

Biographical Sketch ~3 pp. version (based on Nat Sci Fndn format).

Because our CSU Chancellor demanded accountability, any outside inquiries to Kitting are to be accompanied by significant corresponding donations at least to College of Science Leadership Fund. Thank you.

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<http://www.sci.csueastbay.edu/biology/faculty/bios/kitting.html>

Multidisciplinary Conservation and Restoration of Bay Shore Habitats, especially w/ plants and small animals in non-destructive sampling with imagery analyses, to improve refugia, food resources, and bio-filters in habitat restoration.

EDUCATION:

Univ. California, Irvine (State Scholarship) 8/71 - 6/74 (Biological Sciences) B.S. 1974 Stanford Univ., Stanford, CA (Full Fellowship) 7/74 - 10/78 (Biological Sciences) Ph.D. 1979
Dissertation: Herbivore-Plant Interaction among individuals on shorelines (D.P. Abbott, advisor)
Postdoctoral Stanford Med. Physiol./ Hopkins Lab (Foodchain Biochem w/F.Fuhrman) 11/78-2/79
Postdoctoral Univ. Calif., Santa Barbara (Larval Settlement with D.E. Morse) 3/79 - 8/79

APPOINTMENTS: 1994-present: Professor of Biol. Sci., Cal State U East Bay. 1989-94: Associate Professor. 8/85 to 1989: Assistant Professor. Over eighteen various bio/envir (and one stat, one Env Sci, one Geology, one Marine Studies, and one Geography) courses (the latter two co-listed with Bio) taught at California State University, East Bay. His courses span General Bio to Shoreline Restoration.
8/79 -8/85 : Seven different courses taught previously as Assistant Professor of Marine Studies and Zoology and Research Scientist at Univ. Texas at Austin 's Marine Science Institute.

Up to ~five related plus five other publications: (of Kitting's widely cited >33 major publications in journals, plus five major lab manuals used at CSUEB, plus > 12 major reports distributed by agencies)

Selected related Publications (of Kitting's >33 major publications):

(plus five major lab manuals used at CSUH, plus > ten major reports distributed by agencies)

Kitting, C.L. 1980. Herbivore-Plant Interaction among Individual Limpets Maintaining a Mixed Diet of Intertidal Marine Algae. *Ecological Monographs*, Durham. Vol. 50: 527-550.

Rankin, M.A. (Ed. in Chief, with D. Checkley, J. Cullen, C. Kitting, and P. Thomas, Associate Ed's) 1985. Migration Mechanisms and Adaptive Significance; proceedings of an International Migration Symposium. Supplement to Vol. 27, *Contr. Marine Science*. 867 pp.

Kitting, C.L. and S.W.Echeverria. "Status of San Francisco Bay Eelgrass" 17th Proc of Natural Areas Assoc Yosemite Centennial Symposium (1991), 288- 395.

Kitting, C.L. 1996. Comparing naturally occurring population, as field bioassays of environmental health. in D.M. Kent, Ed. *Proc. Soc.Wetl.Sci. II.* (80-83).

Rees, J. and C.L.Kitting. 1999. Survey of gelatinous zooplankton in the San Francisco Estuary. *Interagency Ecological Program Newsletter (and website)*12(3): 4-5 and 13(1):9-10.

Rees, J. and Kitting. 2002. "Survey of Gelatinous Zooplankton ("Jellyfish") in the San Francisco Estuary." *Calif. Interagency Ecological Program Technical Report* 40. 48 pp.

Kitting and C. L. Davis. 2003. Distributions of Unusual Hydrobiid Snails among Restored and Reference Brackish Marshes of San Francisco Bay Estuary, versus lagoons north and south on the Central California Coast. *West. Soc. Malacol. Ann. Report* 36: 23-27.

Kitting and C. C. Ouverney. 2004. Field bioassays with common fishes and invertebrate food resources near constructed and reclaimed water marshes on San Francisco Estuary. Proceedings of the American Fisheries Society, and paper in Symposium Book on Fish Toxicity Interactions, Edited by C. Wood, K. Sloman, and D. MacKindlay pp 339-350. International Congress, American Fisheries Society, Manaus, Brazil.

Kitting and CL Davis 2007 Restored Marshes with tidal pools in San Francisco Estuary yield common, ancient gastropods, other aquatic invertebrates, and their predatory fishes. Western Society of Malacologists Annual Report 36. Pp. 6-7.

Hershler R., C. Davis, Kitting, and H. Liu, 2007. Discovery of introduced and cryptogenic Cochliopid gastropods in San Francisco Estuary, California. Journal of Molluscan Studies, Oxford University Press. 73: 323-332.

Kitting, C.L. 2008. Broadening Education Toward Environmental Restoration, as Short-Term and Cost- Effective Long-Term Solutions to Global Climate Disruption. Forum on Public Policy 3: 343-352.

Ramirez, L. and C.L. Kitting, 2009. From a Submarine to the Classroom: From Theory to Practice. Ca Council News, California Council on Teacher Education 20 (3) : 1 & 12-13. <http://www.ccte.org/newsletters/fall2009ccnews.pdf>

Kitting, C.L. 2010. Education Toward Environmental Restoration, as Cost-Effective Solutions to Global Climate Disruption. Chapter 10, (pp 117-126) +cover photos) in Reck, R.A., Climate Change and Sustainable Development. Linton Atlantic Books, Ltd. Oxon, Cambridge, Chicago, NY.

Kitting, C.L., S. Cassell, and E. Bergman, 2010. Collective action, environmental activism, and environmental quality: Evidence of Native freshwater mussels without invasive bivalves, in Fallen Leaf Lake, near invasive and native bivalves of Lake Tahoe, CA. The Western Society of Malacologists Annual Report 42: 26-32.

Karen L. Evans, and Christopher L. Kitting, 2010. Documentation and Identification of the One Known Freshwater Sponge Discovered in the California Delta . The Open Marine Biology Journal, 2010, 4, 82-86 .

Riensch, D.L., M. Morrow, M. Clark, And C.L. Kitting. 2011. Monitoring trends in a breeding bird assemblage with implications for riparian conservation. Transactions of the Western section of The Wildlife Society. 46:7-20.

Over ten other major works are not in reviewed journals: In addition, CK's graduate students published >18 other major papers since 1980, from his lab. Over ten publications by his Hayward/East Bay students are published, with acknowledgments for CK's assistance.

“Synergistic Activities” Positions served in professional organizations, largely multidisciplinary:

Kitting, early in his education, participated in an NSF-sponsored summer math/oceanography/biology program for high school juniors at Humboldt State College. Later, Kitting pioneered the use of low-light photography and micro-acoustics as quantitative, non-destructive sampling, and illustration to diverse audiences, including a successful NSF Laboratory equipment grant on such image analysis. He has published >30 articles and numerous black and white and color photographs in popular and scientific journals, including color covers of the major scientific journals Science, Nature, and Molecular Marine Biology.

Also an Eagle Scout, he was Aquanaut team leader for a NOAA Hydrolab saturation research mission in the Caribbean Sea, now featured in the Smithsonian Institution, Washington, DC. Kitting also is a reviewer for numerous journals, publishers, and grant agencies, including previous National Science Foundation panels. Recently, he also was on the editorial board of The Veliger journal. He is a charter board member (for 20 yr) at the San Francisco Bay National Wildlife Refuge, where he recently was elected to a third term as President of San Francisco Bay Wildlife Society. He also directs CSUEB's Shore Laboratory, and is Chief Scientist for Undersa Voyager Project, circumnavigating islands at depth.

Kitting was a symposium speaker at a California Academy of Sciences Education Conference, California Eelgrass Symposium, Natural Areas Conference, Estuarine Research Federation Symposium on Ecological Methods, Audubon's Symposium on Central Bay Natural Resources, and Australian, European, and Mexican Symposia on Shore Restoration. His newest Symposium address was on Human-Nature Interactions. He also serves on the executive board of the Western Society of Naturalists, served as president and executive board of the Western Society of Molluscan Scientists, speaks annually at international scientific conferences, and is an active member in over ten scientific societies. He received over 20 major honors since the Ph.D., including nominations for Outstanding Professor Awards. Kitting's work with Alameda County shore restoration helped earn an Environmental Protection Agency National Excellence award. His subsequent Delta work received nominations for an Environmental Achievement Award in California. In August, 2004, he addressed an international symposium and published in *Interactions in Toxicity* at an American Fisheries Joint Conference in Brazil. Kitting was an invited, featured speaker at Oxford University during August, 2007, where he spoke on his recent research on global ecology and solutions to climate disruption, and attended the subsequent Stanford Round Table on Oil and the Environment. Kitting recently published that work in *Forum on Public Policy* and subsequent book chapter on climate disruption. NASA-Ames Research Center then selected Kitting, with a team of scientists associated with NASA and the European Space Agency, to fly NASA mission ATV-1 MAC in a high-altitude airborne observatory, bringing a CSUEB Student, to study upper atmosphere phenomena in the South Pacific, as far from land as possible. CK then became Team Leader in an analogous NASA+Japanese Hyabusa atmospheric reentry mission in June, 2010. At least ~15 years from retirement from teaching, this grant would expand new international collaboration with CSUEB on this multidisciplinary ecosystem ecology, seeking solutions to current ecosystem problems.

"Alphabetical Collaborators & Other Affiliations" C. Davis, San Francisco Public Utilities Commission. R. Hershler, Smithsonian Inst. H. Liu, Smithsonian Inst.. S. McGinnis, CSUEB. C. Ouverney, San Jose State U.

"Graduate and Postdoctoral Advisors." D.P.Abbott, Stanford U. (deceased). F. Fuhrman, Stanford Univ. Medical School Physiology. D. Morse, Univ Calif Santa Barbara.

Thesis Advisor and Postgraduate-Scholar Sponsor for 2 postdoc's plus 4 PhDs plus 4 Masters recipients at U Texas Austin Marine Sci Inst. Plus 2 postdoc's plus 24 Masters recipients at CSUEB, all (except three now retired) of which have remained employed and successful in their biology profession.

During recent five years: C. Davis (Native Amer. '04 MS, now Res. Assoc. and State Ecologist), D. Riensche ('05 MS, now EBRPD Naturalist), A. Batchelor (African-American '06 MS), and S. Chen ('09 MS). Current chair for five Habitat Restoration MS students.

RECENT GRANTS :

(not including student fellowships and research grants awarded to CK's students nor HYDROLAB aquanaut team leader (now featured at the Smithsonian Institution)

"Habitat uses by small fishes in an estuarine marsh" \$2,500 startup US Fish/Wildf subcontr. plus \$200,000/'87 State Coastal Conservancy with 4 faculty from SF. State U.

"Environmental Gradients" Renovations +use of US Fish/Wildf Service marsh station for CSUH.

"Shoreline Infaunal Changes" (with Prof. E. Lyke) \$8,000 E. Bay Regional Parks

"Field Analysis of Environmental Gradients " \$13,000 matching funds from NSF Instructional Equipment

"Computer Image Analysis on a trailerable Vessel" \$58,100 CA Lottery Revenues.

"Foraging by small fishes in Marshlands" \$10,000 through P. Williams Hydrology Consultants, State Coastal Conservancy

"Communities of a Wastewater Marsh on SF Bay" \$14,000 through W.Clyde Consultants, Union Sanitary Distr.

"Effects of a Wastewater Marsh on SF Bay Shore" \$47,000 from Union Sanitary Distr. +\$2000 supplement

"Characterization of a Shallow Bay Habitat" \$25,000 from Nat.Mar.Fish.Serv,NOAA.

"Field Bioassays to assess toxicity" \$10,000-60,000/yr from Alameda Co.

"Effects of Biological Control on algal blooms" \$6000 plus supplements. Morton Salt, 95.

"Effects of Stormwater " \$86,000. 94-96.

Qualifications of proposed investigator:

Alameda County.

Professor **Christopher L. Kitting** earned his Biol. Sci B.S. at University of California, Irvine, then Ph.D. (under D.P. Abbott) as a Stanford University Graduate Fellow in 1979, at age 26. After postdoctoral work with Stanford Medical School and Univ. Calif. Santa Barbara, and a faculty position at University of Texas Austin's Marine Science Institute on the Gulf of Mexico, Kitting joined the Cal State University East Bay (Hayward) Biological Sciences Faculty in 1985. He has made major contributions to Environmental Restoration, including non-destructive sampling during multidisciplinary monitoring. Integral is his expertise with various aquatic invertebrates, including the closest relatives to the endangered California Brackishwater Snail, *Tryonia imitator* (in south San Francisco Bay), and recent, invasive New Zealand mud snail (recently reported in Alameda Creek).

"Delta Science Center Cruises for Educators" \$9600 plus \$2000 supplement plus \$24,000 renewal, East Bay

At CSUEB, Kitting also has taught invited courses in Statistics, Marine Science, Geology, and Environmental Science Departments. He also has lectured on optics and astronomy/atmospheric science in University Physics Departments, Science Centers, and other seminars, led astronomical/atmospheric field instruction, and published numerous of his environmental, optical, and astronomical/atmospheric illustrations in diverse works. He has published over 32 major scientific articles on aquatic ecology during his 30 years in this field of environmental science, often emphasizing nursery areas for invertebrates and fishes in shallow vegetation on diverse freshwater and marine shores.

Regional Parks 95-6.

"Biological Control of Algal Blooms" \$8240 plus \$8240 renewal. Morton Salt 96-7

"Bay-Delata Zooplankton" (W/ J.Rees) \$46,500/yr-Ca Inter-Agency Eco/Water 99-0.

"Improving Delta Restorations and Monitoring" CALFED (US Fish and Wildlife Service) (w/ J.Rees and S. McGinnis) \$773,000/2.5yr, 99-01.

"Monitoring constructed marsh fisheries on Outer Delta" \$10,000/year, 04-05 Wildlands, I.

"Impacts of Cusco Busan Oil Spill on eelgrass invertebrates" NOAA Spill Assessment Fund. 3/08 \$ > \$57,233) for continued oil assessments. 3/08

"Restoration Monitoring" CALTRANS grant renewal . \$507,480 to June 30, 2011+ renewal.

"San Francisco Bay Student Ambassador Program." \$12,000, SF Bay Wildlife Soc. 7/10. +renewal.

Kitting has been Principal Investigator on over 20 major external grants (plus renewals) at CSUEB. He also is a founding Board Member of San Francisco Bay Wildlife Society, Charter member of Ward Creek Alliance, and recently has been a member of three other watershed organizations, including McNabney Marsh Advisory Committee, successfully managing a restored wastewater marsh in Martinez. He has long maintained active professional membership in Society of Wetlands Scientists, Estuarine Research Federation, and American Fisheries Society (AFS) and their Chapters, and in over four related international ecological societies, where he presents new talks and posters several times each year at local and international conferences. He recently has served as president (elected for multiple terms) in two major scientific societies, including San Francisco Bay Wildlife Society, supporting US Fish and Wildlife Service Refuges along the West Coast. He also is a reviewer for major journals etc., and serves on two editorial boards of scientific journals. He also edited and wrote a chapter for the book *Migration: Mechanisms and Adaptive Significance*. Recently he was acknowledged for assistance to the National Marine Estuary Program through Louisiana State University, and locally. He also continued to serve (State Senator, now State Superintendent of Education) Tom Torlakson, beginning with the Program Committee of the Delta Science Center, when Kitting's "Delta Cruises for Educators" received an Environmental Achievement Award Nomination. He also coordinated a major proposal for CALFED's Fish Monitoring Team for CALFED's Integrated Multidisciplinary Bay/Delta Monitoring. Kitting and his students have remained active with the Alameda County Clean Water program, which received a US EPA National Excellence Award. Kitting has received over 22 major honors since the Ph.D., including team leader in a Hydrolab underwater lab display in the Smithsonian, D.C., nominations for Outstanding

Professor Awards, and 2010 NASA-Ames Group Achievement Award for his recent, second NASA atmospheric mission. Kitting also is acknowledged for in a winning entry in the 2010 International Underwater Environmental Film Festival, and in a recent National Geographic TV episode, "Squid Invasion."

All 25 of Kitting's former M.S. and Ph.D. students, and many of his undergraduates, have remained employed and successful in their environmental profession.

Some of his most recent papers on local work are:

- Rees, J. and Kitting, 2002. "Survey of Gelatinous Zooplankton ("Jellyfish") in the San Francisco Estuary: Initial Field Survey, Annotated Species Checklist, and Illustrated Field Key." Calif. Interagency Ecological Program Technical Report 40. 48 pp.
- Davis, C.L. and Kitting, 2002. Recruitment and abundance of unusual hydrobiid snails among restored and reference brackish marshes of San Francisco Bay Estuary. Western Society of Malacologists Annual Report 35: 7-10.
- Kitting and C. L. Davis. 2003. Distributions of Unusual Hydrobiid Snails among Restored and Reference Brackish Marshes of San Francisco Bay Estuary, versus lagoons north and south on the Central California Coast. West. Soc. Malacol. Ann. Report 42: 23-27.
- Kitting and C. C. Ouverney. 2004. Field bioassays with common fishes and invertebrate food resources near constructed and reclaimed water marshes on San Francisco Estuary. Proceedings of the American Fisheries Society, and paper in Symposium Book on Fish Toxicity Interactions, Edited by C. Wood, K. Sloman, and D. MacKindlay pp 339-350. International Congress, American Fisheries Society, Manaus, Brazil.
- Hershler, R., C. Davis, C.L. Kitting, and H. Liu. 2007. Discovery of introduced and cryptogenic cochliopid gastropods in San Francisco Estuary, California. Journal of Molluscan Studies 73:323-332.
- Kitting, C.L. 2008. Broadening Education Toward Environmental Restoration, as Short-Term and Cost-Effective Long-Term Solutions to Global Climate Disruption. Forum on Public Policy 3: 343-352.
- Ramirez, L. and C.L. Kitting, 2009. From a Submarine to the Classroom: From Theory to Practice. Ca Council News, *California Council on Teacher Education* 20 (3) : 1 & 12-13. <http://www.ccte.org/newsletters/fall2009ccnews.pdf>
- Kitting, C.L. 2010. Education Toward Environmental Restoration, as Cost-Effective Solutions to Global Climate Disruption. Chapter 10, (pp 117-126) +cover photos) in Reck, R.A., *Climate Change and Sustainable Development*. Linton Atlantic Books, Ltd. Oxon, Cambridge, Chicago, New York.
- Riensche, D.L., M. Morrow, M. Clark, And C.L. Kitting. 2011. Monitoring trends in a breeding bird assemblage with implications for riparian conservation. Transactions of the Western section of The Wildlife Society. 46:7-20.

Additional information on some of Kitting's most recent accomplishments:

Following Kitting's \$800,000 US Fish and Wildlife Service grant on Outer Delta Habitat Restoration, Kitting was an invited, featured speaker at Oxford University during August, 2007, where he spoke on his recent research on global ecology and solutions to climate disruption, and attended the subsequent Stanford Round Table on Oil and the Environment. Kitting recently published that work in *Forum on Public Policy* and subsequent book chapter on climate disruption.

NASA-Ames Research Center then selected Kitting, with an international team of scientists associated with NASA and the European Space Agency, to fly NASA mission ATV-1 MAC in a high-altitude airborne observatory, bringing a CSUEB student along with Kitting to study upper atmosphere phenomena in the South Pacific, as far from land as possible. Kitting then became Team Leader in an analogous NASA +Japanese Hyabusa spacecraft atmospheric reentry mission in June, 2010. Kitting and that latter work received a Group Achievement Award from NASA that year. Kitting presented his results from each of those NASA missions at the pair of subsequent international conferences, overseas (Netherlands, then Australia during spring break, 2011). Resulting publications are scheduled in dedicated issues of *Journal of Spacecraft and Rockets*.

Kitting also has been active in a new Undersea Voyager Project, preparing a series of manned research submarine missions to circumnavigate the globe at depth, for the first time. His CSUEB Freshwater Ecology class, a year ago, participated in the inaugural submarine dives in lakes around Lake Tahoe, which he already published with a colleague from Teacher Education, Dr. Lettie Ramirez, and presented at Scientific Conferences.

On May 13, 2011, National Geographic TV aired, for the first time, their related project on effects of invasive jumbo squid on Eastern Pacific Fisheries, which Funded Kitting and a CSEB grad student a year ago in Sea of Cortez, over Spring Break. That "Squid Invasion" episode of the National Geographic "Hooked" series will be aired through the upcoming season, "with special thanks to Dr. Chris Kitting, CSU East Bay." Undersea Voyager's underwater squid videos, with Kitting's red underwater video light filters, took top honors at the 2010 International Underwater Environmental Film Festival, celebrating what would be Jacques Cousteau's 100th birthday, celebrated with the Cousteau Family.