St. Anthony Falls Laboratory (SAFL) Tour

Jeff Marr, Associate Director of Engineering and Facilities (SAFL)

1.5 PDH

Tour Info:

This month the MSP Post of SAME will get a chance to see the renovated St. Anthony Falls Laboratory (SAFL). SAFL is an interdisciplinary fluid mechanics research and educational facility of the College of Science and Engineering at the University of Minnesota. Research at SAFL is focused at the intersection of fluid dynamics and effects in energy, environment and health. Experiments in the laboratory and field with advanced computational tools help researchers reach innovative, science-based solutions to real-world fluid-flow problems. SAFL partners with local, state and federal agencies; private consulting firms; businesses of many kinds; technical associations; and other educational institutions to expand knowledge and solve problems that reach across the country and all over the world.

Uniquely located in Minneapolis, on Hennepin Island in the Mississippi River, SAFL opened its doors in 1938. Over the years the lab has grown and evolved. The laboratory has been the headquarters and administrative home of the National Center for Earth-surface Dynamics (NCED), a National Science Foundation-sponsored research center. SAFL is also home to the Eolos Wind Energy Research Consortium, funded by the U.S. Department of Energy. In 2010, a major renovation was funded by the National Science Foundation's American Recovery and Reinvestment Act. Jeff Marr, Associate Director of Engineering and Facilities, will give a presentation featuring recent projects and activities at the lab. After the presentation, a tour through this historic facility will showcase the range of experimental facilities available for use by researchers and SAFL collaborators as well as current research projects. Reserve your spot now to see the renovated lab and witness research in action!

Meeting Location:

LOCATION: St. Anthony Falls Hydraulic Lab (Meeting Room: Auditorium), 2 3rd Ave SE, Minneapolis, MN 55414

Parking within the SAFL gate is reserved for SAFL personnel only. If you require handicap accessible parking, there is a spot available near the front door. Otherwise, we ask that you park off-site at one of these locations:
- Garage: 212 SE 2nd Ave
- Lot: 200 University Ave SE
- Metered street parking is available along SE Main St, portions of SE 3rd Ave, and 2nd St SE. Or consider biking—we have lots of bike racks

Agenda:

Social time and lunch (if you so desire) will be available in the auditorium starting at 11:30AM. A brief presentation will be held in the auditorium from about 12:00 PM to 12:20 PM. A tour will follow the presentation from 12:20 PM to 1:30 PM.

A box lunch at a cost of $15 will be available. Lunch will consist of a sandwich and will include either chips or potato salad, cookie, and a beverage. Please RSVP no later than Friday, September 22 with your intent to either partake in the lunch or to come for the presentation only. Please click the RSVP button in the left-hand column of page 1 or use the following Eventbrite link to RSVP: https://www.eventbrite.com/e/september-professional-development-meeting-tickets-37696684799

Please dress wisely. SAFL is a fluid mechanics lab, and you may get dusty, wet, or muddy, and you will definitely be walking a great deal. Please wear closed-toed shoes - no flip flops or sandals permitted.
Highlights of the Previous Meeting

During the June monthly meeting of SAME MSP Post, Marty Melchior and Dan Mielke from Inter-Fluve presented some river restoration projects that they have been working on.

**Boardman Dam Removals. (Traverse City)** There were 4 main dams on the river. Hydropower dams ranged from 80-100 years but were decommissioned from FERC. There were numerous paddlers on the river and the removal of the dam facilitated recreation, river restoration and reducing water temperatures to restore cold water fish habitat. Union Street Dam (most downstream Dam) will remain in place. The project was partnered with AMEC, AECOM (Previously URS), and Inter-Fluve. The Corps of Engineers involvement includes the Contracting Officer, Project Manager, Contracting Officer’s Rep, and the Project Engineer. Funding authority came through the Great Lakes Fishery Restoration and the EPA. The design elements of the project include sediment management plan, drawdown plan, demolition plan, infrastructure post removal river restoration and long term monitoring. Sediment extended approximately 1.5 miles along the entrance to the impoundment, but sediment was excavated. The historic channel was obscured almost completely by the sediment. The project augmented habitat with boulder or large wood. The designed channel was 80 foot wide channel, with floodplain either divided between the banks, or wholly on one side of the channel or others as it meanders. Approximately 260,000 cubic yards of sediment was excavated and pushed into spoil areas along the project. As gates were opened, the sediment movement was monitored and channel excavation accomplished with long arm excavators. Post removal, small plantings and large wood was used for floodplain restoration. For Boardman Dam, specific note was made of a meander bend, noting where general alignments were from 1903 mapping. Excavation limits needed to be flexible during excavation, and old vegetation (tree stumps) were used as a guide for channel excavation. After the initial excavation, the team came back in to dig pools and pitched bars to maintaining cross section area and maintaining pool depths. Log cribs were used along outside bends of the old channel alignment.

**Underwood Creek Reclamation Project** is a tributary to the Menomonee River near Milwaukee. It was a concrete lined channel, with very low habitat value. The slopes ranged from .5% to .15% slope. This is a flashy system, with velocities reaching 20 feet /second. Phase 1 consisted of construction of a boulder and cobble stone channel. Phase 2 included improvement of floodplain connectivity, improving habitat and increasing fish populations. The Corps of Engineers was the lead designer and contractor. Inter-Fluve provided detail sheets, specifications and input to the Corps design. The need for good communication between departments and engineers was a must with this project. Funding for this project came through the GLRI Program.

**Dry Creek, CA River Restoration Project.** Dry Creek is a tributary to the Russian River in California. The project site is approximately 14 miles from the confluence of Russian River to Lake Sonoma, 30 miles from Pacific Ocean, and 50 miles north of San Francisco Bay. Starting in the mid 1800’s, the valley was settled and forest was harvested. Agriculture dominated and stream graded 3 feet across 15 miles tributary due to sedimentation issues. Lots of gravel mining along the creek and Russian River and streams were lowered about 5 feet. By 1980’s, the creek was incised by 25 feet in some areas with encroachment. 99% of the property along the dam is privately owned, so mainly vineyards lie adjacent to the stream. During the 1980’s, a lot of bank stabilization work was done, but the result of that reinforcement perpetuated vertical incision process. Warm Springs Dam was completed in 1982, with authorizations for hydropower power generation, winter flood control and irrigation water. Effects of the dam reduced winter flows and elevated summer flows. In 2008, a biological opinion was issued and concerned were voiced regarding coho and steelhead habitat with regard for irrigation and flood control needs. The dam was a bottom release dam, with the ability to pull cold water from the bottom of the reservoir. The design option that was most feasible, was to work with regulated flow regime and geomorphic condition and create habitat along a 6 mile reach in the corridor under a 15 year agreement. Some side channels were included to allow for some resting areas and grade control. Backwater channels located upstream of a riffle allow for pool habitat and stagnant, low-velocity areas. Winter Refuging criteria and floodplain connections could be achieved by lowering areas by excavation including some cover and large woody areas. Project partners included Sonoma County Water Agency, and the USACE among the other land owners downstream of the dam. The Corps led several demonstration projects, reviewer for plans and will look at opportunities for future design efforts. The monitoring plans for projects like these address how the project construction matched what the plans specified, habitat achieved design criteria, and the main take home is how the fish respond to the project through snorkel surveys.
The Seventh Annual Minneapolis-Saint Paul Post Awards and Recognition Banquet held on August 9, 2017 was another great success. Approximately 34 people were in attendance. The banquet consisted of recognition of outstanding SAME members, a presentation by Erin Krug on being a mentor for the construction camp at the Marine Corps Base Camp Lejeune, NC, a presentation by the Air Force Academy camp attendee Tyler Katzenmaier, and presentation of the Great Lakes Regional awards by RVP Tom Heinold. Wayne Wambold presented the awards and discussed moving the banquet to the Minnesota Humanities Center, a beautiful facility near Lake Phalen that is more economical, preserving post funds for the future.

Pictured above: Chris Afdahl (2nd from right) inducted the new board including (L to R): Wayne Wambold (past president), Lindsey McKenzie Roberts, Sherry Van Duyn, Peter Allen, Paul Dierking, Dave Ausdemore, Erin Krug, and Rachel Pichelmann. Not Pictured: Ann Bannitt and Bonnie Greenleaf.

Pictured above: Outgoing Post President, Wayne Wambold, accepts the presidents plaque from the incoming 2017-2018 Post President, Peter Allen.

Pictured above (L to R): Attendees enjoyed a social hour prior to dinner being served, Bill Holman, Nate Meigee, Alan Katzenmaier, camp attendee Tyler Katzenmaier, Michelle Larson, and Rebekah Hudson.

Pictured left: Award for Post Doers for Habitat for Humanity (L to R): Peter Allen, Erin Krug, Rebekah Hudson, Wayne Wambold and Jennifer Wambold, presented by Wayne Wambold.

Pictured right: Erin Krug (left) shared her experience as being a mentor for the US Marine Corps Engineering and Construction Camp at Camp Lejeune in North Carolina.

Tyler Katzenmaier (right) shares his projects and stories which included building a dog house, constructing a concrete beam, and flying an airforce simulator, from his week long attendance at US Air Force Academy Engineering and Construction Camp.
SAME-MSP Post’s 2017 Industry Day and 32nd Annual Golf Tournament

Thank you to all who participated in the MSP Post’s 2017 Industry Day and 32nd Annual Golf Tournament! We had a total of 54 participants, 10 Industry Day presentations, and 10 sponsorships from sustaining member firms. Industry Day participants earned 3 PDHs while attending sessions on climate change, innovation and technology, water resources, and legislative updates. Golf Tournament participants took part in challenges on every hole, and even had a chance at a $10,000 hole-in-one prize! First and second place teams were recognized, along with an “average joe” team, and nearly $400 worth of prizes were distributed following dinner.

The MSP Post sincerely thanks all the participants and the event sponsors who supporting the event, ensuring financial success. Special thanks to all those who contributed to the event’s success by helping with the event planning, providing presentations, and donating prizes. Industry Day sponsors included Hanson Professional Services, HDR & Bergmann Associates JV, and River Solutions (BARR/HNTB/COWI). Golf Tournament Hole Sponsors included Anderson Engineering, HDR & Bergmann Associates JV, Landmark Environmental, River Solutions (BARR/HNTB/COWI), Stanley Consulting, and Stantec. The $10,000 hole-in-one contest was sponsored by SEH.

Proceeds from the Industry Day and Golf Tournament events are deposited into the Post’s Education and Mentoring Fund, which is used to award scholarships to students. Scholarships for the 2017-2018 school year were awarded to Karis Knoff (four-year renewable scholarship), Mikayla Afdahl (one-time award) and Cameron Bluhm (one-time award).

Industry Day presentations are posted on the MSP Post website, along with photos of the event.

Didn’t attend the Industry Day or Golf Tournament? Please take a few minutes to tell us why – this will help us improve the 2018 event and better serve you: https://www.surveymonkey.com/r/2VCQYVV

Pictured above: “Average Joe” Team (L to R): Mike Brandvold, Nick Hillmer, Derek Seifert, and Joe Lucht.

Pictured above: Post President, Peter Allen, presenting a scholarship award to Karis Knoff, who received a four-year renewable scholarship from the MSP post. Mikayla Afdahl and Cameron Bluhm also received one-time scholarships from the MSP post but are not pictured.

First Place Team (L to R): Wayne Wambold, Kirby Van Note, Tom Novak, and Chris Erickson

Second Place Team (L to R): Marvin Fisher, Chris Afdahl, and Giovanni Orbita