



**Blue Carbon Scientific Working Group  
1<sup>st</sup> Meeting  
15-17<sup>th</sup> February, 2011  
UNESCO Headquarters, Paris**

## Participants and Observers' information

With thanks to our sponsors:



**Alongi, Dan**, Ph.D. – Senior Principal Research Scientist in the Water Quality & Ecosystem Health team,  
Australian Institute of Marine Science



I obtained my PhD in 1984 at the University of Georgia. My doctoral dissertation explored the influence of rates of detritus supply on trophic relationships within experimental benthic food webs. After a short visit to AIMS for Project MECOR (Microbial Ecology on a Coral Reef), I joined the research staff in 1985 as a postdoctoral fellow examining microbial processes in coral reef, nearshore and mangrove environments. I have since been on staff specializing in coastal biogeochemistry and ecosystem ecology.

My primary research interest is understanding the biogeochemical functioning of tropical coastal and marine ecosystems, with particular emphasis on mangrove and coral reef environments. My research interests include understanding the structure and function of soft-bottom benthic ecosystems, especially microbial carbon and nitrogen cycling.

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**Copertino, Margareth**, Ph.D. – Federal University of Rio Grande, Brazil



My research interest is mainly focused on marine benthic ecology, particularly about the effects of environmental parameters and climatic variability on seagrass and macroalgal populations and communities. In addition, I have a profound interest in multidisciplinary studies dealing with the impacts of anthropogenic factors and climate changes on marine and coastal habitats and populations.

Since 2010, I have a fixed position as lecturer and researcher at Oceanography Institute, Federal University of Rio Grande (FURG, [www.furg.br](http://www.furg.br)), Brazil, working within the Coastal Plant Ecology Laboratory. I have lectured the disciplines Ecology of Macroalgae & Seagrasses, Coastal Plant Ecology and Ecosystems Ecology.

I am a member of some Brazilian integrated research programs and projects such as:

*Brazilian Long Term Ecological Research Program – Site FURG* ([www.peld.furg.br](http://www.peld.furg.br)). This project aims to study the long-term effects of natural and human perturbations on estuarine/marine habitats, population abundance and structure and trophic interactions in the Patos Lagoon estuary. Within this integrated project, I am responsible for the subproject *Dynamics of Submerged Aquatic Vegetation (DIVAS)*, which seeks to monitor and to investigate the causes for the temporal and spatial variability on the abundance and distribution of seagrasses and macroalgae in Patos Lagoon estuary.

*Climate Change Research Network (Rede CLIMA) & National Institute for Climate Change (INCT Climate Change)*. Within these programs I am from the coordination board for the *Coastal Zone Network* ([www.mudancasclimaticas.zonascosteiras.com.br](http://www.mudancasclimaticas.zonascosteiras.com.br)), an interdisciplinary team that aims to evaluate the impacts of Global Climate Changes on Brazilian coastal zone. Within this program, I have the opportunity to organize the I Brazilian Workshop on Climate Changes in Coastal Zones ([www.mudancaclimatica.zonacosteira/workshop.com.br](http://www.mudancaclimatica.zonacosteira/workshop.com.br)) and to edit the Special Issue *Climate Changes on Brazilian Coastal Zones*, published by the Pan-American Journal of Aquatic Sciences ([http://panamjas.org/artigos.php?id\\_public=183](http://panamjas.org/artigos.php?id_public=183)), together with other principal investigators.

*Benthic Habitats Brazilian Network (ReBentos)*. This very recent observational program aims to monitor and integrate studies about Brazilian benthic coastal habitats (mangroves, salt marshes, seagrass beds, reefs and sandy beaches), seeking mainly on anthropogenic and climate changes impacts and on conservation issues. Within this program, I am the coordinator of the *Seagrass* project, together with Dr. Joel Creed, which aimed to improve the knowledge about seagrass biology and ecology in Brazil, by integrating existent data, by applying a systematic monitoring protocol and by mapping the seagrasses distribution and abundance.

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**Crooks, Steve**, Ph.D. – Director of Climate Change Services, ESA PWA



Dr Crooks is a wetland scientist/sedimentologist with 19 years specialized experience coastal wetland systems and their response to human impacts and climate change. His experience transcends science, restoration practice and policy. His work quantifying the carbon budgets of coastal wetlands forms the basis of several recent reports and a panel event at the UNFCCC COP 16.

Dr Crooks' Ph.D. examined the sedimentology (including carbon content) of coastal wetlands, exploring with comparison to undisturbed reference sites, the impacts of wetland drainage and restoration on soil properties.

Subsequently, Dr Crooks won a Post-Doctoral Research Fellowship and, based at the University of East Anglia, worked for five years with policy analysts and economists on the integration of wetland into climate change mitigation and adaption approaches. In 2004 joined Philip Williams and Associates, a leading consultancy in the field of wetlands restoration science, planning and design. As Director of Climate Change Services he leads projects related to wetland restoration feasibility assessment and design, assessment of landscape response to sea level rise, guidance on the development of wetlands restoration offset protocols, and climate change adaptation planning.

Since 2007 Dr Crooks has guided agencies and working groups on the potential for coastal wetlands to contribute to climate change mitigation strategies. Groups include the Climate Action Reserve, I.U.C.N., World Bank, Conservation International.

Dr. Crooks has contributed to numerous committees, interdisciplinary research groups and programs. He chairs a Blue Ribbon Panel, which developed an Action Plan to establish a North American greenhouse gas offset protocol for wetland restoration and management projects. He is a Co-Principal Investigator of a National Center for Ecological Analysis and Synthesis workshop on Coastal Wetland Modelling, and a Co-Chair of an International Blue carbon Working Group on quantification of carbon within coastal wetland soil.

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#### **Emmer, Iginio, Ph.D – Sylvestrum**



Iginio Emmer has a PhD in Earth Sciences and has been working in the field of forestry and climate change since the early 1990s. He built up experience in the development, management and certification of AFOLU projects in Eastern Europe, Southeast Asia, Africa, South America, and The Netherlands. His main asset is being able to coordinate work with experts from various environmental, social, economic and legal disciplines, in governmental and non-governmental organisations, and business. He has been a member of the A/R Working Group of the UNFCCC's CDM Executive Board and participates in the Technical Advisory Group of the VCS AFOLU, being lead-author of the ARR standard. Iginio is the lead author of the Peatland Rewetting and Conservation requirements of the VCS and of a Tidal Forest A/R methodology submitted for CDM validation.

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**Fortes, Miguel D., Ph.D.,** Professor – Marine Science Institute CS, University of the Philippines Marine Plant Ecologist, Biodiversity & Integrated Coastal Area Management Specialist,



A Filipino scientist-humanist, Professor of Marine Science at the Marine Science Institute (BSc., MSc. and Ph.D. degrees in Marine Botany and Ecology (University of the Philippines and Universität Hamburg, West Germany); Head of the UNESCO Intergovernmental Oceanographic Commission Regional Secretariat for the Western Pacific, Bangkok, Thailand (2003-06), with at least 27 years experience as: (1) a marine plant ecologist (seagrass, mangroves, and seaweeds; coastal restoration ecology); (2) academic supervisor to 5 masters and 3 Ph.D. students, both foreign and local (1993-2009); (3) member of editorial boards and referee of manuscripts for 5 international scientific journals; (4) member in 15 Technical Advisory Bodies, both foreign and local, dealing with ocean research and management, policy formulation, and education; (5) Technical Consultant to 39 projects since 1981 on resource assessment, mitigation, advocacy, and policy formulation as these relate to marine and coastal protected areas. From 1979, published 49 articles in primary peer-reviewed journals, 61 in proceedings; wrote 2 booklets and 16 contributed chapters in books. Head of the Philippine Delegation to the Executive Council and General Assembly of the Intergovernmental Oceanographic Commission (IOC) of UNESCO since 1995; Member of the Technical Expert Panel on Marine and Coastal Protected Areas of the Convention on Biological Diversity; Co-Chair of the Biodiversity Programme for East and Southeast Asia of the Japan Society for the Promotion of Science; Member of the Steering Committee of the Southeast Asia Global Ocean Observing System (SEA-GOOS); Vice-President of the UNESCO Man and Biosphere Programme, Inc. and Philippine Focal Point on matters concerning Natural World Heritage Sites of UNESCO, and Integrated Coastal Area Management of the IOC; Past President of the World Seagrass Association, Chair of the National Committee on Marine Science (1993-2003, present) and Commissioner for Science & Technology of the UNESCO National Commission of the Philippines (2000-2003), and a Fellow of the National Defense College of the Philippines (2000-2003) where he, as the expert in the environment, inputs into a better understanding and resolution of national security issues.

He is the recipient of 18 major awards including the UNESCO Chair and the International Biwako Prize for Ecology (for East and Southeast Asia and Russia, 1995). For 2001, he is the recipient of the Hugh Greenwood Environmental Science Award for his outstanding contribution to the development of seagrass science in Southeast Asia. In 2006, he was conferred UP Scientist 1, the University scientific productivity award, by the Board of Regents of the University of the Philippines. In April-June 2010, he fulfilled his duties as a Visiting Professor in the University of Tokyo, Japan. For 2010-2014, he is the Project Manager and principal researcher of the Philippine-Japan conservation and adaptive management project, which addresses the impacts of local and global environmental change on coastal ecosystems and resources.

Hence, "...Dr. Fortes' expertise is deeply rooted in marine science. But it is this grounding, coupled with his passion to apply and share his science to improve people's lives, that made him 'see something extraordinary' in nature's ordinary designs, making him an internationally known scientist, a teacher,

and a well-respected humanist in science -a rarity in a field known almost to be devoid of such character.” - *The Philippine Daily Inquirer* 2006.

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**Fourqorean, James**, Ph. D. – Florida International University, Department of Biological Sciences



Jim Fourqorean is a marine and estuarine ecologist with a special interest in benthic plant communities, food webs, and nutrient biogeochemistry. He studied at the Department of Environmental Sciences at the University of Virginia, where he became familiar with the temperate ecosystems, but he developed a love of tropical ecosystems while doing his dissertation research in Florida Bay. His published research spans many ecosystems, from planktonic systems to mangrove forests. In particular, he has specialized in the application of elemental and stable isotopic composition of organisms as indicators of ecosystem processes. While working on the Water Quality Protection Program for the Florida Keys National Marine Sanctuary, he began to make contributions to the science and application of monitoring in Marine Protected Areas. For the past decade, his main research areas have been in Florida Bay and the back-reef environments of the Florida Keys, but he has also worked around the Gulf of Mexico, in Mexico, Panama and Bermuda, the western Mediterranean and Australia. He is currently a professor in the Department of Biological Sciences and a member of the Southeast Environmental Research Center at Florida International University in Miami, Florida.

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**Giri, Chandra** – Principal scientist at ARSC Research and Technology Solutions



Chandra Giri is a principal scientist at ARSC Research and Technology Solutions, contractor to the US Geological Survey (USGS) Earth Resources Observation and Science (EROS) Center. His work focuses on global and continental-scale land use/land cover characterization and mapping using remote sensing and Geographic Information Science (GIS). His current research work is on global mangrove forest cover mapping and monitoring using earth observation satellite data.

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**Heinze, Christoph**, Prof. Dr. - University of Bergen, Geophysical Institute & Bjerknes Centre for Climate Research



Christoph Heinze was born in Cologne, Germany and received most of his academic education from studies at the University of Hamburg (Institute for Oceanography) and the Max Planck Institute of Meteorology under guidance of Ernst Maier-Reimer and Klaus Hasselmann. Being by definition a “physical oceanographer” he already in his master thesis became interested in oceanographic tracers. This interest was deepened during his PhD work about the glacial CO<sub>2</sub> reduction in the atmosphere where he extended his view to the modelling and interpretation of marine sediment core data. He also worked for 2 years in Denmark at the National Environmental Research Institute. Since 2004 he is professor in chemical oceanography in Bergen, where he was coordinating the biggest European collaborative research project on the oceanic uptake of anthropogenic CO<sub>2</sub> so far – CARBOOCEAN. He will coordinate the new FP7 EU large scale integrating project CARBOCHANGE on marine carbon cycling, which will start 1 March 2011. He was a lead author of chapter 7 on climate-biogeochemistry couplings for the 4th IPCC Assessment Report (Working Group I) published in 2007 and is presently review editor for the biogeochemistry chapter of the 5th IPCC Assessment Report (Working Group I).

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**Johnson, Beverly**, Ph.D. - Associate Professor, Geology Department, Bates College



Johnson is an Associate Professor and currently the Chair of the Geology Department at Bates College, Lewiston Maine. She is a stable isotope geochemist who specializes in reconstructing climate and environmental change in coastal ecosystems through time. Johnson analyzes organic matter and/or biomarkers to study carbon and nutrient cycling in a couple of very important and very vulnerable coastal habitats in the Gulf of Maine--- eelgrass beds and salt marshes. She is particularly interested in determining long term records of ecosystem function (i.e., baseline conditions) of these two habitats to better understand ecosystem resilience.

My primary research projects revolve around evaluating the role of anthropogenic influences on local, regional and global environments by reconstructing records of carbon cycling and environmental change through time. I measure the stable isotope composition of modern and ancient organic matter and collaborate with many scientists to study: (1) vegetation shifts in central and northern Australia to understand the complex interactions between human activity, animal extinction, vegetation, and climate over the last 60,000 years; (2) changes in the cycling of terrestrial carbon during periods of significant and rapid climate and sea level change in coastal Maine, the NE Siberian Arctic and the Australian tropics; (3) paleo-food web dynamics among humans and marine organisms in the Penobscot Bay, Gulf of Maine, through the last 5,000 years; and (4) modern food web dynamics and nutrient transfer in salt marshes, coastal Maine. I am also interested in the water quality of local watersheds, including phosphorus cycling in the Sabattus and Androscoggin River watersheds.

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**Kairo James**, Ph.D. – Laboratory of General Botany and Nature Management, Kenya Marine and Fisheries Research Institute



James Gitundu Kairo initiated his university career at the University of Nairobi and graduated his M.Sc.in 1995 with a thesis on the 'Artificial regeneration and sustainable yield management of mangrove forests in Gazi Bay (Kenya)' under supervision of Prof. Dirk Van Speybroeck. Ever since, he worked as a principal research officer for the Kenyan Marine and Fisheries Research Institute (KMFRI) in Mombasa on the same topic. In 1996 he started his Ph.D. with Prof. Dr. Nico Koedam as his promoter and focused on mangrove regeneration, restoration and management. His study sites covered different Kenyan mangrove forests

anthropogenically disturbed to various extents such as in Kiunga Marine National Reserve, Mida Creek and Gazi Bay. He defended his Ph.D. in 2001 and was awarded a "greatest distinction". During his

working period in mangroves James Kairo consulted with several national and international organizations, among them Kenya Forest Department, Kenya Wildlife Service and World Wild Fund for Nature. He was awarded a research grant by the African Academy of Sciences (1991/92) and by the Biodiversity Support Program, a USAID funded Consortium of the World Wide Fund for Nature (USA), Nature Conservancy and the World Resources Institute

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**Kauffman, Boone** - Research Ecologist, Climate Fire and C Cycle Sciences, USDA Forest Service



Dr. J. Boone Kauffman is a senior research ecologist with the Northern Research Station of the USDA Forest Service. Prior to this position he was Director of the Institute of Pacific Islands Forestry in Hilo, Hawaii and a professor of ecosystems ecology in the Department of Fisheries and Wildlife at Oregon State University. Dr. Kauffman's current research centers upon understanding the vulnerability of tropical wetlands and forests to climate change and the development of adaptation and mitigation strategies to climate change. His current research focus is on C dynamics, biodiversity, land use, and climate change implications for freshwater wetland and mangrove forests of the Asia Pacific and Latin America. These studies are located in Bangladesh, Micronesia, Palau, Indonesia, and Mexico. Dr. Kauffman has a lifelong research interest in ecosystems, disturbance, and restoration ecology in both tropical and temperate landscapes. In particular, his research has centered on the influences of natural disturbances and human perturbations on ecosystem structure and function; the global influences of deforestation, land use, and wildland fire on ecosystems; the influences of land use on riparian/wetland ecosystems; and ecological approaches to restoration. In addition to the locations above he has led research projects in tropical savannas, dry forests, and evergreen forests of Brazil, Mexico, Costa Rica, and Venezuela as well as in forests and grasslands of Africa, Guam, Hawaii, Oregon, Idaho, and California. Dr. Kauffman has authored over 250 scientific publications. He received his Ph.D. in Forest Ecology from the University of California, Berkeley. Boone currently lives in Durham, New Hampshire with his wife Dian, and their two boys Cimarron and Kenai.

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**Kennedy Hillary, Ph.D.** – Bangor University, School of Ocean Sciences



Hilary Kennedy is a Reader at Bangor University. She has an established stable isotope research group focused on the application of stable isotopes (C, N, O, and S) to indicate the source, reactivity and fate of organic matter and provide past and present day tracers of climatic and ecological change. She has been a principal investigator on numerous national and international research projects, where her research has focused on biogeochemical processes in open and coastal waters, with an emphasis on the production and fate of organic and inorganic carbon and the elucidation of novel carbon sinks. She has fieldwork experience working in Asian and European seagrass meadows and has a current project in Qatar. Her publications on seagrasses relate to study of food webs, the provision of chemical indicators of environmental threats to, and stresses for, seagrass ecosystems, determination of carbon fluxes and quantification of carbon sinks. She also co-authored “Seagrasses” in “The management of natural coastal carbon sinks”. Eds D. d’A Laffoley and G. Grimsditch, IUCN.

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**Lovelock Catherine, Ph.D.** –Professor, School of Biological Sciences, University of Queensland  
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Prof Lovelock has a PhD in Botany from James Cook University in Queensland. She held post doctoral fellowships at the Smithsonian Tropical Research Institute and the Smithsonian Environmental Research Center before joining UQ. Research in her lab is focused on the ecology and ecophysiology of coastal plant communities. She is particularly interested in the influence of environment, including global climate change on plant community productivity and diversity. She conducts experimental work over a wide range of coastal plant communities that includes mangroves, macroalgae and cyanobacterial mat communities. Some of her current research projects include assessment of how sea level and nutrient enrichment influences mangrove and salt marsh ecosystems, how mangroves mediate exchanges between the land and sea and how metabolism of coral reefs varies over latitude. She leads the Biodiversity Project of the South East Queensland Climate Adaptation Research Initiative.

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**Marbà, Núria**, Ph.D. – Research Scientist of the Research Council of Spain at the Mediterranean Institute for Advanced Studies



She is a Research Scientist of the Research Council of Spain at the Mediterranean Institute for Advanced Studies, Mallorca Island, Spain. Her main research field is on seagrass and macroalgae ecology and global change. She has led and participated in projects on marine ecology, biodiversity and conservation involving research in coastal areas of Greenland, Europe (including Atlantic and Mediterranean regions), Australia, Caribbean, East Africa, SE Asia and India. Currently she participates in a seagrass working group (together with Carlos Duarte, Jim Fourqrean and Hilary Kennedy) that recently estimated seagrass carbon sink capacity from seagrass community metabolic rates and sediment organic carbon sources. She has participated in previous Blue Carbon meetings (May 2010 in Paris; November 2010 in Durham).

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**Megonigal, Patrick**, Ph.D. – Senior Scientist & Deputy Director, Smithsonian Environmental Research Center



Patrick Megonigal holds a Ph.D. in biogeochemistry from Duke University. He is a wetland ecologist and Senior Scientist at the Smithsonian Environmental Research Center, USA, and the principal investigator of the Biogeochemistry Laboratory. His major research interests concern wetland ecosystems, with an emphasis on the impacts of global change on carbon cycling. Dr. Megonigal was an Assistant Professor of Biology at George Mason University from 1996-2000 and President the Society of Wetland Scientists in 2007. His work on blue carbon includes participating in the US National Blue Ribbon Panel on Wetland Carbon Offsets and the Duke Nicholas Institute for Environmental Policy Solutions' Blue Carbon Science Workshop.

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**Morris, James** – Professor of Biological and Marine Sciences & Director, Belle W Baruch Institute for Marine & Coastal Sciences

Dr. James Morris is the Director of the Belle Baruch Institute for Marine and Coastal Sciences, Professor of Biological Sciences, Distinguished Professor of Marine Studies at the University of South Carolina, and a AAAS Fellow. He served as a Program Officer at the National Science Foundation from 2003-2005 and was a visiting professor at Aarhus University, Denmark in 1990. His academic background includes degrees in environmental sciences, (BA, Univ. Virginia), biology (MA, Yale) and forestry and environmental studies (PhD, Yale). He held a postdoctoral fellowship at the Marine Biological Laboratory, Woods Hole before taking a faculty position at the University of South Carolina in 1981. Morris has authored >80 peer-reviewed publications, largely focused on coastal wetlands. He has served on numerous committees and panels for various agencies, including the US National Science Foundation, the Irish National Science Foundation, the National Research Council, and the IndoFlux committee of India. Dr. Morris has a long history of funding from NSF for research at North Inlet, SC on the effects of sea-level change on coastal wetlands. He was principal investigator of a recent NOAA project focused on the effects of sea-level rise in Pamlico Sound, NC. Research at Camp Lejeune, NC continues with support from DCERP. Morris is also working on marshes in Massachusetts as co-principal investigator of the NSF, Plum Island Long Term Ecological Research site and in Florida as co-principal investigator of a NOAA SARP project. He also serves on the NCEAS Wetland Carbon Modeling working group.

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**Niesten, Eduard**, Ph.D. - Senior Director, Conservation Stewards Program



Dr. Eduard Niesten directs Conservation International's Conservation Stewards Program. During his 10 years of work at Conservation International he has focused on designing and implementing incentive-based interventions that advance conservation and human wellbeing. He has worked on conservation agreements and related tools in more than 20 countries in South and Central America, Africa, Asia, and the Pacific Island region. In addition, Eduard's research efforts have produced a broad range of publications comparing the relative strengths and weaknesses of various conservation approaches. He earned his Ph.D. in Applied Economics from Stanford University in 1998.

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**Ralph, Peter J.**, Professor - Executive Director, Plant Functional Biology and Climate Change Cluster (C3), University of Technology Sydney



Professor Ralph's research over the past 13 years has been innovative and original, advancing knowledge of the physiological limitations of photosynthetic marine organisms. He has played a key role in the application of chlorophyll a fluorometry to marine botany and is widely regarded as a world leader in this field. His early research during the late 1990's established much of the understanding of seagrass photobiology, gas exchange and stress response; he then applied his knowledge to corals, where he has unravelled the complex interactions of the endosymbiotic microalgae within coral tissue. He has published over 90 scientific publications covering photosynthetic responses of sea-ice algae, seagrasses, phytoplankton, macroalgae, as well as terrestrial plants.

Ralph is an associate editor of the journal *Marine Biology* and review editor of *Marine Ecology Progress Series*. He has been a panel member for the Australian Research Council Future Fellow Selection Committee. For the past 10 years, he has headed the Aquatic Processes Group which currently includes two Adjunct Professors, one Senior Research Fellow, six Research Fellows, a Laboratory Manager, 8 PhD students, three Honours and two Research Assistants. As Executive Director of a research institute (C3), he leads a team of 35 academic staff, who supervise over 30 PhD students.

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**Simard, Marc**, Ph.D. – Senior Scientist, Jet Propulsion Laboratory, Radar Science and Engineering Section, NASA Earth Sciences



Areas of Expertise: Ecosystems, Land Cover & Vegetation, Remote Sensing & Data Systems

Expertise: Mapping of 3-D vegetation structure with radar and lidar remote sensing; estimation of biomass and ecosystem productivity; development of algorithms for new radar systems.

Current Research: Development of radar and lidar remote sensing methods to measure vegetation 3-D structure, and to estimate biomass and ecosystem productivity in tropical and coastal forests, and for other vegetation types; electromagnetic scattering models for vegetation and ice/snow, and the development of signal processing algorithms for new radar systems designed for solid Earth, ocean and cryosphere 3-D mapping.

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## Observers

**Del Castillo, Carlos**, Ph.D. – Research Scientist The Johns Hopkins University Applied Physics Laboratory & Assistant Research Professor Department of Earth and Planetary Sciences The Johns Hopkins University



Dr. Del Castillo is a member of the Senior Professional Staff with the Space Department of the Johns Hopkins University Applied Physics Laboratory, and the William S. Parsons Professor at the Johns Hopkins University Department of Earth and Planetary Sciences. Dr. Del Castillo started his career at the University of Puerto Rico studying the effects of oil pollution in tropical marine environments. Later, at the University of South Florida, his interest in organic carbon biogeochemistry and the carbon cycle lead him to the use of remote sensing to study biogeochemical and physical processes in the oceans through a combination of remote sensing, and field and laboratory experiments. While working at NASA as a researcher, Dr. Del Castillo also served as Project Manager at Stennis Space Center, MS, and as a Program Scientist at NASA HQ. Dr. Del Castillo served in several inter-agency working groups, chaired NASA and NSF workshops, NASA Senior Reviews, and is now a member of NASA's Carbon Cycle and Ecosystem Management and Operations working Group, and is serving in two National Research Council panels. Dr. Del Castillo has several well-cited publications (over 70 citations), co-edited a book on the application of remote sensing techniques, and is a frequent reviewer for technical journals. Dr. Del Castillo received the William Sackett Prize for Innovation and Excellence in Research from the University of South Florida (1999), the NASA Presidential Early Career Award for Scientists and Engineers (2004), and the Emerald Honors Trailblazer Award (2007), and other awards.

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**Emmet-Mattox, Steve** - Senior Director of Strategic Planning and Programs, Restore America's Estuaries



Steve has more than twenty years of experience in environmental protection and conservation, leading program efforts for the Environmental Law Institute, the Institute for Conservation Leadership, and Rails-to-Trails Conservancy. For Restore America's Estuaries, he develops new initiatives, including strategic efforts in the areas of estuary economics and the connections between coastal habitat

restoration and climate change impacts, mitigation, and adaptation. Steve developed RAE's 10-year national partnership for habitat restoration with NOAA's Restoration Center - which has resulted in more than \$30 million invested in more than 800 community-based restoration projects. He also led the creation of RAE's biennial National Conference on Coastal and Estuarine Habitat Restoration. He lives in Niwot, Colorado with his wife and son.

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**Fitzgerald, Claire, MSc – GIS analyst, UNEP-WCMC**



Claire Fitzgerald is a GIS analyst in the Marine Assessment and Decision Support programme at the UNEP World Conservation Monitoring Centre (UNEP-WCMC), based in Cambridge, United Kingdom.

Claire has worked at UNEP-WCMC since 2009 where she supports the development of innovative decision support tools relevant to marine and coastal ecosystems, including UNEP-WCMC's Ocean Data Viewer, an online resource providing access to a range of critical habitat data important for multilateral environmental agreements and conventions as they relate to marine and coastal biodiversity. As part of a collaborative program established between the National Aeronautics and Space Administration (NASA), the National Oceanic and Atmospheric Administration (NOAA), the University of South Florida (USF) and UNEP-WCMC, Claire supports the augmentation of the NOAA Decision Support System (DSS) under the Coral Reef Watch (CRW) program to forecast environmental stress in coral reef ecosystems around the world.

Prior to commencing her work at UNEP-WCMC Claire has worked on both the marine and terrestrial applications of remote sensing for change detection analysis, habitat mapping and spatial planning. Her scientific interests include climate change, remote sensing and biodiversity and marine conservation.

She obtained her MSc at the National University of Ireland, Maynooth in 2005 in Applied Remote Sensing and Geographical Information Systems; and her BSc Hons. Marine Science in 2003 at the National University of Ireland, Galway.

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**Lawrance, Anissa** – Director, TierraMar Consulting



With a diverse background in environmental science, coastal and marine natural resource management (NRM) and conservation, environmental communication, chartered accounting and risk management, Anissa has over 20 years experience in developing and communicating strategic solutions and managing people, projects and businesses towards sustainability. She is currently assisting UNEP/GRID-Arendal to develop and deliver its Blue Carbon program across Asia Pacific.

As the Director of TierraMar Consulting, Anissa has worked to build the capacity of NRM and conservation program delivery agents to achieve better outcome across Asia Pacific. This work has included strategic assistance to develop national conservation and NRM frameworks, program development, implementation and assessment and the review of onground conservation and NRM projects.

Anissa has previously held leadership positions in a number of Australian conservation NGOs where she was focused on improving the sustainability of Australian fisheries and coastal habitats. In these roles she provided effective policy advice and delivered industry, government and community partnerships, as well effective large scale strategic education, communication and onground coastal habitat conservation and rehabilitation programs. She has been a key driving force and strategist in coastal and marine conservation in Australia for many years.

In 2007 she became a Churchill Fellow with the prestigious Winston Churchill Memorial Trust, looking at how other countries are engaging the fishing industry in marine spatial planning and how marine ecosystem based management is being applied to coastal ecosystems.

She has held senior positions in a number of leading international consulting and professional services firms where she provided expertise in environmental, business, operational and technological risk management, systems and process design and control, and strategic planning and management. Anissa has worked across nearly every industry sector and with all types of organisations from blue chip companies to government departments both nationally and internationally in this capacity.

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**Ullman, Roger** – Executive Director, Linden Trust for Conservation

Roger Ullman joined LTC in 2006 as its first Executive Director. From 2002 to 2006 he was at Rainforest Alliance, as Director of Strategic Business Development and Managing Director of the SmartWood program. SmartWood is the world's leading certifier to the standards of the Forest Stewardship Council, with operations in more than 50 countries. For nearly two decades before that Mr. Ullman worked on Wall Street, most recently as a Managing Director of investment banking at Merrill Lynch, where he started and built the firm's mergers and acquisitions business in Latin America. He volunteers as a leader of Environmental Entrepreneurs in New York and is a founding organizer of New Resource Bank. He holds an MBA from Harvard Business School and a BA in history from Harvard College.

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**Vaidyanathan, Gayathri** – Reporting fellow *Nature*



Gayathri Vaidyanathan is a reporting fellow with *Nature* and a reporter with *Greenwire*, a publication out of Washington, DC covering environment and energy policy. Before that, she worked in New York, covering business. She has degrees in Journalism and Biochemistry and has lived and reported from four countries in the past four years.

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## **Coordinators**

**Abdulla, Ameer, Ph.D.** – Senior Advisor, Marine Biodiversity and Conservation Science, IUCN Project Staff



Ameer A. Abdulla is a marine ecologist by training and has worked with the IUCN Global Marine Programme (GMP) since June 2004. His work stretches over vast areas, covering small island developing states (SIDS) in the Indian Ocean where he focuses on the detection and monitoring of marine introduced species on coral reefs. In the Red Sea, Ameer conducts behavioural observations on Samadai Reef spinner dolphins in Marsa Alam, Egypt. As Ameer is based at the GMP's regional office in Malaga, Spain, his other main area of work is the Mediterranean Sea, where he is helping to assess the ecological status of Mediterranean shark species and supporting a regional program of North African

Marine Protected Areas. He completed his PhD training in Coral Reef Ecology at the James Cook University, Australia and has over ten years of experience in tropical marine ecology in the Indian Ocean, Red Sea, Arabian Gulf, Great Barrier Reef, Mediterranean Sea, and the Gulf of Mexico. Ameer also holds a MSc. degree in Tropical Environmental Management with specific emphasis on marine impact assessment and monitoring in protected areas. Ameer is the author of a number of scientific papers and technical reports that address marine ecology, conservation, species, and impact assessment.

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**Fonseca, Luciano, Ph.D.** – Programme Specialist Ocean Science Sector, UNESCO/IOC



Dr Luciano Fonseca has a PHD in Ocean Engineering from the University of New Hampshire (UNH) and University of New Brunswick (UNB), as well as a Masters on Remote Sensing for Natural Resources and Electronic Engineering from the State University of Campinas (UNICAMP). He is a Professor at the Center for Coastal and Ocean Mapping of the University of New Hampshire and is currently detached from his academic duties to work at Intergovernmental Oceanographic Commission (IOC-UNESCO) with issues related to oceanographic impacts of

Climate Change, protection of Biodiversity in the high-seas and deep seabed, Geoengineering, UNCLOS monitoring, including issues pertaining to Continental Shelf extension, and coordinating projects related

to Marine Protected Areas and South-South cooperation in the South Atlantic. Recently he participated in the writing and editing of the book "Blue Carbon - The Role of Healthy Oceans in Binding Carbon", and also and of the special issue of the journal Oceanography entitled "Looking into the future of Ocean Sciences: an IOC perspective".

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**Laffoley, Dan**, Professor - Senior Advisor, Marine Science and Conservation, Global Marine and Polar Programme, International Union for Conservation of Nature (IUCN) & Marine Vice Chair IUCN's World Commission on Protected Areas (WCPA).



In the Global Marine and Polar Programme Dan provides knowledge, innovation and leadership on new ways for delivering marine conservation which lever greater action and attention for the ocean. This involves working with leading scientists to create initiatives that bring new knowledge into policy on issues such as coastal carbon sinks, climate change and ocean acidification. He has a keen interest in how information technology can help protect the ocean and recently co-originated and helped deliver Google Ocean, showing the public for the first time how the ocean is protected, benefitting in excess of 500 million people with a new perspective on the seas.

In the World Commission Dan was elected as a Vice Chair in 2006. WCPA is one of the six voluntary IUCN Commissions and with over 1,200 members in 140 countries it is administered by the Protected Areas Programme at the IUCN Headquarters in Gland, Switzerland. He is currently taking WCPA through a major strategic review to radically develop the role and focus of the marine work through the development and implementation of the WCPA - Marine global Plan of Action. The WCPA mission is to promote the establishment and effective management of a worldwide system of network of terrestrial and marine protected areas, as an integral contribution to the IUCN mission.

For nearly 25 years Dan has been responsible for the creation of many key national, European and global partnerships and alliances that underpin marine conservation. He served as chief scientific advisor for the marine environment in Natural England, for over a decade headed-up the marine conservation programme for English Nature, and has also worked in a variety of roles including special marine environmental advisor for the Prime Minister Tony Blair's Strategy Unit, and for the European Commission. He currently chairs the International Ocean Acidification reference User Group and is a member of several marine science Councils and advisory boards in the UK. He is currently an independent special advisor to the UK Government on marine science.

For more details and to download any of his recent publications please see <http://sites.google.com/site/danlaffoley/>

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**Pidgeon, Emily**, Ph.D. – Director, Marine Climate Change Program, Conservation International



Dr Emily Pidgeon is the Director of Conservation International’s Marine Climate Change Program which is focused on solutions for coastal and marine adaptation to climate change and on developing marine based approaches for mitigation through “Blue Carbon”.

Dr Pidgeon has a broad background in marine sciences. After completing her Ph.D. in environmental engineering at Stanford University, she was a research scientist working on coastal oceanography problems at the Scripps Institution of Oceanography in San Diego, California. Dr. Pidgeon has also worked in the Oil and Gas industry and as a consultant addressing pollutant issues in coastal waters.

At CI, Dr Pidgeon’s primary focus is integrating ocean sciences into effective conservation strategies and field implementation. This particularly includes addressing the impacts of climate change on coastal and ocean communities and environments.

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**Maciej Telszewski**, Ph.D. – Deputy Project Director, International Ocean Carbon Coordination Project, UNESCO



Maciej Telszewski was born in Wejherowo, Poland and received his Masters in Physical Oceanography from the University of Gdansk, Gdansk, Poland. He then moved to Norwich, UK where he received his PhD from the School of Environmental Sciences at the University of East Anglia (UEA). Maciej's area of expertise extended to marine carbon cycling with special interest in the surface ocean – lower atmosphere fluxes. His project was part of the EU CarboOcean initiative with field research conducted in close collaboration with the UK SOLAS. After a short postdoc at UEA, he moved to Japan to work with the National

Institute for Environmental Studies. His work there concentrated on combining satellite and reanalysis data with *in situ* measurements in order to parameterize climate-related measurements including sea surface, pCO<sub>2</sub>, and DMS. Maciej was also responsible for designing and conducting field campaigns (TA, DIC and pCO<sub>2</sub> measurements along the hydrographic sections), computing basin-wide to global maps of investigated parameters using neural statistics, self-organizing maps and other computational methods. He was also investigating feedbacks between oceans and climate. Recently Maciej was appointed as the Assistant Project Director of the International Ocean Carbon Coordination Project at UNESCO-IOC, Paris, France where he uses his expertise to help coordinate marine carbon cycle science at the international level.

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**Tamelander, Jerker**, Manager, Oceans and Climate Change, IUCN Global Marine and Polar Programme



Jerker leads activities addressing the impacts of greenhouse gas emissions on oceans, dependent industries and communities. The programme focuses on finding nature-based solutions to climate change, including mitigation through preserving and enhancing natural carbon stocks, and development and implementation of approaches to increasing socio-ecological resilience and adaptive capacity. He also works on spatial planning, development of resilient MPA networks, and addressing Invasive Alien Species (IAS) in the marine environment. Jerker has an MSc in Marine Biology and has worked in international marine research and policy collaborations for 15 years, based at the Finnish Institute of Marine Research, the United Nations Environment Programme and IUCN.

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**Tedesco, Kathy**, Ph.D. - Project Director, International Ocean Carbon Coordination Project, UNESCO



Kathy currently serves as the Director of the International Ocean Carbon Coordination Project (IOCCP) of the Intergovernmental Oceanographic Commission - UNESCO. The IOCCP promotes the development of a global network of ocean carbon observations for research through technical coordination and communications services, international agreements on standards and methods, and advocacy and links to the global observing systems.

Prior to this, Kathy served as Program Manager for the Global Carbon Cycle Program (GCC) in the Climate Program Office at the National Oceanic and Atmospheric Administration. Her work involved planning future research directions for GCC, administering peer review of proposals and research projects, and recommending and managing funded research. She represented NOAA on the Carbon Cycle Interagency Working Group under the U.S. Climate Change Science Program, along with representatives from more than ten federal agencies, coordinating U.S. carbon cycle research through linked interdisciplinary research elements and crosscutting activities.

Kathy has a Masters degree in geological oceanography from the University of Colorado on Late Quaternary fluctuations of the Laurentide Ice Sheet and North Atlantic Heinrich Events and a Ph.D. from the University of South Carolina. Her Ph.D. research focused on the calibration of paleoenvironmental proxies from the Cariaco Basin, Venezuela and their application to Holocene paleoclimate reconstructions for the circum-Caribbean region. Kathy was a Mendenhall Postdoctoral Fellow with the U.S. Geological Survey in St. Petersburg, FL and continues close collaboration with researchers on her sediment trap project in the northern Gulf of Mexico.

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