

# LISA V. LUCAS

U.S. Geological Survey  
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## *Research Interests*

INTEGRATES physics with biology, and numerical models with field observations, to understand how aquatic ecosystems work

LEADS and COLLABORATES with scientists of multiple disciplines to implement a whole-ecosystem approach for understanding how a complex coastal system may respond to changes in climate, water management and infrastructure over this century

## *Education*

Ph.D. 1997 Stanford University, Palo Alto, California  
Civil and Environmental Engineering (Environmental Fluid Mechanics)

M.S. 1992 Stanford University, Palo Alto, California  
Civil Engineering (Environmental Fluid Mechanics)

B.S. 1989 University of Notre Dame, South Bend, Indiana  
Civil Engineering, Graduated with Honors

## *Research & Professional Experience*

CO-LEADER of CASCaDE II, a hyper-disciplinary project linking multiple state-of-the-art computer models to assess plausible futures for the San Francisco Bay-Delta ecosystem over this century  
<http://cascade.wr.usgs.gov/> (2009-present)

RESEARCH ENGINEER/ECOHYDRODYNAMICIST 2000-Present, U.S. Geological Survey, Menlo Park, CA

CONSULTING ASSOCIATE PROFESSOR 2007-2013

CONSULTING ASSISTANT PROFESSOR 2002-2007

VISITING SCIENTIST 1997-2002

Stanford University, Dept. of Civil and Environmental Engineering, Palo Alto, CA

NRC POSTDOCTORAL RESEARCH ASSOCIATE 1998-2000, U.S. Geological Survey, Menlo Park, CA

HYDROLOGIST 1997-1998, U.S. Geological Survey, Menlo Park, CA

RESEARCH ASSISTANT 1992-1997

TEACHING ASSISTANT 1992-1996

Stanford University, Dept. of Civil and Environmental Engineering, Palo Alto, CA

STRUCTURAL ENGINEER 1989-1991, Badger Engineers, Inc., Cambridge, MA

## Highlights

**Editorial Board**, *Estuary News Magazine* (2014-present)

**Outstanding Reviewer**, *Estuaries and Coasts* (2007, 2012, 2013)

**Associate Editor** 2005-2012 *Estuaries and Coasts* (formerly *Estuaries*)

**Chair**, Donald W. Pritchard Award Committee, Coastal & Estuarine Research Federation (CERF) (2009, 2011)

U.S. Department of Interior Superior Service **Award** (2010)

CERF Donald W. Pritchard **Award**, for best estuarine geophysics paper in the journal *Estuaries & Coasts* during previous 2 years (lead-author, 2007)

**Invited Lecturer**, Pan-American Advanced Studies Institute, Puerto Morelos, Mexico (2007)

**Lecturer**, USGS Water Resources Lecture Series (2005)

CERF Cronin **Award**, for accomplishments of an early-career estuarine scientist (2003)

**Secretary**, Estuarine Research Federation (2003-2005)

NRC Postdoctoral **Fellowship** (1998-2000)

U.S. Dept. of Agriculture Postdoctoral **Fellowship** (declined – 1998)

Josephine de Karman **Fellowship** (1995)

Stanford **Fellowship** for Masters Study (1991-1992)

Sidney-Kelsey Outstanding Scholar **Award** for top Notre Dame Civil Engineering Senior (1989)

McCarthy **Scholarship** for top Notre Dame Civil Engineering Junior (1988)

Notre Dame **Scholar** (1985)

## Publications

Martyr-Koller, R.C., H. Kernkamp, A. van Dam, M. van der Wegen, L.V. Lucas, N. Knowles, B. Jaffe, T.A. Fregoso, J. Helly. 2017. Application of an unstructured 3D finite volume numerical model to flows and salinity dynamics in the San Francisco Bay-Delta. *Estuarine, Coastal and Shelf Science* 192:86-107. <http://www.sciencedirect.com/science/article/pii/S0272771416307120>

Lucas, L.V., J.E. Cloern, J.K. Thompson, M.T. Stacey, and J.R. Koseff. 2016. Bivalves can shape phytoplankton communities. *Frontiers in Marine Science* 3: Article 14  
<http://journal.frontiersin.org/article/10.3389/fmars.2016.00014/full>

Lucas, L.V. 2016 (published online 2015). "Timescale." In: *Encyclopedia of Estuaries*, M.J. Kennish (Ed.). Springer Netherlands, pp 712-713. DOI: 10.1007/978-94-017-8801-4\_199  
[http://link.springer.com/referenceworkentry/10.1007/978-94-017-8801-4\\_199#](http://link.springer.com/referenceworkentry/10.1007/978-94-017-8801-4_199#)

Lucas, L.V. 2016 (published online 2015). "Residence time." In: *Encyclopedia of Estuaries*, M.J. Kennish (Ed.). Springer Netherlands, pp 502-503. DOI: 10.1007/978-94-017-8801-4\_198  
[http://link.springer.com/referenceworkentry/10.1007/978-94-017-8801-4\\_198](http://link.springer.com/referenceworkentry/10.1007/978-94-017-8801-4_198)

Lucas, L.V. 2016 (published online 2015). "Age." In: *Encyclopedia of Estuaries*, M.J. Kennish (Ed.). Springer Netherlands, pp 3-4. DOI: 10.1007/978-94-017-8801-4\_200  
[http://link.springer.com/referenceworkentry/10.1007/978-94-017-8801-4\\_200](http://link.springer.com/referenceworkentry/10.1007/978-94-017-8801-4_200)

Knowles, N., Lucas, L.V., and others. 2015. CASCaDE II: Computational Assessments of Scenarios of Change for the Delta Ecosystem. Final Report to the Delta Science Program. [http://cascade.wr.usgs.gov/reports/C2\\_final\\_report/CASCaDE\\_2\\_Final\\_Report.pdf](http://cascade.wr.usgs.gov/reports/C2_final_report/CASCaDE_2_Final_Report.pdf) 307 pp.

Lucas, L.V. and J.K. Thompson. 2012. Changing restoration rules: Exotic bivalves interact with residence time and depth to control phytoplankton productivity. *Ecosphere* 3(12):117. <http://www.esajournals.org/doi/pdf/10.1890/ES12-00251.1>

Lucas, L.V. 2010. Implications of estuarine transport for water quality, in: *Contemporary Issues in Estuarine Physics*, ed. A. Valle-Levinson. Cambridge University Press. <http://www.cambridge.org/us/catalogue/catalogue.asp?isbn=0521899672>

Windham-Myers, L., , G. Aiken, J. Bales, B. Bekins, J. E Cloern, C. A Eagles-Smith, R. P Eganhouse, E. Kakouros, D. P. Krabbenhoft, J. R Lacy, L. G Larsen, L. Lucas, M. Marvin-DiPasquale, N. B Rybicki, A. Slowey, R. Stewart, C. Swarzenski, J. K Thompson, M. P Waldrop. 2010. Conceptual Model Framework for a Long-Term Science Plan Response to the Deepwater Horizon Oil Spill. Submitted July 9, 2010.

Lucas, L.V., J.K. Thompson, and L.R. Brown. 2009. Why are diverse relationships observed between phytoplankton biomass and transport time? *Limnology and Oceanography* 54(1):381-390. [http://www.aslo.org/lo/toc/vol\\_54/issue\\_1/0381.pdf](http://www.aslo.org/lo/toc/vol_54/issue_1/0381.pdf)

Lucas, L.V., J.R. Koseff, S.G. Monismith, and J.K. Thompson. 2009. Shallow water processes govern system-wide phytoplankton bloom dynamics: A Modeling Study. *Journal of Marine Systems* 75:70-86. <http://www.sciencedirect.com/science/article/pii/S092479630800167X>

Thompson, J.K., J.R. Koseff, S.G. Monismith, and L. V. Lucas. 2008. Shallow water processes govern system-wide phytoplankton bloom dynamics: A Field Study. *Journal of Marine Systems* 74:153-166. <http://www.sciencedirect.com/science/article/pii/S0924796307002692>

Brown, L.R., J.K. Thompson, K. Higgins, and L.V. Lucas. 2007. Population density, biomass, and age-class structure of an invasive clam *Corbicula fluminea* in rivers of the lower San Joaquin River watershed, California. *Western North American Naturalist* 67(4):572-586. <https://ojs.lib.byu.edu/ojs/index.php/wnan/article/view/1610/1936>

Lucas, L. V., D. M. Sereno, J. R. Burau, T. S. Schraga, C. B. Lopez, M. T. Stacey, K. V. Parchevsky, V. P. Parchevsky. 2006. Intra-daily variability of water quality in a shallow tidal lagoon: mechanisms and implications. *Estuaries and Coasts* 29(5): 711-730. <http://link.springer.com/article/10.1007/BF02786523> *(This paper received the Coastal and Estuarine Research Federation's 2007 Pritchard Award as the best estuarine geophysics paper published in the journal Estuaries and Coasts in the previous two years.)*

Lopez, C. B., J. E. Cloern, T. S. Schraga, A. J. Little, L. V. Lucas, J. K. Thompson, and J. R. Burau. 2006. Ecological values of shallow-water habitats: implications for restoration of disturbed ecosystems. *Ecosystems* 9: 422-440. [http://sfbay.wr.usgs.gov/publications/pdf/lopez\\_2006\\_shallowwater.pdf](http://sfbay.wr.usgs.gov/publications/pdf/lopez_2006_shallowwater.pdf)

Lucas, L.V., Stewart, A.R., and others. 2005. Transport, transformation, and effects of selenium and carbon in the delta of the Sacramento-San Joaquin Rivers: Implications for ecosystem restoration. Final report to the CALFED Science Program 406 pp. [http://wwwrcamnl.wr.usgs.gov/Selenium/Library\\_articles/san\\_luis\\_articles/Lucas\\_Stewart\\_Delta\\_ERP-01-C07.pdf](http://wwwrcamnl.wr.usgs.gov/Selenium/Library_articles/san_luis_articles/Lucas_Stewart_Delta_ERP-01-C07.pdf)

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- Lucas, L.V., J.E. Cloern, J.K. Thompson, and N. E. Monsen. 2002. Functional variability of habitats in the Sacramento-San Joaquin Delta: restoration implications. *Ecological Applications* 12(5): 1528-1547. [http://sfbay.wr.usgs.gov/publications/pdf/lucas\\_2002\\_restoration.pdf](http://sfbay.wr.usgs.gov/publications/pdf/lucas_2002_restoration.pdf)
- Lucas, L.V., T. Schraga, C.B. Lopez, J.R. Burau, and A.D. Jassby. 2002. Pulsey, Patchy Water Quality in the Delta: Implications for Meaningful Monitoring. *Newsletter, Interagency Ecological Program for the Sacramento-San Joaquin Estuary* 15(3): 21-27. <http://www.water.ca.gov/iep/newsletters/2002/IEPNewsletterssummer2002.pdf>
- Lucas, L.V. and J.E. Cloern. 2002. Effects of tidal shallowing and deepening on phytoplankton production dynamics: a modeling study. *Estuaries* 25(4A): 497-507. [http://sfbay.wr.usgs.gov/publications/pdf/lucas\\_2002\\_tidal\\_shallowing.pdf](http://sfbay.wr.usgs.gov/publications/pdf/lucas_2002_tidal_shallowing.pdf)
- Monsen, N. E., J. E. Cloern, L. V. Lucas, and S. G. Monismith. 2002. A comment on the use of flushing time, residence time and age as transport time scales. *Limnology and Oceanography* 47(5): 1545-1553. [http://www.aslo.org/lo/toc/vol\\_47/issue\\_5/1545.pdf](http://www.aslo.org/lo/toc/vol_47/issue_5/1545.pdf)
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- Lucas, L.V. 1997. A Numerical Investigation of Coupled Hydrodynamics and Phytoplankton Dynamics in Shallow Estuaries. Ph.D. Dissertation, Stanford University.
- Cloern, J.E., C. Grenz, and L. Videgar- Lucas. 1995. An empirical model of the phytoplankton chlorophyll/carbon ratio – the conversion factor between productivity and growth rate. *Limnology and Oceanography* 40(7): 1313-1321. [http://www.aslo.org/lo/toc/vol\\_40/issue\\_7/1313.pdf](http://www.aslo.org/lo/toc/vol_40/issue_7/1313.pdf)
- Videgar, L.L., J.R. Koseff, and S.G. Monismith. 1993. Numerical models of phytoplankton dynamics for shallow estuaries, in: *Hydraulic Engineering '93*, ed. H.W. Shen, S.T. Su, and F. Wen. ASCE, 1025-1030.