



Vol. 31, No. 4 April 2007



US Army Corps
of Engineers
Portland District

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A great blue heron keeps a sharp lookout for prey in the wetlands of the Eugene Delta Ponds in central Oregon. The project will improve habitat for wildlife like blue heron, which in turn will increase the overall aquatic health of the area.



“Focus USACE talents and energy to sustain the environment, to enable our worldwide missions and secure the future.”

U.S. Army Corps of Engineers



Happy Birthday, Portland District!

For 136 years we have served the people of the Pacific Northwest. On April 17, 1871, Maj. Henry M. Robert stepped off the steamer *Oriflamme* onto Portland's bustling waterfront. He had been appointed to create the Corps of Engineers' first Portland District office. After dealing with the District's budget of today, it's interesting to note that Robert's entire office consisted of one desk, one paper case, one map case, four office chairs, one clerk and one assistant engineer.

The reason for the new office was Oregon's growth in the mid-1800s as a settlement and a commerce destination. Following Lewis and Clark and word of the vast resources available in the region, Army Lt. John Fremont was directed by Congress to survey the route that became the Oregon Trail in 1842. It took him two years to cross the Rockies and reach Fort Vancouver, but settlers were not far behind. With those settlers came the need for commerce and an agency whose mission was to secure and safeguard the nation's waterways.

Our connection to the rivers certainly has a long history. One of the first actions Robert recommended was dredging the bar at St. Helens. Here we are, 136 years later, still working that issue in the form of the Columbia River Channel Improvement Project. In fact, he secured the District's first dredge when he received an appropriation of \$35,000 to build the ship. Today, our flagship dredge *Essayons* is worth just over \$108 million.

Some other important names in Northwest history are a part of our story as well. Army Capt. Benjamin Bonneville was a visionary who could see the day when the mighty Columbia River would be a servant, not a master, of humans and that great benefit would be realized from controlling it. He first arrived in the area when he led an exploration of the Oregon Territory in 1832. What would he think of the hydroelectric power generated at a dam that now bears his name?

His vision is a significant example of how vision is an important part of success. One must see a task accomplished before it is started, even though how to accomplish it may not yet be clear. I had a chance to see a vision of the future last month when I was



Col. Thomas O'Donovan

a judge for the *FIRST* (For Inspiration and Recognition of Science and Technology) regional robotics competition. This event brought high school teams together from across the Northwest and the nation. The passion and dedication showed by these teams, who were asked to accomplish a task without being told how to do it – and doing it with innovation and creativity, was very refreshing. And done with great sportsmanship. Senior leaders from private and public engineering organizations support *FIRST*, including \$8 million in college scholarships available to *FIRST* participants. This event is

an outstanding match for the Corps and I am asking the USACE leadership to consider becoming an integral partner in this program.

What would Robert, Fremont or Bonneville have made of a competition of bright young students testing themselves and their robots against their peers? They may not have recognized the technology, but I bet they would have encouraged the vision and enthusiasm found in these engineers of the future. After all, they will be the ones who will be here for our 150th birthday in 2021. 📷

Essayons!

Editor's Note:

The March issue of the Corps' pondent did not mention that Jennifer Sowell, Public Affairs Office, took the photos that accompanied her article on MWR Services. We regret the error.

CORPS'PONDENT



US Army Corps of Engineers
Portland District

is an unofficial offset publication authorized under provisions of AR 360-1, published monthly by the Public Affairs Office of the Portland District, U.S. Army Corps of Engineers. Circulation 2000. The Corps' pondent is circulated to District employees, retirees, and persons who request it in writing. The views and opinions expressed herein are not necessarily those of the Army.

Contributions, on computer disc or as hard copy, are welcome. If you have news tips or suggestions for articles, call (503) 808-4510, or forward them address them to the following address:

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<https://www.nwp.usace.army.mil/pa/cp/home.asp>

Publication Services are provided by Carol Hastings CENWP-IM-RV.

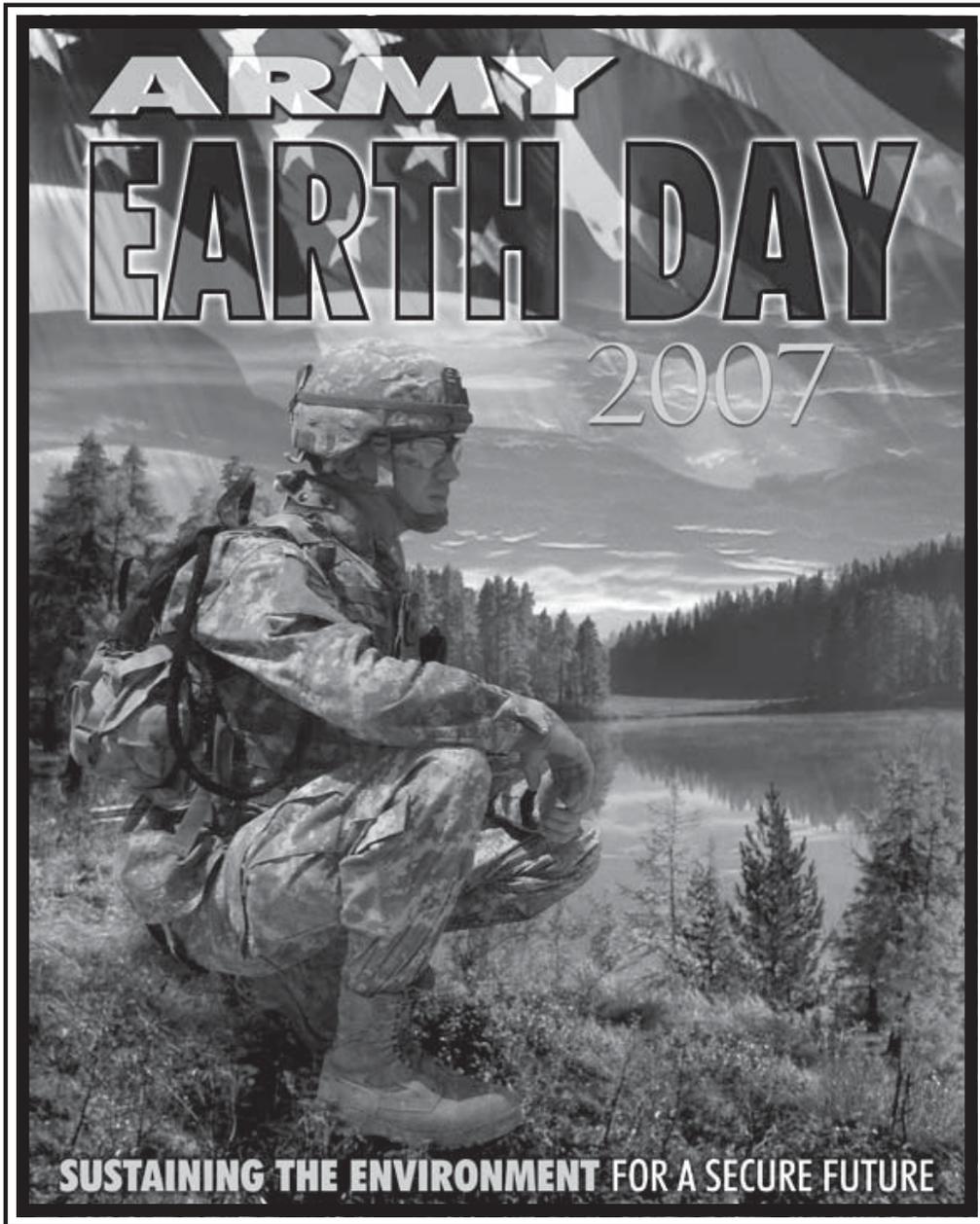
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Celebrate Earth Day April 22

Our goal in the Portland District is to be viewed by the people of the region as a credible and vital partner. We want to be a part of potential solutions when environmental challenges are brought to the table. Natural resources are essential components of the quality of life of the civilian and tribal communities we serve and environmental stewardship is one of our highest priorities.



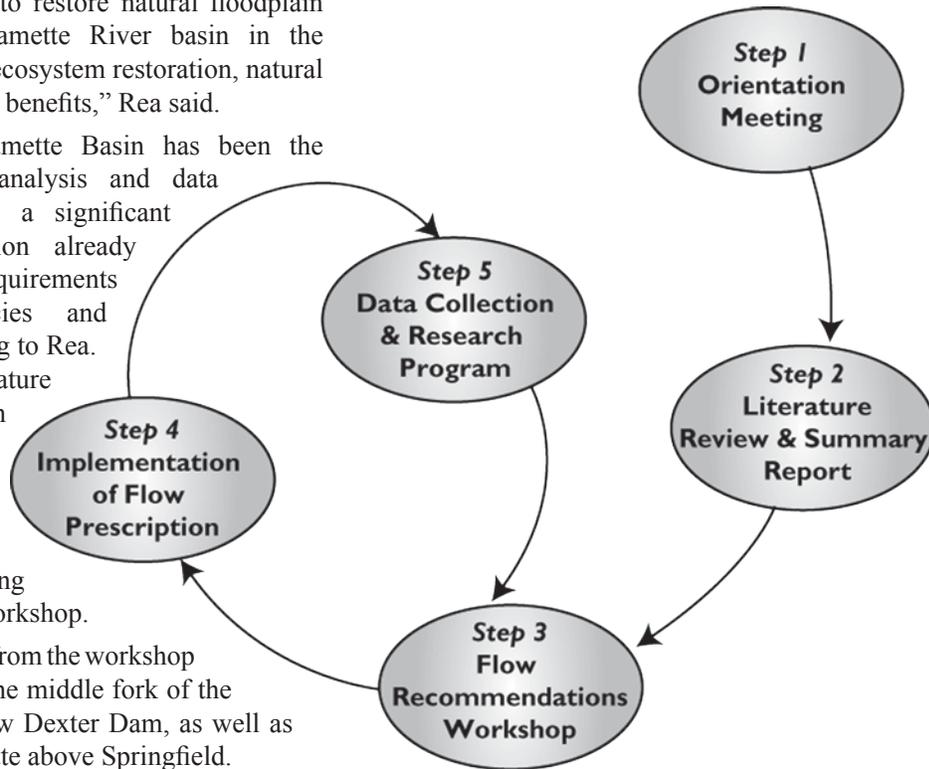
The project is one of 12 nationally and is being conducted in conjunction with the Corps' Willamette Floodplain Restoration Feasibility Study. "The study, under the General Investigations program, will identify opportunities to restore natural floodplain function in the Willamette River basin in the combined interests of ecosystem restoration, natural flood storage and other benefits," Rea said.

Because the Willamette Basin has been the focus of extensive analysis and data collection, there was a significant amount of information already generated on flow requirements for important species and communities, according to Rea. In earlier work, the Nature Conservancy's Oregon chapter awarded a contract to Oregon State University to undertake a Literature Review to assist in laying groundwork for this workshop.

Recommendations from the workshop focused primarily on the middle fork of the Willamette River below Dexter Dam, as well as the mainstem Willamette above Springfield.

"The goal of the project is to identify opportunities to restore natural floodplain function in the Willamette River basin in the combined interests of ecosystem restoration, natural flood storage and other benefits," Rea said. "This is not an overnight fix."

The circular process of the flows project



actually began implementing changes in Willamette system operations in 1999, after Chinook salmon and winter steelhead were listed as endangered under Endangered Species Act.

The literature review and flow workshops should increase knowledge of relationships between reservoir operations and downstream ecological needs, especially as they relate to the Coast and Middle forks, Rea said. That knowledge, combined with new data from observations will help optimize the balance of dam operations and the environment.

"We want The Nature Conservancy to help us determine whether we should revise our operations to better meet the ecological needs of the rivers and streams affected by the dams," O'Donovan said.

Having the right information and supportive partners means the Willamette River has a team of specialists focused on maintaining and improving its health, and that's good for everyone: fish, wildlife and people. 



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SAVING THE LAST GREAT PLACES ON EARTH

"The goal is to aid in the restoration of the Middle and Coast forks of the Willamette River. Data will be collected over time about changes that occur," Rea said. "We will tweak the recommendations until we achieve the best balance between the operation of the projects and environmental restoration."

The project partners expect to begin implementing the Flows Workshop recommendations this spring. The Portland District, working in collaboration with an Interagency Flow Management Workgroup,





OUTREACH OPPORTUNITIES



By Diana Fredlund, Public Affairs Office



In a darkened hall, a Soldier watched as a battle ensued. It was not a battle waged with tanks or guns; it was waged with robots and inflatable tubes.

The final match of “Rack ‘N’ Roll,” the 2-day regional competition sponsored by *FIRST*, or For Inspiration and Recognition of Science and Technology, was underway at the Portland Memorial Coliseum March

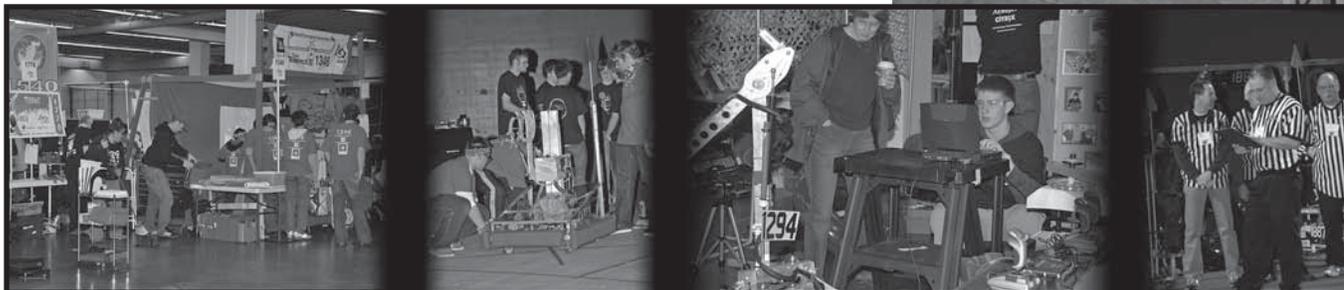
1, 2007. The Soldier was Col. Tom O’Donovan, Portland District commander and a *FIRST* judge.

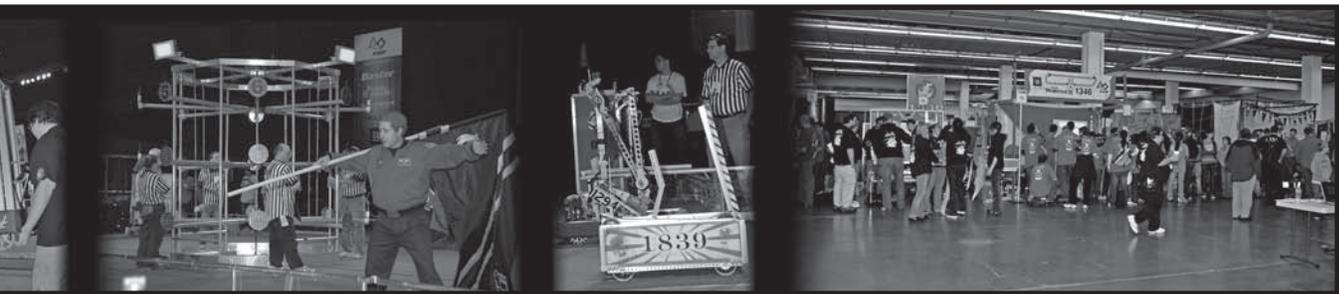
FIRST is a not-for-profit organization created by inventor Dean Kamen in 1989 to inspire young people’s interest and participation in science and technology. From its first competition, where 28 teams met in a New Hampshire high school gymnasium, the program has grown to over 1,300 teams from seven countries. After a round of 37 regional competitions, the *FIRST* Championship will be held at the Georgia Dome this month.

“The *FIRST* Robotics Competition program combines the excitement of sport with science and technology to help students discover the rewarding and engaging the process of innovation and engineering,” said Marian Murphy, *FIRST* spokesperson. “We’re very proud of how successfully the program has moved toward Dean’s vision. This year *FIRST* expects more than 32,000 students to participate in all the FRC events.”

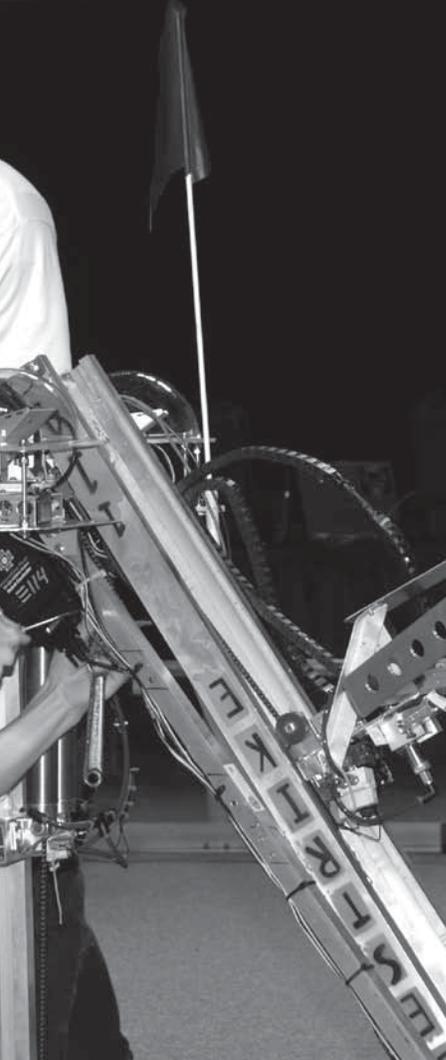
Equally important to encouraging scientific excellence is the concept of Gracious Professionalism. Dr. Woodie Flowers, *FIRST* Executive Advisory Board Vice Chairman and Pappalardo Professor of Mechanical

FIRST R





robotics



Engineering at the Massachusetts Institute of Technology, introduced the concept as a cornerstone of the *FIRST* experience. “Dr. Flowers wanted to encourage participants to ‘compete like crazy, but treat one another with respect and kindness in the process.’ This is an integral part of the *FIRST* concept,” Murphy said.

“It was very refreshing to see young people not only so wrapped up in creating their own robot, but they were excited about how their competitors created theirs, too,” said O’Donovan. “These machines were something to get excited about, too.”

As a judge, O’Donovan interviewed teams and got a close-up look at their robots in order to select the winners of several judges’ awards. “Each team has a mentor with a scientific background, and many with engineering experience,” O’Donovan said. “But it was clear these students understood how to make their robots accomplish their tasks.”

Not every participant is an engineer in training. “*FIRST* encourages creativity and pride in a job well done, as well as technical achievement. These teams need all types of skills, including organizational, fundraising, logistical and creative skills,” Murphy said. “All of these talents are needed to build a robot from scratch in six weeks.”

While participating is exciting and challenging, this is serious fun. The organization partners with colleges and universities, corporations and professional associations to make about \$8 million in scholarships available to *FIRST* participants.

In 1996, *FIRST* participants were eligible to apply for one scholarship offered by Worcester Polytechnic Institute, a long-time supporter. Scholarship opportunities continue to increase. This year, 436 individual scholarships are offered to students by over 70 colleges and universities in the United States and Canada, three professional associations and two private companies.

Continued on page 8



FIRST and Corps of Engineers Photos



FIRST Robotics

“As *FIRST* participants, our students learn about teamwork, engineering and Gracious Professionalism, all skills that prepare them for college and careers,” Murphy said. “Parents should know that colleges and universities prize *FIRST* students, and compete financially to have them attend. Scholarships range from \$500 to full tuition for four years.”

At the Pacific Northwest Regional competition, teams of three robots and their operators faced off in “Rack ‘N’ Roll.” Robots are programmed to hang inflated colored tubes on pegs configured in rows and columns on a 10-foot high center rack structure. Extra points can be scored by robots that are lifted more than 4 inches off the floor by another robot before the end of the match. “The process of designing, building and testing the robot to meet the annual challenge is a real-world, hands-on engineering experience,” Murphy said. “An additional test in competition is creating a partnership with another robot team to gain extra points. Which robot to lift and how to lift it takes a lot of coordination between teams, but they win enough extra points for it to be a pretty significant motivator.”

O’Donovan was so impressed with the regional event that he is talking with the other District commanders in Northwestern Division about how

the Corps can best support this program. “These students have the enthusiasm, talent and drive to be excellent engineers,” O’Donovan said. “I want to see more than a few of them working for the Corps of Engineers after graduation. These are the kind of people we need in our profession, solving the tough problems of tomorrow.”

Mentors are needed to help students design, build and operate their machines at high schools throughout Oregon and O’Donovan is hoping Corps employees across the District will find the opportunity to volunteer. “These young people are amazing,” he said. “They will keep you on the cutting edge of technology.”

In addition to mentors, volunteers are always needed for the regional competition, said David Porter, Pacific Northwest *FIRST* volunteer coordinator. “We have volunteers helping with the robot pit area, with team events, with the judges and referees, and with the competition field itself. I guarantee you will come away energized and have a great time, and we need you!”

Back in the dark hall, the battle came to a close when the three robots of Team Blue overran Team Red, outscoring them in two matches 138 to 87.

There were no broken parts, no robot pieces strewn on the field of battle; all machines were carefully packed away for the trip home. Members from 54

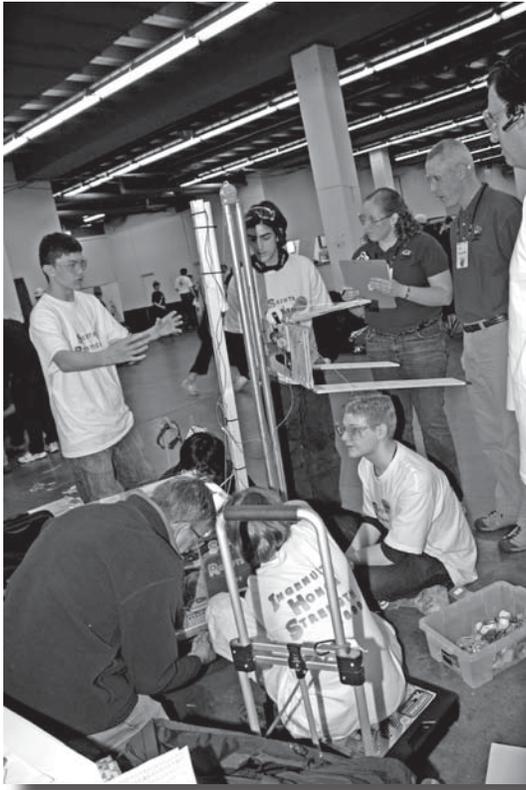
“FIRST was the highlight of my final high school year and was tremendously educational, intensive and rewarding. The event was way beyond my expectations.” Chris Homer - Crescent Robotics Team alumnus.

“It made me decide to go to school and become an engineer, so that one day I might have the chance to come back to a team and help them the way my teachers and the team’s engineers did for me.” Brandeis University survey respondent.



robot teams relived the excitement of matches won and lost with laughter, wild gestures and promises of success next year.

“What a great event for these young adults,” O’Donovan said. “They are bright, creative and supportive of each other. I think the future is in pretty good hands.”



Col. O’Donovan, Portland District commander, helps with the robot judging.

In 2003-2004, Brandeis University conducted an independent survey of the *FIRST* Robotics competition participants and compared results to a group of non-*FIRST* students with similar backgrounds and academic experiences (including math and science).

Survey results found:

◆ Nearly 60 percent of *FIRST* alumni had at least one science or technology-related work experience (internship, apprenticeship, part-time or summer job). 13 percent received grants or scholarships related to science or engineering. 66 percent reported receiving some kind of grant or scholarship.

◆ *FIRST* alumni were also substantially more likely to major in Engineering than the average college student nationally. Of those *FIRST* alumni reporting a college major, 41 percent reported they had selected Engineering. Based on national data from the U.S. Department of Education’s Beginning Postsecondary Student study, *FIRST* alumni were nearly seven times as likely to become Engineering majors as the average college student nationally (41 percent for FRC alumni vs. a national average of 6 percent). *FIRST* alumni were also twice as likely to enroll as Computer Science majors (11 percent vs. 5 percent nationally).

◆ Women and minority alumni also majored in Engineering at comparatively high rates. 33 percent of the female FRC alumni, 27 percent of the African-American alumni, and 47 percent of the Hispanic alumni reported majoring in Engineering (compared to national averages of 2 percent, 5 percent and 6 percent respectively).



“I ... encourage any and everyone I meet to get involved with FIRST, as a volunteer, a mentor, or by supporting a team. The rewards are simply too immense to summarize in words...” Nicole Collazo, Senior Software Engineer II, Raytheon Systems.

“To create a world where science and technology are celebrated ... where young people dream of becoming science and technology heroes” Dean Kamen, Founder



OUTREACH OPPORTUNITIES

FIRST and Corps of Engineers Photos





From the pits to the ponds

Environmental restoration at the Eugene Delta Ponds

By Jennifer Sowell, Public Affairs Office

The U.S. Army Corps of Engineers is in the process of enhancing a wetland area that once provided ideal habitat for a wide variety of species. In fact, the site of the Eugene Delta Ponds was formerly part of the flood plain of the Willamette River where gravel deposits prompted extensive mining activities. When mining ended in the early 1960s, the site was left as a series of groundwater-fed ponds with little connection to the river. This, along with more recent urban development, has left the area in poor condition to support native species.

The Eugene Delta Ponds is a Corps environmental restoration project located in Eugene, the third largest city in Oregon. The project site occupies an area of about 200 acres of abandoned gravel quarries and adjacent lands bordering the Willamette River. The area is currently composed of several open-water ponds and adjacent wetland, riparian and upland habitats along with roads and commercial and residential developments.

Historically, the Upper Willamette River was naturally braided and frequently changed course; urban development over the years, however, has generally confined the river's course to a single channel. This resulted in the disappearance of floodplain and aquatic habitat crucial to the survival of many native species.

The Corps, along with the City of Eugene, the project's local sponsor, plans to improve the degraded fish and wildlife habitat through the restoration of emergent wetland, forested riparian and other indigenous habitats, while controlling and managing non-native vegetation and fish species.

The project also has a recreation component consisting of pedestrian trails, interpretive signs and public parking lots, giving visitors access to and information about the ponds.

"Delta Ponds provides refugia for juvenile salmon," said Doug Putman, Corps project manager. "It acts as a safe harbor, allowing them to rest during high flow events." (A refugium is an area with special environmental circumstances that enable a species to survive after extinction in surrounding areas.)

Restoring the ponds will improve habitat for salmonids that use the mainstream Willamette River for migration and rearing, and refuge during high flow periods throughout the year.



Above: Swale excavated between two ponds to allow for increased flow, connectivity and fish access.

Below: A bulldozer enlarges and armors the opening of the upper ponds to the Willamette River.



“The project will restore fish access by connecting the pond complex to the river and adding riparian cover,” Putman said. “This will improve the water quality in the ponds by providing cooler water and more flow.”

The area is also potential habitat for other wildlife such as western pond turtles and many species of migratory birds, said Putman.

Feasibility studies and drafting proposed alternatives for the Eugene Delta Ponds project began in 2000. Work on design and construction began in 2005, when the upper ponds were reconnected to the Willamette River.

“Chinook salmon were found accessing these ponds within weeks of excavating the connection,” said Putman.

Current construction activities include installing fish access culverts with water control gates under roads that run through the site, creating riparian and upland habitat and constructing a buffer between roads and the wetlands.

Eugene Delta Ponds is funded through the Corps’ restoration authority under Section 206 of the Water Resources Development Act of 1996. This authority allows the Corps to develop aquatic ecosystem restoration and protection projects to improve the quality of the environment and serve the public interest in a cost effective manner. The

non-Federal sponsor is responsible for 35 percent of the total project cost, which includes providing all land, easements, rights-of-way, relocation and disposal areas, as well as operating and maintaining the project after completion.

“Delta Ponds is a unique urban natural area that provides habitat for a number of species and serves as a very popular walking and bird watching area,” said Scott Milovich, City of Eugene project manager.

In addition to performing all actions required of the local sponsor, the city plans to fund recreational components beyond the cost share amount, including bike and walking trails, pedestrian bridges, parking lots, and scenic overlooks into the wetlands, Putman said. “The City of Eugene is a strong sponsor with a real interest in the project.”

“The project will provide an important piece of habitat for urban wildlife and a recreational amenity,” said Milovich.

Because the Eugene Delta Ponds were once naturally connected to the Willamette River, the project has a great potential for success. Improved the hydrology of the ponds will enhance water circulation, reduce habitat for non-native and predatory species and provide salmon access to food sources year round, said Putman. 

Aerial view of the upper ponds and the levee where future installation of large, gated culverts will improve hydrology and provide fish access.



Corps of Engineers Photos



FROM THE FIELD



Louisiana Recovery Field Office begins final push on debris mission

By Michael Logue, Louisiana Recovery Field Office

Eighteen months into its historic effort to help south Louisiana recovery from the record devastation of Hurricanes Katrina and Rita, the Louisiana Recovery Field Office has completed all of its current FEMA-assigned missions, except debris removal and demolition.

The debris mission hit an important milestone recently when the total curbside and private property debris remaining in Orleans Parish dropped below 1 million cubic yards from an estimated mission of 12 million. Of the 27.7-million-cubic-yard total mission, 26.7 million, or over 96 percent, has been picked up in the southern parishes and municipalities assigned to the Corps.

Debris and demolition missions in areas outside New Orleans are either essentially complete or are moving into the final phase. Several communities are using local authorities to allow the Corps to remove debris where property owners have been unable to move debris to the curb for a variety of reasons.

"Debris removal operations are progressing toward completion," said Michael Park, director of the USACE Louisiana Recovery Field Office. "Of an estimated 12.6 million cubic yards assigned to us by FEMA, we've removed 11.9 million. This is an incredible accomplishment of a strong federal, state and local partnership."

At peak in October 2005, the Corps contractors were removing about 80,000 cubic yards per day in Orleans Parish. Current collection figures for curbside and private property debris removal are averaging 10,000 cubic yards per day. A large percentage of the remaining volume will come from an estimated 4,200 houses remaining to be gutted.

As a result of the ordinance and intensified partner efforts, March-April could see demolitions climb sharply toward the 500 mark. By summer, the RFO plans to be ramped up to remove about twice that many per month, keeping pace with the requirements of the current FEMA mission.

For more information on the Hurricane Response Missions, please see the latest edition of the *Task Force Hope Status Report*.



An excavator sits atop a debris pile in New Orleans after the 2005 hurricane destroyed millions of trees, homes and businesses. Corps employees worked with relief workers from local, state and federal agencies to help residents remove more than 50 million tons of material.

Corps of Engineers Photos