

ANNICK CROS

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US Citizen

RESEARCH INTERESTS

- Combining fieldwork, spatial analysis and genetics to explore the population structure of marine organisms and their responses to a changing environment.
- Seascape genetics, larval dispersal and connectivity.
- Applying innovative science to conservation of marine resources and sustainable fisheries.

ACADEMIC APPOINTMENTS

Postdoctoral Scholar **2017-present**
Woods Hole Institute of Oceanography
*Nearshore connectivity of rocky intertidal marine protected areas in Southern California: using the barnacle *Chthamalus fissus* as a model.*

Postdoctoral Researcher **2016 - 2017**
Hawaii Institute of Marine Biology, University of Hawaii
Variation in symbiodinium clades in Hawaiian corals before and after bleaching.

EDUCATION

PhD Zoology/Population Genetics **2011 - 2016**
Biology, Hawaii Institute of Marine Biology, University of Hawaii
Dissertation: *Connecting Palau's MPAs: a population genetic approach to marine conservation.*
Committee: Stephen Karl¹, Robert Toonen, Megan Donahue, Camilo Mora, Rodney Salm².

Master of Science (Thesis) **2001 - 2002**
Tropical Coastal Management (merit), University of Newcastle upon Tyne, England
Thesis: *The effect of predation and beach seining on coral transplants in 3 different areas of Mombasa, Kenya.*

Master of Science (non-thesis) **2000 - 2001**
Marine Biology (distinction), Paul Sabatier Université, Toulouse, France
Exchange programme (TASSEP) at McGill University, Montréal, Canada

Bachelor of Science Honors **1997 - 2000**
Biological Sciences: Biology of Organisms and Populations (merit), Paul Sabatier Université, Toulouse, France

¹ Advisor: Dr. Karl passed away in 2017

² External, The Nature Conservancy, retired in 2017

PEER-REVIEWED PUBLICATIONS

- **Cros, A.**, R.J. Toonen, M. J. Donahue, and S. A. Karl. In Prep. Genetic neighborhoods explain chaotic genetic patchiness of the table coral *Acropora hyacinthus*.
- **Cros, A.**, R.J. Toonen, M. J. Donahue, and S. A. Karl. 2017. Connecting Palau's marine protected areas: A population genetic approach to conservation. *Coral Reefs* 36: 735
- **Cros, A.**, R. J. Toonen, S. W. Davies, and S. A. Karl. 2016. Population genetic structure between Yap and Palau for the coral *Acropora hyacinthus*. *PeerJ*, 4, e2330.
- Venegas-Li R., **A. Cros**, A. White and C. Mora. 2016. Measuring conservation success with missing Marine Protected Area boundaries: A case study in the Coral Triangle. *Ecological Indicators*, 60: 119-124.
- **Cros, A.**, N. A. Fatan, A. White, S. J. Teoh, S. Tan, C. Handayani, et al. 2014. The Coral Triangle Atlas: An Integrated Online Spatial Database System for Improving Coral Reef Management. *Plos one*, 9, e96332.
- **Cros A.**, R. Venegas-Li, S. J. Teoh, N. Peterson, W. Wen and N. A. Fatan. 2014. Spatial Data Quality Control for the Coral Triangle Atlas, *Coastal Management*. 42: 128-142.
- White A., P. M. Aliño, **A. Cros**, N. A. Fatan, A. L. Green, S. J. Teoh, L. Laroya, N. Peterson, S. Tan, S. Tighe, R. Venegas-Li, A. Walton and W. Wen. 2014. Marine Protected Areas in the Coral Triangle: Progress, Issues, and Options, *Coastal Management*. 42: 87-106.
- Scopélitis J., S. Andréfouët, S. Phinn, L. Arroyo, M. Dalleau, **A. Cros** and P. Chabanet. 2010. The next step in shallow coral reef monitoring: Combining remote sensing and in situ approaches. *Mar. Poll. Bull.* 60: 1956-1968.
- **Cros A.**, T. McClanahan. 2003. Coral transplant damage under various management conditions in the Mombasa Marine National Park, Kenya. *Western Indian Ocean J. Mar. Sci.* 2: 127-136.

OTHER PUBLICATIONS

- Green, A., B. Raynor, **A. Cros**, L. Whitford, J. Almany, F. Lubis, 2010. Measuring Success of Marine Conservation in the Asia Pacific Region: Coral Triangle and Micronesia Challenge. A report by the Marine Program of the Asia Pacific Conservation Region, The Nature Conservancy. 1/10.
- McLeod E., R. Salm, K. Anthony, B. Causey, E. Conklin, **A. Cros**, R. Feely, J. Guinotte, G. Hofmann, J. Hoffman, P. Jokiel, J. Kleypas, P. Marshall, and C. Veron. 2008. The Honolulu Declaration on Ocean Acidification and Reef Management. The Nature Conservancy, U.S.A., and IUCN, Gland, Switzerland.
- Gabrié C., **A. Cros**, C. Chevillon and A. Downer (eds). 2005. Analyse écorégionale marine de Nouvelle-Calédonie. Atelier d'identification des aires de conservation prioritaires. IFRECOR Nouvelle-Calédonie, Nouméa.

PRESENTATIONS

- XIth International Larval Biology Symposium.** Honolulu, Hawaii. 2017
Genetic neighborhoods explain chaotic genetic patchiness of the table coral *Acropora hyacinthus*.
- 13th International Coral Reef Symposium.** Honolulu, Hawaii. 2016
High throughput microsatellite genotyping contradicts that *Acropora hyacinthus* was extirpated on Palau and recolonized from Yap. *Book of Abstracts*. p.73.

PRESENTATIONS - CONTINUED

9th IALE World Congress. Portland, Oregon 2015
Coral reef connectivity in Palau: A population genetics approach to coral reef management in warming seas.

12th International Coral Reef Symposium. Cairns, Queensland, Australia 2012
Marine resource management data gaps in the Coral Triangle. Book of Abstract. p.406.

Poster: Cros, A., S. Karl. 2016. Connecting Palau's MPAs. 27th International Congress for Conservation Biology. Montpellier, France.

TEACHING AND TRAINING EXPERIENCE

UNIVERSITY OF HAWAII, Hawaii

Graduate Assistant, Climate Science Workshop Institute Coordinator 2014 - 2016
Supervisor: Judy Lemus (jlemus@hawaii.edu)

- Designed and led workshops for high school teachers in the Pacific on climate science and climate change.
- Worked with the Department of Education to review the science curriculum and identify gaps in training for climate science.
- Completed three successful workshops in Hawaii (2014), Marshall Islands (2015) and American Samoa (2016).

Teaching Assistant 2012 - 2014

- Biology laboratory (BioL101) Characteristics of science, historical development of scientific concepts, and interaction of society with science illustrated by topics from biological science.
- Ecology and Evolutionary Biology laboratory (BioL265). Principles of ecology and evolution for life science majors stressing an integrated approach and recent advances.

GRANTS AND AWARDS

Postdoctoral scholar, Woods Hole Oceanographic Institute	\$99,500	2017 - 2018
The Research Corporation of the University of Hawaii Fellowship	\$5,500	2016 - 2017
PostI Fellowship, University of Hawaii	\$513	2016 - 2017
Adele Lewis Grant Fellowship, Graduate Women in Science	\$3,650	2015 - 2016
Founder Region Fellowship	\$10,000	2015 - 2016
Dai Ho Chun Scholarship, University of Hawaii	\$2,750	2015 - 2016
Disney Wildlife Foundation	\$24,600	2014 - 2015
Watson T. Yoshimoto Fellowship, University of Hawaii	\$4,300	2014 - 2015
Sigma Xi	\$500	2013 - 2014
University of Hawaii Arts and Science Scholarship	\$1,500	2013 - 2014
Disney Wildlife Foundation	\$24,400	2013 - 2014
NOAA International Coral Reef Conservation	\$39,500	2011 - 2014
USAID-USA	\$800,000	2009 - 2013

PROFESSIONAL EXPERIENCE (NON-ACADEMIC)

THE NATURE CONSERVANCY (TNC), Asia Pacific

Sept 2007 - Sept 2014

Marine Biologist, Marine Regional Science team for Asia Pacific

- Directed multi non-governmental teams in the creation of the Coral Triangle Atlas (<http://ctatlas.reefbase.org>) supporting 6 countries in the Coral Triangle Initiative by tracking progress towards conservation goals. Designed Coral Triangle Atlas as an effective management tool for use in spatial planning and conservation of marine resources.
- Led the revision of the Asia Pacific Marine Program strategic plan, facilitated meetings and coordinated the strategic plans of the five key branches: science, external affairs, philanthropy, communications and operations.
- Led field and regional teams as a Conservation Action Planner (CAP) coach, developing conservation strategies and management plans for marine protected areas.
- Developed underwater monitoring protocols including coral reef resilience monitoring methods and trained field staff. Provided guidance for data analysis and reporting.

USAID, Asia Pacific

Jan 2012 - Sept 2013

Consultant, developed indicators of success for the Coral Triangle Initiative

- Established and led groups of government representatives of the six countries of the Coral Triangle through the development of a monitoring and evaluation plan across 5 goals of the Coral Triangle Initiative, capturing the attention and unilateral endorsement of 6 countries in 2013.
- Created innovative solutions to data management for the Coral Triangle Initiative.

WILDLIFE CONSERVATION SOCIETY (WCS), New York

Jan 2006 - Dec 2007

Consultant, Glover's Reef Marine Research Station

Jan 2007 - Dec 2007

- Identified and recommended a new business plan for the station, increasing number of visiting researchers and profits.

Manager, Glover's Reef Marine Research Station

Jan 2006 - Jan 2007

- Oversaw station's research activities, field operations, managed staff of 10, ran logistics, budget and fundraising.
- Integrated Glover's Reef atoll into the Meso-American Atlantic and Gulf Rapid Assessment by leading and completing field surveys.
- Supervised construction of a classroom and wet laboratory, improving facility and attendance of educational groups and scientists.
- Developed field classes for local middle and high schools and increased visibility and use of station.

WORLD WILDLIFE FUND (WWF) FRANCE / CRISP, New Caledonia

Jan 2005 - Sept 2005

Consultant, Ecoregional Analysis of the lagoon of New Caledonia

- Published the Ecoregional Analysis of the lagoon of New Caledonia, supporting its ratification to the list of UNESCO's World Heritage Sites.
- Led data collection and analysis, collaborating with main coral reef agencies in the South Pacific and France.
- Coordinated Expert Workshop, creating Geographical Information System layers for spatial planning and decision making on the areas needing priority for conservation.

PROFESSIONAL EXPERIENCE (NON-ACADEMIC) - CONTINUED

INSTITUT DE RECHERCHE POUR LE DÉVELOPPEMENT (IRD), New Caledonia**Sept 2004 - Jan 2005****Marine Biologist / Remote Sensing**

- Led field survey team for ground-truthing Aore Reef using SCUBA.
- Co-published findings, mapping Aore Reef using high-resolution IKONOS and Quickbird images, including ground-truthing.

THE SOCIETY FOR ENVIRONMENTAL EXPLORATION, Madagascar**Jan 2003 - Jan 2004****Research Coordinator** for the Frontier-Madagascar Marine Research Program

- Oversaw the operations of the research station, including volunteers, international and local staff.
- Responsible for science training and research program, data analysis and report production.

OTHER QUALIFICATIONS

Certifications:

- Scientific Diver and Technical Diver (+500 dives), Diving CMAS 4 stars, PADI Rescue Diver
- Conservation Action Planning (CAP) coach
- GIS Technicien Diplôme: Services Géographiques (Toulouse, France)

Computer Skills:

- Programming Language: R, Python (basics)
- Remote Sensing: ENVI
- GIS: ArcGIS 10.2