
UNDERSTANDING ECOLOGICAL AND SOCIAL RESILIENCE IN ISLAND SYSTEMS

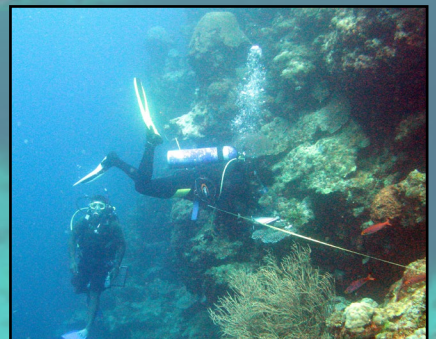
INFORMING POLICY AND SHARING LESSONS FOR MANAGEMENT

MILSTEIN SCIENCE SYMPOSIUM

AMERICAN MUSEUM OF NATURAL HISTORY

NEW YORK, NY

9-11 APRIL 2013



UNDERSTANDING ECOLOGICAL AND SOCIAL RESILIENCE IN ISLAND SYSTEMS:
INFORMING POLICY AND SHARING LESSONS FOR MANAGEMENT

TABLE OF CONTENTS

Introduction1
Symposium Agenda2
Guide to Posters5
Center for Biodiversity and Conservation7

Island ecosystems present unique challenges for conservation due to their restricted geography and isolation as well as high vulnerability to threats such as climate change. At the same time, island peoples must confront rapid economic transformations and globalization. Without the geographic buffers that a continent can provide, islands face critical conservation decisions now that foreshadow decisions all peoples will increasingly face. These actions directly impact both biological and cultural diversity.

The American Museum of Natural History's Center for Biodiversity and Conservation, and its collaborators The Nature Conservancy, the Gordon and Betty Moore Foundation, the National Science Foundation, the University of California Santa Barbara, the Scripps Institution of Oceanography at University of California San Diego, the Wildlife Conservation Society, and the UN Office for the High Representative for Least Developed Countries, Landlocked Developing Countries, and Small Island Developing States have convened this symposium to examine characteristics, qualities, and processes that may foster resilience for coastal and marine systems as well as explore interactions, linkages, and feedback loops in complex social-ecological systems and what this means for management.

Presenters and attendees will share experiences on how island systems have resisted or recovered from major disturbances while also identifying what information is needed to better inform planning and policy for resilience in the future.

The Milstein Science Symposium is proudly sponsored by the Irma and Paul Milstein Family.

The Center for Biodiversity and Conservation at the American Museum of Natural History would also like to thank the following partners for their contribution and collaboration:



SYMPOSIUM AGENDA

DAY ONE - April 9, 2013

8:00 a.m.	BREAKFAST (Shell Corridor)	AN INTEGRATED FRAMEWORK FOR ASSESSING AND MANAGING DATA-LIMITED FISH STOCKS Kendra Karr , <i>Environmental Defense Fund, USA</i>
9:00 a.m.	INTRODUCTORY REMARKS (Kaufmann Theater) Eleanor J. Sterling , <i>Center for Biodiversity and Conservation, American Museum of Natural History, USA</i> (Session Moderator) Jenny Newell , <i>Pacific Ethnology, Division of Anthropology, American Museum of Natural History</i>	MANAGING FOR RESILIENCE USING DIRECTED MONITORING EFFORTS AND COMMUNITY ENGAGEMENT AT THE KAHEKILI HERBIVORE FISHERIES MANAGEMENT AREA (KHFMA) Russell Sparks , <i>Division of Aquatic Resources, State of Hawaii, USA</i>
9:15 a.m.	KEYNOTE PRESENTATION (Kaufmann Theater) NAVIGATING AN ERA OF UNPRECEDENTED CHANGE: THE RISE OF RESILIENCE AND ITS IMPORTANCE TO ISLANDS Paul Marshall , <i>The Great Barrier Reef Marine Park Authority, Australia</i> Nadine Marshall , <i>Ecosystem Sciences, Commonwealth Scientific and Industrial Research Organization (CSIRO), Australia</i>	MANAGING IDENTITY IN THE MIDST OF GLOBALIZATION Mae Adams , <i>Micronesia Program, The Nature Conservancy</i>
10:00 a.m.	INVITED TALKS (Kaufmann Theater) SOCIO-ECOLOGICAL RESILIENCE IN PACIFIC ISLAND TRADITIONAL AND CONTEMPORARY CONTEXTS Stacy Jupiter , <i>Fiji Country Program, Wildlife Conservation Society</i> ENVIRONMENTAL DISPLACEMENT AND CULTURAL RESILIENCE: THE BANABANS OF OCEAN ISLAND AND RABI Katerina Teaiwa , <i>School of Culture, History and Language, College of Asia and the Pacific, Australian National University, Australia</i>	12:05 p.m. LUNCH AND WORKING GROUPS (PowerHouse) 2:00 p.m. PANEL DISCUSSION (Kaufmann Theater) WHAT IS THE ROLE OF SCIENCE IN MANAGING FOR RESILIENCE? Hugh Possingham , <i>School of Forestry and Environmental Studies, Yale University, USA and University of Queensland, Australia</i> Stuart Sandin , <i>University of California San Diego, USA</i> Stephanie Wear , <i>Global Marine Program, The Nature Conservancy, USA</i> Sangeeta Mangubhai , <i>Indonesia Marine Program, The Nature Conservancy</i> Mae Adams , <i>Micronesia Program, The Nature Conservancy</i> Tadzio Bervoets , <i>St. Maarten Nature Foundation</i> Eleanor J. Sterling (moderator), <i>Center for Biodiversity and Conservation, American Museum of Natural History</i>
10:40 a.m.	BREAK (Northwest Coast Indians Hall)	
11:10 a.m.	CASE STUDY PRESENTATIONS Session Moderator: Petra MacGowan, <i>Global Marine Program, The Nature Conservancy, USA</i> (Kaufmann Theater) SUPPORTING RESILIENT SYSTEMS IN THE BAY ISLANDS, HONDURAS Jenny Myton , <i>Coral Reef Alliance, Honduras</i>	3:05 p.m. INVITED TALKS Session Moderator: Jenny Newell, <i>Pacific Ethnology, Division of Anthropology, American Museum of Natural History</i> (Kaufmann Theater)

SYMPOSIUM AGENDA

DAY TWO - April 10, 2013

- 3:45 p.m. MAKING IT EASIER TO MANAGE RREFS FOR RESILIENCE - A FRAMEWORK FOR INTERPRETATION OF RESILIENCE ASSESSMENT SCORES
Sangeeta Mangubhai, *Indonesia Marine Program, The Nature Conservancy*
- 4:00 p.m. BUILDING REEF RESILIENCE CAPACITY AT A LOCAL SCALE
Naneng Setiasih, *Coral Reef Alliance, Indonesia*
- 4:00 p.m. BREAK (Shell Corridor)
- 4:00 p.m. CASE STUDY PRESENTATIONS (Kaufmann Theater)
INCORPORATING LOCAL WISDOM SASI INTO MARINE ZONING TO INCREASE THE RESILIENCE OF A MARINE PROTECTED AREA NETWORK IN RAJA AMPAT, WEST PAPUA, INDONESIA
Purwanto, *Coral Triangle/Indonesia, The Nature Conservancy*
- 4:30 p.m. INTEGRATED INDIGENOUS MANAGEMENT OF LAND AND MARINE PROTECTED AREAS IN TAIARAPU, TAHITI
Tokainuia Devatine, *Centre de Recherches Insulaires et Observatoire de l'Environnement (CRIOBE), French Polynesia*
- 4:30 p.m. PANEL DISCUSSION (Kaufmann Theater)
RESILIENCE IN THE SOLOMONS: COMMON THREADS, TRADE-OFFS, AND UNANTICIPATED OUTCOMES
Simon Albert, *University of Queensland, Australia*
Matthew Lauer, *San Diego State University, USA*
Senoveva Mauli, *Solomon Islands Program, The Nature Conservancy*
Patrick Pikacha, *Solomon Islands Community Conservation Partnership*
Christopher Filardi (moderator), *Center for Biodiversity and Conservation, American Museum of Natural History*
- 5:30 p.m. POSTER SESSION AND RECEPTION (Milstein Hall of Ocean Life)
- 8:00 a.m. BREAKFAST (Shell Corridor)
- 9:00 a.m. DAY ONE RECAP AND INTRODUCTION TO DAY TWO (Kaufmann Theater)
Eleanor J. Sterling, *Center for Biodiversity and Conservation, American Museum of Natural History*
Jenny Newell, *Pacific Ethnology, Division of Anthropology, American Museum of Natural History*
- 9:05 a.m. INVITED TALKS
Session Moderator: Christopher Filardi, *Center for Biodiversity and Conservation, American Museum of Natural History* (Kaufmann Theater)
- EVOLUTIONARY PROCESSES FOSTERING RESILIENCE ON ISLANDS
Scott V. Edwards, *Department of Organismic and Evolutionary Biology, Harvard University, USA*
- PRIORITISING CONSERVATION ACTIONS FOR ISLAND MARINE ECOSYSTEMS
Hugh Possingham, *School of Forestry and Environmental Studies, Yale University, USA and University of Queensland, Australia*
- 9:45 a.m. CASE STUDY PRESENTATIONS
Session Moderator: Susan Perkins, *Division of Invertebrate Zoology, American Museum of Natural History, USA* (Kaufmann Theater)
SPEYSIDE MARINE AREA COMMUNITY-BASED MANAGEMENT PROJECT - A CASE STUDY FOR SOCIO-ECOLOGICAL RESILIENCE IN TOBAGO (SOUTHERN CARIBBEAN)
Jahson Alemu, *Institute of Marine Affairs, Trinidad and Tobago*
- CLIMATE CHANGE ADAPTATION: LOCAL SOLUTIONS FOR A GLOBAL PROBLEM IN A POPULAR TOURISM DESTINATION
Derta Prabuning, *Reefcheck, Bali*

SYMPOSIUM AGENDA

- 2:00 p.m. INVITED TALK
Session Moderator: Dan Brumbaugh, *Center for Biodiversity and Conservation, American Museum of Natural History, USA* (Kaufmann Theater)
- FOSTERING MANAGER VOICES TO INFORM GLOBAL POLICY
Peter Kenilorea, *UN Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries, and Small Island Developing States*
- 2:15 p.m. PANEL DISCUSSION (Kaufmann Theater)
FUNDING FOR RESILIENCE: PERSPECTIVES FROM FUNDERS AND GRANTEES
Bernd Cordes, *Paul G. Allen Family Foundation, USA*
Sangeeta Mangubhai, *Indonesia Marine Program, The Nature Conservancy*
Jenny Myton, *Coral Reef Alliance, Honduras*
Kate Barnes, *MacArthur Foundation, USA*
Jeffrey Campbell (moderator), *The Christensen Fund, USA*
- 3:45 p.m. BREAK AND WORKING GROUPS (Northwest Coast Indians Hall)
- 5:30 p.m. PLENARY AND CLOSING REMARKS
Christopher Filardi, *Center for Biodiversity and Conservation, American Museum of Natural History*
- 6:00 p.m. ADJOURN
- 10:40 a.m. CORAL REEF RESILIENCE TO CLIMATE CHANGE IN SAIPAN, CNMI: FIELD BASED-ASSESSMENTS AND IMPLICATIONS FOR VULNERABILITY AND FUTURE MANAGEMENT
Steven Johnson, *Division of Environmental Quality in the Commonwealth of the Northern Mariana Islands*
- NOTES FROM A FLOATING ISLAND: LONG TERM EXPERIENCES OF CLIMATE CHANGE IN THE PACIFIC
Carlos Mondragon, *Center for African and Asian Studies, El Colegio de Mexico,*
- 10:40 a.m. BREAK (Northwest Coast Indians Hall)
- 11:10 a.m. CASE STUDY PRESENTATIONS
Session Moderator: Katherine Holmes, *Wildlife Conservation Society, USA* (Kaufmann Theater)
- ECOLOGICAL AND SOCIAL RESILIENCE IN ISLAND SYSTEMS: CASE STUDY OF LAKSHADWEEP
Vineeta Hoon, *Centre for Action Research on Environment Science and Society, India*
- COMMUNITY-BASED ADAPTATION IN THE PACIFIC ISLANDS
Megan Gombos, *Sea Change Consulting, LLC, USA*
- COMMUNITY-BASED PLANNING AND MOBILIZATION IN URBANIZED ATOLLS: THE RITA REIMAAANLOK CASE STUDY
Tina Stege, *MarTina Corporation, Marshall Islands*
- FOSTERING RESILIENCE IN CORAL REEF AND AGRICULTURAL SYSTEMS IN GUANICA, PR
Paul Sturm, *Ridge to Reefs, USA*
- THE EFFECTS OF NATURAL DISTURBANCES, REEF STATE, AND HERBIVOROUS FISH DENSITIES ON CIGUATERA POISONING IN RARATONGA, SOUTHERN COOK ISLANDS
Teina Rongo, *Climate Change - Cook Islands Division, Office of the Prime Minister*
- 12:30 p.m. LUNCH (PowerHouse)

GUIDE TO POSTERS

SIMPSON ABRAHAM

*FSM Pacific Adaptation to Climate Change (PACC),
Federated States of Micronesia*
Study on loss and damage on coastal housing as a result
of climate change in Kosrae

JORG ANSON

*Conservation Society of Pohnpei, Federated States of
Micronesia*
Coral reef resource management in Pohnpei, Micronesia

WENDY COVER

National Marine Sanctuary of American Samoa
Drivers of resilient coral-reef assemblages in Fagatele
Bay, American Samoa

NATALIE DAWSON

Wilderness Institute, University of Montana, USA
Introducing resilience: Pine marten (*Martes americana*)
on North Pacific islands

CHRISTOPHER DUNN

Lyon Arboretum, University of Hawaii, USA
Biocultural diversity in botanical garden conservation
strategies in island systems

ROD FUJITA

Environmental Defense Fund, USA
Step-by-step guide to provide management guidance for
data-limited fisheries

VICTOR GALVAN

*PUNTACANA Ecological Foundation, Dominican
Republic*
Active restoration of endangered *Acropora cervicornis* in
the Dominican Republic

JEAN-RAPHAEL GROS-DESORMEAUX

*Centre de Recherche sur les Pouvoirs Locaux dans la
Caraïbe, Université des Antilles et de la Guyane, French
West Indies*
The relationship between birds and fruit and vegetable
crops in Martinique

NICK HOLMES

Island Conservation, USA
Protecting biodiversity by removing invasive species
from islands

WHITNEY HOOT

*Island Research & Education Initiative, Palikir, Pohnpei,
Federated States of Micronesia*
The Abandonment of Sorol Atoll (Yap State, Federated
States of Micronesia)

PRICILA IRANAH

*Department of Earth and Environmental Science,
Montclair State University, USA*
Bridging gaps in biodiversity conservation policy and
action: case study of Mauritius

JOE McCARTER

*Department of Human Dimensions of Natural Resources,
Warner College of Natural Resources, Colorado State
University, USA*
Traditional ecological knowledge and resilience on
Malekula Island, Vanuatu

LUCIANO MINERBI

*Department of Urban and Regional Planning, University
of Hawaii, USA*
Sustainable ecosystem and disaster resilient practices in
an American Samoa village



DAVID NGUYEN

*Department of Urban Planning, University of Hawaii,
USA*
Resiliency in Miyakojima, Japan

EMILIE NOVACZEK

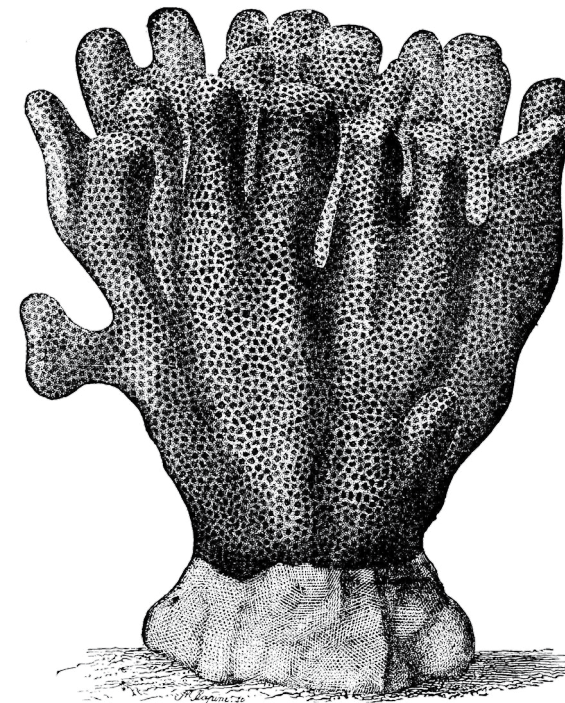
College of Sustainability, Dalhousie University, Canada
Is tourism an enemy to anemones? Examining the
impacts of tourism on coral reefs in San Andrés,
Colombia

IRENE NOVACZEK

*Institute of Island Studies, University of Prince Edward
Island, Canada*
Place attachment, community cohesion and resilience
on Prince Edward Island

VEIRA PULEKERA

*University of Queensland and Marovo Resource
Management Program, Australia*
"Hope" practice: traditional resource management
method in Zaira village



RANDI ROTJAN

New England Aquarium, USA
The Phoenix Islands - a reference site for global change,
resilience, and adaptation

STEPHANIE SABBAGH

*School of Marine and Atmospheric Sciences, University
of Belize*
Social factors challenging shark conservation outcomes
in Belize

VIJOY SAHAY

*Department of Anthropology, University of Allahabad,
India*
Himalayan blunders in Andaman and Nicobar
Archipelago

ROBERT SNYDER

Island Institute, Maine, USA
Islands of hope

GABRIEL THOUMI

Integra, LLC, USA
Use of financial risk analysis tools to empower island
communities

FRANCISCO VILELLA

United States Geological Survey
Sugarcane cultivation in the West Indies and wetland
biodiversity restoration

JOHN WAUGH

Integra, LLC, USA
Participatory mapping of climate risk - a case study from
the Cook Islands

KAME WESTERMAN

Blue Ventures, USA
Building resilience with integrated ecological and social
initiatives in Madagascar

TARA WILKINSON

McGill University, Canada
Marine reserves: beneficial for Barbadian fisher,
conservation and resilience?

CENTER FOR BIODIVERSITY AND CONSERVATION

In 1993, the American Museum of Natural History created the Center for Biodiversity and Conservation (CBC) to leverage its institutional expertise to mitigate threats to cultural and biological diversity. The CBC develops strategic partnerships to expand scientific knowledge about diverse species in critical ecosystems and to apply this knowledge to conservation; builds professional and institutional capacities for biodiversity conservation; and heightens public understanding and stewardship for biodiversity. Working both locally and around the world, the CBC develops model programs and tools that integrate research, education, and outreach so that people -- a key factor in the rapid loss of biodiversity -- will become participants in its conservation.

To learn more about the CBC, please visit our website: <http://cbc.amnh.org>.



SYMPOSIUM CONTENT COORDINATORS:

Eleanor J. Sterling, *Center for Biodiversity and Conservation, American Museum of Natural History*
Jenny Newell, *Pacific Ethnology, Department of Anthropology, American Museum of Natural History*
Felicity Arengo, *Center for Biodiversity and Conservation, American Museum of Natural History*

SYMPOSIUM CONTENT ADVISORS:

Petra MacGowan, *The Nature Conservancy*
Stephanie Wear, *The Nature Conservancy*
Susan Perkins, *American Museum of Natural History*
Christopher Filardi, *Center for Biodiversity and Conservation, American Museum of Natural History*
Stuart Sandin, *Scripps Institute of Oceanography, University of California San Diego*
Madhavi Colton, *Coral Reef Alliance (CORAL)*
Jason Vasques, *Coral Reef Alliance (CORAL)*
David Obura, *CORDIO*
Paul Marshall, *Great Barrier Reef Marine Park Authority (GBRMPA)*
Nadine Marshall, *Commonwealth and Industrial Research Organization (CSIRO)*
Jeff Campbell, *The Christensen Fund*
Kate Brown, *GLISPA*
Peter Kenilorea, *UN-OHRLS*
Caleb McClennen, *Wildlife Conservation Society*
Katherine Holmes, *Wildlife Conservation Society*
Stacy Jupiter, *Wildlife Conservation Society*
Georgina Cullman, *Center for Biodiversity and Conservation, American Museum of Natural History*
April Ridlon, *University of California Santa Barbara*
Laura Dee, *University of California Santa Barbara*
Dan Brumbaugh, *Center for Biodiversity and Conservation, American Museum of Natural History*

SYMPOSIUM LOGISTICS COORDINATOR:

Robin Cannito Gold

TECHNOLOGY COORDINATORS:

Tony Alexander
Ho-Ling Poon
Pete Ersts

REGISTRATION COORDINATOR:

Margaret Law

The Center for Biodiversity and Conservation thanks all of the volunteers who gave their time and energy to help with the symposium.