Application Details

Research and Development Minigrants for 2017-2018: Application Review

Application Title: Exploring the Value of Traditional Ecological

Knowledge and Social Networks for Marine Resource Management in the Cook Islands.

Application ID: #000067

Review Deadline: Jan 27, 2017 11:59:00 PM

Primary Appointment Title: Assistant Professor of Anthropology

Proposal Summary:

Coastal communities in small islands nations such as the Cook Islands have traditionally relied on locally grown and obtained land and marine resources for nutritional security. However, there has been a recent shift from local to imported food, creating health problems, eroding traditional knowledge of ecological processes, and deteriorating the social networks that have been integral to securing food sources and promoting responsible natural resource use. To understand changes in social cohesion and reliance on local resources, this research will explore the importance of Traditional Ecological Knowledge (TEK) and Social Networks in marine resource management. Work will focus on three islands in the Cook Islands (Atiu, Mauke, and Manihiki) to (1) determine the extent of TEK as it pertains to changes in and current condition of land and marine resources, (2) study the changes in and current structure of social networks as it pertains to distribution of TEK, and (3) determine the importance of marine and terrestrial resources for economic and nutritional security. Understanding community reliance on local resources, shifts in social cohesion, and condition of their TEK is important as it reveals human-ecological feedback loops that determine social and environmental well-being.

Comments to the Administrator(s):

Please note: There is no Co-applicant. The application process required the uploading of a Co-applicant CV in order to allow for submission. I uploaded mine there as well.

Jaime Matera, Ph.D.

6019 Suellen Ct. • Goleta, CA 93117 jaime.matera@csuci.edu • 805-437-3363

Curriculum Vitae

EDUCATION

Ph.D., Anthropology, March 2013

UNIVERSITY OF CALIFORNIA, SANTA BARBARA (UCSB), Santa Barbara, CA

Dissertation: "The Role of Social Networks in Marine Conservation: A Case Study of Providencia and Santa Catalina, Colombia"

Master of Arts, Anthropology, 2006

UNIVERSITY OF CALIFORNIA, SANTA BARBARA (UCSB), Santa Barbara, CA

Master of Arts, Marine Affairs and Policy, 2000

UNIVERSITY OF MIAMI, ROSENSTIEL SCHOOL OF MARINE AND ATMOSPHERIC SCIENCE, Miami, FL

Bachelor of Arts, Business Administration, 1997

UNIVERSITY OF MIAMI, Miami, FL

AREAS OF INTEREST

Marine Anthropology, Artisanal / Subsistence Fisheries, Marine Protected Areas, Environmental Conservation, Political Ecology, Environmental Anthropology, Social Network Analysis, Sustainable Livelihoods, Climate Change, Latin America, Caribbean, Melanesia, Polynesia

PROFESSIONAL EXPERIENCE

CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

Assistant Professor, Anthropology Program (2016 - Present)

Responsible for all aspects of classroom instruction – curriculum development, grading and mentoring students.

Courses Taught: Cultural Anthropology (Fall 2016); Human Ecology (Fall 2016).

Lecturer, University Experience Program (2014 – 2015)

Responsible for all aspects of classroom instruction – curriculum development, grading and mentoring students.

Courses Taught: for courses entitled, and *Sustainability and Livelihoods (Fall 2014; Fall 2015)*.

Lecturer, Anthropology Program (2012 - 2016)

Responsible for all aspects of classroom instruction – curriculum development, grading and mentoring students.

Jaime Matera, Ph.D. — Page 2 of 7

Courses Taught: Qualitative Research Methods (Spring 2013; Spring 2014; Fall 2014; Fall 2015), Cultural Anthropology (Fall 2014; Spring 2015; Fall 2016), Human Ecology (Fall 2014; Fall 2015; Spring 2016; Fall 2016), Medical Anthropology (Fall 2012; Fall 2013; Spring 2015; Fall 2015), Values and Valuables (Spring 2014; Spring 2016); Peoples and Cultures of Latin America and the Caribbean (Fall 2013; Spring 2016)

UNIVERSITY OF CALIFORNIA SANTA BARBARA, Santa Barbara, CA

Lecturer, Department of Anthropology (2013)

Responsible for all aspects of classroom instruction – curriculum development, lecture, discussion, grading, and mentoring students.

Courses Taught: Ecological Anthropology (Summer 2013).

Teaching Associate, Department of Anthropology (2012)

Responsible for all aspects of classroom instruction – curriculum development, lecture, grading and advising students, and overseeing duties of course's teaching assistant.

Courses Taught: Introductory to Cultural Anthropology (Summer 2012), Ecological Anthropology (Spring 2012; Fall 2012), Peoples and Cultures of the Pacific (Spring 2012)

Teaching Assistant, Department of Anthropology

Responsible for grading, advising students, and classroom lectures.

Courses Taught: Peoples and Cultures of the Pacific (Spring 2010), Primate Behavior (Winter 2010), Third World Environments: Problems and Prospects (Spring 2007) Introductory to Cultural Anthropology (Fall 2006; Summer 2007)

Lead Teaching Assistant, Department of Anthropology (2007 - 2008)

Responsible for overseeing teaching assistants; taught, graded, and advised students at discussion sections.

Courses Taught: Introductory to Cultural Anthropology (Winter 2007; Winter 2008)

Teaching Assistant, Spanish & Portuguese Department (2005 - 2006)

Responsible for teaching, grading, and advising students. Teaching load consisted of four 50-minute classes per week.

Courses Taught: Spanish Level 2 and 4 (Winter 2005; Spring 2005; Fall 2005; Spring 2016).

COAST ALLIANCE, Washington, D.C. (2001-2003)

Outreach Coordinator

Coordinated key initiatives and communications to advance the goals of affiliated conservation organizations; represented Coast Alliance at conferences and meetings. Contributed to development of organizational strategic plan. Conducted research on

Jaime Matera, Ph.D.— Page 3 of 7

diverse environmental topics. Wrote / edited periodic newsletter. Collaborated with researchers to develop a report on sediment contamination and its effect on communities.

UNIVERSITY OF MIAMI, ROSENSTIEL SCHOOL OF MARINE AND ATHMOSPHERIC SCIENCE, Miami, FL (2000)

Research Assistant

Gained hands-on experience setting up and maintaining state-of-the-art aquaculture facility. Contributed to finfish spawning and rearing projects, including cage culture of high-value marine species.

NATIONAL MARINE FISHERIES SERVICES, Miami, FL (1999 – 2000)

Data Organizer, Fisheries Southeast Science Center

Organized, input, and analyzed biological observatory data for Venezuela's long-line fisheries.

AQUACULTURE CENTER OF THE FLORIDA KEYS, Grassy Key, FL (1999)

Intern

Assisted in running the Center's first full-scale commercial production of marine finfish, including facility set up and maintenance; conducted scientific research in spawning, larvae rearing and fingerling production of Mutton Snapper (*Lutjanus analis*).

RESEARCH ACCOMPLISHMENTS

Cook Islands (July - August 2014 and March 2015)

• Preliminary site assessment for long-term research. Examined social hierarchies and traditional political structures, human-environmental interaction with emphasis on marine ecosystem, and feasibility of an on-site field course for university students.

Ghana, Africa (February – March 2014)

Preliminary investigation entitled Joining the market economy: shifting livelihood strategies of rural communities in northern Ghana, Africa. Examined changes in livelihoods, cultural practices, and adaptation and diversification to secondary or new economic activities across four rural communities in the Upper East Region of Ghana, Africa.

Doctoral Dissertation research (April 2008 to July 2009), Providencia and Santa Catalina, Colombia

- Funded by the Wenner Gren Foundation, this research, entitled *The Role of Social Networks in Marine Conservation: A Case Study of Providencia, Colombia*, employed a political ecology perspective and social network analysis to investigate the relevance of using existing social networks found within fishing communities to enhance participation and representation in marine resource management, and to ensure successful programs that focus on both environmental and social benefits.
- Relied on a number of interviews with artisanal fishermen, government officials, and other stakeholders to identify social networks, collect socioeconomic data, and

Jaime Matera, Ph.D. — Page 4 of 7

investigate environmental governance systems. Used social network analysis to analyze the role that networks within fishing communities play in marine protected area governance, and evaluate their potential role in increasing community engagement to ensure successful resource management programs.

Pre-Doctoral preliminary research (July to August 2006; September to October 2007), Providencia, Colombia

 Executed two preliminary visits to Providencia and Santa Catalina, Colombia, to assess project feasibility and lay groundwork for doctoral dissertation research; met and interviewed local government authorities, academics, fishermen, and additional stakeholders.

Solomon Islands field research (June to July 2004; June to August 2005)

- As field researcher, attended village meetings and assisted in collecting social and biological data from established Marine Protection Areas in the Vonavona and Roviana Lagoons, Western Province,
- Conducted 148 interviews and social science surveys to assess outcome of recently established Marine Protected Areas (MPA) across eight villages in Vonavona and Roviana Lagoons, Western Province.

Aquaculture research in the Florida Keys (May 1999 to June 2000)

Research experience in spawning and larvae rearing marine finfish and building and running a state-of-the-art aquaculture facility. Specialized in marine finfish cage culture. Carried out the first successful full-scale production of Mutton Snapper, *Lutjanus analis*, in the United States. Worked under the supervision of Dr. Daniel Benetti, Professor, University of Miami. Research funded by the National Sea Grant College Program, with support from the National Oceanic and Atmospheric Administration (NOAA), Office of Sea Grant, Grant No.DOC /NOAA/ NSG NA 06 RG – 0068.

Offshore mariculture project (June 2000)

 Collaborated in researching and developing a project for offshore cage culture of marine finfish in Puerto Rico, including environmental and legal aspects. Worked under the supervision of Dr. Daniel Benetti, Professor, University of Miami.

Costa Rica field research (March 1999)

• Under the supervision of Dr. Susan Meltzoff, Professor, University of Miami, interviewed Costa Rican fishermen, residents, and government officials regarding policies associated with the creation of the Gandoca-Manzanillo National Wildlife Refuge and its effects on artisanal fishing communities as part of a course entitled Fieldwork on Coastal Cultures.

Little Salt Springs underwater archeological excavation project, North Port, FL (June 1997)

 Participated in an underwater excavation and classification of human and animal remains from prehistoric times, including textile fragments, hunting implements, and

Jaime Matera, Ph.D.— Page 5 of 7

animal remains dating back to the Late Paleoindian and Early Archaic. Research conducted under guidance of Dr. John Gifford, Professor, University of Miami.

PUBLICATIONS

- 1. Matera, Jaime (2016). Livelihood diversification and institutional (dis)trust: artisanal fishing communities under resource management programs in Providencia and Santa Catalina, Colombia. *Marine Policy* 67: 22-29
- 2. Lauer, M. and **J. Matera** (2016). Who detects change after catastrophic events? Assessing variation in indigenous ecological knowledge and the influence of social networks. *Human Ecology* On-line. 02 February 2016: 1-14. DOI 10.1007/s10745-016-9811-3J.
- 3. Aswani, S., G.G. Gurney, S. Mulville, **J. Matera**, and M. Gurven (2013). Insights from Experimental Economics on Local Cooperation in Small-Scale Fisheries Management. *Global Environmental Change* 23(6): 1402-1409.
- 4. Benetti, D., **Matera, J.**, Stevens, O., Alarcón, J., Feeley, M., Rotman, F., Minemoto, Y., Banner-Stevens, G., Fanke, J., Zimmerman, S., and Eldridge, L. (2002). Growth, survival and feed conversion rates of hatchery-reared Mutton Snapper *Lutjanus analis* cultured in floating net cages. *Journal of the World Aquaculture Society* 33(3): 349-357.
- 5. Benetti, D., Feeley, M., Stevens, O., Fanke, J., Alarcón, J., **Matera, J.**, Banner-Stevens, G., Kelly, C., Briggs, B., Leslie, P., and Eldridge, L. (2000). Design and implementation of a commercial hatchery for the production of mutton snapper, *Lutjanus analis*, and other marine fish in the Florida Keys. Aquaculture America 2000, World Aquaculture Society, New Orleans, LA: p. 20.
- 6. Feeley, M., Benetti, D., Stevens, O., Fanke, J., Alarcón, J., **Matera, J.**, Banner-Stevens, G., and Eldridge, L. (2000). Spawning, larval rearing and fingerling production of mutton snapper, *Lutjanus analis*. Aquaculture America 2000, World Aquaculture Society, New Orleans, LA: p.108.

Publications in Progress:

- 1. Matera, Jaime (2017). Deploying social networks for environmental and social conservation.
- 2. Matera, Jaime (2017). Measuring socio-economic indicators to examine fisher's decision to support marine conservation programs.

PROFESSIONAL PRESENTATIONS

Environmental Science and Resource Management Program - California State University Channel Islands. Invited seminar speaker. Presentation title: *Livelihoods, social networks, and perceptions of marine conservation in small-scale fisheries* (April 23, 2015).

Jaime Matera, Ph.D. — Page 6 of 7

International Symposium on Society and Resource Management. Presentation title: Networking for Conservation: The Role of Social Networks in Marine Conservation. Estes, CO. June 2013

American Anthropological Association. Presentation Title: The Role of Social Networks in Marine Resource Management: Social Influence and a Fisher's Decision to Cooperate. Chicago, IL. November 2013

UNIVERSITY SERVICE - CSUCI

Minigrant Review Committee (2015-2016) Sustainability Task Force (2015-2016) Faculty Search Committee - Chicano/a Studies Program (2016)

COMMUNITY VOLUNTEER AND SERVICE ACTIVITIES

Scientific Advisor, PASO PACIFICO's "The Smiling Oyster Project", Santa Barbara, CA (July 2014 – present)

Provide assistance to staff at Paso Pacifico, an environmental organization based in Southern California, in the formulation of a project that will enable women fishers in Ostional, Nicaragua, to achieve sustainable economic development and ensure food security by supporting the creation of an Oyster cooperative.

Volunteer, CHANNEL ISLANDS NATURALIST CORPS, Santa Barbara, CA (January to December 2004).

Provide educational outreach to the community regarding the cultural and biological wealth found within the national park and marine sanctuary and served as a guide for whale watching expeditions while gaining invaluable training in marine science, oceanography, geology, and the cultural history of the Santa Barbara Channel.

Peer Reviewer

International Journal of Marine Biology and Research

AWARDS, GRANTS, AND FELLOWSHIPS

California State University Channel Islands, Mini-Grant, for project entitled *Joining the market economy: shifting livelihood strategies of rural communities in northern Ghana, Africa* (Spring 2014) [\$3,000]

California State University Channel Island, Instructional Related Activities Award Spring 2014 [\$2,808]; Fall 2016 [\$5,322]; Spring 2017 [\$3,576]

Velez Fellowship (Fall 2006, Winter 2007, Spring 2010, Fall 2010, Winter 2011)

Graduate University Student Aid Program Fellowship (USAP) (Fall 2006, Fall 2007, Winter 2007, Fall 2008, Fall 2009, Spring 2011, Winter 2012, Spring 2012)

Spaulding/Service Fellowship Award, Graduate Division, UCSB (2008) [\$3,000]

Jaime Matera, Ph.D.— Page 7 of 7

Wenner Gren Foundation Dissertation Fieldwork Grant, for research entitled "Determining the Role of Social Networks in Marine Conservation: A Case Study of Providencia, Colombia" (2007) [\$24,990]

Pre-dissertation Site Visit Grant, Department of Anthropology, UCSB (2007) [\$1,700] Pre-dissertation Site Visit Grant, Department of Anthropology, UCSB (2006) [\$1,000] Graduate Block Grant Fellowship (Spring 2005)

Fellowship Regents Intern (Winter 2005)

LANGUAGES

English, Spanish

PROFESSIONAL ASSOCIATIONS

American Anthropological Association Society for Latin American and Caribbean Anthropology Society for Cultural Anthropology Society for Applied Anthropology

Jaime Matera, Ph.D.

6019 Suellen Ct. • Goleta, CA 93117 jaime.matera@csuci.edu • 805-437-3363

Curriculum Vitae

EDUCATION

Ph.D., Anthropology, March 2013

UNIVERSITY OF CALIFORNIA, SANTA BARBARA (UCSB), Santa Barbara, CA

Dissertation: "The Role of Social Networks in Marine Conservation: A Case Study of Providencia and Santa Catalina, Colombia"

Master of Arts, Anthropology, 2006

UNIVERSITY OF CALIFORNIA, SANTA BARBARA (UCSB), Santa Barbara, CA

Master of Arts, Marine Affairs and Policy, 2000

UNIVERSITY OF MIAMI, ROSENSTIEL SCHOOL OF MARINE AND ATMOSPHERIC SCIENCE, Miami, FL.

Bachelor of Arts, Business Administration, 1997

UNIVERSITY OF MIAMI, Miami, FL

AREAS OF INTEREST

Marine Anthropology, Artisanal / Subsistence Fisheries, Marine Protected Areas, Environmental Conservation, Political Ecology, Environmental Anthropology, Social Network Analysis, Sustainable Livelihoods, Climate Change, Latin America, Caribbean, Melanesia, Polynesia

PROFESSIONAL EXPERIENCE

CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

Assistant Professor, Anthropology Program (2016 - Present)

Responsible for all aspects of classroom instruction – curriculum development, grading and mentoring students.

Courses Taught: Cultural Anthropology (Fall 2016); Human Ecology (Fall 2016).

Lecturer, University Experience Program (2014 – 2015)

Responsible for all aspects of classroom instruction – curriculum development, grading and mentoring students.

Courses Taught: for courses entitled, and *Sustainability and Livelihoods (Fall 2014; Fall 2015)*.

Lecturer, Anthropology Program (2012 - 2016)

Responsible for all aspects of classroom instruction – curriculum development, grading and mentoring students.

Jaime Matera, Ph.D. — Page 2 of 7

Courses Taught: Qualitative Research Methods (Spring 2013; Spring 2014; Fall 2014; Fall 2015), Cultural Anthropology (Fall 2014; Spring 2015; Fall 2016), Human Ecology (Fall 2014; Fall 2015; Spring 2016; Fall 2016), Medical Anthropology (Fall 2012; Fall 2013; Spring 2015; Fall 2015), Values and Valuables (Spring 2014; Spring 2016); Peoples and Cultures of Latin America and the Caribbean (Fall 2013; Spring 2016)

UNIVERSITY OF CALIFORNIA SANTA BARBARA, Santa Barbara, CA

Lecturer, Department of Anthropology (2013)

Responsible for all aspects of classroom instruction – curriculum development, lecture, discussion, grading, and mentoring students.

Courses Taught: Ecological Anthropology (Summer 2013).

Teaching Associate, Department of Anthropology (2012)

Responsible for all aspects of classroom instruction – curriculum development, lecture, grading and advising students, and overseeing duties of course's teaching assistant.

Courses Taught: Introductory to Cultural Anthropology (Summer 2012), Ecological Anthropology (Spring 2012; Fall 2012), Peoples and Cultures of the Pacific (Spring 2012)

Teaching Assistant, Department of Anthropology

Responsible for grading, advising students, and classroom lectures.

Courses Taught: Peoples and Cultures of the Pacific (Spring 2010), Primate Behavior (Winter 2010), Third World Environments: Problems and Prospects (Spring 2007) Introductory to Cultural Anthropology (Fall 2006; Summer 2007)

Lead Teaching Assistant, Department of Anthropology (2007 - 2008)

Responsible for overseeing teaching assistants; taught, graded, and advised students at discussion sections.

Courses Taught: Introductory to Cultural Anthropology (Winter 2007; Winter 2008)

Teaching Assistant, Spanish & Portuguese Department (2005 - 2006)

Responsible for teaching, grading, and advising students. Teaching load consisted of four 50-minute classes per week.

Courses Taught: Spanish Level 2 and 4 (Winter 2005; Spring 2005; Fall 2005; Spring 2016).

COAST ALLIANCE, Washington, D.C. (2001-2003)

Outreach Coordinator

Coordinated key initiatives and communications to advance the goals of affiliated conservation organizations; represented Coast Alliance at conferences and meetings. Contributed to development of organizational strategic plan. Conducted research on

Jaime Matera, Ph.D.— Page 3 of 7

diverse environmental topics. Wrote / edited periodic newsletter. Collaborated with researchers to develop a report on sediment contamination and its effect on communities.

UNIVERSITY OF MIAMI, ROSENSTIEL SCHOOL OF MARINE AND ATHMOSPHERIC SCIENCE, Miami, FL (2000)

Research Assistant

Gained hands-on experience setting up and maintaining state-of-the-art aquaculture facility. Contributed to finfish spawning and rearing projects, including cage culture of high-value marine species.

NATIONAL MARINE FISHERIES SERVICES, Miami, FL (1999 – 2000)

Data Organizer, Fisheries Southeast Science Center

Organized, input, and analyzed biological observatory data for Venezuela's long-line fisheries.

AQUACULTURE CENTER OF THE FLORIDA KEYS, Grassy Key, FL (1999)

Intern

Assisted in running the Center's first full-scale commercial production of marine finfish, including facility set up and maintenance; conducted scientific research in spawning, larvae rearing and fingerling production of Mutton Snapper (*Lutjanus analis*).

RESEARCH ACCOMPLISHMENTS

Cook Islands (July - August 2014 and March 2015)

• Preliminary site assessment for long-term research. Examined social hierarchies and traditional political structures, human-environmental interaction with emphasis on marine ecosystem, and feasibility of an on-site field course for university students.

Ghana, Africa (February – March 2014)

 Preliminary investigation entitled Joining the market economy: shifting livelihood strategies of rural communities in northern Ghana, Africa. Examined changes in livelihoods, cultural practices, and adaptation and diversification to secondary or new economic activities across four rural communities in the Upper East Region of Ghana, Africa.

Doctoral Dissertation research (April 2008 to July 2009), Providencia and Santa Catalina, Colombia

- Funded by the Wenner Gren Foundation, this research, entitled *The Role of Social Networks in Marine Conservation: A Case Study of Providencia, Colombia*, employed a political ecology perspective and social network analysis to investigate the relevance of using existing social networks found within fishing communities to enhance participation and representation in marine resource management, and to ensure successful programs that focus on both environmental and social benefits.
- Relied on a number of interviews with artisanal fishermen, government officials, and other stakeholders to identify social networks, collect socioeconomic data, and

Jaime Matera, Ph.D. — Page 4 of 7

investigate environmental governance systems. Used social network analysis to analyze the role that networks within fishing communities play in marine protected area governance, and evaluate their potential role in increasing community engagement to ensure successful resource management programs.

Pre-Doctoral preliminary research (July to August 2006; September to October 2007), Providencia, Colombia

 Executed two preliminary visits to Providencia and Santa Catalina, Colombia, to assess project feasibility and lay groundwork for doctoral dissertation research; met and interviewed local government authorities, academics, fishermen, and additional stakeholders.

Solomon Islands field research (June to July 2004; June to August 2005)

- As field researcher, attended village meetings and assisted in collecting social and biological data from established Marine Protection Areas in the Vonavona and Roviana Lagoons, Western Province,
- Conducted 148 interviews and social science surveys to assess outcome of recently established Marine Protected Areas (MPA) across eight villages in Vonavona and Roviana Lagoons, Western Province.

Aquaculture research in the Florida Keys (May 1999 to June 2000)

Research experience in spawning and larvae rearing marine finfish and building and running a state-of-the-art aquaculture facility. Specialized in marine finfish cage culture. Carried out the first successful full-scale production of Mutton Snapper, *Lutjanus analis*, in the United States. Worked under the supervision of Dr. Daniel Benetti, Professor, University of Miami. Research funded by the National Sea Grant College Program, with support from the National Oceanic and Atmospheric Administration (NOAA), Office of Sea Grant, Grant No.DOC /NOAA/ NSG NA 06 RG – 0068.

Offshore mariculture project (June 2000)

 Collaborated in researching and developing a project for offshore cage culture of marine finfish in Puerto Rico, including environmental and legal aspects. Worked under the supervision of Dr. Daniel Benetti, Professor, University of Miami.

Costa Rica field research (March 1999)

• Under the supervision of Dr. Susan Meltzoff, Professor, University of Miami, interviewed Costa Rican fishermen, residents, and government officials regarding policies associated with the creation of the Gandoca-Manzanillo National Wildlife Refuge and its effects on artisanal fishing communities as part of a course entitled Fieldwork on Coastal Cultures.

Little Salt Springs underwater archeological excavation project, North Port, FL (June 1997)

 Participated in an underwater excavation and classification of human and animal remains from prehistoric times, including textile fragments, hunting implements, and

Jaime Matera, Ph.D.— Page 5 of 7

animal remains dating back to the Late Paleoindian and Early Archaic. Research conducted under guidance of Dr. John Gifford, Professor, University of Miami.

PUBLICATIONS

- 1. Matera, Jaime (2016). Livelihood diversification and institutional (dis)trust: artisanal fishing communities under resource management programs in Providencia and Santa Catalina, Colombia. *Marine Policy* 67: 22-29
- Lauer, M. and J. Matera (2016). Who detects change after catastrophic events?
 Assessing variation in indigenous ecological knowledge and the influence of social networks. *Human Ecology* On-line. 02 February 2016: 1-14. DOI 10.1007/s10745-016-9811-3J.
- 3. Aswani, S., G.G. Gurney, S. Mulville, **J. Matera**, and M. Gurven (2013). Insights from Experimental Economics on Local Cooperation in Small-Scale Fisheries Management. *Global Environmental Change* 23(6): 1402-1409.
- 4. Benetti, D., **Matera, J.**, Stevens, O., Alarcón, J., Feeley, M., Rotman, F., Minemoto, Y., Banner-Stevens, G., Fanke, J., Zimmerman, S., and Eldridge, L. (2002). Growth, survival and feed conversion rates of hatchery-reared Mutton Snapper *Lutjanus analis* cultured in floating net cages. *Journal of the World Aquaculture Society* 33(3): 349-357.
- 5. Benetti, D., Feeley, M., Stevens, O., Fanke, J., Alarcón, J., **Matera, J.**, Banner-Stevens, G., Kelly, C., Briggs, B., Leslie, P., and Eldridge, L. (2000). Design and implementation of a commercial hatchery for the production of mutton snapper, *Lutjanus analis*, and other marine fish in the Florida Keys. Aquaculture America 2000, World Aquaculture Society, New Orleans, LA: p. 20.
- 6. Feeley, M., Benetti, D., Stevens, O., Fanke, J., Alarcón, J., **Matera, J.**, Banner-Stevens, G., and Eldridge, L. (2000). Spawning, larval rearing and fingerling production of mutton snapper, *Lutjanus analis*. Aquaculture America 2000, World Aquaculture Society, New Orleans, LA: p.108.

Publications in Progress:

- 1. Matera, Jaime (2017). Deploying social networks for environmental and social conservation.
- 2. Matera, Jaime (2017). Measuring socio-economic indicators to examine fisher's decision to support marine conservation programs.

PROFESSIONAL PRESENTATIONS

Environmental Science and Resource Management Program - California State University Channel Islands. Invited seminar speaker. Presentation title: *Livelihoods, social networks, and perceptions of marine conservation in small-scale fisheries* (April 23, 2015).

Jaime Matera, Ph.D. — Page 6 of 7

International Symposium on Society and Resource Management. Presentation title: Networking for Conservation: The Role of Social Networks in Marine Conservation. Estes, CO. June 2013

American Anthropological Association. Presentation Title: The Role of Social Networks in Marine Resource Management: Social Influence and a Fisher's Decision to Cooperate. Chicago, IL. November 2013

UNIVERSITY SERVICE - CSUCI

Minigrant Review Committee (2015-2016) Sustainability Task Force (2015-2016) Faculty Search Committee - Chicano/a Studies Program (2016)

COMMUNITY VOLUNTEER AND SERVICE ACTIVITIES

Scientific Advisor, PASO PACIFICO's "The Smiling Oyster Project", Santa Barbara, CA (July 2014 – present)

Provide assistance to staff at Paso Pacifico, an environmental organization based in Southern California, in the formulation of a project that will enable women fishers in Ostional, Nicaragua, to achieve sustainable economic development and ensure food security by supporting the creation of an Oyster cooperative.

Volunteer, CHANNEL ISLANDS NATURALIST CORPS, Santa Barbara, CA (January to December 2004).

Provide educational outreach to the community regarding the cultural and biological wealth found within the national park and marine sanctuary and served as a guide for whale watching expeditions while gaining invaluable training in marine science, oceanography, geology, and the cultural history of the Santa Barbara Channel.

Peer Reviewer

International Journal of Marine Biology and Research

AWARDS, GRANTS, AND FELLOWSHIPS

California State University Channel Islands, Mini-Grant, for project entitled *Joining the market economy: shifting livelihood strategies of rural communities in northern Ghana, Africa* (Spring 2014) [\$3,000]

California State University Channel Island, Instructional Related Activities Award Spring 2014 [\$2,808]; Fall 2016 [\$5,322]; Spring 2017 [\$3,576]

Velez Fellowship (Fall 2006, Winter 2007, Spring 2010, Fall 2010, Winter 2011)

Graduate University Student Aid Program Fellowship (USAP) (Fall 2006, Fall 2007, Winter 2007, Fall 2008, Fall 2009, Spring 2011, Winter 2012, Spring 2012)

Spaulding/Service Fellowship Award, Graduate Division, UCSB (2008) [\$3,000]

Jaime Matera, Ph.D.— Page 7 of 7

Wenner Gren Foundation Dissertation Fieldwork Grant, for research entitled "Determining the Role of Social Networks in Marine Conservation: A Case Study of Providencia, Colombia" (2007) [\$24,990]

Pre-dissertation Site Visit Grant, Department of Anthropology, UCSB (2007) [\$1,700] Pre-dissertation Site Visit Grant, Department of Anthropology, UCSB (2006) [\$1,000] Graduate Block Grant Fellowship (Spring 2005)

Fellowship Regents Intern (Winter 2005)

LANGUAGES

English, Spanish

PROFESSIONAL ASSOCIATIONS

American Anthropological Association Society for Latin American and Caribbean Anthropology Society for Cultural Anthropology Society for Applied Anthropology Exploring the Value of Traditional Ecological Knowledge and Social Networks for Marine Resource Management in the Cook Islands.

Jaime Matera, PhD Anthropology Program CSU Channel Islands

Proposal Summary:

Coastal communities in small islands nations such as the Cook Islands have traditionally relied on locally grown and obtained land and marine resources for nutritional security. However, there has been a recent shift from local to imported food, creating health problems, eroding traditional knowledge of ecological processes, and deteriorating the social networks that have been integral to securing food sources and promoting responsible natural resource use. To understand changes in social cohesion and reliance on local resources, this research will explore the importance of Traditional Ecological Knowledge (TEK) and Social Networks in marine resource management. Work will focus on three islands in the Cook Islands (Atiu, Mauke, and Manihiki) to (1) determine the extent of TEK as it pertains to changes in and current condition of land and marine resources, (2) study the changes in and current structure of social networks as it pertains to distribution of TEK, and (3) determine the importance of marine and terrestrial resources for economic and nutritional security. Understanding community reliance on local resources, shifts in social cohesion, and condition of their TEK is important as it reveals human-ecological feedback loops that determine social and environmental well-being.

Project Goals and Outcomes:

The main goal of this research is to identify the importance of traditional ecological knowledge (TEK) and social networks for marine conservation programs. Traditional Ecological Knowledge, the accumulation of knowledge, practice, and belief about the interaction of living organisms and the environment that has been handed down through the generations (Berkes et al. 2000), is part and parcel of many small scale communities that have rely on land and marine resources for food, medicine, and spiritual value. The erosion of TEK is generally a byproduct of increased contact with western societies (i.e., globalization), and access to previously absent technologies (e.g., GPS, chainsaws, etc.) and goods (e.g., processed foods, sugar, etc.), changing important cultural elements and placing communities in socially vulnerable situations by weakening social networks, the social ties that link people, institutions, or communities around common issues (Trotter 1999). These ties are instrumental channels of information flow within and between communities, including exchanges of TEK. In addition, understanding networks can reveal hierarchical structures among members of the community, the presence of cooperative work, and key individuals that may play particularly important roles in society.

Three islands of the Cook Islands have been chosen to undertake this work on TEK and social networks, Atiu, Mauke, and Manihiki, because of their contrasting human population density, geography, and distance from high-density urban areas. This project will do the following in each of the islands: (1) determine the extent of TEK as it pertains to changes in and current

condition of land and marine resources, (2) study the changes in and current structure of social networks as it pertains to distribution of TEK, and (3) determine the importance of marine and terrestrial resources for economic and nutritional security.

Data collected from this proposed research will supplement data collected during a preliminary site visit to Aitutaki, Cook Islands, in 2015 and findings will be used to support a grant resubmission to the National Science Foundation's Coupled Human and Natural Systems Program due November 2017. That proposed project includes faculty of CSU Channel Islands and CSU Northridge, increasing the interdisciplinary and intercampus participation that promotes scholarship and brings students into research.

Significance of Research:

There is a dearth of social and natural science research in the Cook Island and what information does exist focuses largely on historical settlement of the islands. This research focuses on present day social structures and changing TEK, and their effects on marine resource management. This information is vital especially at a time where the effects of climate change, including reduced fisheries, coral reef mortality, ocean acidification, and sea level rise, are predominantly experienced by small island developing nations (Cinner et al. 2011).

Marine resources have traditionally accounted for a significant share of nutritional and economic security in small island nations such as the Cook Islands. However, there has been a recent shift from locally grown and caught food stuff to imported highly-processed foods, causing a significant rise in obesity and associated health problems, including cardiovascular disease and Type 2 diabetes (Evans et al. 2001; Hughes and Lawrence 2005). Importantly, this trend has had the additional undesirable consequence of eroding TEK, including that which pertains to seasonal fluctuations of fisheries and agriculture, and important locations for fishing and planting. In addition, communities have customarily relied on social networks to undertake fishing and farming, which are also eroding with the shift from local to imported food.

This project will produce knowledge of social and ecological changes, and provide local communities with a way to understand and utilize existing social relationships to cope with, and adapt to, changing ecologies. Analyzing how communities are socially organized through the identification of social networks can help develop ways to build social resilience. Moreover, demographic transitions, economic development pressure, and unsustainable resource exploitation are increasingly threatening the ecological and social stability, and understanding people's reliance on local resources will reveal the importance of the human-ecological feedback loop that determine social and environmental well-being.

Research Plan and Methodology:

IRB approval will be obtained prior to commencing fieldwork. Fieldwork for the proposed project will be conducted for 28 days in July and August 2017 in the islands of Atiu, Mauke, and Manihiki, Cook Islands. Seven days of research will be conducted in each of the islands, and 6-7 days are allocated for travel time and literature research in the capital.

This research aims to (1) determine the extent of TEK as it pertains to changes in and current condition of land and marine resources, (2) study the changes in and current structure of social networks as it pertains to distribution of TEK, and (3) determine the importance that marine and terrestrial resources for economic and nutritional security. To do so, this research will be divided into three major research components, all of which will be undertaken in each of the three islands:

- 1. Employ <u>semi-structured interviews</u> with traditional fishermen and farmers to determine the current status and function of traditional ecological knowledge, understand the extent of fishing and land cultivation as a source of economic and nutritional security, and discern the impact that changes in ecosystem functions may have on human communities. In addition, <u>life history interviews</u> will be conducted with traditional local authorities (chiefs) and elders of the communities to understand historical changes in local ecologies, with special focus on the last 50 years.
- 2. Collect social network information using <u>structured interviews</u> to create a social map of the islands' community members and identify socially important individuals that may be critical in the transference of TEK.
- 3. Conduct a <u>social mapping exercise</u> that consists of asking community members to identify important fishing and farming locations with the use of a high-resolution satellite image. A subsample of identified locations will be ground-truthed using GPS. This exercise will provide information on an individual's TEK about critical habitats that provide nutritional and economic security for the community.

Data collected will be analyzed using the following methods:

- 1. Interviews will be coded and analyzed to identify central themes and patterns. In addition, quantifiable information such as employment type, income, and age will be statistically analyzed to determine variables that may influence social structures and information flow.
- 2. Social network data will be analyzed using the social network analysis software UCINET 6 and Netdraw for network visualization (Borgatti et al. 2002). These programs will allow for a visual representation of local networks, and a quantification of attributes such as the importance of network participants and measures of flow of TEK.
- 3. Social mapping information will be transferred from physical to digital format to give approximate location of important land and marine ecosystems.

Dissemination of findings:

Results from this research will be presented at appropriate conferences, including the annual conferences of American Anthropological Association, the Society for Applied Anthropology, and the International Symposium on Society and Resource Management. In addition to presentations at conferences, I will submit articles for publication in relevant academic journals such as Cultural Anthropology, Human Organization, Social Networks, and Current Anthropology. I will also present the results of this research at CI through interdisciplinary presentations (e.g. ESRM, Anthropology, Nursing).

Project Assessment:

This project will be successful if the following are accomplished:

- Semi-structured interviews focused on TEK and social networks
- Life history interviews with community elders and traditional leaders.
- Identification and social mapping of important land and marine resources
- Acceptance of conference presentations and publications

References:

Allen, Melinda S., and Rod Wallace (2007). "New evidence from the East Polynesian gateway: Substantive and methodological results from Aitutaki, southern Cook Islands." *Radiocarbon* 49(3): 1163-1179.

Borgatti, S.P., Everett, M.G. and Freeman, L.C. (2002). *Ucinet for Windows: Software for Social Network Analysis*. Harvard, MA: Analytic Technologies.

Cinner, J. E., McClanahan, T. R., Graham, N. A. J., Daw, T. M., Maina, J., Stead, S. M., ... & Bodin, Ö. (2012). Vulnerability of coastal communities to key impacts of climate change on coral reef fisheries. *Global Environmental Change*, 22(1), 12-20.

Evans, Mike, Robert C. Sinclair, Caroline Fusimalohi, and Viliami Liava'a (2001). "Globalization, diet, and health: an example from Tonga." *Bulletin of the World Health Organization* 79(9): 856-862.

Hughes, Robert G., and Mark A. Lawrence (2005). "Globalization, food and health in Pacific Island countries." *Asia Pacific journal of clinical nutrition* 14: 298-306.

Trotter, Robert T. (1999). Friends, Relatives, and Relevant Others: Conducting Ethnigraphic Network Studies. *In* Mapping Social Networks, Spatial Data, and Hidden Populations. Schensul, Jean J., Margaret D. LeCompte, Robert T. Trotter II, Ellen K. Cromley, Merrill Singer, eds. Pp. 1-50. Walnut Creek, CA: Altamira Press.

J. Matera: TEK and SN in the Cook Islands

Budget:

TRAVEL & INFIELD EXPENSES	
a. Airfare LAX - Rarotonga	1,611.00
b. Ground transportation @\$30/day x 5	150.00
c. Per diem @ \$30/day x 28 days	840.00
d. Airfare Rarotonga – Aitiu	297.00
e. Airfare Rarotonga – Mauke	415.00
f. Airfare Rarotonga – Manihiki	2,195.00
g. Boat transportation @ \$125/day x 3 days	375.00
h. Lodging x 28 days @\$70	1,960.00
i. Summer salary	1,000
Total Funds Requested	\$8,843.00

Budget justification:

- a., d. Travel cost for one round-trip ticket from LAX to Rarotonga, Cook Islands.
- b. Transportation expenses include public transportation and the rental of a small car/scooter.
- c. A per diem will cover basic food expenses estimated at \$30/day for 30 days.
- d f. Air travel cost to outer islands (Aitiu, Mauke, and Manihiki).
- g. Boat transportation used for ground-truthing of social mapping exercise. One trip per island.
- h. Average lodging expenses for travel estimated at \$70/day for 30 days.

Research and Development Minigrants for 2017-2018: Review Form

Routing Step: Initial Committee Review

Application Title: Exploring the Value of Traditional Ecological

Knowledge and Social Networks for Marine Resource Management in the Cook Islands.

Application ID: #000067

Review Deadline: Jan 27, 2017 11:59:00 PM

*Project Goals and Outcomes:

The proposal sets clear goals and outcomes for the project, and it explains the steps that will be taken to realize project goals.

Rating Scale 1 (1 weakest to 11 strongest):

--

*Research Plan and Methodology:

The proposal conveys a complete and well thought-out plan for the project that describes the activities of all individuals involved in the project. If support is requested for student research assistance, the proposal must also include a description of their role in the project and how the faculty

Rating Scale 2 (1 weakest to 11 strongest):

--

*Professional Development Benefits for the Faculty:

The proposed makes clear how the project will advance each individual applicant's or research, scholarship, creative activity, or innovation in teaching. The proposal discusses whether the applicant(s) intend to pursue external funding and identifies those external funding opportunities.

Rating Scale 3 (1 weakest to 11 strongest):

--

*Project Benefits:

To what extent does the proposed qualify for special consideration (e.g., applicant is probationary, applicant has not had minigrant funding in the past, applicant has been especially successful in the use of past minigrant funding, project scope is particularly ambitious but realizable).

--

Rating Scale 4 (1 weakest to 11 strongest):

--

*Dissemination Plans:

The level and type of dissemination is appropriate for the project, its goals, and its outcomes.

--

Rating Scale 5 (1 weakest to 11 strongest):

--

*Project Timeline:

The project goals and objectives are attainable within the timeline of the proposal.

--

Rating Scale 6 (1 weakest to 11 strongest):

--

*Project Assessment:

The proposal describes how the product(s) of the project will be assessed and evaluated to determine the degree of success achieved.

--

Rating Scale 7 (1 weakest to 11 strongest):

--

*Project Budget:

The proposed budget is reasonable in the context of the project description, and the project costs are necessary to achieve project goals and outcomes.

--

Rating Scale 8 (1 weakest to 11 strongest):

_.

*Other considerations:

To what extent does the proposed qualify for special consideration (e.g., applicant is probationary, applicant has not had minigrant funding in the past, applicant has been especially successful in the use of past minigrant funding, project scope is particularly ambitious but realizable).

__

Rating Scale 9 (1 weakest to 11 strongest):

--