

Climate Change and the Ocean – Spring 2026

Lecturers' Biographical Sketches

Dr. John (Jack) Barth (Lecture 11 February) is a Professor of oceanography in Oregon State University's College of Earth, Ocean, and Atmospheric Sciences. His research seeks to understand how coastal ocean circulation and water properties shape and influence coastal marine ecosystems. Recently, Jack led OSU's Marine Studies Initiative, a program to unite marine-related research, teaching, and outreach and engagement across OSU and the state of Oregon. The Initiative resulted in a new Marine Studies degree at OSU, one that focuses on the social, political, and cultural issues of coasts and the ocean in the context of a meaningful understanding of marine natural science. Jack received a PhD in Oceanography from the Massachusetts Institute of Technology and Woods Hole Oceanographic Institution Joint Program in Oceanography. He is a Fellow of The Oceanography Society and of the American Meteorological Society.



Jack Barth has led a number of research, technology development and ocean observing system projects off Oregon and around the world. His present research includes a focus on the characteristics and formation of low-oxygen zones off Oregon. Jack's research team uses autonomous underwater gliders, robots beneath the sea surface, logging over 160,000 km of measurements – equivalent to about four times around the Earth -- over the last 18 years. From 2004 to 2007, he was a member of the National Science Foundation's Observatory Steering Committee that launched the Ocean Observatories Initiative (OOI) including the Endurance Array installed off Oregon and Washington. From 2006-2024, Jack served on the Oregon Ocean Policy Advisory Council Science & Technical Advisory Committee. From 2013-2016, he served on the U.S. West Coast Ocean Acidification and Hypoxia Science Panel, and, from 2018-2022, he co-chaired Oregon's Ocean Acidification and Hypoxia Coordinating Council. Jack is an active member of the North Pacific Marine Science Organization (PICES), serving as the USA academic representative to the PICES Governing Council (2020-present) and on the MONITOR Committee, responsible for coordinating ocean observations across the six PICES member nations (2004-present).

Mr. Adrian Castillo (Lecture 23 February): I am a current PhD candidate in environmental biology at SUNY - ESF in Dr. Karin Limburg's lab. I previously received my MS in marine biology at Scripps Institution of Oceanography and a BS in ecology at UC San Diego. I was born in New York City to two immigrants from the Philippines and have lived in the United States my whole life. I am a deep-sea ecologist, specializing in the use of biogenic chronometric structures, like fish otoliths, coral skeletons, and mollusk shells, as recorders through time. My current project is on deep-sea *Desmophyllum dianthus* corals in the



Hudson Canyon, the largest submarine canyon on the eastern coast of the US and a proposed designation for a national marine sanctuary. Using high-tech precision machinery to measure the chemical elements found within the skeletons of corals sampled from the canyon, I can reconstruct its pre-industrial environment and trace pollution signals back to the urbanized coast. With this data, I hope to set a baseline for conservation standards in the potential marine sanctuary. My career goals are to break new ground in the study of the deep sea, actively engage policy makers with science, and put every ounce of effort I can towards improving the state of the planet. Being a person-of-color, I yearn to represent my people in spaces where their voices have been and are being silenced, and I believe that a sustainable future must be an equitable one. Beyond my work, I have an intense love for the outdoors, enjoying climbing, backpacking, and camping."

Dr. Francis Chan (Lecture 11 February) is an Associate Professor in the Department of Integrative Biology and the Director of the Cooperative Institute for Marine Ecosystem and Resources Studies (CIMERS). Chan is an ecosystem ecologist whose research examines the impacts of climate change on oxygen and carbon cycling in coastal ecosystems. His research also focuses on the co-development of solutions to ocean climate change. His recent work engages transdisciplinary teams that bring ocean observations, experimental biology, climate modeling, and management modeling to climate-ready fisheries. Chan received his B.S. from Hampshire College and his Ph.D. from Cornell University.



Dr. William Cheung (Lecture 16 March) is a Professor and Director of the Institute for the Oceans and Fisheries, the University of British Columbia. He is also a Canada Research Chair in Ocean Sustainability and Global Change. He studies the nexus of food-climate-biodiversity in the ocean. He is recognized as an international leader in developing and using scenarios and models to assess impacts and risks of climate change on marine biodiversity, fisheries and dependent human communities, and explore solution options and pathways to desirable and sustainable ocean futures. His work addresses policy-relevant research questions and cuts across multiple disciplines, from oceanography to ecology, economics and social sciences. His research ranges from local to global scales.



Ms. Alison Clausen (Lecture 27 April) is the Deputy Global Coordinator of the UN Decade of Ocean Science for Sustainable Development at IOC-UNESCO. She joined IOC as a programme specialist in 2019 with over twenty-five years' professional experience in program and project development and management in the areas of marine conservation, marine policy, and climate change adaptation and has worked extensively throughout Africa and South East Asia.

Dr. Joshua Drew (he/him/his, Lecture 6 April) is an Associate Professor in Environmental Biology at SUNY ESF. He is a broadly focused conservation biologist, and ichthyologist originally trained in population ecology and genetics. He directs the CHAOS (Coupled Human and Aquatic Organism Systems) lab at SUNY ESF where participants look at how human and aquatic organisms live and thrive. Josh has a long-standing collaboration with communities in Fiji, but has also maintained active research projects with collaborators in Syracuse and in Puerto Rico.



Dr. Erica Ferrer (Lecture 18 February): I am a postdoctoral scholar at the National Center for Ecological Analysis and Synthesis (NCEAS) at UC Santa Barbara, where I am currently using the Ocean Health Index to evaluate marine biodiversity and food provisioning in the Gulf of California, Mexico. Previously, I was a Chancellor’s Postdoctoral Fellow at UC Santa Cruz and earned my Ph.D. in Marine Biology from Scripps Institution of Oceanography.



My research examines how climate change affects marine ecosystems, “fish”, and fisheries across the United States and Latin America – which a special focus on the impacts of ocean warming and deoxygenation to nearshore ecosystems, invertebrates, and fishery populations targeted by small-scale fisheries and mariculture. To accomplish my work, I draw on approaches from marine ecology and ecophysiology, biological oceanography, and coastal policy and management.

Long-term, I seek to advance conservation solutions by identifying social-ecological factors that are within our control and can be adjusted to enhance resilience. I am deeply committed to this work and believe that building a more just, sustainable future requires ambition, clarity of vision, and a willingness to work together across fields.

Dr. Yvette Heimbrand (Lecture 1 April): is a researcher at the Institute of Coastal Research, Department of Aquatic Resources, Swedish University of Agricultural Sciences. Her research combines geochemical techniques with fisheries science, using the chemical composition of otoliths to reconstruct fish life histories. This work helps improve understanding of migration, growth rate, and habitat use, as well as how climate driven changes, including deoxygenation and environmental variability, affect fish populations.



Dr. Robert Howarth (Lecture 2 February) is an Earth systems scientist and ecosystem biologist with a BA from Amherst College and a Ph.D. jointly from MIT and the Woods Hole Oceanographic Institution. He joined the faculty of Cornell University in 1985 and was



appointed the Atkinson Professor of Ecology & Environmental Biology in 1993. He also is an Adjunct Senior Scientist at the Marine Biological Lab in Woods Hole, MA, and is Co-Editor in Chief of the journal *Ocean-Land-Atmosphere Research*. He has published over 250 scientific papers, reports, and book chapters and has edited or authored eight books. His peer-reviewed papers have been cited more than 94,000 times in other peer-reviewed literature, making him one of the most cited environmental scientists in the world. Howarth's research is broad ranging and includes climate effects on nutrient pollution in

lakes and coastal ecosystems, nitrogen effects in coastal marine ecosystems, sources of methane from natural gas operations and agriculture, atmospheric ammonia pollution, alternative energy policies, and lifecycle assessments for hydrogen, liquefied natural gas, and renewable natural gas. He is one of 22 members of New York's Climate Action Council, the group charged with implementing the State's ambitious climate goals laid out in the Climate Leadership and Community Protection Act of 2019.

Dr. Linda Ivany (Lecture 21 January) is Professor of Earth and Environmental Sciences at Syracuse University. Her research lies at the intersection of paleobiology and paleoclimatology,



and she is broadly interested in relationships among ecology, evolution, and environment. Much of her work uses the architecture and chemistry of accretionary skeletons (e.g., shells, coral, teeth) to understand the growth and life histories of organisms and the temperature and seasonality of ancient environments through time. She works mainly with fossil mollusks, particularly those from the Paleogene sections of the US Gulf Coastal Plain and Antarctica, but keeps a foot in the unusual worlds of the Paleozoic as well. Ivany received her PhD from Harvard University and was a Michigan Society Fellow at the University of Michigan in Ann Arbor before moving to Syracuse in 2000. At SU, she teaches courses in the history of Earth and life, paleontology, and science writing. She is a Fellow of the Paleontological Society and the

Geological Society of America, served the PS as Councilor-at-Large and Distinguished Lecturer, and co-organized several symposia and co-edited the resulting volumes for both the PS and the GSA. In 2023, she received the Outstanding Educator Award from the Association for Women Geoscientists.

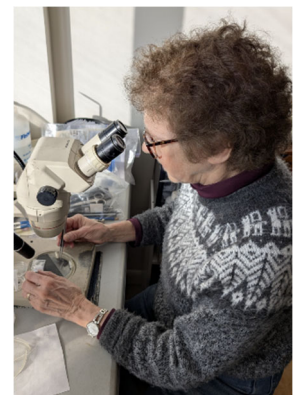
Dr. Karol Kuliński (Lecture 4 February) is the head of the Marine Biogeochemistry Laboratory (Department of Marine Chemistry and Biochemistry of the Institute of Oceanology Polish Academy of Science). His research interest focuses mainly on marine biogeochemistry, C, N, P cycling in the marine environment, marine acid-base system, CO₂ system, "ocean acidification" and role of organic matter for shaping the seawater pH. Karol is a principal in the Baltic Earth program that focuses on regional Earth systems science in the Baltic Sea region.



Dr. Lisa Levin (Lecture 9 February) is a Professor Emerita at Scripps Institution of Oceanography, UC San Diego. She is a deep-sea biologist interested in ecosystem response to climate change and other forms of human disturbance, and has worked in the Pacific, Atlantic and Indian Ocean. She has authored > 500 scientific articles and reports including the most recent IPCC reports. Among her many honors, Dr. Levin is a fellow of both AAAS and AGU, and in 2018 received the Alfred C. Redfield Lifetime Achievement Award from the Association for the Study of Limnology and Oceanography (ASLO). Dr. Levin founded the Deep-Ocean Stewardship Initiative (DOSI), and has been a leader in studies of ocean acidification, ocean deoxygenation, and impacts of deep-sea mining.



Dr. Karin Limburg (Lecture 30 March) is a SUNY Distinguished Professor of Environmental Biology at the State University of New York College of Environmental Science and Forestry. Karin received her bachelor's degree from Vassar College, a Master of Science at the University of Florida under the mentorship of H.T. Odum, and earned a doctorate at Cornell University under Simon Levin. Interested in the nexus of humans and nature, Karin's studies have tended toward the transdisciplinary. Whether the boundary crossing went into physics or into ecological economics, ecology has remained the central focus. The Hudson River estuary and watershed have served as a home base of study, but longstanding interest and work in Sweden expanded her research into the Baltic Sea, the largest anthropogenic dead zone, and other regions around the world. Karin is also a visiting professor at the Department of Aquatic Resources, Swedish University of Agricultural Sciences.



Dr. Max Lindmark (Lecture 23 March): I'm a quantitative ecologist working as a research scientist at the Institute of Marine Research, Swedish University of Agricultural Sciences in Lysekil. I use statistical and mathematical models to study ecological impacts of climate change to improve our understanding and management of marine ecosystems. Specifically, my research focuses mainly on impacts of climate change on species distributions, climate effects on the growth, body size and size-structure of fishes, spatiotemporal modelling of ecological processes, and dynamics and structure of size-based food webs using process-based modelling. In my free time I like to tinker with my bicycle, and occasionally ride it too with my family. And I like to bake bread and cook food, ideally something fermented.



Dr. Zunli Lu (Lecture 26 January): My core interests and experiences center around how things (e.g. water, methane, carbon, other elements) move at regional to global scales; how these movements are intertwined with changes in tectonics, atmosphere, ocean, and climate; and how the biosphere evolved with these changes through Earth history. Since arriving at Syracuse University in 2011, I have been building a research program highlighting (1) global marine environmental changes through Earth history, (2) local and state-wide fresh water quality issues evolving with the adaptation to climate and energy challenges.



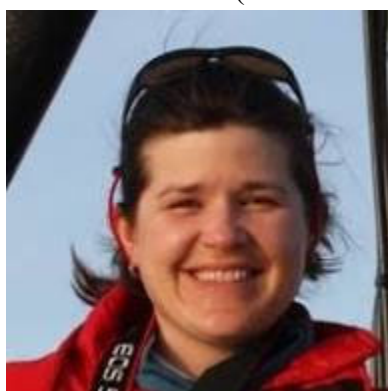
Dr. Katherine Mills (Lecture 8 April) is a senior research scientist at the Gulf of Maine Research Institute in Portland, Maine. She earned her Ph.D. in Natural Resources at Cornell University. As a quantitative fisheries ecologist, Kathy studies marine ecosystem changes and fish-ecosystem-fishery relationships. Her research focuses on the Gulf of Maine and Northeast US Shelf and investigates (1) how physical and ecosystem conditions are changing; (2) how these changes affect fish populations, biological communities, and marine fisheries; and (3) how fisheries and fishing communities can effectively respond. Much of her work is interdisciplinary and collaborative, involving scientists and stakeholders to understand and inform management of fisheries as coupled social-ecological systems and to support climate adaptation and resilience in marine fisheries. Kathy extends her work to broader regions in several ways. She serves as a chair of the ICES-PICES Strategic Initiative on Climate Change Impacts on Marine Ecosystems, through which she helps advance research, communicate findings, and synthesize information about climate change impacts, adaptation, and advice across the North Atlantic and North Pacific regions. In addition, she co-leads a UN Ocean Decade program—*Fisheries Strategies for Changing Oceans and Resilient Ecosystems by 2030* (FishSCORE), which facilitates a global network of scientists, stakeholders, and practitioners seeking to support resilience in marine fisheries.



Dr. Aaron Ninokawa (Lecture 25 February) is a global change scientist interested in how marine organisms interact with their chemical environment. Much of my research examines how shell forming species, like mussels or corals, respond to changes in ocean chemistry resulting from anthropogenic influences, like ocean acidification, or natural variability in chemistry in coastal regions. I am also interested in how these species shape water chemistry at small spatial scales through processes such as respiration, photosynthesis, calcification, and dissolution.



Dr. Susan Parks (Lecture 4 March) is a Professor in the Department of Biology at Syracuse University. Her research group, the Bioacoustics and Behavioral Ecology Lab (BABEL), focuses on how understanding the behavioral ecology and acoustic communication of marine mammals can aid in their conservation. Susan earned her bachelor's degree from Cornell University, where she started studying whale acoustics under Dr. Chris Clark. She went on to complete her Ph.D. from the Massachusetts Institute of Technology/ Woods Hole Oceanographic Institution Joint Program in 2003, under the supervision of Dr. Peter Tyack. Her dissertation work, "Acoustic Communication in the North Atlantic Right Whale", provided foundational knowledge about right whale sound production and reception that has been used to inform management. Her current right whale research is focused on filling in knowledge gaps of large whale behavior in understudied parts of their range and refining the acoustic signals used for passive acoustic monitoring to gain greater insight for remote monitoring of threatened species.



Dr. Leanne Powers (Lectures 14 and 28 January)(Assistant Professor, SUNY ESF, *shown here contemplating climate change*): I am an aquatic photochemist/chemical oceanographer who is broadly interested in fate and reactivity of the large, and enigmatic pool of reduced carbon in the ocean stored as dissolved organic matter (DOM), with a particular interest in DOM cycling by sunlight. My research program aims to better quantify the photochemical sink for marine DOM and the role of DOM-sensitized reactions (e.g., reactive oxygen species) in pollutant degradation. To do this, we use a variety of analytical techniques and develop new methods to characterize DOM composition, sources, and reactivity in both the field and in the laboratory.



Dr. Nancy Rabalais (Lecture 16 February) is a marine scientist who studies coastal eutrophication and oxygen deficiency, land-ocean interactions, benthic ecology, and science communication. She is recognized for her work on the area of oxygen deficient bottom waters on the northern Gulf of Mexico continental shelf. She joined the Louisiana Universities Marine Consortium in 1983 and was the Executive Director from 2005-2016. She moved to Louisiana State University in 2016, where she is a Professor and holds the Shell Endowed Chair in Oceanography/Wetland Sciences. She has served on numerous boards and panels for federal agencies and national organizations. She chaired the Ocean Studies Board, the National Sea Grant Advisory Board, and served on many National Research Council committees. She is a member of the National Academy of Science, a MacArthur Fellow, a Fellow of the American Association for the Advancement of Science and the American Geophysical Union, and a Sustaining Fellow of the Association for the Sciences of Limnology and Oceanography.



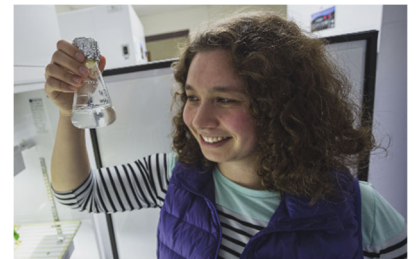
Since the mid-1980s, Rabalais has been characterizing the dynamics of the large region in the northern Gulf of Mexico where oxygen levels are perilously low for many marine organisms. Studies linking the area to landscape use and increasing nitrogen and phosphorus delivered to the Mississippi River led to federal legislation concerning the degraded water quality and a federal/state/tribal task force to mitigate the low oxygen through nutrient management in the Mississippi River watershed. The collaborative research has spanned biological productivity, oxygen processes, physical oceanography, benthic ecology, phytoplankton ecology and nutrient limitations, palaeoecology, ocean acidification, chemical oceanography, long-term environmental trends, nutrient and carbon cycling, microbial ecology, and modelling. She maintained a 28-year ocean observing system integrating dissolved oxygen with physical, chemical, and biological measurements. Rabalais communicates the results of the research group to Congress, state and federal agencies, multiple media outlets, and helps others improve their communication skills so that science research results can be understood and appreciated by all facets of society. Her environmental science awards include the Heinz Award, Clark Prize, Rachel Carson Lecture, Roger Revelle Lecture, Ruth Patrick Award, Bostwick H. Ketchum Award, Peter Benchley Award, and Blasker Award shared with R. E. Turner.

Dr. Roxanne Razavi (Lecture 2 March) is an environmental toxicologist and Assistant Professor in the Department of Environmental Biology at SUNY ESF. Her research focuses on the ecological and toxicological dynamics of contaminants in aquatic ecosystems and how environmental stressors affect wildlife and biogeochemical processes. Dr. Razavi's work spans studies of mercury bioaccumulation and trophic transfer in fish and invertebrates, exploring how contaminants move through food webs and vary with ecological conditions. She has investigated the effects of eutrophication on mercury,



selenium, and essential fatty acids in fish from subtropical reservoirs, as well as mercury dynamics in temperate lake and stream systems. In addition to mercury research, her recent publications address emerging environmental contaminants such as per- and polyfluoroalkyl substances (PFAS) in amphibians and fish, highlighting the need for broader understanding of chemical exposures in wild populations. She also applies complementary biomarkers to disentangle lifetime exposure to hypoxia and mercury in aquatic organisms. By combining field studies, laboratory analyses, and ecological insight, Razavi's research contributes to understanding how human-driven environmental change influences contaminant fate, organism health, and ecosystem functioning, informing conservation and management strategies for aquatic environments.

Dr. Hannah Reich (Lecture 25 February): I am an Assistant Professor of aquatic cell and molecular biology at SUNY ESF. My research program studies algal symbiosis ecology across marine and freshwater ecosystems by combining cell cultures and field studies. *We take symbioses apart and put them back together again* to identify how crosstalk among unique partner pairings cascades into ecological consequences.



Dr. Anne Gro Salvanes (Lecture 25 March) is a Professor in fisheries biology at the Department of Biological Sciences at the University of Bergen and her main work is in the field of marine ecology. Her main field of research deals with how environmental variations affect fish and shapes ecosystems. She is working in the field but has also long experience from aquaria experiments and some ecological modelling. Her fieldwork has taken her to the Benguela Upwelling ecosystem where she has studied a hypoxia-tolerant little fish (the bearded goby) – and now to the fjords in Norway which where climate change has led to oxygen loss. During an annual field course for graduate students in ocean science since 2011– she discovered oxygen loss and hypoxic water masses in the fjords. Her recent project - the multidisciplinary “Hypoxia effect on fishes (HypOnFjordFish)” has used west Norwegian fjords as natural infrastructure to generate new knowledge on the effects of hypoxia on mesopelagic and demersal communities.



Dr. Helen Scales (Lecture 20 April): Helen Scales has a PhD from Cambridge University in



coral reef fisheries and worked for several years in marine conservation before turning to popular science writing and broadcasting. Nowadays, she reports on ocean science and conservation for among others the Guardian and National Geographic Magazine. Her books for young and older readers have been adapted for stage and screen, and translated into 17 languages. They include *What the Wild Sea Can Be*, which was shortlisted for the Women’s Prize for Non-Fiction and the Wainwright Prize for Conservation Writing. Her children’s books include the global bestseller *What a Shell Can Tell* and *Scientists in the Wild, Antarctica*

which was shortlisted for the Children’s Travel Book of the Year and The Week Junior Children’s STEM Book of the Year. Helen divides her time between Cambridge, England, and the wild Atlantic coast of France.

Dr. Caroline Slomp (Lecture 22 April) is a Professor of Geomicrobiology and Biogeochemistry at Radboud University, the Netherlands. Her research focuses on understanding the cycling of elements important to life in aquatic ecosystems, such as carbon, phosphorus, nitrogen, sulfur and a range of trace metals. The research involves field and laboratory work, integrated with modeling at various spatial and temporal scales including the geological past. Understanding the response of marine systems to human and anthropogenic perturbation is a key focus. Perturbations include, for example, eutrophication, deoxygenation and warming. Areas of recent seagoing fieldwork include the Baltic Sea, Black Sea, Gulf of Mexico and North Sea.



Dr. Rashid Sumaila (Lecture 23 March) is a University Killam Professor and Canada Research Chair (Tier 1) in Interdisciplinary Ocean and Fisheries Economics at the Institute for the Oceans and Fisheries, and the School of Public Policy and Global Affairs, University of British Columbia. His Ph.D. (Economics) is from University of Bergen and B.Sc. (Quantity Surveying) is from Ahmadu Bello University. Clarivate has named him a “highly cited researcher” since 2021. He has received numerous awards and honors, including the [2023 Tyler Prize in Environmental Achievement](#); and the [2017 Volvo Environment Prize](#). Sumaila was named one of the [“100 Most Influential Africans” in 2023](#).



Dr. Jeremy Testa (Lecture 15 April) is a Professor and estuarine ecosystem ecologist at the Chesapeake Biological Laboratory (CBL) in Solomons, Maryland, USA. CBL is part of the University of Maryland Center for Environmental Science (UMCES). I got my undergraduate degree from SUNY ESF in 2003, and have been at UMCES ever since, doing my graduate degrees at the UMCES Horn Point Laboratory. I work on the causes of biogeochemical-driven stressors (deoxygenation, acidification, eutrophication) in estuarine environments, and use models to link these stressors to marine organisms. I make some basic ecosystem measurements (respiration, sediment-water fluxes) to do my research, but I also use coupled biogeochemical-hydrodynamic models to simulate past and future change.



Dr. Liang Wu (Lecture 13 April) is a Cornell University Postdoctoral Associate of Environmental Humanities and Oceanic, International, Southeast Asian, and Science and



Technology Studies. Since 2006, Dr. Wu has been studying the international shipping and seafaring industry among other sectors of ocean economy, and examining its socio-environmental conditions and ramifications. He is a former Visiting Assistant Professor of Anthropology at Bates College in Maine specialized in ocean education and engagement, and Marine Policy & Science Communication Specialist in Washington, D.C. working at the U.S. federal agency National Oceanic and Atmospheric Administration (NOAA). Dr. Wu has been serving as a Deep-Ocean Stewardship Initiative (DOSI) scientist for advancing ocean science in policy. His academic and professional engagements intentionally bridge blue humanities and social oceanography, political economy and ecology, natural and social sciences, and academia, industry, policy, and society to counteract against

their siloing in order to tackle the complex, multifaceted, and exigent polycrisis of our times – climate change and sea change.