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The John Day Lock and Dam, viewed from the counterweight tower facing upstream. The counterweight system raises and lowers the lock gate at left. The project was completed in 1971, meaning the youngest Corps project on the Columbia River is already 35 years old. The Corps is facing challenges from aging infrastructure at projects throughout the Portland District.



During the Chief's visit, I had the opportunity to take Lt. Gen. Strock to the John Day Lock and Dam. I was pleased to give the hardworking folks there some much-needed recognition, and to highlight some of the challenges we face with aging infrastructures. My only regret is that the Chief's schedule did not allow him to personally offer his thanks to all of our project employees for the quality work you do.



Col. Thomas O'Donovan

While we were at John Day, the Chief was able to meet Sam Calvin, our camp host at LePage Park. Sam recently performed above and beyond his duties when he rescued a young visitor from drowning. The young man was swimming at the LePage swim beach when

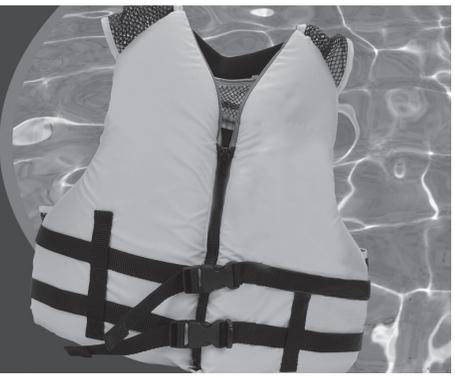
Seamoor, the Corps "spokesserpent," always draws a crowd when he talks about water safety, as he did at the Oregon State Fair in early September.

We also placed our water safety message on TriMet busses in the Portland metro area and on billboards in Eugene and The Dalles. Congratulations to the water safety staff for finding conspicuous ways to get water safety messages out to the public.

Lastly, I promised you an update about the Portland District's Hood to Coast team performance in August. The "Dam Runners" 12-person team included employees from the projects as well as RDP, Northwestern Division, contract employees and family members. While the Portland District has a long history of participating

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US Army Corps of Engineers

Billboard message

he started to go under. His mother and other onlookers began calling for help and Sam heard them. He dove in and was able to pull him back to the surface and bring him to shore. His family declined to seek medical attention and they all left safely a few hours later. That is the good news.

The bad news is that this young man was not wearing a personal flotation device. This time Sam was there to assist, but he – and all of our dedicated rangers and camp hosts – cannot always be in the right place at the right time. A fun day of recreation can end in tragedy if the swimming and boating public does not wear a PFD while on the water. It happened twice at Portland District parks or campsites this summer, which is two too many.

We are trying to get the word out about water safety by many means. Our park rangers bring traditional messages to local schools, and

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Portland District

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Editor, Corps'pondent
Portland District
U.S. Army Corps of Engineers
P.O. Box 2946
Portland, Oregon 97208-2946
Email: CENWP-PA@usace.army.mil
All manuscripts are subject to editing prior to publication.

Commander
Col. Thomas O'Donovan
Chief, Public Affairs
Matt Rabe
Editor
Diana Fredlund

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Hood to Coast Team with visitors Lt. Gen. Strock and Command Sgt Maj. Winzenried

Hood to Coast



in the annual Hood to Coast, it had been several years since we fielded a team. My teammates and I would like to thank the dedicated volunteers who provided the logistical support we needed to succeed.

Beginning at 6 p.m. on Aug. 25, Dave Austin started us off at Timberline Lodge and Mel Batista brought us to the finish line in Seaside, 27 hours, 2 minutes and 12 seconds later. In between, we had a great time together, sharing laughs, stories and yes, a few blisters.

I want to encourage anyone in the Portland District to join us next year. Don't worry if you haven't done something like this before – only one of this year's team members had ever run a relay like this before. Ask any of the folks who participated this year about their experiences and I know they'll tell you the same thing: it was hard work, it was a long trek, but it was great fun. **Essayons!**

Combined Federal Campaign

EVERY ONE OF US

Opening ceremony: October 3rd

Talk with a variety of organizations at the charity fair; swing with the Beaumont Middle School Jazz Ambassadors, enjoy refreshments and door prizes.

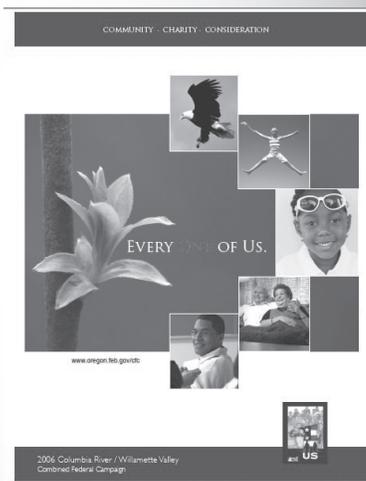
Pancake Breakfast: October 11th

Tri-Agency Bakeoff: October 18th

Auction: October 25th

Closing ceremony: October 31st

There's one last chance for a great prize: you and your guests will get a behind the scenes historical adventure, exploring some of the best known and little known facts about Timberline Lodge. A Forest Service architectural historian will host a tour of this national treasure, constructed by the Civilian Conservation Corps. Check out <https://w3.nwp.usace.army.mil/groups/cfc/home.asp>.





How fish benefit from Portland District employee's creativity

By Heidi Helwig, Public Affairs Office

Kaplan turbines are installed at many of the Corps' hydroelectric powerhouses. Invented by Viktor Kaplan of Austria between 1910 and 1924, the turbine features a gap between the fixed stay vanes and the moveable, non-spinning wicket gates that let water into the turbine.

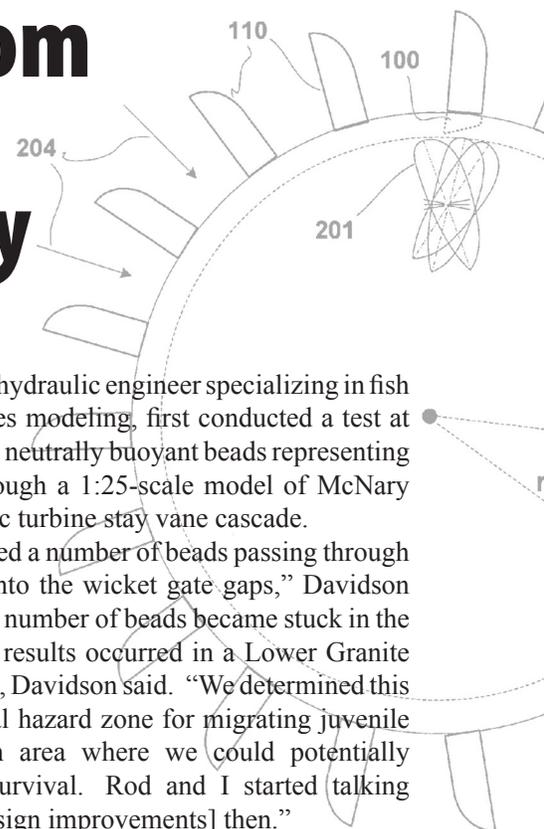
Rod Wittinger, a senior mechanical engineer in the Corps' Hydroelectric Design Center, is chair of the multi-agency turbine working group that investigates ways to improve fish passage through Kaplan turbines and is an engineering leader for the Corps' turbine survival program. With more than 28 years of experience in turbo machinery design, procurement, testing and operation, Wittinger knows turbines.

The gaps in the Kaplan turbines can cause injury to fish and reduce power producing efficiency, Wittinger said. For that reason, he and his colleague, Bob Davidson of the Engineering

Davidson, a hydraulic engineer specializing in fish passage facilities modeling, first conducted a test at ERDC in which neutrally buoyant beads representing fish passed through a 1:25-scale model of McNary Dam's hydraulic turbine stay vane cascade.

"We observed a number of beads passing through the stay vane into the wicket gate gaps," Davidson said. "In fact, a number of beads became stuck in the gaps." Similar results occurred in a Lower Granite model at ERDC, Davidson said. "We determined this to be a potential hazard zone for migrating juvenile salmon and an area where we could potentially improve fish survival. Rod and I started talking about [these design improvements] then."

More than stuck beads would be needed to prove a turbine redesign was needed and feasible, Davidson said. To study other possible improvements, Corps contractor VA Tech tested various stay vane inlet shapes and measured any improved turbine



FEATURE

What if we could redesign the turbine to increase efficiency while reducing the potential for fish injury and mortality?

Research and Development Center in Mississippi, shared an "aha!" moment while pondering this question: What if we could redesign the turbine to increase efficiency while reducing the potential for fish injury and mortality?

ERDC's laboratories transform many engineers' and biologists' good ideas from "what ifs" to actual testable ideas. ERDC's Coastal and Hydraulics Laboratory has been instrumental in performing groundbreaking studies of fish passage through hydraulic turbines.

It was only natural that potential improvements to the Kaplan turbine, using both computer and physical modeling, be tested at ERDC.

efficiency, he said. "While at the VA Tech lab in Linz, Austria, Wittinger and I reviewed the results, but no real improvement was found."

That's when Davidson and Wittinger knew the gap had to be minimized or closed if they were going to improve efficiency and fish survival. But if that gap served a mechanical purpose, would removing the gap cause a problem?

"We knew any design changes had to be mechanically safe," Wittinger said. "Prior to pressing ahead, I asked several turbine manufacturing companies about why the gap existed." The answer came back: no reason.

Davidson prepared a CAD (computer aided drafting) drawing from hand sketches that showed VA





Tech the method to minimize the gap. At Wittinger's and Davidson's suggestion, a simple change was made to the existing CFD numerical model to close the gap.

"When the simple CFD numerical design with the closed gap was tested, the results were positive," Wittinger said. "At that time, I requested that if this worked out in the actual [physical] model, and if at Bob's lab [ERDC] it was successful, that we co-patent with VA Tech."

The proof of concept testing, which allowed the Corps to receive credit under a patent for the conceptual change, was successful, Wittinger said. The patent request found its way to Earl Baugher's desk, who is a patent attorney for Corps Headquarters in Washington, D.C., though he is physically located in Albuquerque District. Baugher considered a patent request from Portland District and VA Tech one of the more unusual ones he sees.

"Ninety-nine percent of the Corps' patents are from ERDC," Baugher said. "It's rare for us to get one from a district." Another rarity is having VA Tech as a co-inventor, Baugher said. "We do have patents with non-government co-inventors, mostly students, but as far as foreign contactor employees, I think this is the only one."

Before Baugher actually saw the turbine redesign, however, Wittinger asked fellow HDC engineer Brian Moentenich to help write the initial patent application. "We had to describe the design clearly enough so that Earl would know exactly what we were proposing," Wittinger said. Baugher would forward the official application on to the federal patent office.

"One challenge was to write the formal

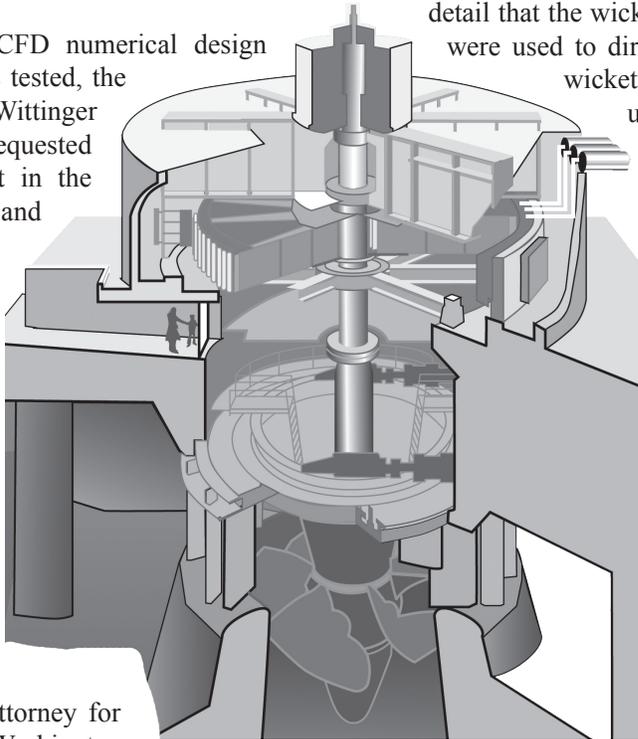
description in such a way as to distinguish it from other similar patents, especially those for aircraft engines," said Baugher. "We had to explain in detail that the wicket gates in the jet engine were used to direct jet fuel, whereas the wicket gates in the turbine are used to direct the flow of water."

The aircraft patents were held by large firms such as General Electric and Pratt and Whitney, and as far as the patent office was concerned we're pursuing the same technology as they are, Baugher said. An important distinction was that the Corps' turbines have to protect fish and the aircraft turbine doesn't, he added.

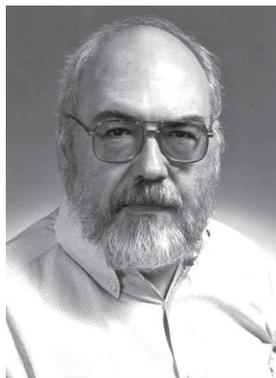
The patent office was satisfied that Baugher, Wittinger

and Davidson had successfully demonstrated the difference and issued the patent on April 11, 2006, for any turbine that features stay vanes and wicket gates, whether a Kaplan turbine or not.

Wittinger, who retired on Sept. 30, considered the patent a successful way to cap his more than 30 years of federal service. Moentenich will retire on Jan. 3, 2007. Whether they enjoy fishing for Northwest fish or just like to watch them swim, both men can feel they have done their part for fish survivability. 



Kaplan Turbine



Rod Wittinger



Bob Davidson



SHOWCASE

Employees explain challenges, accomplishments of Willamette Valley Project

District employees recently had the opportunity to showcase the Willamette Valley Project area to the senior non-commissioned officer for the Corps of Engineers. Command Sgt. Maj. Robert Winzenried accompanied Chief of Engineers Lt. Gen. Carl Strock on his visit to Portland District.

On Sept. 7, Special Projects Coordinator Jim Duffus, Operation Division, provided Winzenried a tour of Detroit and Fern Ridge dams.

“The Command Sgt. Major was impressed with the diverse mission and broad geographic scope of the entire project,” Duffus said. “I think, however, he was even more impressed with the commitment, competency and results represented by team members at Detroit and Fern Ridge.”

As the NCO for the Corps, Winzenried provides recommendations to the Chief and carries out policies and standards on the performance, training and conduct of the Corps’ enlisted personnel and blue collar workforce. 

At right, Park Manager Jim Beal, center, outlines the challenges faced by aquatic plants and wildlife during the emergency repairs made to the Fern Ridge Dam in 2005 to Winzenried.

At bottom left, Winzenried, left, learns about Detroit Dam’s power plant improvements from Joe Shindelus, plant maintenance crew supervisor.

At bottom right, Detroit Dam crewmember George Grady, left, explains the powerhouse governor controls to Winzenried during his visit to the Willamette Valley Project.



CHIEF OF ENGINEERS visits Portland District



DISTRICT BUSINESS



At left, Lt. Gen. Strock; Gene LaDouceur, operations manager, and Chuck Rinck, senior engineer

At right, Mike Colesar, senior engineer, Lt. Gen. Strock, Col. Thomas O'Donovan, Portland District commander, Gene LaDouceur, operations manager; Kimberly Oldham, chief of maintenance



During his visit to Portland District, the Chief of Engineers toured the John Day Dam, where The Dalles/John Day/Willow Creek Project employees discussed the Columbia River dam operations. Lt. Gen. Carl Strock also took time to recognize the heroic actions of Samuel Calvin, a campground host at LePage Park near John Day Dam.



In Memoriam

Peggy L. O'Brien died Aug. 26, 2006, at age 61. O'Brien served three years in the Army and worked 20 years for the Corps of Engineers, most recently at the U.S. Government Moorings. She is survived by her companion Trudy Johnson, and many cousins. The family suggests remembrances be sent in Peggy's name to the Oregon Humane Society.

Ralph C. Gustafson died Aug. 29, 2006, at age 77. Gustafson worked for the Portland District as an engineer at The Dalles Dam. Survivors include his wife; a daughter and a son; two grandchildren and one great-grandchild.

Marion A. Bump died Sept. 10, 2006. He was 78. A longtime resident of Cascade Locks, Ore., Bump worked for the Corps of Engineers at Bonneville Dam for 35 years. He retired in 1983 as a power plant mechanic foreman. His wife, Charlotte, died in 2002. Bump is survived by three children, a sister and five grandchildren.

Dorothy R. Waiste died Sept. 12, 2006. She was 93. Waiste worked in Portland with the Corps of Engineers. She is survived by a nephew, sister-in-law and many cousins.

Walter A. Scott died Sept. 12, at age 83. After serving in the Navy, Scott moved to Portland in 1952, where he worked as a civil engineer with the Corps of Engineers at Willamette Falls Locks. His wife, Lucy died in 2004. Scott is survived by a daughter, a son, three stepchildren and two grandchildren.

Coming up in the next issue of the Corps'pondent:

Portland District's

CFC
in Action

