

Marine Renewable Energy Services:

Wave and Tidal Energy Projects



OUR BACKGROUND

H. T. Harvey & Associates' marine renewable energy team has been supporting marine and hydrokinetic (MHK) efforts since the United States' first West Coast commercial wave energy project developer applied for a license with the Federal Energy Regulatory Commission (FERC). In addition to contributing to this and other FERC-licensed MHK projects, our team members have experience with permitting, Endangered Species Act consultations, and environmental assessments in marine environments. We combine this background with deep scientific expertise in birds, marine mammals, and fishes to deliver high-quality ecological consulting services on issues related to wave and tidal energy projects.



SENIOR STAFF

Principal, Sharon Kramer, Ph.D., is the MHK Team Lead with recognized expertise in aquatic ecology and fisheries biology spanning the Pacific. She has contributed her scientific and regulatory expertise to the FERC licensing and monitoring for every West Coast MHK project. Sharon has presented in and facilitated panels on environmental issues and processes relevant to MHK projects for DOE workshops.

Principal, Scott Terrill, Ph.D., is an internationally recognized avian ecology and behavior expert. He also has a strong background in vertebrate community ecology and population biology in terrestrial, estuarine, and marine habitats.

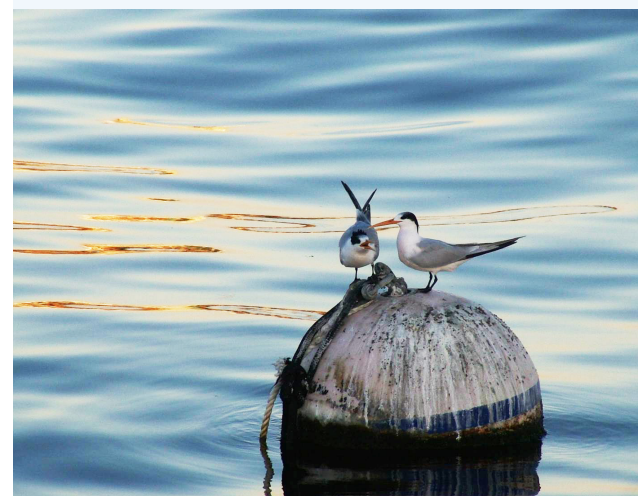
Senior Ecologist, David Ainley, Ph.D., is a avian ecologist who has studied all aspects of marine ecosystems, including seabird ecology, for more than 40 years. David is one of the most published marine scientists globally and has received numerous awards for his research.

Senior Ecologist, Pete Nelson, Ph.D., is an ecologist and biologist with extensive experience in field, laboratory, and theoretical studies of fisheries, coral reef biology, marine wildlife behavior and ecology, and physiology.

Senior Ecologist, Gregory Spencer, B.S., is a marine ecologist who specializes in developing conservation strategies for threatened and endangered marine species in Hawai'i and elsewhere in the Pacific.

MHK SERVICES

- » Pre-project environmental evaluations for siting and planning
- » Environmental and biological assessments for project permitting
- » Baseline and post-project ecological studies, and applied scientific research



We create ecologically sound solutions to our clients' complex natural resource challenges.

OUR MHK PROJECTS

Assisting with the FERC licensing process, including identification of potential project effects and uncertainties, negotiation of monitoring plans, and preparation of biological assessments and NEPA documents for:

- » The Pacific Marine Energy Center—South Wave Energy Test Site off Newport, Oregon (P-14616);
- » The Reedsport Ocean Power Technologies (OPT) Wave Park in Oregon, the first licensed commercial project on the West Coast of the U.S. (FERC 12713);
- » The Snohomish Public Utility District's Admiralty Inlet Pilot Tidal project in Puget Sound, Washington (FERC 12690); and
- » The draft pilot license application for Pacific Gas and Electric Company's Humboldt WaveConnect project in California (FERC 12779).

Preparing baseline information, and monitoring and adaptive management plans, for fish, invertebrates, marine mammals, and birds, in strategic support of FERC license and pilot license applications.

Completing a Dungeness crab and fish baseline study and power analysis for the Reedsport OPT Wave Park.

Conducting a 30-year study of seabird flight height, flight behavior, and foraging ecology in the Pacific and southern Atlantic oceans, with applicability for evaluating the risk of seabird collisions with wave and offshore wind energy devices.

STUDIES, PUBLICATIONS, AND WHITE PAPERS

Evaluated the potential for wave and tidal energy devices to function as artificial reefs and fish aggregating devices on the U.S. West Coast and Hawai'i.

Created a framework for evaluating key environmental concerns, to assist with siting wave and tidal energy projects off the U.S. West Coast, Puget Sound, and Hawai'i.

Coauthored West Coast Environmental Protocols Framework: Baseline and Monitoring Studies.

Coauthored and led development of a white paper on potential socioeconomic and environmental effects of wave energy projects.



EXAMPLES OF OUR CLIENTS

Bureau of Ocean Management (BOEM)

California Energy Commission (CEC)

California Ocean Protection Council (OPC)

Department of Energy (DOE)

Northwest National Marine Renewable Energy Center

Oregon Wave Energy Trust

Pacific Northwest National Laboratory



COMPANY OVERVIEW

Since 1970, the highly-trained ecologists and professionals at H. T. Harvey & Associates have delivered exceptional consulting services to public agencies, private entities, and nonprofits.

CONTACT US

Sharon Kramer

707.822.4141 ext.101

skramer@harveyecology.com



H. T. HARVEY & ASSOCIATES

Ecological Consultants

www.harveyecology.com