US Army Corps of Engineers
New England District

Update Report for New Hampshire

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Mission

The missions of the New England District, U.S. Army Corps of Engineers include flood damage reduction, emergency preparedness and response to natural disasters and national emergencies, environmental remediation and restoration, natural resource management, stream bank and shoreline protection, navigation maintenance and improvement, support to military facilities and installations, and engineering and construction support to other government agencies. The six New England states cover 66,000 square miles and have 6,100 miles of coastline, 11 deep water ports, 102 recreational and small commercial harbors, 13 major river basins, and thousands of miles of navigable rivers and streams. The district operates and maintains 31 dams, two hurricane barriers and the Cape Cod Canal. Through its Regulatory program, the district processes about 5,000 applications per year for work in waters and wetlands of the six-state region. We employ about 510 professional civilian employees, with about 300 stationed at our headquarters in Concord, Mass. The other Corps of Engineers employees serve at Corps projects and offices throughout the region.

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Navigation

COCHECO RIVER, DOVER (1st CD) - The city of Dover has requested maintenance dredging of the Cocheco River federal channel. Surveys indicate that about 75,000 cubic yards (cy) of material need to be dredged to return the seven-foot-deep, 30-to-75-foot-wide channel to authorized dimensions. Portions of the dredge material are heavily contaminated (including PAH's, chromium, zinc and mercury). The dredge material is being disposed of in an upland Dredge Material Disposal Facility (DMDF) constructed by the city of Dover over an abandoned landfill on Dover City property. All approvals and waivers have been obtained. Since the plan is to route effluent from the DMDF through the city's water treatment facility, no Water Quality Certification is needed. The first year of dredging was completed in April 2005. Phase II dredging was completed in April 2007. The overall project could potentially be completed in one more season of dredging. Funds of $2.8 million have been appropriated in FY08, *of which approximately $1M were used to pay disposal fees owed to the city of Dover. The remaining FY08 funds are insufficient to complete dredging of the project. The Phase III dredging is on hold until additional funds can be appropriated.*

HAMPTON-SEABROOK HARBOR & BLACKWATER RIVER (1st CD) – In response to a request from the New Hampshire Division of Ports and Harbors, the New England District has been working on two projects in Hampton-Seabrook Harbor.

The first project, conducted under authority of Section 227 of the Water Resources Development Act (WRDA) of 1996, involved solving the erosion and channel problem cut at the mouth of the Blackwater River at the south end of the inner harbor in Seabrook. A new channel had eroded across the tidal bar, resulting in erosion of adjacent shorefront properties, loss of shellfish flats and deposition of shoal material in the Seabrook anchorage. This deposition of excessive shoal material into the Seabrook anchorage needed to be eliminated prior to moving ahead with the Hampton Harbor navigation improvement Section 107 feasibility analysis.

Construction under a $3.1 million contract with Reed and Reed of Woolwich, Maine, started in October 2004 and was completed at the end of April 2005. The project consisted of placement of two composite sheet-pile walls across the east and west ends of the breach channel and filling the area between the walls with sand dredged from the outer end of the Blackwater River channel opposite the Hampton inlet. The project filled the breach, and restored the south end of the Middle Ground tidal flats, halted the continuing erosion along River Street, and ended the rapid shoaling of the Seabrook anchorage. Monitoring of project performance continued through the end of September 2005 when project authority under Section 227 expired. Surveys conducted in April 2006 indicate that the project is performing as designed. The project will be turned over to the state of New Hampshire

for operation, maintenance and continued monitoring.

The second project, under the Continuing Authority of Section 107, is a state request to incorporate inner harbor channels and anchorage basins into the Hampton Harbor federal navigation project, making them eligible for federally funded maintenance dredging. At present, the federal government is responsible for maintenance of the seaward arms of the two jetties at the harbor entrance and maintenance dredging of the channel seaward of the Route 1A bridge, with the state responsible for maintenance dredging of the inner harbor areas.

An August 2002 initial appraisal of federal interest showed that there are economic benefits for the Corps to continue this investigation into the feasibility phase. The state of New Hampshire agreed, and a feasibility cost sharing agreement was executed in October 2003. The start of this feasibility analysis under Section 107 was deferred pending completion of the Seabrook Harbor Section 227 project described above, as the Seabrook project's success is critical to restoring maintainable shoaling rates in the harbor anchorages. With successful completion of the Section 227 project, the Hampton Harbor navigation feasibility study was initiated in April 2006. An interagency site visit was conducted in May 2006, and engineering economic and environmental evaluations of the proposed improvements are now ongoing and a draft feasibility report is scheduled to be completed by the end of *December* 2008. Final project design and construction would be initiated upon approval of the project and provision of Federal and state funding for those activities.

NEW HAMPSHIRE COMPREHENSIVE UPLAND DREDGED DISPOSAL SITE EVALUATION (1st & 2nd CDs) —This study was authorized by Congress in the 2004 Energy and Water Development Appropriations Bill (Report 108-212) to identify and evaluate upland disposal sites for dredged material from federal navigation channels in New Hampshire. Using a portion of the funds provided, the Corps developed a technical report that describes the results of the study efforts. The report summarizes: an updated dredging history in New Hampshire including any existing sediment quality data; a review of pertinent federal, state, or local regulations that apply to upland disposal of dredged material; an explanation of the method used to delineate upland disposal sites (e.g., amounts, size of site, setbacks, etc.); and the results of the analysis used to evaluate potential sites. The report was prepared and sent to the Dredge Task Force listing the potential upland dredged disposal sites. If additional funds become available, these sites will be further screened based on constructability, owners' interest in selling or leasing land, cost of land and other related costs.

NEW HAMPSHIRE AND SOUTHERN MAINE OCEAN DISPOSAL SITE DESIGNATION STUDY, NEW HAMPSHIRE (1st CD) AND MAINE (1st CD) – The states of Maine and New Hampshire have requested that the Corps undertake a study to examine designation of a long-term ocean disposal site off the coast of southern Maine or New Hampshire to address both states' need for cost-effective disposal options for clean dredged material not otherwise lending itself to beneficial use. The existing Cape Arundel Disposal Site located off Kennebunk, Maine is the only ocean site for this area of the New England coast.

The Cape Arundel site was selected for use by the Corps, with EPA's concurrence, for temporary use, and this authority will expire in January 2010, unless the site is formally designated *by EPA* under the Marine Protection Research and Sanctuaries Act of 1972, or some other site is identified and designated. Loss of the site would significantly increase the cost of harbor maintenance for the Federal government, states and private dredging projects. The first step in the process, scoping of a site designation study, is estimated to require about $100,000 and the study/EIS itself would likely cost about $5 million. Scoping would take about six months and could begin once funds are made available. *While EPA is the action agency for site designation studies, availability of cost-effective dredged material disposal sites is critical to maintenance and improvement of Corps navigation projects.*

PORTSMOUTH HARBOR AND PISCATAQUA RIVER, NEW HAMPSHIRE (1st CD) AND MAINE (1st CD) - This study of Portsmouth Harbor and the Piscataqua River, New Hampshire and Maine was directed by Section 437 of WRDA 2000. The non-federal sponsor is the state of New Hampshire, Pease Development Authority, Division of Ports and Harbors (PDA). The study's purpose is to determine the navigation related needs of the area and is focusing on the upper turning basin in the river near Newington, N.H. The current 800-foot width of the turning basin causes major safety concerns for shippers and limits the efficiency of shipping operations, particularly for large LPG tankers. The §905(B) reconnaissance report was completed and approved by North Atlantic Division in September 2004. A feasibility cost-sharing agreement for the PDA and Corps to share the cost of the $750,000 feasibility study was executed June 21, 2006.

The feasibility study was initiated in 2006 using funds provided by the PDA and the FY06 E&WDA Act. Using those funds the Corps conducted sonar, sub-bottom and magnetometer surveys of the upper turning basin area in the fall of 2006. The results of these surveys were used to focus further subsurface explorations of bedrock elevations and cultural resource investigations. With receipt of matching FY07 state funds, collection of field data continued with subsurface explorations, benthic sampling and testing, and a bathymetric survey. FY08 funds *were* provided and *matching* cost sharing funds *were received* from the PDA in March 2008. These funds were used to continue detailed studies of the project area. *FY09 funds would be used to* prepare drafts of the feasibility report and environmental assessment.

Flood Plain Management Services

NORTHERN MASSACHUSETTS/NEW HAMPSHIRE HURRICANE EVACUATION STUDY (2nd CD) - This study is being conducted under a federally funded program cosponsored by the Corps of Engineers and the Federal Emergency Management Agency. The objective of the program is to provide a technical data report and coastal flood mapping from which the state and local communities can develop/update preparedness plans for coastal storms. It will also allow state and local officials to identify evacuation areas and routes of evacuation for various coastal events. Inundation maps have been delivered to the state and affected communities. Finalization of evacuation maps awaits census 2000 data from the New Hampshire Office of State Planning. Final census figures have been compiled and delivered to New Hampshire state and local Emergency Management officials.

BASS BEACH (PHILBRICK POND) MARSH DRAINAGE BASIN (1st CD) – The North Hampton Planning Board requested the New England District (NAE) to conduct under the Flood Plain Management Services Program an investigation of the water drainage from the upland end of the Philbrick Pond Marsh. The New England District in cooperation with the Natural Resource Conservation Service will be performing a hydraulic model of the basin. Survey data has been initiated. Work efforts by New England District will commence upon completion of the hydraulic modeling efforts by the Natural Resource Conservation Service.

Streambank Protection

PARTRIDGE BROOK, WESTMORELAND (2nd CD) — The county of Cheshire requested the assistance of the Corps of Engineers under its Section 14 authority to evaluate, design and repair serious bank erosion at the intersection of the Connecticut River and Partridge Brook in Westmoreland that was caused by a two-day storm system in 2003. The county municipal wastewater treatment lagoon is located in this area and is in serious danger. The construction contract was awarded in July 2007 to Charter Environmental, Inc. Construction of the rip-rap toe, placement of the articulating concrete blocks along the Connecticut River bank, and driving of steel sheeting along the toe of the sewage lagoon embankment along Partridge Brook were completed in the fall of 2007. *All project plantings were completed by the fall of 2008.*

Defense Environmental Restoration Program

This Congressionally directed program (PL 98-212) provides for an expanded effort in environmental restoration. It emphasizes the identification, investigation and prompt cleanup of hazardous and toxic waste; unexploded ordnance; and unsafe buildings, structures and debris at current and former military facilities. Site and project eligibility investigations at 37 sites have been completed in New Hampshire, including 26 sites where no cleanup work was found to be necessary. Of the 11 sites where work was needed, the following efforts are underway:

DESIGN - The former **Grenier Air Force Station, Manchester Airport, Manchester (1st CD)** has been identified as a PRP site. The New England District office, Manchester Airport, and the state of New Hampshire Department of Environmental Services are discussing the next steps.

REMEDIATION is complete for the **Mt. Washington Test Site (2nd CD),** the **Mt. Washington Equipment and Experimental Station (2nd CD),** the Wright Air Development Facility, **Bartlett (2nd CD),** Icing Research Annex, **North Conway (2nd CD)**, Concord Point Radar Station, **Rye (1st CD),** Camp Langdon and Fort Constitution, **Newcastle (1st CD),** Fort Dearborn in **Rye (1st CD),** and at the Massabesic National Guard Training Range in **Auburn (1st CD)**.

FUDS Investigations — The Corps is conducting Site Inspections of Formerly Used Defense Sites (FUDS) to determine if any munitions and explosives of concern (MEC) or munitions constituents (MCs) are present on property formerly owned or leased by the Department of Defense. Many of the sites visited during this project may not have been used since the World War II timeframe, or their use changed when the property was transferred to another branch of the military or other private or public landowners.

Alion Science & Technology, Inc. is assisting the Corps' Baltimore District in performing this evaluation at FUDS in the Northeast region. Alion and the District will review historical records and maps, meet with site regulators and key stakeholders, and conduct field inspection activities in the area(s) of interest. The outcome from these Site Inspection activities will be to determine if the project site poses any threat to human health or the environment, and if further work needs to be done either through an RI/FS or some type of removal action. Presently funded projects are in Maine, Rhode Island, Connecticut and Massachusetts.

Superfund

WORK FOR THE ENVIRONMENTAL PROTECTION AGENCY (SUPERFUND) - The New England District is designated as the Corps of Engineers total support agency for the Environmental Protection Agency's (EPA) Region I (New England) Superfund program for those federal-lead projects assigned to the Corps by EPA. This includes responsibility for design and/or construction execution of remediation projects. In addition, the District is providing technical assistance upon request to EPA New England for other federal-lead projects assigned by EPA to private firms as well as for some potentially responsible party (PRP) remediation.

FLETCHER'S PAINT WORKS AND STORAGE FACILITY SUPERFUND SITE, MILFORD (2nd CD) - The New England District completed an interim remedial action at the site during the winter/spring 2001 including asbestos and hazardous materials abatement of the 25,000-square-foot building, demolishing the building, disposing of the debris at an approved facility, and placing an interim permeable cap over the site to minimize risk of exposure to the PCBs (Polychlorinated Biphenyls) in the site soils. The total cost of this interim action is about $850,000. New England District is providing oversight to design activities that are currently underway by the responsible party, including review of pre-design work plans and participating in meetings with the PRP. In addition, New England District performed sediment sampling and characterization during the summer of 2004 in the Souhegan River to assess the need for additional remediation of the river. EPA is anticipating a decision regarding river cleanup by summer 2009.

Interagency and International Support

WORK FOR THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT - The Corps of Engineers has entered into an interagency agreement with the Department of Housing and Urban Development. In accordance with the agreement the Corps of Engineers performs physical inspections, contract administration reviews, drawings and specifications reviews, and final inspections for Housing Authorities located throughout the state of New Hampshire.

BORDER PATROL STATION – COLEBROOK, NH (2nd CD) – The Department of Homeland Security (DHS), through the DHS Architect - Engineer Resource Center located at the Corps' Fort Worth District, originally tasked the New England District to provide a new turnkey 50-agent Border Patrol Station to replace an existing station in Beecher Falls, VT as part of their Ramp Up 6000 Program that requires Border Patrol occupancy by the end of the calendar year. NAE's involvement with the design and construction of this project has since been cancelled by DHS. Separately and under direction at the national level, NAE Real Estate continues to assist with site selections and NAE Environmental continues to assist with the review of environmental activities being performed under contract.

Regulatory Activities

STATUS OF PROGRAM - Department of the Army permits are required from the Corps under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act. The Corps reviews permit applications for work affecting navigable waters under its Section 10 authority and the discharge of fill material into all waters, including inland wetlands, under Section 404. *For the period Sept. 1, 2008 to Nov. 30, 2008, the following final actions were taken: 0 resolved compliance actions, 0 resolved enforcement actions, 34 no permit required, 0 exempt, 0 denied without prejudice, 0 grandfathered, 1 permit modification and 0 Individual Permits. For Programmatic General Permits (PGPs), 78 Category 1 activities were reported and authorized, and 39 Category 2 PGP activities were authorized.*

PROGRAMMATIC GENERAL PERMIT - The New England District has comprehensive Programmatic General Permits (PGPs) in place in each of the six New England states covering work with minimal impact on the aquatic environment. Up to 98 percent of all permits issued in New Hampshire are PGPs. The PGPs are based on the state thresholds for most categories of environmental impacts, and applicants generally need only file with the state. The federal screening is virtually transparent to applicants, and the PGP approval is either included in the state approval letter or mailed simultaneously. Applications appropriately covered under the PGPs are generally approved in less than 30 days. Applicants have commented favorably about the simplicity, predictability and efficiency of the PGPs.

EXIT 4A INTERSTATE 93 ACCESS, DERRY TO LONDONDERRY (1st CD) — The towns of Derry and Londonderry are seeking a permit from the U.S. Army Corps of Engineers to fill approximately 3.3 acres of wetlands in conjunction with the construction of the new Exit 4A, connecting easterly from I-93. They propose to construct a new easterly access-only interchange on Interstate Highway I-93 with a new connector road on a new location and other roadway improvements along Folsom and Tsienneto Roads at their intersections with NH Route 28, NH Route Bypass 28 and NH Route 102 in the towns of Derry and Londonderry. They are seeking approval from the New Hampshire Department of Transportation (NHDOT) and the Federal Highway

Administration (FHWA). The work would involve discharges of dredged or fill material into waters of the U.S. and into State waters and wetlands. Mitigation is proposed to compensate for the wetland impacts consisting of the potential preservation of 42 acres of undeveloped lands and 1.7 acres of wetland enhancement. FHWA is preparing an Environmental Impact Statement (EIS). The Draft EIS is available for review at the Derry Community Development Department, 14 Manning St., Derry, N.H. and at the Londonderry Planning and Economic Development Department, 268B Mammoth Road, Londonderry, N.H. Project materials can also be reviewed online at www.londonderrynh.org or www.derrynh.us or www.cldconsultingengineers.com. The Corps is a cooperating agency. The proposed new I-93 interchange (Exit 4A) would be situated approximately one mile north of the I-93 Exit #4, that is the I-93/NH Route 102 interchange in Londonderry. The new exit would provide direct access to and from north and southbound I-93 travel lanes to and from the east of I-93 only. The proposed connector road would be built on a new location beginning at the new Exit 4A and extending easterly approximately 4,900 feet (0.93 miles) to the intersection known locally as Ross' Corner (crossing of NH Route 28, Folsom Road and Tsienneto Road). A joint public hearing, sponsored by the Commission with NHDOT, the NH Department of Environmental Services-Wetlands Bureau, the FHWA, and Corps of Engineers, was held Sept. 12, 2007 in Derry, N.H. Comments are being addressed and the Final EIS is being written. The anticipated date for completion of the FEIS is *December* 2008.

NEW HAMPSHIRE IN-LIEU FEE PROGRAM (1st & 2nd CDs) – The Regulatory Division worked with the New Hampshire Department of Environmental Services to develop an agreement for use of a program to provide an alternative to project-specific mitigation when the Corps requires mitigation. The In-Lieu Fee (ILF) Agreement utilizing New Hampshire's "Aquatic Resources Mitigation" Fund provides this for projects authorized under the New Hampshire Programmatic General Permit (NH PGP). Site-specific mitigation for many of these projects has had limited ecological value due to their size, location, and/or permittee's ability to provide appropriate stewardship. The ILF program provides applicants an efficient and workable alternative of paying a fee, if the District, in consultation with the federal resource agencies and the state, agrees it is the best alternative. The fees are aggregated by Hydrologic Unit Code within the state of New Hampshire and must be used, within a specified time period, to restore or create aquatic resources and/or preserve aquatic resources and their associated uplands.

INTERSTATE ROUTE 93, SALEM TO MANCHESTER (1st CD) - The Corps of Engineers permit was issued in April 2007. Since the Final Environmental Impact Statement (EIS), a District Court has remanded the traffic model to the Federal Highway Administration (FHWA) for adjustment. The FHWA is planning a Supplemental EIS on this narrow issue. No schedule is yet available.

SPAULDING TURNPIKE WIDENING AND IMPROVEMENT, DOVER (1st CD) – The New Hampshire Department of Transportation (NHDOT) is seeking a permit from the Corps of Engineers to impact waters of the United States to widen and improve 3.5 miles of Spaulding Turnpike (NH Route 16) in Newington and Dover, N.H. NHDOT seeks to fill approximately 20.4 acres of wetlands and waters within the Great Bay watershed and Bellamy River watershed in the Coastal Drainage/Piscataqua River Basin, to reconstruct and widen the Spaulding Turnpike in Newington and Dover. The proposed project involves a combination of highway and related infrastructure improvements along a 3.5 mile corridor. The main element of the improvement involves the widening of the Spaulding Turnpike from its current four lanes to eight lanes, including the widening and reconstruction of the Little Bay Bridges, beginning just north of the Exit 1 Interchange in Newington and continuing north 3.5 miles to the Dover Toll Plaza just north of the Exit 6 Interchange in Dover. Also included is the reconstruction, reconfiguration and consolidation of the interchange along the Spaulding Turnpike from Exit 2 through Exit 6. Mitigation is proposed to compensate for the wetland impacts. The limits of the project and potential mitigation sites are included in the joint public notice. Other alternatives have been studied and are presented in a Draft Environmental Impact Statement (DEIS), prepared by the NHDOT and the Federal Highway Administration (FHWA), and available for review at the offices of the NHDOT and the FHWA in Concord, N.H. Also, copies are available at the public libraries and town offices in Newington and Dover. Based on an initial review, the proposed work will impact properties listed in, or eligible for listing in, the National Register of Historic Places. Information about the location of these properties, and potential effects on them is contained in the Draft EIS. Additional review and consultation to fulfill requirements under Section 106 of the National Historic Preservation Act of 1966, as amended, will be ongoing as part of the permit review process. A joint public hearing involving the NHDOT, the FHWA, the New Hampshire Department of Economic Services – Wetlands Bureau (NHDES), the Special Committee appointed by the Governor and Executive Council, and the Corps of Engineers was held Sept. 21, 2006 in Dover, N.H. The NHDOT is the clearinghouse for public comments. In June 2007, the Corps agreed with DOT that the preferred alternative could be considered the least environmentally damaging practicable alternative (LEDPA) and indicated the mitigation alternatives should produce an acceptable plan. The Corps said it would try to produce a final permit decision shortly after a FHWA Record of Decision (ROD) and receipt of state Water Quality Certification. *The ROD has recently been signed by FHWA. The water quality certification is pending and expected to be issued in December 2008 or January 2009. We are currently drafting our decision documents and expect to issue a permit in January 2009.*

Special Studies

COASTAL AMERICA - The New England District serves as chair of the Northeast Regional Implementation Team for the national Coastal America program. This interagency committee is investigating potential habitat restoration, non-point source control, and contaminated sediment projects throughout the northeast, with emphasis on habitat restoration and, in particular, restoration of tidally-constricted salt marshes and restoration of anadromous fisheries corridors. The team continues to coordinate its efforts within New Hampshire to identify potential projects.

CONNECTICUT RIVER ECOSYSTEM RESTORATION STUDY – Authority to conduct an ecosystem restoration study along the Connecticut River in New Hampshire and Vermont is provided through a resolution adopted by the Committee on Environment and Public Works of the United States Senate on May 23, 2001. FY2002 appropriations provided the Corps with funds to initiate the investigation, which was done in February 2002. The reconnaissance study was completed in August 2002 with the assistance of the Connecticut River Joint Commissions, the Vermont Department of Environmental Conservation, the New Hampshire Department of Environmental Services, the U.S. Fish and Wildlife Service, and the Natural Resources Conservation Service. The reconnaissance report identified several ecosystem restoration opportunities along the main stem of the Connecticut River. At this time, the Connecticut River Joint Commissions is unable to obtain their share of the feasibility study funds so further efforts to finalize this study scope and execute a cost sharing agreement have been suspended. In the mean time, The Nature Conservancy (TNC) has expressed an interest in expanding the scope of the reconnaissance study to include the West (VT) and Ashuelot (NH) rivers. Approval to expand the reconnaissance study was obtained and the supplemental reconnaissance information was approved by Corps Headquarters in February 2005. A feasibility cost sharing agreement and project study plan were signed by the Corps and TNC in August 2005. However, that agreement was determined to be inconsistent with current policy. Since then the Water Resources Development Act of 2007 authorized the Corps to partner with The Nature Conservancy, retroactive to the 2005 agreement. Funding was provided in the Corps 2008 budget to begin the feasibility study, *which is currently being expanded to include the entire watershed.*

GULF OF MAINE INITIATIVE - The New England District is a member of the Gulf of Maine working group, providing this joint U.S./Canadian committee with water resource planning expertise. Corps staffers provide technical assistance in areas relating to our missions. Opportunities for Corps participation in ecosystem restoration are being continually considered.

Other Current Activities

MERRIMACK RIVER WATERSHED STUDIES (SECTION 729) (1st & 2nd CDs) - Over the past several decades, significant improvements have been realized in the overall quality of the Merrimack River due to federal, state, local community and private investment in water pollution control facilities. However, there are water quality and quantity concerns that still require significant investigation and planning beyond that which individual communities can address. In 2002, the Corps, to assist the communities and agencies, began a comprehensive watershed study to identify the number and range of water quality issues, ecosystem problems and opportunities along the lower Merrimack River from Manchester, New Hampshire to the Estuary in Newburyport, Mass.

The Section 729 comprehensive watershed study requires a 50 percent federal/50 percent nonfederal cost sharing. The nonfederal sponsors for the Phase 1 study are the communities of Manchester and Nashua, N.H., and Lowell and Haverhill, Mass., and the Greater Lawrence Sanitary District in Massachusetts. Phase I of the study was completed in September 2006. The Corps, through a cost sharing agreement with the *New Hampshire Department of Environmental Services* (NHDES) and in coordination with the Southern New Hampshire Planning Commission and community wastewater treatment and water supply organizations, is undertaking a Phase 2 Merrimack River Study. Studies will assess and predict future river quality and quantity conditions from Manchester to Lincoln, N.H. This effort will build on the existing Phase 1 model for the Merrimack River that extends from the estuary in Massachusetts to Manchester, N.H. The first tasks in Phase 2 included design of the Phase 2 field sampling program, development of a modeling plan to extend the existing Phase 1 models to Lincoln, N.H., preparation of a quality assurance project plan for river sampling, and preliminary evaluation of water supply withdrawal scenarios using the existing model. These tasks were performed by CDM, of Cambridge, Mass. for the Corps and NHDES. Plans are available for download at the Corps project web site (http://www.nae.usace.army.mil/projects/ma/merrimack/merrimack.htm.). *Due to unusually high flows this year,* Phase 2 sampling *efforts have been postponed until* the summer of *2009.*

AQUATIC ECOSYSTEM RESTORATION, OSGOOD POND, MILFORD (2nd CD)- The *town* of Milford requested that the Corps investigate the potential for an

aquatic ecosystem restoration project at Osgood Pond. The Corps is conducting this project under authority of the Aquatic Ecosystem Restoration Program, Section 206 of the WRDA of 1996. Osgood Pond is a 24-acre degraded freshwater pond. *Osgood Pond is located in Milford on park land owned by the town. The 26-acre pond is surrounded by an additional 24 acres of complex wetlands and is the largest water body in the town. The ecosystem of Osgood Pond has degraded from excess sedimentation as a result of upstream impacts, including large scale quarrying operations. Effects on the pond's ecosystem include loss of fisheries habitat and a proliferation of aquatic vegetation growth and organic material buildup*. The average depth of the pond has been reduced to two to three feet, *and* average sediment depth is about five feet.

The goal of the project is to restore both open water areas and shallow wetland areas to *restore* habitat for fish and waterfowl. *The approved project would restore approximately 15 acres of open water habitat up to 10 feet deep by hydraulically dredging approximately 123,000 cubic yards of sediments from the pond. Beneficial use of the dredged material would restore an additional 13 acres of wetlands and 17 acres of riparian habitat on* abandoned quarried lands in the watershed upstream of Osgood Pond. *The dredged material would also be used to restore the construction staging areas with the added benefit of improving town recreation fields.*

The Corps *completed a feasibility study*, prepared an environmental assessment, and signed the finding of no significant impact (FONSI) on Dec. 15, 2004. *The Corps initiated the design phase in 2005.* The project is currently on hold because of a shortage of funds in the Section 206, Aquatic Ecosystem Restoration Program. Future efforts will consist of completing the *plans and specifications for the project.*

AQUATIC ECOSYSTEM RESTORATION, MILL POND, NASHUA (2nd CD) – The city of Nashua requested that the Corps begin a study to restore the aquatic ecosystem of the Mill Pond and canal in Mine Falls Park. The Corps is conducting this project under authority of the Aquatic Ecosystem Restoration Program, Section 206 of the WRDA of 1996.

The objective of the study is to restore the fish and wildlife habitat associated with the pond and canal system. The canal starts at the Mine Falls historic gatehouse, circa 1888, where water is diverted from the Nashua River. The gatehouse is in need of repair to regulate water flows into the canal and pond. The canal system extends about two miles from the gatehouse, ending in an industrial/mill complex where the canal water drops through conduits through the complex and back into Nashua River. The canal system includes a 20-acre pond called Mill Pond.

We partially completed the feasibility study, but the project is currently on hold because of a shortage of funds in the Section 206, Aquatic Ecosystem Restoration Program. Future efforts would consist of completing the draft Detailed Project Report for review and approval by North Atlantic Division, then issuing a public notice.

AQUATIC ECOSYSTEM RESTORATION, WISWALL DAM, DURHAM (1st CD) – The New Hampshire Fish and Game Department requested that the Corps investigate two alternatives for fish passage at Wiswall Dam: removing the dam and constructing a fish passage facility over or around the dam. Either fish-passage alternative would enable anadromous fish access to an additional 45 miles of river reach beyond that currently available. The Corps is conducting this project under authority of the Aquatic Ecosystem Restoration Program, Section 206 of the WRDA of 1996.

The Corps, in cooperation with the Wiswall Dam Fish Passage Working Group, prepared an environmental assessment to evaluate various options to restore fish passage including dam removal, a fish ladder, and a nature-like bypass channel around Wiswall Dam that could provide benefits similar to those of dam removal. The dam creates an impoundment that is a water storage facility for Durham. This factor increases the costs for the dam removal option substantially due to the high-cost of water storage facilities that would be needed to replace the impoundment, making this alternative less feasible. The Environmental Assessment was approved, and the Finding of No Significant Impact (FONSI) was signed in December 2005. The final environmental assessment recommended the bypass channel alternative, which was being designed to accommodate migration of large numbers and species of anadromous fish and provide benefits to resident fish and other river-dependent species. The project was on hold during fiscal year 2006 because of a shortage of funds in the Section 206, Aquatic Ecosystem Restoration Program. Funding *was* restored to complete the plans and specifications and permitting and sign a Project Cooperation Agreement (PCA) in 2008; however, the private landowner who owned the property next to the dam has withdrawn support for the project. The Fish Passage Working Group is exploring other options to restore fish passage.

Flood Damage Reduction Dams, Recreation and Natural Resources Management

The New England District has constructed and now operates and maintains seven flood damage reduction dams in New Hampshire. All are located in the 2nd Congressional District and information on each is

provided below. In addition, the Corps is responsible for the conservation of natural resources held in public trust at civil works water resources projects. Recreation areas at the 31 flood damage reduction projects and the Cape Cod Canal within New England are managed for multiple uses. In some areas, management is delegated to the states for specific purposes, e.g., campgrounds, wildlife management and forestry. Recreation areas at these facilities are generally open from mid-May to mid-September.

BLACKWATER DAM on the Blackwater River in Webster and Salisbury was completed in 1941 at a cost of $1.3 million. The 1,150-foot-long, 75-foot-high dam has a reservoir storage capacity of 14.9 billion gallons of water and has prevented damages of $71.7 million to date. Recreational opportunities at Blackwater include hiking, biking, boating, fishing, hunting, horseback riding, dog sledding and snowmobiling with several thousand people visiting the reservoir area each year. The staff recently went to the New Hampshire Forestry exposition held at the Manchester Civic Center in Manchester, N.H. to promote the new equestrian recreation site with the New Hampshire Horse Council. The wood duck inventory was completed and due to the higher than average flood storage, there was a high mortality rate. All duck boxes were cleaned and are ready for this year's migration. The forest management program continues to have frequent harvests throughout the winter, which maintains and promotes healthy successional forest growth.

Situated **on Nubanusit Brook in Peterborough, EDWARD MacDOWELL LAKE** was completed in 1950 at a cost of $2 million. The 1,100-foot-long, 67-foot-high earthfill dam can impound a lake with a capacity of four billion gallons of water and has prevented damages of about $16.1 million to date. Over 50,000 visitors annually enjoy the picnic areas, swimming areas, hiking trails, boating, fishing, hunting and snowmobiling available at Edward MacDowell Lake.

Work is underway to completely update the Edward MacDowell Lake Brochure. The brochure was last updated in 1995 and since then a swimming beach, a picnic shelter, and various other recreation amenities have been added to the area. Park rangers continue to present interpretive programs to area organizations and school groups on a variety of topics, including a program on the history and operation of the dam presented to the entire Peterborough Elementary School 4th grade class. Plans are currently underway to further implement the Corps of Engineers Water Safety Program at the lake and in the local community.

Construction of **FRANKLIN FALLS DAM in Franklin** was completed in October 1943 at a cost of $7.9 million. Situated on the Pemigewasset River in the town of Franklin, the 1,740-foot-long, 140-foot-high dam impounds a permanent pool of 440 acres with a maximum depth of about seven feet. The flood storage area of the project totals 2,800 acres and can store up to 50.2 billion gallons of water for flood control purposes. The project has prevented damages amounting to more than $165.1 million to date. Additionally, over 100,000 visitors annually enjoy the recreational facilities at Franklin Falls, including designated hiking and snowmobiling trails, picnicking, fishing, boating, wildlife viewing and hunting. Regular maintenance continues on the *65*-year-old structure.

The staff is promoting non-motorized recreation with new mountain biking trails that are also utilized as cross country ski and snowshoe trails during our popular winter season. A new Memorandum of Agreement was established with the New England Mountain Bike Association to expand on already existing trails and to develop new areas to ride.

The **HOPKINTON-EVERETT LAKES** flood control project is a two-dam system of flood protection for the Merrimack Valley. **Hopkinton Dam, on the Contoocook River in Hopkinton**, is 790-feet-long and 76-feet-high and can impound a 3,700-acre lake. Nearby **Everett Dam, on the Piscataquog River in Weare**, is 2,000-feet-long and 115-feet-high and can impound a 2,900-acre lake. The lakes have a combined storage capacity of 51 billion gallons of water and are linked by a canal, which allows water to be diverted between the two pools. Construction of the dual facility was completed in 1962 at a cost of $21.4 million. During the 1987 flood this combined project utilized 95 percent of its storage capacity and prevented $24.5 million in damages. Since the construction in 1962, the two dams are credited with preventing over $184.3 million in damages. In addition, excellent recreational opportunities are available on project lands, including picnicking, swimming, boating, fishing, hunting and snowmobiling. An estimated 450,000 visitors come to the Hopkinton-Everett project annually.

OTTER BROOK LAKE on Otter Brook in Keene was completed in 1958 at a cost of $4.3 million. The 133-foot-high, 1,288-foot-long dam can impound a reservoir with a storage capacity of 5.7 billion gallons of water. During the 1987 flood, this dam utilized 100 percent of its storage capacity and prevented $3.6 million in damages. Since the construction in 1958, the dam has prevented flood damages of $38.1 million. More than 39,000 visitors annually enjoy the swimming, picnicking, boating, fishing and hunting available at the 458-acre facility.

New England District completed a study and report in June 2003 addressing hydraulic design deficiencies at Otter Brook as a result of a revision to meteorological criteria used to design the project's spillway. The study was conducted under the Corps of Engineers Dam Safety Assurance Program, ER1110-2-1155. The spillway at Otter Brook discharges flood flows in excess of reservoir storage capacity and was designed sufficiently at the time of construction to pass flows from a design storm based

upon the National Weather Service (NWS) determination of probable maximum precipitation (PMP). Since the construction of Otter Brook in the late 1950s, the criteria used by the NWS to determine the PMP has been revised several times resulting in greater rainfall totals. As a consequence, the spillway at Otter Brook was recently determined to be under-designed to accommodate the design storm resulting from the latest PMP. Such an event could conceivably result in the spillway capacity being exceeded, resulting in overtopping of the dam and possibly dam failure. The study/report investigated remedial measures to resolve the deficiency due to hydrologic changes in state of the art design.

The recommended plan was for construction of a new concrete spillway weir using mechanical fuse plugs designed to fail prior to exceeding discharge capacity. The failure of the fuse plugs would lower spillway crest elevation, increasing spillway capacity sufficiently to discharge the PMF without overtopping of the dam.

The construction contract was awarded May 11, 2005 for the amount of $1,449,100 to George R. Cairns and Sons, Inc., of Windham, N.H. The contract, which included the installation of the mechanical fusegates, was completed in the summer of 2006. Completion of punchlist and reinspection of restored wetlands occurred during the summer of 2007. Reinspection of the wetland was a permit requirement. As part of the Regional Conference of the Association of State Dam Safety Officials, a site visit to the completed project occurred on June 7, 2007.

SURRY MOUNTAIN LAKE on the Ashuelot River in Surry, just north of Keene, was completed in 1941 at a cost of $2.8 million. The 1,800-foot-long, 86-foot-high dam has a reservoir storage capacity of 10.6 billion gallons of water. During the 1987 flood, this dam utilized 100 percent of its storage capacity and prevented $8 million in damages. Since construction in 1941, the dam has prevented damages estimated at $85.4 million. In addition to its flood control benefits, Surry Mountain Lake also provides recreational opportunities, such as fishing, swimming and boating to 58,000 visitors annually. Restrooms, drinking water and picnic shelters are also available.