

# Meeting the Challenge of the Grey Tsunami

The Hydropower Foundation is offering new hope in the challenge of attracting younger professionals into the US industry. **Linda Church Ciocci**, the foundation's Executive Director, explains how



Above: **Linda Church Ciocci**

Below: **The Hydro Foundation brought students to Rocky Reach Dam in Washington state for an intense week of hands-on problem-solving in 2019. Editorial** (credit: Antone Abbott Jr / Shutterstock.com)



**ATTRACTING THE NEXT GENERATION** hydro professional is not for the faint of heart. It is a unique challenge. Yet it is one of the greatest challenges before the hydropower industry both globally and within the US. Hydropower has a long history of providing clean and resilient electricity around the world. That history is also hydro's downfall in that it is viewed as old technology with no future from a career standpoint. Breaking down that barrier is not easy. The Hydropower Foundation is working toward that end with a host of programs to elicit the interests of young professionals. And it is none too soon. With the staggering numbers of expected retirees in the not-too-distant future, preparing the next generation and tooling them with the right skill sets will ensure hydropower meets anticipated and growing needs as we transition to a clean energy grid.

Our work to address this challenge is many faceted. We focus both at the university level and the trade schools. We also work closely with the US Department of Energy in a STEM program that ensures that there is plenty of access to curricula and general information on hydropower and career opportunities. That alone is not enough. We need to directly engage the students, their academic advisors, and professors. Our Think Tank programme does just that.

So, when you hear the words "think tank," what comes to mind?

Most might think about the US national policy think tank groups like the Urban League or The Center for American Progress. Groups that focus on specific challenges and pursue policies for change. But the Hydro Think Tank is something quite different. A brainchild of the Foundation, its primary purpose is to expose students to the many career opportunities the hydropower industry offers. This exposure is accomplished through a unique experience that brings students together with industry to focus on real-world problems; and allows the students to work

together with industry members while they unleash their creativity and innovative thinking. These projects provide total immersion outside the academic world and give students and the industry a "test drive," on whether a career in hydropower is the right fit.

The Hydropower Foundation, a nonprofit organisation, has a strong track record in working with the academic community and serving as a liaison between industry and academia. Industry members might remember the Foundation's Research Awards programme that funded graduate student research on a host of topics with the support of a grant from the Department of Energy's Water Power Technologies Office. The programme was phenomenally successful and led to 75% of participating students going on to pursue jobs in hydropower. Through it, the Foundation built a strong network with a host of universities around the country. Today, it uses that network to steer more students toward hydropower.

## Heart of the industry

In 2018, the Foundation launched The Hydro Think Tank to bring students directly into the heart of the hydro industry. Kenneth Odom, past president of the Hydropower Foundation's Board of Directors and Principal Engineer for Southern Company, saw an opportunity to hold a competition to solve a problem occurring at Southern Company's Logan Martin Dam in Alabama. Like many projects in the southeast, the Logan Martin Dam was dealing with a dissolved oxygen issue.

"The Hydro Think Tank allowed us to spend some very meaningful time with top students from some of the universities in Alabama, teaching them about all the hydropower that's right here in our state," Odom said. And Southern got the benefit of the student's out-of-the-box thinking.

Twelve students were divided into four teams competing for prizes for the best solution. Dissolved oxygen becomes a problem after times of extreme rainfall, which had occurred on the upper Coosa River above Southern Company's Logan-Martin Dam. Students were challenged to find an innovative way to increase and optimize dissolved oxygen levels. Each was asked to put themselves in the shoes of Southern Company's dissolved oxygen expert and determine the best way to operate the plant's aeration systems to remediate the high dissolved oxygen levels with minimal cost. To find a solution, students could use the plant's blower and forebay diffuser systems to increase the dissolved oxygen

Left: **Grand Coulee Dam on the Columbia River is the venue for the foundation's Think Tank this summer**



level. The goal was to record a minimum of 5 milligrams per liter during generation at the regulatory monitor located half a mile below the dam.

While the focus of the students' efforts was on problem solving, their experience was far broader. A comprehensive programme offered career services support through workshops on public speaking, interviewing, and resume building. At the end of a full week, the teams presented their work to an industry judging panel. They were judged based on organisation and completeness, comprehension, quality, originality and innovation, presentation and documentation, and engineering teamwork. The programme was an enormous success with some of the students being offered internships at the end. It was an eye-opening and rewarding experience for the students, their academic advisors, and the industry members that participated.

## Replication

The Foundation knew it was on to something so in 2019, we replicated the programme bringing eleven students from the University of Washington, Walla Walla Community College, Washington State University, and Portland State University to Rocky Reach Dam in Washington state for an intense week of hands-on problem-solving. This opportunity offered students practice with real-life business and engineering skills, hone individual talents and apply knowledge to solve a pressing need in the river systems. And this coming summer, with the support of the US Bureau of Reclamation, we are hosting another Think Tank at Grand Coulee Dam. Students will be given a unique opportunity to work on one of the largest hydropower facilities in the US.

Looking ahead, the Hydropower Foundation will continue to provide these opportunities for students to learn firsthand the exciting opportunities that exist within the hydro world. We have plans to provide a unique experience at the NHA Clean Currents conference in 2023. We also are investigating the possibility of bringing the programme directly to the university campus and trade schools and we are in discussion with several schools. The advantage is that more students can be exposed to industry. Tied with off campus tours of nearby hydro sites, the programme will offer an enriched experience for the students and professors. While a great deal of the focus has been at the engineering school level, we also are looking to build an interdisciplinary approach that will bring the



environmental sciences and management schools.

Because the challenge of work force issues is so exceptionally large, it remains one of the major priorities of the Foundation. We have expanded it to also include the significant challenge of bringing more diversity and inclusion to the hydro industry. Our university outreach includes historically black colleges. And we are working to find other ways to attract more people of colour and build more opportunities for women within the hydropower industry.

Focusing on the workforce challenge is not all that we do. Our mission is to support the hydropower community and help increase its contributions to society and the environment. To that end, we are facilitating the update of the DOE Hydropower Vision report and are looking to initiate more discussion on hydropower's role as a mitigator in a climate constrained world, particularly from the perspective of water management. We are supported through industry sponsorships, federal grants, fundraising events, and memberships.

For more information about the Foundation and our work, check us out at [hydrofoundation.org](http://hydrofoundation.org). We hope to see you at our next event. ●

## Author info

Linda Church Ciocci is the part-time Executive Director of the Hydropower Foundation. She assumed this role when she stepped down from her CEO position at the National Hydropower Association, an organisation she steered for 30 years. Now, in semi-retirement, she focuses on programmes that help meet the challenges of the hydropower industry, and is Principal in her own consulting firm, Ciocci Strategies LLC.

