Too Precious to Drill: The Marine Biodiversity of Belize Conference Agenda 29-30 June 2011, Biltmore Best Western, Belize City					
Date/Time	Event/Presentation	Presenter/Chair	Affiliation/Venue		
JUNE 29	INTRODUCTION				
8:00 - 9:00	Late registration				
9:00 - 9:05	Welcome remarks	Tanya Williams, Coalition Coordinator	Belize Coalition to Save Our Natural Heritage		
9:05 – 9:15	Welcome remarks	Senator Gordon			
9:00 – 9:15	Welcome remarks	Audrey Matura-Shepherd	Oceana Belize		
9:15 – 9:30	Introduction to the Conference	Daniel Pauly	University of British Columbia		
9:30 - 10:00	Offshore oil vs 3E's (Environment, Economy & Employment)	Frank Gordon Kirkwood and Audrey Matura-Shepherd	Retired Engineer/Independent Oil Advisor & Oceana respectively		
10:00 - 10:30	The Belize Barrier Reef: a World Heritage Site	Janet Gibson	Wildlife Conservation Society Belize		
10:30 - 10:45	COFFEE BREAK				
JUNE 29	THREATENED BELIZEAN MARINE BIODIVERSITY	Chairs: Melanie McField and Mike Hirschfield	Healthy Reef & Oceana respectively		
10:45 – 11:15	Threats to coastal dolphins from oil exploration, drilling and spills off the coast of Belize	Ellen Hines	San Francisco State University		
11:15 – 11:45	The fate of manatees in Belize	Nicole Auil Gomez	Sea to Shore Alliance		
11:45 – 12:15	The elasmobranchs of Glover's Reef Marine Reserve and other sites in northern and central Belize	Demian Chapman, Elizabeth Babcock, Mark Bond and Ellen Pikitch	Stony Brook University		
12:15 – 14:15	LUNCH				
14:15 – 14:45	Grouper and snapper assemblages in Belize: possible impacts from oil exploration	<u>William Heyman</u>	Texas A&M University		

Too Precious to Drill: The Marine Biodiversity of Belize Conference Agenda 29-30 June 2011, Biltmore Best Western, Belize City					
Date/Time	Event/Presentation	Presenter/Chair	Affiliation/Venue		
14:45 – 15:15	Endemic marine fishes of Belize: evidence of isolation in a unique ecological region	Phillip Lobel	Boston University		
15:15 – 15:30	COFFEE BREAK				
15:30 – 16:00	Functional importance of biodiversity for coral reefs of Belize	Janie Wulff	Florida State University		
16:00 – 16:30	Biodiversity of sponges: beyond Belize and to the greater Caribbean	Maria Cristina Diaz and Klaus Ruetzler	Museo Marino de Margarita National Museum of Natural History		
16:30	DINNER COCKTAILS	c/o Oceana Belize			
JUNE 30	THREATENED BELIZEAN MARINE BIODIVERSITY, CONTINUED	Chairs: Melanie McField and Mike Hirschfield	Healthy Reefs and Oceana respectively		
8:30 - 9:00	Status and distribution of seabirds in Belize: threats and conservation opportunities	Lee Jones and Philip Balderamos	UNDP		
9:00 - 9:30	Biodiversity, ecology and biogeography of hydroids (Cnidaria: Hydrozoa) from Belize	Lea-Anne Henry	Heriot-Watt University		
9:30 - 10:00	Documenting the marine biodiversity of Belize through FishBase and SeaLifeBase	Maria L.D. Palomares and Daniel Pauly	University of British Columbia		
10:00 - 10:30	Summary of marine biodiversity sessions	Mike Hirschfield	Oceana		
10:30 - 10:45	COFFEE BREAK				
JUNE 30	THREATENED BELIZEAN MARINE HABITATS AND LIVELIHOODS	Chairs: Lisa Carne and Margot Stiles	Consultant and Oceana, respectively		
10:45 – 11:15	Evaluating potential impacts of offshore oil drilling on the ecosystem services of mangroves in Belize	Timothy B. Smith	Brooksmith Consulting		

Too Precious to Drill: The Marine Biodiversity of Belize Conference Agenda 29-30 June 2011, Biltmore Best Western, Belize City					
Date/Time	Event/Presentation	Presenter/Chair	Affiliation/Venue		
11:15 – 11:45	A deep-sea coral 'gateway' in the northwestern Caribbean	Lea-Anne Henry	Heriot-Watt University		
11:45 – 12:15	Natural and anthropogenic catastrophe on the Belizean Barrier Reef	Richard Aronson and Ian G. Macintyre	Florida Institute of Technology		
12:15 – 14:15	LUNCH				
14:15 – 14:45	Evaluating coral reef health on a large scale	Melanie McField	Healthy Reefs for Healthy People		
14:45 – 15:15	Reconstruction of total marine fisheries catches for Belize, 1950-2008	Dirk Zeller	University of British Columbia		
15:15 – 15:45	Under the threat of oil: assessing the value and contribution of Belizean fisheries	Sarah Harper and Rashid Sumaila	University of British Columbia		
15:45 – 16:00	COFFEE BREAK				
16:00 - 16:30	The economic value and future of marine ecotourism in Belize	Andres Cisneros and Rashid Sumaila	University of British Columbia		
16:30 - 17:00	Summary of habitats and livelihoods sessions	Lisa Carne	Marine Biologist Consultant		
17:00 – 17:30	Conclusions and closing remarks	Audrey Matura-Shepherd & Daniel Pauly	Oceana & Sea Around Us Project respectively		
18:00	DINNER	c/o Sea Around Us Project			
JULY 1	FIELD TRIP FOR PARTICIPANTS		Turneffe Atoll		

THE ORGANIZERS

AUDREY MATURA-SHEPHERD

Oceana Belize; Email: amatura-shepherd@oceana.org

Audrey is the VP of Oceana's Belize office and is a wellknown public figure in Belize. She is an attorney-at-law by profession but now an environmental advocate. She began her career as a journalist, working in radio, television and print and is the founding editor of various established media outlets and has over two decades experience in this field. She remains involved in her media work as a weekly television talk show host of "Power of Attorney", which will be going into its third season and through her weekly newspaper column Right to the Point, in the most read Belizean newspaper, Amandala.



MARIA LOURDES D. PALOMARES

The Sea Around Us Project and the SeaLifeBase Project, Fisheries Centre, University of British Columbia, 2202 Main Mall, Vancouver BC V6T124 Canada ; Phone: +1 604 822 0218; Email: <u>mpalomares@fisheries.ubc.ca</u>

Deng is a Senior Research Associate with the Sea Around Us Project at the Fisheries Centre and the Coordinator of the SealifeBase Project (www.sealifebase.org). She has a PhD from the Ecole National Superieure Agronomique de Toulouse (France) and worked with FishBase (www.fishbase.org) since its inception in 1989. Deng, with Daniel Pauly, represents the Fisheries Centre to the FishBase. Consortium and continues to work closely with FishBase.



Deng will discuss on: Documenting the marine biodiversity of Belize through FishBase and SeaLifeBase

DANIEL PAULY

The See Around US Project, Fisheries Centre, University of British Columbia, 2202 Main Mall, Vancouver BC V6f1Z4 Canada; Phone: +1 604 822 1201; Email: d,pauly@fisheries.ubc.ca

Daniel is the Principal Investigator of the Sea Around Us Project. He is a French citizen who completed his high school and university studies in Germany; his doctorate (1979) and <u>habilitation</u> (1985) are in Fisheries Biology, from the University of Kiel. After many years at the International Center for Living Aquatic Resources Management (ICLARM), in Manila, Philippines, Daniel Pauly became in 1994 Professor at the <u>Eisheries Centre</u> of the University of British Columbia, Vancouver, Canada, of which he was the Director from 2003 to 2008. Since 1999, he is also Principal Investigator of the Sea Around Us Project (see <u>www.seaaroundus.org</u>), funded by the Pew Charitable Trusts, Philadelphia, and devoted to studying, documenting and promoting policies to militgate the impact of fisheries on the world's marine ecosystems



THE PRESENTORS

RICHARD ARONSON

Florida Institute of Technology, Biological Sciences Department, College of Science, 150 W University Blvd OLS 500, 104 Melbourne, Florida 32901 USA: Phone: +1 321 674 8034; Email: <u>raronson@ft.edu</u>

Rich is currently the Head of Department at the Biological Sciences Department, College of Science at the Florida Institute of Technology. He has a Ph. D. from Harvard University and is recently involved in global climate change research, i.e., the effect of climate change on coral reefs. He has worked extensively on the ecology of lagoonal reefs in Belize notably on the historical evolution (both geological and biological) of these reefs through examination of cores.

Richard will discuss the: Natural and anthropogenic catastrophe on the Belizean Barrier Reef



NICOLE AUIL GOMEZ

Email: nauilgomez@gmail.com

Nicole is a biologist from Belize who is an Associate Scientist for the Florida-based Sea to Shore Alliance. Ms Gomez will talk about the fate of manatees of Belize.

She has worked in coastal conservation for 14 years and has engaged in various roles regionally and locally. She has worked with international alliances between Belize and neighboring countries on research and management initiatives, as well as teamed with local grassroots organizations serving to build their capacity to manage specific protected areas in Belize.



Nicole will discuss: The fate of manatees in Belize

DEMIAN CHAPMAN

Stony Brook University, School of Marine and Atmospheric Science, Stony Brook, NY 11794 USA; Phone: +1 631 632 8731; E-mail: demian.chapman@stonybrook.edu

Demian is an Assistant Professor at the School of Marine and Atmospheric Science, Stony Brook University, New York. His primary research interests lie in elucidating dispersal and reproductive patterns in marine vertebrates (principally elasmobranch fishes) by integrating genetic and electronic tagging data, with a particular focus on how these patterns influence the spatial structure of genetic variation, population dynamics and apply to conservation. He is also interested in the development of wildlife forensic techniques and resources for law enforcement and trade monitoring purposes.



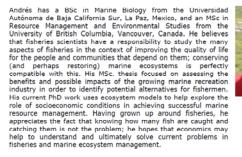
Demian will discuss: The elasmobranchs of Glover's Reef Marine Reserve and other sites in northern and central Belize

Daniel will introduce this conference to the invited audience.

THE PRESENTORS (CONTINUED)

ANDRES CISNEROS-MONTEMAYOR

University of British Columbia, Fisheries Centre, 2202 Main Mall, Vancouver BC V6T1Z4 Canada : Email: a.cisneros@fisheries.ubc.ca



Andres will discuss: The economic value and future of marine ecotourism in Belize

MARIA CRISTINA DIAZ

Museo Marino de Margarita, Boulevard El Paseo, Boca del Rio, Peninsula de Macanao, Nueva Esparta, Venezuela; Email: taxochica@gmail.com

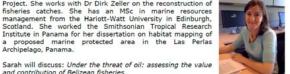
Cris is a research associate at the Museo Marino de Margarita in Venezuela, and a visiting scientist at the National Museum of Natural History, Washington DC. (PhD from the University of California, Santa Cruz). She applies traditional and molecular approaches to study sponge biodiversity and ecology, for over 20 years, focusing on sponge-microbe nitrification, spongecvanobacteria associations, sponge systematics and biogeography. Cris is very interested in marine sponge biodiversity, both from a present and an historical perspective. She collaborates with other taxonomists, natural product researchers, microbiologists, and ecologists to explore the Caribbean, the South Pacific, and the Indian Ocean. Cris and Bob Thacker created a course, Taxonomy and Ecology of Caribbean Sponges (www.stri.org, Diaz et al., 2006), which has introduced 40 young scientists to the science of sponge taxonomy and ecology and its applications.

Cris will discuss the: Biodiversity of sponges: beyond Belize and to the greater Caribbean

SARAH HARPER

University of British Columbia, Fisheries Centre, Sea Around Us Project, 2202 Main Mall, Vancouver BC V6T1Z4 Canada; Email: s.harper@fisheries.ubc.ca

Sarah is a Senior Research Assistant with the Sea Around Us Project. She works with Dr Dirk Zeller on the reconstruction of fisheries catches. She has an MSc in marine resources management from the Hariott-Watt University in Edinburgh, Scotland, She worked the Smithsonian Tropical Research Institute in Panama for her dissertation on habitat mapping of a proposed marine protected area in the Las Perlas Archipelago, Panama.

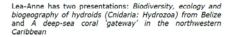


LEA-ANNE HENRY

and contribution of Belizean fisheries

Scottish Association of Marine Science, Oban, Argyll, UK; Email: leaanne.roberts@gmail.com

Lea-Anne is a Research Fellow with the Centre for Marine Biodiversity and Biotechnology at Heriot-Watt University in Edinburgh, UK, a member of the Marine Alliance for Science and Technology for Scotland. Her interests include the biodiversity, biogeography and ecology of benthic marine epifauna, particularly the benthic hydrozoans (hydroids). She has worked on deep-sea 'cold-water corals' and their associated biodiversity since 2000, and is a Charter Member of the Canadian Centre for Marine Biodiversity (http://www.marinebiodiversity.ca). Her current research involves an interdisciplinary look into factors that control the biodiversity and biogeography of fauna inhabiting deep coldwater coral reefs. This work is amphi-Atlantic in scope, with the objective of linking data acquired from acoustic remotesensing methods (sidescan, multibeam) to ground-truthed species composition data across multiple spatial scales. She has worked with colleagues to develop the Trans-Atlantic Coral Ecosystem Study since its inception in 2008 (http://www.lophelia.org/traces) and helps maintain the online resource Lophelia.org (www.lophelia.org), dedicated to advancing public knowledge about cold-water corals.





JANET GIBSON

Wildlife Conservation Society, Belize, Global Conservation Program, P.O. Box 768, 1755 Coney Drive, 2nd Floor, Belize City, Belize; Phone: +501 223 3271; Email: joibson@btl.net; Email 2: joibson@wcs.org

Janet is a biologist and is the Country Director for the Wildlife Conservation Society in Belize and is involved with the management. education and research of marine ecosystems in Belize. She was awarded the Goldman Environmental Prize in 1990 for her efforts on conservation of the marine ecosystems outside the Belizean coast, in particular the barrier reef system. The Belize Barrier Reef was granted UNESCO World Heritage status in 1996.

Janet will discuss: The Belize Barrier Reef: a World Heritage Site

ELLEN M. HINES

San Francisco State University, Department of Geography and Human Environmental Studies, 1600 Holloway Ave., San Francisco, California 94132 USA; Email: ehines@sfsu.edu

Ellen has a Ph. D. from the University of Georaia. She is currently and Associate Professor at the San Francisco State University and Director of the Marine & Coastal Conservation and Spatial Planning Center at San Francisco State University, part of the Institute for Geographic Information Science, a research center dedicated to utilizing and developing the most interdisciplinary marine and coastal conservation. The faculty, students and collaborators seek to describe, model and predict the effects of human use on the marine and coastal environment. This includes habitat modeling and mapping for marine endangered species and ecosystems, sea level change scenarios, documenting of human use and values. She is interested in research that explores tools to facilitate the creation, implementation, and subsequent monitoring of localized scientific and conservation oriented management.

Ellen will discuss the: Threats to coastal dolphins from oil exploration, drilling and spills off the coast of Belize

WILLIAM D. HEYMAN

Texas A&M University, Department of Geography, Texas, Texas USA; Phone: +1 979 845 5411; Email: wheyman@tamu.edu

Will is Associate Professor at the Department of Geography at Texas A&M University. He developed a broad interest in science and sustainable management of tropical coastal and marine systems from the time he was a child. He graduated from Tufts University with a major in Marine Biology and Environmental Studies in 1983. He then spent three years working in marine aquaculture in the Bahamas, Turks and Caicos, and the Marshall Islands. He did his MSc and PhD through the University of South Carolina, conducting field research in both the Marshall Islands and Belize, finishing in 1996. In 7 years of graduate work, he spent only 5 semesters in residence, gaining the dubious honor of the student with the most degrees, and least amount of time on campus at USC. Meanwhile, he began working for the International Division of the Nature Conservancy in Belize where he lived for ten years. He is now an Associate Professor of Geography.



MELANIE MCFIELD

Healthy Reefs for Healthy People Initiative, Smithsonian Institution, 1755 Coney Dr, Belize City, Belize; Phone: +501 223 4898; Email: <u>mcfield@healthyreefs.org</u>

Melanie McField is the Director of the Healthy Reefs for Healthy People Initiative (HRI) based in Belize City, Belize. She is employed by the Smithsonian Institution and serves on a number of national and international marine conservation and research committees, including the Council of the International Society of Reef Studies. Melanie has lived and worked in Belize since 1990; first as a field biologist with the Hol Chan Marine Reserve (and Peace Corps volunteer), then with and Coastal Zone Management Authority and Institute, and later with World Wildlife Fund. Melanie earned a PhD degree (2001) at the College of Marine Science, University of South Florida, after receiving the first International Society of Reef Studies Coral Reef Ecosystem Science Fellowship for her dissertation research exploring the role of disturbance events and the impact of marine protected areas on coral reef community structure in Belize. Melanie has published numerous scientific manuscripts, book chapters and technical reports on topics ranging from coral bleaching to coral reef monitoring methods, marine protected areas and coral reef management. She has also been featured on several television appearances including the TODAY show, National Geographic, Animal Planet and the BBC

Melanie will discuss on: Evaluating coral reef health on a large scale



H. LEE JONES

7 West Street, Punta Gorda, Belize; lee jones@att.net

Lee has a PhD in avian biogeography from UCLA. He is internationally recognized as an authority in omithology and is one of the leading field omithologists in Central America. In addition to birds, his taxonomic knowledge embraces the vascular plants, the major terrestrial vertebrate groups and, among invertebrates, the Lepidoptera. By profession, he is an environmental consultant and research biologist. For the past two decades he has resided part-time in Balize where he has been conducting research on the country's birds and other wildlife. He also volunteers as a technical advisor to vanous conservation organizations including the Beilze Audubon Society, Birds Without Borders/Aves Sin Fronteras, Programme for Belize, Toledo Institute for Development and the Environment (TIDE), and Ya'axché Conservation Trust (YCT).

Lee will discuss the: Status and distribution of seabirds in Belize: threats and conservation opportunities

FRANK GORDON KIRKWOOD

Independent Petroleum Engineering & Economics Consultant, Belize City; Email: kirkwoodg@ymail.com

Gordon obtained his PhD in Chemical Physics from the University of Kent at Canterbury in 1979. He worked thirty years in the oil and gas industry for BP as a Petroleum Engineer and Commercial Advisor in various locations worldwide (UK, Egypt, Venezuela and the United Arab Emirates). He is a Chartered Engineer in the UK, a European Engineer and a Fellow of the Institute of Materials, Mining and Metailurgy. During his retirement he has volunteered as an Independent Oil Advisor to Oceana Belize, consulted with Dive Centers on their Emergency Procedures and provided underwater photographs to Dive Centers. He is also a member of the Marine Mammal Stranding network and a helps to run the Belize Humane Society and Animal Center.

Gordon will discuss: Offshore oil vs 3E's (Environment, Economy & Employment)

PHILLIP S. LOBEL

Boston University, Biology Department, Boston, MA 02215 USA; Phone: +1 617 358 4586; Email: plobel@bu.edu

Phil is a professor of Biology at the Boston University. His areas of interest are ichthyology; behavioral ecology and taxonomy of fishes. He is interested in fundamental concepts of fish biology and in applying this knowledge to scientific issues and to societal concerns of fisheries management and conservation. His scientific work has focused on field studies of fish behavior and ecology. He has worked in a variety of habitats worldwide where fishes are a significant component of the fauna. In recent years, he has applied his scientific expertise to contemporary problems in conservation biology and environmental protection. From 1983 to 2003, his main study site was Johnston Atoll, Central Pacific Ocean conducting research as part of the US Army marine ecological monitoring program evaluating operation of the Johnston Atoll Chemical Weapons Disposal System. Since 2003, he has been working primarily in Belize, Central America on fish ecology and discovery of new species.

Phil will discuss the: Endemic marine fishes of Belize: evidence of isolation in a unique ecological region

TIMOTHY SMITH

Brooksmith Consulting, Illinois, USA; E-mail:timothy@tbrooksmith.com

Tim (M.S., Biology, University of Illinois) is the founder of Brooksmith Consulting, a company dedicated to projects in aquatic ecology associated with ecosystem integrity. water quality, ecosystem management, fisheries, and education. Tim has twenty-one years of experience dealing with applied ecological issues and the detection, quantification and management of a wide variety of ecological disturbances. Tim's work has helped provide a scientific basis for Total Maximum Daily Load (TMDL) regulations in aquatic ecosystems for the Environmental Protection Agency in the US. He has also been instrumental in restoring coastal seagrass and mangrove ecosystems in Belize.

Tim will discuss: Evaluating potential impacts of offshore oil drilling on the ecosystem services of mangroves in Belize



pacts of offshore of mangroves in

THE PRESENTORS (CONTINUED)

JANIE WULFF

Department of Biological Science, Florida State University, Tallahassee, FL, USA; wulff@bio.fsu.edu

Janie is the Associate Professor of Biology at Florida State University. She does underwater research on sponges, corals, and other sessile clonal animals, that inhabit coral reefs, seagrass eadows, and mangrove prop roots. Her focus is on ecological interactions, especially mutually beneficial associations that ameliorate the influence of predators, competitors, and abiotic environmental challenges for all participating species. Her first underwater experiments, in Belize (Lighthouse Atoll) in 1977, demonstrated that sponges can improve the survival of corals by an order of magnitude, even though they may appear to be competing with THEM. Some of her publications ARE LISTED at: http://www.bio.fsu.edu/faculty-awu/ff.php.



Janie will discuss the: Functional importance of biodiversity for coral reefs of Belize

DIRK ZELLER

The Sea Around US Project, Fisheries Centre, University of British Columbia, 2202 Main Mall, Vancouver BC V6f1Z4 Canada; Phone: +1 604 822 1950; Email: d.zeller@fisheries.ubc.ca

Dr Dirk Zeller is Sea Around Us Project's Senior Research Fellow and Project Manager. Dirk leads a catch data reconstruction team and associated projects that deal with Illegal, Unreported and Unregulated fishing by deriving more accurate estimates of total catches by countries. He contributed such data to stock assessment collaborations with the Fisheries Centre Quantitative Modeling Group for Hawaiian bottom fish assessments, and illustrated that ICES (EU) catch data for the Baltic Sea substantially underreport total catches. Dirk also investigates coral reef fisheries (e.g., Coral Triangle Initiative) and global marine pollution modelling, engages in ocean governance and fisheries policy research (e.g., FishEU international policy working group), and collaborates with the Fisheries Economics Research Unit on issues in resource economics, and with the UBC Faculty of Law on issues related to international maritime boundary law and the UN Law of the Sea Convention. He also directs day-to-day research activities and management issues of the Project, and actively engages in and directs strategic research and funding decisions in close coordination with Daniel Pauly.



Dirk will discuss the: Reconstruction of total marine fisheries catches for Belize, 1950-2008