

## **DR. PAI-YEI WHUNG EXECUTIVE CURRICULUM VITAE**

Dr. Pai-Yei Whung was a Senior Scientist at the Center for Environmental Measurement and Modeling in the Office of Research and Development (ORD) at US Environmental Protection Agency (US EPA) until 2023. She worked with academics and local and state governments to incorporate innovation for sustainable development. Dr. Whung's science for coastal community resiliency portfolio included flood induced contaminants fate-and-transport from hazardous sites, feasibility of solar economy for local government, and assessing mosquito-borne disease risks through environmental and socio-economic determinants of mosquito habitats. The published research results were used by overburdened nearshore ocean communities for climate resilience planning.

Dr. Whung held a position at the World Bank as the Science Adviser in the Agriculture and Environmental Services Department. She collaborated with the Global Facility for Disaster Reduction and Recovery and advised multi-million dollars Climate Smart Agriculture projects on climate services and products adoption on farms to achieve food security. One of her key accomplishments was to operationalize innovation and sustainable science and technology in projects for agriculture growth for climate resilience.

Dr. Whung served as the Chief Scientist in the Office of Science Advisor at US EPA from 2008 to 2010. She advised the Administrator and the Agency Science Advisor on cross-EPA science and technology issues and led the drafting of science strategic plan in 2009. As a trained paleoclimate scientist, Dr. Whung served as a key contributor to the cross-federal agency report on "A Human Health Perspective on Climate Change" that identified scientific gaps for research-to-decision making in the context of climate mitigation and adaptation.

Dr. Whung has a doctoral degree in marine and atmospheric chemistry, a masters degree in oceanography and marine chemistry, and a bachelors degree in oceanography and geology. She has over twenty years of management, field research, and science policy experiences in air quality, water quality, weather, sustainable ecosystems, climate change, and agricultural research. Her research has been published in peer-reviewed journals, including Science, Science of Total Environment and presented at many professional meetings.

Dr. Whung has managed multi-million dollars geographically distributed and complex research organizations, offices and staff in China, Australia, Argentina, France, Washington DC and across United States. She applied a life-cycle accountability system's approach in program management, budget execution, and human resources. She is experienced in Planning, Programming, Budgeting, and Execution system and performance-based management in a matrix organization.

Dr. Whung was a sub-committee member of the White House National Science and Technology Committee on Environment and Natural Resources. She worked successfully with states, private-sector stakeholders, cross-federal agencies, the Office of Management and Budget, the Office of Science and Technology, and Congress to develop science for policy and decision-making initiatives, such as National Integrated Drought Information System, National Air Quality Forecasting Program, improved weather and climate information for advancing energy management, and Grand Challenge reports to advance drought resiliency and diseases risk predictions in the United States.

Prior to joining EPA, Dr. Whung served as the senior executive director for international research in the Agricultural Research Service at U.S. Department of Agriculture. One of her major accomplishments was to open the dialogue between U.S. and Brazil on science and technology exchanges in renewable energy, particularly in agricultural based biofuels. Dr. Whung also worked at the National Oceanic and Atmospheric Administration where she was seconded to the World Meteorological Organization. Dr. Whung successfully worked with the Weather Channel, Energy CEOs, and federal agencies to launch a U.S. led twelve-nation weather-climate prediction program. Through these positions, Dr. Whung has cultivated a broad perspective on science and technology in the U.S. federal government and our partners. Dr. Whung retired from the US Federal Government in September, 2023.

## Sustainable and Healthy Community Publications \_ WHUNG (April 30, 2024 Seminar Use Only)

### 1. *Science Policy paper*

<https://www.awma.org/emsept19>

Climate Change Impacts. EPA Research Highlights: Research to Advance Community Resilience. Carolyn Pugh, Pai Yei Whung, Josh Barber, Johnathan Essoka, and Nicolle Priester

### 2. *Methodology paper - Dynamic flood and contaminants migration*

<https://onlinelibrary.wiley.com/doi/full/10.1111/jfr3.12747>

A coupled hydrodynamic (HEC-RAS 2D) and water quality model (WASP) for simulating flood-induced soil, sediment, and contaminant transport. Afshin Shabani, Sean A. Woznicki, Megan Mehaffey, Jonathan Butcher, Tim A. Wool, Pai-Yei Whung

### 3. *Systematic Review paper – Multi-disciplinary mosquito risk mapping*

<https://www.mdpi.com/1660-4601/14/10/1230>

Systematic Review: Land Cover, Meteorological, and Socioeconomic Determinants of Aedes Mosquito Habitat for Risk Mapping. Mohamed F. Sallam, Chelsea Fizer, Andrew N. Pilant and Pai-Yei Whung

\*<https://journals.plos.org/plosntds/article/file?id=10.1371/journal.pntd.0007451&type=printable>

A systematic review and evaluation of Zika virus forecasting and prediction research during a public health emergency of international concern. Pei-Ying Kobres, Jean-Paul Chretien, Michael A. Johansson, Jeffrey J. Morgan, Pai-Yei Whung, Harshini Mukundan, Sara Y. Del Valle, Brett M. Forshey, Talia M. Quandelacy, Matthew Biggerstaff, Cecile Viboud, and Simon Pollett.

\*A White House National Science and Technology Council Working Group deliverable

### 4. *Science Results for Local Policy and Management - Mosquito Risk Mapping in Brownsville*

<https://academic.oup.com/jme/article/57/1/231/5545953>

Mapping Aedes aegypti (Diptera: Culicidae) and Aedes albopictus Vector Mosquito Distribution in Brownsville, TX. Mark H. Myer, Chelsea M. Fizer, Kenneth R. McPherson, Anne C. Neale, Andrew N. Pilant, Arturo Rodriguez, Pai-Yei Whung and John M. Johnston

### 5. *Science Results for Local Policy and Management – Geospatial and economic analysis of solar energy in Brownsville*

<https://www.sciencedirect.com/science/article/abs/pii/S0198971519301383>

Economic and technical assessment of rooftop solar photovoltaic potential in Brownsville, Texas, U.S.A. Michael J. Mangiante, Pai-Yei Whung, Luxi Zhou, Rachel Porter, Alejandro Cepada, Eddie Campirano Jr, David Licon Jr, Rob Lawrence, Michael Torres

### 6. *Multi-disciplinary Research for Scientific Application – Impact of near-shore air pollutants on solar energy efficiency*

<https://www.sciencedirect.com/science/article/abs/pii/S0048969718336398>

The impact of air pollutant deposition on solar energy system efficiency: An approach to estimate PV soiling effects with the Community Multiscale Air Quality (CMAQ) model. Luxi Zhou, Donna B. Schwede, K. Wyatt Appel, Michael J. Mangiante, David C. Wong, Sergey L. Napelenok, Pai-Yei Whung, Banglin Zhang