

Appendix C. Selections from the Lower Delaware National Wild and Scenic Study Report (National Park Service, 1999).

Excerpts from the NPS report are reproduced here.

The NPS report is available for download at

<http://www.nps.gov/chal/sp/p07new1.htm#contents>

Requirements for Designation

Before a river can be added to the National Wild and Scenic Rivers System, it must be found both eligible and suitable. To be eligible, the river must be i) free-flowing; and, ii) possess at least one “outstandingly remarkable” resource value, such as exceptional scenery, recreational opportunities, fisheries and wildlife, historic sites, or cultural resources. The resource values must be directly related to, or dependent upon, the river. The determination of a resource’s significance, i.e. the degree to which it fulfills the “outstandingly remarkable” requirement, is based on the professional judgment of the study team.

The suitability determination is based upon several findings. First, there must be evidence of lasting protection for the river’s free-flowing character and outstanding resources, either through existing mechanisms (including patterns of conservation land ownership, state and local land use regulations, physical barriers to inappropriate development, etc.), or through a combination of existing and new conservation measures resulting from the wild and scenic study. Second, there must be strong support for designation from the entities — local municipalities, state agencies, riverfront landowners, conservation organizations — that will be partners in the longterm protection of the river. Third, a practical management framework must be devised that will allow these interests to work together as effective stewards of the river and its resources. Finally, wild and scenic designation must make sense for the river in question: it must be an appropriate and efficient river conservation tool.

In proposing a river for designation, a recommendation is also made regarding the river’s proposed classification . The classification — wild, scenic, or recreational — is based solely on the intensity of human presence along the river corridor, in the form of railroads, highways, utility lines, buildings, etc., at the time of classification. A river’s classification is principally used to guide future actions by federal agencies on projects affecting federally-owned lands (e.g., whether the construction of a new boat ramp is appropriate).

The Act defines the three classifications as follow:

Wild river areas — Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds and shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

Scenic river areas — Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

Recreational river areas — Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Description of the Study Area Resources

The lower Delaware River is unique in its diversity of significant resources. A high density of population and recreational opportunities combine here with a wealth of natural, cultural and historic features of unparalleled national significance. The river valley contains habitats that do not occur elsewhere in the region. For example, there are sheer cliffs that rise 400 feet above the river. Southern facing cliffs are dry and desert-like, and are home to prickly pear cactus. North-facing cliffs exhibit flora usually found only in arctic-alpine climates. The river itself provides habitat for American shad, striped bass, and river herring, providing a high quality recreational and economic resource. The river is an important component of the Atlantic Flyway, one of four major waterfowl routes in North America. From an historic viewpoint, the river is one of the most significant corridors in the nation, with crucial infrastructure still intact. The corridor contains buildings used

during Washington's famous crossing, historic navigation canals, Native American and colonial era archaeological sites, mills, etc. Just as important is the magnificent scenery. The view from the river for most of its length is of an undisturbed natural area, despite development taking place in the corridor.

The Lower Delaware Wild and Scenic Task Force identified five major categories of resources that require proper management in order to protect the river corridor:

- Water Quality
- Natural Resources
- Historic Resources
- Recreation
- Open Space

Natural Resources

The lower Delaware River includes a diversity of ecosystems that support unique vegetation and wildlife. It flows through rolling hills and broad valleys; cliffs and palisades have emerged where the river has cut deeply into the rock. Rare plants cling to rock outcrops. On shelves of north-facing cliffs in Pennsylvania grow Arctic-Alpine plants such as Rosey sedum, while cacti dot the cliff shelves on the south-facing New Jersey side. Woodlands cover many of the river islands and the sloping hills, cliffs, and palisades along its banks providing habitat for an abundance of wildlife including the endangered *Bald Eagle* and *Peregrine Falcon*. The water itself supports a diversity of fish populations. The river's valuable natural resources provide a sense of timeless beauty and peacefulness to all who take the opportunity to experience it. Following is a description of the natural resources in greater detail:

Geology

The character of the lower Delaware River corridor's geology changes dramatically over the corridor's length. Geologists have classified geologic differences by assigning them to geologic provinces. The lower Delaware corridor encompasses four such provinces, beginning at the northern end of the corridor with the Valley and Ridge Province. Like all of the geologic provinces, the Valley and Ridge is a band which crosses the river in a more-or-less east-west direction. The topography of the lower Delaware River is quite dramatic in the Valley and Ridge Province and gradually flattens as one proceeds southward through the New England and Piedmont Provinces, until reaching the Coastal Plain Province near Trenton, where the landscape becomes quite flat. The Coastal Plain Province, in fact, is a fairly recently elevated sea bottom.

Mineral resource extraction has a long history in the corridor. Fluxistone and iron ore mining and dimension stone quarrying flourished intermittently during the eighteen and nineteenth centuries. Presently basalt used for manufacture of asphalt, concrete and other construction purposes, sand, gravel, and dimension stone are mined in the corridor.

Vegetation/Critical Habitat

There is a variety of vegetation in the plan area resulting from differences in elevation, aspect, climate, physiography, geology and land use. Within the Piedmont uplands of red shale, red cedar grow on abandoned farms. They are eventually shaded by taller maples and oaks. North of the Piedmont in the New Jersey Highlands Province, the plant species in the early successional stages are dominated by gray birch and largetoothed aspen. Major tree species identified in the study corridor include: black, grey, river and yellow birch; red maple; red oak; white ash; large-toothed and trembling aspen; black locust, walnut, and black cherry; sycamore; and hemlock. Shrubs include willow, spirea, silk dogwood, and alder. Woody species above the floodplain include blueberry, huckleberry, rhododendron, mountain maple, staghorn sumac, sweet fern, and witch hazel. Vegetation along the river corridor provides valuable habitat for birds and other animals and shade for fish in the river.

Some areas contain special vegetation features including rare plant species, unique or unusual floral habitats, or outstanding individual specimens. For example, in some areas sheer cliffs, rising to 400 feet above the valley floor, support special flora found at no other sites in the area. Rapid drainage and exposure to winds and sun makes southern facing cliff habitats dry and desert-like. *Eastern red cedar* is the dominant tree. *Mountain spleenwort* and *Goat's rue* are commonly found on crests and ledges or in rock crevices. Flora on cliffs such as Milford Bluffs in Hunterdon County and Nockamixon Cliffs in Bucks County is rare for the northeastern U.S. *Roseroot*, an arctic-alpine herb that grows on

shelves and crevices near the top of these cliffs, is in its southern-most habitat here. Prickly Pear is abundant on Milford Bluffs which also provide habitat to *Green Violet* and *Smooth Veiny Peavine*, both on the NJ endangered plant list.

Bull's Island, about 3.5 miles north of Stockton, NJ has an exemplary forested floodplain habitat with mature sycamore, silver maple, locust and box elder. The southern portion of the island is a Natural Area, designated by New Jersey for its northern floodplain habitat and rare species habitat.

Continued development in the region is altering the composition of the forests because as these forests are fragmented, more forest edge is created causing a great increase in plant species that thrive in edge habitats.

The Nature Conservancy, in cooperation with the states of New Jersey and Pennsylvania, have identified "critical habitats" in the corridor. Meeting the outstandingly remarkable resource criteria are:

New Jersey

Alpha (Pohatcong) Grasslands
Bull's Island
Burlington Island
Byram Hillside
Delaware River Bridge at Stockton
Delaware River Floodplain, Delaware Township
Delaware River Floodplain, Harmony Township
Delaware River Floodplain, Knowlton Township
Garrison Road Site
Goat Hill
Hawk Island
Holcombe Island
Javes Road site (wetland at Hakihokake Creek)
Kingswood Township Bluffs
Manunka Chunk Bluffs
Milford Bluffs
Mine Hill
Mount Tammany
Newbold Island
Phillipsburg Bluffs
Pohatcong Mountain
Riegelsville Bluffs
Scudders Falls Islands
Strawberry Hill
Treasure Island

Pennsylvania

Biles Island
Delhaas Woods County Preserve
Durham Mines
Frya Run Creek
Hendricks Island
Jacoby Creek
Maple Beach
Mariton Wildlife Sanctuary
Marshall Island
Mine Hill
Morrisville river shore
Mud Island
Nockamixon Cliffs
Paunacussing Creek
Scudders Falls Islands
Sol and Rose Conservation Area
Van Sciver Lake

Fisheries

The lower Delaware River supports a wide diversity of anadromous and resident fish populations that are important commercially, recreationally and ecologically. Migratory species such as American shad, striped bass and river herring are increasing in the river in response to improved water quality and fish management. Their continued survival is dependent on the water quality of the river's lower reaches. Resident species such as smallmouth bass, channel catfish, walleye pike, hybrid muskellunge, white catfish, bullhead, white perch, sunfish, suckers, and eels add to this important recreational fishery.

One of the most recreationally and economically important fish species in the river basin is the *American Shad*, a New Jersey state threatened species. Populations of American Shad have increased tremendously in response to improved water quality. Today, approximately 900,000 adult American Shad ascend the Delaware River each spring. Fish ladders have been installed at Easton to allow shad to migrate up the Lehigh River. Annual shad festivals held in Lambertville, NJ and Easton, PA, and the Delaware River Shad Fisherman Tournament illustrate the successful relationship between tourism and fisheries.

The federally listed endangered *Shortnose Sturgeon* is concentrated in the estuary between Philadelphia and Trenton and is known to spawn in the Yardley and Lambertville areas. The globally rare *Atlantic Sturgeon* travels upriver as far as Trenton.

Coldwater fisheries are supported in numerous creeks entering the river in the plan area. Many creeks are stocked with trout and are accessible to the public.

River management practices could impact the diversity or the balance of fish and other aquatic life in the corridor. Diversion and release of the water, as well as dredging in the estuary, might create conditions that favor some species over others. The use of high speed boats and personal water craft, particularly in the shallower sections of the river, could also be altering the habitat for many species.

Wildlife

Many species of wildlife exist in the plan area, some of which are rare, threatened, or endangered.

Important reptile and amphibian species known to occur in or near the river corridor area include bog turtles, New Jersey chorus frogs, coastal plain leopard frogs, eastern mud turtles, and red-bellied turtles. The bog and/or red-bellied turtles occur at sites within the Cooks Creek watershed in upper Bucks County, Frya Run Creek, on the Delaware near Washington Crossing, and in Trenton-Hamilton Marsh in the southern portion of the plan area.

Among mammal species, white-tailed deer populations have increased notably since the early 1900's in New Jersey and Pennsylvania. Many naturalists are concerned that deer have increased in such numbers that they threaten the existence of many of the plant species they eat. Deer may also threaten other animal species that rely upon the same food for survival. Beaver and river otter are active along the Delaware. Four endangered, threatened or rare bat species inhabit parts of Upper Bucks (PA) and Hunterdon (NJ) counties in the river corridor vicinity: *Keen's bat*, *Small-footed bat*, *Northern Longeared bat*, and *Indiana bat*.

The plan area is recognized on a national and state level for many characteristics related to bird breeding and migration:

- It is located along the Atlantic Flyway, one of four major waterfowl migratory routes in the U.S.
- The Nockamixon Cliffs historically provided nesting sites for the federal and state-endangered Peregrine Falcon. They last nested here in the 1940's and reintroduction efforts have brought them back from the edge of extinction.
- Bald Eagles, federal (until 1994) and state endangered, use the river's shoreline and islands for winter habitat.
- State endangered osprey are also making a comeback along the Delaware River through a reintroduction program.
- The Least Bittern, a PA threatened species, breeds in Upper Bucks County and the Trenton-Hamilton Marsh.
- The Alpha (Pohatcong) Grasslands are noted for nesting grassland species that are declining and for over-winter populations of Northern Harriers and Short Eared Owls.
- Mature hardwood forests of the river's floodplain and islands are important breeding areas for declining neotropical bird species.

Potentially important areas for migrating birds include the many small ravines and stream valleys along the river and its tributaries, floodplains, and other wetland areas, river islands, and wooded corridors. A critical concern for species in the plan area is preservation of remaining habitat. The following is a list of birds in the plan area that are endangered or threatened:

Endangered: Bald Eagle
 Osprey
 Peregrine Falcon

Threatened:	American Bittern	Least Bittern
	Bobolink	Northern Harrier
	Common Snipe	Red-headed Woodpecker
	Cliff Swallow	Red Shouldered Hawk
	Cooper's Hawk	Savanna Sparrow
	Grasshopper Sparrow	Upland Sandpiper
	Great Blue Heron	Yellow-bellied Flycatcher

Delaware River Islands

There are about 50 islands in the plan area, varying in size from a few gravel mounds in summer to forested habitats of more than 300 acres. Ownership of the islands is divided nearly equally between private and public interests. Because of limited access and seasonal flooding, the islands remain relatively natural, a condition that is considered by many to be of very great importance to the continued natural charm of the corridor. Permanent preservation of the islands has been a high priority for many environmental groups.

The islands provide critical stopovers for migratory birds, and the shallow water areas around them are important nurseries and feeding grounds for a variety of fish. The forested islands provide a rich environment for nesting waterfowl, herons and songbirds.

Islands that contain habitat recognized as “critical” for endangered native plant species are included in the list on pages 29-30.

Wetlands

Wetlands, once thought to have little or no value, are now recognized as a vital link in our ecological system. Wetlands nurture some of the most uncommon plants in the region, including wild rice on which migrating waterfowl feed. The following is a list of critical wetlands in the Plan area:

New Jersey

Trenton/Hamilton Marsh, 1,200 acres; most northerly tidal marsh on the Delaware River.

Pennsylvania

Bristol Marsh, one of three remaining freshwater tidal areas on the river.

Kauffman Hill Swamp, 400 acres, Bridgeton and Nockamixon townships

Quakertown Swamp, headwaters of the Tohickon Creek

Historic Resources

The lower Delaware River contains historic resources of great national significance; it is a microcosm of American history. Colonial development, the American Revolution, transportation evolution, the Industrial Revolution, urbanization, suburbanization, art and theater are all represented within the corridor.

The river provided access to the region for both Native Americans and European settlers and defined development patterns. Virtually every major town on both sides of the river in the plan area began as a ferry crossing.

The first public reading of the Declaration of Independence took place in Easton on July 8, 1776. George Washington’s crossing of the Delaware on Christmas Eve is an event known by most school age children in the United States. The development of canals and railroads along the river in the nineteenth century allowed mineral wealth and farm products to reach growing urban markets.

Before European settlement, the Lenni Lenape hunted and fished along the Delaware and its tributaries. Many Native American archaeological sites have been documented along the corridor. The names of numerous towns, roadways and creeks are taken from the Native American language, such as Tohickon, Tincum, Lopatcong, Pohatcong, Paunacussing, Wichecheoke, Aquetong, and Pequest.

European settlement began in the seventeenth century and by the end of the eighteenth century had significantly changed the environment. Forests were cut, sawmills built, land cleared for farming, and roads opened.

The 1800’s brought major technological changes, and the Industrial revolution was underway. The Delaware River corridor had all the natural assets needed to spur vibrant industrial growth. It was rich in the essential resources— water, coal, wood, and iron—and occupied a prime location.

In the nineteenth century canals were established to aid in the transportation of anthracite coal from the Lehigh River region to rapidly growing industrial markets in Trenton, Philadelphia, New York, and elsewhere. The Delaware Division of the Pennsylvania Canal, the Delaware and Raritan Canal, and the Morris Canal were built for that purpose. The canals were largely hand-dug by local farmers and Irish immigrants using picks, shovels, and wheelbarrows. Towns developed at the terminus of the canals. Smaller towns emerged along the canals, and parallel railroads were built soon after the canals. The Delaware Canal, which operated between 1827 and 1932, is now a State Park used for recreational purposes by thousands each year and is a National Historic Landmark. The Delaware Canal is also an important component of the Delaware & Lehigh Canal National Heritage Corridor. The Delaware and Raritan Canal, which serves today as a water supply system, is also a State Park and a National Historic Landmark. Interest is growing in protecting and interpreting the remains of the Morris Canal.

The river shaped the emerging economic/physical landscape in ways that are enduring. Above the fall line at Trenton, development of towns was limited, and tributary streams fall sharply from the highlands down into the river valley. Gristmills and sawmills were built near the Delaware River along many of these tributaries to exploit the water power. Though many mills have been destroyed, several remain. Limekilns were built on the river's edge, the ruins of which are still found near Uhlerstown and Phillipsburg.

The significance of the scenic river, historic canals and towns, and remnants of early industries has already been recognized by: Congressional designation in 1988 of the Delaware and Lehigh Navigational Canal National Heritage Corridor, a key component of which is the Delaware Canal; designation of twenty-nine National Historic Districts as well as eight National Historic Landmarks. In addition, thousands of other archaeological and historic sites along the river corridor have been identified and mapped.

Funding to encourage historic preservation through documentation, acquisition, restoration, development and interpretation is limited. The problem is compounded by lack of coordination between municipalities, non-profits, states, and other programs. Regional programs like the D&L Heritage Corridor are a strong advance toward better coordination. However, given the significance of the area's historic resources and their potential for economic development, the regional commitment to their preservation and interpretation is weak.

Historic and cultural sites and districts which are listed on the National Register of Historic Places:

New Jersey

Belvidere Historic District
Berkeley Square Historic District
Bordentown Historic District
Borough of Frenchtown Historic District
Burlington Historic District
Calhoun Street Bridge over the Delaware River
Delaware and Raritan Canal National Historic Landmark
Early Trenton Historic District
General Dickinson House
Jacob's Creek Somerset Mills
Lambertville Historic District
McCall Mansion, Cadwalader Park
Morris Canal National Historic Landmark and Morris Canal Arch
Old Barracks National Historic Landmark
Pennsylvania Railroad Bridge over the Delaware River
Pleasant Valley Rural Historic District
Point Breeze Historic District
Prallsville Mills Historic District
Pursley's Ferry Historic District
Ralph Kuser Mansion
Roebing Historic District
State House Historic District
Titusville Historic District
Washington Crossing National Historic Landmark
William Trent House National Historic Landmark

Pennsylvania

Andulusia – estate of Nicolaus Biddle, head of first Bank of the U.S.
Upper Aquetong Valley Historic District

Bristol Historic District
 Bristol Industrial Historic District
 Brownsburg Historic District
 Carversville Historic District
 Centre Bridge Historic District
 Coffeetown Grist Mill
 Delaware and Lehigh Canal National Heritage Corridor and State Heritage Park
 Delaware Canal National Historic Landmark
 Easton National Register Historic District
 Frya Run Bridge
 Grundy Mill Complex
 Historic Fallsington District
 Harriman Historic District
 Honey Hollow Watershed National Historic Landmark
 Jacoby Creek Bridge
 Jefferson Land Association Historic District
 Lumberville Historic District
 New Hope Historic District
 Pennsbury Manor – home of William Penn
 Phillips Mill Historic District
 Point Pleasant Historic District
 Ridge Road Rural Historic District
 Slate Hill Cemetery
 Summerseat – home of Robert Morris, financier of the Revolution
 Three Arches – home of John and Mary Sotcher, steward and housekeeper to William Penn.
 Uhlerstown Historic District
 Washington Crossing National Historic Landmark

Recreational Resources

Because of its great beauty and many natural and cultural resources, and because the Delaware River is within a day's drive of 40% of the U. S. population, it is an extraordinarily important recreational resource for millions of people. One can expect to see almost any kind of recreational boat on the river — canoes and kayaks, speed boats and jet skis, fishing boats, shells, excursion boats with pontoons and fringe-lined roofs —and in many places the river is dotted in summer with people floating with the current on innertubes. Hikers, joggers, and bicyclists crowd the canal paths on either side of the river. Fishermen, bird watchers, and people seeking a natural landscape are drawn in great numbers to the corridor. Campgrounds are scarce in the corridor, but those that do exist are popular.

There are large number of state and local parks in the corridor. The Delaware and Raritan Canal State Park (NJ) and the Delaware Canal State Park (PA) are popular recreational corridors. Both have trail systems designated as National Recreational Trails. While these parklands provide a wealth of recreational opportunities, they are primarily disconnected “areas” of recreation and do not represent a cohesive recreational system. A lack of sufficient public facilities and boating access is also a limiting factor to these areas, a situation that has its benefits as well as its problems.

The use of the corridor for recreation brings with it many difficulties. While the great majority of people drawn to the corridor for recreation are respectful of the region's fragile resources and of the rights of others, enough people lack this respect that conflicts arise. The privacy and security of property owners are often violated by boaters, tubers, and others. Trash is often discarded without consideration.

No recreational issue in the lower Delaware River corridor raises more comment than the use of personal water craft, commonly called Jet Skis. These vehicles are frequently modified in ways that maximize the amount of noise they can make — a level of noise that intrudes on any other activity in the corridor. Furthermore, the drivers often create a situation that frightens other boaters and river users by riding at high speeds in circumstances that are often unsafe. These water craft also disrupt wildlife both by their loud, intrusive noise and by disturbing the ecosystem of the river's shallow areas.

Citizen protest has prompted legislative review of ways to control personal water craft use. New Jersey passed new safety regulations effective July 1, 1997, which require operators of personal watercraft to be at least 16 years of age and to obtain a boating safety certificate. However, no satisfactory solution is yet in view. Action must be taken jointly by New Jersey and Pennsylvania, and enforcement must be provided on a far higher level than presently exists on either side of

the river. This enforcement can only be created by the allocation of more money for the enforcing bodies, a difficulty given the present budget restrictions in both states.

Protected open space and public parks in the plan area:

New Jersey

Blaugard Island
Bulls Island Recreation Area
Cadwalader Park
Columbia Lake Wildlife Management Area
Delaware & Raritan Canal State Park
Delaware Watergap National Recreation Area
Dildine Island, Macks Bar
Eagle Island
Frenchtown Municipal Park
Lockatong Creek Preserve
Milford Bluffs Preserve
Musconetcong Gorge County Preserve
Kittatinny Valley Trail State Park
Phillipsburg Riverfront Park
Roebbling Memorial Park, Trenton Marsh
Rotary Island
Rush Island
Shandor Island
Trenton Riverfront Park
Washington Crossing State Park

Pennsylvania

Bowman's Hill Wildflower Preserve
Bristol Borough Riverfront Park
Delaware Canal State Park
Delaware Watergap National Recreation Area
Easton Riverfront Park
Falls of Delaware Park
Frost Hollow County Park
Frya Run County Park
Hal Clark Park
Lehigh Canal-Hugh Moore Park Heritage Corridor
Macclesfield Municipal Park
Martins Creek Recreation Area
Morgan Hill Island
Mount Jack County Park
Mud Run County Preserve
Neshaminy State Park
Nockamixon Cliffs
Nockamixon State Park
Old Sow Island
Pen Ryn County Park
Pennsbury Manor State Park
Prahls Island group
Ralph Stover State Park
Raubs Island
Ringing Rocks County Park
Silver Lake County Park
State Gamelands #56 (Rapp and Beaver creeks)
Tinicum County Park
Tohickon Valley Park
Washington Crossing State Park
Waterfront Park, Falls Township
Whippoorwill Island
Williamson Municipal Park
Wy-Hit-Tuk County Park

Scenic Resources

The lower Delaware River corridor provides year-round scenic opportunities. During the summer, lush vegetation along the river's floodplain and wooded slopes provides surprisingly "natural" landscapes. Fabulous fall colors combined with the pleasant autumn climate make the corridor an excellent site for color tours and outdoor opportunities. Winter provides dramatic natural ice sculptures on bluffs and cliffs. Spring heralds nature's migration and the songbirds reappear.

The traveler can choose to take to the water at various public access points to view the waterway. The view from the river provides a sense of being in pristine surroundings. Public riverfront parks have been established in some municipalities, but access to the river is still limited in many areas.

On the other hand, travel by roadway not only provides beautiful views of the river and canals, but passes through historic riverside towns. In Pennsylvania, River Road (Routes 32 & 611) from Kintnersville to Morrisville is a Pennsylvania Scenic Road. New Jersey's River Road (Route 29) between Frenchtown and Trenton has been designated a New Jersey Scenic Byway.

The Delaware River offers tranquil and often dramatic rural scenery that has become increasingly rare in the highly urbanized Northeast corridor.

Economic Resources

Land use between the Delaware Water Gap and Washington Crossing is a complex mix including agricultural, small towns, light commercial uses, growing suburban-style residential development, second-home and vacation residential development, tourist facilities such as restaurants, bed and breakfasts and river-related recreational facilities, and public lands. Despite the intensive use, the lower Delaware River corridor has retained much of its natural shoreline and highly scenic quality.

The river corridor between south of Washington Crossing and the southernmost border of the plan area at the Bucks County/Philadelphia line is the most densely populated with cities, suburban residential areas and light industrial uses. Trenton is the largest urban center in the lower Delaware River corridor. Major residential development occurred in lower Bucks County from 1950 to 1965 when Levittown and Fairless Hills were constructed to house employees of the USX Corporation Fairless Works, still the largest industrial complex in the plan area. The opening of Interstate Route 95, which crosses the river above Yardley, PA, led to increased residential subdivisions. Industrial sites are primarily located in the Easton, PA area and in the tidal estuary portion of the plan area beginning at Trenton, NJ and Morrisville, PA and extending down river to the southern plan area boundary. An expanding land use in the lower reaches in recent years is trash disposal landfills and processing plants.

Urban areas in the corridor are important as focal points for access to and celebration of the river and are valuable economic generators. Economic development is a significant component in the provision of jobs and in maintaining a balanced and prosperous economic base that not only helps attract visitors, but provides the tax base to support the preservation efforts of local governments.

The lands in and around the plan area are in great demand for new residential and commercial development, creating pressures that can threaten the fragile environment and scenic beauty of the river corridor. Economic prosperity depends upon both continued growth and preservation of the corridor's natural and cultural resources. Achieving these two often-conflicting goals will require a more region-wide approach to development than presently exists.

The historic treasures and scenic beauty of the Delaware River corridor offer numerous economic opportunities pertaining to "Eco-tourism." Many travelers are seeking destinations that provide historical and cultural stimulus as well as a chance to commune with nature through hiking, boating, bird watching, camping, etc.

More than three centuries of growth has left the Delaware River corridor a unique legacy. It is reflected in the area's prominent position in the nation's history, in the commerce and industry that grew up there and still characterize the region, in the ethnic and cultural diversity of the area, and in the wealth that its commerce and productivity have generated. The challenge now is to preserve that legacy while providing for managed economic growth.

Open Space

Preservation of open space is the basis for preserving all of the outstandingly remarkable resources in the lower Delaware River corridor. It is critical to water quality because it is from developed areas — not from natural lands — that pollution flows into the ground and surface waters. Natural areas have more stable soils than places where development has occurred, thus reducing the turbidity of storm water that runs off a site after a rainfall. Finally, natural lands in this region will eventually support a deciduous forest. Trees shade the water in smaller streams, cooling it and increasing the water's ability to contain oxygen, one of the most important elements in countering water pollution.

The preservation of open space is also the surest way of preserving habitat for rare and endangered plant and animal species. Some of these species can survive in developed areas, but habitat loss is the primary reason that these species become rare or endangered.

Historic sites in the corridor are also dependent upon the preservation of open space. If a historic structure is preserved but the land around it experiences modern development, the structure often loses its context and much of its historic value.

The importance of open space to the preservation of scenic values and to recreation sites is obvious. Any loss of open space in the corridor would significantly reduce the scenic character and recreational opportunities that made the river corridor eligible for National Wild and Scenic designation. Recreational opportunities in the corridor are almost entirely dependent upon preserving open space. Boaters, bird watchers, campers, hikers, cross-country skiers, tubers — virtually all who come to the corridor for recreation — need open space for their activities and depend upon it to assure that the corridor is attractive enough to make it a suitable place for such activities.

Agricultural land is an important component of open space. Compared to most types of land uses, properly managed agriculture preserves many natural and cultural values such as retention of critical aquifer recharge areas, protection of critical wildlife areas, maintenance of natural stream flow, conservation of prime soils, preservation of rural or historic character, and preservation of scenic landscapes. Farmlands reduce some of the extensive costs associated with scattered development. Farmlands also reduce the negative environmental impacts that diminish the attractiveness of the Delaware Watershed. Farmlands consistently generate more tax revenue than it requires in service expenditures. In contrast, residential areas require services that cost more than the tax revenue they generate. Equally important, farmers often possess valuable knowledge of their community's natural and cultural environment. The lower Delaware River and its tributaries include extensive agricultural lands along their shores, contributing to their outstanding scenic value.

The Northeast corridor is the most densely populated area in the country. The Delaware River corridor presents a rare opportunity for solitude and oneness with nature. Preserving this quality is important to the social and cultural health of the public and the economic health of the region.

Eligibility and Classification

The purpose of this chapter is to document National Park Service findings relative to the eligibility of the study river segments for designation and the proposed classification under which the eligible segments could be included in the National Wild and Scenic River System.

Eligibility Requirements

The Wild and Scenic Rivers Act requires that for river segments to be eligible for inclusion into the national system they be free-flowing and adjacent to or within related land areas that possess one or more outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values.

Free-flowing Condition

The Wild and Scenic Rivers Act is intended to protect only “free-flowing” rivers, and such flows must be adequate to support all flow-dependent outstanding resource values. Section 16(b) of the Act defines “free-flowing” as:

“...existing or flowing in natural condition without impoundment, diversion, straightening, riprapping, or other modification of the waterway. The existence, however, of low dams, diversion works, and other minor structures...shall

not automatically bar...consideration for...inclusion: Provided, that this shall not be construed to authorize, intend, or encourage future construction of such structures within components of the national wild and scenic rivers system.”

Federal guidelines provide the following additional clarification:

“The fact that a river segment may flow between large impoundments will not necessarily preclude its designation. Such segments may qualify if conditions within the segmentExisting dams, diversion works, riprap and other minor structures, will not bar recreational classification provided that the waterway remains generally natural and riverine in its appearance.”

Outstandingly Remarkable Resources

The criteria for deciding what qualifies as an outstandingly remarkable resource were adapted from two primary sources: *The Natural and Recreational Resource Evaluation* prepared for the Delaware and Lehigh Canal National Heritage Corridor Commission and *A Systematic Approach to Determining the Eligibility of Wild and Scenic River Candidates* produced for the Columbia Gorge National Scenic Area. These documents incorporated established criteria for National Park Service and United States Forest Service efforts. Further information was derived from professional planning publications. The criteria for outstandingly remarkable resources are as follows:

1. Officially Recognized

National

The resource’s significance has been established through designation or recognition in federal programs such as endangered, threatened and/or rare species of fish, wildlife and vegetation; historical and cultural sites and parks; and exceptional waters.

State

The resource has been designated or recognized by the State of New Jersey and/or the Commonwealth of Pennsylvania in their programs such as scenic rivers or by-ways; historical and recreational parks; endangered, threatened or rare fish, wildlife or vegetation; and stream/water quality classifications.

Regional Importance

Regional significance has been recognized and documented in programs such as critical natural areas studies and university/ foundation research.

2. Relationship to the River

Existence

The resource’s existence is/was owed to its location along the river or tributary corridor. For example, a rare bird depends on a specific habitat in the corridor for survival, or an historic mill was placed on a stream segment because of the water flow.

Role

The resource’s contribution or influence on the functioning of the river or tributary, such as groundwater aquifers. If the resource meets one criteria from each of the two sections, it is considered outstandingly remarkable.

Outstandingly Remarkable River Values and Resources

The lower Delaware River corridor contains the following outstandingly remarkable resource values as exemplified by the corresponding resources. The listed resources meet the criteria for determination of outstandingly remarkable resources described above. The existence of these outstandingly remarkable resource values and the determination that a river segment is free flowing result in the river segment being eligible for inclusion into the National Wild and Scenic Rivers System.

Physiography and Geology

NEW JERSEY

Milford Bluffs, Holland Twp. (**Study Segment F**)
Devils' Teatable, Kingwood Twp. (**Study Segment F**)

PENNSYLVANIA

Nockamixon Cliffs, Nockamixon Twp. (**Study Segment E**)
Ringing Rock, Bridgeton Twp. (**Study Segment E**)
Monroe Triassic Border Fault, Durham Twp. - a National Natural Landmark (**Study Segment E**)
Tohickon Creek: Triassic Lockaton and Brunswick Formations, Tinicum Twp. (**Study Segment M**)
Tohickon High Rocks, Tinicum Twp. (**Study Segment M**)
Durham Caves and Durham Mines, Durham Twp. (**Study Segment E**)

Water Quality

The following streams have been designated by their respective state as having high water quality. Each stream listed flows into the Delaware River, a study tributary, or is a study tributary. The water quality of these tributaries sustains the water quality of the Delaware River itself.

PENNSYLVANIA

To implement federal antidegradation requirements, the Pennsylvania Department of Environmental Resources designates certain streams High Quality or Exceptional Value waters as defined in Chapter 93 of its rules and regulations. The definitions are as follows:

High Quality Waters — A stream or watershed which has excellent quality waters and environmental or other features that require special water quality protection.

Exceptional Value Waters — A stream or watershed which constitutes an outstanding national, state, regional, or local resource, such as: waters on national, state, or county parks or forests; waters which are used as a source of unfiltered potable water supply; waters of wildlife refuges or state game lands; waters which have been characterized by the Fish Commission as 'Wilderness Trout Streams;' and other waters of substantial recreational or ecological significance.

Exceptional Value Streams:

Cooks Creek, Durham Twp. etc., Bucks Co. (**Study Segment K**)

High Quality - Cold Water Fisheries Streams:

Slateford Creek, Northampton Co. (**Study Segment A**)
Jacoby Creek, Northampton Co. (**Study Segment A**)
Bushkill Creek, Forks Twp., Northampton Co. (**Study Segment D**)
Frya Run, Northampton Co. (**Study Segment E**)
Pannucussing Creek, Bucks Co. (**Study Segment N**)
Cuttalossa Creek, Bucks Co. (**Study Segment G**)
Aquetong Creek, Bucks Co. (**Study Segment G**)
Rapp and Beaver Creeks, Bucks Co. (3rd Order) — headwaters of Tinicum Creek (**Study Segment L**)

NEW JERSEY

New Jersey's waters, as related to their ability to support trout, are defined in the NJ Department of Environmental Protection's Surface Water Quality Standards (N.J.A.C. 7:9-4) as follows:

Trout Production Waters — Waters designated for use by trout for spawning or nursery purposes during their first summer.

Trout Maintenance Waters — Waters designated for their support of trout throughout the year.

Trout Production Streams:

Buckhorn Creek, Warren Co. **(Study Segment D)**

Merrill Creek, Warren Co. **(Study Segment D)**

Lopatcong Creek, Warren Co. **(Study Segment E)**

Pohatcong Creek, Warren Co. **(Study Segment F)**

Trout Maintenance Streams:

Paulinskill River, Warren Co. **(Study Segment J)**

Pequest River, Warren, Co. **(Study Segment B)**

Delawanna Creek, Warren Co. **(Study Segment B)**

Musconetcong River, Warren & Hunterdon counties **(Study Segment O)**

Hakihokake Creek, Hunterdon Co. **(Study Segment F)**

Species of Concern

The species of concern below are identified and ranked by the Federal and State governments and the Nature Conservancy as endangered, threatened, or rare, thus, qualifying as outstandingly remarkable resources in need of protection. Below is a brief description of the rankings:

G = Global Element Ranks

G1 = Critically imperiled globally.

G2 = Imperiled globally.

G3 = Very rare and local throughout its range or found locally in a restricted range.

G4 = Apparently secure globally, quite rare in parts of its range.

G5 = Demonstrably secure globally, quite rare in parts of its range.

S = State Element Ranks

S1 = Critically imperiled in state.

S2 = Imperiled in state.

S3 = Rare in state.

E = Endangered, T = Threatened, R = Rare

(NJ = New Jersey, P = Pennsylvania)

B = Biodiversity Significance

H = Historical Significance

Vegetation

Segment vA: Delaware Water Gap to Columbia/Portland Toll Bridge

Pennsylvania

Hoary Willo/Sage-leaved Willow (*Salix candida*) PT, G5/S2

Grass of Parnassus (*Parnassa glauca*) PT, G5/2

Prostrate Sand Cherry (*Prunus pumil* var. *depressa*) PT, G5/S3

Brook Lobelia (*Lobelia kalmii*) PE, G5/S1

White Heath Aster (*Aster ericodes*) PR, G5/S3

Bicknell's Sedge (*Carex bicknelli*) PR, G5/S1

Atlantic Sedge (*Carex sterilis*) PT, G4/S2

Wood's Sedge (*Carex tetanica*) PT, G4/S2

Whorled Nut-rush (*Scleria verticillata*) PE

Segment B: Erie Lackawanna Railroad Bridge to Dildine Island

New Jersey

Nebraska Sedge (*Carex jamesii*) NJE, G5/S1
Broadleafed Waterleaf (*Hydrophyllum canadense*) NJE, G5/SH
Foxtail Sedge (*Carex alopecoidea*) NJE, G5/SH
Blackberry Species (*Rubus orarius*) S2
Hairy Lipfern (*Cheilanthes lanosa*), G5/S2
American Purple Vetch (*Vicia americana*), G5/SH

Pennsylvania

Northern Pondweed (*Potamogeton alpinus*) PE, G5/S1

Segment C: Macks Island to Belvidere, NJ

Pennsylvania

White Heath Aster (*Aster ericodes*) PR, G5/S3

Segment D: Belvidere, NJ to Easton, PA

New Jersey

Round-leaved Serviceberry (*Amelachier sanguinea*), NJE, G5
Broad-leaved Waterleaf (*Hydrophyllum canadense*), NJE, G5/S2

Segment E: Phillipsburg, NJ to the Gilbert Generating Station

New Jersey

Side Oats Gramma Grass (*Bouteloua curtipendula*), NJE, G5/S1
False Pennroyal (*Isanthus brachiatus*) NJE, G4/S1
Carolina Wood Vetch (*Vicia caroliniana*) NJE, G5/S1
Plantain-leaved Sedge (*Carex plantaginea*) NJE, G5/S1 — only known state occurrence

Pennsylvania

Sand Cherry (*Prunus pumila*) PT, G5/S3
Bicknell's Sedge (*Carex bicknelli*) PE, G5/S1

Segment F: Gilbert Generating Station to Pleasant Pumping Station

New Jersey

Bush's Sedge (*Carex bushii*) NJE, G4/S1
Small-fruited Groovebur (*Agrimonia microcarpa*) NJE, G5/S2
Hairy Lipfern (*Cheilanthes lanosa*) G5/S2
Green Violet (*Hybanthus concolor*) NJE, G5/S1
Carolina Wood Vetch (*Vicia caroliniana*) NJE, G5/S1
Smooth Veiny Peavine (*Lathyrus venosus*) NJE, G5/S1
Basil Mountain Mint (*Pycnanthemum clinopodiodes*) G2/S1
Torrey's Mountain Mint (*Pycnanthemum torrei*) NJE, G2/SH
Pawpaw (*Asimina triloba*) NJE, G5/S1
Nebraska Sedge (*Carex jamesii*) NJE, G5/S1
Lowland Brittle Fern (*Cystopteris protusa*) G5/S2
Veined Skullcap (*Scutellaria nervosa*) G5/S2
Wafer Ash (*Ptelea trifoliata*) NJE, G5/S2
Missouri Goosefoot (*Ribes missouriense*) NJE, G5/S1
Ledge Spike-Moss (*Selaginella rupestris*) G5/S2
Wild Comfrey (*Cynoglossum virginianum*) G5/S2

Pennsylvania

Roseroot Stonecrop (*sedum rosea*) PR, G5/S1

White Heath Aster (*Aster ericoides*) PR, G5/S3
Prickly-Pear Cactus (*Opuntia humifolia*) PR, G5, S3
Small-Flowered Crowfoot (*Ranunculus mictanthus*) PR, G5/S3
Eastern White Water-Crow (*Ranunculus longirostris*) PT, G5/S3

Segment G: Pt. Pleasant Pumping Station to Route 202 Bridge

New Jersey

Prostrate Sand Cherry (*Prunus pumila* var. *depressa*) G5/S2
Broad-leaved Waterleaf (*Hydrophyllum canadense*), NJE, G5/S2
White Heath Aster (*Aster ericoides*) G5/S3
Willow-leaved Aster (*Aster praelatus*) NJE, G5/S1
Great St. John's-wort (*Hyoericum pyramidatum*) G4/S2
Basil Bee-balm (*Monarda clinnopodia*) NJE, G3-5/S1
Few-flowered Panic Grass (*Panicum oligosanthos*) G5/S2
Smooth Hedge-nettle (*Stachys tenifolia*) G5/SU

Pennsylvania

Common Hop-Tree (*Ptelea Trifoliata*) PR, G5/S3

Segment H & I: New Hope, PA to Washington Crossing, PA

New Jersey

Squirrel-corn (*Dicentra canadensis*) NJE, G5/S2
Green Violet (*Hybanthus concolor*) NJE, G5/S1
Twinleaf (*Jeffersonia diphylla*) NJE, G5/S1
Veined Skullcap (*Scutellaria nervosa*) G5/S2
Pale Indian Plantain (*Cacalia atriplicifolia*) NJE, G5/SH
Nebraska Sedge (*Carex jamesii*) NJE, G5/S1
Small-fruited Groovebur (*Agrmonia microcarpa*) NJE, G5/S2
Redbud (*Cercis canadensis*) NJE, G5/S1
Wild Comfrey (*Cynoglossum virginianum*) G5/S2
Ohio Spiderwort (*Tradescantia ohioensis*) G5/SU
Ellisia/Aunt Lucy (*Ellisia nyctelea*) NJE, G5/S1

Pennsylvania

Ellisia/Aunt Lucy (*Ellisia nyctelea*) PT, G5/S2
Spring Coral Root (*Corallorrhiza*) PT, G5/S3

Critical Habitat

Segment B: Erie Lackawanna Railroad Bridge to Dildine Island

New Jersey

Delaware River Floodplain, Knowlton Township, Warren County — high biodiversity, B3
Manunka Chunk Bluffs, Knowlton and White Townships, Warren County — biodiversity

Segment D: Belvidere, NJ to Easton, PA

New Jersey

Garrison Road Site, Harmony Township, Warren County — agricultural grasslands
Delaware River Floodplain, Harmony Township, Warren County — high biodiversity, B3

Segment E: Phillipsburg, NJ to the Gilbert Generating Station

New Jersey

Phillipsburg Bluffs, Pohatcong, Warren County limestone plant community — biodiversity, B3

Alpha Grasslands, Pohatcong Township, Warren County — biodiversity

Pohatcong Mountain, Pohatcong Township, Warren County — biodiversity

Pennsylvania

Durham Mines, Durham Township, Bucks County second most significant bat hibernaculum in state

Segment F: Gilbert Generating Station to Pt. Pleasant Pumping Station

New Jersey

Wetland at Hakihokake Creek (Javes Road Site), Holland Township, Hunterdon County — high biodiversity, B3

Milford Bluffs, Holland Township, Hunterdon County best red shale cliff community in the state, G3/S2 — high biodiversity, B3

Treasure Island, Kingwood Township, Hunterdon County — high biodiversity, B3

Byram Hillside, Kingwood Township, Hunterdon County — biodiversity

Pennsylvania

Nockamixon Cliffs, Nockamixon and Bridgeton Townships, Bucks County — state designated outstanding scenic geological feature and shale cliff plant community, including arctic-alpine species

Marshall Island, Tinicum Township, Bucks County — biodiversity

Segment G: Pt. Pleasant Pumping Station to Route 202 Bridge

New Jersey

Delaware River Floodplain, Delaware Township, Hunterdon County — biodiversity

Bull's Island, Kingwood Township, Hunterdon County — biodiversity

Delaware River Bridge at Stockton, Borough of Stockton, Hunterdon County — Cliff Swallow community

Segment H & I: New Hope, PA to Washington Crossing, PA

New Jersey

Goat Hill, West Amwell Township, Hunterdon County — biodiversity

Strawberry Hill, Hopewell Township, Mercer County — biodiversity

Fisheries

American Shad (*Alosa sapidissima*) - considered one of the most important fish species in the Delaware River Basin (Angler Study) —NJT

Shortnose Sturgeon (*Acipenser brevirostrum*) — Federal E, PE, G3/S1

Striped Bass — NJT

Reptiles and Amphibians

Bog Turtle (*Clemmys muhlenbergii*) — Federal T, G4, NJE, PE

New Jersey Chorus Frog (*Pseudacris feriarum kalmi*) — PR, G4/S2,

Coastal Plain Leopard Frog (*Rana utricularia*) — PE, G5/S2

Red-bellied Turtle (*Pseudemys rubriventris*) — PT, G5/S2

Longtail Salamander (*Eurycea logicauda*) — NJT, G5/S2

Wood Turtle (*Clemmys insculpta*) — NJT, G5/S3

Mammals

Keen's Bat (*Myotis keenii*) — PR, inhabits parts of upper Bucks County in the river corridor vicinity

Small-footed Bat (*Myotis leibei*) — PT, G3/S1 - inhabits the same locations as Keen's Bat

Northern Long-eared Bat (*Myotis septentrionalis*) — G4/S2

Birds

Vesper Sparrow (*Poocetes gramineus*) — NJE, G5/S2
Cliff Swallow (*Hirundo pyrrhonota*) — NJT, G5/S2
Grasshopper Sparrow (*Ammodramus savannarum*) — NJT, G4/S2
Savanna Sparrow (*Passerculus sandwichensis*) — NJT, G5/S2
Bobolink (*Dolichonyx oryzivorus*) — NJT, G5/S2
Osprey (*Pandion haliaetus*) — NJT
Least Bittern (*Ixobrychus exilis*) — PT, G5/S2
Red-headed Woodpecker (*Helanerpes erythrocephalus*) — NJT, G5/S2
Peregrine Falcon (*Falco peregrinus*) — Federal E, PE, G3/S1
Bald Eagle (*Haliaetus leucocephalus*) — Federal E, NJE, G3/S1
Upland Sandpiper (*Scolopacidae*) — NJE

Characteristics Related to Bird Breeding and Migration

The Delaware River, located along the Atlantic Flyway, is one of four major waterfowl migratory routes in the U.S.

The Nockamixon Cliffs in upper Bucks County are a historic nesting site for the federally and state-endangered peregrine falcon (*Falco peregrinus*). They last nested there in the 1950's, but are again nesting along the Delaware River because of reintroduction efforts.

Bald eagles (*Haliaetus leucocephalus*) use the river's shoreline and islands for roosting sites.

The state-endangered osprey (*Pandion haliaetus*) also appears to be making a comeback along the Delaware River as a result of a reintroduction program several years ago.

The least bittern (*Ixobrychus exilis*), a PA threatened species, breeds in upper Bucks County.

Recreation

The lower Delaware River is clearly a major recreational resource; however, to meet the criteria for an outstandingly remarkable resource, a recreational resource is defined as a state park or having a national designation.

New Jersey

Paulinskill Valley Trail - part of Kittatinny State Park (**Study Segments A & J**)
Delaware and Raritan Canal National Recreational Trail (**Study Segments G, H & I**)
Delaware and Raritan Canal State Park (**Study Segments G, H & I**)
Bull's Island State Park (**Study Segment G**)
Washington Crossing State Park (**Study Segment I**)

Pennsylvania

Delaware Canal National Recreational Trail (**Study Segments E, F, G, H & I**)
Delaware Canal State Park (**Study Segments E, F, G, H & I**)
Washington Crossing State Park (**Study Segment I**)
Ralph Stover State Park (**Study Segment M**)
Nockamixon State Park (**Study Segment M**)

Scenic

Many members of the Lower Delaware National Wild and Scenic River Study Task Force strenuously stress the scenic values of the lower Delaware River. However, scenic values are difficult to objectively define. Thus, to meet the criteria for an outstandingly remarkable resource, scenic value is defined by a state scenic by-way designation.

Scenic By-ways

New Jersey

Route 29 (NJ Scenic Byway — designation pending)

Pennsylvania

Route 32 (PA Scenic Road- designated 12/89) – from US Rt. 1 to Rt. 611 (**Study Segments E, F, G, H & I**)

Route 611 (PA Scenic Road- designated 12/89) – from Kintnersville to

Rt. 209 (**Study Segment A, B, C, D**)

Cultural/Historic

Outstandingly remarkable cultural and historic resources for this study are defined as National Historic Districts and National Historic Landmarks.

Pennsylvania

Northampton County, Bucks County

Delaware and Lehigh Canal National Heritage Corridor and State Heritage Park (**Study Segment E, F, G, H & I**)

Bucks County

Tinicum Twp.

Uhlerstown Historic District (**Study Segment F**)

Point Pleasant Historic District (**Study Segment F**)

Ridge Valley Rural Historic District (**Study Segment L**)

Solebury Twp.

Lumberville Historic District (**Study Segment G & N**)

Centre Bridge Historic District (**Study Segment G**)

Phillips Mill Historic District (**Study Segment G**)

New Hope Historic District (**Study Segment H**)

Upper Makefield Twp.

Washington Crossing National Historic Landmark (upper tract) (**Study Segment I**)

Washington Crossing N.H.L. (Taylorsville) (**Study Segment I**)

Brownsburg Historic District (**Study Segment I**)

New Jersey

Warren County

Town of Belvidere

Belvidere Historic District (**Non-Study Segment**)

Hunterdon County, Mercer County

Delaware and Raritan Canal National Historic Landmark (**Study Segments G, H & I**)

Hunterdon County

Holland Township

Pursley's Ferry Historic District (**Study Segment E**)

Borough of Frenchtown

Frenchtown Historic District (**Study Segment F**)

Delaware Township

Prallsville Mills Historic District (**Study Segment G**)

City of Lambertville

Lambertville Historic District (**Study Segment H**)

Mercer County

Delaware and Raritan Canal National Historic Landmark (**Study Segment H & I**)

Hopewell Twp.

Titusville Historic District (**Study Segment I**)

Washington Crossing National Historic Landmark (**Study Segment I**)

Pleasant Valley Rural Historic District (**Study Segment I**)

Classification

Section 2(b) of the act requires that eligible river segments be classified as wild, scenic or recreational. For classification purposes, a study river may be segmented. Below is a brief description of each classification:

- 1) **Wild river areas** — Those that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.
- 2) **Scenic river areas** — Those that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.
- 3) **Recreational river areas** — Those areas that are readily accessible by road or railroad, that may have some development along their shorelines and that may have undergone some impoundment or diversion in the past.

Eligibility Findings

The entire study area, including all tributaries except the Tohickon Creek above Lake Nockamixon and the Smithtown Creek, meets the eligibility criteria. The lower Delaware River corridor exhibits exceptional natural, historic, scenic, and recreational values. The entire study corridor includes many outstandingly remarkable resources and is thus eligible for inclusion into the National Wild and Scenic Rivers System with classifications as outlined below.

The Mainstem of the Lower Delaware River

Each of the segments of the mainstem of the lower Delaware River, study segments A through I, are classified as recreational because each segment is readily accessible by road and/or contains some development along the shoreline.

Segment A: The segment from the Delaware Water Gap to the Toll Bridge connecting Columbia, NJ and Portland, PA
Classification: Recreational

Segment B: The segment from Erie Lackawanna Railroad Bridge to the southern tip of Dildine Island (approximately 3.6 miles, 5.8 km)
Classification: Recreational

Segment C: The segment from the southern tip of Mack Island to the northern border of the town of Belvidere, NJ (approx. 2 mi., 3.2 km)
Classification: Recreational

Segment D: The segment from the southern border of the town of Belvidere, NJ to the northern border of the city of Easton, PA, excluding river mile 196.0 to 193.8 (approx. 12.5 mi., 20.1 km)
Classification: Recreational

Segment E: The segment from the southern border of the town of Phillipsburg, NJ, to a point just north of Gilbert Generating Station (approx. 9.5 mi., 15.2 km)
Classification: Recreational

Segment F: The segment from a point just south of the Gilbert Generating Station to a point just north of the Point Pleasant Pumping Station (approx. 14.2 mi., 22.8 km)
Classification: Recreational

Segment G: The segment from the point just south of the Point Pleasant Pumping Station to a point 1000 feet north of the Route 202 bridge (approx. 6.3 mi., 10.1 km)

Classification: Recreational

Segment H: The segment from a point 1750 feet south of the Route 202 Bridge to the southern border of the town of New Hope, PA (approx. 1.9 mi., 3.0 km)

Classification: Recreational

Segment I: The segment from the southern boundary of the town of New Hope, PA to the town of Washington Crossing, PA (approx. 6 mi., 9.7 km)

Classification: Recreational

The Tributaries

Segment J: Paulinskill River in Knowlton Township — from the municipal border downstream to Brugler Rd. (approx. 2.4 mil., 3.8 km)

Classification: Recreational

Segment K: Cook’s Creek (approx. 3.5 mi., 5.6 km) — Eligible

Classification: Scenic

Segment L: Tincum Creek (approx. 14.7 mi., 23.7 km) — Eligible

Classification: Scenic

Segment M: Tohickon Creek (approx. 25.6 mi., 41.2 km)

Sub-Segment (1): Mainstem of the Delaware River to the Lake Nockamixon Dam - Eligible

Classification: Scenic

Sub-Segment (2): above the Lake Nockamixon Dam – Ineligible

The existence of the Lake Nockamixon Dam and the lake behind it makes this section of Tohickon Creek ineligible for inclusion into the National System. However, the lake and surrounding land is a state park and is thus protected as a recreational resource.

Segment N: Paunacussing Creek in Solebury Township (approx. 3 mi., 4.8 km)

Classification: Recreational

Segment O: Musconetcong

Nineteen of twenty municipalities along the Musconetcong River requested that it be added to Lower Delaware Wild and Scenic River Study. Therefore, the Musconetcong is being studied in a second phase and a separate recommendation will be issued at a later date.

Segment P: Locketong and Wickecheoke Creeks

Delaware, Kingwood, Franklin, and Raritan townships recently passed resolutions requesting that these creeks be considered for Wild and Scenic River designation. To provide an adequate review of their eligibility and suitability, a separate recommendation will be presented at later date.

Segment Q: Smithtown Creek

Ineligible because no “outstandingly remarkable resource values” were identified.

Suitability

This chapter describes the study’s findings relative to Section 4(a) of the Act, which requires the study report to detail the river’s suitability for designation into the National Wild and Scenic Rivers System.

Suitability Criteria

A river's suitability for wild and scenic designation is a matter of whether it is free-flowing and contains outstandingly remarkable resources, whether designation makes sense, and whether designation provides lasting protection. For rivers such as the lower Delaware that flow through predominately private lands, federal land acquisition may not be an appropriate protective measure. Thus, protection must rely on a combination of federal, state, local, and private resource protection actions. If designation is to be effective, the non-federal entities must support and be committed to the implementation of any necessary resource protection measures.

For the lower Delaware River, the criteria used to assess suitability is:

1. Is there local support for designation of the river and implementation of the River Management Plan?

This support was determined primarily by municipal agreement to adopt the goals of the Management Plan and support for national designation of the river. To date 24 of the 37 municipalities in the area under consideration for designation (not counting the Musconetcong River communities) have passed resolutions of support. In addition, twenty-seven municipalities passed resolutions asking that the Musconetcong and Paulinskill rivers, Frya Run, and Smithtown, Paunacussing, Lockatong, and Wickecheoke creeks, be added to the study area.

Public workshops and the Landowner Survey Report document strong support for preserving the river's natural, historic, and recreational resources. Survey respondents listed scenic beauty, wildlife habitat, and overall atmosphere of the region as the three most important qualities of the area (see Appendix A). In fact, 89.9 percent of those who returned surveys said they would support land use regulations and programs to conserve and protect the river. Eighty-eight percent of the respondents said they support an overall conservation plan for the river.

2. How adequate are existing protection measures (including state and local resource protection laws, zoning, and land ownership) in conserving the river's outstanding resources and free-flowing character?

Two reports document the significant resource protection provided by the existing municipal land use control, the states of New Jersey and Pennsylvania, and the Delaware River Basin Commission. The Municipality Surveys provide a town-bytown description of land use and zoning regulations. The River Management Plan describes the regulatory and non-regulatory programs by the states, the Delaware River Basin Commission, federal agencies, and non-profit organizations. Further, the plan documents the publicly held land that protects important river-related resources, such as the two canal state parks that parallel the river.

3. Can a resource protection and management framework be developed that closes any resource protection gaps without relying on federal land acquisition and that facilitates communication and cooperation among governmental entities and private citizens who bear responsibility for implementing all river protection measures?

The River Management Plan that is summarized in Section IV provides the framework for enhanced resource protection and greater cooperation between resource management entities. This is accomplished in part through voluntary adoption of the six river management goals and through creation of a River Management Committee under direction of the existing Delaware River Greenway Partnership. By establishing the River Management Committee that will include representatives of all entities responsible for ongoing resource protection, the Plan ensures that future management decisions will be based on resource protection objectives that satisfy the Wild and Scenic Rivers Act mandate to protect and enhance the river's outstanding values. Federal designation will encourage enhanced coordination between two states, six counties, and fiftyseven municipalities. Further, most of the river corridor above the study area is already part of the National Wild and Scenic Rivers System.

Suitability Finding

All study segments under consideration for designation, except for Tohickon Creek above Nockamixon Dam, are eligible for designation into the National Wild and Scenic Rivers System. The following segments are suitable and recommended for national designation:

Segment D: The portion of this segment starting at river mile 193.8 to the northern border of the city of Easton, PA (approx. 10.5 mi., 16.9km)

Segment F: The segment from a point just south of the Gilbert Generating Station to a point just north of the Point Pleasant Pumping Station (approx. 14.2 mi., 22.8 km)

Segment G: The segment from the point just south of the Point Pleasant Pumping Station to a point 1000 feet north of the Route 202 bridge (approx. 6.3 mi., 10.1 km)

Segment H: The segment from a point 1750 feet south of the Route 202 Bridge to the southern border of the town of New Hope, PA (approx. 1.9 mi., 3.0 km)

Segment I: The segment from the southern boundary of the town of New Hope, PA to the town of Washington Crossing, PA (approx. 6 mi., 9.7 km)

Segment L: Tincum Creek (approx. 14.7 mi., 23.7 km)

Segment M: Tohickon Creek from the Lake Nockamixon Dam to the Delaware River (approx. 10.7 mi., 17.2 km)

Segment N: Paunacussing Creek in Solebury Township (approx. 3 mi., 4.8 km)

The following segments are not suitable because not each municipality on both sides of the river has yet passed a resolution supporting designation. It is recommended that designation be granted if municipal resolutions from the communities on both sides of the river segment are passed in the future.

Segment A: The Segment from the Delaware Water Gap to the Toll Bridge connecting Columbia, NJ and Portland, PA

Segment B: The segment from Erie Lackawanna Railroad Bridge to the southern tip of Dildine Island

Segment C: The segment from the southern tip of Mack Island to the northern border of the town of Belvidere, NJ

Segment D: The portion of this segment from the southern border of the town of Belvidere, NJ to river mile 196.0

Segment E: The segment from the southern border of the town of Phillipsburg, NJ, to a point just north of Gilbert Generating Station (approx. 9.5 mi., 15.2 km)

Segment J: Paulinskill River in Knowlton Township

Segment K: Cook's Creek from Springfield/Durham townships' border to the Delaware River

Segment O: Musconetcong

Nineteen of twenty municipalities along the Musconetcong River requested that it be added to the Lower Delaware Wild and Scenic River Study. Given that the Musconetcong is the largest tributary to the Delaware River in New Jersey and the number of communities affected, it is being studied in a second phase and a separate recommendation will be issued at a later date.

Segment P: Lockatong and Wicecheoke Creeks

Delaware, Kingwood, Franklin, and Raritan townships recently passed resolutions requesting that these creeks be considered for Wild and Scenic River designation. To provide an adequate review of their eligibility and suitability a separate recommendation will be presented at a later date.

Recommended Boundary

Section 7(a) of the Wild and Scenic Rivers Act prohibits federal authorization of any water resources project that would have an adverse impact on the values for which the river is designated. For the purposes of administering Section 7 of the Act regarding actions of the federal government, the Study Task Force recommends that a formal boundary be established within one-quarter mile from the ordinary high water mark on each side of the suitable river segments.