

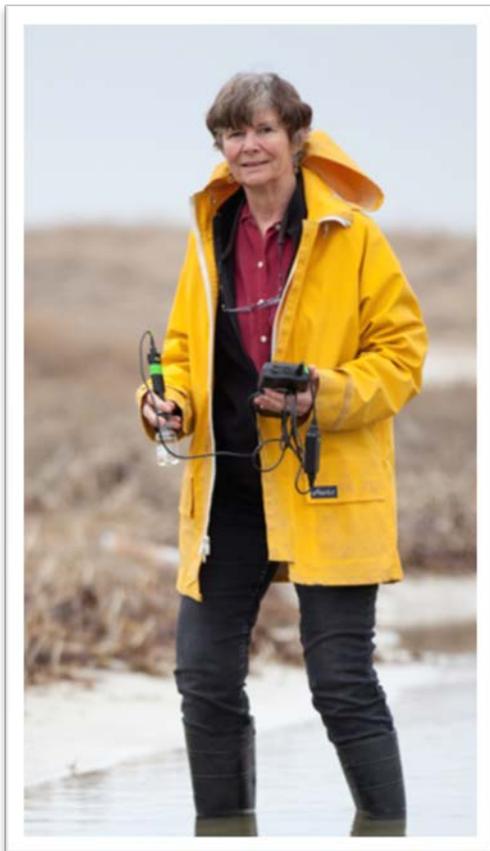
MBL High School Discovery Program Faculty



Scott Bennett, Marine Resources Technician

Scott coordinates and conducts specimen collections for the Marine Resources Department. Scott is a AAUS certified diver for the MBL, and a USCG licensed small boat captain. He received a B.S. degree in Marine Biology from Roger Williams University. He spent four years in the Ichthyology Department at the American Museum of Natural History in New York City working on the molecular systematics of fishes, with a focus on the blind cave fish of

Madagascar. Scott received his MSc degree from California State University Fullerton where his research focus was on the comparative physiology of endothermy in tunas.



Anne Giblin, Senior Scientist and Interim Director of the Ecosystems Center

Anne is a senior scientist at the Marine Biological Laboratory and interim director of the MBL's Ecosystems Center. Giblin is an ecosystems ecologist who specializes in biogeochemistry. For much of her career she has focused on how ecosystems respond to large perturbations such as increased nutrient inputs, changing temperature and rising sea levels. Giblin currently leads the Plum Island Ecosystems Long-Term Ecological Research project, which is part of a national network of research sites created by the National Science Foundation.

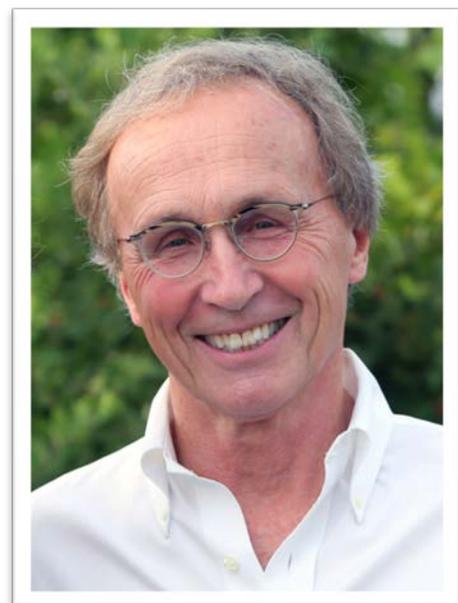
Giblin received a B.S. from Rensselaer Polytechnic Institute and a Ph.D. from Boston University. She joined the staff of the MBL's Ecosystems Center in 1983. She was awarded an Aldo Leopold Leadership

Fellowship in 2001 for science communication and is a Fellow of the American Association for the Advancement of Science. Giblin is the former president of the Estuarine Research Federation and has served on advisory boards for the National Science Foundation, the NOAA, the National Ecological Observing Network, DOE, and the Buzzards Bay Coalition. She currently chairs the board of the Gulf of Maine Institute, an organization devoted to empowering youth and teaching environmental stewardship.



Bret Grasse, Manager of Cephalopod Operations

Bret is developing a world class cephalopod breeding program at MBL, hosting a variety of cephalopod model species. Here Bret develops innovative life-cycle cultures of several cephalopod species to support work by residential scientists and visiting researchers. Prior to serving in his current role at MBL, Bret worked at the Monterey Bay Aquarium in Monterey, CA where he was a Senior Aquarist and developed and managed the world's first large-scale cephalopod exhibition. Bret is an acknowledged international leader in cephalopod husbandry.



Roger Hanlon, Senior Scientist

Roger is a Senior Scientist at the Marine Biological Laboratory and Professor of Ecology and Evolutionary Biology at Brown University. He studies color and pattern in the skin of animals, with special emphasis on the cephalopods (octopus, squid, and cuttlefish) and selected fishes that instantaneously change their skin patterns and complexion for a wide range of communication and camouflage. Recently his laboratory has focused on a highly multidisciplinary effort to quantify animal camouflage, touching subjects as varied as visual perception, psychophysics, neuroscience, behavioral

ecology, image analyses, computer vision, and art. Dr. Hanlon was trained in marine sciences at Florida State University and University of Miami, and studied sensory ecology as a postdoctoral fellow at Cambridge University, UK. He was previously tenured faculty at the Marine Biomedical Institute (University of Texas Medical Branch) and moved to Woods Hole in 1995. Dr. Hanlon's research has been featured on NOVA, BBC, Discovery, National Geographic, TEDx, and the New York Times.



Bette Hecox-Lea, Research Associate

Bette has worked in David Mark Welch's lab at MBL for more than 10 years and is a highly skilled technician with expertise in molecular biology and next-generation sequencing. She also serves as the Bay Paul Center's safety representative and manages center biosafety training and compliance. Bette has 15 years of experience tutoring high school and college

students and is a member of the National Research Mentoring Network. She received her BS in Biological Oceanography from Florida Institute of Technology in 1993, and her MS and PhD in Biology from Northeastern University, in 2012 and 2017, respectively. Bette's research is currently focused on using bdelloid rotifers, desiccation-tolerant microinvertebrates, to identify adaptations that underlie their resilience and resistance to environmental stress.



Marko Horb, Senior Scientist and Director, National Xenopus Resource (NXR)

Marko received a B.S. in Cell and Structural Biology from the University of Illinois at Urbana-Champaign in 1993. He obtained his Ph.D. degree in Cell and Developmental Biology in 1998 from Stony Brook University; his graduate thesis focused on the role of T-box gene in early *Xenopus* development. Marko served as a postdoc with Jonathan Slack at the University of Bath, UK where he focused on endoderm development in

Xenopus. In 2003 Marko started his independent lab at the Clinical Research Institute of Montreal where his research focused on cell fate specification in pancreas development. He also taught graduate classes in embryology at McGill University and developed a new upper level undergraduate class, Development, Disease and Regeneration. In 2011, Marko was recruited to the Marine Biological Laboratory (MBL) to be the first Director of the National *Xenopus* Resource (NXR), which is an NIH-funded national resource center for *Xenopus*. He is currently Senior Scientist at the MBL where he runs an independent lab focusing on genome editing and pancreas development in *Xenopus*, in addition to his duties as Director of the NXR. The NXR also has an educational component and offers several advanced training workshops, including genome editing, bioinformatics and advanced imaging. Throughout his career, Marko has supervised numerous Masters and PhD students, over 20 undergraduate students and several high school students.



Danielle Jordan, Research Assistant

Danielle received her BS in Marine Biology from the University of Rhode Island and now works for Marko Horb and the National *Xenopus* Resource, where she uses CRISPR/Cas-9 and other genome editing techniques to generate mutant and transgenic *Xenopus* frogs. She, through the NXR, is also working in conjunction with Ben Evans of McMaster University to study sex determining genes and how they vary in *Xenopus* species. During her undergrad, she explored many aspects of the ocean environment, completing internships involving oyster parasitology, lateral line morphology in deep-sea fishes, whale behavior, and coral bleaching.

**Lane Kennedy, Research Assistant**

Lane received her BS in Marine Biology from the College of Charleston Honors College and is currently taking a gap year before grad school. Lane is the Research Assistant for the Hanlon lab, where she is responsible for the care and keeping of a colony of European cuttlefish, as well as assisting in all aspects of the lab's research efforts. During her undergrad, Lane studied the comparative biomechanics of hagfish skins and worked as a Program Coordinator for an environmental non-profit.

**Louis Kerr, Director of Imaging Services**

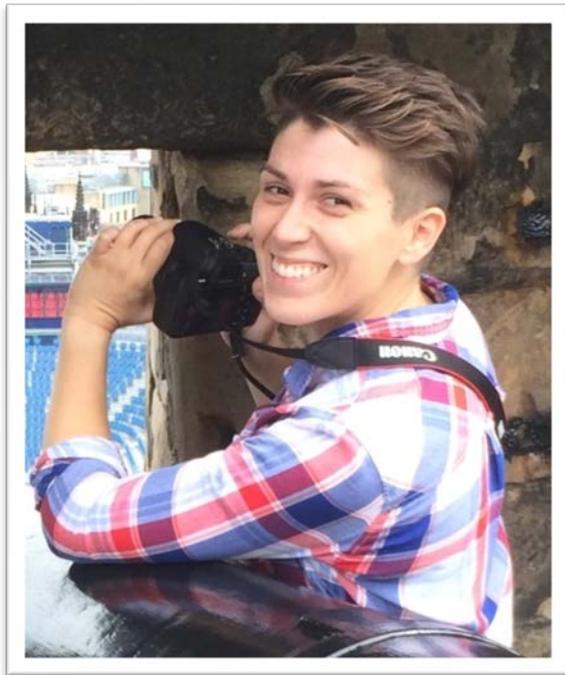
Louis is Director of Imaging Services and Staff Scientist where he manages and directs the MBL's Central Microscopy Facility. The facility provides microscopy services to MBL resident and Whitman Investigators, the educational program, the greater Woods Hole scientific community, and other researchers and suppliers. Kerr interfaces with commercial vendors for equipment, maintenance and

support of instrumentation. He is helping steer the new MBL imaging initiative. He manages the MBL General Use Equipment Rooms, which house scientific equipment such as centrifuges, spectrophotometers and tissue culture, the Apparatus Department which house and provides scientific equipment to investigators and courses and the Stock Room which provides common lab supplies. Kerr received his B.S. from Pennsylvania State University and worked previously at the National Marine Fisheries Service.

**Javier Lloret, Research Scientist**

Javier is a Research Scientist at the MBL's Ecosystems Center. His research focuses on understanding the biotic feedbacks that determine the response of marine organisms to increased nutrient inputs, as well as how large-scale environmental changes, such as climate change, can alter vital coastal ecosystem processes and services. His work relies on observational and experimental studies in the field, as well as on exhaustive compilations of biological, meteorological and hydrological data, and ecosystem modeling approaches.

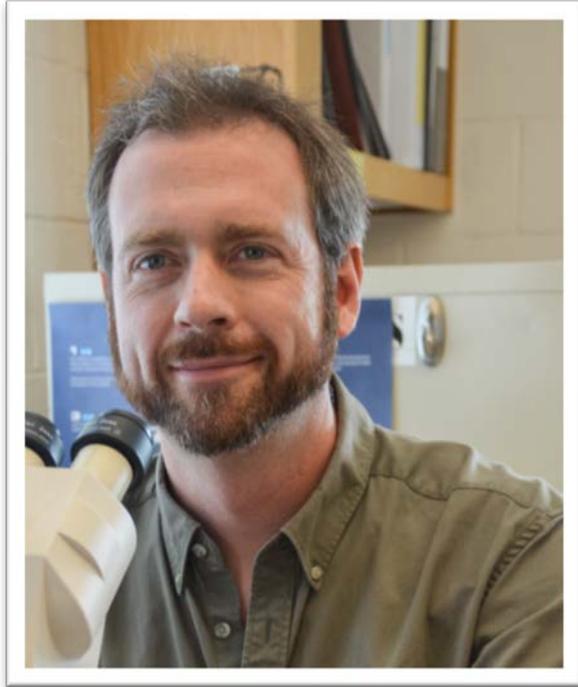
Javier received a B.S. in Marine Sciences from the University of Cadiz (Spain) in 1999. He got his Ph.D. in Ecology in 2012 from the University of Murcia (Spain). He joined the staff of the MBL's Ecosystems Center in 2014.

**Kate MacCord, McDonnell Foundation Fellow**

Kate runs the McDonnell Initiative at MBL, whose mission is to transform discovery through collaborations among historians, philosophers, and life scientists. Kate received her BPhil in Physical Anthropology from the University of Pittsburgh, and her MPhil in Human Evolutionary Studies from the University of Cambridge, which she attended on a Gates Scholarship. Kate received her PhD in History and Philosophy of Science from Arizona State University (ASU), in which she investigated the history of the intersection of development and evolution within research on mammalian teeth. During her PhD studies, Kate spent a Fulbright year with a laboratory at the University of Helsinki, managed

the *MBL History Project*, wrote and edited for the *Embryo Project Encyclopedia*, worked as a Project Coordinator for the Center for Biology and Society at ASU for four years, and was the

developing editor for Harvard University Press for the book *Cancer Stem Cells*. Kate currently collaborates with MBL Hibbitt Fellow Duygu Özpolat on regeneration in germ cells, and her research in the history and philosophy of development and evolution focuses on the roles that assumptions play in shaping science.



David Mark Welch, Senior Scientist

David is the Interim Director of Research and the Director of the Josephine Bay Paul Center for Comparative Molecular Biology and Evolution. He received his Ph.D. in Biochemistry from Harvard University in 1999 and has been studying and teaching evolutionary biology, phylogenetics, genomics, molecular biology, and bioinformatics at MBL since 2001. David's lab uses rotifers, microscopic aquatic invertebrates, to study genome evolution, the biology of aging, and novel mechanisms of DNA damage prevention and repair.



Kathryn Maxson Jones, PhD Candidate, Princeton and McDonnell Foundation Scholar

Kathryn Maxson Jones is an historian of modern biology. She received her B.S. in Biology from Duke University in 2010, her M.A. in the History of Science from Princeton University in 2015 and is currently working towards completing her Ph.D. in the History of Science from Princeton. Her dissertation, "Sea Change: Aquatic Biology and American Neuroscience, from the Neuron Doctrine to the Decade of the Brain," examines how experiments with aquatic organisms, and especially marine invertebrates, anchored the rise of neuroscience through cellular

physiology in the U.S., largely thanks to biologists' connections to the MBL. But her interests in the history of biology range widely, and Maxson Jones has also published on the histories of genetics and genomics, data sharing, and model organisms. For the academic year 2018-2019, Maxson Jones is living in Woods Hole, serving as a McDonnell Foundation Scholar through the James S. McDonnell Initiative at the MBL. This initiative brings historians and philosophers of biology, and working biologists, into productive collaborations studying the phenomenon of regeneration in complex living systems. Together with Dr. Jennifer Morgan, the director of the Eugene Bell Center for Regenerative Biology and Tissue Engineering at the MBL, Maxson Jones is studying the history and philosophy of the sea lamprey as a model species in neurophysiology, work that dovetails directly from her dissertation. Finally, with Dr. Kate MacCord and through the McDonnell Initiative, Maxson Jones is actively involved in planning exciting workshops and other events in the history of science at the MBL.



**Sean McNamara, National Xenopus Resource
Assistant Manager**

Sean received his B.A. in Environmental Studies and currently serves as Assistant Manager at the National Xenopus Resource (NXR) at MBL. Sean has expertise in aquatic and animal husbandry and currently oversees husbandry, center facilities, and system maintenances for the NXR.



Nipam Patel, Director of the Marine Biological Laboratory

Nipam Patel, Ph.D., is Director of the Marine Biological Laboratory (MBL) and a Professor at the University of Chicago. He joined the MBL in 2018 from University of California, Berkeley, where he was Professor and Co-chair of the Department of Molecular and Cell Biology and Professor in the Department of Integrative Biology. Patel is the 20th scientist to serve as MBL Director since its founding in 1888.

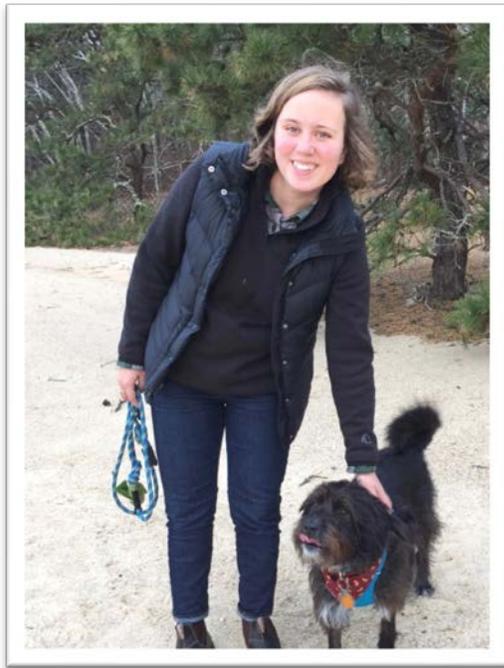
Patel grew up in El Paso, Texas, and received an A.B. in Biology from Princeton University and a Ph.D. in Biology from Stanford University. Prior to joining UC Berkeley in 2003, he was a professor of Organismal Biology and Anatomy at the University of

Chicago (1995 to 2003), a Howard Hughes Medical Institute Investigator (1995 to 2010), and a Staff Associate in the Department of Embryology at the Carnegie Institution in Baltimore, Md. (1991 to 1995).

A longtime member of the MBL community, Patel has taught in the MBL Embryology course since 2001 and served as course co-director from 2007 to 2011. He is a leading scholar in modern evolutionary and developmental biology with specific focus on the evolution of body patterning and segmentation, regeneration of the germline, and structural coloration. His scientific expertise encompasses the development of novel, genetic model organisms for biological study, which can reveal much about human biology; and the application of advanced imaging technologies to probe the fundamental dynamics of living systems.

Patel is an elected fellow of the American Association for the Advancement of Science and has been awarded numerous honors, including the Schubert Endowed Chair and the William V. Power Endowed Chair at UC Berkeley, the McKnight Scholars Neuroscience Fellowship Award, and an NSF Predoctoral Fellowship. Other past appointments include faculty curator at the Essig Museum of Entomology, UC Berkeley; and adjunct professor at the National Institute of Genetics in Shizuoka, Japan.

The author of more than 130 scientific publications, Patel was an editor of the journal *Development* (2009-2018) and serves on the editorial board of several other journals in the biological sciences. He has served on numerous advisory boards, including board of directors of the Society for Developmental Biology.

**Gina Payne, Research Assistant**

Gina received her BA in Neuroscience from Barnard College of Columbia University and is currently working as a Research Assistant for the Horb Lab. In the lab, she utilizes the CRISPR-Cas system to engage in genome editing to study pancreas development in *Xenopus* as well as to create *Xenopus* mutants for the wider research community. As an undergraduate, she studied psychosocial predictors of gastric bypass surgery as part of the New York Obesity Nutrition Research Center.

**Aaron Pomerantz, PhD Candidate, University of California, Berkeley**

Aaron Pomerantz is a PhD candidate at the University of California, Berkeley in the Department of Integrative Biology. His research aims to elucidate the developmental and genetic mechanism of transparency in butterflies and moths. He has also worked to apply novel portable technology to conduct fieldwork and promote science education in remote tropical rainforests, such as origami-based paper microscopes and handheld DNA sequencers. He received a B.S. in entomology from UC Riverside and an M.S. in molecular biology from the University of Florida. Prior to starting his doctoral program, Pomerantz spent two years leading expeditions as a field biologist and science reporter in the Peruvian Amazon,

based primarily at the Tambopata Research Center. A National Geographic grantee and avid science communicator, his work has been featured in media outlets such as the BBC, PBS Nature, National Geographic, and BuzzFeed.



David Remsen, Director of Marine Research Services

David oversees the marine biological operations at MBL including the collection and welfare of a wide range of marine species, SCUBA diving, and aquaculture. Dave grew up in and around Woods Hole and began his career at the MBL as an undergraduate SCUBA diver for the facility he now directs. For more than two decades Dave has combined and applied his love of marine biology within the field of biodiversity

informatics, the applied use of technology on data and information pertaining to biodiversity. Dave returned to the Cape in 2012 after working in Copenhagen, Denmark as a senior office of the Global Biodiversity Information Facility, a multi-governmental organization dedicated to providing access to the worlds biodiversity data. He is a senior member of the board of the Catalogue of Life, an international effort to document all the world's species.



Anthony Rodríguez-Vargas, Research Assistant, National *Xenopus* Resource (NXR)

Anthony is a Research Assistant in the Horb Lab/NXR. Currently, he contributes to develop *Xenopus* as a model for human disease and studies pancreas development. Anthony received his B.S. in Biology from the University of Puerto Rico, Ponce. During his undergraduate studies, he had various research experiences; including quantifying the feeding behavior of a scavenger marine snail and evaluating the tropically-

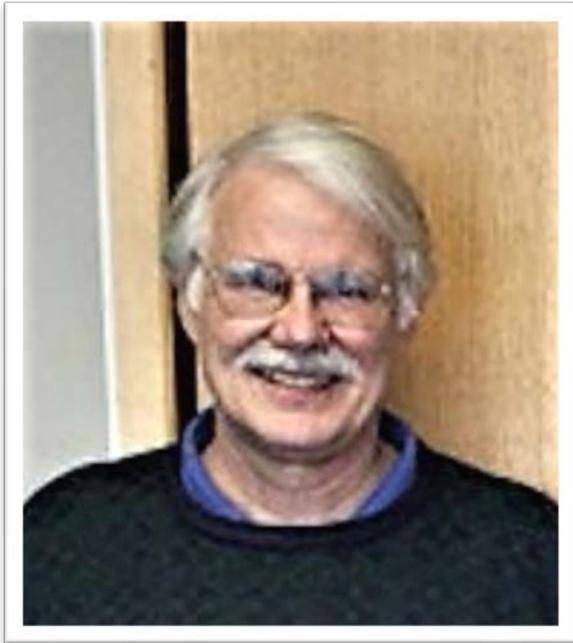
transmitted parasites of sockeye salmon.

**Taylor Sakmar, Cephalopod Culture Specialist**

Taylor is integral to in day to day animal care taking responsibilities within MBL's cephalopod operations. Prior to his role at MBL Taylor also worked at the Monterey Bay Aquarium as an Aquarist 1.

**Nikko Shaidani, Research Assistant**

Nikko received his B.S. and M.S. in Zoology from the University of Maine. Nikko has worked as a research assistant in the Horb lab and the National *Xenopus* Resource (NXR) for over three years, where he has generated custom knockout mutants using the CRISPR-Cas9 gene editing system to model human disease for the *Xenopus* community.

**Steve Senft, Research Associate**

Steve graduated from Amherst College in 1974 and earned a Ph.D. in Neuroscience from Washington University in 1989, where he studied the development of mouse cerebral cortex. In the Hanlon lab at the MBL since 2011, he has been investigating the physical basis of camouflage in squid and cuttlefish — focusing on organs within cephalopod skin that interact with light in unusual ways, and on the neuronal inputs that regulate those organs. His work relies heavily on dye-labeling of tissue as well as on 3D light and electron microscopy and image analysis. Steve grew up in Woods Hole and has been at the MBL many times: in the 70's as

photographer for the EM facilities, in the 80's as a student in the Alkon lab studying associative conditioning in the nudibranch *Hermisenda*, and as a TA in several courses, and in the 90's teaching confocal microscopy and 3D imaging.

**Marcin Wliza, National Xenopus Resource Manager**

Marcin received his PhD in Development, Regeneration, and Stem Cell Biology from the University of Chicago in 2012. At the University of Chicago Marcin investigated evolutionary conservation of molecular processes involved in establishing the orientation of body axes (front-back, top-bottom, left-right) during early animal embryogenesis, using a marine worm species endogenous to the East Coast of the

United States as a main model system. From 2012 to 2015, he completed a post-doctoral fellowship at the Cincinnati Children's Hospital Research Foundation, using frogs as a model for study of molecular processes involved in tissue interactions necessary for normal lung development. In November 2015, he took the position of Manager at the NIH funded National

Xenopus Resource (NXR) to help improve the day-to-day operations, represent the facility at research conferences, and serve as a main NXR contact for the frog research community.