

Janet E. Kübler, Ph.D.

Address: Department of Biology, California State University, Northridge, CA 91330-8303
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Degrees:

1992: Ph.D. Biological Sciences, Department of Botany, University of Maine, Orono, ME.
Thesis title: Temperature and Red Algal Photosynthesis, supervisor I.R. Davison
1985: B.A. Biology, Johns Hopkins University, Baltimore, MD.

Present Employment:

Research Scientist, PI, Adjunct Faculty, Biology, California State University: at Northridge.
Maintaining an externally funded research program in algal environmental biology and population biology, supervising students, teaching, service
Instructor, Tseng College, California State University at Northridge: Teaching Functional Biology and Design Innovation for MSc in Assistive Technology, Human Services and Assistive Technology Engineering (NPSM)

Postdoctoral Research Positions:

January 1996 - January 1999: The roles of dark respiration and protein turnover in the cost of acclimation of a marine macroalga to a changing environment with Prof. J.A. Raven F.R.S., University of Dundee, Scotland, UK
December 1992 - November 1995: Interaction of mechanisms of inorganic carbon acquisition with light supply to benthic red algae with Prof. J.A. Raven F.R.S., University of Dundee, Scotland, UK
February - October 1992: Developing genetic transformation techniques for macroalgal species with Drs. S.C. Minocha and A.C. Mathieson, University of New Hampshire, Durham, NH, USA

Funding History:

a) External, current

2013 - 2016: National Science Foundation – Ocean Acidification Program: Scope for Resilience to Ocean Acidification in Macroalgae. with CoPI S.R. Dudgeon (\$690,641)

b) External, pending

2013: National Science Foundation – Biological Oceanography Program: Does facilitation between life history phases stabilize complex life cycles of algae? with S.R. Dudgeon (\$802,870 planned resubmission 2/2014)
2012/ 2013: EPA RESTORE. Gulf Coast States Proposal: Effects of disturbance and habitat degradation on community resilience and food web dynamics in the Mobile-Tensaw Delta. with S.R. Dudgeon, CSUN, C.S. Major and K. Major, University of South Alabama (\$211,064 subcontract, \$489,937 total, pending)

c) External, completed

2010- 2012: National Science Foundation RAPID: Effect of PAH Exposure on Aquatic Plant Community Structure, Productivity and Resilience. With S.R. Dudgeon, CSUN, C.S. Major and K. Major, University of South Alabama (\$117,707)
2008: LiCor Environmental Education Fund (LEEF Program), Lincoln, NE. (\$29,250).

- 2000: NSF National Center for Ecological Analysis and Synthesis Modeling Growth and Form of Marine Benthic Organisms, with J. Kaandorp, Univ. Amsterdam, Netherlands (\$4000)
- 1999: NSF National Center for Ecological Analysis and Synthesis Modeling Growth and Form of Marine Benthic Organisms, Workshop, with J. Kaandorp, Univ. Amsterdam, Netherlands (\$40,100)
- 1996-2000: Natural Environment Research Council (NERC UK) Time for a change? The roles of dark respiration and structural turnover in the cost of acclimation of a marine macroalga to a changing environment, with J.A. Raven, Univ. Dundee, UK (£144,495: U.S. \$244,196)
- 1991: Office of Naval Research Marine Sciences Biotechnology Training grant
- 1987: Sigma Xi (\$1000) Thermal Acclimation Potential in Seaweeds, with I.R. Davison (\$1000)
- d) Internal**
- 2011: CSUN Creative and Scholarly Works Competition Aquatic Plant Productivity in the Mobile Tensaw Delta (\$5000)
- 2007: CSUN Online Education Technology Implementation Grant
- 2006: Course Redesign, Biology Labs Go Hybrid CSU Provosts' Course Redevelopment Program with L. Allen & J. Matos (\$124,000)
- 2006: Judge Julian Beck Award for Innovative Teaching: Biology Taught Functionally for Biomimicry (\$5000)
- 2001: CSU Office of Research and Sponsored Projects Investigation of a potential high throughput method to reveal genetic diversity in a red seaweed. (\$5000)
- 1999: CSU Office of Research and Sponsored Projects Dynamics of heat-shock response in a panglobal red alga. (\$4500)
- 1990-91: University of Maine Research Fellowship.
- 1987-89: University of Maine, Center for Marine Studies Research Fellowship.
- 1986-90: Seven (7) University of Maine, Association of Graduate Students Research Grants.

Scholarly Activity:

a) Book

Kaandorp, J. and **J.E. Kübler** (2001, 2010 paperback) The Algorithmic Beauty of Seaweeds, Sponges and Corals, The Virtual Laboratory Series, Springer-Verlag 260pp.

Nominated for the CSU Distinguished Scholarly Publication Award (2002)

"Weeds' watery ways" *Nature* 415: 582 (2002) book review

"Rapidly becoming a classic" J. Malcolm Shick (2012)

b) Articles (Hirsch index = 18; 940 total citations 400 since 2009, google scholar):

Krueger-Hadfield, S. A. **J. E. Kübler** & S. R. Dudgeon. (2013) Reproductive Effort of *Mastocarpus papillatus* along the California coast. *Journal of Phycology* 49:271-281

Dudgeon, S.R. & **J.E. Kübler** (2011). Hydrozoans and the Shape of Things to Come. *Advances in Marine Biology* 59: 107-144

J.E. Kübler (2011) Teaching Biomimicry in Interdisciplinary Bioscience Courses, Proceedings of the Biomimicry Institute Higher Education Conference, available from the Biomimicry 3.8 Institute (biomimicry.net/educating/university-education/webinar/)

Fierst, J, **J.E. Kübler** & S.R. Dudgeon (2010) Spatial distribution and reproductive phenology of sexual and asexual *Mastocarpus papillatus* (Rhodophyta) *Phycologia* 49: 274-282

- Dudgeon, S.R., K.M. Benes, S.A. Krueger, **J.E. Kübler**, P. Mroz & C.T. Slaughter (2009) On the use of experimental diets for physiological studies of hydrozoans. *Journal of the Marine Biological Association of the UK*. 89: 83-88
- Klein, Robyn, Dayna Baumeister, & **Janet E. Kubler** (2009) Competition vs. Collaboration *BIOInspired* 7(2): 5-6
- Fierst, J., C. Terhorst, **J.E. Kübler** & S. Dudgeon (2005): Fertilization success can drive patterns of phase dominance in complex life histories. *Journal of Phycology* 41: 238-249
- Raven, J.A. & **J.E. Kübler**: (2002) New light on the scaling of metabolic rate with the size of algae. *Journal of Phycology* 38: 1- 6
- Raven, J.A., A.M. Johnston, **J.E. Kübler**, R. Korb, S.G. McInroy, L.L. Handley, C.M. Scrimgeour, D.I. Walker, J. Beardall, M.N Clayton, J.A. Chudek, M. Vanderklift, S. Fredricksen and K. Dunton (2002) Seaweeds in cold seas: Evolution and carbon Acquisition. *Annals of Botany* 90: 1-12
- Raven, J.A., A.M. Johnston, **J.E. Kübler**, R. Korb, S.G. McInroy, L.L. Handley, C.M. Scrimgeour, D.I. Walker, J. Beardall, M. Vanderklift, S. Fredricksen and K. Dunton (2002) Mechanistic Interpretation of carbon isotope discrimination by marine macroalgae and seagrasses. *Functional Plant Biology* 29: 355-378
- Dudgeon, S.R., **J.E. Kübler**, W. Wright, R.L. Vadas and P.S. Petraitis: (2001) Natural variability in zygote dispersal of *Ascophyllum nodosum* at small spatial scales and its connection to recruitment. *Functional Ecology* 15: 595-604
- Raven, J.A., **J.E. Kübler** & J. Beardall: (2000) Put out the light, then put out the light. *Journal of the Marine Biological Association of the United Kingdom* 80: 1-25
(#1 most cited paper in the history of the JMBA)
- Kübler, J. E.**, A. M. Johnston & J. A. Raven: (1999) Effects of elevated and reduced CO₂ and O₂ on the seaweed, *Lomentaria articulata*. *Plant Cell and Environment* 22: 1303-1310
- Raven, J.A., **J.E. Kübler**, A.M. Johnston, L.J. Poole, R. Taylor, S.G. McInroy (1999) Oxygen-insensitive growth of algae with and without CO₂-concentrating mechanisms. In *Photosynthesis: Mechanisms and Effects*, Vol. V. 3331-3337, Garab (ed.) Kluwer Academic Publishers, Netherlands
- Kübler, J.E.** and S.R. Dudgeon (1996) Temperature dependent change in the complexity of form of *Chondrus crispus* fronds. *J. Exp. Mar. Biol. Ecol.* 207: 15-24
- Kübler, J.E.** & J.A. Raven (1996) Nonequilibrium rates of photosynthesis and respiration under dynamic light regimes. *J. Phycol.* 32: 963-969
- Kübler, J.E.** and J.A. Raven (1996): Carbon acquisition by red seaweeds grown under dynamic light regimes. *Hydrobiol.* 326/327: 401-406
- Raven, J.A., J. Beardall, A.M. Johnston, **J.E. Kübler** and S.G. McInroy (1996): Inorganic carbon acquisition by *Xiphophora chondrophylla* (Phaeophyta: Fucales). *Phycologia* 35: 83-89
- Kübler, J.E.** and I.R. Davison (1995) Thermal acclimation of light-use characteristics of *Chondrus crispus* (Rhodophyta). *Euro. J. Phycol.* 30: 189-195
- Kübler, J.E.** & J.A. Raven (1995) The interaction of inorganic carbon acquisition with light supply to *Palmaria palmata* (Rhodophyta). *J. Phycol.* 31: 369-375
- Raven, J.A., D.I. Walker, A.M. Johnston, L.L. Handley and **J.E. Kübler** (1995) Implications of ¹³C natural abundance measurements for photosynthetic performance by marine macrophytes in their natural environment. *Mar. Ecol. Prog. Ser.* 123: 193-205

- Raven, J.A., J. Beardall, A.M. Johnston, **J.E. Kübler** and I. Geoghegan (1995) Inorganic carbon acquisition by *Hormosira banksii* (Phaeophyta: Fucales) and its epiphyte *Notheia anomala* (Phaeophyta: Fucales). *Phycologia* 34: 267-277
- Dudgeon, S.R., **J.E. Kübler**, R.L. Vadas and I.R. Davison (1995) Physiological responses to environmental variation in intertidal red algae: Does thallus morphology matter? *Mar. Ecol. Prog. Ser.* 117: 193-206
- Kübler, J.E.** and J.A. Raven (1994) Consequences of light-limitation for carbon acquisition in three rhodophytes. *Mar. Ecol. Prog. Ser.* 110: 203-209
- Kübler, J.E.**, S.C. Minocha and A.C. Mathieson (1994) Transient expression of the GUS reporter gene in protoplasts of *Porphyra miniata*. *J. Mar. Biotech.* 1: 165-169
- Raven, J.A., A.M. Johnston, R. Parsons and **J.E. Kübler** (1994) The occurrence, and influence on photolithotrophs, of high O₂ concentrations. *Proc. Royal Soc. Edin.* 102B: 193-201
- Raven, J.A., A.M. Johnston, R. Parsons and **J.E. Kübler** (1994) The influence of natural and experimental high O₂ concentrations on O₂-evolving phototrophs. *Biol. Rev.* 69: 61-94
- Kübler, J. E.**, and I. R. Davison. (1993) High-temperature tolerance of photosynthesis in the red alga, *Chondrus crispus*. *Mar. Biol.* 117: 327-336
- Kuebler, J. E.**, I. R. Davison and C. Yarish. (1991) Photosynthetic temperature adaptation in the red algae, *Lomentaria baileyana* and *Lomentaria orcadensis*. *British Phycological Journal* (now *European Journal of Phycology*) 26: 9-19
- Davison, I. R., **J. E. Kuebler**, R. S. Steneck, and R. L. Vadas (1988) Comparative physiology of shallow and deep water populations of *Laminaria* in the Gulf of Maine. In: Benthic Productivity and Marine Resources of the Gulf of Maine. Eds. I. Babb and M. DeLuca. U. S. Department of Commerce publication, pp. 27-43.

c) Book review

- Janet E. Kübler**, K. Miteva & C. McNamara (2013) *The Shark's Paintbrush* by Jay Harman. *Zygote Quarterly* 5: 42-49

d) Publications in preparation:

- Kübler, J.E.** & S.R. Dudgeon: Data-driven Models of Productivity under Ocean Acidification for Macroalgae Lacking Carbon Concentrating Mechanisms. *PLoS One*
- Kübler, J.E.** & S.R. Dudgeon: Potential for Enhanced Growth without Enhanced Photosynthetic Rate in *Ulva sp.* under Ocean Acidification. *Global Change Biology*
- Kübler, J. E.**, P.A. Rudy, B. Brinkman, R. Rudy, S.A. Krueger & S. R. Dudgeon: Ploidy in the multiphasic sexual and asexual life cycle variants of *Mastocarpus papillatus*. *Journal of Phycology*
- Kübler, J. E.** & R. Cummings: Hollywood Dreams, Malibu Realities: Eco-optimism and Ecopessimism in Popular Media, *Journal of the International Society for Scholarship of Religion, Nature and Culture*
- Dudgeon, S. & **J.E. Kübler**: Asexuality and the Cryptic Species Problem. Invited Perspective. *Journal of Phycology*

Teaching Experience:

- 2013: Phycology and Directed Research, in the Catalina Semester, CSULB / OSI, Southern California Marine Institute, Long Beach and Catalina, CA
- 2009 – present: Instructor of Functional Biology and Design Innovation, graduate programs in Assistive Technology, Tseng College, California State University at Northridge, CA

- 1999 - present: Lecturer, Introductory Biology, Marine Biology, and Experimental Design and Analysis, Majors and Nonmajors, supervising student research and serving on thesis committees, Department of Biology, California State University at Northridge, CA
- 2006 - 2011: Biology On-line, redesigned and taught large courses with new technology, Department of Biology, California State University at Northridge, CA
- 2008 - 2009 Instructor, Biomimicry Institute, Missoula MT. Collaborating in course development and teaching Biology Taught Functionally in a 2-year graduate certificate program in Biomimicry.
- 1993 - 1999: Lecturer in Biology teaching Biology Access Course, assisting student research, Department of Biological Sciences, University of Dundee, Dundee, Scotland, UK
- 1986 - 1991: Teaching assistant and laboratory instructor for Ecology, Plant Biology and Introductory Biology, Department of Botany, University of Maine, Orono, ME
- 1983 - 1985: Teacher and Tutor of junior high and secondary level Math and Biology, Remington Community School, Baltimore, MD

Mentoring and Supervisory Experience:

- 2014: training volunteer naturalists, Vasquez Rocks Park, Aqua Dulce, CA
- 2013: supervising graduate assistant in Phycology CSULB/ OSI Catalina Semester
- 2011: mentoring an Intel High School Science Fellow, CSUN
- 2007-present: training volunteer naturalists, Placerita Canyon Nature Center Associates, Newhall, CA
- 1999-present: cosupervising 5 MSc. students, member of 7 masters thesis committees, CSUN
- 2000-present: supervising TAs in marine biology, experimental design and analysis, CSUN
- 2007-2008: training and supervision of ~30 graduate teaching assistants per semester for online laboratories and fieldtrips, CSUN
- 2002-2004: mentoring secondary school teachers undertaking research sponsored as National Science Foundation Eisenhower Distinguished Fellowships, CSUN
- 1999-2000: directing undergraduate research, stress tolerance in a red alga, CSUN
- 1999-2000: supervising a postdoc, energetics of protein turnover, University of Dundee, UK.
- 1999-2000: Scientist mentor, NSF Summer Research Program for Teachers, CSUN
- 1992: supervising undergraduate work-study students acting as laboratory assistants in plant molecular biology, Botany Department, University of New Hampshire, Durham, NH
- 1987-1990: directing undergraduate work-study laboratory assistants, University of Maine, Orono, ME
- 1987-1989: Upward Bound student assistants, summer work-study, University of Maine, Orono, ME

Administrative Experience:

Placerita Canyon Nature Center Associates:

Distinguished Service Award for “ Education and Inspiration” (2012)

Museum Committee Member (2006-present) (1) contributing to the initial design, interpretive master plan, budget, proposals, acting as stakeholder representative for a new interpretive center and wildlife classroom with a budget of \$1.1 million,

(2) consulting on the proposal for the Golden Braille Trail, for the visually impaired.

Docent Training Committee (2006-present) collaborating on an annual nine-week training course for Volunteer Naturalists

Member of the Board of Directors (2006-2008) including establishment of mission and vision statements, operations, budgets, events and fund raising

Green Festival, Los Angeles Host Committee (2011 - 2013) outreach and community organizing for the event

Phycological Society of America:
 Archives Committee (2010-2013)
 Student Grants and Awards Committee (2006-2008, Chairperson 2007, 2008)
 Program Committee (1999-2000)
 Trustees Advisory Panel (2000)

Biomimicry Institute Education Advisory Board (2009), Missoula, MT, Collaborated in the development of Biomimicry Institute Affiliated Institution Program and the Biomimicry Institute Fellows Program; Member of the Biomimicry Higher Education Group

CSUN, Tseng College Assistive Technology Group (2008-2009), ground up design and development of synergistic MSc. Degree programs in Assistive Technology Human Services and Assistive Technology Engineering including a Professional Science Master's Degree

CSUN Provost's Committee on Course Redesign (2006-2008), Collaborating in development of the CSUN Digital Repository and Improving Online Education

Old Orchard PTSA Fine Arts Chair and Art Volunteer Coordinator (2006-2008) Developing new lessons with an emphasis on elements and principles of design and observational skills, managing volunteers, supplies & budget

British Phycological Society Executive Council member (1996-1999)
 Budgets, reporting, personnel and scientific products of 2 NERC major grants (1992-1999)

Private Sector Employment and Collaborations

2011 International Algae Design Competition, Bioinspired Team, A collaborative of designers, engineers and biologists from US, Canada, Netherlands, and Bulgaria developed Algae Connects: Stimulating a Future of Growth for Recovering Communities, a system-level integration of algal production technology to alleviate water and food needs in Haiti, applicable to disaster relief scenarios in general.

2010 – 2012 Genetic Identification Services Inc, collaborating in development of microsatellite markers for *Mastocarpus sp.*

2005 -2011 Biomimicry 3.8 (formerly Biomimicry Guild, LLC), consulting Biologist at the Design Table (BaDT) and Speaker in the Biomimicry Speakers Bureau

1985 – 1986 Congoleum Corporation, Research and Development, polymer chemistry and coatings

Invited* and Conference Presentations since 2003:

Western Society of Naturalists Meeting, Oxnard, CA November 2013

*Los Angeles County Department of Parks and Recreation, PCNA Community Education Series, Newhall, CA, October 2013

US Ocean Acidification PIs Conference, Washington, DC September 2013

International Phycological Congress, Orlando, FL, August 2013

International Society for Scholarship of Religion, Nature and Culture, Malibu, CA, 2012

Northeast Algal Symposium, Schoodic Point, ME, April 2012

*Center for Coastal Marine Observation and Prediction, Portland, OR, March 2012

European Phycological Congress, Greece, September 2011, Oviedo, Spain 2007

- *Animo Leadership High School, Inglewood, CA May 2011
- *First Fridays Series at the Natural History Museum, Los Angeles, CA March 2011
- Biomimicry Higher Education Webinar, January 2011
- *Expert Annotation of the *Chondrus crispus*, Genome, Roscoff, FR June 2010
- *Los Angeles County Parks and Recreation Docent Organization Nov. 2009
- Biomimicry Swarm, San Diego, CA Feb. 2009
- Biomimicry Education Summit, Flathead Lake, MT 2007, Jackson Hole, WY 2009
- *American Institute of Graphic Artists, San Diego CA 2008
- *Lifestyles of Health and Sustainability Los Angeles, CA 2007
- *Biology Department, University of Rhode Island, RI 2004
- *Natural Sciences, University of Maine at Machias, ME 2004
- *Biological Sciences, Queen's University, Belfast , Northern Ireland, UK 2003

Editorial Board Membership:

- PLoS Computational Biology 2009 (guest editor),
- Journal of Phycology 2001-2004
- Marine Ecology Progress Series 1996-1999

Reviewer for:

Journal of Biological Dynamics, Journal of Evolutionary Biology, Functional Plant Biology, Plant Cell and Environment, Limnology and Oceanography, Journal of Phycology, European Journal of Phycology, Marine Ecology Progress Series, Marine Biology, Oecologia, Phycologia, Photosynthesis Research, PLoS One, Proceedings of the Royal Society, National Science Foundation

Membership in Professional Societies:

British Phycological Society, Biologically Inspired Design Community, Biomimicry Educators Network, Bioneers Educators, Northeast Algal Society, Phycological Society of America, International Phycological Society, Western Society of Naturalists