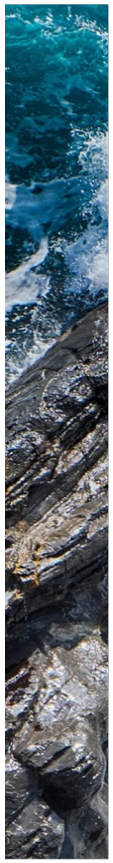


NREL

Pacific Northwest
NATIONAL LABORATORY

Sandia
National
Laboratories

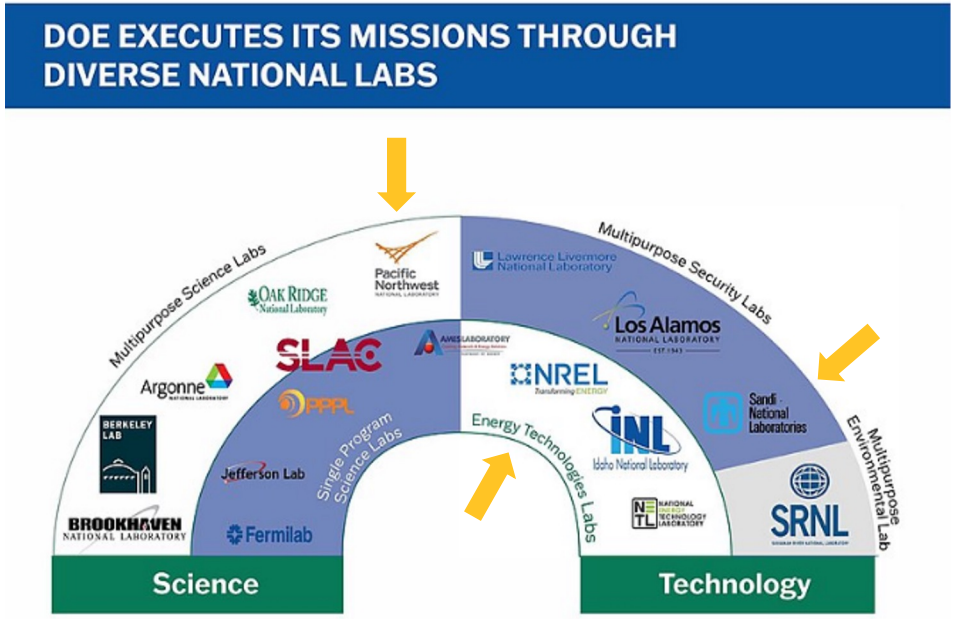
Marine Energy Career Panel

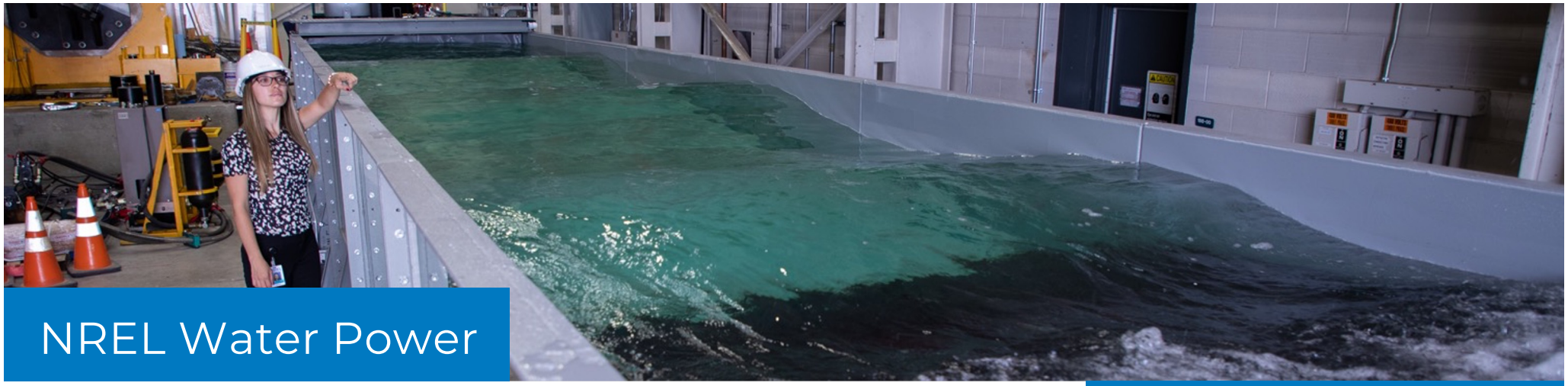
September 17, 2025

Overview of National Laboratories

- The US Department of Energy's (DOE) 17 national laboratories tackle critical scientific challenges

- **Goal:** conduct R&D addressing national priorities such as energy and climate, the environment, etc.





NREL Water Power

Driving innovation in the design and use of next-generation **marine energy** and **hydropower/pumped storage** systems through foundational research, tool development, and laboratory and in-water optimization.

Photo by Joe DelNero, NREL, 70307

What's Next

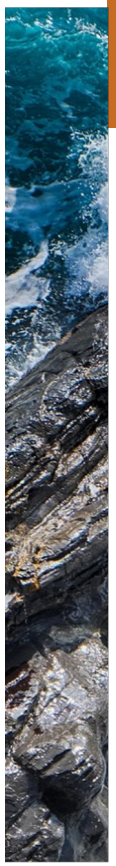
- Improving performance, reliability, and cost-effectiveness of wave, tidal, ocean, and river energy systems
- Identifying energy and non-energy opportunities of hydropower and pumped-storage energy systems

Successes

- Deployed NREL-designed, marine-powered desalination research platform, HERO WEC, in real ocean waters
- Published "An Examination of the Hydropower Licensing and Federal Authorization Process" report, which is helping decision-makers streamline the hydropower regulatory process without cutting environmental protection

NREL at a Glance:

- 3,675 workforce, including
- World-class research expertise in:
  - Renewable Energy
  - Sustainable Transportation & Fuels
  - Buildings and Industry
  - Energy Systems Integration
- Partnerships with:
  - Industry
  - Academia
  - Government
- 4 Campuses operate as living laboratories



Pacific Northwest National Laboratory (PNNL)

PNNL - ~6,000 researchers and support staff, based in Washington

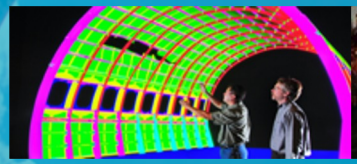
Coastal Sciences Division - conducts research related to coastal science, including marine energy

- PNNL-Sequim - DOE's only marine research laboratory
  - PNNL-Sequim is uniquely positioned to advance ocean energy, ecosystem and community resilience, and coastal security.
- OES-Environmental and Triton projects focus on environmental effects of marine energy

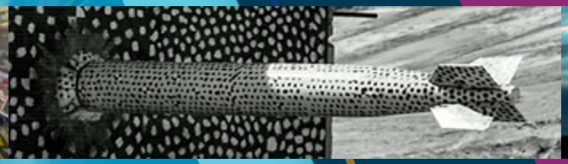
Sandia National Laboratories

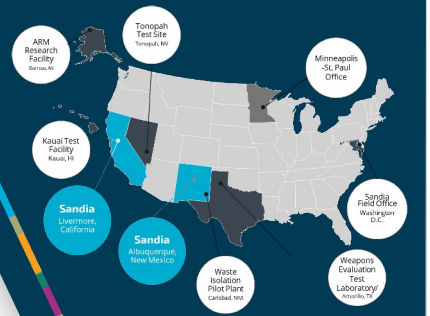
Sandia National Laboratories

Exceptional service in the national interest

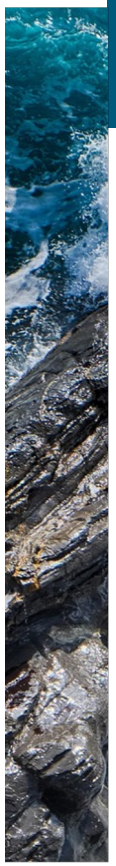






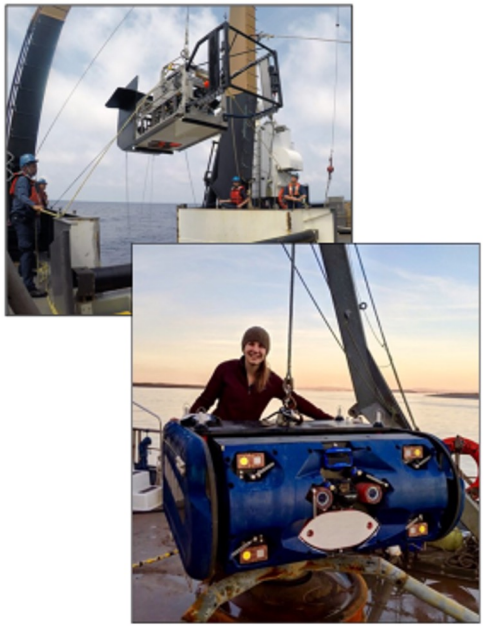



Panel Introductions



Images courtesy of Orbital, CalWave, NREL & PNNL

Emma Cotter – Ocean Engineer, PNNL



Education

- 2014: B.S Mech. Engineering – Case Western Reserve University
- 2019: PhD Mech. Engineering – University of Washington
- 2019-2021: Postdoc – Woods Hole Oceanographic Institution

Career

- Joined PNNL in 2021 as ocean engineer
- Marine Technology Team in Coastal Sciences Division

Focus

- Environmental monitoring for marine energy and offshore wind
- Active and passive acoustic monitoring
- Developing and applying novel methods for environmental monitoring

Courtney Jones – Policy Analysis Researcher, NREL

Education

- 2024: Engineering and Public Policy, M.S. – Carnegie Mellon University
- 2023: Mechanical Engineering, B.S. – University of Maryland Baltimore County

Career

- Joined NREL in 2023 as a marine energy intern
- Returned in 2024 as a full-time researcher on the Water Power Commercialization and Deployment team

Focus

- Marine energy policies for commercialization
- Resources for communities interested in marine energy
- Economic analyses for alternative energy sources

Rachid Darbali-Zamora – Research Scientist, Sandia

Education

- 2013: B.S. in Electrical Engineering, University of Puerto Rico-Mayagüez Campus
- 2016: M.S. in Electrical Engineering, University of Puerto Rico-Mayagüez Campus
- 2019: Ph.D. in Electrical Engineering, University of Puerto Rico-Mayagüez Campus

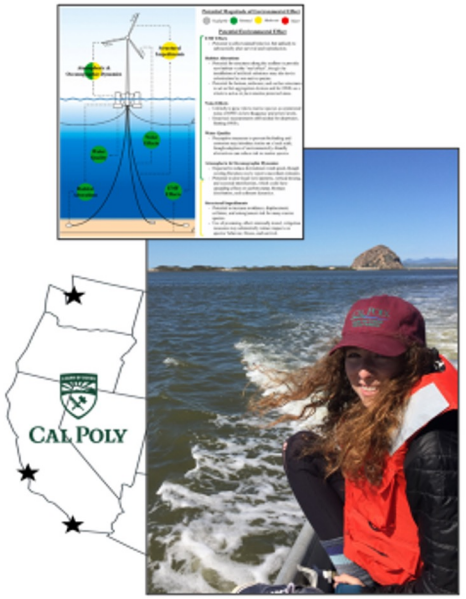
Career

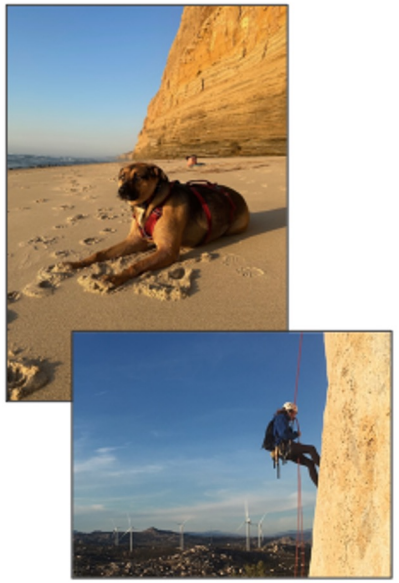
- 2023 – present: Sandia National Laboratories, *Research Scientist*
- 2021 – present: University of Puerto Rico – Mayagüez Campus, *Adjunct Professor*

Focus

- Distributed Energy Resources System Integration
- Power Management and Controls
- Microgrids Design
- Distributed Energy Resources Standards Development

Hayley Farr – Environmental Scientist, PNNL





Education

- 2018: BS in Biological Sciences – California Polytechnic State University, San Luis Obispo (Cal Poly SLO)

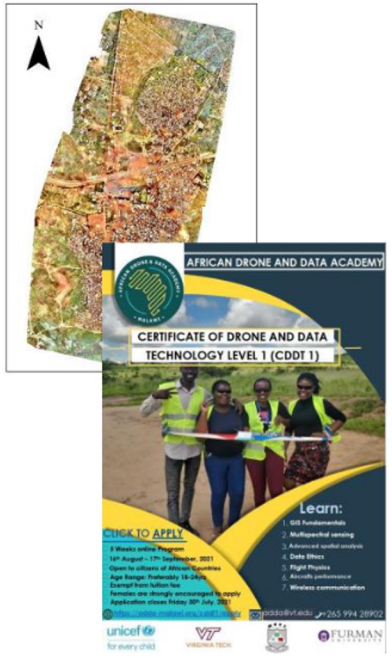
Career

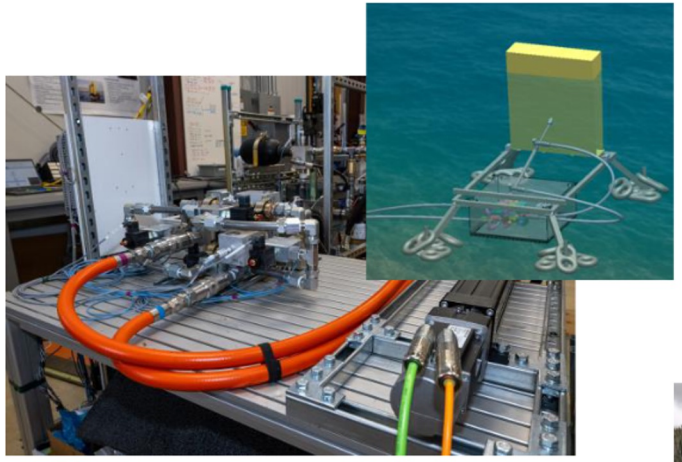
- Researched offshore wind at Cal Poly
- Joined PNNL in 2019 as Post Bach RA
- 6+ years in Coastal Sciences Division

Focus

- Offshore wind and marine energy
- Environmental effects and data sharing
- Outreach and engagement

Bri Friedman- Researcher, NREL





Education

- 2019: BS Mechanical Engineering – Virginia Tech
- 2021: MS Mechanical Engineering – Virginia Tech

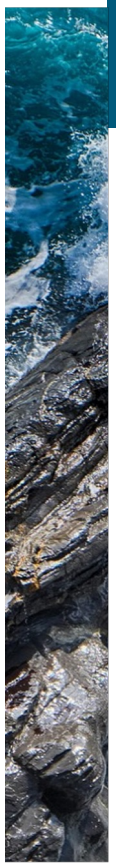
Career

- 2021-2023: PNNL Post Maters Research Associate
- Joined NREL in 2023 as Researcher
- Water-Power Technology Validation

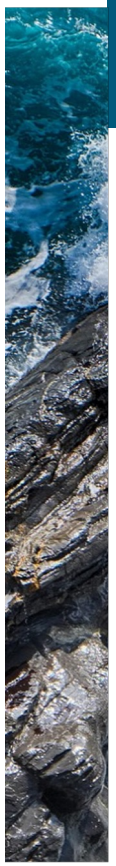
Focus

- Design, build and deployment of the Small Underwater Research Flap Wave Energy Converter (SURF-WEC)
- Testing of and on the Large Amplitude Motion Platform
- Technical support for the Power at Sea prize

Panel Discussion



Images courtesy of Andritz, CorPower, and PNNL



Marine Energy Fellowship

Who:

- Current graduate students (M.S./Ph.D.) and recent graduates (B.S., M.S., Ph.D. within 24 months)
- Fellows may participate up to 2 years (across graduate and/or post-graduate tracks)

What:

- 12-month, funded fellowships at host facilities to research, develop, and test marine energy solutions
- Open to diverse disciplines (STEM and non-STEM: social sciences, communications, business, etc.)

When:

- **Summer 2026 Cohort:** Apply Sept–Dec 2025
- **Fall 2026 Cohort:** Apply Dec 2025–Mar 2026

Where:

- Work with approved host facilities (in person, hybrid, or remote options)

Why:

- Hands-on experience in marine energy research and innovation
- Builds workforce skills employers identify as critical gaps

OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION
Shaping the Future of Science

U.S. DEPARTMENT of ENERGY | Office of Energy Efficiency and Renewable Energy
Water Power Technologies Office

DOE Office of Science Internship / Exchange Opportunities

Science Undergraduate Laboratory Internships (SULI)

- Encourages undergraduate students and recent graduates (up to 2 years after completing undergraduate)
- Interns can apply to work at one of the 17 participating DOE labs/facilities - suggest reaching out to labs
- Interns perform research, under guidance of laboratory staff on projects supporting DOE missions

Approximate Start Dates

Fall term: Third Monday in August for 16 weeks

Spring term: Third Monday in January, for 16 weeks

Summer term: First Monday in June, for 10 weeks

Informational Links:

- *https://science.osti.gov/wdts/suli*
- *https://www.nrel.gov/careers/suli.html*
- *https://www.pnnl.gov/suli-internships*

DOE Office of Science Visiting Faculty Program (VFP)

- Faculty members collaborate with DOE laboratory research staff on a project of mutual interest
- Solicited annually for a Summer Term (10 weeks)
- For more information: *https://science.osti.gov/wdts/vfp*

Additional Graduate Student Opportunities

The Office of Science Graduate Student Research (SCGSR) Program

https://science.osti.gov/wdts/scgsr

NREL Director's Postdoctoral Fellowship

Applications accepted for two rounds per year.

www.nrel.gov/careers/directors-fellowship.html

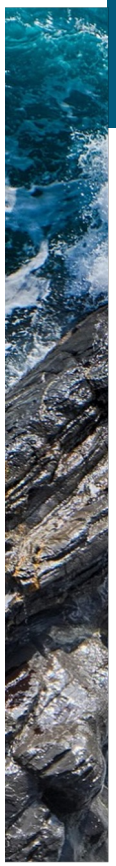
PNNL's Postdoctoral Fellowship

www.pnnl.gov/projects/linus-pauling-distinguished-postdoctoral-fellowship

Sandia's Postdoctoral Fellowships

www.sandia.gov/working-with-sandia/academic-partnerships/postdoctoral-research-and-fellowship-programs/

Marine Energy Collegiate Competition (MECC)



A U.S. Department of Energy competition, managed by NREL, engaging college teams in hands-on marine energy challenges for the blue economy.

Leagues:

- Kilowatt: Introductory/flexible participation
- Megawatt: Advanced, full engagement

Core Challenges:

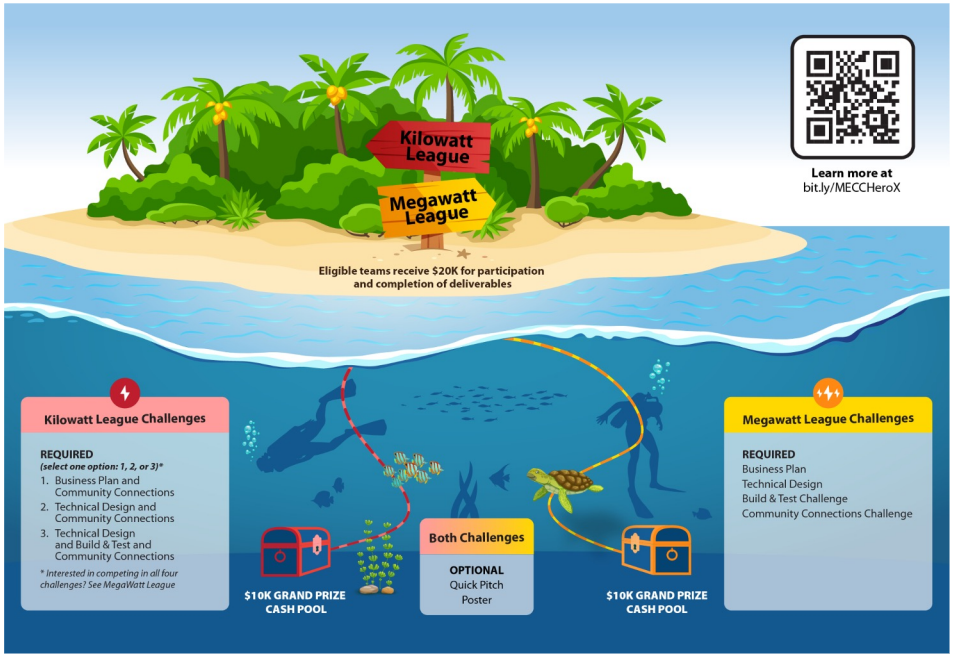
- Business Plan
- Technical Design
- Build & Test (scaled prototype)
- Community Connections

Prizes:

- Up to $20K per eligible team
- Up to $20K grand prize cash purse

Impact:

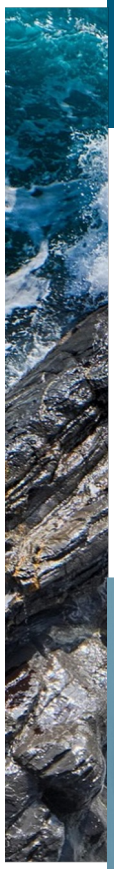
Students gain real-world energy experience, connect with industry, and develop skills for careers in marine energy and the blue economy.



Applications for this year's competition are due Friday (9/19)!

Marine Energy Professional Organizations

Students interested in a career in marine energy: consider joining a young professional societies



INORE

IAHR Young Professionals

SUT Society for Underwater Technology

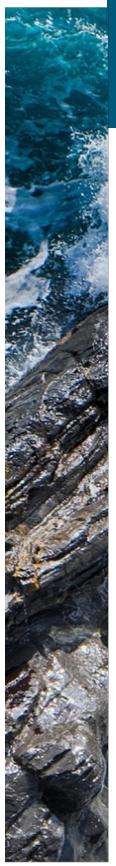
Pan-American Ocean Energy Student Network

FLOW Future Leaders of Waterpower

Young Coastal Scientists and Engineers Conference - Americas -

OES IEEE Oceanic Engineering Society

SNAME THE INTERNATIONAL COMMUNITY FOR MARITIME AND OCEAN PROFESSIONALS



Stay Connected

Thank you for joining!

Check out the following links to learn more and stay connected:

- **OES-Environmental**: tethys.pnnl.gov/about-oes-environmental
  - Sign up for Tethys Blasts: tethys.pnnl.gov/tethys-blasts
  - Sign up for PRIMRE Blasts: tethys-engineering.pnnl.gov/primre-blasts
- **PRIMRE STEM Portal**: https://openei.org/wiki/PRIMRE/STEM
- **Triton**: pnnl.gov/projects/triton
  - Sign up for the Triton newsletter: bit.ly/Triton-Newsletter
- **Stay up-to-date on marine energy at:**
  - **NREL**: nrel.gov/water/marine-energy
  - **PNNL**: https://www.pnnl.gov/marine-energy
  - **Sandia**: https://energy.sandia.gov/programs/renewable-energy/water-power/