

Date: April 10, 2015

To: Senator Laura H. Thielen
Chair, Senate Committee on Water and Land

Re: Governor's Message No. 836, Judith Lemus
Hawai'i Institute of Marine Biology of the University of Hawai'i
Kāne'ohe Bay Regional Council
Expiration Date: June 30, 2019

Dear Senator Thielen,

As part of my testimony (in addition to my attached curriculum vitae), please find below my responses to the questions posed by the committee.

Respectfully,
Judith Lemus, Ph.D.

(1) Why do you wish to be a member of the Kāne'ohe Bay Regional Council?

As a member of the faculty at the Hawaii Institute of Marine Biology, I have been asked to serve on the KBRC to represent the perspective of the scientists and educators at the primary academic research facility in Kaneohe Bay. Because I feel it is important for current scientific understanding to be considered in the implementation of the Kaneohe Bay Master Plan, I am happy to serve in this role on behalf of HIMB.

(2) How do you perceive the role and responsibilities of a member of the Kāne'ohe Bay Regional Council?

It is my understanding that Council members are to accurately represent the interests and perspectives of their "constituents" in considering proposals and plans that are related to the Kaneohe Bay Master Plan and the needs and uses of Kaneohe Bay. In this case, my constituents would include the faculty and staff at HIMB, the University of Hawaii, the partners with whom we work in Kaneohe Bay, including other research and education institutions and community organizations, as well as the community at large that relies on Kaneohe Bay for ecosystem services. Therefore, Council members should be familiar with the Kaneohe Bay Master Plan. Council members also serve to educate the public about issues related to Kaneohe Bay and make recommendations to the State and County of Honolulu on matters relating uses of the Bay or possible studies that will provide additional information about Kaneohe Bay.

(3) What do you hope to accomplish during your term of service?

I hope to respectfully and accurately offer advisement on issues coming before the Council that reflect current scientific and educational understanding and practices as they relate to the Kaneohe Bay Master Plan and the needs of Kaneohe Bay.

(4) Is there any other information regarding your experience and background that you believe should be considered by the committee?

- I am comfortable conversing with both scientists and community members; I have a science background and a community perspective. This will allow me to both confer with and relate to a wide variety of perspectives.
- I am thorough in my approach. This means that I will take my responsibilities seriously and always study all aspects of a given issue.
- I am able to view and consider issues from a logical and objective perspective. This means that my perspective and opinions will be based on the best available information and data, rather than emotion.

JUDITH DOINO LEMUS, PH.D.

University of Hawai'i at Manoa, Hawai'i Institute of Marine Biology
P.O. Box 1346, Kane'ohe, Hawai'i 96744
PH: 808-236-7422; FAX: 808-236-7443; E-MAIL: jlemus@hawaii.edu
WEB: <http://www.hawaii.edu/himb/faculty/lemus.html>

EDUCATION:

- PH.D. UNIVERSITY OF SOUTHERN CALIFORNIA, BIOLOGICAL SCIENCES, 1998
Advisor: Dr. Margaret McFall-Ngai
The Role of Light Organ Symbionts in Signaling Early Morphological and Biochemical Events in a Hawaiian Sepiolid Squid
- M.A. UNIVERSITY OF CALIFORNIA LOS ANGELES, BIOLOGY, 1993
Advisor: Dr. Len Muscatine
Low Temperature Acclimation in the Sub-Tropical Sea Anemone *Aiptasia pulchella* (Carlgren)
- B.S. UNIVERSITY OF CALIFORNIA LOS ANGELES, BIOLOGY, 1988

PROFESSIONAL HISTORY:

- | | |
|--|---|
| JUNE 2011 – PRESENT | ASSOCIATE SPECIALIST |
| JUNE 2013 – PRESENT | ASSOCIATE DIRECTOR |
| Hawai'i Institute of Marine Biology
University of Hawai'i at Manoa
Kaneohe, HI | Design and administration of academic program initiatives and curricula in tropical marine research and education. Creation and administration of HIMB internship programs with federal, state and local agencies. Development of professional enhancement programs and materials for students, early-career scientists, and Pacific region resource agencies. Representation of HIMB on the Kāne'ohe Bay Regional Council and at Neighborhood Boards; faculty liaison on Capital Improvement Projects; oversight of health and safety issues diving and boating safety, institutional animal care and use, hazardous materials, conservation use district permit reports, permits for the marine refuge, and national pollution discharge elimination reports. |
| FEBRUARY 2008 – JUNE 2011 | ASSISTANT SPECIALIST |
| Hawai'i Institute of Marine Biology
University of Hawai'i at Manoa
Kaneohe, HI | Design and administration of academic program initiatives and curricula in tropical marine research and education. Creation and administration of HIMB internship programs with federal, state and local agencies. Development of professional enhancement programs and materials for students, early-career scientists, and Pacific region resource agencies. |

JUNE 2006 – JAN 2008
MARCH 2004 – JAN 2008

Department of Biological Sciences &
Wrigley Institute for Environmental
Studies

University of Southern California
Los Angeles, CA

RESEARCH ASSISTANT PROFESSOR
DIRECTOR OF EDUCATION

Development and design of university-based outreach and education programs. Directed and managed all pre-college and teacher (K-12) education programming at the Institute. Directed NSF COSEE-West program (Centers for Ocean Sciences Education Excellence, a National Science Foundation initiative to enhance connections between ocean sciences and public education). Directed science field programs for students and families at the Wrigley Marine Science Center on Catalina Island. Developed new and innovative programs for K-12 education and teacher training. Created and instructed marine science university courses for graduate students, teachers, and high school students.

OCT 1998 – MARCH 2004

Sea Grant Program
University of Southern California

MARINE ADVISORY PROGRAM LEADER

Directed professional and public outreach for transfer of research-based information and technologies related to the marine environment. Acted as science liaison between university scientists and lay audiences, including resource managers, policy makers, NGOs, educators, and the general public. Supervised Education program. Content specialist and instructor for marine science curriculum. Science writing/communications. Oversaw graduate student trainee program. Developed proposals for additional funding and collaborative projects.

OCT 1996 – OCT 1998

Sea Grant Traineeship Program
University of Southern California

SCIENCE SPECIALIST

Content development of "Island Explorers" multidisciplinary marine science curriculum for grades 4-8, including design of interactive web-based learning activities; Instructor for Island Explorers student excursions and teacher training at Wrigley Marine Science Center on Catalina Island; Assistant to the Marine Advisory Services Leader.

JUNE 1996 – SEPT 1996

California Museum of Science and
Industry, Exposition Park
Los Angeles, CA

EXHIBIT CONSULTANT

Assistant to Dr. Diane Perlov, Special Exhibits Curator. Updated and modified information for portions of the "Our Urban Environment" exhibit as needed to comply with current data and scientific opinion.

JULY 1990

Bruin Kids Summer Camp
UCLA

MARINE BIOLOGY SUMMER CAMP TEACHER

Developed and taught activities pertaining to the marine environment for 7-10 yr. olds.

AUG 1988 – JULY 1989

West Indies Laboratory

LABORATORY SUPERVISOR

Developed and organized educational outreach program

Farleigh Dickenson University
St. Croix, USVI

with local schools and public; Large and small boat operations; Assistant to the dive officer; Laboratory and field assistance to researchers; Maintenance of laboratories, classrooms, equipment, seawater tables and aquaria; Care of marine organisms at lab; Chemical inventory and waste management.

MAY 1988 – JULY 1988

Laboratory of Dr. Len Muscatine
University of California Los Angeles

RESEARCH TECHNICIAN

Study of the physiological responses of a subtropical anemone to low temperatures; Care and maintenance of seawater aquaria.

SEPT 1985 – MAY 88

Kathleen Boldy, DVM;
West L.A. Animal Hospital;
Conejo Valley Animal Clinic

VETERINARY ASSISTANT

Care of animals; Administration of medications and injections; Assistance with technical procedures and surgeries.

ACADEMIC HONORS:

DR. SUZANNE LAWRENZ-MILLER EDUCATION AWARD Cabrillo Marine Aquarium (Given to COSEE-West program)	2009
SEA GRANT TRAINEESHIP USC Sea Grant Program	1996-1997
ARCS SCHOLAR Achievement Rewards for College Scientists	1994-1996
GRADUATE RESEARCH FELLOW Office of Naval Research	1993-1994
BEST POSTER AWARD West Coast Developmental Biology Meeting	1993
OUTSTANDING TEACHING ASSISTANT AWARD Biological Sciences USC	1992
DEAN'S HONOR LIST UCLA	1986, 1987
FRESHMAN HONOR SOCIETY UCLA	1983

TEACHING:

COMMUNICATING BIOLOGICAL SCIENCES (BIOL 390) UH Manoa Department of Biology	SPRING 2014 LEAD INSTRUCTOR
COMMUNICATING OCEAN SCIENCES (OEST 696) UH Manoa Ocean and Earth Sciences and Technology	FALL 2009 CO-INSTRUCTOR

THE ROLE OF MARINE PROTECTED AREAS IN ECOSYSTEM BASED MANAGEMENT (OEST 699) UH Manoa Ocean and Earth Sciences and Technology	FALL 2008 CREATOR AND LEAD INSTRUCTOR
COMMUNICATING OCEAN SCIENCES TO INFORMAL AUDIENCES (BISC 599) University of Southern California Biological Sciences	SPRING 2007 LEAD INSTRUCTOR
OCEANOGRAPHY OF THE SOUTHERN CALIFORNIA BIGHT (CORE 195) USC Summer Seminar	SUMMER 2006 CREATOR AND LEAD INSTRUCTOR
FUNDAMENTALS OF BIOLOGY (BIOLOGY 3) Santa Monica College	SPRING 2005 LEAD INSTRUCTOR
FIELD PROGRAM IN GALAPAGOS: ECOLOGY AND EVOLUTION (CORE 195) USC Summer Seminar	SUMMER 2004 CREATOR AND LEAD INSTRUCTOR
OCEANOGRAPHY OF THE SOUTHERN CALIFORNIA BIGHT (CORE 195) USC Summer Seminar	SUMMER 2004 CREATOR AND LEAD INSTRUCTOR
TEACHER SCIENCE WORKSHOPS USC Center for Ocean Sciences Education Excellence	2002 – 2007 DESIGNER AND INSTRUCTOR Coastal oceans, oceans and human health, extreme environments, open ocean and coral reefs.
INVITED LECTURES:	
GRADUATE TEACHING ASSISTANT TRAINING UH Manoa Center for Teaching Excellence	FALL 2011, 2012 “Teaching Your Own Course Advice on syllabus design, pedagogy, selecting texts, and constructing lectures”
CORAL REEF TEACHER WORKSHOP National Park Service	SUMMER 2011 “Introduction to Corals”
GRANT WRITING FOR GRADUATE STUDENTS (BOT 698) University of Hawaii at Manoa	SPRING 2010 “Enhancing your Broader Impacts in NSF research proposals”
SCIENTIST-EDUCATOR PARTNERSHIP PROGRAM COSEE Coastal Trends	SUMMER 2010 “Inquiry in Science Education”
KANEOHE BAY NUTRIENT STUDIES Lemus	SUMMER 2010

WORKSHOP UH Manoa Oceanography Department	“Laulima A ‘Ike Pono: Working Together for the Collective Vision”
UH SEA GRANT ANNUAL MEETING Hawaii Sea Grant College Program	SUMMER 2008 “Approaches and (<i>Some</i>) Ideas for Connecting Science and Outreach”
ANIMATION & DIGITAL ARTS SEMINAR (CTAN 522) University of Southern California	FALL 2007 “Where do Science and Animation Intersect? Examples of Visual Art in Science and Vice Versa”
SCIENCE CAREER SYMPOSIUM Turning Point School	SPRING 2007 “Marine Science Research and Education”
CONTEMPORARY TOPICS IN ANIMATION AND DIGITAL ART (CTAN 524) University of Southern California	FALL 2005 “Where do Science and Animation Intersect?”
RECENT ADVANCES IN MARINE SCIENCE University of California at Los Angeles Extension	FALL 2003 “Symbiosis and Bioluminescence”
ECOLOGY University of California at Los Angeles	FALL 2003 “The Role of Symbiosis and Facilitation in Ecology”
MARINE BIOLOGY Palos Verdes High School	SUMMER 2003 “Squids and Bacteria: An illuminating story of symbiosis”
SEA EDUCATION AWARENESS SERIES Los Angeles Unified School District	SPRING 2002 “Coastal Habitats”
DEPARTMENT OF BIOLOGY SEMINAR SERIES New Mexico State University	SPRING 2001 “The Role of Light Organ Symbionts in Signaling Early Morphological and Biochemical Events in the Sepiolid Squid <i>Euprymna scolopes</i> ”
FRESHMAN BIOLOGY COLLOQUIUM University of Southern California	SPRING 1999, 2000, 2001 “Bioluminescent Symbioses” “Current Research at USC Sea Grant”

TEACHING ASSISTANTSHIPS:

DEPT. OF BIOLOGICAL SCIENCES University of Southern California	1992 – 1996 Courses: Human Biology, Humans and the Environment, Advanced Molecular Biology, Biochemistry, Advanced Biochemistry, Physiology, Invertebrate Zoology, Marine Biology
DEPT. OF BIOLOGY University of California Santa Barbara	1992 Courses: Introductory Biology
DEPT. OF BIOLOGY UCLA	1989 – 1991 Courses: Biology, Biology Laboratory, Marine Biology
GRADUATE SCIENCE TEACHING ASSISTANT ENHANCEMENT PROGRAM University of Southern California	OCT 1996 – JUNE 1997

RESEARCH EXPERIENCE:

2001 – 2007 GLOBAL HEARTBEAT	SCIENCE COORDINATOR (WEST COAST) Environmental research and high school education initiative to investigate physiological responses to environmental stress in shore crabs (http://www.globalheartbeat.org)
2001 – 2003 NATIONAL SEA GRANT AQUATIC NUISANCE SPECIES INITIATIVE	PRINCIPAL INVESTIGATOR Investigation of stress protein expression in strains of <i>C. taxifolia</i> that display a high degree of thermal tolerance
1992 – 1996 UNIVERSITY OF SOUTHERN CALIFORNIA	RESEARCH ASSISTANT Biochemical interactions in a squid-luminous bacterium symbiosis
1991 UNIVERSITY OF CALIFORNIA AT SANTA BARBARA	RESEARCH ASSISTANT Promoter gene expression in a Rhizobium-legume symbiosis
1988 UNIVERSITY OF CALIFORNIA AT LOS ANGELES	RESEARCH ASSISTANT Physiological adaptation to thermal stress in symbiotic anemones

FUNDING AND FELLOWSHIPS:

- Pacific Islands Climate Education Partnership. NSF Climate Change Education Partnership Phase II. Senior Personnel: DUE-1239733 (2012-2017)
- COSEE Island Earth Supplemental Award. Hawaiian Islands Science. Lead PI: OCE1039352-003 (2012-2014)
- COSEE Island Earth. NSF Centers for Ocean Sciences Education Excellence. Lead PI: OCE1039352 (2011-2014)
- Pacific Ocean Literacy for Youth, Publics, Professionals and Students. NSF COSEE New Collaborative. Lead PI: OCE-0828783 (2008–2013)
- Restoration within the He‘eia Ahupua‘a: Effects on species diversity and water quality. Hawaii Coral Reef Initiative. Co-PI (2010-2011)
- EAGER: Building networks and study systems to advance research on the biology of Pacific corals. NSF EARly-concept Grants for Exploratory Research. Co-PI: OISE1042509 (2010-2013)
- Laulima A ‘Ike Pono: Community Collaborations in Geosciences and Place-based Education. NSF Opportunities for Enhancing Diversity in Geosciences. Lead PI: GEO09-14516 (2009-2012)
- Ocean FEST- Families Exploring Science Together. NSF Opportunities for Enhancing Diversity in Geosciences. Co-PI: GEO09-14317 (2009-2012)
- HIMB-NOAA Fellowship Program. NOAA National Marine Fisheries. Lead PI: NA10NMF4520216 (2010-2011)
- HIMB-NOAA Fellowship Program. NOAA National Marine Fisheries. Lead PI: NA09NMF4520249 (2009-2010)
- Upper Level Curriculum Development for a BAS in Marine Sciences. Maui Rural Development Project (U.S. Dept of Labor subcontract). Lead PI: EA-14982-04-60 (8/1/09 – 12/30/09)
- Institutional Grant: Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve–Hawaii Institute of Marine Biology research partnership. NOAA, NOS, Marine Sanctuary Program Institutional MOA Award (R. Toonen, J. Leong, B. Bowen, S. Karl, R. Gates, K. Holland, C. Meyer, G. Aeby, P. Jokiel, K. Rodgers, M. Rappé, M. Rivera, J. Lemus). (2008-2009)
- COSEE-West: Centers for Ocean Sciences Education Excellence. NSF Ocean Sciences education initiative. Co-PI: OCE-0753224 (2007-2012)
- Edison Challenge: Edison International corporate sponsorship of science education. Co-PI (2006-2010)
- COSIA – Communicating Ocean Sciences to Informal Audiences. Lead PI: SA5173-11062 (2006-2009)
- QuikScience program: Quiksilver corporate sponsorship of science education. Co-PI (2004-2009)
- COSEE-West program: NSF Ocean Sciences education initiative (2002-2007)
- National Sea Grant Aquatic Nuisance Species Initiative. Co-PI (2001-2003)
Physiological and molecular studies for assessing the invasion potential of *Caulerpa* and early warning outreach
- California Whale Tail Grant: Parent-Child Science Education (2001-2002)

Santa Monica Bay Restoration Project PIE Grants:
Incorporating storm water mitigation into architectural designs (2000-2001)
Parent-Child science education program (2000-2001)

USC Sea Grant Traineeship (1996-1997)

ARCS (Achievement Rewards for College Scientists) (1994-1996)

Office of Naval Research Graduate Research Fellowship (1993-1994)

PUBLICATIONS:

REFEREED PAPERS

- Weiner, C., Manset, G. and **Lemus, J.D.** (2015). Ocean Use in Hawaii as a Predictor of Marine Conservation Interests, Beliefs, and Willingness to Participate: An Exploratory Study Environmental Studies and Sciences. *Journal of Environmental Studies and Sciences* (in press).
- Foster, J. and **Lemus, J.D.** (2015). Developing the critical thinking skills of astrobiology students through creative and scientific inquiry. *Astrobiology* 15(1): 89-99.
- Lemus, J.D.**, Seraphin, K.D., Coopersmith, A.C., and K. Correa (2014). Integrating Culturally-Appropriate Pedagogy and Teaching Methods into a Science Communications Course. *Journal of Geoscience Education* 62(1): 5-10
- Apple, J., **J.D. Lemus**, and S. Semkin. (2014). Theme Issue: Teaching Geoscience In The Context Of Culture And Place. *Journal Of Geoscience Education* 62(1):1-4.
- Lemus, J.**, C. Bishop, and H. Walters (2010). QuikSCience: Effective Linkage of Competitive, Cooperative, and Service Learning in Science Education. *American Secondary Education* 38(3): 40-61.
- Kittinger, J.N., D.J. Skillings, K.K. Carvalho, L.L.N. Reeve, M. Hutchinson, J. O'Malley, K. Cullison, J. Shackeroff, M. Chow, and **J. Lemus** (Dec. 2009). Reconciling Ecosystem-Based Management and Focal Resource Conservation in the Papahānaumokuākea Marine National Monument. *Marine Sanctuaries Conservation Series* ONMS-09-04. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries, Silver Spring, MD.
- Lemus, J.** and L. Murray (2007). Leveraging COSEE: Going Above and Beyond. *Current: J. Marine Education* 23(1): 32-33. Invited author.
- Lemus, J.** (2007). Ocean Literacy. *Tidelines* (Cabrillo Marine Aquarium). Invited author.
- Doino Lemus, J.** and M. McFall-Ngai (2000). Alterations in the proteome of the *Euprymna scolopes* light organ in response to symbiotic *Vibrio fischeri*. *Applied and Environmental Microbiology* 66: 4091-4097.
- Visick, K.L., J. Foster, **J. Doino**, M. McFall-Ngai and E.G. Ruby (2000). *Vibrio fischeri lux* genes play an important role in colonization and development of the host light organ. *J. Bacteriol.* 182: 4578-4586.
- Doino, J.** and M. McFall-Ngai (1995). A transient exposure to symbiosis-competent bacteria induces light organ morphogenesis in the host squid. *Biological Bulletin* 189: 347-355.

Muscatine, L., D. Grossman and **J. Doino** (1991). Release of symbiotic algae by tropical sea anemones and corals after cold shock. *Marine Ecology Progress Series* 77: 233-243.

MANUSCRIPTS IN PROGRESS:

Sziklay, J., C. Wiener, M. Heckman, and **J.D. Lemus** (submitted). Investigating coral disease through patterns in their natural fluorescence. *Current Journal of Marine Education*.

R.D. Gates, P.J. Edmunds, T.Y. Fan, D.M. Yost, H. Putnam, E. Lenz, **J.D. Lemus**, LH Wang. Contrast of coral performance between upwelling and non-upwelling areas of Taiwan.

Lemus, J. D., A. Read, A. Knight, H. Havens, J. Mooney, S. Teck, E. Franklin, M. Chow, J. Lindholm, A. Rosenberg, L. Abramson, B. Barr, C. Benson, E. Brody, K. Carvalho, C. Combest-Friedman, J. Dupont, K. Emery, D. Fluharty, B. Halpern, J. Johnson, S. Katz, B. Keller, J. Kerr, E. Klein, E.S. Rutherford, R. Warner, R. Pavia. Marine Ecosystem-based Management Course Guide. *Journal of Geoscience Education*.

Franklin, E.C, T. Wood, M. Dunlap, M. Iacchei, B. Laws, A. Kerr, B. Kokubun, M. Chow, J. Shackeroff and **J.D. Lemus**. Ecosystem-Based Management and the Hawaiian Islands Humpback Whale National Marine Sanctuary: A Case Study of a Single-Species Marine Protected Area. *Marine Sanctuaries Conservation Series*.

EDITORIAL:

Lemus, J., Apple, J., Semkin, S., St. John, K. (2014). Theme Issue: Teaching Geoscience in the Context of Culture and Place. *Journal of Geoscience Education*.

Toonen, R., **Lemus, J.**, Selkoe, K., Halpern, B. (2011). Special Issue: Toward Ecosystem Management of Pacific Islands. *Journal of Marine Biology 2011*. Available online at <http://www.hindawi.com/journals/jmb/si/897876/>

Lemus, J. (Sp 2007). Editor. *Smilodon*. Newsletter of the Southern California Academy of Sciences.

Lemus, J. (W 2006). Editor. *Smilodon*. Newsletter of the Southern California Academy of Sciences.

Lemus, J. (Sp 2005). Editor. *Smilodon*. Newsletter of the Southern California Academy of Sciences.

Lemus, J.D. and C. Cudaback, Eds. (2003). Executive Summary, Review Panel Report: Huntington Beach Phase III Final Draft Report. *University of Southern California Sea Grant Program #USCSG-TR-02-2003*.

Lemus, J.D. and S. Weisberg, Eds. (2000). Huntington Beach Closure Investigation: Technical Review. *University of Southern California Sea Grant Program #USCSG-TR-01-2000*.

REPORTS

Thomas, F., **Lemus, J.**, Peyton, K. (2011). Restoration within He'eia Ahupua'a: Effects on species diversity and water quality. *Hawaii Coral Reef Initiative*.

Lemus, J., F. Thomas, M. Heckman, M. Rivera. (2010). HIMB Strategic Plan and Brochure.

Lemus, J. (2010). HIMB-NOAA Fellowship Program *National Marine Sanctuary Program Memorandum of Agreement Semi-Annual Progress Report*.

Lemus, J. (S 2009). HIMB-NOAA Fellowship Program *National Marine Sanctuary Program Memorandum of Agreement Semi-Annual Progress Report*.

Grifman, P. and **J.D. Lemus** (2005). Public Report on the Biological Baseline Studies at the Ports of Los Angeles and Long Beach. *University of Southern California Sea Grant Program #USCSG-TR-01-05*.

Lemus, J.D. and J. Pederson (2001). The Relationship Between Sea Grant Extension and Research. In: *The Fundamentals of Sea Grant Extension* (invited author). National Sea Grant College Program.

PUBLISHED ABSTRACTS

Doino, J. and M. McFall-Ngai (1997) *American Zoologist* 37(5): 125A

Doino, J. and M. McFall-Ngai (1996) *American Zoologist* 36(5): 41A

Doino, J. and M. McFall-Ngai (1995) *American Zoologist* 35(5): 30A

Doino, J. and M. McFall-Ngai (1993) *American Zoologist* 33(5): 69A

CURRICULA

UH Maui College Bachelor's of Applied Science Degree Program in Applied Ocean Studies. 2010. Complete upper division curriculum, including course descriptions, prerequisites, learning outcomes, competencies, course content, references, and assessments, **J. Lemus** and A. Coopersmith.

Marine Ecosystem Based Management Graduate Course Curriculum Guide. 2010. Collaboration between NOAA ONMS and seven universities as a Distribute Graduate Seminar sponsored by the National Center for Ecological Analysis and Synthesis. **J. Lemus**, A. Read, A. Knight, H. Havens, J. Mooney, S. Teck, E. Franklin, M. Chow, J. Lindholm, A. Rosenberg, L. Abramson, B. Barr, C. Benson, E. Brody, K. Carvalho, C. Combest-Friedman, J. Dupont, K. Emery, D. Fluharty, B. Halpern, J. Johnson, S. Katz, B. Keller, J. Kerr, E. Klein, E.S. Rutherford, R. Warner, R. Pavia.

Ocean Literacy Scope and Sequence for Grades K-12. 2009. Companion guide to OLEPFC (below) for curriculum developers, standards committees, informal science educators, and schoolteachers regarding how ocean science concepts can be taught throughout the K-12 curriculum. See http://oceanliteracy.wp.coexploration.org/?page_id=279 for list of collaborative authors. http://oceanliteracy.wp.coexploration.org/?page_id=111

Ocean Literacy Essential Principles and Fundamental Concepts. 2007. National collaborative effort by ocean scientists and educators to address the lack of ocean science concepts in National Science Education Standards. Recognized by many federal science education agencies and institutions as the foundation for national ocean literacy. See http://oceanliteracy.wp.coexploration.org/?page_id=279 for list of collaborative authors. http://oceanliteracy.wp.coexploration.org/?page_id=90

COSEE-West Lesson Plans. 2005. USC/UCLA COSEE-West Program. Marine science lessons for K-12 teachers. Collaborative authors. <http://www.usc.edu/org/cosee-west/resources.html>

Parent-Child Education Program. 1999. USC Sea Grant Program. Special program for students and their parents to study marine science one evening a week over the course of 7 weeks. Specific activities include: Communities, Food Webs, Zonation, Tides, Quadrat Sampling, Plankton, and Limited Resources. L. Whitley and **J. Lemus**. <http://www.usc.edu/org/seagrant/Education/ParentChildEdu/ParentChildEd.html>

Island Explorers Marine Science Curricula. 1998. USC Sea Grant Program. L. Whitley, S. Lafferty, and **J. Lemus**. Student-centered science curriculum for elementary and middle school that is characterized by hands-on, real-life marine science activities that directly correlate with the California Science Framework. It uniquely focuses on Southern California

and Catalina Island coastal environs.

<http://www.usc.edu/org/seagrant/Education/IELessons/IELessons.html>

IE Online Marine Science Activities. 1999. USC Sea Grant Program. **J. Lemus** and L. Whitley. Interactive enhancement activities that correlate with the Island Explorers Curriculum. “Garibaldi Territory” <http://www.usc.edu/org/seagrant/Education/Garibaldi/index.html> and “Help with Kelp” <http://www.usc.edu/org/seagrant/Education/Kelp/index.html>

MULTIMEDIA

Lemus, J.D. and M. Ano. (2013) Loko I‘a. *iPhone app*. Available from iTunes at <https://itunes.apple.com/us/app/loko-ia/id718491707?mt=8>

Ocean Tube Animated Movies. 2006. USC COSEE Program, Wrigley Institute for Environmental Studies, and Division of Animation and Digital Arts. Animated shorts focused on ocean concepts and current research by USC ocean scientists. **J. Lemus** (creator and developer). Features topics on: “Algal Blooms”, “Deep Ocean”, “DNA-PCR”, “Eels, Mangroves”, “Phytoplankton”, and “Sheep Head” http://www.usc.edu/org/cosee-west/ocean_tube.html

WEBSITES (CREATIVE DESIGNER)

Lemus, J.D., and V. Lid (2013). seaHarmony Online Collaboration Network for Ocean Scientists and Educators. <http://www.seaharmony.org>

Laulima A ‘Ike Pono – <http://www.hawaii.edu/HIMB/Education/LAIP.html>; <http://.laip-heeia.blogspot.com>

COSEE-West – <http://www.usc.edu/org/cosee-west>

QuikScience – <http://www.usc.edu/quikscience>

Edison Challenge – <http://www.usc.edu/org/edisonchallenge/>

MEDIA COVERAGE

What’s Current in Oceanography? Likable Science on ThinkTech Hawaii. Featured guest on Likable Science online television show to talk about the T-TIDE research cruise to the Tasman Sea. March 6, 2015. <https://www.youtube.com/watch?v=xRmV6Qjf340&feature=youtu.be>

COSEE Island Earth. Monthly radio program on marine science and education. Hawaii’s Tomorrow Radio Show AM 760. May 2012 – ongoing.

Laulima A ‘Ike Pono: Internships at He‘eia Fishpond. Honolulu Advertiser. May 4, 2006. <http://www.honoluluadvertiser.com/article/20100503/GETPUBLISHED/5030366/Laulima+A+Ike+Pono++Research+Internship+at+Heeia+Fishpond>

Adobe Solutions Case Study: Science and Art Converge at USC with Creative Suite 3 (featured faculty). 2006. <http://www.adobe.com/education/products/creativesuite/customers/hed/>

Scientists Hope to Size Up the Health of the Ocean in a Heartbeat. Los Angeles Times. October 19, 2003. <http://articles.latimes.com/2003/oct/19/local/me-crab19>

Global Heartbeat Science. KLCS TV Homework Hotline (featured scientist). February 2002.

PRESENTATIONS AT CONFERENCES AND MEETINGS:

INTERNATIONAL

- Lemus, J.** “COSEE Collaborative Fellowships for Graduate Training in Multidimensional Ways of Knowing”. International Marine Educators Network. Tokyo, Japan (2014)
- Lemus, J.** “Strategies for Integrating Science Outreach and Research” (invited). National Museum and Marine Biological Aquarium. Kenting, Taiwan (2012)
- Lemus, J.** “Community Collaborations in Geoscience Research at a Local Fishpond in Hawaii”. International Pacific Marine Educators Network Conference. Sigatoka, Fiji (2010)
- Duncan, K., Heckman, M., **Lemus, J.** “Beyond The Hype: opportunities & guidelines for effective outreach and education” (poster). International White Shark Symposium. Honolulu, HI (2010)
- Lemus, J.** “Motivational approaches in ocean sciences education”. International Pacific Marine Educators Network Conference. Townsville, Australia (2008)
- Lemus, J.,** Fong, P., Hamner, W., Tuddenham, P., Noda, G., Lee, J. “Leveraging Undergraduates as Online Teaching Assistants in the Ocean Sciences”. Pacific Congress on Marine Science and Technology. Honolulu, HI (2008)
- Armstrong, K. and **Lemus, J.** “The QuikScience Challenge Partnership”. Waves of Change: Women, Youth and the Sea: Partnering for the Protection of the Marine Environment and the Sustainable Use of its Resources – Pacem in Maribus Conference. Malta (2007)
- Lemus, J.,** “Urban Ocean Science Education at the University of Southern California”. American Society of Limnology and Oceanography, Ocean Science Summer Conference. Spain (2005)

NATIONAL

- Lemus, J.** “seaHarmony: A collaboration networking tool for ocean scientists and educators”. Ocean Sciences Meeting. Honolulu, HI. (2014)
- Wiener, C., **Lemus, J.** and Manset, G. “Exploring public attitudes and information needs for marine conservation outreach in Hawaii”. Ocean Sciences Meeting. Honolulu, HI. (2014)
- Sigman, M. and **Lemus, J.** “Blending Traditional Knowledge and Western Science Education”. National Marine Educators Association (2012)
- Lemus, J.** and Duncan, K. “COSEE: Culturally-relevant ocean sciences education in Hawaii”. National Science Teachers Association Annual Conference (2010)
- Lemus, J.,** Duncan-Seraphin, K., Cooper, P., and Coopersmith, A. “Pacific Ocean Literacy for Youth, Publics, Professionals & Scientists”. National Marine Educators Association (2009)
- Bidle, T., **Lemus, J.,** Dykes, K. “COSEE: The QuikScience Challenge”. National Science Teachers Association Annual Conference (2008)
- Hamner, W., Fong, P., **Lemus, J.,** Tuddenham, P., Lee, J., Noda, G. “Leveraging Undergraduates as Online Teaching Assistants in the Ocean Sciences” (poster). American Society of Limnology and Oceanography (2008)
- Lemus, J.** and Close, A. “Science Outreach at the USC Wrigley Institute”. American Society of Limnology and Oceanography (2006)
- Lemus, J.** “QuikScience: An Innovative Approach to Engage Diverse Students in Ocean Science Education” (poster). National Oceanic and Atmospheric Administration Education and Science Forum (2006)

- Lemus, J.**, “Building a Community-based Ocean Science Education Infrastructure”. American Zoo and Aquarium Association Annual Conference (2004)
- Whitley, L. and **Lemus, J.** “Creating and Sustaining a Marine Science Parent-Child Education Program”. National Marine Educators Association (2003)
- Lemus, J.**, “The Global Heartbeat education program”. American Society of Limnology and Oceanography (2002)
- Lemus, J.** “Island Explorers Summer Science Program for Middle School Girls”. National Marine Educators Association (2000)

REGIONAL

- Lemus, J.**, Fujitani, K., Hufana, L. Matsuoka, K., Siple, M. “Community-based Science Research: The Lailima A 'Ike Pono Internship at He'eia Fishpond”. Hawaii Conservation Conference. Honolulu, HI (2012)
- Wiener, C. and **Lemus, J.** COSEE (Centers for Ocean Science Education Excellence) Island Earth: Enhancing Ocean Literacy for Hawai‘i” (poster). Hawaii Conservation Conference. Honolulu, HI (2012)
- Lemus, J.** “COSEE Island Earth”. Hawaii Environmental Education Alliance Conference, Honolulu, HI (2012)
- Lemus, J.**, Duncan-Seraphin, K. Coopersmith, A. “The OCEANIA Marine Educators Association”. OCEANIA Annual Conference at Hawaii Science Teachers Association (2010)
- Duncan-Seraphin, K., **Lemus, J.**, Veary, K., Wong, K., Smith, D., Putnam, H. “Communicating Ocean Sciences: Linking Educators and Research Scientists in a Cultural Context”. Hawaii Education Research Association Annual Conference (2010)
- Strang, C., Duncan-Seraphin, K., and **Lemus, J.** Incorporation of Traditional Knowledge in Communicating Ocean Sciences. Alaska Marine Science Symposium (2010)
- Lemus, J.**, Coopersmith, A., Spalding, S. “The OCEANIA Marine Educators Association”. Inaugural OCEANIA conference at Hawaii Science Teachers Association (2009)
- Lemus, J.** “QuikScience: An Innovative Approach to Engage Diverse Students in Ocean Science Education” (poster). California and the World Oceans (2006)
- Duguay, L., Franks, S., Hamner, P., Hamner, B., Kwon, P., **Lemus, J.**, Michaels, T., Moll, R., Peach, C., Sullivan, D., Whitley, L. “Centers for Ocean Science Excellence in Education (COSEE): A national and regional model for engaging ocean scientists and educators in collaborative activities”. California and the World Oceans (2006)
- Lemus, J.** and Whitley, L. “The USC Parent-Child Education Program”. Los Angeles Unified School District Gifted and Talented Education Conference (2004)
- Whitley, L., Grifman, P., **Lemus, J.** “Developing K-12 Marine Science Education Programs: Island Explorers Case Study”. California and the World Oceans (2002)
- Lemus, J.** “Lessons Learned: Recommendations for water quality investigations from a technical review of the Huntington Beach closure of 1999”. California Coastal Coalition/California Shore and Beach Preservation Association, Preserving Coastal Environments conference (2000)

SERVICE WORK:

LEADERSHIP:

- Kaneohe Bay Regional Council (appointed by Governor in March 2013)
- UH Manoa General Education Foundations Board (2011-2015), Chair 2015
- Education Chair, Hawaiian Islands Humpback Whale National Marine Sanctuary Advisory Council (2010 – 2012; 2013 – 2015).
- Finance Committee, International Pacific Marine Educators Network (2011 – present)
- Secretary, Board of Directors, Paepae o He'eia (2010 – present)
- HIMB Capitol Improvements Projects Committee (2011 – present)
- Chair, OCEANIA Regional Chapter of National Marine Educators Association (2009 – 2011)
- Co-chair, HIMB Laboratory Safety Committee (2009 – 2011)
- Co-chair, HIMB Visitor Information Committee (2009 – 2011)
- Co-PI, “Twenty-five Year Retrospective of the HIMB Pauley Summer Program”. Edwin Pauley Summer Program (2009)
- Vice President, Southern California Academy of Sciences Board of Directors (2002-04; 2006-07)
- Board Member, Southern California Academy of Sciences Board of Directors (1999 – 2007)
- Chair, Sea Grant Pacific Region Extension Leaders Committee (2000)
- President, Marine Science Graduate Students Association, University of Southern California (1996 – 97)

REVIEWS:

- Panel member for NSF Graduate Research Fellowship Program (2009, 2011, 2015)
- NASA Astrobiology: Exobiology and Evolutionary Biology program (2010)
- NSF CAREER Awards (2006)
- Journal of Geoscience Education (2013 – present)
- Astrobiology Journal (2008)
- Environmental Science and Technology Journal (2008)

CONFERENCES:

- Planning Committee, International Pacific Marine Educators Conference, Santiago Chile (2012)
- Organizer, OCEANIA Conference, Honolulu, HI (2010)
- Organizer, OCEANIA Conference, Honolulu, HI (2009)
- Moderator, Public Education Session, State of the Bay Conference, Santa Monica, CA (2004)
- Symposium Chair, Southern California Academy of Sciences, “Virtual Oceans” (2001)
- Symposium Chair, Southern California Academy of Sciences, “Scientific Research at Public Aquariums” (2000)

OTHER:

- Coral Reef Conservation Workshop. National Center for Ecological Analysis and Synthesis. Invited participant. Santa Barbara, CA (September 2012).
- Community Partnerships Workshop. Pacific Islands Climate Education Partnership. Invited participant. Pohnpei, FSM (December 2011)

Field Stations and Marine Labs Emerging Initiatives in Scientific Research and Training Workshop. Colorado Springs, CO (November 2011)
Capitol Improvement Projects Committee, HIMB (2011 – present)
Delegate, National Science Teachers Association U.S.-Sino Education Forum, Shanghai, China (November 2010)
Co-editor, Journal of Marine Biology "Ecosystem Management of Pacific Islands" Special Issue (December 2010)
Education alternate, Hawaiian Islands Humpback Whale NMS Sanctuary Advisory Committee (2010 – 2012)
Invited Board Member, UH Hilo CREST Advisory Board (2009 – present)
Invited Panelist, UH Hilo TCBES Faculty Mentoring Workshop (Aug 2010)
Advisory Committee Member, UH Manoa McNair Scholars Program (2009)
HIMB Strategic Plan and Brochure Education and Outreach section lead (2009 – 2010)
Judge, Hawai'i State Science Fair (2010, 2008)
Member, SOEST Education and Outreach Committee (2009 – present)
Member, Santa Monica Pier Aquarium Advisory Committee (2006 – 2008)
Technical Advisory Committee, Santa Monica Bay Restoration Commission (1998 – 2007)
Judge and Moderator, Southern California Regional Ocean Science Bowl (1998 – 2007)
Science Judge, Los Angeles County Science Fair (1998 – 2007)
Invited Science Consultant, Los Angeles Academic Decathlon (2003)
Invited participant, EARTH Workshop: "Education and Real-Time Data Workshop: Where should the two meet?" (2002)
Community Emergency Response Team (CERT), Culver City (2002 – 2007)
Docent, UCLA Ocean Discovery Center (1996 – 97)
Volunteer, UCLA Medical Center, Pediatric Ward (1990)

PROFESSIONAL SOCIETIES:

American Society of Limnology and Oceanography
National Association of Biology Teachers
National Marine Educators Association
International Pacific Marine Educators Network
National Science Teachers Association
Hawaii Academy of Sciences
American Association of University Women
Southern California Academy of Sciences

OTHER SKILLS:

Physiological and biochemical laboratory techniques
Light microscopy and scanning electron microscopy
Advanced Diver and Rescue Diver Certifications (NAUI)
Underwater Photography Certification (PADI)
Small boat operations
Underwater and intertidal field survey methods