected agricultural runoff. Total wetland acres would likely be stable or slightly reduced. | Long-term, minor beneficial effects—Wetland acreage would remain stable or increase slightly. Wetlands values would benefit directly from improved water quality and in turn be able to filter more water. |
| Issue #4: Floodplains susceptibility to agricultural practices | No effects—Floodplains are routinely used for agricultural production and normally have little adverse effect on flowage areas or floodways; these effects are considered to be negligible. | Minor long-term improvements—CPs would assist in controlling flood events and result in improvements to floodplains and stream values. |
| Issue #5: Wildlife's susceptibility to agricultural practices | Long-term, minor adverse effects—Wildlife and habitat values would not benefit from the leveraged effects of habitat restoration and watershed improvement of CREP. These values would continue to be degraded as population growth continues to encroach upon and pollute the natural environment. | Long-term, moderate beneficial effects—CPs would improve habitat values. Improvements to water quality alone would have beneficial effects for all wildlife as well as potential increases in habitat. |

| Issues | Alternative A: No Action | Alternative B: Implement CREP |
|---|---|---|
| Issue #6: Protected/Unique Land's susceptibility to agricultural practices | Long-term, minor adverse effects—Protected/unique acreage would remain stable. Water quality of areas bordering farms would continue to decline from polluted agricultural runoff. | Long-term, minor beneficial effects—Protected/unique acreage would remain stable. Water quality would improve in the areas bordering or downstream of enrolled farms. Minor improvements to wilderness values would be provided throughout the watershed and wildlife habitat improvement would offer beneficial effects to nearby protected/unique areas. |
| Issue #7: Marine Resources susceptibility to agricultural practices | Long-term, minor adverse effects—Current agricultural practices would continue to contribute to the nonpoint source pollution (including pesticides and herbicides) of these marine resources. Adverse affects would continue due to unfiltered flows, growing population, and recreational demands. | Long-term, minor beneficial effects—Filtering provided by all the CPs would contribute to cleaner water entering the sensitive estuaries, marshes, and tidal wetlands that support wildlife, shellfisheries, coastal water use and recreation, and other resources. |
| Issue #8: Wild and Scenic Rivers susceptibility to agricultural practices | Long-term, minor adverse effects—Wild and Scenic Rivers would continue to be degraded by agricultural runoff and the effects of population expansion and industry. Scenic views would be impaired and recreational zones would continue to be degraded. | Long-term, minor beneficial effects— Wild and Scenic Rivers would see beneficial impacts provided to reaches of river near enrolled acreage. Conservation practices would improve agricultural runoff, indirectly benefiting these rivers. |
| Issue #9: Environmental Justice susceptibility to agricultural practices | Long-term, minor adverse effects—No FSA actions are required or necessary to address existing or ongoing issues with environmental justice. | Long-term, minor beneficial effects—Disproportionate effects on minority or underrepresented groups are unlikely since the beneficial effects of CREP would be felt statewide. |
| Issue #10: Socioeconomics susceptibility to agricultural practices | Long-term, minor adverse effects—No Action may result in adverse impacts to recreation and tourism as water quality continues to be degraded, land use in New Jersey as no additional land preservation programs would be implemented, and population growth may be limited by the State's ability to provide additional clean drinking water. | Long-term, minor beneficial effects—The proposed action would result in: stable farm incomes from the steady and guaranteed receipt of CREP funds by enrolled producers; improvements in the recreation and tourism economy as water quality, natural resource, and recreation values are improved; decreased land use changes as CREP provides a means of preserving and protecting land; and improve drinking water conditions which may allow for future population growth. |

# Chapter 3.0 Affected Environment and Environmental Consequences

## 3.1 Introduction

The analyses of Affected Environment and Environmental Consequences have been combined in this section to simplify the document. Relevant resource issues related to the New Jersey CREP are discussed below in Sections 3.2 through 3.11. This section will explore the environmental resources affected by the No Action Alternative—Continuation of Current Agricultural Practices and the Proposed Action Alternative—Implementation of the New Jersey CREP, as well as what affect the alternatives would have if implemented.

This chapter discusses the resources most likely to be impacted by the alternatives and compares the impacts of the alternatives on the resource issues. Resources discussed in this chapter are water quality (3.2); drinking water (3.3); wetlands (3.4); floodplains (3.5); wildlife (3.6); protected/unique lands (3.7); marine resources (3.8); wild and scenic rivers (3.9); environmental justice (3.10); and socioeconomics (3.11). This chapter also discusses three mandatory impact considerations including cumulative effects (3.12); unavoidable adverse impacts (3.13); relationship of short-term uses and long-term productivity (3.14); and irreversible and irretrievable commitments of resources (3.15).

The general nature of this PEA limits discussion of the resources to a wide scale. An in-depth, site specific EE would be completed in association with FSA for each farm contract at the completion of the conservation plan. As impacts become clear at each site, the appropriate steps will be taken to ensure compliance with NEPA, NHPA, and FWS requirements.

### 3.1.1 Assumptions and Background Used in Analysis

An understanding of the planned effect of the 30,000 acres proposed for the New Jersey CREP is essential to the discussion of resource impacts. The reason for this discussion is that a one-to-one comparison of acreage impacts is not a valid assumption for analysis due to the anticipated uses of the CREP acreage. The impacts of one acre added to CREP are not equal to only one acre of the watershed being benefited by the nutrient reduction or conversion to a wetland or riparian buffer strip.

Using a one-to-one comparison, up to 30,000 acres (3.6 percent) of a possible 832,600 agricultural acres are allowed to be enrolled in CREP, or 0.6 percent of the total 4,748,160 acres throughout the State.

However, one acre of land enrolled in CREP can have a positive impact on tens and hundreds of additional acres. For example, if five acres were enrolled in CREP, and CP 22 (riparian buffer) was implemented, the new buffer could intercept agricultural runoff from hundreds of acres and reduce p, sediment, and pesticide loads significantly. This relatively small footprint of CREP acreage can potentially have large benefits to the watershed downstream and large impacts on the objectives identified in Section 1.4. It is estimated that for every one acre of CPs, an additional 11.7 acres flow through the practice. (NJDA, 2003) These acres would have their pollutant loads reduced as these loads flow through the CPs. This means that CREP could potentially filter 351,000 acres of agricultural land, or 42 percent of the State's 832,600 acres of agricultural land.

Specific impacts and the degree to which the CPs can be effective would depend on site specific analysis of each CREP enrollment. Acreage is limited for some of the CPs, yet the overall benefits are measured as impacts to larger acreage. Mitigation measures are in place and outlined steps would be followed to ensure compliance with NEPA and other Federal regulations for each implementation area.

## 3.2 State Water Quality Standards

### 3.2.1 Introduction

The NJDEP is responsible for State water policy. The Clean Water Act of 1972 requires the NJDEP to create two reports that speak to the water quality of the State's waterbodies.

Under Section 303(d) of the Clean Water Act, the NJDEP is required to biennially develop a Water Quality Limited Segments List (commonly called a 303(d) List). This is a list of waterbodies where water quality does not meet surface water quality standards. The NJDEP is required to develop the 303(d) list using all appropriate readily available data.

Some of the types of data that is gathered to create the 303(d) list includes:

- Physical/chemical data
- Sediment data
- Habitat data.
- Biological data such as:
- Macroinvertebrate
- Fish population
- Algal data
- Shellfish data
- Fish tissue data

Section 303(d) requires a total maximum daily load (TMDL) for waters that do not meet State water quality standards. TMDL is described as a "pollution budget" for a specific river, lake, or stream, and establishes wasteload allocations for point sources such as wastewater discharges from treatment plants or industrial facilities; load allocations for nonpoint sources such as stormwater runoff or snow melt; and includes a margin of safety and, if appropriate, a reserve capacity. Prior to 2002, the NJDEP had been publishing such a list under the title *Identification and Setting of Priorities for Section 303(d) Water Quality Limited Waters in New Jersey*.

Under Section 305(b) of the Clean Water Act, the NJDEP is required to biennially report to the EPA on the water quality of New Jersey's waterbodies. These reports:

- Offer a general overview of water quality conditions.
- Identify the most frequent water quality problems.
- Identify sources and causes of pollution.
- Describe water resources management programs.

- Quantify the ability of New Jersey's waterbodies to support designated uses and attain water quality standards.

Prior to 2002, the Department had summarized the water quality of the State in a biennial report entitled *New Jersey's Water Quality Inventory Report* (also known as the 305(b) Report).

In November, 2001, EPA issued guidance that encourages states to integrate the 305(b) Report and the 303(d) List into one report. Following EPA's guidance, the NJDEP chose to develop an Integrated Report for New Jersey beginning with the 2002 submittal to EPA. This report was titled the *2002 Integrated Water Quality Monitoring and Assessment Report* and the findings are summarized below.

### 3.2.2 Existing Conditions

New Jersey is bordered on the south and west by the Delaware River, the east by the Atlantic Ocean, and the north by New York State. New Jersey is the fifth smallest State in the nation and contains a wide variety of land use types, water resources, geologic characteristics, and natural biota and fauna. Within the State's 7,788 square miles are:

- 7,840 miles of rivers and streams including:
- 6,330 (81 percent) miles of non-tidal rivers
- 1,510 (19 percent) miles of tidal rivers
- 675 miles of canals
- 197 river miles share borders with a neighboring state
- 109 square miles of lakes and ponds larger than two acres
- 1,061 square miles of estuarine and ocean waters
- 1,482 square miles of fresh and saline marshes and wetlands

New Jersey's rivers and streams are used for multiple purposes such as water supplies for drinking water, industry and agriculture, trout and warm water fisheries, aquatic resources, recreation (e.g., boating, swimming), and wastewater disposal. Often, New Jersey rivers and streams are used for multiple purposes in close proximity (NJDEP, 2002a).

**Section 303(d)**

The New Jersey 2002 Section 303(d) list identifies 1,386 waterbody/pollutant combinations still requiring TMDLs, of these 102 have been identified as high priority waters targeted for development of TMDLs by October 1, 2004. The 2004 draft indicated that 106 waterbodies were removed from the list of impaired waterbodies. However, 87 waterbodies were added, resulting in a marginal improvement of only 19 waterbodies.

The New Jersey *2002 Integrated Water Quality Monitoring and Assessment Report* summarizes the sampling taken from approximately 430 stations, representing 2,308 river miles. These samples looked for the following parameters (the highlighted pollutants are most impacted by agricultural activities):

- **total phosphorus**

- pH
- **dissolved oxygen**
- temperature
- **fecal coliform**
- **nitrate**
- **total suspended solids**
- **total dissolved solids**
- **unionized ammonia**
- metals

In 2002, of the 2,308 assessed river miles, 1,913 river miles did not meet the SWQS for at least one parameter. As Figure 3-1 shows, the chemical parameters of most concern in the State are fecal coliform, total phosphorus, pH, and metals. The NJDEP has selected fecal coliform, which comprises over 35 percent of all chemical exceedances, as the priority for TMDL implementation. Total phosphorus also continues to be a major concern.

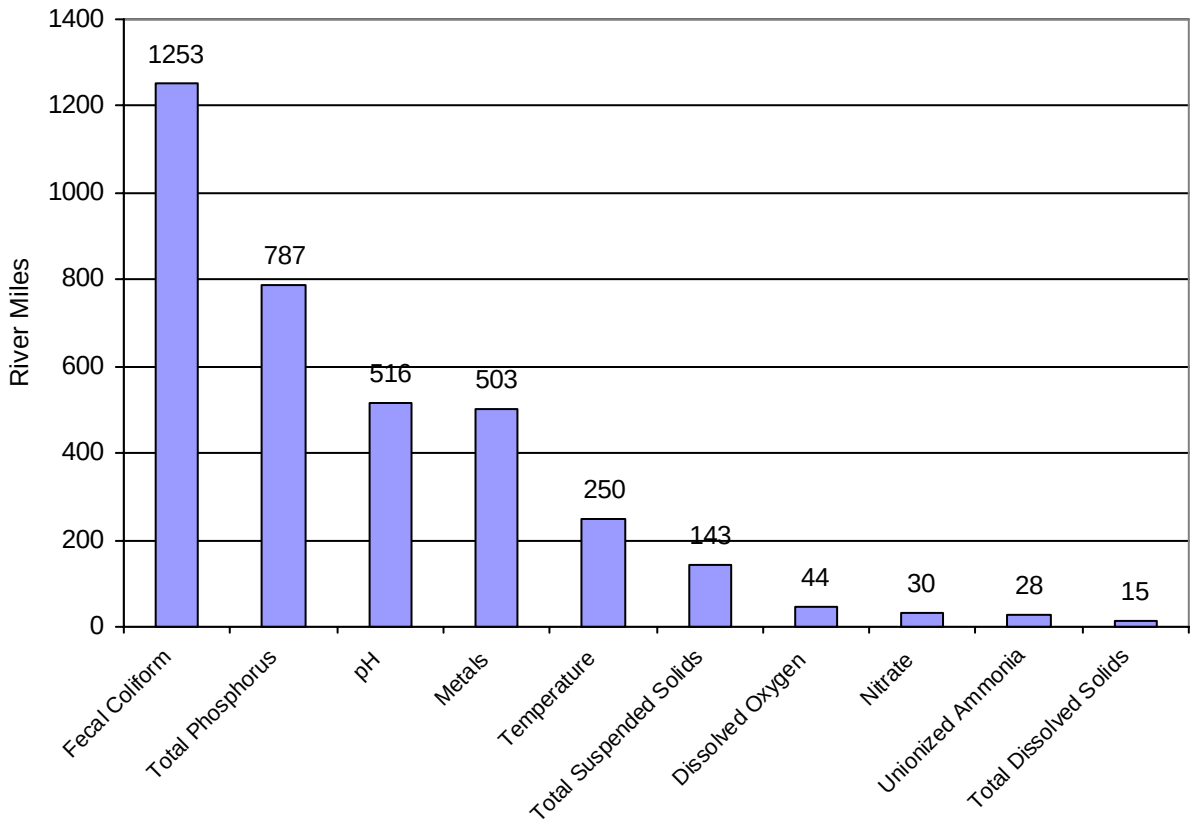



**Figure 3-1: River Miles with Chemical Exceedances. Graph based on 10 chemical parameters evaluated in non-tidal rivers (NJDEP, 2002a).**

The EPA's Atlas of America's Polluted Waters (2000) includes maps of water bodies (streams, rivers, coastlines, estuaries, and lakes) within each State that do not meet SWQS. The Atlas shows miles of waters impaired/threatened within an eight-digit Hydrologic Unit Code (HUC) divided by the total number of water miles within the HUC. This information is summarized in Figure 3-2 below.

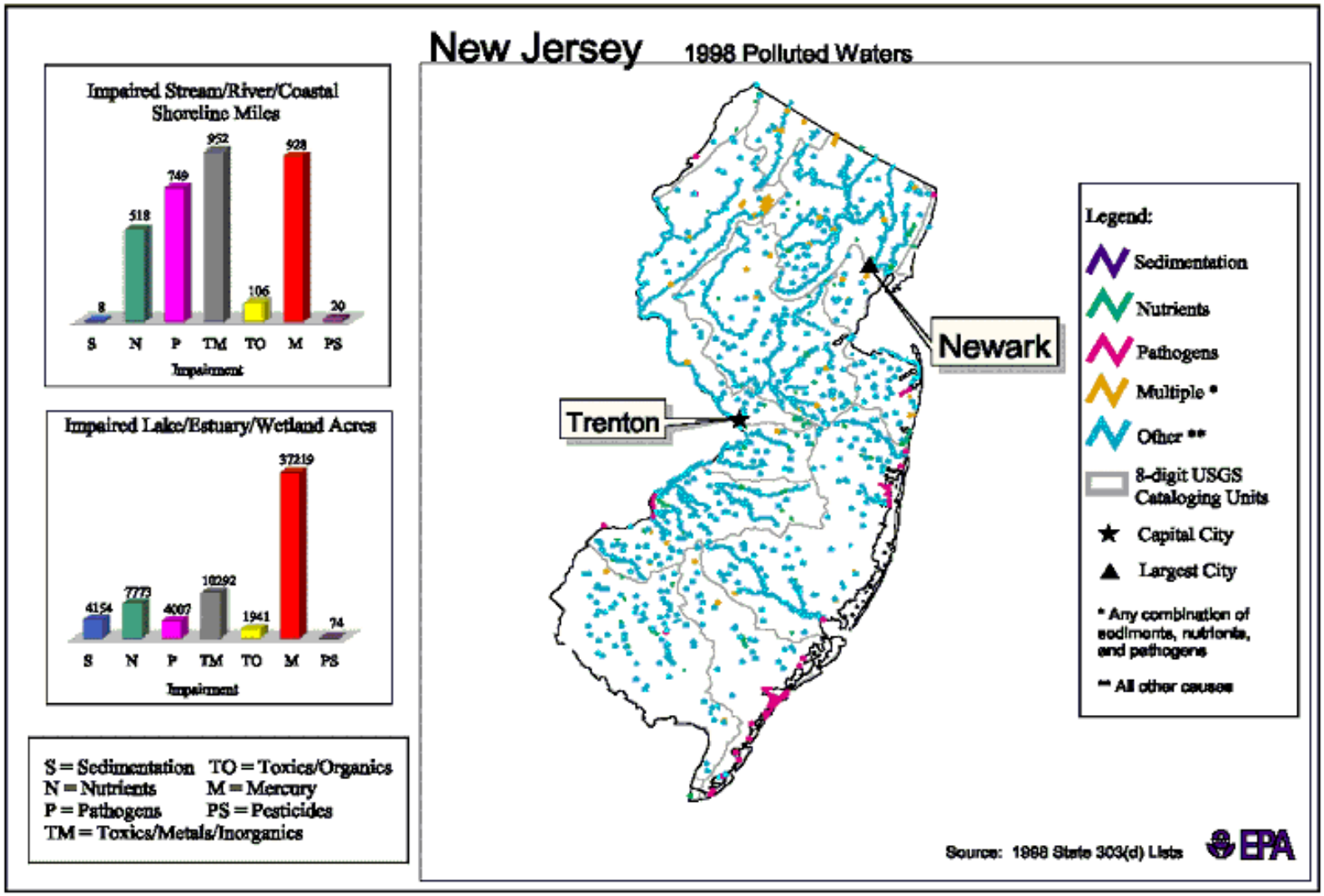
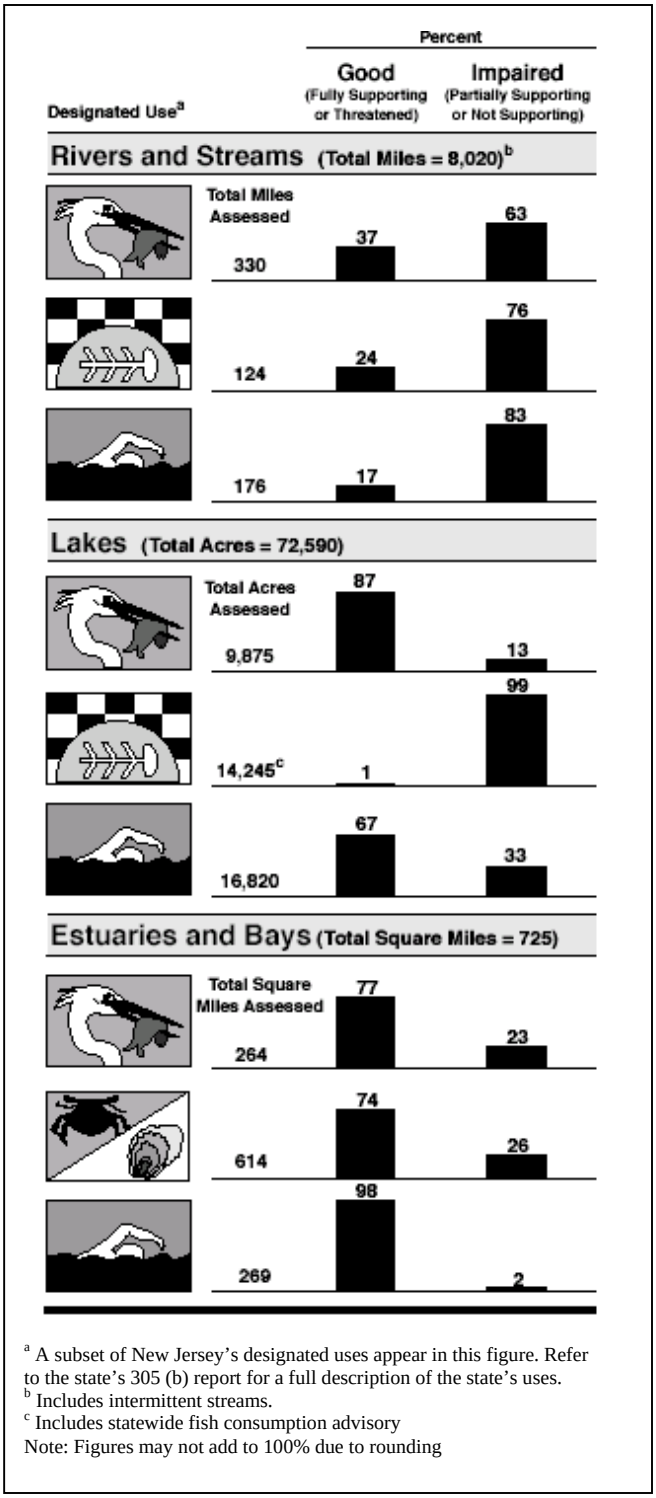



**Figure 3-2: 1998 New Jersey's Polluted Waters (EPA, 2000a).**

## Section 305(b)

In 2000, the EPA prepared *The National Water Quality Inventory: 2000 Report*. This report compiled information from each state's Section 305(b) report and summarized the findings into a national water quality inventory in order to provide an accurate picture of the nation's water quality. The New Jersey information, summarized in Figure 3-3, outlines the ability of the State's waters to support specific designated uses.




[a] A subset of New Jersey's designated uses appear in this figure. Refer to the state's 305 (b) report for a full description of the state's uses.
[b] Includes intermittent streams.
[c] Includes statewide fish consumption advisory
Note: Figures may not add to 100% due to rounding

| | |
|---|---|
| | **Aquatic Life Support** |
| The waterbody provides suitable habitat for protection and propagation of desirable fish, shellfish, and other aquatic organisms | |
| | **Fish Consumption** |
| The waterbody supports fish free from contamination that could pose a human health risk to consumers | |
| | **Shellfish Harvesting** |
| The waterbody supports a population of shellfish free from toxicants and pathogens that could pose a human health risk to consumers | |
| | **Primary Contact Recreation – Swimming** |
| People can swim in the waterbody without risk of adverse human health effects (such as catching waterborne diseases from raw sewage contamination). | |

**Figure 3-3: New Jersey Impaired Waterbodies (EPA, 2000b)**

## Probable Causes

As discussed above, New Jersey's waterbodies are impaired by a number of contaminants. Most of these contaminants have a direct link to agricultural practices. Below is a discussion of the link between agricultural practices and water impairment. For a more complete discussion see USDA-FSA 2003, "Conservation Reserve Program Final Programmatic Environmental Impact Statement" for a discussion of the link between agricultural practices and general water contamination and Appendix F for a discussion of the impacts to human health from drinking water contamination due to agricultural practices.

**Agricultural Practices that Cause Nonpoint Source Pollution**

**Soil Disturbance:**
- Cultivation can result in erosion that will cause sedimentation to streams, lakes, or estuaries.

**Nutrients and Animal Wastes:**
- Results in runoff laden with plant nutrients that can lead to excessive algal growth.
- Nitrates and nitrites can contaminate groundwater.
- Organic wastes in high concentrations can deplete dissolved oxygen in water, resulting in fish kills.
- Nutrient pollution can accelerate eutrophication.
- Coliform bacteria pollution.

**Pesticides**:
- Can be carried off by runoff, contributing to toxic pollution of the receiving waters.
- Can contaminate groundwater.

**Grazing Animals:**
- Can over-graze grass, exposing soil and creating erosion problems.
- Can damage stream banks and riparian areas by wallowing.

**Figure 3-4: Agricultural Pollution (USDA, 2003e)**

### Fecal Coliform

Fecal coliform enters a waterbody from a number of sources including humans, excessive populations of geese, domestic or confined animals, agricultural practices, and wildlife. Fecal coliform from these sources can reach waterbodies directly, through overland runoff, or through sewage or stormwater conveyance facilities. Bacteria, viruses, and parasites that are present in the feces of infected individuals can contaminate surface waters that may be used as sources of drinking water or for primary contact recreation (such as swimming). Waterborne pathogens contributing to disease outbreaks in the US include the bacteria shigella, salmonella, leptospira, cryptosporidium, legionella, and campylobacter; viruses caliciviruses, adenoviruses, and hepatitis A; and the parasite giardia (NJDEP, 2003a & NJCRP, 2003).

| Impairment | Number of Impairments |
|---|---|
| BACTERIA | 5 |
| COLIFORMS | 4 |
| FECAL COLIFORM | 133 |
| TOTAL AND FECAL COLIFORM | 3 |
| TOTAL COLIFORM | 2 |

**Figure 3-5: New Jersey's top pathogen contaminants in 1998 (EPA, 1998)**

### Nutrients

Phosphates enter New Jersey lakes from incoming streams which have been affected by fertilizer runoff from farms and lawns, discharges from sewage treatment plants and septic systems, livestock operations, and possibly other sources. Excessive amounts of p result in an overabundance of plant and algae growth in lakes, a condition known as eutrophication. Eutrophic lakes are characteristically cloudy and choked with weeds and algae, making them less able to support healthy populations of fish and other wildlife. Excess n from fertilizers enters aquatic ecosystems, causing algal blooms and reducing oxygen levels and other ecological effects (NJCRP, 2003).

| Impairment | Number of Impairments |
|---|---|
| ALGAE | 69 |
| ALGAL BLOOMS | 9 |
| EXCESSIVE MACROPHYTE GROWTH | 8 |
| INORGANIC NITROGEN | 2 |
| MACROPHYTES | 57 |
| PHOSPHORUS | 24 |
| TOTAL INORGANIC NITROGEN | 2 |
| TOTAL PHOSPHORUS | 120 |

**Figure 3-6: New Jersey's top nutrient contaminants in 1998 (EPA, 1998)**

**Pesticides**

Pesticides of every major chemical class may be detected in New Jersey ground and surface waters, a result of widespread use on croplands, lawns, gardens, golf courses, rights-of-way, and parks. Pesticides that have long been banned, such as DDT, are still detected in New Jersey surface water samples. The presence of pesticides in surface and groundwater supplies poses risks to human health when these sources are used for drinking water and can directly affect wildlife as well (NJCRP, 2003).

| Impairment | Number of Impairments |
|---|---|
| CHLORDANE | 1 |
| DDD | 1 |
| DDE | 1 |
| DDT | 1 |
| DIELDRIN | 1 |
| PCBS & CHLORDANE IN SEDIMENT | 2 |
| PESTICIDES | 1 |

**Figure 3-7: New Jersey's top pesticide contaminants in 1998 (EPA, 1998)**

**Sediments**

Ground disturbing activities like construction and farming all result in significant erosion and sedimentation of nearby waterbodies. According to the NJDEP, sediments clogs the gills of fish and block light needed for plants. Sediments also settle and fill in stream channels, lakes and reservoirs, increasing flooding and the need for dredging to clear streams or lakes for boating. Agricultural activities result in a loss of approximately 1.3 billion tons of soil per year across the US. If agricultural production in New Jersey, as a percentage of the nation, is approximated and that percentage is multiplied by the 1.3 billion tons of sediment produced a year, New Jersey produces approximately 1 million tons of sediment per year. (USDA, 1997) Sediment results in a substantial burden on New Jersey and the nation's waterbodies and leads to concerns about sediments, nutrients, and pesticides impacting water quality (USDA, 2000b).

| Impairment | Number of Impairments |
|---|---|
| EROSION | 1 |
| SEDIMENTATION | 18 |
| TTS | 1 |

**Figure 3-8: New Jersey's top sediment contaminants in 1998 (EPA, 1998)**

### 3.2.3 Effects of Alternative A (No Action) on State Water Quality Standard

State water quality values would continue to decline. Agricultural runoff introduces contaminants into the waters of New Jersey and any improvements in water quality would be dependant upon existing and

proposed programs. However, because these programs do not directly address agricultural practices, runoff from farms would continue to introduce pollutants to ground and surface waters.

Selection of Alternative A would not contribute to achieving any of the four CREP Objectives listed in Section 1.4.

### 3.2.4 Effects of Alternative B (CREP Agreement) on State Water Quality Standard

Implementation of CREP would provide significant localized improvements to water quality and would help New Jersey achieve State water quality standards. These improvements would occur across the State, but most heavily in the agricultural counties of Bergen, Burlington, Camden, Cape May, Cumberland, Gloucester, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Salem, Somerset, Sussex, and Warren. Additionally, the agricultural runoff discharging into New York would be filtered, which would serve to improve the water quality of a neighboring state.

All of the CPs are designed to have a direct or indirect effect on water quality. CP8A (Grass Waterways) would reduce sediment loss and erosion and absorb some agricultural chemicals and nutrients. CP15A (Contour Grass Strips) would slow runoff and trap sediment, reducing erosion. Grass strips ensure that large quantities of sediment, nutrients, pesticides, and other contaminants are removed from runoff before they enter nearby waterbodies. CP21 (Filter Strips) reduces sediment, nutrients, pesticides, and other contaminants. Filter strips slow the velocity of water, allowing the settling out of suspended soil particles, the infiltration of runoff and soluble pollutants, the adsorption of pollutants on soil and plant surfaces, and the uptake of soluble pollutants by plants. CP22 (Riparian Buffers) remove nutrients, sediment, organic matter, pathogens, pesticides, and other pollutants from surface runoff and subsurface flow. Riparian buffers also create shade to lower water temperature to improve habitat for aquatic organisms, provide a source of detritus and large woody debris for aquatic organisms, and help stabilize and restore damaged stream banks to reduce erosion. The implementation of soil bioengineering is an effective means of controlling erosion, while reducing sediments, pollutants, and nutrients from entering nearby waterbodies. This practice can also provide wildlife cover and habitat, and shade streams keeping the water cool for fish. Fencing would also reduce the nutrient load that may enter nearby waterbodies and reduce sedimentation, improve wildlife habitat, and reduce water temperature.

Implementing CREP CPs would contribute to attaining the State goal of increasing the number of healthy biological communities and enhancing the quality of water throughout New Jersey. In addition, the CPs would facilitate meeting current and future nutrient discharge limits under the TMDL and other State water quality programs.

As stated in the Assumptions and Background Used in Analysis (Section 3.1.1), the impact of one acre in CREP can have a positive impact on tens and hundreds of additional acres. Implementing CREP CPs would result in immediate reductions of pollutant loads in areas that were previously cropped. By enrolling 30,000 acres alone (3.6 percent of the State's agricultural land), there would be an immediate reduction of 36,010 pounds of pesticides (3.6 percent of the 1,000,300 pounds of pesticides applied in 2000). (NJPCP, 2000)

CREP would impact a larger geographic area than simply those areas enrolled in the program. Additional reductions in pollutant loads would occur in the additional acres that discharge into CREP areas. It is estimated that for every one acre of conservation practice, an additional 11.7 acres flow through the practice (NJDA, 2003). These acres would have their pollutant loads reduced as these loads flow through the CPs. This means that CREP could potentially filter 351,000 acres of agricultural land, or 42 percent of the State's 832,600 acres of agricultural land. In New Jersey there are 1,960 miles of rivers and streams

on agricultural land. CREP CPs would, therefore, be able to offer a direct beneficial impact to 25 percent of the State's 7,840 miles of rivers and streams (USDA, 2003f).

Implementation of Alternative B would result in significant reductions in nonpoint pollution throughout the State. Specifically, the implementation of CREP in New Jersey is expected to result in a significant reduction in the amount of nitrogen, total phosphorous and TSS that discharges in to New Jersey waters. If a p load of 1.3 lbs/acre/yr and a TSS load of 300 lbs/acre/yr from the existing agricultural lands is assumed each year for a 10 year period, New Jersey anticipates an additional reduction of 26,000 pounds of p and seven million pounds of TSS after the installation of CREP practices. (Note: This reduction is based upon enrolling 3,000 acres of land into CREP annually with a 30 to 50 percent removal rate for phosphorous and 50 to 70 percent removal rate for TSS) (NJDEP, 2003b)

With the implementation of CREP CPs, total n and p runoff from CREP farmland is expected to fall by approximately 60-80 percent from each CREP field, improving spot water quality in nearby waterbodies. However, as New Jersey's waters are impacted by multiple types of pollution, among them agricultural runoff, estimating the impact of these reductions on state water quality is hard to determine. Tentative estimations from New Jersey NCRS personnel state that with the full implementation of CREP across New Jersey impairment of New Jersey waterbodies by n and p would be reduced by approximately 20 percent statewide. (Smart, 2004)

The beneficial impacts of the CPs discussed above would provide cumulative benefits, assisting in the achievement of all four CREP Objectives (Section 1.4).

## 3.3 Drinking Water

One of the primary sources of drinking water in New Jersey are aquifers, providing drinking water to roughly 42 percent of New Jersey's population (NJGS, 1998a). Aquifers are water-bearing geologic formations. These structures store and/or transmit water, such as to wells and springs. Aquifers are often capable of yielding water in sufficient quantity to constitute a usable supply for people's uses.

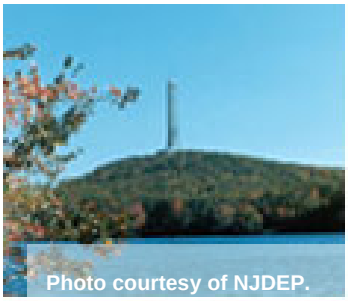


Photo courtesy of NJDEP.

Special care must be taken to protect aquifers which the EPA has designated as sole-source aquifers (SSA). The EPA defines SSA as one that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. To be designated an SSA, the area must not have an alternative drinking water source, which could supply all who depend on the aquifer for drinking water (EPA, 2003).

Section 1424(e) of the Safe Drinking Water Act of 1974 (Public Law 93-523, 42 U.S.C. 300 et. seq) authorizes the Sole Source Aquifer Protection Program. The Act states:

> "If the Administrator determines…that an area has an aquifer which is the sole or principal drinking water source for the area and which, if contaminated, would create a significant hazard to public health, he shall publish notice of that determination in the Federal Register. After the publication of any such notice, no commitment for Federal financial assistance… may be entered into for any project which the Administrator determines may contaminated such aquifer through a recharge zone so as to create a significant hazard to public health, but a commitment for Federal assistance may, if authorized under another provision of law, be entered into to plan or design the project to assure that it will not so contaminate the aquifer."

Proposed Federal financially assisted projects that have the potential to contaminate a designated SSA are subject to EPA review. This project review area includes the aquifer's recharge zone and it's stream-flow source zone. The recharge zone is the area through which water recharges the aquifer. The source zone is the upstream area that contributes recharge water to the aquifer.

For individual CREP contracts, FSA and NRCS will ensure through an EE that the practice(s) employed will not contaminate or contribute to the contamination of a SSA to the extent that a significant hazard to public health is created.

The 1986 Federal Safe Drinking Water Act Amendments direct all States to develop a Well Head Protection Program (WHPP) Plan to protect water supply wells. Each State was asked to develop, with public participation, a Wellhead Protection Program Plan that was to be reviewed and approved by EPA. The states are required to submit to EPA a Biennial Wellhead Protection Report, summarizing their accomplishments. Some of the goals of WHPP Plans include:

- Preventing contamination of ground-water resources
- Cleaning up groundwater contamination
- Delineating a wellhead protection area based on ground water flow and other hydrogeologic information
- Inventorying pollution sources
- Developing and implementing best management practices to protect ground water
- Promoting proper land-use planning
- Educating the public to promote awareness of each person's role in protecting ground-water resources

The Safe Drinking Water Act Amendments of 1996 established the need for more comprehensive State Source Water Assessment Programs (SWAP), which seek to accomplish many of the same goals as WHPP plans. (NJGS, 1998a, NJDEP, 2001a)

### 3.3.1 Existing Conditions

There are seven SSAs in New Jersey and their project review areas cover most of the State (see Figure 3-9). Descriptions of each aquifers can be found online at http://www.state.nj.us/dep/njgs/geodata/dgs98-6md.htm .

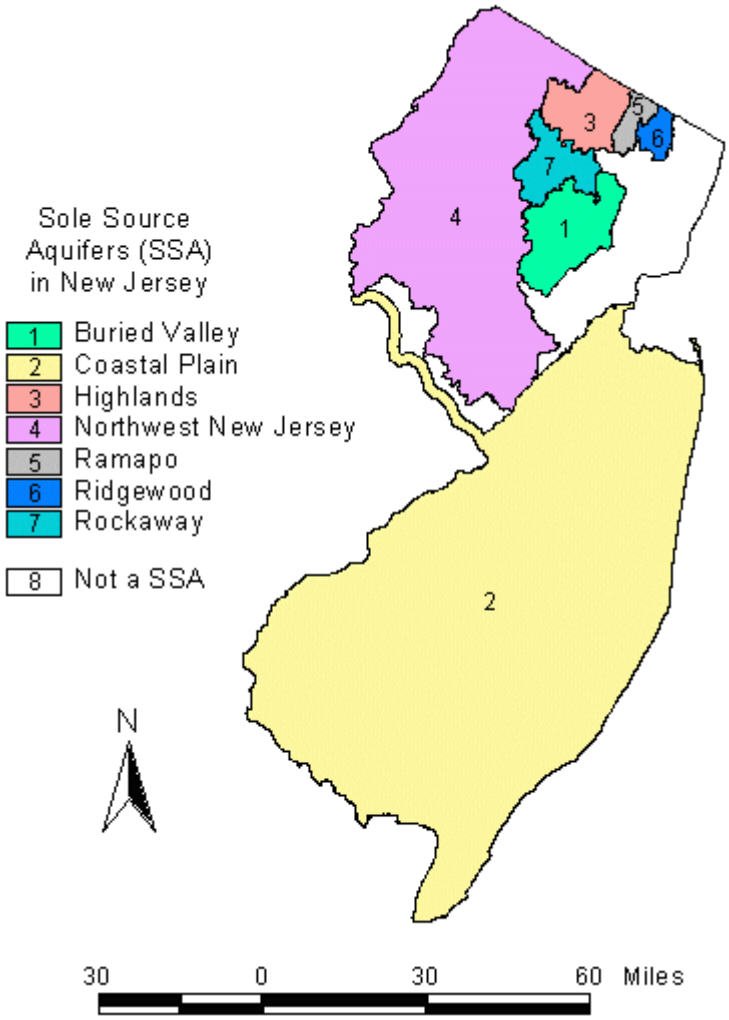



**Figure 3-9: Sole-Source Aquifers in New Jersey (NJGS, 1998b)**

## Wellhead/Source Water Protection

New Jersey's WHPP Plan was approved by the EPA in December 1991. One component of the WHPP is the delineation of Well Head Protection Areas (WHPAs). A WHPA in New Jersey is a map area calculated around a Public Community Water Supply (PCWS) well in New Jersey that delineates the horizontal extent of groundwater captured by a well pumping at a specific rate over a 2-, 5-, and 12-year period of time for unconfined wells. Once these areas are defined, steps are then taken to protect the area in an effort to ensure safe drinking water (see Figure 3-10).

WHPA delineations continued in response to the Safe Drinking Water Act Amendments of 1996 and became part of the Source Water Area Protection Program (SWAP). The SWAP Plan can be found at www.state.nj.us/dep/watersupply/swap.htm. The plan incorporates the following steps:

- Delineate the source water assessment area of each ground and surface water source of public drinking water
- Inventory the potential contamination sources within the source water assessment area

- Determine the public water system's susceptibility to regulated contaminants
- Incorporate public participation and education

NJDEP anticipates the Source Water Assessments for New Jersey will be completed in early 2004 (NJGS, 1998a, 2003, & NJDEP, 2001a).

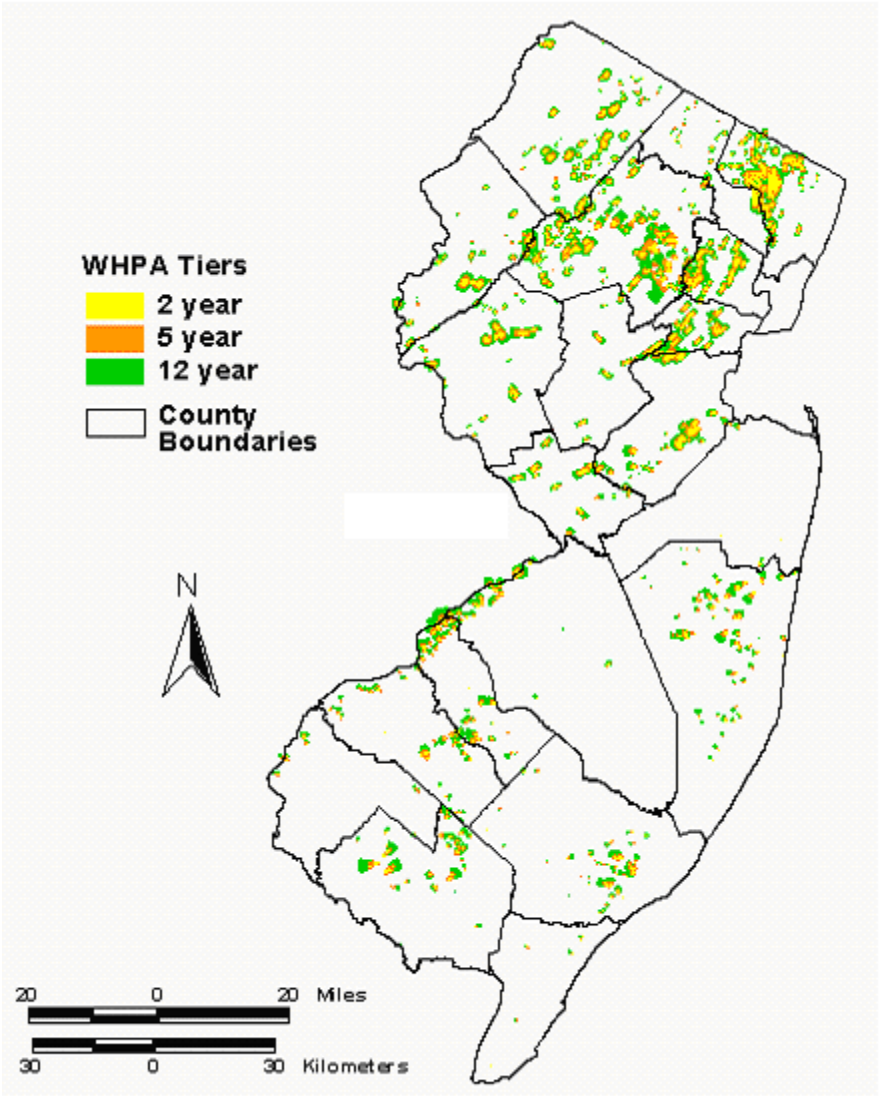



**Figure 3-10: Well Head Protection Areas in New Jersey (NJGS, 2003)**

## Threats to Drinking Water

Currently, New Jersey's drinking water is threatened by two problems—overuse and contamination.

### Overuse

When more water is used than can be replenished through precipitation, a water supply deficit occurs. As groundwater levels are depleted, the risk of salt water intrusion increases, which can contaminate drinking water. Depletion of underground aquifers can also affect stream flows and lake levels, resulting in decreased water quality and associated negative impacts to the ecological community.

The problems associated with water overuse may be a result of development and urbanization within crucial watersheds. This development results in a reduction in total aquifer recharge area. Certain soils are best suited for absorption and development within these areas results in less surface area to absorb rainwater, and less water being stored in the aquifer.

Eight of the 21 water planning regions in New Jersey are currently experiencing water supply deficits and while there is not yet a statewide deficit, one is projected to develop by 2040 if population growth continues. Water supply deficits are experienced in several portions of the State including Camden/ Delaware tributaries, Mullica River, South River, Metedeconk Creek/Toms River, Maurice River, Hackensack River, Cape May coastal area, and lower Passaic/Rahway rivers. Deficits range from less than 10 million gallons per day (MGD) to 56 MGD in the Mullica River region. Both marine and freshwater systems are at risk, and wetlands are particularly vulnerable to ecological impacts (NJCRP, 2003).

**Contamination**

Under the Safe Drinking Water Act and its 1986 amendments, EPA sets national limits on contaminant levels to ensure that drinking water is safe for human consumption. These limits are known as Maximum Contaminant Levels (MCLs). For some regulations, EPA establishes treatment techniques in lieu of an MCL to control unacceptable levels of contaminants in water. Treatment techniques are a water disinfection process that EPA requires for contaminants that laboratories cannot adequately measure. EPA also regulates how often public water systems (PWSs) monitor their water for contaminants and report the monitoring results to the States or EPA. Significant monitoring violations occur when no samples were taken or no results are reported during a compliance period (NJDEP, 2001b).

The *2000 National Public Water Systems Compliance Report* published by EPA stated that of the 4,249 regulated PWSs in New Jersey, there were 13,108 violations. These violations are presented in Figure 3-11 below (definitions of the relevant terms follow).

| Violations for 2000 | | | | | | |
|---|---|---|---|---|---|---|
| Violations Category | MCL | | Treatment Technique | | Significant Monitoring | |
| | Violations | Systems in Violation | Violations | Systems in Violation | Violations | Systems in Violation |
| Chemical Contaminant Group | 44 | 34* | | | 11,607 | 592* |
| Total Coliform Rule | 295 | 199 | | | 1,070 | 667 |
| Surface Water Treatment Rule | | | 5 | 2 | 5 | 3 |
| Lead and Copper Rule | | | 1 | 1 | 78 | 25 |
| Consumer Confidence Report | | | | | 3 | 3 |
| * Possible overcounting of violating systems. | | | | | | |

**Figure 3-11: State of New Jersey 2000 PWS Compliance Report. (EPA, 2002)**

**Consumer Confidence Report**: This violation indicates that a Community Water System failed to submit a Consumer Confidence Reports as required by the Federal Safe Drinking Water Act.

**Lead and Copper Rule**: This rule established national limits on lead and copper in drinking water [40 CFR 141.80-91].

**Surface Water Treatment Rule**: This rule establishes criteria under which water systems supplied by surface water sources, or ground water sources under the direct influence of surface water, must filter and disinfect their water [40 CFR 141, Subpart H].

**Total Coliform Rule**: The Total Coliform Rule establishes regulations for microbiological contaminants in drinking water.

**Chemical Contaminant Group**: Refers collectively to regulations that protect the public from unsafe levels of organic chemicals, inorganic chemicals (other than lead and copper), and radioactivity in drinking water.

The most significant public health issue reported in New Jersey's Safe Drinking Water Act Violations 2000 document is the increase in the number of total coliform MCL violations. NJDEP is taking steps to determine if part of the problem is caused by sample handling or laboratory contamination, however, these problems may also be due in part to contamination from agricultural runoff as pollutants threaten the aquifers by introducing contaminants such as pesticides, nutrients, and chemicals into the ground, which are then absorbed into the water supply.

Overall, the New Jersey Bureau of Safe Drinking Water continues to make progress in addressing MCL, treatment technique, and monitoring violations. For a more complete discussion of the impacts to human health from drinking water contamination due to agricultural practices see the Appendix F.

### 3.3.2 Effects of Alternative A (No Action) on Drinking Water

Declining quality in drinking water would continue to be a minor adverse effect under the No Action alternative. Pollutants and agricultural runoff would continue—with pesticides, undesirable nutrients

including n and p, animal wastes, and farm chemicals being the main runoff problems. This effect, essentially an on-going cumulative effect, would be minor because State water quality standards prevent any major discharges that would significantly degrade a drinking water source. Still, the cumulative impacts of all farm activities and other industrial activities in New Jersey have an ongoing adverse effect on the State's drinking water.

An additional factor is the continuing overuse of water from the aquifers, often intensifying the negative effects on water quality in an aquifer. Overuse is currently a problem and would continue, based on all estimates of population growth.

Selection of Alternative A would not contribute to the achievement of any of the CREP Objectives cited in Section 1.4.

### 3.3.3 Effects of Alternative B (CREP Agreement) on Drinking Water

The implementation of Alternative B would result in some positive effects on drinking water. These effects would result from all four of the CREP-funded CPs, combined with the independent concurrent activities of soil bioengineering and fencing. Each of these practices would directly improve water quality of surface water, thus indirectly improving water that would recharge aquifers.

There is the potential that SSA recharge areas and wellhead protection areas may be enrolled in CREP, resulting in a small positive impact by preserving these recharge areas. Maintaining, or increasing, the amount of recharge area that an aquifer has is crucial to ensuring the long-term health of the aquifer. A properly maintained aquifer will also assist with the salt water intrusion problems that some of the aquifers face.

The water purifying capabilities of the CPs would contribute to the achievement of CREP Objective 3 discussed in Section 1.4 (Remove pollutants from New Jersey Waterways).

## 3.4 Wetlands

Section (a) (16) of the Food Security Act, Public Law 99-198, December 23, 1985, defines a wetland as:

> land that has a predominance of hydric soils and that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions.

Several statutes and EOs exist that govern FSA program actions in relation to wetlands including:

- Executive Order 11990, Protection of Wetlands
- Clean Water Act
- Food Security Act, Title XII

**Benefits of Wetlands**

Wetlands are some of the most productive and dynamic habitats in the world. The physical, chemical, and biological interactions within wetlands are often referred to as wetland functions. These functions include surface and subsurface water storage, nutrient cycling, particulate removal, maintenance of plant and

animal communities, water filtration or purification, and groundwater recharge. Similarly, the characteristics of wetlands that are beneficial to society are called wetland values. Some examples of wetland values include reduced damage from flooding, water quality improvement, and fish and wildlife habitat enhancement.

It is important to maintain and restore wetland functions and values because wetlands contribute to the overall health of the environment. Some basic wetland functions and their associated values are listed below (USDA, 2002):

- **Surface water storage:** This function helps reduce flooding by temporarily storing water, allowing it to soak into the ground or evaporate. This temporary storage can help reduce peak water flows after a storm by slowing the movement of water into tributary streams which allows potential floodwaters to reach mainstream rivers over a longer period of time. Water quality is also improved by removing nutrients, pesticides, and bacteria from surface waters as they are absorbed or broken down by plants, animals, and chemical processes within the wetland.
- **Subsurface water storage:** Wetlands are reservoirs for rainwater and runoff. As this water is released into the ground, it recharges water tables and aquifers, and extends the period of stream flows in many parts of the United States.
- **Nutrient cycling:** Wetlands enhance the decomposition of organic matter, incorporating nutrients back into the food chain.
- **Retention of particles:** By filtering out sediments and particles suspended in runoff water, wetlands help prevent lakes, reservoirs, and other resources from being affected by downstream sediment loading. This improves water quality and extends the life of water bodies by reducing sedimentation rates.
- **Maintenance of plant and animal communities:** Both coastal and inland wetlands provide breeding, nesting, and feeding habitat for millions of waterfowl, birds, fish, and other wildlife. Wetlands in the United States support about 5,000 plant species, 190 species of amphibians, and a third of all native bird species. Coastal wetlands are an integral part of the life cycle for many marine organisms; they are the nursery and spawning grounds for 60 to 90 percent of U.S. commercial fish catches. Fresh-water wetland vegetation can provide valuable forage for livestock, particularly during drought years. Forested wetlands are also an important source of timber.
- **Values to Society:** There are a number of other values society receives from wetlands. Some of these values are providing sites for hunting, fishing, trapping, photography, outdoor classrooms or environmental education, and the enjoyment of open spaces. The ecological diversity and high productivity of wetlands make them one of the most scenic features on any landscape.

### 3.4.1 Existing Conditions

New Jersey has about 916,000 acres of wetlands, most of which are in the coastal plain. According to National Oceanic and Atmospheric Administration's (NOAA) Coastal Services Center, a land cover

analysis performed on September 4, 1995 determined that the predominant land cover classes in New Jersey, other than water, are consolidated wetlands. Forested wetlands are the most common and widely distributed wetlands in the State. Salt marshes are the most common wetlands in coastal areas. Wetlands are ecologically and economically valuable to the State. Cranberry production is a significant industry in New Jersey; more than 3,000 acres of manmade cranberry bog wetlands were under private management in 1992 (USGS, 2003).

**Impacts to Wetlands**

Between the 1780s and 1980s, New Jersey lost about 39 percent of its wetlands. Wetlands have been drained primarily for crop production and pasturage and filled for housing, transportation, industrialization, and landfills (USGS, 2003). FWS has estimated that New Jersey has lost more than half of its wetlands, some 584,000 acres (FWS, 2001).

The disturbance or loss of large expanses of forested and wetland areas results in a significant decline in native plants and animals, dramatically alters hydrologic flow patterns and water quality, and promotes overpopulation of nuisance species of plants and animals.

Besides physical destruction, New Jersey's inland wetlands and saltwater estuaries are also at increased risk from the effects of nutrients, with phosphorus having the greatest impacts on freshwater wetlands and n resulting in adverse effects on coastal wetlands. New Jersey agriculture is the primary source of p and n. As discussed in Section 2.2.1, in 2000 New Jersey agricultural workers applied a total of 1,000,300 pounds of pesticides, including 59,966 pounds of Glyphosate. One of Glyphosate's uses is to thin wetland plant species.

USDA determined that in 1997, animals on New Jersey farms excreted 818,989 tons of manure. This resulted in 9,962,433 pounds of n and 2,721,921 pounds of p (see Figure 2-2). Excessive pollutants like n and p have altered the natural chemistry of wetlands, enabling the invasion of exotic pest plants. Invasive plant species, especially purple loosestrife and phragmites, are becoming increasingly dominant in wetlands.

The effects of the resulting reduction and elimination of other native plants is potentially irreversible and affects a variety of wetland dependent wildlife by degrading their habitats. Habitat degradation is the leading cause of endangerment for all groups of organisms in the mainland US. In New Jersey, these changes affect thousands of acres per year, reducing available habitat for native plant and animal species and decreasing the resilience of ecosystems to accommodate other natural and human caused stressors. Habitat loss affects all terrestrial and aquatic plant and animal populations and ecosystems statewide, especially those found on undeveloped, unprotected land. Unprotected forests and wetlands are particularly at risk (NJCRP, 2003).

### 3.4.2 Effects of Alternative A (No Action) on Wetlands

With the selection of the No Action Alternative, wetland values (including vegetation, water quality, and habitat) would continue their slow decline. A segment of this undesirable decline can be attributed to existing and projected agricultural runoff, which continues to degrade high-value native plant species. Total wetland acres would likely be stable or slightly reduced under Alternative A because current Federal laws, such as Section 404 of the CWA, are very restrictive in allowing physical destruction of wetlands through draining or conversion of existing wetlands for other uses. However, wetland values may continue to decline as the amounts of pesticides, fertilizers, livestock run-off, and sediments remains near their current levels.

Alternative A would not achieve any of the CREP Objectives listed in Section 1.4.

### 3.4.3 Effects of Alternative B (CREP Agreement) on Wetlands

With implementation of the CREP, wetlands acreage would hold steady, and possibly increase. With the implementation of CREP CPs agricultural runoff would not have the same impact on wetlands as it has in the past. Each of the CPS discussed in Section 2.2.2 would result in beneficial impacts to New Jersey's wetlands by reducing sediments, agricultural chemicals, and nutrients from livestock runoff. CPs, such as grassed waterways and filter strips, also offer tremendous filtering capacity which would result in improved water quality within wetlands, encouraging native plant species, increasing the State's wetlands, and providing important animal habitat.

## 3.5 Floodplains

All Federal actions must meet the requirements of EO 11988, Floodplain Management. The purpose of the EO is to avoid incompatible development. It states, in part, that:

> "Each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities for (1) acquiring, managing, and disposing of Federal lands and facilities; (2) providing Federally undertaken, financed, or assisted construction and improvements; and (3) conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities."

In accordance with the EO, as part of the EE completed for each contract, and prior to any action: Federal Emergency Management Agency (FEMA) floodplain maps would be reviewed to determine if the proposed action is located in or would affect a 100 or 500-year floodplain. Soil survey maps, aerial photography, and topographical maps should be used where no FEMA maps are available. FSA should complete surveys in areas where no flood hazard or flood elevation data are available and the amount of Federal investment in the proposed action is significant if the action could create a significant adverse effect on a floodplain.

The CPs allowed under CREP would have little to no effect on the functions and values of a floodplain. For example, CP15A: Establishment of Permanent Vegetative Cover (contour grass strip) and the additional concurrent activity of fencing would not have any measurable effect on floodplain flowage, capacity, or other functions. CPs that involve construction activities, substantial earth movement, diking, or other means of altering the flowage area would need to be reviewed and appropriate public notice provided. In all appropriate instances applicable development permits must be obtained from local authorities prior to construction activities within a floodplain.

The State and Federal governments have already calculated and mapped the floodplains on some larger streams and rivers in New Jersey. Although these maps do not show all of the floodplains in New Jersey, and omit many smaller streams, they are a good starting point.

Applicable development permits must be obtained from local authorities prior to construction activities within a floodplain. Some CP installation practices can be considered construction projects.

### 3.5.1 Existing Conditions

The 2000 Census found that New Jersey has on average 1,134.4 persons per square mile, making it the most densely populated State in the US. Dense human developments and large-scale land use changes result in increased amounts of impervious area, dramatically altered the proportion of impervious surfaces to natural vegetation. An increase in the amount of impervious surfaces increases stormwater flows to New Jersey streams and rivers, leading to destruction of floodplain-wetlands, increased flooding, increased pollutant runoff into surface waters, and reducing aquifer recharge. The Passaic River Basin is one of the most flood-prone river basins in the country. The April 1984 flood in the Passaic Basin claimed three lives, caused $335 million in damages, and forced about 9,400 people from their homes (USGS, 1997).

Photo courtesy of FEMA.

Another factor affecting the floodplains is the practice of channelization. Channelization is the alteration of natural stream drainage patterns for the purposes of flood control or improved navigation. Stream channel alterations may involve dredging, straightening, and constructing levees. Channelization projects can kill aquatic organisms, destroy wetlands and existing habitats, and cause erosion and additional flooding downstream. Channelization projects may actually increase flood damage in the long run.

Most channelization occurred historically, and in urban areas. However, the U.S. Army Corps of Engineers currently has more than 20 flood control projects in New Jersey. While impossible to predict the location or extent of the damage, it is anticipated that some private property owners downstream of the projects would suffer damage from increased flooding. Negative impacts include loss of habitat, increased flow and erosion, changes in aquatic populations, increased water temperature, and other physical and chemical changes (NJCRP, 2003).

### 3.5.2 Effects of Alternative A (No Action) on Floodplains

Floodplain areas would not change, and stream profiles (a major factor in the determination of floodplain areas) would not change based on Federal actions. Not implementing the proposed action would prevent or reduce the creation of wetlands or the restoration of vegetation, both of which have beneficial effects on floodplain conditions, especially the ability of floodplains to store floodwaters. The impacts of channelization and dense human development would continue to affect the floodplains of New Jersey.

Under No Action, new construction of facilities would not occur with Federal financial assistance, unless a Federal agency makes a finding that no practicable alternative exists for such new construction. Even with such a finding, construction within a floodplain is usually coordinated with the Corps of Engineers and local flood management authorities. So effects on or from floodplain conditions would be negligible under No Action.

Alternative A would not contribute to the achievement any of the four objectives listed in Section 1.4.

### 3.5.3 Effects of Alternative B (CREP Agreement) on Floodplains

With the implementation of Alternative B, marginal improvements in floodplain areas and stream profiles would occur. Improvements would come from two CREP practices: CP8A Grass Waterways and CP22 Riparian Buffer, and the New Jersey concurrent activities of soil bioengineering and fencing. Each of these activities would result in more natural stream profiles and return some of the benefits of the floodplains, such as improved habitat and water storage capacity and reduced erosion. These activities would both slow and filter stormwater run off resulting in less severe flooding events and a more natural floodplain. A natural floodplain would help to decrease the negative impacts of channelization and flood control projects upstream.

These practices would all help control flood events by providing more water storage in floodplain areas (and wetlands and other natural storage structures) maintaining or improving floodplain values. The permanent easements, implemented as part of Alternative B, would limit population expansion and development within the floodplain. This would result in potential future benefits as these areas are allowed to remain and continue natural floodplain processes.

CREP funds would be authorized for structures within the existing floodplain to restore and improve floodplain values. Analysis of the impact on floodplains, per E.O. 11988, would require the structures to be able to withstand 100-year flood events and remain functioning.

The direct impacts of all CPs would be positive for floodplains and would contribute to achieving all the CREP Objectives discussed in Section 1.4.

## 3.6 Wildlife

New Jersey has a rich and diverse wildlife population. Habitat degradation from population growth, invasive exotic species, and pollution continue to threaten current species populations. The CREP program would serve to enhance the wildlife habitats throughout the State and enhance populations of T & E species. This PEA will study the potential impacts to wildlife. Of particular concern and discussed below are the potential impacts to T & E species and wildlife habitat.

The Endangered Species Act (ESA) was enacted to protect T & E species and to provide a means to conserve their habitats. All Federal agencies are required to implement ESA by ensuring that Federal actions do not jeopardize the continued existence of listed species.

The ESA defines an endangered species as one that is in danger of extinction throughout all or a significant portion of its range. Threatened means a species is likely to become endangered within the foreseeable future. T & E designations may be applied to all species of plants and animals, except pest insects. A species may be threatened at the State level, but that same designation does not automatically apply nationwide, as species numbers may be greater in other states.

The FWS and the National Marine Fisheries Service (NMFS) are mandated the responsibility of ensuring that other agencies plan or modify Federal projects so that they will have minimal impact on listed species and their habitats. Section 7 of the ESA requires that project areas must be checked against FWS and State listings of critical habitat and T&E species. FSA ensures that all CREP contract meet this requirement by including T&E species in its EE.

The ESA also requires the delineation of the "critical habitat" of sensitive species. Critical habitat is defined by the ESA as areas that are "essential" to the conservation of listed species. Private, city, and State lands are generally not affected by critical habitat until the property owner needs a Federal permit or requests Federal funding. Because the New Jersey CREP is partially funded by Federal dollars, consultation with FWS will be required when critical habitat is encountered. Critical habitat designations are published in the Federal Register and can be located at the FWS website—http://endangered.fws.gov/.

FWS has recently proposed rules that would help remove disincentives from private landowners that wish to manage their property for the benefit of listed species (64 FR 32706-32716). This would entail the development of Safe Harbor Agreements and Candidate Conservation Agreements with Assurances (CCAAs). These agreements would ensure agricultural landowners that traditional agricultural uses could continue alongside habitat improvements. They would also address the issue of "incidental take" with regard to activities such as habitat restoration

Another issue of importance to wildlife in New Jersey is the impacts to wildlife habitat. Habitat loss is the conversion of land from one use to another, specifically the development of wild or agricultural lands to urban and suburban land uses. Habitat loss also includes the conversion of natural habitat to agriculture, the conversion of dunes to seawalls, and the modification of wetlands by dams and channelization. Habitat degradation is the leading cause of endangerment for all groups of organisms in the mainland US, ranking ahead of exotic species, pollution, over-exploitation, and disease. Habitat loss affects all terrestrial and aquatic plant and animal populations and ecosystems in New Jersey, especially those found on undeveloped, unprotected land. Unprotected forests and wetlands are particularly at risk (NJCRP, 2003).

### 3.6.1 Existing Conditions

Currently New Jersey is home to 76 species listed by the State as threatened and endangered (T & E) and 16 of these species are federally listed (Appendix B).These species are managed and protected by the New Jersey Endangered and Nongame Species Program (ENSP) whose mission is to "actively conserve New Jersey's biological diversity by maintaining and enhancing endangered and nongame wildlife populations within healthy, functioning ecosystems." The program is responsible for the protection and management of nearly 500 wildlife species found in the state, including the 76 species currently listed as endangered or threatened. (NJDFGW, 2003) For a complete listing of New Jersey's sensitive species see Appendix B.

Courtesy of NJDEP.

Agriculture is thought to affect the survival of 380 species listed by the Federal government as threatened or endangered in the continental U.S. (AREI, 2000). Based on a 1997 Risk Assessment produced for FSA, the percentage of T & E species affected by agricultural development range from amphibians (most affected) to mammals (least affected), with the most frequent cause of habitat loss or alteration leading to classification as threatened or endangered being agricultural development (USDA, 2003e).

The National Marine Fisheries Service (NMFS), during Section 7 consultation, determined that there are eight T & E species under the jurisdiction of NMFS that can be found in waters of New Jersey. These

include the shortnose sturgeon, which can be found seasonally in the following counties: Hunterdon, Mercer, Burlington, Camden, Gloucester, Salem, Cumberland, Hudson, and Bergen. There can also be found three species of whales in New Jersey, located in the counties of Monmouth, Ocean, Atlantic, and Cape May. Additionally, New Jersey offers habitat to four species of T & E sea turtles which can be found in the following counties: Salem, Cumberland, Cape May, Atlantic, Ocean, Monmouth, Middlesex, Union, and Hudson. (NMFS, 2004)

The US Fish and Wildlife Service (FWS), during Section 7 consultation, listed 15 threatened, endangered, and candidate species within the potential area of effects of the CREP. They included the following species, listed along with the respective counties were they have been found. (FWS, 2004)

1. Swamp Pink=Atlantic, Burlington, Cape May, Cumberland, Camden, Gloucester, Mercer, Middlesex, Monmouth, Morris, Ocean, Salem
2. Knieskern's Beaked-rush=Atlantic, Burlington, Camden, Monmouth, Ocean
3. Small Whorled Pogonia=Bergen, Hunterdon, Passaic, Sussex
4. American Chaffseed=Atlantic, Burlington, Cape May, Cumberland, Camden, Ocean
5. Sensitive Joint-vetch=Atlantic, Burlington, Cape May, Cumberland, Camden, Gloucester, Salem
6. Seabeach Amaranth=Atlantic, Cape May, Monmouth, Ocean
7. Bald Eagle=Atlantic, Burlington, Cape May, Cumberland, Gloucester, Hunterdon, Monmouth, Morris, Ocean, Passaic, Salem, Warren
8. Indiana Bat=Morris
9. Piping Plover=Atlantic, Cape May, Monmouth, Ocean
10. Northeastern Beach Tiger Beetle=Cape May, Monmouth, Ocean
11. Dwarf Wedgemussel=Bergen, Mercer, Morris, Sussex, Warren
12. Bog Turtle=Atlantic, Bergen, Burlington, Cape May, Camden, Gloucester, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Salem, Somerset, Sussex, Union, Warren
13. Bog Asphodel=Atlantic, Burlington, Ocean
14. Hirst's Panic Grass=Atlantic
15. Peregrine Falcon=Atlantic, Bergen, Burlington, Cape May, Camden, Cumberland, Gloucester, Hudson, Ocean, Salem

According to New Jersey Comparative Risk Project, approximately 36 percent of New Jersey's native plants and seven percent of vertebrate species are in danger of becoming increasingly rare or extinct. T&E species are located throughout the State. For example the Delaware drainage basin harbors federally listed T & E species, including the bog turtle, bald eagle, and small whorled pogonia. The Barnegat Bay and the New York-New Jersey Harbor Estuary drainage basins are home to bald eagle, peregrine falcon, piping plover, and roseate tern. The critical habitat of New Jersey's T&E species can also be found state wide (NJCRP, 2003 & NJDA, 2003).

New Jersey is the most densely populated State in the nation. During 1984-1995, 11 of New Jersey's 21 counties experienced rates of development greater than 20 percent, and several grew by more than 30 percent. Developed acreage in Salem and Cumberland counties increased by 50 percent and 42 percent, respectively, during this time. One of the consequences of this distinction is the extreme pressure that is placed on wildlife habitat, including the critical habitats of T&E species (NJCRP, 2003).

In 1994, the N.J. Division of Fish and Wildlife's Endangered and Nongame Species Program (ENSP) adopted a landscape level approach to rare species protection. The goal is to protect New Jersey's biological diversity by maintaining and enhancing rare wildlife populations within healthy, functioning ecosystems. Further information on critical habitat can be found at the New Jersey's Landscape Project for the Protection of Rare Species website http://www.state.nj.us/dep/fgw/ensp/pdf/landbro.pdf and also the NJ Critical Wildlife Habitat Mapping website at http://www.state.nj.us/dep/dsr/map-integration/NJ-HABITAT%20MAP.htm

Most of the plants and animals listed as endangered or threatened in New Jersey are imperiled due to habitat loss. Endangered tree frogs native to the Pinelands are being displaced by more disturbance-tolerant bullfrogs. Pinelands plant communities have also been altered as native species are replaced by invasive exotics in more developed areas. Bird species diversity is also known to decrease as the proportion of urban land increases. New Jersey has lost between 40 and 50 percent of its wetlands (FWS, 2001) and 35 percent of the Pine Barrens since presettlement times, and has 50 percent less farmland than in 1950 (NJCRP, 2003).

Photo Courtesy of FWS.

Naturally vegetated shoreline areas provide habitat and perform critical ecosystem services. Only 29 percent of Barnegat Bay's shoreline, for example, remains undeveloped. In addition, numerous dams continue to block fish movement, miles of stream are channelized, and numerous wetlands remain grid ditched from former mosquito control activities. As these areas changed, so did the fish and wildlife populations that relied on them; leading to declines in waterfowl, grassland nesting birds, anadromous fish, and forest dependent species (FWS, 2001).

On a positive note, as of 1998 New Jersey had 920,000 acres of permanently protected open space (29 percent of New Jersey's total 3.2 million acres). Development is regulated in the 1.1 million acre Pinelands National Reserve, and most of Barnegat Bay's remaining salt marshes and undeveloped shoreline are under some form of protection.

One of the negative side-effects of habitat conversion is the fact that some species are well adapted to cope with these changes as their number grow, far outstripping the landscapes natural ability to support them. Species such as Canadian geese and white-tailed deer have the ability to adapt and thrive within the changed landscapes of New Jersey. Deer have the ability to rapidly increase their numbers, particularly in suburban areas where public parks can act as refuges, hunting is reduced, and there is a lack of natural predators. For example, statewide the number of deer has increased to 200,000, more than double the population 20 years ago. This unnatural state of things results in numerous impacts. Damages associated with white-tailed deer may be as much as $160 million annually, and include crop and garden damage, and vehicle collisions. Agricultural losses alone are estimated at $20 million to $40 million annually (NJCRP, 2003).

The deer population in the State of New Jersey is actively managed by the New Jersey Fish and Game Council and the Division of Fish, Game, and Wildlife, with the interests of farmers in mind. One of their primary goals is "keep the deer population at a density tolerable to New Jersey residents." In recent years, the Council has implemented deer management program changes to provide better control of deer populations in zones characterized by poor hunter access, habitat loss, a high incidence of deer-auto collisions, or deer damage to agricultural crops. Expansion of the shotgun permit season, increased bag

limits, zone boundary modifications, free farmer deer permits, issuance of bonus deer tags for harvesting antlerless deer, expansion of special areas programs (for example High Point State Park in 1997), and the "earn a buck program" in highly developed and agricultural regions have contributed to a steady increase in the antlerless deer harvest and achievement of deer harvest objectives in most deer management zones (NJDFGW, 1999).

### 3.6.2 Effects of Alternative A (No Action) on Wildlife

Under the No Action Alternative, new T&E listings would continue as newly jeopardized species are identified. These new listings and the declining habitat conditions of the currently listed species suggest that overall impacts on T&E species reflect a slow decline as human actions conflict with and adversely affect both species and their habitat.

Under Alternative A, the following negative impacts would occur:

- Habitat values would continue to degrade
- Population growth would continue to crowd natural ecosystems
- Pollution levels in agricultural runoff would remain high
- No additional habitat would be preserved as part of a permanent easement
- Unnatural populations of deer and geese can be expected to hold stable or increase at the current rate

Under the No Action Alternative, long-term, minor adverse effects would continue. Wildlife, terrestrial habitat, and aquatic habitat values in New Jersey would not benefit from the leveraged effects of the habitat restoration and watershed improvement CPs and these valued may continue to decline.

### 3.6.3 Effects of Alternative B (CREP Agreement) on Wildlife

Implementation of Alternative B would beneficially affect wildlife across New Jersey. Filtering provided by all the CPs would contribute to cleaner water entering various water bodies used by wildlife and provide additional wildlife habitat in some places. These affects would vary according to the wildlife's proximity to CPs, their ability to use CPs as new habitat, and their reliance on clean water. Some minimal and localized negative impacts may occur to wildlife habitat during installation of the CPs through temporary displacement; however, since Alternative B would only temporarily affect previously cropped land and the resulting CPs would provide better habitat, these impacts would be minimal.

Photo Courtesy of FWS.

Many of the CREP CPs would potentially affect Federally listed species. Implementing Alternative B would result in strong, long-term beneficial effects to wildlife habitat values in the CREP enrolled acreage across the state. Improvements to water quality alone would have beneficial effects for all wildlife as well as potential increases in critical habitat. Alternative B provides additional habitat, water filtration, and permanent easements, all of which would not happen under Alternative A.

As part of the CREP enrollment process, a contract involving appropriate CPs would be developed for each individual site. Each contract would have a site specific EE completed by FSA to determine if any threatened or endangered species are present and would be potentially affected by the proposed action. If

so, consultation with the FWS/NMFS would be initiated. In addition, any CREP activity that may result in the disturbance of non-cropped areas adjacent to a proposed project site, would be coordinated with FWS/NMFS.

Consultation initiated with the NMFS, pursuant to Section 7 of the Endangered Species Act, revealed that there are several T & E marine species known to exist in the waters of New Jersey. NMFS concluded that "no further consultation pursuant to Section 7 of the ESA is required" and that:

> The implementation of the New Jersey CREP should lead to improved water quality in the State's waters. Any reduction in pollution and sedimentation, as well as overall improved water quality, should beneficially affect any listed species in these areas. Therefore, NOAA Fisheries is able to conclude that the approval of the New Jersey CREP by FSA is not likely to adversely affect any threatened or endangered species under our jurisdiction. In addition, the site-specific evaluations and potential for future consultation in areas where listed species are present will allow the evaluation of the effects of site specific CPs on a particular listed species. (NMFS, 2004)

Implementing Alternative B would help slow the decline of wildlife habitat in New Jersey. Implementation would not only directly provide additional habitat and enhance adjacent aquatic habitat by cleaning water and cooling streams, it would also provide for the permanent protection of additional open space, adding to the 920,000 acres already protected. Implementation of Alternative B would also enhance the potential for wildlife movement along the riparian corridor by buffering the connective habitat from adjacent land uses.

Implementing Alternative B may result in the limited possibility of providing additional habitat for deer and geese. Most farmers view the creation of additional habitat for these animals as deleterious to the production of agricultural products. While this is a possibility, there is a well established system in place to handle any potential negative impacts. For example, the New Jersey Division of Fish, Game, and Wildlife has recently enacted more aggressive and innovative deer management regulations in an attempt to control the deer. It is anticipated that this new management strategy will decrease deer damage to farmland. These efforts can be increased in the unlikely event that the implementation of Alternative B results in an increase in deer populations.

In general terms, direct benefits to wildlife would occur by implementing any of the CPs and concurrent activities. Specifically:

- CP8A—Grass waterways provide cover for small birds and animals and also provide important habitat for grassland nesting birds
- CP15A—Contour grass strips provide food and nesting cover for wildlife
- CP21—Filter strips provide valuable wildlife habitat including excellent winter cover, nectar and pollen for pollinating insects, and forage for grazing wild animals. Depending on the species, they can also serve as important habitat for quail and grassland nesting birds, which are a declining species in New Jersey.
- CP22—Riparian buffers create shade to lower water temperature improving habitat for aquatic organisms. They also provide a source of detritus and large woody debris for aquatic organisms. New Jersey has a goal of developing approximately 11,538 acres of riparian buffers (CP22) as part of this program. Land planted as CP22 would offer good quality habitat for many species of wildlife.

- Soil bioengineering can provide wildlife cover and habitat, and shade streams keeping the water cool for fish.
- Fencing can improve wildlife habitat and reduce water temperature.

While improving the condition of wildlife is not a primary goal of the CREP program, fulfilling the objectives listed in Section 1.4 would have the additional benefit of enhancing wildlife populations in the State of New Jersey.

## 3.7 Protected/Unique Lands

The Federal government has established a number of programs that seek to preserve and enhance areas of special interest or benefit. These areas provide nationally recognized ecological resources and immense cultural values and deserve the protection and recognition that these programs provide. Three of these programs are currently managing large protected/unique areas in New Jersey. These programs discussed below are: the EPA's National Estuary Program, the FWS's Wildlife Refuge System, and the NPS's National Reserves Program. (Note: Not discussed in this section are the State's 10 National Natural Landmarks (NNL), as their limited areas are outside the scope of this PEA. Any impacts to NNLs would be similar to the impacts discussed below.)

**National Estuary Program**

EPA's National Estuary Program was established by Congress in 1987 to improve the quality of estuaries of national importance. CWA Section 320 directs EPA to develop plans for attaining or maintaining water quality in an estuary. This includes:

- Protection of public water supplies
- Protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife
- Protection of recreational activities, in and on water,
- Control of point and nonpoint sources of pollution to supplement existing controls of pollution.

Each National Estuary Program is charged with creating and implementing a Comprehensive Conservation and Management Plan (CCMP) that addresses all aspects of environmental protection for the estuary, including issues such as water quality, habitat, living resources, and land use.

Photo courtesy of NJDEP.

**Wildlife Refuge System**

The FWS is the principal Federal agency responsible for conserving, protecting, and enhancing fish and wildlife and their habitats for the continuing benefit of the American people. FWS manages the 93-million acre National Wildlife Refuge System comprised of more than 500 national wildlife refuges and thousands of waterfowl production areas. The System is a network of lands and waters managed specifically for the protection of wildlife and their habitat. It represents the most comprehensive wildlife management program in the world. Each Refuge must write a Comprehensive Conservation Plan (CCP). CCPs provide long-term guidance for management decisions; set forth goals, objectives, and strategies needed to accomplish refuge purposes; and, identify the Service's best estimate of future needs.

**National Reserves**

The National Park Service preserves the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations. The National Park System comprises 384 areas covering more than 83 million acres. These areas are of such national significance as to justify special recognition and protection in accordance with various acts of Congress. One subset of the National Park System is the nation's two National Reserves. A National Reserve is an area of nationally significant resources that are protected through a program of local land use management supported by Federal financial and technical assistance.

## 3.7.1 Existing Conditions

New Jersey has a number of protected/unique lands where a wide variety of wildlife and vegetative species are found. Conditions within these areas vary from small pristine areas to larger, healthy segments of otherwise undamaged ecosystems. Of particular concern are the 10 areas with national importance described below.

**National Estuary Program**

An estuary is typically a bay, harbor, or sound where fresh water flowing from the land mixes with salt water from the ocean and creates a unique and special place for marine species to live, feed, and reproduce. The transition from land to sea, and from fresh to salt water, creates one of the most productive habitats on earth, deserving special protection. New Jersey has three areas participating in the National Estuary Program.

**Delaware Bay**

The Delaware Estuary includes portions of Pennsylvania, New Jersey, and Delaware, through which the Delaware River flows. It stretches approximately 133 miles, from the falls of the Delaware River at Trenton, New Jersey and Morrisville, Pennsylvania, south to the mouth of the Delaware Bay between Cape May, New Jersey and Cape Henlopen, Delaware.

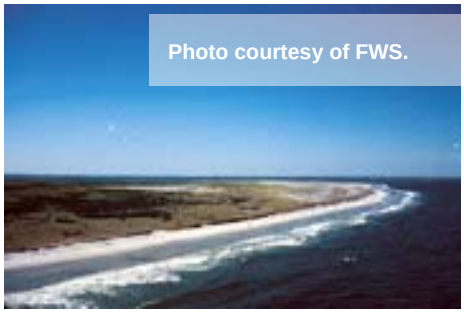


Photo courtesy of FWS.

The Estuary is home to horse shoe crabs, migratory birds, and provides vital spawning, nursery, and feeding grounds for fish, shellfish, and marine mammals. The Delaware drainage basin contains T & E species, including the bog turtle, bald eagle, and small whorled pogonia. The bay serves as a source of drinking water, filters pollutants and sediments from the land, and acts as a buffer that provides protection from flooding and erosion. The Delaware Estuary contributes significantly to the economic, recreational, and cultural resources of the region.

According to the 2002 State of the Delaware Estuary Report "Nonpoint source pollution is one of the leading causes of water degradation in the Delaware Estuary. In 1986, the EPA estimated that 45 percent of all pollution impacts to estuarine ecosystems nationwide were attributable to nonpoint sources."

**Barnegat Bay**

Photo courtesy of NJDEP.

Over 500,000 people live within the Barnegat Bay Watershed, which includes nearly all of Ocean County and a small portion of Monmouth County. The Barnegat Bay Watershed encompasses over 400 square miles. The continued economic health of the Barnegat Bay Watershed is dependent on the continued health and natural beauty of its waters. The Barnegat Bay Estuary Program (BBEP) is committed to action to restore, maintain, protect, and enhance the natural resources of the Barnegat Bay Estuary and contributing watersheds through the 21st century. Goals of the Barnegat Bay CCMP include:

- Integrating scientific data to prioritize the focal issues of point and nonpoint sources of pollution, habitat loss/open space, water quality degradation, and the multiple interests in the watershed region.
- Maintaining recreational and commercial fisheries through a healthy watershed.
- The Barnegat Bay and the Harbor Estuary drainage basins are the home of the bald eagle, peregrine falcon, piping plover, and roseate tern.
- Identify the extent of water quality problems emanating from livestock farms and work with livestock producers to reduce runoff from manure stockpiles.
- Promote existing technical and financial assistance programs to implement soil management practices on agricultural lands.

**New York/New Jersey Harbor**

Photo courtesy of NJDEP.

New York-New Jersey Harbor and surrounding area are extraordinary in many ways—their abundant resources, their beauty, and their many competing uses. The Harbor abounds with diverse natural resources, yet it is the heart of the most densely populated region of the nation. The New York-New Jersey Harbor is home to the bald eagle, peregrine falcon, piping plover, and roseate tern, provides recreational opportunities including fishing, boating, and swimming to over 20 million residents, and yields extensive commercial and recreational fisheries. Goals of the New York-New Jersey Harbor CCMP include:

- To eliminate adverse impacts of eutrophication, including hypoxia, resulting from human activities.
- Preserve, restore, and maintain human uses of Harbor and coastal waters for bathing and shellfishing.
- Ensure protection of human health from ingestion of pathogens.

- Protect marine and coastal resources from adverse pathogenic effects.

For further information on the New York-New Jersey Harbor, visit http://www.harborestuary.org/.

**Wildlife Refuge System**

More than 35.5 million visits to the Nation's 540 refuges fueled more than $809 million in sales of recreation equipment, food, lodging, transportation, and other expenditures in 2002, according to *Banking on Nature 2002: The Economic Benefits to Local Communities of National Wildlife Refuge Visitation.* That figure is more than double the $401.1 million generated in 1995, the last time the study was conducted. A portion of these benefits are enjoyed by residents of New Jersey as visitors make their way to the more than 66,000 acres of refuge land in the State (FWS, 2003b).

**Cape May National Wildlife Refuge**

The Cape May National Wildlife Refuge was established in January 1989. The Refuge protects more than 8,000 acres, and the FWS continues to buy land. Ultimately the Refuge will protect 16,700 acres of precious wildlife habitat in New Jersey's Cape May Peninsula. Cape May National Wildlife Refuge's key location in the Atlantic Flyway makes it an important link in the vast nationwide network of National Wildlife Refuges administered by the FWS. It will ensure availability of critical habitat to hundreds of thousands of migratory birds each year as these long- distance flyers travel along the New Jersey coast.

Photo courtesy of FWS.

**Edwin B. Forsythe National Wildlife Refuge**

The Edwin B. Forsythe National Wildlife Refuge, where more than 43,000 acres of southern New Jersey coastal habitats are actively protected and managed for migratory birds, is also located in one of the Atlantic Flyway's most active flight paths. Its value for the protection of water birds and their habitat continues to increase as people develop the New Jersey shore for use.

**Great Swamp National Wildlife Refuge**

The Great Swamp National Wildlife Refuge located in Morris County, New Jersey, about 26 miles west of Manhattan's Times Square, was established in 1960. It consists of 7,500 acres of varied habitats. Over the years, the Refuge has become a resting and feeding area for more than 244 species of birds.

**Supawna Meadows National Wildlife Refuge**

Supawna Meadows National Wildlife Refuge’s 2,500 acres is located along the lower Delaware River in New Jersey. Brackish tidal marshes make up nearly 80 percent of the refuge, providing feeding and resting areas for waterfowl during their migrations. The refuge also provides feeding habitat for nearby Pea Patch Island, which hosts over 6,000 pairs of herons and egrets—the largest colonial wading bird rookery north of Florida on the East Coast.

**Shawangunk National Wildlife Refuge**

Shawangunk Grasslands National Wildlife Refuge was established in 1999 and provides 565 acres of important nesting and wintering areas for grassland birds. Grassland dependant bird species that use the refuge as a nesting, wintering, or migratory stop-over site include northern harrier, short-eared owl, upland sandpiper, horned lark, grasshopper sparrow, Henslow’s sparrow, savannah sparrow, vesper sparrow, eastern meadowlark, and bobolink. One of the goals outlined in the refuge’s draft CCP, which also governs the Wallkill River National Wildlife Refuge, includes efforts to “Promote actions which contribute towards a healthier Wallkill River.”

**Wallkill River National Wildlife Refuge**

Photo courtesy of FWS.

The Wallkill River National Wildlife Refuge, located in Sussex County, New Jersey and Orange County, New York, was established in 1990. The management emphasis is on federally-listed T & E species, migrating waterfowl and shorebirds, nesting and wintering grassland birds, and forest-dwelling birds. The Refuge encompassed about 4,800 acres and land acquisition is still proceeding. One of the goals outlined in the Refuge's draft CCP, which also governs the Shawangunk National Wildlife Refuge, includes efforts to "Promote actions which contribute towards a healthier Wallkill River."

**National Reserve Program**

In 1978, Congress created the Pinelands National Reserve, the country's first. A Reserve is an area of nationally significant resources that are protected through a program of local land use management supported by Federal financial and technical assistance.

**Pinelands National Reserve**

The Pinelands National Reserve includes portions of seven southern New Jersey counties, and encompasses over one-million acres of farms, forests, and wetlands. It contains 56 communities, from hamlets to suburbs, with over 700,000 permanent residents. The Pinelands National Reserve was given special protection in order to protect the invaluable resources of the Pinelands including:

- The vast and priceless water reservoirs of the Cohansey and Kirkwood aquifers, which contain a potable water supply estimated at over 17 trillion gallons.
- The 580 native plant species, including 54 classified as threatened or endangered.
- The 299 kinds of birds, 91 fish, 59 reptiles and amphibians, and 39 mammals.
- Over 1,000 known prehistoric archaeological sites.

In the Pinelands, specific areas have been designated for environmental protection, forestry, and agriculture, with growth being directed and encouraged in and around areas capable of accommodating further development. The Comprehensive Management Plan of the Pinelands National Reserve has outlined two goals relevant to CREP, including efforts to protect the following:

**Water Resources**—The Pinelands is famous for its vast underground water supply. The Cohansey aquifer in the Pinelands contains over 17 trillion gallons of pure water, enough to cover the entire State of New Jersey with ten feet of water. This underground reservoir feeds most the area's streams, supports its agricultural industry, maintains the ecological balance of our coastal estuaries, and provides drinking water for hundreds of thousands of people. The high water table and porous, sandy soil of the Pinelands make this aquifer particularly vulnerable to pollution. Pollutants move quickly through this sandy soil into the ground water.

**Agriculture**—Agriculture is not only a valuable industry in the Pinelands, it contributes significantly to the unique character of the region. The blueberry and cranberry industries' dependence on large quantities

of pure water has greatly contributed to the ecological stability of the region. However, farming operations must be carried out in an environmentally sensitive manner. The recommended agricultural management practices prepared by the New Jersey Department of Agriculture, the Natural Resources Conservation Service, and the New Jersey Agricultural Experiment Station must be followed where appropriate.

### 3.7.2 Effects of Alternative A (No Action) on Protected/Unique Lands

Under the No Action Alternative, the status of New Jersey's protected and unique areas would likely continue to be degraded because of water quality issues. While it is difficult to say, given the scope of this PEA, whether agricultural runoff actually impacts New Jersey's protected/unique lands, the possibility exists and under the No Action Alternative, it is likely that agricultural runoff would continue to introduce nutrients and pesticides into these areas. This runoff may or may not be reduced or filtered by other programs.

Alternative A would not offer any assistance to New Jersey's protected/unique lands as it attempts to meet some of the water quality goals, as laid out in various management plans. Water quality issues may affect the aesthetics, tourism, economics, wildlife habitats, and overall management of these areas in the future.

Alternative A would not help achieve Objective 4: Preserve Unique/Protected Lands. Particularly, Alternative A would result in:

- Overall continued decline in water quality
- Improvement within nationally recognized ecological resources only as land is purchased
- Limited protection of farmland from development, which could encourage encroachment and impact unique and protected lands
- No expansion of wildlife habitat, which could enhance the wildlife populations that inhabit unique and protected lands

### 3.7.3 Effects of Alternative B (CREP Agreement) on Protected/Unique Lands

The implementation of the CREP agreement is not designed to add acreage to New Jersey's protected/unique lands. However, improvements to water quality, the overall health of waterbodies, and the restoration of wildlife habitat and wetlands can positively impact these areas. Filtering provided by all the CPs would contribute to cleaner water flowing downstream into protected/unique lands. For CREP-enrolled areas near and upstream of protected/unique lands, the installation of the CPs provides an additional preservation and conservation buffer while expanding areas that can support wildlife, discourage development, and improve water quality.

Besides the primary benefit of improving water quality, additional ancillary benefits would occur from all of the CPs, and concurrent activities, installed near and upstream of New Jersey's protected/unique lands. For instance:

- CP8A: Grass Waterways can provide important habitat for grassland nesting birds.
- CP15A: Establishment of Permanent Vegetative Cover (contour grass strip) can provide food and nesting cover for wildlife.

- CP21: Filter Strips can provide valuable wildlife habitat including excellent winter cover, nectar and pollen for pollinating insects, forage for grazing wild animals, and serve as important habitat for quail and other species such as grassland nesting birds.
- CP22: Riparian Buffer can create shade which lowers water temperature improving habitat for aquatic organisms, provide a source of detritus and large woody debris for aquatic organisms, and provide habitat for wildlife.
- Soil Bioengineering can provide wildlife cover and habitat, and shade streams keeping the water cool for fish.
- Fencing can improve wildlife habitat and reduce water temperature.

Implementation of Alternative B would assist New Jersey's protected/unique lands as it attempts to meet some of the water quality goals, as laid out in various management plans. For example, implementation of Alternative B would assist:

- The New York-New Jersey Harbor as it attempts to "preserve, restore, and maintain human uses of Harbor and coastal waters for bathing and shellfishing."
- The Barnegat Bay to "promote existing technical and financial assistance programs to implement soil management practices on agricultural lands."
- The Wallkill River National Wildlife Refuge to "promote actions which contribute towards a healthier Wallkill River."
- The Pinelands National Reserve in its efforts to carry out farming operations in an environmentally sensitive manner, following the recommended agricultural management practices prepared by the New Jersey Department of Agriculture, the Natural Resources Conservation Service, and the New Jersey Agricultural Experiment Station.

The implementation of the CREP agreement would assist in reaching CREP Objective #4: Preserve Unique/Protected Lands as discussed in Section 1.4. Alternative B would:

- Improve water, which would directly improve the ecological functions of unique and protected lands, encourage continued tourism, and improve the habitats of several Federal and state isted T & E species.
- Continue to improve conditions within the nationally recognized ecological resources of New Jersey.
- Preserve farmland from development, discourage encroachment, and reduce impacts to unique and protected lands.
- Provide expanded wildlife habitat, which would enhance the wildlife populations that inhabit unique and protected lands.

## 3.8 Marine Resources

Marine resources, such as coastal barriers, are unique landforms that provide protection for diverse aquatic species and serve as the mainland's first line of defense against the impacts of coastal storms and erosion.

Congress recognized the vulnerability of coastal barriers to development by passing the Coastal Barrier Resources Act in 1982 (CBRA). By restricting Federal expenditures and financial assistance which have the effect of encouraging development of coastal barriers, Congress aimed to minimize the loss of human

life; wasteful expenditure of Federal revenues; and damage to fish, wildlife, and other natural resources associated with coastal barriers along the Atlantic and Gulf of Mexico coasts. The CBRA, while not affecting privately financed development, prohibits most new Federal financial assistance, including flood insurance, within the designated Coastal Barrier Resources System (CBRS).

In 1990, Congress passed the Coastal Barrier Improvement Act (CBIA), which tripled the size of the System established by the CBRA. The CBIA also prohibits the issuance of new Federal flood insurance within "otherwise protected areas" on buildings constructed after November 16, 1991, unless the building is used in a manner consistent with the purpose for which the area is protected. Otherwise Protected Areas (OPAs) are generally used for certain activities such as fish and wildlife research and refuges (FEMA, 2003a).

Photo courtesy NJDEP.

The nation's coastal and ocean resources are under increasing pressure from population growth and development. Coastal areas host over 50 percent of the total U.S. population within only 17 percent of the nation's land area. Between 1994 and 2015, coastal population is projected to increase by 28 million people (NOAA, 2003a).

The Coastal Zone Management Act (CZMA) of 1972 established the planning and management program for U.S. coastal land and water resources. The Act directs Federal agencies to preserve, protect and develop, and where possible, to restore or enhance the resources of the Nation's coastal zone. Coastal zones include the coastal waters and the adjacent shore land strongly influenced by each other and in proximity to the shorelines of the coastal states, and includes islands, transitional and intertidal areas, salt marshes, wetlands, and beaches.

The Coastal Zone Management Program (CZMP), authorized by the CZMA, leaves day-to-day management decisions at the State level in the 34 states and territories with Federally approved coastal management programs. Currently, 95,376 national shoreline miles (99.9 percent) are managed by the program. State and Federal coastal zone management efforts are guided by the CZMP's strategic framework, which is organized around three major themes: Sustain Coastal Communities, Sustain Coastal Ecosystems, and Improve Government Efficiency (NOAA, 2003b).

The New Jersey Coastal Management Program (NJCMP), the State of New Jersey's Federally approved management program, was authorized by NOAA in 1978. The stated goals of the NJCMP include "the effective management, beneficial use, protection and development of its coastal lands and waters."

The Coastal Management Program is located within the DEP Commissioner's Office of Policy, Planning, and Science. The Office administers the approved program and oversees coastal activities. The Hackensack Meadowlands Development Commission implements the program in the Hackensack Meadowlands District. The staff is responsible for developing and implementing long-range planning

projects having to do with coastal resource issues, as well as coordinating with other programs having similar interests and initiatives in the coastal area. Such programs include the Jacques Cousteau National Estuarine Research Reserve, and the three estuary programs: Delaware River, NY/NJ Harbor, and the Barnegat Bay, as well as adjoining State coastal programs (NJDEP, 2002b).

### 3.8.1 Existing Conditions

New Jersey has 127 miles of ocean coastline, 1,792 miles of tidally influenced shoreline, and a coastal population of 6,978,509. Along these shores are many valuable resources, including broad coastal wetlands, vast estuaries, major industries, and barrier islands (NOAA, 2003c).

The State of New Jersey's coastal zone includes all 21 counties within the State and its territorial seas. Therefore, Federal actions which occur throughout the State are reviewed by the State for consistency with the NJCMP (NJDEP, 2002c). FSA ensures that all CREP contract meet this requirement by including CZMA considerations in each site specific EE.

In New Jersey, there are designated CBRA communities within Atlantic, Burlington, Cape May, Cumberland, Middlesex, Monmouth, and Ocean Counties (see Table 3-1). Each county is involved in agriculture at some level, but Atlantic County would probably see the least impact from CREP, due to its limited amount of agriculture.

**Figure 3-12. Counties and Designated CBRA Communities Located in New Jersey (FEMA, 2003b).**

| Counties and Designated CBRA Communities Located in New Jersey | | |
|---|---|---|
| **County** | **Community #** | **Community** |
| Monmouth | 340312 | Aberdeen (Township) |
| Burlington | 340085 | Bass River (Township) |
| Ocean | 340369 | Berkeley (Township) |
| Ocean | 345285 | Brick (Township) |
| Atlantic | 345286 | Brigantine (City) |
| Cape May | 345288 | Cape May City (City) |
| Cape May | 340552 | Dennis (Township) |
| Atlantic | 340008 | Galloway (Township) |
| Monmouth | 345297 | Highlands (Borough) |
| Monmouth | 340304 | Keyport (Borough) |
| Ocean | 340376 | Lacey (Township) |
| Ocean | 340380 | Little Egg Harbor (Township) |
| Monmouth | 345301 | Long Beach (Township) |
| Cape May | 340153 | Lower (Township) |
| Cumberland | 340172 | Maurice River (Township) |
| Cape May | 340154 | Middle (Township) |
| Monmouth | 340313 | Middletown (Township) |
| Monmouth | 340315 | Monmouth Beach (Borough) |
| Cape May | 345308 | North Wildwood (City) |

| Counties and Designated CBRA Communities Located in New Jersey | | |
|---|---|---|
| **County** | **Community #** | **Community** |
| Cape May | 345310 | Ocean City (City) |
| Middlesex | 340265 | Old Bridge (Township) |
| Atlantic | 340016 | Port Republic (City) |
| Monmouth | 345316 | Rumson (Borough) |
| Monmouth | 345317 | Sea Bright (Borough) |
| Ocean | 340393 | Stafford (Township) |
| Cape May | 345323 | Stone Harbor (Borough) |
| | ------ | Undefined Political Area |
| | ------ | Undefined Political Area |
| Monmouth | 340331 | Union Beach (Borough) |
| Cape May | 340159 | Upper (Township) |
| Cape May | 340160 | West Cape May (Borough) |

### 3.8.2 Effects of Alternative A (No Action) on Marine Resources

Coastal barrier areas and areas managed under the NJCZMP would continue to decline as New Jersey's population increases. The decline would occur despite both the CZMA and the CBRA, both of which require consultation and coordination with Federal and State agencies before development is permitted.

Current agricultural practices would continue to adversely affect both coastal barrier areas and coastal zone management areas through declining water quality in these areas.

The No Action alternative would not achieve any of the objectives listed in Section 1.4.

### 3.8.3 Effects of Alternative B (CREP Agreement) on Marine Resources

No direct effects on coastal barriers would occur under the CREP program. Few acres considered as coastal barriers are in agricultural use, so CREP agreements usually would not directly affect coastal barriers.

However, positive direct effects may occur within NJCZMP planning areas as acres covered under the CZMA that are in agricultural use or adjacent to agricultural use may be enrolled in CREP.

Direct benefits would occur from all of the CPs. The CPs are all designed to filter sediment and nutrients from waters, resulting in beneficial impacts to coastal areas. The CREP CPs can also be used to reduce erosion in sensitive coastal areas. CP8A (grass waterways), CP15A (contour grass strips), and CP21 (filter strips) would all remove nutrients and sediment, and contributes to overall health of waterbodies while providing habitat for species. CP22 (riparian buffer) provides for removal of nutrients and sediment in areas created for wildlife and aquatic organisms, including coastal species. Bioengineering of streambanks would also reduce nutrient and sediment loads. Filtering provided by each of the CPs would contribute to cleaner water entering the watersheds and various water bodies used by wildlife. Positive indirect effects would occur in those marine areas downstream from CREP areas, as improved water makes its way downstream improving the natural condition in these areas.

Selection of Alternative B would meet all the CREP Objectives in Section 1.4, while providing positive impacts on coastal barrier areas and land that is governed by the NJCZMP.

The New Jersey Department of Environmental Protection's Land Use Regulation Program granted NJ-FSA a conditional Federal Consistency Determination for implementation of Alternative B. the conditions, listed below, must be met in order for NJ-FSA to continue with the program. The conditions are:

1. Farms and farm owners who have any unresolved violations with NJDEP shall not be awarded any monetary assistance under this CREP program until the violation has been resolved in it's entirety. NJDEP violations may include, but not be limited to, violations of the Flood Hazard Are control Act, the Freshwater Wetlands Protection Act, Coastal Wetlands Act, Waterfront Development Law, Coastal Area Facility Review Act, the Pollution Prevention Act, New Jersey Register of Historic Places, Pesticide Control Act, New Jersey Green Acres Land Acquisition Act, and the Water Pollution Control Act. Farms and farm owners with unresolved violations with the Site Remediation Program may be awarded monetary assistance under the CREP program only when the site specific project is part of a Department approved remedial action plan.

2. Any individual project where soil or water conservation practices include grading, excavation, drainage, the placement of fill, alteration of hydrology, the erection of a structure or Stormwater conveyance pipes in freshwater wetlands, or removal of near stream vegetation, shall be coordinated with the NJDEP Land Use Regulation Program, and any necessary permits shall be obtained prior to construction.

3. NJ-FSA needs to ensure that their actions are compliant with the newly adopted Stormwater Management Rules (N.J.A.C. 7:8). FSA must ensure that individual conservation projects are in compliance with these new requirements prior to project implementation. (NJDEP, 2004b)

These three conditions have already been addressed in the FSA's CREP implementing procedures found in USDA/FSA Handbook 2-CRP for the Agricultural Resource Conservation Program (USDA, rev. 4). These guidelines, specifically those found in Section 2: Land Eligibility Requirements, already outline steps that must be followed to ensure compliance with these and other regulatory requirements prior to beginning a CREP project. These procedures will allow CREP implementation in New Jersey to proceed without fear of non-compliance with the requirements mandated by the New Jersey Department of Environmental Protection's Land Use Regulation Program.

## 3.9 Wild and Scenic Rivers

The National Wild and Scenic Rivers Act (16 U.S.C. 1271-1287) was enacted to establish a National Wild and Scenic Rivers System. Rivers are selected based upon outstanding scenic, recreational, geological, fish and wildlife, historic, cultural, or similar values. The Act mandates designated rivers to be preserved in free-flowing condition and their adjacent borders to be protected for future generations. Rivers are designated as wild, scenic, or recreational according to the classifications outlined by the Act. Federal agencies involved in the use and development of water and related land resources are required to protect national wild, scenic, and recreational river areas.

NPS maintains a National Rivers Inventory (NRI) that lists segments of rivers that potentially qualify as national wild, scenic, or recreational areas. The NRI should be reviewed to determine if the project is located adjacent to or within close proximity of a designated wild or scenic river. FSA must consult with the NPS Regional Office before taking actions that could foreclose wild, scenic, or recreational status for rivers on the inventory.

### 3.9.1 Existing Conditions

There are 10,815 river miles within the Wild and Scenic Rivers System. New Jersey contains four designated wild and scenic rivers segments, totaling 266.7 river miles. These include the Great Egg Harbor River, the Lower Delaware River, the Middle Delaware River, and the Maurice River. All four of these rivers or river segments are likely to be influenced by CREP activities, because they are located in agricultural areas of the State.

The Great Egg Harbor River, designated as a Wild and Scenic River on October 27, 1992, is representative of rivers in southern New Jersey's famous Pinelands. The Great Egg, as it is known locally, drains 304 square miles of pristine wetlands in the heart of New Jersey's Pinelands Reserve on its way to the Atlantic Ocean. The 129 designated miles of the Great Egg flows through 12 New Jersey municipalities and is located near the urban centers of Philadelphia, Pennsylvania; Trenton and Camden, New Jersey; and Wilmington, Delaware.

Photo courtesy of NJDEP.

The Lower Delaware River, designated on November 1, 2000, flows for designated 67.3 miles along the border of New Jersey and Pennsylvania. The Lower Delaware River region contains immense resource diversity, combining an area of high population density with a wealth of natural, cultural, and historical resources and recreational opportunities. The river valley houses cliffs rising 400 feet above the rivers that provide for magnificent scenery and habitat unique to the region. The river itself provides habitat for American shad, striped bass, and river herring, and is an important component of the Atlantic flyway, one of four major waterfowl routes in North America.

The Middle Delaware River, designated on November 10, 1978, flows through the 70,000-acre Delaware Water Gap National Recreation Area. The river cuts a tight "S" curve through Kittatiny Ridge. This beautiful landscape, which now provides great recreational opportunities in addition to sightseeing and geological study value, was once proposed for inundation as part of the Tocks Island project. The wild and scenic portion of the Middle Delaware River flows for 35 miles between New Jersey and Pennsylvania.

Photo courtesy of NJDEP.

The Maurice River, totaling 35.4 designated miles, was added to the National Wild and Scenic Rivers System on December 1, 1993. The Maurice, a Delaware Bay tributary, is an unusually pristine Atlantic Coastal river. As part of the Atlantic Flyway, its clean waters and related habitats are vitally important to the migration of shorebirds, songbirds, waterfowl, raptors, rails and fish. The river supports New Jersey's largest stand of wild rice and 53 percent of the animal species that New Jersey has recognized as endangered, excluding marine mammals. The Maurice River is located near the urban centers of Philadelphia, Pennsylvania; Trenton and Camden, New Jersey; and Wilmington, Delaware. (NPS, 2002)

### 3.9.2 The Effects of Alternative A (No Action) on Wild and Scenic Rivers

Impacts on designated New Jersey wild and scenic rivers would continue to be minimally adverse under Alternative A. The increasing number and density of New Jersey’s population, the expansion of the recreation industry, and primarily the impacts of agriculture mean that the scenic and habitat values of the

four designated New Jersey rivers would continue to decline. The no action alternative would not meet any of the CREP objectives outlined in Section 1.4.

### 3.9.3 The Effects of Alternative B (CREP Agreement) on Wild and Scenic Rivers

Impacts from the CREP agreements could be beneficial in improving water quality and wildlife habitat if CREP enrolled acreage were adjacent to or upstream from designated wild and scenic rivers. Water quality and wildlife habitat are two factors that contribute to the quality of wild and scenic rivers.

Direct benefits to wild and scenic rivers could occur from all of the conservation practices. All the CPs, and concurrent activities, help to filter sediment, agricultural chemicals, and nutrients from the water, helping to achieve reductions in tss, p, n. Additionally, CREP would prohibit building on contract areas that could alter wild and scenic river viewsheds.

Along with improving water quality, all of the proposed CPs, and concurrent activities, would help to improve wildlife habitat, cover, and forage, restoring another benefit that supports wild and scenic river values. For example, CP22: Riparian Buffers also creates shade to lower water temperature to improve habitat for aquatic organisms, provide a source of detritus and large woody debris for aquatic organisms, and habitat for wildlife, and help stabilize and restore damaged stream banks. The beneficial impacts that riparian buffers impart would provide improved wildlife conditions on many nearby streams and rivers, including any that have been designated wild and scenic.

These benefits would assist substantially in reaching Objective 4 (Section 1.4).

## 3.10 Environmental Justice

All Federal programs, including CREP, must comply with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. The EO, issued February 11, 1994, requires each Federal agency to make environmental justice a part of its mission. Agencies are to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. The EO details that all people, regardless of race, color, national origin, or income, receive the following treatment:

- Are provided with fair treatment and meaningful involvement with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies
- Have the opportunity to express comments or concerns before decisions are rendered on the Federal programs, policies, procedures, or activities affecting them
- Share in the benefits of, are not excluded from, and are not adversely or disproportionately affected by Federal programs, procedures, policies, or activities

The President issued a Memorandum to the heads of all departments and agencies to underscore that certain provisions of the existing civil rights and environmental laws (Title VI of the Civil Rights Act, of 1964, the National Environmental Policy Act of 1969 [NEPA], the Clean Air Act and the Freedom of Information Act), the Government in the Sunshine Act, and the Emergency Planning and Community Right-to-Know Act help ensure that all persons in the community live in a safe and healthy environment.

Environmental justice considerations ensure that all populations are provided the opportunity to comment on issues before decisions are rendered. Environmental justice allows all people to share in the benefits of, and not be excluded from or affected in a disproportionately high and adverse manner by, government

programs and activities affecting human health or the environment. Departmental Regulation 5600-2, issued December 15, 1997, provides direction to agencies for integrating environmental justice considerations into USDA programs and activities in compliance with Executive Order 12898.

Application for the New Jersey CREP would require the completion of an Environmental Evaluation by FSA and NRCS. Environmental justice issues would be addressed on the EE. If the proposed action is found to cause any adverse human health or environmental effects to minority or low-income communities, a discussion of the negative impacts must be attached (USDA, 2001b).

### 3.10.1 Existing Conditions

**Minority Populations**

As Figure 3-13 illustrates New Jersey is a racially diverse State. The 2000 Census revealed that New Jersey's proportion of non-white population increased from approximately one in every five (20.7 percent) in 1990 to more than one in every four (25.6 percent) in 2000. This PEA will focus discussion on three minority populations, African American, American Indian, and migrant farm workers. These populations are discussed below.

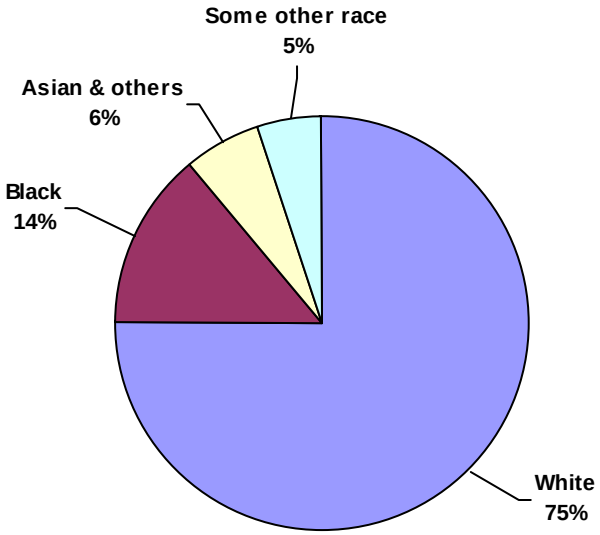



**Figure 3-13: New Jersey's Racial Diversity (NJSDC, 2001)**

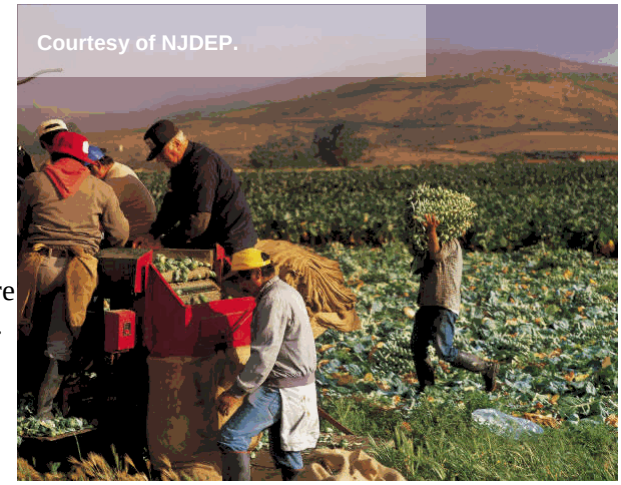
| Population rank | Geographic area | Total population | Race | | | | | | | | Hispanic or Latino (of any race) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | One race | | | | | | | Two or more races | |
| | | | Total | White | Black or African American | American Indian and Alaska Native | Asian | Native Hawaiian and Other Pacific Islander | Some other race | | |
| | **New Jersey** | **8 414 350** | **8 200 595** | **6 104 705** | **1 141 821** | **19 492** | **480 276** | **3 329** | **450 972** | **213 755** | **1 117 191** |
| | **COUNTY** | | | | | | | | | | |
| 1 | Bergen County | 884 118 | 864 160 | 693 236 | 46 568 | 1 336 | 94 324 | 193 | 28 503 | 19 958 | 91 377 |
| 2 | Essex County | 793 633 | 766 478 | 352 859 | 327 324 | 1 861 | 29 429 | 417 | 54 588 | 27 155 | 122 347 |
| 3 | Middlesex County | 750 162 | 730 665 | 513 298 | 68 467 | 1 521 | 104 212 | 300 | 42 867 | 19 497 | 101 940 |
| 4 | Monmouth County | 615 301 | 604 990 | 519 261 | 49 609 | 879 | 24 403 | 153 | 10 685 | 10 311 | 38 175 |
| 5 | Hudson County | 608 975 | 574 680 | 338 457 | 82 098 | 2 547 | 56 942 | 383 | 94 253 | 34 295 | 242 123 |
| 6 | Union County | 522 541 | 505 581 | 342 302 | 108 593 | 1 215 | 19 993 | 201 | 33 277 | 16 960 | 103 011 |
| 7 | Ocean County | 510 916 | 504 347 | 475 391 | 15 268 | 702 | 6 550 | 103 | 6 333 | 6 569 | 25 638 |
| 8 | Camden County | 508 932 | 499 121 | 360 756 | 92 059 | 1 300 | 18 910 | 187 | 25 909 | 9 811 | 49 166 |
| 9 | Passaic County | 489 049 | 469 261 | 304 786 | 64 647 | 2 166 | 18 064 | 175 | 79 423 | 19 788 | 146 492 |
| 10 | Morris County | 470 212 | 462 886 | 410 042 | 13 181 | 572 | 29 432 | 188 | 9 471 | 7 326 | 36 626 |
| 11 | Burlington County | 423 394 | 414 644 | 331 898 | 64 071 | 898 | 11 378 | 144 | 6 255 | 8 750 | 17 632 |
| 12 | Mercer County | 350 761 | 343 142 | 240 206 | 69 502 | 688 | 17 340 | 352 | 15 054 | 7 619 | 33 898 |
| 13 | Somerset County | 297 490 | 292 033 | 236 042 | 22 396 | 375 | 24 941 | 121 | 8 158 | 5 457 | 25 811 |
| 14 | Gloucester County | 254 673 | 251 366 | 221 742 | 23 084 | 487 | 3 805 | 75 | 2 173 | 3 307 | 6 583 |
| 15 | Atlantic County | 252 552 | 246 027 | 172 632 | 44 534 | 669 | 12 771 | 114 | 15 307 | 6 525 | 30 729 |
| | **CITY OR TOWNSHIP** | | | | | | | | | | |
| 1 | Newark city | 273 546 | 261 620 | 72 537 | 146 250 | 1 005 | 3 263 | 135 | 38 430 | 11 926 | 80 622 |
| 2 | Jersey City city | 240 055 | 226 044 | 81 637 | 67 994 | 1 071 | 38 881 | 181 | 36 280 | 14 011 | 67 952 |
| 3 | Paterson city | 149 222 | 140 008 | 45 913 | 49 095 | 901 | 2 831 | 84 | 41 184 | 9 214 | 74 774 |
| 4 | Elizabeth city | 120 568 | 113 507 | 67 250 | 24 090 | 580 | 2 830 | 55 | 18 702 | 7 061 | 59 627 |
| 5 | Edison township (Middlesex County) | 97 687 | 95 583 | 58 116 | 6 728 | 132 | 28 597 | 37 | 1 973 | 2 104 | 6 226 |
| 6 | Woodbridge township (Middlesex County) | 97 203 | 94 812 | 68 848 | 8 507 | 167 | 14 054 | 24 | 3 212 | 2 391 | 8 956 |
| 7 | Dover township (Ocean County) | 89 706 | 88 702 | 83 939 | 1 568 | 117 | 2 207 | 21 | 850 | 1 004 | 4 070 |
| 8 | Hamilton township (Mercer County) | 87 109 | 85 579 | 74 173 | 7 112 | 121 | 2 234 | 31 | 1 908 | 1 530 | 4 471 |
| 9 | Trenton city | 85 403 | 82 672 | 27 802 | 44 465 | 300 | 716 | 199 | 9 190 | 2 731 | 18 391 |
| 10 | Camden city | 79 904 | 76 773 | 13 454 | 42 628 | 435 | 1 958 | 59 | 18 239 | 3 131 | 31 019 |
| 11 | Clifton city | 78 672 | 75 075 | 59 960 | 2 277 | 192 | 5 066 | 27 | 7 553 | 3 597 | 15 608 |
| 12 | Brick township (Ocean County) | 76 119 | 75 325 | 72 932 | 751 | 76 | 904 | 12 | 650 | 794 | 2 930 |
| 13 | Cherry Hill township (Camden County) | 69 965 | 69 152 | 59 240 | 3 121 | 71 | 6 205 | 24 | 491 | 813 | 1 778 |
| 14 | East Orange city | 69 824 | 67 171 | 2 683 | 62 462 | 177 | 302 | 51 | 1 496 | 2 653 | 3 284 |
| 15 | Passaic city | 67 861 | 64 438 | 24 044 | 9 385 | 531 | 3 740 | 29 | 26 709 | 3 423 | 42 387 |

**Figure 3-14: Population by Race for the 15 Largest Counties, Cities, and Townships in New Jersey: 2000 (USCB, 2000a).**

**African Americans:** The number of African-Americans in New Jersey increased from 1,036,825 in 1990 to 1,141,821 in 2000 for a gain of 104,996 (or 10.1 percent). About 40 percent of the State's African Americans resided in seven cities: Essex County's Newark City (146,250), East Orange City (62,462), and Irvington Township (49,566); Hudson County's Jersey City (67,994); Passaic County's Paterson City (49,095); Mercer County's Trenton City (44,465); and Camden County's Camden City (42,628). These cities had the largest number of African American residents among the State's 566 municipalities. Figure 3-14 above illustrates that the African American population of New Jersey is most concentrated in Essex, Union, Camden, Hudson, and Mercer counties (NJSDC, 2001).

**American Indian Tribes:** New Jersey does not have a significant population of American Indians. According to the 2000 U.S. Census, only 19,492 people or 0.2 percent of the State's 8,200,595 people classified themselves as "American Indian and Alaska Native"(USCB, 2000b). There are a limited number of tribes operating within the State and they do not have significant land holdings or reservations.

**Migrant Farmworkers:** Approximately 40,000 farm workers are employed in New Jersey, including those who live in migrant camps on farms and "day-haulers" who commute from cities daily and are transported on buses by crew leaders (NJDEP, 2003c).




Current New Jersey census information specific to migrant farmworkers is not readily available. Likewise, few counties reported data specific to migrant workers. Data gaps may be attributed to the varying crop harvest periods and the migrating lifestyle of agricultural workers.

Pay rates vary depending on whether the worker is paid an hourly wage or piece rate. Federal laws require that workers earn a minimum wage of $5.15 per hour. Workers paid by piece rate can earn more money based on their individual productivity. On the whole, farm laborers in the New Jersey region (which includes DE, MD, NJ, PA) were paid close to the national averages. Farm operators paid their hired workers an average wage of $8.88 per hour during the July 2003 reference week, up 31 cents from a year earlier. Farm laborers in the New Jersey region were paid an average of $8.93 (USDA, 2003g).

### 3.10.2 The Effects of Alternative A (No Action) on Environmental Justice

Environmental justice is a continuing compliance concern for all US government agencies because American Indian tribes, migrant workers, and low-income or ethnically distinct populations historically have experienced more environmental impacts than the general population. This condition is likely to continue under the No Action Alternative, although no FSA actions are required or necessary under the No Action Alternative to address existing or ongoing issues with environmental justice.

### 3.10.3 The Effects of Alternative B (CREP Agreement) on Environmental Justice

If Alternative B were implemented, disproportionate negative environmental justice effects are unlikely. No minority populations would be disproportionately affected by implementation of Alternative B. In fact, all residents of New Jersey and nearby states would be beneficially impacted from CREP as water quality improves. No negative environmental justice impacts are expected since most CREP agreements are likely to be widely separated by intervening non-CREP land holdings. This separation means that no single, focused minority or low-income population is likely to receive all or most of the direct impacts of the CREP agreements, which are designed to be implemented across the entire State of New Jersey. Minority populations tend to be concentrated in urban centers where CREP enrollment would have no direct effect. For instance, Figure 3-14 above illustrates that the Black/African American population of New Jersey is most concentrated in Essex, Union, Camden, Hudson, and Mercer Counties. These counties have very little agricultural production, and as a result would not be directly affected by CREP.

Impacts to American Indians are equally unlikely. The limited number of American Indian individuals in the State and the fact that the limited number of tribes operating within the State do not have significant land holdings or reservations, results in an unlikely impact to American Indians. American Indian New Jerseyans would also not be excluded from the beneficial monetary impacts of CREP. American Indian farmers/ranchers would be able to apply for the CREP program and have the same opportunity to enroll their lands in CREP.

One possibility of a direct impact to a small portion of the low income or minority population may be the inability of a low-income farmer or rancher to participate in CREP because of limited personal funds to provide his or her percentage of the costs to implement the CPs. While the CREP does not address this potential occurrence, other opportunities for additional funds may be available to assist the farmer or rancher to meet the required percentage. However, the possibility of this occurrence is remote.

A possible indirect effect is that CREP might take acres out of agricultural production, thus removing some economic opportunities from traditional farm workers, often migrant workers. This indirect effect would be negligible given the fact that only 30,000 acres, or 3.6 percent of the State's agricultural land, is eligible to be enrolled in the CREP program. Also, it is unlikely that a farmer or rancher would enroll all of the particular farm or ranch in CREP, but would rather enroll small border acres adjacent to waterways or waterbodies. Therefore, the potential impact of removing enough acreage from agricultural production and negatively impact economic opportunities for migrant farm workers is anticipated to be negligible.

## 3.11 Socioeconomics

NEPA, and its implementing regulations and guidelines, require consideration of the socioeconomic impacts of Federal actions in preparation of environmental documents. Section 1508.8 of the CEQ's "Regulations for Implementing NEPA" states that:

> Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.
>
> Effects and impacts as used in these regulations are synonymous. Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect would be beneficial.

This PEA will present regional and local information on the socioeconomic conditions in New Jersey that are relevant to the implementation of CREP, and the potential impacts of the proposed project on these conditions. A detailed discussion of environmental justice concerns is included in Section 3.10 above.

Courtesy of NJ Dept. of Agric.

### 3.11.1 Existing Conditions

As discussed in Section 2.2.1, New Jersey produces and exports numerous agricultural products. Agricultural production in New Jersey uses 832,600 acres, or 17.5 percent of the State's 4,748,160 acres. There are approximately 9,100 farms and sizes average less than 100 acres, with approximately 66.5 percent of the farms being less than 50 acres. Most of the active farms rent additional lands. It is not

uncommon for cash grain producers to farm 500 to 1,000 acres of rented land (USDA, 1997).

New Jersey's 1999 Total Gross State Product, the value of all goods and services produced in the State during a given year, totaled $332,155,000,000. The total value of the goods and services produced in the "Agriculture, Forest, Fish" subcategory totaled $1,720,000,000 ($404,000,000 from "Farms" and $1,317,000,000 from "Agricultural Services"), which accounts for only one-half of one percent of the Total Gross State Product (NJDOL, 2003a).

In 2000, the labor market consisted of 4,263,400 workers. Total nonfarm employment in New Jersey is projected to increase to 4,446,900 in 2010, a gain of 452,300 jobs between 2000 and 2010. Total projected growth over the period is expected to be 11.3 percent. In total number of jobs, agriculture in New Jersey only directly accounts for a relatively small portion of the overall economy (see Figure 3-15), but the New Jersey Department of Labor predicts modest growth in the farming, fisheries, and forestry occupations between 2000 and 2010 (NJDOL, 2003b).

**Employment Projections by Major Occupational Category, New Jersey: 2000-2010**

| | *2000* | | *2010* | | *Change: 2000-2010* | |
|---|---|---|---|---|---|---|
| *Occupational Category* | *Number* | *Percent* | *Number* | *Percent* | *Number* | *Percent* |
| Total All Occupations * | 4,263,400 | 100.0 | 4,725,200 | 100.0 | 461,800 | 10.8 |
| Management, Business and Financial Occupations | 440,700 | 10.3 | 491,200 | 10.4 | 50,500 | 11.5 |
| Professional and Related Occupations | 818,100 | 19.2 | 988,900 | 20.9 | 170,800 | 20.9 |
| Service Occupations | 735,600 | 17.3 | 873,500 | 18.5 | 137,900 | 18.8 |
| Sales and Related Occupations | 498,900 | 11.7 | 544,000 | 11.5 | 45,200 | 9.1 |
| Office and Administrative Support Occupations | 821,700 | 19.3 | 852,800 | 18.0 | 31,100 | 3.8 |
| Farming, Fishing and Forestry Occupations | 4,600 | 0.1 | 5,600 | 0.1 | 1,000 | 21.6 |
| Construction and Extraction Occupations | 161,200 | 3.8 | 173,900 | 3.7 | 12,700 | 7.9 |
| Installation, Maintenance and Repair Occupations | 159,300 | 3.7 | 164,500 | 3.5 | 5,200 | 3.3 |
| Production Occupations | 289,500 | 6.8 | 272,700 | 5.8 | -16,200 | -5.8 |
| Transportation and Material Moving Occupations | 333,900 | 7.8 | 358,200 | 7.6 | 24,200 | 7.3 |

**Figure 3-15: New Jersey Employment and Population in the 21st Century April 2003 Division of Labor Market and Demographic Research (NJDOL, 2003b).**

Another important segment of New Jersey's economy with the potential to be impacted by the New Jersey CREP is the leisure and tourism industry. According the Bureau of Labor Statistics, New Jersey's leisure and tourism industry employs 314,600 people (USDOL, 2003). In 1999, "Hotels & Lodging" added $4,567,000,000 to the Total Gross State Product and "Amusement and Recreation" added $1,981,000,000 (NJDOL, 2003a). New Jersey hosted 60.8 million visitors in 2002, a two percent increase from the 59.7 million visitors of 2001. Many of these visitors made their way to New Jersey's unique/protected lands (see Section 3.7) and supported New Jersey agriculture (NJCEGC, 2002).

As an example of the impact of leisure and tourism, consider the region surrounding the Delaware Water Gap National Recreation Area. This area, a 68,714-acre recreation area in New Jersey and Pennsylvania, hosted 5,248,958 visits in 2003, a substantial leisure and tourism industry. The camping segment alone supports 30 campgrounds within 10 miles of the recreation area, and some 90 or so public and commercial campgrounds within 30 miles of the area (USDOI, 2003). As discussed in Section 3.7, the National Refuge System fueled more than $809 million in sales of recreation equipment, food, lodging,

transportation, and other expenditures in 2002 (FWS, 2003b), a significant contribution to local economies. Much of the appeal of these areas is tied to their pristine environmental conditions. Degradation of the aesthetics or natural condition of these areas can result in significant socioeconomic implications.

Land value and use can also have important socioeconomic impacts in the state. The New Jersey Comparative Risk Project of 2003 determined that, "land use change has by far the most extensive socioeconomic implications. Other impacts are more difficult to quantify, but land use change is also associated with negative aesthetic and psychological impacts, including a weakened sense of community and increased stress levels" (NJCRP, 2003).

The 2000 Census determined that there were 8,414,350 people living in New Jersey, an 8.6 percent change from 1990 (USCB, 2003). New Jersey's population is projected to reach 9,062,800 by 2010. This is somewhat slower than the State's growth rate of the 1990s and the projected national growth rate (NJDOL, 2003b). The 2000 Census found that New Jersey has on average 1,134.4 persons per square mile, making it the most densely populated State in the U.S. (USCB, 2003). Land value and use are directly affected by human populations. Dense human developments and large-scale land use changes result in increased amounts of impervious area—dramatically altering the proportion of impervious surfaces to natural vegetation, inflating land values, decreasing water quality, and generating other negative effects.

Population density is also one of the most important factors relating to the development value of land. Land values directly influence the agricultural economy. If they are reduced, it affects a farmer's access to capital for farming and other purposes because the land's development value serves as the collateral for the loan (NJSBAC, 2001). The market value of agricultural land in New Jersey is less determined by its agricultural use value (rental rate), than by its speculative potential for development. Developable farmland in New Jersey ranges from $5,000 to $40,000 per acre, with most lands averaging $20,000 per acre (NJDA, 2003).

### 3.11.2 The Effects of Alternative A (No Action) on Socioeconomics

Under Alternative A, agricultural practices would continue as they have for years. The degradation of water quality that currently results from agricultural practices, which leads to ancillary impact to wetlands, wildlife, tourism, etc, will continue into the future. Alternative A will not result in any State water quality improvements, unless existing programs (see Section 1.5.16) are greatly expanded.

Implementation of Alternative A would have no direct or indirect effect on:

- The total amount of agricultural production in New Jersey. This total would continue to respond to market forces and the economy of the State.
- The rental rates and land values of New Jersey acreage. These rates would continue to be affected by development values and population density.
- The total number of New Jersey ranches/farms. This total would continue to respond to market forces and the economy of the State.
- The overall economy of New Jersey. New Jersey's economy would continue to be affected by market forces. Agriculture would continue to contribute roughly the same value to the overall economy.
- The labor markets of New Jersey. The agricultural labor market would continue to provide the same number of jobs, with fluctuations due to market conditions.

Implementation of Alternative A has the potential to marginally affect:

- The recreation and tourism industry of New Jersey. Alternative A would not offer mechanisms to improve the water quality of New Jersey. This continued degradation has the potential to negatively impact the State's protected/unique lands which may translate into negative impacts to the State's recreation and tourism economy. Because of the significant income provided by tourism, recreation, fishing, boating, and other water-related businesses, the continued degradation of New Jersey waterbodies is a threat to the overall economical viability of New Jersey.
- Land use in New Jersey. Alternative A offers no additional land preservation than the current programs offer. This may result in continued large-scale land-use changes in the State and the socioeconomic impacts associated with these changes may continue.
- Population growth and density in New Jersey. While implementation of Alternative A would not directly affect population and density, there is the possibility for future indirect impacts associated with its implementation. Human population and density in New Jersey would continue to increase, assuming the expected future expansion and growth of New Jersey's population occurs. These values operate independently of agricultural practices. However, with additional population growth in the future comes the need to provide additional clean drinking water, a need that Alternative A would not help fulfill. This may limit population growth, encourage population density, strain natural resources, and compound the nonpoint source pollution problem in New Jersey.

The No Action Alternative would not meet any of the CREP objectives outlined in Section 1.4.

### 3.11.3 The Effects of Alternative B (CREP Agreement) on Socioeconomics

Though ultimately beneficial, long-term statewide economic effects from CREP implementation would be minimal. There is a potential for minor changes in some socioeconomic factors, but this would occur only on a very limited and disparate basis. The New Jersey CREP proposes the potential enrollment of up to 30,000 acres across the state. These 30,000 acres represents 0.6 percent of the entire State of New Jersey and 3.6 percent of the State's agricultural land.

Implementation of Alternative B would result in general improvement to the water quality of New Jersey. The degradation of water quality that currently results from agricultural practices, which leads to ancillary impact to wetlands, wildlife, and tourism, would decline as a result of implementing Alternative B.

Implementation of Alternative B would have no direct or indirect effect on:

- The rental rates and land values of New Jersey acreage. If Alternative B were intensively implemented in a small geographic region, it could create a localized and artificial shift in rental rates and land values. CREP contains safeguards to prevent this from happening. For instance, there is a 25 percent acreage cap on CREP enrollments within a county, limiting the amount of cropland enrolled in CREP in a certain geographical region. In addition, the acres enrolled in CREP would likely be spread across the State, since participating landowners typically enroll partial farms or fields.

  CREP could also create a situation where land enrolled in CREP has a greater value than surrounding lands. This is unlikely to happen in New Jersey as income earned through CREP would remain less than the average development value of nearby land. CREP-enrolled lands are also lands that are marginally productive agricultural lands that are non-developable so enrollees are not foregoing development income to enroll in CREP. All of these factors would limit the acres of cropland taken out of production in a given area and, consequently, the local economic impact due to implementation

of CREP would be minimal to non-existent. These rental rates and land values of New Jersey acreage would continue to be affected by development values and population density and would not be impacted by the Alternative B.

- The total number of New Jersey ranches/farms. Alternative B would not result in changes to total number of New Jersey ranches/farms. The 25 percent acreage cap on CREP and the practice of participating landowners to enroll partial farms or fields means that entire ranches and farms would not be enrolled in CREP. This total would continue to respond to market forces and the economy of the State and not be impacted by Alternative B.
- The overall economy of New Jersey. Alternative B would not a substantial impact on the economy of New Jersey. Agriculture would continue to contribute roughly the same value to the overall economy. CREP enrolled lands would continue to provide residual income to enrollees, supporting the overall economy although possibly at a slightly reduced rate. However, this slight reduction, spread across the entire state, would have very limited impact on the overall economy of New Jersey. New Jersey's economy would continue to be affected by market forces and would not be impacted by Alternative B.
- The labor markets of New Jersey. The agricultural labor market would continue to provide roughly the same number of jobs, with fluctuations due to market conditions, and would not be impacted by Alternative B. As discussed above, CREP would not have a significant effect resulting in large numbers of farms stopping production. Additionally, enrollment would be spread across the entire State and have only marginal impacts to individual farms. The limited potential impacts would not result in extraordinary effects on the agricultural labor markets.

Implementation of Alternative B has the potential to marginally affect:

- The total amount of agricultural production in New Jersey. Implementation of Alternative B has the potential to slightly reduce total agricultural acreage across the State because the CREP-enrolled land is removed from production. . However, at full enrollment, CREP would only affect 3.6 percent of the State's agricultural land. Additionally, producers are likely to enroll only marginal lands. The areas (partial fields, strips, or buffers) enrolled in CREP would most likely be less productive areas of a given farm. By enrolling these areas, the landowner may be able to reduce the overall input costs of farming operations, and in some cases, actually maintain or increase production by being able to concentrate resources on the remaining farmland. These two factors would likely result in limited effects across the state. Agricultural production would continue to respond to market forces and the economy of the State and not be significantly impacted by Alternative B.
- Farm incomes in New Jersey. There is a possibility for a slight beneficial effect to farm incomes from the steady and guaranteed receipt of CREP funds by enrolled producers. As discussed above, producers are more likely to enroll marginally productive lands and the residual income from CREP might result in slightly more income than the acreage was capable of producing as farmland. These values, if they occur, would not have a significant impact across the state.
- Economic damages caused by pest species. Implementation of Alternative B may increase the available habitat of pest species (e.g. deer and geese). This may result in increased economic costs from crop and garden damage and vehicle collisions. The likelihood of significant increases in pest species populations as a result of CREP is minimal since CREP lands would be designed to provide habitat for other types of species (e.g., sensitive species and grassland birds). Should CREP result in an increase in the number of pest species, their numbers would be managed appropriately by existing Division of Fish, Game, and Wildlife programs.
- The recreation and tourism economy of New Jersey. With the improved water quality that would result from the implementation of Alternative B, natural conditions in New Jersey's unique/protected

lands can be expected to improve. This would translate into continued stability, and even the potential for growth, in the recreation and tourism economy of New Jersey. There is also the potential for increased sale of hunting equipment and license fees as a result of enhancing wildlife habitat. Overall, the beneficial effects of CREP would only marginally effect the recreation and tourism economy of New Jersey.

- Land use in New Jersey. Alternative B offer an additional land preservation program, the benefits of which can be added to those provided by the current programs. This may slow the future rate of large-scale land-use changes in the State and the socioeconomic impacts associated with these changes.
- Population growth and density in New Jersey. While implementation of Alternative B would not directly affect population and density, there is the possibility for future indirect impacts associated with its implementation. Human population and density in New Jersey would continue to increase assuming the expected future expansion and growth of New Jersey's population occurs. These values operate independently of agricultural practices and would not be directly impacted by Alternative B. However, with additional population growth in the future comes the need to provide additional clean drinking water, a need that Alternative B would help the State fulfill.

Alternative B would assist the State in their efforts to meet the CREP objectives outlined in Section 1.4.

## 3.12 Cumulative Effects

### 3.12.1 Alternative A (No Action)

Existing State programs (see Section 1.5.16) would strive to collectively have a positive impact on the State's water resources and the ancillary benefits that come from clean water. However, without CREP, a powerful tool in improving water quality, the current iterations of these programs would continue to be only as effective as they have in the past at improving statewide water quality. Implementation of Alternative A would result the continuation of current observable trends in nonpoint source pollution and resource degradation and the cumulative effects that accompany these problems.

### 3.12.2 Alternative B (CREP Agreement)

Working in conjunction with existing State programs (see Section 1.5.16), CREP implementation would contribute to the cumulative improvement of the State's water quality. Likewise, the enhancement of wildlife habitat across CREP watersheds would add to the State's resources and provide additional protection for listed State and Federal species. Wetlands, groundwater, marine resources, wildlife, cultural resources, etc. would all benefit from the cumulative effects of protection and enhancement that CREP would provide. CREP is designed to augment and enhance conservation of resources and to promote water quality improvement. It would work in conjunction with other conservation efforts being implemented at both the State and Federal level and result in statewide cumulative improvements to New Jersey's natural conditions.

## 3.13 Unavoidable Adverse Impacts

The following sections describe those effects which are adverse and cannot be avoided without mitigation.

### 3.13.1 Alternative A (No Action)

Under Alternative A, nonpoint source pollution attributed to agriculture can be expected to continue at roughly the current rates. Continued agricultural practices would likely contribute to long-term water quality degradation in watersheds across the state. There is the probability of increased seasonal erosion accompanied by increased sedimentation in regional streams immediately following harvests. Nutrient loading and waterborne pathogens would continue to impact downstream ecosystems and human populations.

### 3.13.2 Alternative B (CREP Agreement)

Alternative B would reduce the likelihood of all of the unavoidable adverse impacts listed under Alternative A above. Implementation of the CREP CPs and New Jersey's additional concurrent activities would reduce nonpoint source pollution produced by agriculture, contribute to long-term water quality improvement in watersheds across the state, decrease the adverse impacts associated with seasonal erosion and sedimentation, and reduce nutrient loading and waterborne pathogens and their impacts on downstream ecosystems and human populations

## 3.14 Relationship of Short-Term Uses and Long-Term Productivity

### 3.14.1 Alternative A (No Action)

This alternative would maximize the short-term uses of the environment, but would not enhance the long-term productivity of eligible lands and the cleanliness of New Jersey's natural environment. Marginal croplands and pasturelands that might otherwise be enrolled in CREP would stay in production and efforts to increase the short-term productivity of these lands (by applying additional fertilizer and pesticides) may cause further degradation to water quality and other resources.

### 3.14.2 Alternative B (CREP Agreement)

Under Alternative B, the short-term uses of the human environment would be maximized and long-term productivity would be simultaneously enhanced. Marginal croplands would be enrolled in CREP and would provide leveraged benefits to other lands and waterbodies in affected watersheds. Resources used to sustain the marginal lands would be diverted to help maximize the productivity of prime croplands. Potential overuse of fertilizers to increase productivity on marginal lands would be reduced.

## 3.15 Irreversible and Irretrievable Commitments of Resources

### 3.15.1 Alternative A (No Action)

Irreversible and irretrievable commitments of resources include fuel and time spent conducting agricultural practices. Under Alternative A, inefficient production on marginal land would continue to waste resources that could have been better used on different farmland. The irreversible loss of soil resources from the State's agricultural lands would continue at the current, or perhaps accelerated, rates due to splash, rill, and streambank erosion.

### 3.15.2 Alternative B (CREP Agreement)

As with Alternative A, the irreversible and irretrievable commitments of resources including fuel and time spent conducting agricultural practices would continue, though perhaps at a decreased rate as inefficient production on marginal land decreases. Agricultural soil loss would likely continue, but at a much reduced rate as appropriate CPs are implemented.

# Chapter 4.0 List of Preparers

**Table 4-1: List of Preparers**

This table identifies by name, education, and years experience those who contributed as part of the interdisciplinary team.

| Name | Area of Expertise | Education | Experience |
|---|---|---|---|
| Nancy Coles | Agricultural Program Specialist | A.S. Computer Science | 17 years |
| James Fortner | FSA environmental Compliance Manager | BS agricultural and extension education | 18 years |
| Kevin Murphy | State Environmental Coordinator | B.S. Horticulture | 23 years |
| Kathleen Schamel | Federal Preservation Officer | B.A.; M.A., Anthropology | 19 years |
| Jeremy Ferrin | Lead Writer | B.S., Environmental Studies | 2 years |
| Kelson Forsgren | Writer/Editor | M.S., Technical Communication | 11 years |
| Thomas Hale | Writer/Editor, Environmental Planner | B.L.A., M.L.A., Landscape Architecture; M.S. Natural Resource Management | 13 years |

# Chapter 5.0 List of Agencies and Persons Consulted and/or Provided Copies of This Environmental Assessment

**Table 5-1: List of agencies and persons consulted during the course of the analysis.**

| Organization | Name |
|---|---|
| US Fish and Wildlife Service, New Jersey Field Office | Clifford G. Day |
| National Marine Fisheries | Patricia A. Kurkul |
| NJ Department of Environmental Protection, Division of Parks and Forestry, State Historic Preservation Office | Dorothy P. Guzzo |
| NJ Department of Environmental Protection, Land Use Regulation Program | Mark N. Mauriello |

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# Appendix A: FSA Handbook CPs

(see hard copy insert)

# Appendix B: Threatened and Endangered Species

The following tables represent the "Endangered and Threatened Wildlife of New Jersey" as listed on the New Jersey Division of Fish and Wildlife website found at http://www.state.nj.us/dep/fgw/tandespp.htm. The list of the 339 native New Jersey plant species on the Endangered Plant Species List is available at http://www.state.nj.us/dep/parksandforests/natural/heritage/textfiles/njplantlist.txt

For the purposes of this list the following definitions apply:

- Endangered Species are those whose prospects for survival in New Jersey are in immediate danger because of a loss or change in habitat, over-exploitation, predation, competition, disease, disturbance or contamination. Assistance is needed to prevent future extinction in New Jersey.
- Threatened Species are those who may become endangered if conditions surrounding them begin to or continue to deteriorate.

| **BIRDS** | | | |
|---|---|---|---|
| **Endangered** | | **Threatened** | |
| Bittern, American | *Botaurus lentiginosos* BR | Bobolink | *Dolichonyx oryzivorus* BR |
| Eagle, bald | *Haliaeetus leucocephalus* BR ** | Eagle, bald | *Haliaeetus leucocephalus* NB ** |
| Falcon, peregrine | *Falco peregrinus* | Hawk, Cooper's | *Accipiter cooperii* |
| Goshawk, northern | *Accipiter gentilis* BR | Hawk, red-shouldered | *Buteo lineatus* NB |
| Grebe, pied-billed | *Podilymbus podiceps** | Night-heron, black-crowned | *Nycticorax nycticorax* BR |
| Harrier, northern | *Circus cyaneus* BR | Night-heron, yellow-crowned | *Nyctanassa violaceus* |
| Hawk, red-shouldered | *Buteo lineatus* BR | Knot, red | *Calidris canutus* BR |
| Owl, short-eared | *Asio flammeus* BR | Osprey | *Pandion haliaetus* BR |
| Plover, piping | *Charadrius melodus*** | Owl, barred | *Strix varia* |
| Sandpiper, upland | *Batramia longicauda* | Owl, long-eared | *Asio otus* |
| Shrike, loggerhead | *Lanius ludovicianus* | Rail, black | *Laterallus jamaicensis* |
| Skimmer, black | *Rynchops niger* BR | Skimmer, black | *Rynchops niger* NB |
| Sparrow, Henslow's | *Ammodramus henslowii* | Sparrow, grasshopper | *Ammodramus savannarum* BR |
| Sparrow, vesper | *Pooecetes gramineus* BR | Sparrow, Savannah | *Passerculus sandwichensis* BR |
| Tern, least | *Sterna antillarum* | Sparrow, vesper | *Pooecetes gramineus* NB |
| Tern, roseate | *Sterna dougallii*** | Woodpecker, red-headed | *Melanerpes erythrocephalus* |
| Wren, sedge | *Cistothorus platensis* | | |
| **Federally endangered or threatened | | | |
| BR - Breeding population only; NB - non-breeding population only | | | |

| REPTILES | | | |
|---|---|---|---|
| **Endangered** | | **Threatened** | |
| Rattlesnake, timber | *Crotalus h. horridus* | Snake, northern pine | *Pituophis m. melanoleucus* |
| Snake, corn | *Elaphe g. guttata* | Turtle, Atlantic green | *Chelonia mydas*** |
| Turtle, bog | *Clemmys muhlenbergii*** | Turtle, wood | *Clemmys insculpta* |
| Atlantic hawksbill | *Eretmochelys imbricata*** | | |
| Atlantic leatherback | *Dermochelys coriacea*** | | |
| Atlantic loggerhead | *Caretta caretta*** | | |
| Atlantic Ridley | *Lepidochelys kempi*** | | |
| **Federally endangered or threatened | | | |

| AMPHIBIANS | | | |
|---|---|---|---|
| **Endangered** | | **Threatened** | |
| Salamander, blue-spotted | *Ambystoma laterale* | Salamander, eastern mud | *Pseudotriton montanus* |
| Salamander, eastern tiger | *Ambystoma tigrinum* | Salamander, long-tailed | *Eurycea longicauda* |
| Salamander, Tremblay's | *Ambystoma tremblayi* | | |
| Treefrog, pine barrens | *Hyla andersonii* | | |
| Treefrog, southern gray | *Hyla chrysocelis* | | |

| **INVERTEBRATES** | | | |
|---|---|---|---|
| **Endangered** | | **Threatened** | |
| Beetle, American burying | *Nicrophorus mericanus*** | Elfin, frosted (butterfly) | *Callophrys irus* |
| Beetle, northeastern beach tiger | *Cincindela d. dorsalis*** | Floater, triangle (mussel) | *Alasmidonta undulata* |
| Copper, bronze | *Lycaena hyllus* | Fritillary, silver-bordered (butterfly) | *Bolaria selene myrina* |
| Floater, brook (mussel) | *Alasmidonta varicosa* | Lampmussel, eastern (mussel) | *Lampsilis radiata* |
| Floater, green (mussel) | *Lasmigona subviridis* | Lampmussel, yellow (mussel) | *Lampsilis cariosa* |
| Satyr, Mitchell's (butterfly) | *Neonympha m. mitchellii*** | Mucket, tidewater (mussel) | *Leptodea ochracea* |
| Skipper, arogos (butterfly) | *Atrytone arogos arogos* | Pondmussel, eastern (mussel) | *Ligumia nasuta* |
| Skipper, Appalachian grizzled (butterfly) | *Pyrgus wyandot* | White, checkered (butterfly) | *Pontia protodice* |
| Wedgemussel, dwarf | *Alasmidonta heterodon*** | | |
| **Federally endangered or threatened | | | |

| MAMMALS | |
|---|---|
| **Endangered** | |
| Bat, Indiana | *Myotis sodalis*** |
| Bobcat | *Lynx rufus* |
| Whale, black right | *Balaena glacialis*** |
| Whale, blue | *Balaenoptera musculus*** |
| Whale, fin | *Balaenoptera physalus*** |
| Whale, humpback | *Megaptera novaeangliae*** |
| Whale, sei | *Balaenoptera borealis*** |
| Whale,sperm | *Physeter macrocephalus*** |
| Woodrat, Allegheny | *Neotoma floridana magister* |
| **Federally Endangered | |

| FISH | |
|---|---|
| **Endangered** | |
| Sturgeon, shortnose | *Acipenser brevirostrum*** |
| **Federally Endangered | |

# Appendix C: Acronyms and Abbreviations

| | |
|---|---|
| ACHP | Advisory Council on Historic Preservation |
| ANPP | Average Net Primary Productivity |
| BA | Biological Assessment |
| BBEP | Barnegat Bay Estuary Program |
| CABB | County Agriculture Development Board |
| CATEX | Categorical Exclusion |
| CBIA | Coastal Barrier Improvement Act |
| CBRA | Coastal Barrier Resources Act |
| CBRS | Coastal Barrier Resources System |
| CCAA | Candidate Conservation Agreement with Assurances |
| CCC | Commodity Credit Corporation |
| CCMP | Comprehensive Conservation and Management Plan |
| CCP | Comprehensive Conservation Plan |
| CCSP | Conservation Cost Share Program |
| CEQ | Council on Environmental Quality |
| CFR | Code of Federal Regulations |
| CP | Conservation Practice |
| CREP | Conservation Reserve Enhancement Program |
| CRP | Conservation Reserve Program |
| CWA | Clean Water Act |
| CZMA | Coastal Zone Management Act |
| CZMP | Coastal Zone Management Program |
| EA | Environmental Evaluation |
| EE | Environmental Evaluation |
| EFH | Essential Fish Habitat |
| EIS | Environmental Impact Statement |
| ENSP | Endangered and Nongame Species Program |
| EO | Executive Order |
| EPA | United States Environmental Protection Agency |
| EQIP | Environmental Quality Incentive Program |
| ESA | Endangered Species Act |
| FEMA | Federal Emergency Management Agency |
| FPPA | Farmland Protection Policy Act |
| FONSI | Finding of No Significant Impact |
| FOTG | Field Office Technical Guide |
| FPP | Farmland Preservation Program |
| FSA | Farm Service Agency |
| FWS | United States Fish and Wildlife Service |
| HEL | Highly Erodible Land |
| HUC | Hydrologic Unit Code |
| LESA | Land Evaluation and Site Assessment |
| MCL | Maximum Contaminant Levels |
| MGD | Million Gallons per Day |
| MOU | Memorandum of Understanding |
| N | Nitrogen |
| NECM | National Environmental Compliance Manager |
| NEPA | National Environmental Policy Act |
| NHPA | National Historic Preservation Act |
| NJCMP | New Jersey Coastal Management Program |
| NJDA | New Jersey Departments of Agriculture |
| NJDEP | New Jersey Departments of Environmental Protection |

| | |
|---|---|
| NMFS | National Marine Fisheries Service |
| NNL | National Natural Landmarks |
| NOAA | National Oceanic and Atmospheric Administration |
| NPS | National Park Service |
| NRCS | Natural Resources Conservation Service |
| OPA | Otherwise Protected Areas |
| P | Phosphorus |
| PCWS | Public Community Water Supply |
| PEA | Programmatic Environmental Assessment |
| PEIS | Programmatic Environmental Impact Statement |
| PIP | Practice Incentive Payment |
| PWS | Public Water System |
| SCD | Soil Conservation Districts |
| SHPO | State Historic Preservation Officer |
| SIP | Signing Incentive Payment |
| SSA | Sole-Source Aquifer |
| SSCC | State Soil Conservation Committee |
| SWAP | Source Water Area Protection |
| SWQS | State Water Quality Standard |
| T&E | Threatened and Endangered |
| THPO | Tribal Historic Preservation Office |
| TMDL | Total Maximum Daily Load |
| TSS | Total Suspended Solids |
| USDA | United States Department of Agriculture |
| USGS | United States Geologic Service |
| WHP | Wellhead Protection Program |
| WHPA | Well Head Protection Areas |
| WMA | Watershed Management Areas |
| WRP | Wetlands Reserve Program |
| WSRA | Wild and Scenic Rivers Act |

# Appendix D: Glossary

**Airshed**: A geographic area or region defined by settlement patterns or topography that shares the same air mass and results in discrete atmospheric conditions.

**Aquifer**: A geologic formation that is water bearing. A geological formation or structure that stores and/or transmits water, such as to wells and springs. Use of the term is usually restricted to those water-bearing formations capable of yielding water in sufficient quantity to constitute a usable supply for people's uses.

**Categorical Exclusions**: An agency-defined category of actions that do not individually or cumulatively have a significant effect on the human environment and have been found to have no such effect in procedures adopted by the agency pursuant to NEPA. Projects qualifying for a “categorical exclusion” are not required to undergo additional NEPA analysis or documentation.

**Conservation Practices**: A series of NRCS approved agricultural practices and management techniques designed to control nonpoint pollution.

**Environmental Assessment**: A concise public document, prepared in compliance with NEPA, that briefly discusses the purpose and need for an action, alternatives to such action, and provides sufficient evidence and analysis of impacts to determine whether to prepare an environmental impact statement or finding of no significant impact (FONSI).

**Environmental Impact Statement**: A detailed written statement required by section 102(2)(C) of NEPA, analyzing the environmental impacts of a proposed action, adverse effects of the project that cannot be avoided, alternative courses of action, short-term uses of the environment versus the maintenance and enhancement of long-term productivity, and any irreversible and irretrievable commitment of resources. A *programmatic* EIS or EA: covers general matters in broader terms and analyzes conceptual or planning alternatives. In such cases, at least one more level of site-specific NEPA analysis is necessary before implementation can proceed.

**Erosion**: A geomorphic process that describes the wearing away of the land surface by wind, water, ice or other geologic agents. Erosion occurs naturally from weather or runoff but is often intensified by human land use practices.

**Eutrophication**: The natural and artificial addition of nitrogen and phosphorous (nutrients) to bodies of water, increasing algal growth. As the algae die, the decomposing microorganisms consume dissolved oxygen in the water, reducing the amount available to fish and other aquatic organisms. Ultimately, this can result in a dead lake or pond: a system where no larger aquatic organisms can survive.

**Exotic species**: A species occurring in an area outside of its historically known natural range as a result of intentional or accidental dispersal by human activities. Also known as an *introduced species*.

**Groundwater**: The supply of fresh water found beneath the Earth's surface, usually in aquifers, which supply wells and springs. Because ground water is a major source of drinking water, there is growing concern over contamination from leaching agricultural or industrial pollutants or leaking underground storage tanks.

**Hydric soils**: Soil that, in its undrained state, is flooded long enough during a growing season to develop anaerobic (lacking air – saturated) conditions that support the growth and regeneration of hydrophytic vegetation.

**Hydrophytic vegetation**: Plants specialized to grow in water or in soil too waterlogged for most plants to survive.

**Listed species**: Under the Endangered Species Act, or similar State statute, those species officially designated as threatened or endangered through all or a significant portion of their range. See also: *Threatened and endangered species*.

**Nonpoint source (pollution)**: Cause of water pollution that is not associated with point (fixed) sources. Nonpoint sources include runoff from agricultural, urban, construction, and mining sites, as well as septic systems and landfills.

**Nutrients**: Chemical compounds in a usable form and have nutritive value for plants and/or animals.

**Recharging groundwater**: Refers to water entering and replenishing an underground aquifer through faults, fractures, or direct absorption.

**Riparian**: Refers to a stream and all the vegetation on its banks.

**Sediment loading**: Describes the excessive inputs of sediment into a waterbody.

**Siltation**: The deposition of finely divided soil and rock particles upon the bottom of stream and river beds and reservoirs.

**Soundscape**: The natural sound environment of a place. Also, the amalgam of natural ambient sounds created by more or less continuous processes in the natural environment.

**Stormwater runoff**: Water from precipitation that runs straight off the ground without first soaking into it. It does not infiltrate into the ground or evaporate due to impervious land surfaces, but instead flows onto adjacent land or water areas.

**Threatened and endangered species**: Under the Endangered Species Act, those species officially designated by the National Marine Fisheries Service or U.S. Fish and Wildlife Service as being in danger of extinction (i.e., endangered) or likely to become endangered (i.e., threatened) within the foreseeable future through all or a significant portion of their range. Threatened and endangered species are protected by law. See also: *Listed species*.

**Traditional Cultural Properties**: Places that are eligible for inclusion in the National Register of Historic Places because of their "association with cultural practices or beliefs of a living community that are rooted in that community's history and are important in maintaining the continuing cultural identity of the community."

**Watershed**: 1.) Describes a cohesive, hydrologically-linked landscape that is drained by a waterway leading to a lake or reservoir. 2.) A geographic area delineated by its peaks and ridgelines, which divide surface water flow into two or more directions.

# Appendix E: CREP Payments

There are four types of USDA payments for which New Jersey CREP participants would be eligible:

- The annual rental and incentive payments are generally 180 percent of the dryland cash rental rate for the county in which the land is located. This amount is based on the most current approved soil rental rates within each county.
- The cost-share assistance is up to 50 percent for the cost of installation of the eligible CPs.
- The signing Incentive Payment (SIP) is a one-time up-front payment of $10/acre/year for enrolling the land into CREP. This payment is made soon after the contract has been signed and approved.
- The Practice Incentive Payment (PIP) is a one-time 40 percent incentive payment for the installation of CREP practices, which is part of the 100-percent cost share for practice installation. This incentive payment is in addition to up to 50 percent cost share assistance that USDA would provide.

The New Jersey CREP would involve a commitment of $77 million dollars from USDA–CCC. For up to 15 years, USDA would pay 100 percent of the annual rental and incentive payments and 50 percent of the cost associated with the establishment of CPs as well as the SIP and the PIP payments. The SIP and PIP payments increase the desirability of the CREP to producers.

New Jersey would provide $23 million dollars to be used towards the purchase of permanent CREP easements, 10 percent of the cost to establish CPs and technical assistance. This is a commitment of 23 percent of the total project cost of implementing CREP in New Jersey.

New Jersey's additional financial contribution would allow landowners to implement more sophisticated conservation measures than if they were to advance 50 percent of the cost. For example, ditch plugging, tile removal, or other hydrologic activities that can be costly have a higher probability of being implemented with contributions from New Jersey. Such practices are vital to assuring the effectiveness of buffer zones because they assure that runoff does not simply bypass a buffer. In addition, technical expertise from USDA–Natural Resource Conservation Service, the NJDA—SSCC, and the NJDEP would be used to develop individual conservation plans.

Although the level of cost share assistance would vary by enrollment, the following is an estimate of the average cost of establishing each of the four categories:

| | |
|---|---|
| CP8A—Grass Waterway | $4 per linear foot ($5,800 per acre) |
| CP15A—Contour Grass Strip | $475 per acre |
| CP21—Filter Strips | $1.75 per linear foot ($2,541 per acre) |
| CP22—Riparian Buffer | $875 per acre |

Based on NRCS Cost Table (NJDA, 2003)

CREP seeks total annual rental and incentive payments to be offered at 200 percent of the approved county soil rental rates, with the exception of riparian buffers, which would be offered at 250 percent. Riparian buffers must include a forested zone in order to receive the 250 percent rental and incentive payments. This special premium is justified by the need to promote a substantial enrollment and

overcome the obstacles faced by the development pressure and distorted land values attributable to urbanized New Jersey (NJDA, 2003).

**Permanent Easements**

The additional monies to establish an optional permanent contract would be paid by the State of New Jersey. The permanent easement component of New Jersey CREP would be administered through the existing farmland preservation easement purchase program and the NJDEP Green Acres Program. Farmers entering the easement purchase program would be eligible to enter into a CREP rental contract with the added option of a permanent easement contract. Farmers looking to install a permanent CREP buffer would be paid a lump sum for the differential value of the CREP permanent conservation easement. This value would be paid in addition to the development easement value determined by the FPP. Providing a lump sum payment for CREP permanent easement contracts should increase their desirability. In addition, working in concert with existing conservation programs such as Green Acres would allow FSA and New Jersey to coordinate their efforts to establish contiguous riparian buffers on a statewide basis.

The CREP easement value would be based upon the weighted average FPP development easement value. Actual CREP easement values would be based on a formula. The formula would eliminate the need for appraisals and in the future allow landowners who have already preserved their farm before the CREP was in place to have the option of signing up for a CREP permanent easement.

The proposed formula would be based on 15 times the average soil rental rate. The NJDEP Green Acres Program would provide a lump sum payment for the CREP permanent easement to the landowner. Once CREP is up and running, the State would evaluate the effectiveness of the proposed formula and if necessary make adjustments according to the Proposal Revisions section of the proposal.

FPP dollars used to purchase the development easements on farms that enroll in CREP (rental and permanent agreements) would go towards New Jersey’s match if the preserved farm has an approved Conservation Plan that meets CREP goals. In addition, CREP permanent easements would continue to be available to farmers entering the FPP even after the State meets its 20 percent program contribution.

In 1998, voters passed a referendum to dedicate $98 million to the acquisition and preservation of farmland, open space, and historic properties.

# Appendix F: Drinking Water Contaminants, Human Health Impacts, and Agricultural Practices[10]

## Microorganisms

| Contaminant | MCLG[1] (mg/L)[2] | MCL or TT[1] (mg/L)[2] | Potential Health Effects from Ingestion of Water | Sources of Contaminant in Drinking Water |
|---|---|---|---|---|
| *Cryptosporidium* | zero | TT [3] | Gastrointestinal illness (e.g., diarrhea, vomiting, cramps) | Human and fecal animal waste |
| *Giardia lamblia* | zero | TT[3] | Gastrointestinal illness (e.g., diarrhea, vomiting, cramps) | Human and animal fecal waste |
| Heterotrophic plate count | n/a | TT[3] | HPC has no health effects; it is an analytic method used to measure the variety of bacteria that are common in water. The lower the concentration of bacteria in drinking water, the better maintained the water system is. | HPC measures a range of bacteria that are naturally present in the environment |
| Total Coliforms (including fecal coliform and *E. Coli*) | zero | 5.0%[4] | Not a health threat in itself; it is used to indicate whether other potentially harmful bacteria may be present[5] | Coliforms are naturally present in the environment; as well as feces; fecal coliforms and *E. coli* only come from human and animal fecal waste. |
| Turbidity | n/a | TT[3] | Turbidity is a measure of the cloudiness of water. It is used to indicate water quality and filtration effectiveness (e.g., whether disease-causing organisms are present). Higher turbidity levels are often associated with higher levels of disease-causing microorganisms such as viruses, parasites and some bacteria. These organisms can cause symptoms such as nausea, cramps, diarrhea, and associated headaches. | Soil runoff |
| Viruses (enteric) | zero | TT[3] | Gastrointestinal illness (e.g., diarrhea, vomiting, cramps) | Human and animal fecal waste |

## Inorganic Chemicals

| Contaminant | MCLG[1] (mg/L)[2] | MCL or TT[1] (mg/L)[2] | Potential Health Effects from Ingestion of Water | Sources of Contaminant in Drinking Water |
|---|---|---|---|---|
| Arsenic | 0[7] | 0.010 as of 01/23/06 | Skin damage or problems with circulatory systems, and may have increased risk of getting cancer | Erosion of natural deposits; runoff from orchards, runoff from glass & electronicsproduction wastes |
| Mercury (inorganic) | 0.002 | 0.002 | Kidney damage | Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and croplands |
| Nitrate (measured as Nitrogen) | 10 | 10 | Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome. | Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits |
| Nitrite (measured as Nitrogen) | 1 | 1 | Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome. | Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits |

## Organic Chemicals

| Contaminant | MCLG[1] (mg/L)[2] | MCL or TT[1] (mg/L)[2] | Potential Health Effects from Ingestion of Water | Sources of Contaminant in Drinking Water |
|---|---|---|---|---|
| Alachlor | zero | 0.002 | Eye, liver, kidney or spleen problems; anemia; increased risk of cancer | Runoff from herbicide used on row crops |
| Atrazine | 0.003 | 0.003 | Cardiovascular system or reproductive problems | Runoff from herbicide used on row crops |

| | | | | |
|---|---|---|---|---|
| Carbofuran | 0.04 | 0.04 | Problems with blood, nervous system, or reproductive system | Leaching of soil fumigant used on rice and alfalfa |
| 2,4-D | 0.07 | 0.07 | Kidney, liver, or adrenal gland problems | Runoff from herbicide used on row crops |
| 1,2-Dibromo-3-chloropropane (DBCP) | zero | 0.0002 | Reproductive difficulties; increased risk of cancer | Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards |
| Dinoseb | 0.007 | 0.007 | Reproductive difficulties | Runoff from herbicide used on soybeans and vegetables |
| Diquat | 0.02 | 0.02 | Cataracts | Runoff from herbicide use |
| Endothall | 0.1 | 0.1 | Stomach and intestinal problems | Runoff from herbicide use |
| Endrin | 0.002 | 0.002 | Liver problems | Residue of banned insecticide |
| Glyphosate | 0.7 | 0.7 | Kidney problems; reproductive difficulties | Runoff from herbicide use |
| Lindane | 0.0002 | 0.0002 | Liver or kidney problems | Runoff/leaching from insecticide used on cattle, lumber, gardens |
| Methoxychlor | 0.04 | 0.04 | Reproductive difficulties | Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock |
| Oxamyl (Vydate) | 0.2 | 0.2 | Slight nervous system effects | Runoff/leaching from insecticide used on apples, potatoes, and tomatoes |
| Picloram | 0.5 | 0.5 | Liver problems | Herbicide runoff |
| Simazine | 0.004 | 0.004 | Problems with blood | Herbicide runoff |

| | | | | |
|---|---|---|---|---|
| Toxaphene | zero | 0.003 | Kidney, liver, or thyroid problems; increased risk of cancer | Runoff/leaching from insecticide used on cotton and cattle |
| 2,4,5-TP (Silvex) | 0.05 | 0.05 | Liver problems | Residue of banned herbicide |

## Notes

[1] Definitions:
**Maximum Contaminant Level (MCL)** - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards.
**Maximum Contaminant Level Goal (MCLG)** - The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals.
**Maximum Residual Disinfectant Level (MRDL)** - The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
**Maximum Residual Disinfectant Level Goal (MRDLG)** - The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
**Treatment Technique** - A required process intended to reduce the level of a contaminant in drinking water.

[2] Units are in milligrams per liter (mg/L) unless otherwise noted. Milligrams per liter are equivalent to parts per million.

[3] EPA's surface water treatment rules require systems using surface water or ground water under the direct influence of surface water to (1) disinfect their water, and (2) filter their water or meet criteria for avoiding filtration so that the following contaminants are controlled at the following levels:

- Cryptosporidium (as of1/1/02 for systems serving >10,000 and 1/14/05 for systems serving <10,000) 99% removal.
- *Giardia lamblia:* 99.9% removal/inactivation
- Viruses: 99.99% removal/inactivation
- *Legionella:* No limit, but EPA believes that if *Giardia* and viruses are removed/inactivated, *Legionella* will also be controlled.
- Turbidity: At no time can turbidity (cloudiness of water) go above 5 nephelolometric turbidity units (NTU); systems that filter must ensure that the turbidity go no higher than 1 NTU (0.5 NTU for conventional or direct filtration) in at least 95% of the daily samples in any month. As of January 1, 2002, turbidity may never exceed 1 NTU, and must not exceed 0.3 NTU in 95% of daily samples in any month.
- HPC: No more than 500 bacterial colonies per milliliter.
- Long Term 1 Enhanced Surface Water Treatment (Effective Date: January 14, 2005); Surface water systems or (GWUDI) systems serving fewer than 10,000 people must comply with the applicable Long Term 1 Enhanced Surface Water Treatment Rule provisions (e.g. turbidity

standards, individual filter monitoring, Cryptosporidium removal requirements, updated watershed control requirements for unfiltered systems).

- Filter Backwash Recycling; The Filter Backwash Recycling Rule requires systems that recycle to return specific recycle flows through all processes of the system's existing conventional or direct filtration system or at an alternate location approved by the state.

[4] more than 5.0% samples total coliform-positive in a month. (For water systems that collect fewer than 40 routine samples per month, no more than one sample can be total coliform-positive per month.) Every sample that has total coliform must be analyzed for either fecal coliforms or *E. coli* if two consecutive TC-positive samples, and one is also positive for *E.coli* fecal coliforms, system has an acute MCL violation.

[5] Fecal coliform and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Disease-causing microbes (pathogens) in these wastes can cause diarrhea, cramps, nausea, headaches, or other symptoms. These pathogens may pose a special health risk for infants, young children, and people with severely compromised immune systems.

[6] Although there is no collective MCLG for this contaminant group, there are individual MCLGs for some of the individual contaminants:

- Trihalomethanes: bromodichloromethane (zero); bromoform (zero); dibromochloromethane (0.06 mg/L). Chloroform is regulated with this group but has no MCLG.

- Haloacetic acids: dichloroacetic acid (zero); trichloroacetic acid (0.3 mg/L). Monochloroacetic acid, bromoacetic acid, and dibromoacetic acid are regulated with this group but have no MCLGs.

[7] MCLGs were not established before the 1986 Amendments to the Safe Drinking Water Act. Therefore, there is no MCLG for this contaminant.

[8] Lead and copper are regulated by a Treatment Technique that requires systems to control the corrosiveness of their water. If more than 10% of tap water samples exceed the action level, water systems must take additional steps. For copper, the action level is 1.3 mg/L, and for lead is 0.015 mg/L.

[9] Each water system must certify, in writing, to the state (using third-party or manufacturer's certification) that when acrylamide and epichlorohydrin are used in drinking water systems, the combination (or product) of dose and monomer level does not exceed the levels specified, as follows:

- Acrylamide = 0.05% dosed at 1 mg/L (or equivalent)

- Epichlorohydrin = 0.01% dosed at 20 mg/L (or equivalent)

[10] This information summarized from the EPA's "Current Drinking Water Standards" website found at http://www.epa.gov/safewater/mcl.htmlT.

# Appendix G: Scoping/Consultation Information

(see hard copy insert)