

Immense opportunities to join the water power workforce await, in part due to NREL's STEM & Workforce Development project.
Photo by Sebastian Voortman, Pexels

Inspiring Tomorrow's Water Power Workforce to Lead the Clean Energy Revolution

Renewable water power, including hydropower and marine energy, will play a key role in building a reliable and flexible 100% clean energy future.

That future needs a larger, modern workforce—one that's more diverse, equitable, and inclusive—to power and improve these technologies. And researchers at the National Renewable Energy Laboratory (NREL) are committed to fostering tomorrow's water power workforce through science, technology, engineering, and mathematics (STEM) and workforce development programs. Through events, online resources, and more, the lab aims to engage and inspire students to dive into careers in water power.

With REDi Island, Explore a Future Clean Energy World

This year, NREL launched the Renewable Energy Discovery (REDi) Island, an educational, 3D animation of a virtual renewable energy-powered island developed by IKM Testing. Supported by the U.S. Department of Energy's Water Power Technologies Office (WPTO), REDi island is designed to inspire K-12, college-level students, and people of all ages to join the clean energy revolution and turn this virtual energy utopia into a reality. Zooming into REDi Island, users can explore a diverse array of marine, hydropower, and river-based energy technologies and watch as they energize whole communities, power microgrids and offshore work, and turn saltwater into fresh drinking water, all with clean, reliable, renewable energy from moving waters.

Since January 2022, NREL has published six animation videos:

- [Desalination Station](#) (desalination plant and surge flaps)
- [Research Reef](#) (observation buoy)
- [Tidal Town](#) (tidal turbines)
- [Hydro Hollow](#) (conventional dam)
- [Hydro Heights](#) (pumped storage hydropower)
- [Navigation Network](#) (navigation buoy).

In the future, REDi Island's animations will be the foundation of a browser-based, interactive application, so schools, museums, and other programs can integrate this valuable educational resource into their curricula. [Follow REDi Island](#) to learn about water power technologies and stay updated on the release of the interactive application.



In 2022, NREL released six animations, including (clockwise from top left): Research Reef (observation buoy), Tidal Town (tidal turbine), Desalination Station's surge flap, and the island's Navigation Network (navigation buoy).



NREL's STEM team joined WPTO on their home turf in Washington, D.C., at Waterpower Week 2022. Photo courtesy of National Hydropower Association

STEM Portal

NREL's [STEM Hydropower Portal](#) and [STEM Marine Renewable Energy Portal](#) offer resources to learn about water power technologies as well as potential career tracks, ensuring that training for tomorrow's workforce begins today.

The portals offer features for a variety of users: hydropower educators may look for new [curricula and training materials](#); renewable energy students may explore [career pathways](#) to get inspired by water power professionals across diverse disciplines and skillsets; and young professionals may leverage networking events and job postings.

In Fiscal Year 2022, NREL continued to update the portals with new educational resources, training materials, and videos and animations to engage a new wave of innovators. NREL also began gathering metrics to track activity and help plan for a significant portal update in 2023.

STEM Partnerships & Events

NREL established STEM partnerships to share knowledge, gain valuable input, and engage the next generation of water power workers. In 2022, NREL:

- Hosted the Multilab Water Power STEM and Workforce Coordination Meeting with guest speakers from Bonneville Environmental Foundation at the Ocean Renewable Energy Conference in Portland, Oregon, to gather information about other water power STEM workforce projects across the national labs. Professionals from five national labs and WPTO joined the conversation to discuss the pilot Clean Energy Talent Hub, align STEM program efforts, and leverage resources.

- Attended National Hydropower Association's Waterpower Week 2022 to support WPTO, network with potential STEM partners, and promote the [Marine Energy Collegiate Competition](#) (MEEC) and [Hydropower Collegiate Competition](#) (HCC).
- Collaborated with industry partners to advance the hydropower and marine energy collegiate competitions, REDi Island, STEM portals, and more, including but not limited to Hydropower Foundation, KidWind, National Energy Education Development Project, Bonneville Environmental Foundation, and National Hydropower Association.

More information

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