University of Maryland
CENTER FOR ENVIRONMENTAL SCIENCE

CURRICULUM VITAE

NAME: Goodwin, Peter **DATE:** July 1, 2024

RANK OR TITLE: Professor Emeritus, UMCES
Past President, UMCES

MAILING ADDRESS: UMCES
University Administration,
Horn Point Laboratory,
PO Box 775, Cambridge.
Maryland, 21613

EDUCATION:

Degrees:

Ph.D. Hydraulic and Coastal Engineering, 1986, University of California, Berkeley
(In collaboration with the California Institute of Technology)
Major Professor: H.B. Fischer (Dec.), R.J. Sobey, L. Leopold (UC Berkeley) and N.H. Brooks (Caltech)

M.S. Hydraulic and Coastal Engineering, 1982, University of California, Berkeley

B.Sc. Civil Engineering (First Class Honors), 1978, University of Southampton, United Kingdom

Professional Background and Interests

Peter Goodwin served as the President of the University of Maryland Center for Environmental Science, an independent graduate university for the environment within the University System of Maryland (USM) and served as the Vice-Chancellor of Environmental Sustainability for USM.

Peter Goodwin held a federal appointment as the Lead Scientist for the Delta Science Program in California. This program supports research, communication (including an online peer-reviewed journal), and facilitates synthesis activities across agencies, academia and organizations that support the legally mandated goals of water supply reliability and ecosystem recovery. He is the founder and Director Emeritus of the Center for Ecohydraulics Research at the University of Idaho, an interdisciplinary institute working on the simulation of ecological response to management actions or changes in physical processes of rivers, lakes, estuaries and wetlands. His research interests include modeling physical processes in natural and disturbed aquatic systems, and quantifying benefits of restoration activities. These activities include the River Basin Assessment Framework (RBAF) to evaluate the sustainability of river systems under different management scenarios. Dr. Goodwin has participated in river restoration, coastal wetland sustainability, flood control and sediment management projects throughout California and the Columbia River Basin. International studies include the Lake Amatitlan watershed in Guatemala and the multi-national Patagonian Ecosystems Research Center (CIEP) in Chile since 2003. He has undertaken numerous modeling studies of estuarine, coastal and tidal wetland systems, including Mugu Lagoon, San Elijo Lagoon, Venice Lagoon, San Dieguito Lagoon, the Russian River Estuary, Napa Salt Ponds and Delaware Bay.

As Director of Idaho EPSCoR/IDeA, he established ONEIdaho, an initiative that links Idaho Universities and Colleges through strategic research initiatives to build critical mass in the state, integrates research with education, supports economic development and contributes to national research networks. This program also emphasizes building the K-12 STEM pipeline. and develops strategies and programs to engage under-served and under-represented communities.

Peter Goodwin has taught undergraduate, graduate and continuing education courses in fluid mechanics, hydraulic engineering, sediment transport, hydrology, computational hydraulics, numerical methods and interdisciplinary graduate classes on ecosystem restoration and sustainability.

EXPERIENCE:

Academic Appointments:

2024-present	Professor Emeritus, University of Maryland Center for Environmental Science (UMCES)
2017-2024	President and Professor, UMCES
2018-2023	Vice-Chancellor for Environmental Sustainability, University System of Maryland (USM)
2017-present	Honorary Professor of the Chinese Institute of Water Resources and Hydropower Research
2017-2023	Advisory Professorship, Hohai University, Nanjing, China
2017-2022	Academic Master, '*111 Project'* Discipline Innovation and Research Base. Hohai University, Nanjing.
2017-present	Professor Emeritus and Director Emeritus, University of Idaho
2012-2015	Lead Scientist, California Delta Science Program
2010-2017	Director, Idaho NSF EPSCoR/NIH IDeA
2008-2017	Affiliate Graduate Faculty, Department of Civil Engineering, Boise State University
2005-2017	Director, Center for Ecohydraulics Research, University of Idaho
2002-2017	Professor, Department of Civil Engineering, University of Idaho
2001-2017	DeVlieg Presidential Professor of Ecohydraulics, University of Idaho
1996-2002	Associate Professor, Department of Civil Engineering, University of Idaho
1998-2017	Adjunct Professor, Department of Biological and Agricultural Engineering, University of Idaho
1990	Visiting Instructor, Department of Civil Engineering, University of California, Berkeley
1989-1996	External Research Adviser, Computational Hydraulics and Environmental Modeling Research Group, University of Bradford, United Kingdom
1987-1989	Academic Staff Member, Computational Hydraulics and Environmental Modeling Research Group, University of Bradford, United Kingdom
1986-1989	Lecturer in Water Engineering, Department of Civil Engineering, University of Bradford, United Kingdom

Non-Academic Employment:

1989-1996	Technical Director and a Founding Principal, Philip Williams and Associates [PWA], now Environmental Science Associates, [ESA]. San Francisco.
1978-1981	Graduate Engineer, Sir M. MacDonald and Partners, Cambridge, UK.

Selected State, National and International Science and Engineering Committees

2024-2025	Chair, Committee for the Review of the Long-term Operations of the Central Valley Project and the State Water Project, California. National Academies of Science, Engineering and Medicine
2022-2027	Science and Technology Commission of the China Institute of Water Resources and Hydropower Research, Beijing.
2020-2023	Board of Trustees, The Nature Conservancy, Maryland/DC Chapter
2020-present	Associate Editor, River Journal. ISSN 2750-4867
2020-present	Editorial Board, Journal of Ecohydraulics
2017-2023	Chair, Governor's BayStat Scientific Committee
2017-2023	Governor's Bay Cabinet, State of Maryland
2017-2023	Maryland's Climate Change Commission, Member *Chair, MCCC Science and Technical Working Group*
2017-2023	Coast Smart Council, State of Maryland
2017-2023	Maryland Dredge Material Management Program *Management Committee and Executive Committee*
2017-2023	Trustee, Chesapeake Research Consortium, Inc.
2017-2023	Environment Council, Maryland Office of the Attorney General
2015-2019	President, International Association for Hydro-Environment Engineering and Research [www.iahr.org]
2013-2019	International Advisory Committee, River Experiment Center, Korea Institute of Construction Technology. Chair 2013-15.
2013-2015	Co-opted Member, International Association for Hydro-environment Engineering and Research, Madrid and Beijing. www.iahr.org
2011-2017	Project Director Advisory Council, NSF EPSCoR Program
2010-2017	National EPSCoR Foundation Board Member.
2008-2009	External Peer Review of the Mississippi Coastal Improvements Program (MsCIP) Comprehensive Plan. For Battelle and the US Army Corps of Engineers.
2007-2012	Vice-President, International Association for Hydraulic Research and Engineering, July 2007. Elected Council member 2003-07.
2007-2012	Independent Science Review Committee, Singapore-Delft Water Alliance, National University of Singapore.
2007	External Review Panel, Sediment Transport Modeling Review. Grand Canyon Monitoring and Research Center. February 15-16, 2007. USGS Pacific Science Center, Santa Cruz.
2006-2012	Science Board, Louisiana Coastal Area Plan (rebuilding the ecosystem and wetlands of coastal Louisiana post- Hurricane Katrina). *Chair from 2009.* http://el.erdc.usace.army.mil/lcast/, http://lacoast.gov/ http://www.louisianacoastalplanning.org/
2006-2017	Member of Board, Boise Watershed Education Center: *Exhibiting Stewardship for the Future*, City of Boise.
2006-2008	NSF Advisory Committee on the WATERs Network Testbed Initiative

Selected National/International Science and Engineering Committees (cont.):

2006	NSF Workshop. EPSCoR 2020: *Expanding State Participation in Research in the 21st Century – A New Vision for the Experimental Program to Stimulate Competitive Research (EPSCoR).* PI: Jerome D. Odom. NSF Award# 0630747.
2006-10	Independent Science Board, CALFED program, California http://www.calwater.ca.gov
2005-06	Committee on Environmental Aspects of Integrated Flood Management, World Meteorological Organization, WMO/GWP Associated Programme on Flood Management. Geneva, Switzerland.
2005-2012.	Science Advisory Panel. Tahoe Environmental Research Center, University of California.
2004-2012	Member of the Review College for the Engineering and Physical Sciences Research Council, UK.
2004-2012	Science Steering Committee, Multi-national Center for Patagonia Ecosystems Research (CIEP), Chile.
2005-07	NSF Committee to develop the Science Plan for the Collaborative Large-Scale Engineering Analysis Network for Environmental Research (CLEANER)
2004	Participant in NSF Project Science, Aspen Institute of Physics, October.
2004	Participant in NSF Sensors for Environmental Observatories, University of Washington, December.
2002-2006	National Academy of Sciences, Committee om the Restoration and Protection of Coastal Louisiana.
1998-2017	Stake-holders Advisory Committee. The Northwest Watershed Research Center, USDA Agricultural Research Service.
1996-2004	International Association for Hydraulic Research, Section Committee on Ecohydraulics
1996-2001	American Society of Civil Engineers, Chair, Task Committee on Tidal Wetland Restoration
1995-98	Chartered Institution of Water and Environmental Management, Overseas Correspondent
1994-96	Advisory Committee on Coastal Inlet Research Program, U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg
1994	Invited Contributor to NATO Advanced Research Workshop on Hydroinformatics, Castle Vanenburg, the Netherlands
1993-2001	International Association for Hydraulic Research, U.S. Representative, Committee on Hydroinformatics (formerly Computational Hydraulics)
1991-94	ASCE, Tidal Hydraulics Technical Committee (Chair, 1992-93)
1989-92	External Advisor to the Computational Hydraulics and Environmental Modeling Research Group, University of Bradford, United Kingdom
1987-90	Elected Member, Pennine Hydrological Group, Institution of Civil Engineers
1987-89	Working Party on Flood Channels, Science and Engineering Research Council, UK.

TEACHING ACCOMPLISHMENTS:

Courses Taught (University of California, Berkeley, University of Idaho and University of Bradford UK):

Undergraduate:

CE421/AgE451: Engineering Hydrology[1,2]
CE428/AgE458: Open Channel Flow[1,2]
Fluid Mechanics
Hydraulic Engineering
Coastal Engineering
Numerical Methods in Engineering

Graduate:

CE504: Physical Processes in River Management
CE524: Water Resources Planning [1,2]
CE528: Stochastic Hydrology [1,2]
CE529/AgE555: Natural Channel Flow[1,2]
CE521: Sedimentation Engineering [1]
CE209: Mixing in Inland and Coastal Waters

Other:

CE504: PE Review Course – Civil Engineering
MOOC: Waters of the World. University of Colorado. Spring 2015

[1] denotes class is delivered live and through compressed video (live multiple sites in Idaho)
[2] denotes class is delivered live and through video tape (web-assisted classes with students throughout the US and overseas)

Short Courses - Course Organizer:

What is a Natural Hydrograph in Regulated Rivers? The Science of Natural Functional Flows UC Davis, CABA Seminar. January 18, 2013.
Delta Science Fellows – Early Career Leadership Workshop: Creating the Next Generation of Science Leaders for California Water. Delta King, Old Sacramento, California. January 22-24, 2013
An Introduction to Surface Water Modeling for Stream and Riparian Restoration Planning and Design. Society for Ecological Restoration. October 18-19, 2005. The Pines Conference Center, Bass Lake, California. A part of the 12th Annual SERCAL Conference, October 20-22, 2005.
Muddling through Modeling: Overview of Current state of the Science in River, Wetland and Estuarine Modeling. For California State Water Resources Control Board. February, 2005.
Geomorphology and Aquatic Habitat Modeling. University of Concepcion, Chile. March 22-27, 2004. [1.0cr]
An Interagency Workshop to Investigate the Feasibility of a Biobio River Scientific Forum: *Keeping the river functioning and working*. March 29, 2004
Muddling through Modeling: Overview of Current state of the Science in River, Wetland and Estuarine Modeling. For California Department of Fish and Game and the California Department of Water Resources. Sacramento. May 22-23, 2003.
Emerging Computational Methods, Boise, November 12-13, 2002
New Paradigms in River and Estuary Management, Boise. April 2-3, 2001
River Modeling, Boise, October 23-25, 2000.
New Paradigms in River Management. For US Army Corps of Engineers, Walla Walla, Washington, February 1999.

Short Courses - Course Organizer (cont.):

Ecohydraulics: Quantitative Approaches to Watershed Processes, Boise, October 19, 1998.
Tidal Wetland Restoration: ASCE Continuing Education Course, San Francisco, August 1997.
Environmental River Management: Physical Processes in Ecological Restoration, Enhancement and Preservation, University of Idaho, Boise, May 1997.
Mixing and Water Quality in Estuaries and Tidal Wetlands, for U.S. Navy, Environmental Division, Naval Air Station, Point Mugu, May 1995.
Physical Processes in Estuarine and Coastal Wetland Management, University of California, Berkeley, June 9-13, 1992.

Instructor in the following continuing education courses:

Climate Change Adaptation. IAHR 2022 Africa Online Summer School. Lectures on October 3-4, 2022.
Water and Site Development: Saving Money, Avoiding Delay. University of Idaho, Coeur d'Alene and College of Engineering. February 7, 2012.
Hydroacoustic Techniques for Measuring Flow and Sediment Transport in Large River Systems. With the USGS and the University of Concepcion for the Chilean DGA and graduate students. Coyhaique, Patagonia. January-February 2011.
Impactos de la Hidroelectridad sobre el ambiente físico. Concepcion, Chile. Oct 11-30, 2009.
Minimizing environmental impacts of hydropower development: transferring lessons from past projects to a proposed strategy for Chile. January 19, 2009. Taller Científico: Desarrollo Hidroeléctrico en la Patagonia, Coyhaique, Chile.
Integrated River Basin Management: the Role of Technology for the Biobio River, Chile. A Workshop for Industries operating in the Biobio Region. January 22, 2009.
The Use of Technology in Watershed Planning and Management. October 11-12, 2006. Part of the "Watershed Stewardship" workshop for State and Federal Agencies, October 8-21, 2006. UC Riverside. Program supported by CALFED.
Muddling through Modeling: Overview of Current state of the Science in River, Wetland and Estuarine Modeling. For California State Water Resources Control Board. Davis, California. December 2004.
Integrated River Basin Management: Water Quality Assessment and Modeling. A UNESCO/ EU Graduate Program (3 credits). Centro EULA, University of Concepcion. January 2004
Graduate Seminar in River Restoration, University of California, Berkeley. [Instructors included L.B. Leopold and A.L. Riley]. Fall 1998.
Geomorphology in River and Stream Restoration, University of California, Berkeley, April 7-11, 1997; April 22-26, 1996; April 24-28, 1995.
Physical Processes in Environmental River Management, University of California, Berkeley, October 20-22, 1993. Co-organizer.
INSIGHT 88: A program to attract women into science and engineering, July 10-15, 1988.

Students Advised:

External International Ph.D. Examiner:

Sarah Claire Laborde, PhD. Physical and Cultural flows of Lake Como, Italy: cross-current in limnology and anthropology. University of Western Australia, Perth.

Alex Dan Rodrigo García Lancaster. (2011-12). Respuesta de Peces Nativos a Fluctuaciones Decaudal Producidas por la Operación de Centrales Hydroeléctricas en el Río Biobío. University of Concepción, Chile

Wolfgang Kampke. (2010-2014). Ichthyo-hydraulics. Karlsruhe Institute of Technology, Germany.

Maria Loinez. (2009-2014). Source, transport and effects of fine sediment loading on Silver Creek, Idaho. Riskpoint Research Program. Danish Technical University.

Hong Li. (2007-09) Spatial Pattern Dynamics in Aquatic Ecosystem Modelling Delft University of Technology, June 29 2009.

Daniele Botelho (2004-06). Non-Hydrostatic Modelling of Stratified Flow in Lakes and Reservoirs. University of Western Australia, Perth.

Bishnu Devkota (2003-2005). A New Approach to Modeling Large-scale River-Floodplain Systems. University of Western Australia.

Lisa Jane Cluett (2003-04). Morphological responses to changes in discharge: the Lower Ord River, Western Australia. University of Western Australia.

Anthony W. Minns (1998). Artificial Neural Networks in Hydrology. Technical University of Delft. The Netherlands

Major Professor of funded UI Students (Outreach Graduate Students not included):

Ph.D. Shawkat Ali, 2000-03, May 2003
Charles Berenbrock, 2003-2012
Carter Borden, 2009-2014, December 2014
Diego Caamano, 2004-08, December 2008
Christopher Campbell, 2007-2014, May 2014
Steven R. Clayton, 1997-2002, May 2002
Jack Harrison, 2000-05, May 2005
Jasna Muskatirovic, 1999-2005, May 2005
Sharon Parkinson, 2009-2013, December 2013
Shaun Parkinson, 1998-2007, June 2007
Andrew Tranmer, 2008-2013, December 2013
David Tuthill, 1997-2002, December 2002

M.S. Gloria Beattie, 1998-2002, May 2002
Holly Bentz, 2011-2014
Ken Donley, 2000-01, December 2002
Scott King, 1998-2002, May 2002
Steve Lipscomb, 1998-2002, May 2002
Heidi McRoberts, 1999-2002, May 2002
Steve Sweet, 2008-10
Matt Tiedemann, 2009-13, May 2013
Andrew Tranmer, 2004-07, June 2007
Toni Turner, 2005-09, May 2009.

Committee Member of Graduate Students ('Outside' Committee Member not included):

Ph.D. Jeffrey Barry [Major Professor: J. Buffington]
Rohan Benjankar [Major Professor: K. Jorde]
Tai Bui [Major Professor: J. Milligan]
Milos Manic [Major Professor: D. Wilamowski]
Michele Reba [Major Professor: D. Marks]
Daniele Tonina [Major Professor: J. Buffington]

M.S. Christopher Campbell [Major Professor: J. Boll]
Jeremy Newson [Major Professor: J. Boll]
Sharon Parkinson [Major Professor: J. Boll/A. Minns]
Stephen Robischon [Geography, Major Professor: Piotr Jankowski]
Denis Ruttenburg [Major Professor: K. Jorde]

External Committee Member:

Kathryn M. Beheshti (2016-2022). Estuarine transition zones: an experimental approach to understanding the biotic and abiotic drivers of phase shifts. UC Santa Cruz

Joseph Wagenbrenner (2009-2013). Post-Fire Effects on Stream Processes. Biological Systems Engineering. Washington State University.

Leslie Ferguson (2000-05). Quantifying the Effects of Stream Restoration on Fish Populations, University of California, Davis.

Jeffrey A. Lewandowski, Ph.D. (1989-93). Vegetation Resistance and Circulation Modeling in a Tidal Wetland. University of California, Berkeley.

Nicholas E. Klat, Ph.D. (1991-94). Two Dimensional Numerical Modeling of Tidal Wetlands. University of California, Berkeley.

Postgraduate Scholars Sponsored:

Roberto Murillo, Polytechnic University of Madrid
Frauke Koenig, University of Karlsruhe
Mark Morehead, University of Idaho
Christopher Cuhaciyan, University of Idaho
Anthony Minns, Delft Hydraulics (now Deltares).
Steven R. Clayton, University of Idaho
Amanda Rosenberger, USFS Rocky Mountain Research Station
Dan Isaak, USFS Rocky Mountain Research Station
Tony Minns, IHE Delft
Nigel Wright, University of Leeds, UK

SCHOLARSHIP ACCOMPLISHMENTS: (*denotes student)

Books:

Boulton A., C. Dahm, L. Correa, R. Kingsford, K. Jenkins, J. Negishi, F. Nakamura, P. Wijsman, F. Sheldon and P.Goodwin, 2013. Good News: Progress in Successful River Conservation and Restoration. *River Conservation: Challenges and Opportunities*. Fundación BBVA, Spain. 331-358

World Meteorological Organization/ Global Water Partnership, 2006. *Environmental Aspects of Integrated Flood Management*. The Associated Programme on Flood Management. A.C. Tyagi, M. Hyoda, A. Grobicki and WMO Expert Group. APFM Technical Document No. 3. Flood Management Policy Series.WMO, Geneva. 71p.

Drawing Louisiana's New Map: Addressing Land Loss in Coastal Louisiana, 2006. Committee on the Restoration and Protection of Coastal Louisiana. National Academies of Sciences. 190pp.

Falconer, R.A., and P. Goodwin (Eds.). 1994. *Wetland Management*. Thomas Telford, London. 289 pp.

Falconer, R.A., P. Goodwin, and R.G.S. Matthew (Eds.). 1989. *Hydraulic and Environmental Modeling of Coastal, Estuarine and River Waters*. Gower Technical Press. 694 pp.

Refereed Journal Publications:

Tranmer, A., D. Caamano, S.R. Clayton, J.M. Buffington, A.N. Giglou*, P. Goodwin and D. Tonina, 2022. Testing the Effective Discharge Paradigm in Gravel-Bed River Restoration. Geomorphology. Feb 5. https://doi.org/10.1016/j.geomorph.2022.108139

Beheshti*, K.M., C. Endris, P. Goodwin¶, A. Pavlak, K. Wasson, 2022. Burrowing crabs and physical factors hasten marsh recovery at panne edges. PLoS ONE. January. https://doi.org/10.1371/journal.pone.0249330

Borden, C.J and P. Goodwin, 2022. A Framework TOOL for Conceptualizing Integrated Water Resources for Sustainable Water Management. RIVER. v. 1(1). 60-80. ISSN 2750-4867.

Tranmer, A.W., D. Caamano and P. Goodwin, 2020. Identifying dynamic equilibrium of an undeveloped alluvial stream by extremal hypotheses. CATENA, 194. https://doi.org/10.1016/j.catena.2020.104680

Tranmer, A.W., D. Weigel, C.L. Marti, D. Vidergar, R. Benjankar, D. Tonina, P. Goodwin and J. Imberger, 2020. Coupled reservoir-river systems: lessons from an integrated aquatic ecosystem assessment. J. Environmental Management. 260(110107).

Tranmer, A.W., D. Caamano and P. Goodwin, 2020. Evaluation of extremal hypotheses in an undeveloped alluvial river. Progress in Physical Geography- Earth and Environment. DOI:10.1177/0309133319886721.

Refereed Journal Publications (cont.)

Tranmer, A.W, P. Goodwin and D. Caamano, 2018. Assessment of alluvial trends toward dynamic equilibrium under chronic climatic forcing. Advances in Water Resources. 120. 19-34.

Tranmer, A.W, P. Goodwin and D. Caamano, 2018. Assessment of alluvial trends toward dynamic equilibrium under chronic climatic forcing. Advances in Water Resources. 120. 19-34.

Tranmer, A.W., C.L. Marti, D. Tonina, R. Benjankar, D. Weigel, L. Vilhena, C. McGrath, P. Goodwin, M. Tiedeman, J. McKean, J. Imberger, 2018. A hierarchical modelling framework for assessing physical and biochemical characteristics of a regulated river. Ecological Modeling. 368. 78-93

Weigel, D.E., L.C. Vilhena, P. Woods, D. Tonina, A. Tranmer, R. Benjankar, C.L. Marti and P. Goodwin, 2017. Aquatic habitat response to climate-driven hydrologic regimes and water operations in a montane reservoir in the Pacific Northwest, USA. Aquatic Sciences. 79, 953-966.

Goodwin, P., 2016. Science to inform management for resilient river systems in a changing world. River Flow.

Tranmer, A.W, D. Tonina, R. Benjankar, M.Tiedemann and P. Goodwin, 2015. Floodplain persistence and dynamic-equilibrium conditions in a canyon environment. Geomorphology. 250. (December). 147-158.

Yarnell, S.M., G.E. Petts; J.C. Schmidt, A.A. Whipple, E.E. Beller; C.N. Dahm; P. Goodwin; J.H. Viers, 2015. *Functional Flows in Modified Riverscapes: Hydrographs, Habitats and Opportunities* BioScience 2015. doi: 10.1093/biosci/biv102

Dean, R.G., J.T. Wells, H.J. Fernando and P. Goodwin, *2014*. Sediment Diversions on the Lower Mississippi River: Insight from Simple Analytical Models. Journal of Coastal Engineering. 30(1), 13-29 https://doi.org/10.2112/JCOASTRES-D-12-00252.1

Parkinson, S.E.*, P.Goodwin and D. Caamaño, 2012. Flow structure and sustainability of pools in gravel-bed rivers. Environmental Fluid Mechanics. Memorial volume in honor of Gerhard H. Jirka. CRC Press. 175-194. https://doi.org/10.1016/j.ecoleng.2012.05.002

Caamaño, D.*, P. Goodwin and J. Buffington, 2012. Flow structure through pool-riffle sequences and a conceptual model for their sustainability in gravel-bed rivers. River Res. Applic. 28 (3): 377-389.

Benjankar, R.*, K. Jorde, E. Yager, G. Egger, P. Goodwin, N.F. Glenn, 2012. The impact of river modification and dam operation on floodplain vegetation succession trends in teh Kootenai River, USA. Ecological Engineering. 46, Sept. 88-97.

Benjankar, R.*, G. Egger, K. Jorde, P. Goodwin, N.F. Glenn, 2011. Dynamic floodplain vegetation model development for the Kootenai River, USA. Journal of Env. Mngmt.

Refereed Journal Publications (cont.):

Benjankar, R.*, N.F. Glenn, G. Egger, K. Jorde and P. Goodwin, 2010. Comparison of Field Observed and Simulated Map Output from a Dynamic Floodplain Vegetation Model Using Remote Sensing and GIS Techniques. GIScience and Remote Sensing. 47 (4). 480-497.

Caamaño, D*., Goodwin, P., Buffington, J.M., Liou, J.C., Daley-Laursen, S., 2009. A unifying criterion for velocity reversal hypothesis in gravel-bed rivers. Journal of Hydraulic Engineering. ASCE. 135(1). 66-70.

Barry, J.J.*, J.M. Buffington, P. Goodwin, J.G. King, and W.W. Emmett, 2008, Performance of bed-load transport equations relative to geomorphic significance: predicting effective discharge and its transport rate, Journal of Hydraulic Engineering. ASCE. 134(5): 601-615,

Tonina, D.*, C.H. Luce, S.R. Clayton*, S.M. Ali*, J.J. Barry*, B. Rieman, P. Goodwin, J.M. Buffington, C.E. Berenbrock*, *2008*. Hydrological Response to Timber Harvest in Northern Idaho: Implications for Channel Scour and Persistence of Salmonids. Hydrological Processes, 22.

Rumps, J.M*; S.L. Katz, K. Barnas, M.D. Morehead, R. Jenkinson*, S.R. Clayton*, P.Goodwin, 2007. Stream Restoration in the Pacific Northwest: Analysis of Interviews with Project Managers. Journal of Ecology

Klein, L.R, S.R. Clayton*, and P. Goodwin, *2007*. Long-Term Monitoring and Evaluation of the Lower Red River Meadow Restoration Project, Idaho, USA. Journal of Restoration Ecology. 15(2). 223-239.

Goodwin, P., K. Jorde, C. Meier and O. Parra, 2006. Minimizing environmental impacts of hydropower development: transferring lessons from past projects to a proposed strategy for Chile. Journal of Hydroinformatics. 8(3). 1-19. https://doi.org/10.2166/hydro.2006.005

Bernhardt E.S., Palmer, M.A., , J.D. Allan, G. Alexander*, K. Barnas*, S. Brooks*, J. Carr, S. Clayton*, C.N. Dahm, J. Follstad Shah*, D.L. Galat, S.Gloss, P.Goodwin, D.D. Hart, B. Hassett*, R. Jenkinson*, S. Katz, G.M. Kondolf, P.S. Lake, R. Lave, J.L. Meyer, T.K. O'Donnell, L. Pagano, B. Powell and E. Sudduth*, 2005. Synthesizing U.S. River Restoration Efforts. *Science*, **308**, April 29, 636-637.

Goodwin, P., 2006. Closure. Analytical Solutions for Estimating Effective Discharge. *Journal of Hydraulic Engineering.* ASCE. 131(1).

Palmer, M.A., E.S. Bernhardt, J.D. Allan, P.S. Lake, G. Alexander*, S. Brooks*, J. Carr, S. Clayton*, C.N. Dahm, J. Follstad Shah*, D.L. Galat, S.Gloss, P.Goodwin, D.D. Hart, B. Hassett*, R. Jenkinson*, G.M. Kondolf, R. Lave, J.L. Meyer, T.K. O'Donnell, L. Pagano and E. Sudduth*, 2005. Standards for ecological successful river restoration. *Journal of Applied Ecology*, 42(2). 208-217.

Goodwin, P., 2004. Analytical Solutions for Estimating Effective Discharge. *Journal of Hydraulic Engineering. ASCE. 130(8). 729-738.*

Refereed Journal Publications (cont.):

Goodwin, P., 2001. New Paradigms in River and Estuary Management. Forum Article. *Journal of Hydraulic Engineering.* ASCE. 127(10), 792-793.

Goodwin, P., A.J. Mehta and J.B. Zedler, 2001. Tidal Wetland Restoration. *Journal of Coastal Research. SI27. 1-7.*

Goodwin, P. and R.Z. Kamman*, 2001. Mixing and Circulation in Tidal Wetlands. *Journal of Coastal Research. SI27. 109-120*

Slaughter, C.W., P. Goodwin and R. Marbury*, 2000. Watershed Considerations for Integrated Stream Modeling. *International Journal of Sediment Research*, 15(1). 42-50.

Goodwin, P. and T. B. Hardy, 1999. Integrated Simulation of Physical, Chemical and Ecological Processes for River Management. *Journal of Hydroinformatics* 1(1). IAWQ. August. 33-58. https://doi.org/10.2166/hydro.1999.0004

Josselyn, M.N., and P. Goodwin. 1999. Incorporation of Global Climate Change into Tidal Marsh Restoration Planning. *Journal of Current Topics in Wetland Biogeochemistry*, Vol. 3. 62-71.

Goodwin, P. 1996. Predicting the Stability of Tidal Inlets for Wetland and Estuary Management. *Journal of Coastal Research.* SI 23, Winter, 83-101.

Goodwin, P., and P.B. Williams. 1992. Restoration of Coastal Wetlands: The Californian Experience and Potential Applications in Europe. *J. of the Inst. of Water and Environmental Management*, 6, 709-719. https://doi.org/10.1111/j.1747-6593.1992.tb00724.x

Goodwin, P., and R.A. Denton. 1991. Seasonal Influences on the Sediment Transport Characteristics of the Sacramento River, California. *Proceedings of the Institution of Civil Engineers*, Part 2, 91, 163-172.

Sobey, R.J., P. Goodwin, R.J. Thieke*, and R.J. Westburg, Jr*. 1987. Application of Stokes, Cnoidal and Fourier Wave Theories. *Journal of Waterways, Port, Coastal and Ocean Engineering*, ASCE, 113(6), 565-587.

Lyn, D.A., and P. Goodwin. 1987. Stability of a General Preissmann Scheme. *Journal of Hydraulic Engineering*, ASCE, 113(1), 16-28.

Refereed Publications:

Grumbles, B., K.M. Laumann and P.Goodwin, 2023. Net-Zero and Water highlighting US Innovation and Action on Mitigation, Adaptation and Resilience. Hydrolink. [3] 8-12.

Goodwin, P. and D. Wegner, 2022. Water Security: Climate Change and the Great Unknowns. Hydrolink. [2] 16-19.

Refereed Publications (cont.):

Arnold, Richard R., William C. Dennison, Louis A. Etgen, Peter Goodwin, Michael J. Paolisso, Gary Shenk, Ann P. Swanson, Vanessa Vargas-Nguyen. 2021 Chesapeake Bay: A case study in resiliency and restoration. Hydrolink 1|2021: 25-28.

Medellin-Azuara, J., J.R. Lund, P. Goodwin, C. Enright, B. Bray, R. Argent, J. Ariyama, J.F. Bratton, J. Burau, M. Chotkowski, A. Escriva-Bou, J. W. Lee, S. Lindley, M. McWilliams, S. Peckman, N. Quinn, D. Senn, S. Siegel, J. Wolfe, 2017. Integrated Modeling of Estuarine Systems: Lessons for the Sacramento-San Joaquin Delta. Report for the Natural Resources Agency, California. 18p plus appendices.

Azimi-Gaylon, S., S. Fong, P. Goodwin, A. Hale, G. Isaac, A. Osti, F. Schilling, T. Slawecki, S.Steinberg, M. Tomkins, L. Videmsky, 2015. Enhancing the Vision for Managing California's Environmental Information. Delta Stewardship Council, a California State Agency. 35p

Morrice, K. and P. Goodwin, 2013. Challenges to Managing California's 20th Century Water Projects in a Climate of Change. Hydrolink. IAHR, Madrid Spain. 2013 (1).

Dean R.G., J.T. Wells, H.J. Fernando and P. Goodwin, 2013. River Diversions: Principles, Processes, Challenges and Opportunities: A Guidance Document. Final Report of the LCA Science Board to the Louisiana Coastal Area (LCA) Science and Technology Program Office through the State of Louisiana Cooperative Endeavour Agreement 2503-12-30. 47p.

Goodwin, P, C.M. Falter and A.D.K. Betts*, 2000. Managing for Unforeseen Consequences of Large Dam Operation. Invited White Paper by the World Commission on Dams. Thematic Review Options Assessment IV.5: Operating, Monitoring and Decommissioning of Dams. 26p.

Weinstein, M., P., K.R. Philipp and P. Goodwin. 2000. Catastrophes, Near-Catastrophes and the Bounds of Expectation: Success Criteria for Macroscale Marsh Restoration. In Weinstein, M. P. and D. A. Kreeger, eds., *Concepts and Controversies in Tidal Marsh Ecology*. Kluwer Academic Publishing: Dordrecht, The Netherlands, 237-259.

Florsheim, J., P. Goodwin, and L. Marcus. 1998. Geomorphic Effects of Gravel Extraction in the Russian River, California. In *Aggregate Resources: A Global Perspective*. A.A. Balkema, Rotterdam, 88-99.

Tuthill, D.*, and P. Goodwin. 1998. Developing Decision Support for Implementation of Conjunctive Management in the Boise River Basin, Idaho. *Hydroinformatics 98*, A.A. Balkema/Rotterdam/Brookfield. 341-346

Slaughter, C.W., and P. Goodwin. 1998. Hydrologic Modeling Approaches for Integrated Management of Stream Systems. *First Federal Interagency Hydrologic Modeling Conference*, April 1998. I, 119-125.

Refereed Publications (cont.):

Barnett, A.M., P. Goodwin, R.S. Grove, and F.L. Melone. 1994. Interdisciplinary Approach to Coastal Wetland Restoration. In *Hydroinformatics '94: Selected Papers of the First International Conference on Hydroinformatics*, Delft, September 22-24. A. Verwey, A. Minns, V. Babovic, and C. Maksimovic, Editors. A.A. Balkema, Rotterdam, 391-396.

Goodwin, P. 1994. Physical Processes in Tidal Wetland Restoration. *Procs. of the First International Conference on Wetland Management*, June 2-4, Institution of Civil Engineers, London. 130-142.

Goodwin, P., J. Lewandowski*, and R.J. Sobey. 1992. Hydrodynamic Simulation of Small-Scale Tidal Wetlands. *Hydraulic and Environmental Modeling of Estuarine and River Waters*, Chapter 13, R.A. Falconer, K. Shiono, and R.G.S. Matthew, Eds., 149-161.

Goodwin, P., R.G.S. Matthew, and N.G. Wright*. 1989. Simulation of Flood Wave Propagation Due to Dam Failure Using the Preissman Scheme. *Proceedings of the International Conference on Hydraulic and Environmental Modeling of Coastal, Estuarine and River Waters*, Bradford, United Kingdom, 494-505.

Conference Proceedings and Articles:

Tranmer, A., M. Tiedemann, R. Ettema, D. Tonina and P.Goodwin, 2019. Ice Formation and Flow Regimes in Regulated Rivers, Central Idaho USA. Proceedings of the 37th IAHR World Congress, Kuala Lumpur. Paper 4A-2f.

Tranmer, A.W., Caamaño, D., Goodwin, P., 2014. The use of extremal hypotheses in predicting channel evolution at Red River Idaho, USA. Proceedings from the XXV Latin American Hydraulics Congress, IAHR, Santiago, Chile. 9 p.

Goodwin, P., 2014. Building Integrated and Hybrid Models for River Restoration. 1st Andong River Experiment Forum. April 29th. South Korea.

Tranmer, A.W., D. Tonina, P. Goodwin, R. Benjanker, M.G. Tiedemann, P. Woods, 2014. A Cascade of Models to Guide Reservoir Operations: Application on the Deadwood River System, Idaho, USA. Hydroinformatics 2014. R74. New York.

Tranmer, A.W.* and P. Goodwin, 2013. Use of Extremal Hypotheses as a Means of Predicting Alluvial Channel Dimensions in River Restoration. AGU Fall Meeting. 9-13 Dec. San Francisco. EP54A-01.

Tranmer*, A.W., D. Tonina, P. Goodwin, R. Benjankar, M. G. Tiedemann*. 2013. Stream Power Changes in an Alluvial Canyon - Deadwood River, USA. *Procs. of IAHR World Congress.* Tsinghua University Press, Beijing.

Benjankar, R., Tonina, D., Tranmer, A.W*., Tiedemann, M.G.*, Goodwin, P., 2013. Impacts of dam regulated discharge scenarios on the thermal regime of the Lower Deadwood River in Central Idaho, USA. Proceedings of the 35th IAHR World Congress, IAHR, Chengdu, China. 9 p.

Conference Proceedings and Articles (cont.):

Budwig, R. and P. Goodwin, 2011. The Center for Ecohydraulics Research Mountain StreamLab – a facility for collaborative research and education. Proceedings of the 17th International Conference on Engineering Education, Belfast, Northern Ireland, August 21 – 26, 2011.

Parkinson, S*., D. Caamaño, P. Goodwin and R. Benjankar, 2011. Field Evaluation of Pool Sustainability in Gravel Bed Rivers. 34th IAHR World Congress. Balance and Uncertainty: Water in a Changing World. Brisbane, Australia, June 26-July 1, 2011. 3706.

Tonina, D., J. McKean, C. Tang, and P. Goodwin, 2011. New Tools for Aquatic Habitat Modeling. 34th IAHR World Congress. Balance and Uncertainty: Water in a Changing World. Brisbane, Australia, June 26-July 1, 2011. 3137.

Neupane, S., E. Ottenbreit, S.M. Helalur Rashid, J. Wagenbrenner, P. Goodwin and D. R. Tuthill, Jr.. 2011. Re-Building Consensus in The Henry's Fork Watershed: A Technical and Social Case Study Leading to Path Forward for The Henry's Lake Outlet. 10th Annual River Restoration Northwest Symposium. Session 8. Skamania Lodge, Washington. Feb 1-3.

Ruttenberg, D.A., K. Jorde, P. Goodwin, S. Clayton and P. Connolly, 2009. Hydraulic modeling and upstream fish passage effectiveness evaluation at rock vortex weirs based on field observations. 33rd IAHR World Congress, Water Engineering for a Sustainable Environment, Vancouver, British Columbia, Aug 9-14. TS15, C1.1-8.

Caamano, D., M. McGowan and P. Goodwin, 2009. Green LiDAR and Two Dimensional Hydraulic Floodplain Modeling: An Optimal Tool for Flood Risk Outreach and Planning. 8th HIC-1A2-AM4. International Conference on Hydroinformatics. International Association for Hydraulic Engineering and Research. Concepción, Chile. January 12-16.

Budwig, R., McLaughlin, R.E., Clayton, S., Sweet, S., and Goodwin, P., 2009. Physical modeling of wave generation for the Boise River Recreation Park in the Center for Ecohydraulics Stream Laboratory. Procs. of the International Conference of Science and Information Technologies for Sustainable Management of Aquatic Ecosystems, Concepción, Chile, January 12 -16, 2009.

Tranmer, A.W. and P. Goodwin, 2009. Can General Circulation Models Detect Climate Change Signature in Catchment Scale Hydrology in the Intermountain West, USA? Procs. of the Proceedings of the International Conference of Science and Information Technologies for Sustainable Management of Aquatic Ecosystems, Concepción, Chile, January 12 -16, 2009.

McCarty, K., M. Manic, P. Goodwin, M. Piasecki, 2009. Submission and Querying Tools for A Hydrologic Information Systems Database. HIC-1B1-DM4. 8th International Conference on Hydroinformatics. IAHR. Concepción, Chile. January 12-16, 2009

Caamano, D. and P. Goodwin, 2007. On the Velocity Reversal Hypothesis. .IAHR Biennial Congress. Venice, Italy. July 4-8.

Caamano, D., P. Goodwin and M.Manic, 2006. Derivation of Bedload Transport Formula Using Artificial Neural Networks. 7th Int. Conf. on Hydroinformatics, Nice, France. IAHR.

Barry, J.J., J.M. Buffington, J.G. King, and P. Goodwin, 2006, The Performance of bed load transport equations in mountain gravel-bed rivers: A re-analysis. Proceedings of the 8th Federal Interagency Sedimentation Conference, Reno, NV, April 2-6, 2006.

Conference Proceedings and Articles (cont.):

Goodwin, P., 2005. Sediment transport in the sustainability of river form and process. NSF Pan-American Advanced Study Institute. Is sustainable hydropower development in an adaptive management framework achievable? Concepcion, Chile. January 7-30, 2005.

Muskatirovic, J. and P. Goodwin, 2005. Prediction of bedload transport in gravel bed rivers with stable armor layer. XXXI IAHR Congress: Water Engineering for the Future – Choice and Challenges. Paper: PAHR05-0419. September 11-16, Seoul, Korea.

Barry, J.J., J.M. Buffington and P.Goodwin, 2004. Performance of Bedload Transport Equations Relative to Geomorphic Significance. AGU Conference, San Francisco

Clayton S.R. , J.K. Brostrom, I. Scherrer, P. Goodwin, and K. Jorde "Quantifying Physical and Biological Responses to Stream Restoration", "Annual Meeting of Western Division of the American Fisheries Society", February 2004, Salt Lake City, USA

Goodwin, P., 2003. Restoration of aquatic ecosystems: detecting and quantifying change. Invited Paper at *Water: histories, cultures and ecologies* Conference. Perth, Australia.

Muskatirovic, J. and P. Goodwin, 2003. On the prediction of Sediment Transport in Gravel Bed Rivers: Examples from Streams in Central Idaho. XXX IAHR Congress. C 663-670.

Goodwin, P., S.J. Clayton*, and J.K. Brostrom, 2002. Application of Adaptive Management to Stream Restoration at the Reach Scale. Invited Paper at the Symposium "*Adaptive Management in the Columbia Basin and Beyond."* International Conference of the Transboundary Group and American Fisheries Society. Toward Ecosystem-Based Management: Breaking Down Barriers in the Columbia River Basin and Beyond. Spokane, Washington, April 27-May 1, 2002.

Clayton S.R. *, J.K. Brostrom and P. Goodwin, 2002. Evaluating Physical and Biological Responses to River Restoration. International Conference of the Transboundary Group and American Fisheries Society. Toward Ecosystem-Based Management: Breaking Down Barriers in the Columbia River Basin and Beyond. Spokane, Washington, April 27-May 1, 2002.

Ali, S.* and P. Goodwin, 2002. The Predictive Ability of 1-d Models to Simulate Floodplain Processes. Hydroinformatics 2002. Volume I: Model Development and Data Management. Cardiff, UK. July 2002. IAHR.247-52.

Tuthill, D.R.*, P. Goodwin and P. Jankowski, 2002. Utilization of Emerging Geo-spatial Technologies in Conjunctive Administration of Surface and Groundwater at the Catchment Scale. Hydroinformatics 2002. Volume II: Software Tools and Management Systems. Cardiff, UK. July 2002. IAHR.916-922.

Wright, N.G., M.T. Dastorani*, P. Goodwin and C.W. Slaughter, 2002. A Combination of Neural Networks and Hydrodynamics for River Flow Prediction. Hydroinformatics 2002. Volume II: Software Tools and Management Systems. Cardiff, UK. July 2002. IAHR.1627-34.

Goodwin, P., 2000. A View of Hydroinformatics in the United States. Editorial in the *Journal of Hydroinformatics*, IAHR-IWA.1-3.

Wright, N.G., P. Goodwin and S. Ali*, 2001. The Importance of Appropriate Model Selection in Quantifying the Role of Floodplains in Flood Hazard Prediction. *Proceedings of the Symposium on Environmental Hydraulics*, December 2001, University of Arizona.

Conference Proceedings and Articles (cont.):

Clayton, S.R*, G.S. Beattie* and P. Goodwin, 2001. Performance Evaluation of River Restoration. *21st Century: The New Era for Hydraulic Research and Its Application.* XXIX IAHR Congress of the International Association for Hydraulic Research. Beijing, China. September 17-21, 2001. Vol. D1, 101-107.

Parkinson, S.K*., J.A. Chandler and P. Goodwin, 2001. Simulation of White Sturgeon Response under Managed Flow Regimes. *21st Century: The New Era for Hydraulic Research and Its Application.* XXIX IAHR Congress of the International Association for Hydraulic Research. Beijing, China. September 17-21, 2001. Vol D2. 697-705.

Muskatirovic, J.* and P. Goodwin, 2001. Aquatic Ecosystem Review in the Salmon River Basin. *21st Century: The New Era for Hydraulic Research and Its Application.* XXIX IAHR Congress of the International Association for Hydraulic Research. Beijing, China. September 17-21, 2001. Vol. B. 347-351.

Tuthill, D.R.,* and P. Goodwin, 2001. Utilization of Emerging Geo-Spatial Technologies in the Implementation of Conjunctive Management of Surface and Ground Water in the Boise River Basin. (Invited paper and presentation at the Environmental & Water Resources Institute Specialty *Symposium on Integrated Surface and Ground Water Management* held as part of the World Water and Environmental Resources Congress in Orlando, Florida, May 20-24, 2001).

Ali, S.*, C.W. Slaughter and P. Goodwin, 2001. Ecohydraulic model application in a steep rangeland. *Seventh Federal Interagency Sediment Transport Conference*. Session 6A. Reno, Nevada. Vol. I: Sediment and Flow Modeling, 168-175.

Goodwin P., J. Muskatirovic*, K. Overton and B. Rieman, 2000. Aquatic Systems Review. Invited opening keynote lecture, 4th International Conference on Hydroinformatics, *Hydroinformatics 2000*. Iowa Institute of Hydraulic Research, 23-27 July. International Association for Hydraulic Research. 1-17.

Beattie, G.S. *, P. Goodwin, S.R. Clayton*, S. Bauer and A.W. Minns, 2000. Performance Evaluation of River Restoration. In *New Trends in Water and Environmental Engineering for Safety and Life: Eco-compatible Solutions for the Aquatic Environment.* U. Maione, B.M. Lehto, R. Monti (eds.). A.A. Balkema, 18-29.

Overton, C.K., P. Goodwin and J. Muskatirovic*, 2000. A subbasin assessment approach for developing native salmonid conservation and restoration strategies. 12th International Trout Stream Habitat Improvement Conference "*Trout Stream Habitat in the New Millennium.*" Waterville, New Hampshire. Sept 11-13.

Tuthill, Jr., D.R.*, and P. Goodwin, 2000. Implementation of conjunctive management in the Boise River basin using a GIS-based decision support system. 4th International Conference on Hydroinformatics, *Hydroinformatics 2000*. Iowa Institute of Hydraulic Research, 23-27 July. International Association for Hydraulic Research.

Parkinson, S.K.*, Chandler, J.A. and P. Goodwin, 2000. An approach to simulating behavioral responses of juvenile white sturgeon to river management strategies. 4th International Conference on Hydroinformatics, *Hydroinformatics 2000*. Iowa Institute of Hydraulic Research, 23-27 July. International Association for Hydraulic Research.

Conference Proceedings and Articles (cont.):

Slaughter, C.W., and P. Goodwin, 2000. Dynamic hydraulic modeling for a rangeland stream. Soils/Hydrology Technical Session, *Society for Range Management Conference 2000*, Boise, Idaho, February.

Slaughter, C.W., G. Hyde, J.A. Scanlin, P. Goodwin and R. Beckwith, 2000. Partnerships incorporating students in watershed research, *Society for Range Management 2000*, Boise, Idaho, February.

Slaughter, C.W., P. Goodwin, J.A. Scanlin, B. Beckwith and G. Hyde, 2000. The role of students in collaborative watershed research. *8th Biennial Watershed Management Council Conference*, Pac. Grove.

Slaughter, C.W., P. Goodwin, and R. Marbury*, 1999. Watershed Considerations for Integrated Stream Modeling. Procs. *Sediment Management in Agricultural Watersheds. US-China Bilateral Conference.* Oxford, MS. December 6-9.

Parkinson S.K.*, J.A. Chandler and P. Goodwin 1999, Conceptual Decision Support for Preserving White Sturgeon Populations. *3rd International Conference on Ecohydraulics*, IAHR. Salt Lake City, July.

S.R. Clayton*, P. Goodwin, G.B. Beattie*, A.W. Minns, and S. Bauer, 1999. Monitoring Performance of River Restoration Projects. *3rd International Conference on Ecohydraulics*, IAHR. Salt Lake City, July.

Klein, L.R, D. Dawes, P. Goodwin, and S. Bauer. 1998. Lower Red River Meadow Restoration: A Case Study. Conference and Annual Meeting of the Society for Ecological Restoration. *Ecosystem Restoration: Turning the Tide*, October 28-30, Tacoma, Washington.

Slaughter, C.W., P. Goodwin, and R.J. Marbury*. 1998. Research Applications of Long-Term Catchment Information: Reynolds Creek Experimental Watershed, Idaho, US. Poster Presentation, *Hydroinformatics 98*, Copenhagen, Denmark.

Neary, V., A. Mead, P.B. Williams, and P. Goodwin. 1998. Geomorphic Design for Large Scale River Restoration- the Napa River. Engineering Approaches to Ecosystem Restoration, D.F. Hayes, Ed.. Procs. of *ASCE Wetlands Engineering and River Restoration Conference*, Denver, March. ASCE.

Goodwin, P., C.W. Slaughter, and R. Marbury*. 1998. Dominant Discharge as a Design Criteria in River Restoration. Engineering Approaches to Ecosystem Restoration, D.F. Hayes, Ed.. Procs. of *ASCE Wetlands Engineering and River Restoration Conference*, Denver, March. ASCE.

Goodwin, P., K. Philipp, and M.N. Josselyn. 1998. Hydrologic and Geomorphic Design for Large Scale Tidal Wetlands. Engineering Approaches to Ecosystem Restoration, D.F. Hayes, Ed.. Procs. of *ASCE Wetlands Engineering and River Restoration Conference*, Denver, March. ASCE.

Slaughter, C.W., P. Goodwin, and L. Huber. 1998. Upland Watershed Considerations for Comprehensive River Restoration. Engineering Approaches to Ecosystem Restoration, D.F. Hayes, Ed.. Procs. of *ASCE Wetlands Engineering and River Restoration Conference*, Denver, March. ASCE. 96-101.

Slaughter, C.W. and P. Goodwin, 1998. Hydrologic Modeling Approaches for Integrated Management of Stream Systems. Procs. *First Federal Interagency Hydrologic Modeling Conference*, Interagency Advisory Committee on Water Data, Vol. I. 119-125.

Slaughter, C.W., and P. Goodwin. 1998. Application of Hydraulic Modeling Approaches to a Rangeland Watershed Stream. *51st Annual Meeting, Society for Range Management*, Guadalajara, February, 49-55.

Conference Proceedings and Articles (cont.):

Neary, V.S., P.B. Williams and P. Goodwin, 1998. A Geomorphic Channel Design for Napa River. *Water Resources Engineering '98*. Procs. of Int. Water Resources Engineering Conference, Memphis, Tennessee, August 3-7. S.R. Abt, J. Young-Pezeshk and C.C. Watson eds., ASCE.

Neary, V.S., A. Mead, P.B. Williams, and P. Goodwin. 1997. Hydraulic Geometry for River Estuaries. *Environmental and Coastal Hydraulics: Protecting the Aquatic Habitat*. Vol. 1. Procs. 27th Congress of the International Association for Hydraulic Research and the ASCE Conference: Water for a Changing Global Community, 683-688.

Josselyn, M.N., and P. Goodwin. 1997. Incorporation of Global Climate Change into Tidal Marsh Restoration Planning. *Fifth Symposium on the Biogeochemistry of Wetlands*. University of London.

Balletto, J.H., P. Goodwin, M.N. Josselyn, and K.J. Salamon. 1996. Macro-Scale Wetland Restoration: Meeting the Multiple Demands of Scientists, Regulators and the Public. *Wetlands for the Future*, Intecol International Wetland Conference, Perth, Western Australia, p. 112.

Jordan, J.J., Y. Rubin, and P. Goodwin. 1995. Using Modeling to Establish Aggregate Mining Standards for Groundwater Protection. *Water Resources at Risk*, W.R. Hotchkiss, J.S. Downey, E.D. Gutentag, and J.E. Moore, American Institute of Hydrology, 97-107.

Jordan, J.J., J. Florsheim, and P. Goodwin. 1995. Using Water Resource and Riparian Parameters to Develop a River Management Program. *Water Resources at Risk*, W.R. Hotchkiss, J.S. Downey, E.D. Gutentag, and J.E. Moore, American Institute of Hydrology, 88-96.

Havno, K. and P. Goodwin, 1995. Hydraulic Modeling of Ecological Criteria: toward an integrated approach for hydrologic, geomorphic and ecologic understanding of river corridors. Seminar 2. *XXVI IAHR Congress*, London. 1-6.

Goodwin, P. 1994. Circulation and Mass Transport in Tidal Wetlands. Invited Paper at the *Annual Conference of the Western Society of Naturalists*, Monterey, California, December 26-30.

Liang, H.B., R.N. Coats, and P. Goodwin. 1994. The Limitations of Computer Modeling for Environmental River Management. *Procs. of the American Watershed Management Council Conference*, Ashland, Oregon.

Cuffe, C.K., P. Goodwin, and J. Nielsen. 1993. Physical and Biological Effects of Inlet Closure and Breaching - Russian River Estuary, California. *Proceedings of the American Fisheries Meeting*.

Goodwin, P., J. Nielsen, and C.K. Cuffe. 1993. The Tidal Inlet Characteristics of a Small California Estuary. Hydraulic Engineering '93. *Proceedings of ASCE National Conference on Hydraulic Engineering*, H.W. Shen, S.T. Su, and Feng Wen, Eds., Vol. 1, 562-567.

Liang, H.B., C.K. Cuffe, P. Goodwin, and T. Abbe. 1993. Wave-Induced Erosion on a Tidal Marsh in Corte Madera Bay. Coastal Zone '93. *Proceedings of the 8th Symposium on Coastal and Ocean Management*, New Orleans, Louisiana.

Lewandowski, J.A.*, R.J. Sobey, and P. Goodwin. 1993. A Hydrodynamic Model for a Tidal Wetland. Hydraulic Engineering '93. *Proceedings of ASCE National Hydraulic Conference*, H.W. Shen, S.T. Su, and Feng Wen, Eds., Vol. 1, 574-579.

Conference Proceedings and Articles (cont.):

Florsheim, J.L., P. Goodwin, and Y. Rubin. 1992. Historic Changes in Geomorphic and Hydrologic Processes in the Russian River, California. *EOS Transactions*, AGU 73(43):41.

Florsheim, J.L., P. Goodwin, P.B. Williams, T. Abbe, and F.A. Booker. 1991. Analysis for Restoration of a Tidal Marsh, Slough Channel Evolution and Marsh Plain Sedimentation, San Francisco Bay, California. *GSA* 23(5):41, San Diego, California.

Goodwin, P. 1991. Environmental Design of Flood Control Projects. Invited Paper at the *State Floodplain Management Association Annual Conference*, Sacramento, California.

Goodwin, P., T. Abbe, and P.B. Williams. 1991. Marsh Erosion by Wave Action in Corte Madera Bay, California. Coastal Zone '91. *The Seventh Symposium on Coastal and Ocean Management*, Vol. 2, 1747-1761.

Goodwin, P., and P.B. Williams. 1991. Short-Term Characteristics of Coastal Lagoon Entrances in California. Coastal Sediments '91. *Symposium on Quantitative Approaches to Coastal Sediment*, ASCE, Seattle, Washington, Vol. 1, 1192-1206.

Goodwin, P. 1987. Aspects of Sediment Transport Modeling. Invited paper at the *International Symposium on Water Pollution Control and Water Treatment Techniques,* Tongji University, Shanghai, 12-21.

Goodwin, P., and R.J. Sobey. 1986. Which Wave Theory? *Proceedings, IBM University AEP Conference*, San Diego.

Selected Keynotes and Invited Research Presentations:

Team Science: Accelerating Actionable Knowledge and Synthesis under Uncertainty. Independent Science Board Workshop: Exploring scientific and management implications of upper trophic level food webs in the Delta. Sacramento, November 8-9, 2023.

Integrated Modeling: Building on the Past, Launching the Future. Delta Plan Interagency Implementation Committee. Delta Stewardship Council. Sausalito, California. November 7, 2023.

Managing Complex Ecosystems in the Climate Change Predicament. High Level Panel on Ecohydraulics. 40th IAHR World Congress, Vienna, Aug 21-25, 2023

From Predicament to Crisis to Balance. Opening Address. China-Portugal Forum on Coastal Environment and Innovation Technology for Sustainable Development (CPET23). Macau, March 28, 2023,

Delivering Actionable Science and Community-based Implementable Solutions. Session: Valuing Water, Water-Energy-Food Nexus and Sustainable Economic and Urban Development. UN 2023 Water Conference. ID 2: Water for Sustainable Development. 22-24 March 2023.

What Climate Change Means for Marylanders. Washington Metro OASIS Lifelong Adventure. Washington. February 16, 2023.

Responding to a Rapidly Changing Climate: Mitigation, Adaptation and Communication. Opening Keynote. 16th Annual Industry Fellows Forum. Chevron Campus, San Ramon, California. October 6, 2022.

Ecological Engineering at Scale: From Restoration to Novel Ecosystems. Opening Keynote. American. Ecological Engineering Society. Baltimore, Maryland. June 21, 2022.

Hydro-Environment Pathways to Carbon Neutrality. UN-IAHR Global Dialogue on Net Zero Strategies for the Water Sector. Virtual Workshop. May 18, 2022. [*Several thousand participants live and post-event]*

What Climate Change Means for our Community and What we can Do? Interfaith Partners of the Chesapeake. April 10, 2022.

Ecological Engineering: From Restoration to Novel Ecosystems. Opening Keynote. Sustainability Forum. Building a Sustainable Future: Post-Pandemic Life in the Greater Bay Area and Beyond. MGM and the Macau University of Science and Technology. Macau. March 28, 2022.

Connecting North American and African Universities to Combat Climate Change. Invited Panelist at the Ethiopian Climate Change Workgroup Inaugural Meeting in collaboration with the UN Africa Centre of Excellence for Water Management and IAHR. February 26, 2022

Climate Change and the Challenge of Recovering Large Ecosystems. President's Distinguished Lecture Series. Macau University of Science and Technology, December 1, 2021.

Selected Keynotes and Invited Research Presentations (cont.):

Implementing Ecosystem Recovery under Climate Change. Session II: Water Ecological Protection and Restoration. Annual Meeting of the Chinese Hydraulic Engineering Society, Keynote (delivered virtually). October 26, 2021

Bridging Research and Practice of Ecohydraulics: Challenges. Solutions and Future Perspectives, 1st IAHR Online Forum. Ecohydraulics in largescale ecosystem recovery. July 8, 2021

Balancing Ecosystem Recovery and Water Demands in California and Chesapeake Bay, USA. International Plenary Talk (Delivered virtually). 2nd International Symposium of Water Disaster Mitigation and Water Environment Regulation. July 7-9, 2021 Chengdu.

Achieving Water Supply and Ecosystem Recovery Goals in an Uncertain Future. Challenges of Global Water Security: Linking Policy to Water Solutions. UN-IAHR Webinar Series June 9th, 2021.

Environmental Intelligence: Large-scale ecosystem management in an increasingly complex and dynamic environment. International Speaker Keynote. 3rd International Forum on Water Security and Sustainability. Chinese Academy of Engineering. April 21-24, 2021

Climate Change and Coastal Resilience. w/Professor Ming Li (Horn Point Lab - UMCES). IAHR 85th Anniversary Summit. December 14, 2020

Innovations in Nature-Based Systems for Coastal Protection. NSF Estuarine Coastlines and People Coordination Network. Wetland Restoration in San Francisco Bay. October 20, 2020

Challenges of Managing Large Complex Ecosystems in a Changing Climate. Chinese Hydraulic Engineering Society Annual Meeting and Water Expo. 'Reinforcing Science and Technology Basis to Build Happy rivers and Lakes. October 19, 2020. [Pre-recorded lecture due to COVID]

Creating a Shared Science Knowledge Base for Decision-Making. Science Needs Assessment Workshop. State of California and Interagency Implementation Committee. October 5, 2020

Water Security and Ecosystem Services. Invited Lecture and Panel Discussion at the virtual UN-IAHR World Water Day event. March 22, 2020. Over 17,000 live participants with the event recorded and available on-line.

Managing Ground and Surface Water in an Increasingly Complex and Dynamic Environment. Keynote Address. 28th Annual Maryland Groundwater Symposium, September 26, 2019.

Challenges of large-scale ecosystem management to achieve legally mandated objectives. IAHR Global Forum, Panama City, Panama. September 4, 2019.

IAHR Contributions of Forrest Holly to Computational Fluid Mechanics. Workshop to Honor the late Professor F.M. Holly. Panama City. September 3, 2019.

Selected Keynotes and Invited Research Presentations (cont.):

The Ultimate Sustainability Challenge: maintaining and improving the quality of life for society within a healthy Earth system'. President's Opening Address. 38th IAHR World Congress. Panama City, Panama. September 2, 2019.

Ensuring the University System of Maryland's Marine Estuarine Environmental Sciences (MEES) graduates are prepared to solve environmental challenges. 2019 Maryland Environmental Business Leadership Conference, July 10, Baltimore.

Quantifying the Effects of Reservoir Operations on Juvenile Sturgeon Growth and Behavior. China Institute of Water Resources and Hydropower Research, Beijing, China. May 17, 2019.

Advancing Hydro-Environment Engineering through Global Teams. Plenary Talk. The 1st IAHR-HOHAI International Forum on Higher Education of Hydro-Environment Engineering, Nanjing, China. May 15, 2019.

Structuring Scientific Knowledge to Inform Management of Large Ecosystems. China Three Gorges Corporation, Beijing, China. May 14, 2019.

Integrated Modeling and Tracking of Fish Behavior in Regulated Rivers. Ecological Protection of Rivers and Lakes: Forum on Ecological Flow and Ecological Hydraulic Engineering, China Hall of Science and Technology, May 13, 2019

Getting from 'What' to 'How': engineering perspectives of putting resilience into practice. Urban Resilience to Extremes Research Network (UREx) Annual Meeting, Baltimore. April 17, 2019.

Health of the Chesapeake: Threats and Advancements in Our Region. Chesapeake Food Summit. Washington DC. September 24, 2018.

Integrating Science into Decision-Making: Linking River Management and Coastal Restoration. Plenary Talk. National Conference on Ecosystem Restoration: Building Connections from the Local to Landscape Scale. New Orleans. August 26-30, 2018.

Challenges of River Restoration and Ecologically Functioning Flows. Universitat Politècnia de València. April 10, 2018.

Estuarine and Tidal Wetland Restoration - Examples from the USA. Plenary Talk. Conferencia Magistral, Spain Water. CEDEX, Madrid. April 9, 2018

Enhancing Diversity in the Workforce. 2018 Maryland Environmental Business Leadership Conference

Monitoring and Evaluation: Metrics for Success. UNDP-World Bank Workshop on Scaling Up Nature Based Flood Risk Reduction. Delft, The Netherlands. April 11-13, 2017.

'Simulation of Morphological Change in Regulated Rivers'. Department of Hydraulic Engineering, Tsinghua University, Beijing. March 29, 2017

Selected Keynotes and Invited Research Presentations (cont.):

Water Research to Inform a Changing World: the critical need for research networks and team science. Nanjing Hydraulic Research Institute, Nanjing, China. March 28, 2017

Managing California's Water: the Role of Computer Simulation. '111'. Discipline Innovation and Research Base. River Network Hydrodynamics System and Safety. Hohai University, March 27, 2017

Water Research to Inform a Changing World: the critical need for research networks and team science. Global Vision Forum: Forces of Water in Nature. World Water Day. Beijing, China. March 22, 2017

Balancing Water Supply Reliability and Ecosystem Restoration: Example of the Sacramento- San Joaquin Delta. Deltares, The Netherlands. February 24, 2017.

Tidal Wetland Restoration. Gestión Ambiental de la Costa y del Mar, Ministry of Agriculture, Food and the Environment. Madrid , Spain. February 22, 2017.

Management of water, rivers and coastal zones in California. Equilibrando la garantía del suministro de agua y la sostenibilidad ecológica bajo el cambio climático y otros factores de estrés hídrico. Universidad Politécnica de Valencia, Spain. February 20, 2017

Balancing Water Supply Reliability and Ecosystem Resilience. Opening Plenary Talk, 56th New Zealand Hydrological Society and 37th Australian Hydrology and Water Resources Symposium. November 28-December 2, 2016.

Managing Reservoir Systems – Beyond Minimum Instream Flows. International Symposium on Water Resources Security and Engineering Disaster Prevention. Opening Ceremony Keynote Presentation. November 24-25, 2016.

Climate Change – Why we are all connected. Seminar for Young Scientists and Engineers. Institute for Water Resources and Hydropower Research, Bejing, China. November 24, 2016.

Behavioral Characteristics of White Sturgeon in the NW United States. Chinese Sturgeon Research Institute, Yichang, China. November 25, 2016.

Habitat Metrics to Assess the Behavior of White Sturgeon in a Regulated River. International Symposium on Ecological Protection of Water Resources and Hydropower Development. China Ministry of the Environment. Opening Plenary. November 25, 2016.

The Five Generations of Wetland Restoration Approaches and Results of 40 years of Monitoring. International Workshop on Tidal Wetland Protection and Restoration. November 21, 2016. China Hall of Science and Technology.

California Water: Challenges, Solutions and Science to Support Decision-making. Lecture to the 2016 Manager National Training Course, Department of Water Resources, Beijing, China. November 23, 2016.

Selected Keynotes and Invited Research Presentations (cont.):

Panelist. The Science Enterprise Workshop: Supporting and Implementing Collaborative Science. USGS and Delta Stewardship Council. UC Davis, California. November 1-2, 2016.

Ecohydraulics: A Brief History and Contemporary Examples. Building Community Resilience through Action. Floodplain Management Association. Sacramento, California. September 6-9, 2016

Science to Inform Resilient Management of Rivers in a Changing World, Invited Plenary Lecture. River Flow 2016. International Conference on Fluvial Hydraulics. St Louis, USA. July 12-15, 2016.

Balancing the risk of water resources, flood hazards and ecosystem sustainability. Keynote Lecture at the Korean Water Resources Association Annual Meeting, Korea. May 25, 2016.

Predicting behavior of juvenile sturgeon in a large regulated river. Opening Invited Plenary at the International Ecohydraulics Symposium to launch the new Journal for Ecohydraulics. Beijing, China. May 28, 2016.

Balancing Water Supply Reliability and Ecosystem Restoration: Example of the San Francisco Bay-Delta in California, USA. Launch Symposium for the Center for Coastal Resiliency, Louisiana State University. Baton Rouge. August 15, 2016

The Grand Challenges Facing Water Engineers in the next Decade – Hazards, Environment and Economic Growth. 20th Congress of the Asia Pacific Division of IAHR. Water in the Past, Water in the Present and Water for the future. Opening Plenary Lecture. 28th August 2016

Structuring Science and Engineering Research to Inform Management of Management of Large Coastal Ecosystems. Invited Keynote Lecture. The Arthur Mynett Symposium, UNESCO-IHE, Delft. November. 26-27, 2015.

Fundamental River Processes and Connection between Fluvial and Coastal Systems in a Changing Climate. Invited Plenary Lecture. Yalin Memorial Colloquium. Palermo, Italy. November 19-20, 2015.

Global Water Challenges and Opportunities. Keynote Lecture: Centennial Anniversary of Hohai University, Nanjing, China. October 26, 2015.

Ecohydraulics – science and engineering to manage aquatic resources. Global Vision Forum. Institute for Water Resources and Hydropower Research, Beijing, China. October 22, 2015.

Policy, Regulatory and Management Challenges to Science in the Anthropocene. Invited Lecture. 12th Biennial State of the San Francisco Estuary Conference. Oakland. September 17-18, 2015.

River Restoration and Flood Management: Contemporary Challenges of Sustainably Managing Large Ecosystems. Invited Plenary Lecture: World Water Day May 23, 2015. Michigan Technical University, Houghton, MI.

Selected Keynotes and Invited Research Presentations (cont.):

Science: what we know and what we need to know. Mission Possible: Taking Charge of Change. Association of California Water Agencies Annual Conference. Sacramento. May 5-8, 2015.

Achieving the Co-Equal Goals of Water Supply Reliability and Ecosystem Sustainability for California. March 4, 2015. Seminar to the World Bank. Washington DC

Six Things the Delta Science Community has Learned in the Past Two Years. Plenary Lecture. *Making Connections.* 8th Biennial Bay-Delta Science Conference. Sacramento. October 28-30, 2014.

One Delta-One Science: Experiences from the First Year of the Delta Science Plan. Making Connections. 8th Biennial Bay-Delta Science Conference. Sacramento. October 28-30, 2014

Can a $25+ Billion Investment Help California Balance Water Supply Reliability and Ecosystem Sustainability? Does Science Play an Important Part? Opening Plenary with Phil Isenberg. NSF *XSEDE[14]. Engaging Communities.* Atlanta, Georgia. July 13-18, 2014.

Co-Equal Goals of Water Reliability and Ecosystem Restoration: The Example of the San Francisco Bay-Delta in California, USA. Opening Keynote. Conference on Integrated Water Resources Management: From Theory to Application. Reno Nevada. American Water Resources Association. June 30, 2014.

Science Priorities for Improving the Understanding of the Bay-Delta. Interagency Implementation Committee, Delta Stewardship Council. Sacramento, November 17, 2014.

The Delta's Fiscal Orphans: A Score Card. Panel convened by E. Hanak. *Making Connections.* 8th Biennial Bay-Delta Science Conference. October 28-30, 2014.

River Basin Analysis Framework (RBAF): a Flexible Model for Assessing Water Resources Sustainability. With C. Borden. Seminar to the World Bank, Washington DC. July 16, 2014

Achieving the Co-Equal Goals of Water Supply Reliability and Ecosystem Recovery for California: Scientific Considerations. College of Engineering Winter Seminar Series. Stanford University, February 14, 2014.

One Delta-One Science: Building a Community of Science to address California's Water Issues. NASA Jet Propulsion Laboratory. May 9, 2014.

Building Collaborative Research Communities in the Era of Big Data. Collaboration Summit 2014. US Army Corps of Engineers, Conflict Resolution and Public Participation Center of Expertise and South Pacific Division. April 7, 2014.

Understanding the Snake River Basin Adjudication Resolution – a Foundation for Idaho and National Water Policy. Invited Participant. Boise, Idaho. August 25-26, 2014.

Managing Scientific Conflict. Interagency Implementation Committee, Delta Stewardship Council. Sacramento, April 7, 2014.

Selected Keynotes and Invited Research Presentations (cont.):

Science and Ecosystem Reconciliation for the Delta. Winter 2014 Seminar Series. University of California Davis. March 10, 2014.

A New Era for Delta Science. Joint Meeting of the California Water and Environmental Modeling Forum and the Interagency Ecological Program 2014 Annual Workshop, February 26, 2014.

Achieving the Co-Equal Goals of Water Supply Reliability and Ecosystem Recovery for California: Scientific Considerations. Stanford University, February 7, 2014.

Research and Innovation: Research Collaboration. Invited Plenary. 23rd National NSF EPSCoR Conference. Research, Education, Innovation and Entrepreneurship: EPSCoR as a Vehicle for Delivering on National Priorities. Nashville, TN. November 3-7, 2013.

Building a community of science to tackle California's Water Problems. One-Delta, One Science. 20/20 Vision: Past Reflections, Future Directions. 11th Biennial State of the San Francisco Estuary Conference. Oakland. October 29-30, 2013.

Managing Large-scale Environmental Systems for Water Supply Reliability and Ecosystem Resilience. X Congresso Sociedad Chilena de Limnologia. Concepción. October 20-23, 2013. Keynote Address.

Challenges of Managing Large-Scale Vulnerable Ecosystems. The Wise Find Pleasure in Water: Meandering through Water Science and Engineering. 35th IAHR World Congress, Chengdu.

Communicating Science to the Public – a critical responsibility. SETAC 23rd Annual Meeting. Sacramento, California. Invited Keynote. May 8, 2013.

The Co-Equal Goals of Water Supply and Ecosystem Recovery in California. Sustaining Water Resources and Ecological Functions in Changing Environments. 2013 UCOWR/NIWR Annual Conference, Lake Tahoe, June 11-13.

Collaborative Science: Everybody talks about it, what are we doing about it? IEP Annual Workshop. Lake Natoma Inn. April 24-26, 2013.

Modeling in the Delta Science Plan – The Way Forward. California Water and Environmental Modeling Forum. Annual Conference. April 22-24, 2013. Lake Natoma Inn, Folsom, California.

Stressor Relief: Prescriptions for a Healthier Delta Ecosystem. New Models for Organizing Delta Science. Invited Panel, Public Policy Institute of California. Sacramento. May 10, 2013.

National Perspectives on Scientific Research. Delta Science Fellows Early Career Leadership Workshop. Creating the Next Generation of Science Leaders for California Water. Sacramento, California. January 23 and September 25, 2013.

Selected Keynotes and Invited Research Presentations (cont.):

Co-Equal Goals of Water Reliability and Ecosystem Restoration: the example of the San Francisco Bay-Delta in California. Invited Lecture. 35th IAHR World Congress. Chengdu, China. September 8-13, 2013

Predicting the Consequences of Restoration Activities in Complex Environmental Systems. Joint Conference of the California Water and Environmental Modeling Forum (CWEMF) and the Interagency Ecosystem Program (IEP). *From Headwaters to the Pacific: Modeling California's Liquid Gold.* Plenary Lecture. Natomas Lodge, Natomas, , California. April 16-20, 2012.

Building a Community of Science to address ecosystem recovery: emerging technologies and approaches. Keynote. 30th Annual Salmonid Restoration Conference, April 4-7, 2012. Davis, Ca.

Scientific Discovery and Co-Equal Goals of Ecosystem Recovery and Water Reliability. Plenary Talk. 7th Biennial Bay-Delta Science Conference. Sacramento Convention Center. October 16-18, 2012

Water Issues for Engineers – the Long View. Water and Site Development. Saving Money, Avoiding Delay. Continuing Education Offering from the University of Idaho. Coeur d'Alene. February 7, 2012.

Challenges of Managing Large-Scale Vulnerable Ecosystems. Environmental Seminar Series. Oregon State University, May 8, 2012

Managing California's Water for the Co-Equal Goals of Water Reliability and Ecosystem Recovery. Portland State University and USGS Joint Seminar Series. May 9, 2012.

Flow Structure and the Sustainability of Pools in Gravel Bed Rivers. Gerhard Jirka Memorial Symposium. Karlsruhe. June 2011.

Center for Ecohydraulics Research, Idaho. NSF CAREER Forum, Linking Research, Government, Education and Industry. Post CAREER Panel. Louisiana State University. November 8-9, 2011.

Construyendo Comunidades Sustentables y con Resiliencia para Enfrentar Desastres: El Rol de las Universidades. UN, World Bank, Chilean Ministry of Planning Workshop: RECONSTRUCCIÓN REGIONAL DESAFIOS Y OPORTUNIDADES. Concepción, Chile. April 13, 2010

Trends in Interdisciplinary Environmental Research in the US. Seminario Internacional. Los aportes de EULA a la Investigación y Formación de Recursos Humanos en Medio Ambiente en Chile. November 25, 2010. Concepción, Chile.

River Restoration – A Global Perspective. Keynote Lecture to the National Hydraulic Engineering Conference, Vina del Mar, Chile. October 21, 2009.

Managing Rivers for Water Quality and Sequestration of Carbon and Mercury. Opening Plenary talk to the European Union RISKPOINT Initiative. Copenhagen, Denmark. October 5, 2009.

Selected Keynotes and Invited Research Presentations (cont.):

The California Bay-Delta System and CALFED Science Program. In 'Lessons from other large-scale ecosystem management programs.' Louisiana Coastal Action Plan Science Board and Mississippi River Basin Commission. ERDC, Vicksburg, Mississippi. April 8, 2009.

Avances en ingeniería eco-hidráulica en Norte América [New Trends on Hydro-Ecological Engineering in North America]: El papel de la comunidad de la ciencia [The Role of Community Science]. CEDEX (Ministry of Public Works, Spain). Madrid. March 23, 2009.

Watershed Management for Water Quality. Stormwater Technical Conference. Partners for Clean Water and EPA. Boise. March 3-4, 2009.

The Role of Community Science for Managing Large Delta Systems. Also Facilitator and co-Author of Aquaterra Statement. (www.aquaterraforum.com) Prepared for the World Water Forum. A whitepaper to declare deltas and estuaries, regions of special concern. Aquaterra 10-12 Feb 2009.

Technology to Manage Rivers and Wetlands in a Hot, Flat and Crowded World. Keynote Lecture at the Joint Conference, Science and Information Technologies for Sustainable Management of Aquatic Ecosystems. 7th International Symposium on Ecohydraulics and 8th International Conference on Hydroinformatics. International Association for Hydraulic Engineering and Research. Concepción, Chile. Jan.12-16, 2009.

Minimizing environmental impacts of hydropower development: transferring lessons from past projects to a proposed strategy for Chile. Taller Científico: Desarrollo Hidroeléctrico en la Patagonia, Coyhaique, Chile. January 19, 2009.

Human, Physical, and Natural Capital Investment in Patagonia: a Predictive Approach under the Sustainability Criterion. Institution of Civil Engineers. 2008 Americas Convention, 'Sustainability.' Las Vegas. October 4.

Recent advances at the interface of Ecosystem Restoration and Cyberinfrastructure. Keynote Lecture. Asian River Restoration Network. University of Tokyo. September 16, 2008

Approaches to Predicting the Performance of River and Wetland Restoration. Keynote. 15th International Conference on Physical Processes in Natural Waters, Lake Tahoe, September 2-5, 2008.

Quantitative Performance Assessment of Stream Restoration. Keynote. Montana River Restoration Conference, Missoula September 21-22, 2007

Building a globally competitive research program: the example of the Center for Ecohydraulics Research. Idaho Business Council, Arid Club, Boise. June 13, 2007.

Building Environmental Observatories: The Example of the Idaho Experimental Watershed Network. Keynote. Spring Runoff Conference, Utah State University, April 5-6, 2007.

Detecting and Predicting Change in Aquatic Ecosystems. Arizona State University, Environmental Fluid Mechanics Seminar. March 7, 2007

Selected Keynotes and Invited Research Presentations (cont.):

Adaptive Management of Catchments. Workshop for Self-learning Methodologies. Public Utilities Board, Singapore. January 24-26, 2007.

Challenges of Managing for a Sustainable Urban Environment. Department of Civil Engineering, National University of Singapore. January 29, 2007.

Engineering Design for Climate Change and Coastal Communities. Plenary Talk. National Conference on Coastal and Estuarine Habitat Restoration: Forging the National Imperative. www.estuaries.org. New Orleans, Louisiana. Dec 9-13, 2006.

Challenges of Managing the Lower Mississippi River in Coastal Louisiana. Session 4B. Idaho Water Resources Research Symposium, Boise, Idaho. November 28-29, 2006.

The River, Landscape and Community: Choices for the Future of the Boise River. Boise Environmental Lecture Series. June 2006.

Trends in Community Science in the United States: the Example of Water Research. What small states are doing to remain competitive. Presentation to the Federal Reserve Board, Idaho Water Center, September 6, 2006. Lecture delivered live from the IAHR International Conference on Hydroinformatics, Nice, France. Presentation included the benefits of the NSF EPSCoR program.

Emerging Technologies for Improving our Predictive Capabilities of River Response to Restoration. Keynote Address. Fifth Annual Northwest Stream Restoration Design Symposium. January 31-Feb 2, 2006. Skamania Lodge, Stevenson, Washington.

Tendencias hacia Ciencias de la Comunidad: Observatorios Medioambientales y Redes Globales. American Academy of Science and Technology, Santiago, Chile. January 6, 2006.

Approaches to Evaluating Impact of Dam Operation on Reservoir Productivity. Payette Watershed Dam Operations Workshop: US Bureau of Reclamation, January 27, 2006

Opportunities and Expectations of Graduate Schools. Invited presentation at the Fourteenth Regional Conference on Undergraduate Research of the Murdock College Science Research Program. Northwest Nazarene University. November 11, 2005.

Future Research Directions for IAHR: Cyberinfrastructure, Sensor Networks and Large Community Science. Address to the Council of the International Association for Hydraulic Research. September 8-10, 2005. Seoul, Korea.

Creating a global student chapter network for graduate education and research support. Address to the Student Chapters of the International Association for Hydraulic Research, XXXI IAHR Congress: Water Engineering for the Future – Choice and Challenges. September 11-16,2005 Seoul, Korea.

Opportunities for Multi-National Collaboration in Chile: EULA and CIEP. 57th Annual Conference of NAFSA, Seattle, Washington. Invited by the US-Chile Bi-National Commission. May, 2005

Selected Keynotes and Invited Research Presentations (cont.):

Sinergias Europa-América para la conservación de ecosistemas únicos: LA PATAGONIA CHILENA. Cordoba, Spain. 20-22 April. Parra, O. and P. Goodwin, 2005

Las Exigencias Académicas en EE.UU. Invited presentation to new 2004 Fulbright Scholars from Chile before their departure to the US. COMISION PARA EL INTERCAMBIO EDUCATIVO ENTRE CHILE Y LOS ESTADOS UNIDOS DE AMERICA. June 3, 2004.

Las bases científicas y los enfoques de manejo de las normativas de calidad del agua en USA; Invited presentation at Normativas de calidad del Aqua: Bases cientificas y enfoques de gestion, Centro de Ciencias Ambientales EULA-Chile. January 8, 2004.

Sustainability of Tidal Wetlands. ACE Seminar, Perth, Australia. September 2003.

Holistic Approaches to River Assessment and Management. Pontificia Universidad Católica de Chile, Departamento de Ingeniería Hidráulica y Ambiental, Seminar on the Environment, November, 27, 2003.

Quantitative Approaches to Detecting Ecological Change due to Restoration, Environmental Dynamics Seminar, University of Western Australia. September 18, 2003.

Holistic Approaches to River Assessment and Management. Pontificia Universidad Católica de Chile, Departamento de Ingeniería Hidráulica y Ambiental, Seminar on the Environment, November 27, 2003.

Emerging Technologies and Recent Advances in Analysis for Watershed Management. Keynote Address. Ninth Biennial Conference, Watershed Management Council. Skamania Lodge, Washington. November 3-7, 2002.

Ecohydraulics. Invited Speaker and participant at CLEANER (Collaborative Large-Scale Engineering Assessment Network for Environmental Research). Environmental Engineering Program, National Science Foundation, Duke University. October 20-22, 2002.

A Vision for the Boise River. Idaho Environmental Forum, Boise. May 29, 2002.

Adaptive Management in River Restoration. Inter-Agency Workshop on Modeling Tools for Watershed Restoration, Sacramento. May 23, 2002.

Changing Paradigms in River Management. AASHTO Task Force on Hydrology and Hydraulics. Annual Meeting, Coeur d'Alene Resort. May 9, 2002.

Simulating Physical Processes at the Watershed Scale. Environmental Sciences, Engineering and Policy in the 21st Century (ESEP-21) Seminar Series, University of Michigan. May 2001.

The Flood Control Controversy and Multi-Objective River Corridor Planning. Idaho Environmental Forum, Boise. May 10, 2000.

Selected Keynotes and Invited Research Presentations (cont.):

Environmentally sensitive alternatives for the Truckee River. Invited Presentation to the Community Coalition for the Truckee River Flood Management Plan, City of Reno, Nevada. May 20, 2000.

New Paradigms in Flood Management. Invited Presentation at Restoring the Arroyo, Pasadena, California, March 25, 2000.

Watershed Management - Is It Truly Achievable? Presentation and Discussion Leader, ASCE Wetlands Engineering and River Restoration Conference, March 1998.

The Flood Control Controversy: Traditional Approaches vs. Integrated Flood Management. ASCE, San Francisco. March 27, 1997.

Grants and Contracts Awarded:

Individual Research Contracts (for further details refer to http://ecohydraulics.uidaho.edu):

Identifying Indicators and Guides for the Sustainability of Pools in Gravel Bed Streams: a laboratory and field verification. US Bureau of Reclamation Science and Technology Program. [2010-12].

Simulation of the Effects of Floodplain Restoration along the Boise River. IDWR, City of Boise and FEMA. [2000-2001]. Reactivated by IDWR in 2009. [2009-10].

Fate and effects of the transport of mine tailings through the Coeur d'Alene river system. Idaho Department of Environmental Quality. (PI: P. Goodwin) [2001-2004].

Lower Red River Meadow Restoration Project. Idaho County Soil and Water Conservation District and Bonneville Power Administration. This project will design the restoration of a natural channel configuration and will monitor the geomorphic, hydrologic and ecologic evolution of the site following implementation. The site will also provide outdoor classroom opportunities for K-12 school children, undergraduates and a field laboratory for research [1998-2005]

National Science Foundation CAREER Grant: Ecohydraulics: Simulation of Physical Processes in River Ecosystem Management. The grant funds long-term monitoring of four watersheds, ranging from a pristine undisturbed watershed to a heavily urbanized catchment in San Francisco Bay. The grant integrates undergraduate education, research and disadvantaged high school children. [1999-2004].

Simulation of the Geomorphic and Ecologic Evolution of the 12-Mile Reach, Salmon River. Idaho Department of Fish and Game and Bonneville Power Administration Fish and Wildlife Mitigation Program. [Phase I, 1999-2002]

Simulation of High and Low Temperature Extremes in the Upper Salmon River. Department of Fish and Game and Bonneville Power Administration Fish and Wildlife Mitigation Program. [2002-04]

Aquatic Systems Review: Quantifying the Benefits of Management Actions at the Watershed Scale. Bonneville Power Fish and Wildlife Mitigation Program, [1999-2001].

USGS/FEMA/IBDS: Studentship in Floodplain Research, [2000-01].

New Paradigms in River Management. A Workshop for the Walla Walla District, US Army Corps of Engineers [1999].

University of Idaho Seed Grant. Simulation of River Channels and Ecological response following Restoration: Example of the Red River. [1997-98].

Individual Research Contracts (cont.):

State of Washington, Department of Ecology. Review of Wetland Function Assessment Project. [1997].

Salinity and Water Quality Modeling in the Tijuana Estuary. This study is funded by NOAA to investigate the effects of sewage spills on freshwater pulses released from the International Treatment Plant on the U.S.-Mexico border. Field measurements indicate an unusual mixing behavior within the estuary and adjacent pristine tidal wetlands in Oneonta Slough. [1995-98].

Collaborative Research Grants:

National Science Foundation (NSF): Integrated Environmental Modeling for Estuarine System Management. (PI: Josué Medellín-Azuara and Jay R. Lund, UC Davis and Peter Goodwin, UI). 2015-17

National Science Foundation (NSF): EPSCoR Research Infrastructure Improvement Track 1: Managing Idaho's Landscapes for Ecosystem Services (MILES), 2013-18.

NSF EPSCoR Research Infrastructure Improvement Track 2: Western Consortium for Watershed Analysis, Visualization and Exploration (WC-WAVE), 2013-16.

NSF IGERT, 2013-2018 (PI: Dr. Jan Boll/Dr. Tim Link, University of Idaho)

NSF Critical Zone Observatory: Reynolds Creek, 2013-16 (PI: Dr. Kitty Lohse, Idaho State University)

National Science Foundation: 2011 National NSF EPSCoR Conference, Coeur d'Alene, Idaho.

DeVlieg Foundation, International Institute for Sustainable Development. *A flexible framework for assessing water resources sustainability in river basins.* [2008-2014]

US Bureau of Reclamation. Deadwood River Project: *Reservoir Operations Flexibility Investigation*. Phase I. [2007-present] This project integrates real-time sensor networks through satellite communications to drive 3-d models of a river and reservoir system. The models linked with real-time tracking of endangered bull trout to understand how reservoir operations affect fish behavior. This project collaborated with USFS and NASA to deploy green LiDAR technology.

Murdock Charitable Trust. *Instrumentation for the Idaho Stream laboratory.* [2007-09] PIs Ralph Budwig, P.Goodwin and K.Jorde.

National Science Foundation. *"Human, Physical, and Natural Capital Investment in Patagonia: a Predictive Approach under the Sustainability Criterion.* National Science Foundation. Pan American Advanced Study Institute. [2007-09]. PIs P.Goodwin, D. Nalle and S. Daley-Laursen.

Collaborative Research Grants (cont.):

EU and Danish Academy of Science. "*Riskpoint. Assessing the Risks posed by Point Source Contaminants to Groundwater and Surface Water Resources".* [2009-12] Danish Technical University, Aarhus University and DMU-AY PI: M. Butts, co-PI. P.Goodwin.

USDA-FS Rocky Mountain Research Station. Multiple collaborative research projects (2007-2010). Example: *Alternative Fuel and Fire management* [2007-09]. PI C. Luce, co-PI P. Goodwin

US Bureau of Reclamation. *Boise River Project: Reservoir Operations Flexibility Investigation.* [2007-2012]. PIs: C. McGrath (USDA-FS RMRS) P.Goodwin, B. Kennedy (University of Idaho); J. Imberger (University of Western Australia)

Idaho's NSF Research Infrastructure Improvement Award (RII). *Idaho Experimental Watershed Network.* July 2005-2008. [J.M. Shreeve, ESPCoR State Director: Co-PIs G. Bohach and P. Goodwin]. .

A Large-scale Laboratory Facility for Mountain Rivers. Congressional Authorization 2004-06, administered through FIPSE. (L. Stauffer/P. Goodwin)

A Synthetic Analysis of the Scientific Basis of Ecological restoration of Stream Ecosystems. National Center for Ecological Analysis and Synthesis/National Science Foundation. (PIs: Margaret A. Palmer, University of Maryland and J. David Allan, University of Michigan). [2002-06].

IMPACT: Software for Prioritizing Restoration Actions at the Watershed Scale. Bonneville Power Administration. 2001-02 (PI: P. Goodwin/V. Babovic, *DHI Water and Environment).*

Hydroinformatics: Computer and Infrastructure Support for the UI Ecohydraulics research Group in Boise. Congressional Authorization 2000-01, administered through FIPSE. (L Stauffer/P. Goodwin). [FY01-04]

Modeling for Restoration of Watersheds in Central Guatemala following Hurricane Mitch, 2000-2004. US AID and USGS. (PI: L. Mink/ P. Goodwin).

Engineering and Physical Sciences Research Council, UK. Collaborative Research Travel Grant, 2001. (PI: N.G. Wright/Collaborator P. Goodwin)

Simulation of River Channel Evolution – Example of the Yankee Fork, 2000-02. US Forest Service. (PI: P. Goodwin/ J. Buffington)

Simulation of Total Dissolved Gas and Temperature in the Clearwater River System, Phase I, 2000. Idaho Department of Water Resources and the University of Idaho (PI: S.J. Wright/P. Goodwin)

Meadow Creek Natural Recovery Program, 1999-2000. Nez Perce Tribe and USFS. (PI: P. Goodwin/C.M. Falter)

Collaborative Research Grants (cont.):

Summary of Unanticipated Hydrologic and Ecologic Consequences of Large Dams, 2000. World Commission on Dams (PI: P. Goodwin/ C.M. Falter)

New Paradigms in the Management of River, Estuarine and Wetland Ecosystems. A NATO Advanced Research Workshop. (PI: Ambassador P. Tomka, United Nations/ P. Goodwin)

Lake Amititlan Water Quality Assessment, Phase I, 1999. For the Office of the President, Guatemala. Idaho Water Resources Research Institute (PI: Dr. Roy Mink / P. Goodwin).

FEMA Project Impact: Lawyer Creek Flood Mitigation Plan, 1999. (PI: Dr. J. Milligan/ P. Goodwin and the CE521 class).

D2K: Data to Knowledge. A Danish Academy of Sciences TALENT Grant (PI: Dr. V. Babovic, Danish Hydraulic Institute). UI is an evaluation site and the grant funds exchange visits for UI research students to visit Denmark.

Simulation of Tidal Circulation and Water Quality in Southern California Wetlands, San Diego State University Foundation, $24K. Pacific Estuarine Research Laboratory and Philip Williams and Associates, Ltd. 1994-95.

Modeling of Flow and Solute Transport Processes in Coastal Embayments, NATO Research Award. University of Bradford, United Kingdom; Middle East Technical University, Turkey; University of Washington, USA; and Philip Williams and Associates, Ltd., USA. 1993-95.

EEC Collaborative Research Program. A grant awarded to the Research Group at Bradford, Tongji University and UNIRAS A/S (a leading computer graphics software company based in Denmark). The project studies sediment and pollutant transport in the coastal environment by field monitoring and computer simulation. [PI: R.A. Falconer] 1989-91.

Academic Link Agreement with the People's Republic of China. A research and exchange program funded by the British Council, initiated by Professor R.A. Falconer. Participating organizations are the University of Bradford, Tongji University (Shanghai), Peking University (Beijing), and the Institute of Power and Water Conservancy (Beijing). 1988-90.

Modeling Sediment and Pollutant Transport Processes Using Microcomputers. This IBM study grant was the first of its kind to be awarded in the United Kingdom. This grant allowed graphic visualization of complex flow fields for interdisciplinary research and undergraduate teaching. [1987-89]. [with Dr. R.A. Falconer]

Collaborative Research Grants (cont.):

Simulation of Floods Due to Dam Failure and Other Extreme Events. For the Department of the Environment (United Kingdom), in collaboration with the U.S. National Weather Service. [1988-89]. [With Dr. Nigel Wright.]

Application of Higher Order Wave Theories. This work was supported by grants from Standard Oil of California (Chevron) and IBM and coordinated by Professor R.J. Sobey. 1985-86. This research was later combined into a software package and is available commercially under the name WAVEPRO.

UNIVERSITY SERVICE:

Major Committee Assignments:

University of Idaho:

University:

University Strategic Plan Update Steering Committee, 2010-2012.
Federal Relations Working Group, 2009-2012.
University Finance and Budgeting Committee, 2009-2012.
Committee on Instituting Institutes. 2009-10.
University Request for Innovation (RFI) Assessment Committee (2008-09)
Strategic Planning: Team 2 Committee. 2007-2010.
President's Commission on Research Enhancement through Improving Information Technology Infrastructure. June 2005-08.
University Promotions Committee, 2005-08.
Boise Futuring Committee, 1999-2001
Information Technology Committee, 2000-03; 2005-08

University of Idaho - Boise Center

Academic Council, 2007-present
Chair, Search Committee for Associate VP/Center Executive Director 2006-07
Leadership Team and Strategic Planning Committee, 2004-08
Boise Center Dean Search Committee, 2000-01

College of Engineering:

Engineering Research Council, 2009-present
Tenure and Promotion Committee, 2005-08
College of Engineering Executive Committee, 2004-present
Engineering Research Committee (Chair: Associate Dean Woodall), 1997-99
Editorial Committee, Engineering Advancement, 1998-present
Faculty Search Committee - Water Resources Position in Kimberley, 1998
Faculty Search Committee - NSF Distinguished Professor in Boise, 2000
Faculty Search Committee - Hydrology Position in Boise, 2000
Unit Strategic Planning Committee - Boise Center, 1998-99
Department of Civil Engineering:
Tenure, Promotion & Competency Evaluation, 2004-08, Chair 2006-07.
Committee for Curriculum Review, 1996-98
Strategic Planning and ABET Assessment Committee, 1998-present
Graduate Admissions/Recruitment, 1998-2001
Ad Hoc Committee on Fluid Mechanics, 1998-2006
Alumni Involvement, 1997-2000

University of Bradford, United Kingdom 1986-89:

University: Computerization of Bradford University
Working Party on Hardware. Working Party on Software

Civil Engineering Department

Research Committee
Staff/Student Liaison Committee and Staff Representative on Student Telford Society

Professional and Scholarly Organizations:

Membership in Engineering Professional Societies
Fellow, American Society of Civil Engineers. Life Member from 2023.
Fellow, Institution of Civil Engineers (United Kingdom)
Member, American Society of Engineering Education

Membership in other Professional and Learned Societies:
American Geophysical Union
American Association for the Advancement of Science
Fulbright Association
International Association for Hydraulic Engineering and Research (IAHR)
(from 2009: International Association for Hydro-environment Engineering and Research)
Engineering Council (United Kingdom)
University of California (Berkeley) Alumni Association
California Institute of Technology Alumni Association

Professional Registration:

Civil Engineer, California (C047323), Idaho (8365), Maryland (05-52181)
Chartered Engineer, United Kingdom (436222-58).
European Ingenieur, Europe (UK/ICE/1299)

Selected Outreach Activities:

River Journal. Associate Editor ISSN 2750-4867. 2020-present.

Journal of Ecohydraulics. Editorial Board. 2020-present.

The World's Response to the Climate Crisis: A Roadmap for the Future. A dialogue with European Union Member States' Ambassadors. IMET, Baltimore. December 3, 2019

Research on Key Techniques of Physical Model Simulation of Large Shallow Lakes. National Key R&D Program of China. Integration and Application of Water Safety Guarantee Technology in Yangtze River Basin. Nanjing Hydraulic Research Institute, May 2019.

Progress Toward Restoring the Everglades: Biennial Review, National Academies of Sciences, Engineering and Medicine, (Sixth Review, 2016 and Seventh Review, 2018).

Baylands Ecosystem Habitat Goals 2015. Member of External Review Team. California Coastal Conservancy. 2013-15

Advancing the Role of Science in Coastal Ecosystem Recovery. *Making Management Adaptive*. Puget Sound Institute and the University of Washington. May 14-15, 2013.

Minimum Standards for Physical and/or Numerical Studies in Free-Surface Hydraulics. IAHR. September 2013.

Selected Outreach Activities (cont.):

Global Water Security. Chengdu Forum of International Water Organizations. Convened by the United Nations Environmental Program and IAHR, ICOLD, UNESCO, WCCE, ICID, IWA, WASER, IWRA, IAHS. September 2013.

Potential Global Synthesis Research Questions for Climate Change Research. Annual EPSCoR Project Director Meeting. Washington DC. May 20, 2013

Scientific Review Committee. Landscape Planning Framework for Restoration and Protection of Juvenile Salmon Habitat in the Columbia River Estuary. For University of Washington, National Marine Fisheries Service and Bonneville Power Administration. 2011-15

Science Review Team: BREACH III. Review of hydrodynamic simulation of habitat restoration through levee breaching. Review conducted for the Fisheries Program at the University of Washington. 2012.

Invited Participant. Rising Above the Gathering Storm: Development of Regional Innovation Environments: National Academies. September 20-22, 2011

Reviewer for the USGS on the Interagency Controlled Flood Experiments on the Colorado River. 2009-present.

Board Member, Boise Watershed Education Center, City of Boise. (2005-2017)

Workshop to develop 'The Path Forward for Hydroinformatics.' Workshop to set the process for defining the field, developing the future research agenda and clarifying the relationships between different professional organizations and academic programs. Tianjin, China. September 10-12, 2010.

Workshop on Research Management in the Eco-Environment, Establishing Global Eco-Environment Research Priorities for 2010-20.Invited Moderator and author, The Grand Challenges for the Future of Ecohydraulics Workshop . 8th International Symposium on Ecohydraulics. Sept 12-16, 2010. IAHR – Seoul, Korea.

Development of Joint Science Hypotheses and Region-wide Collaborative Proposals [April 8, 2010]. 2nd Annual Tri-State Western Consortium Meeting, *Collaborative and Interdisciplinary Climate Change Science, April 6-8, 2010*. Lake Tahoe.

Review of Research Program and Strategic Plan of the Institute for Environmental Fluid Mechanics, Karlsruhe Institute of Technology, Germany. June 2009.

Integrated Floodplain Management Partners Workshop. World Meteorological Organization, Geneva. November 13-14, 2008.

Research and Education in a Global Environment Workshop, January 8-9, 2008. Moderator/Coordinator of the Implementation Action Plan for 2008. Chile.

Osher Institute of Lifelong Learning, Boise State University. Our Changing Boise River Landscape and its Implication on our Community. October 2, 9, 16 and 23, 2007

Boise Exchange Club. Coastal Flooding in Coastal Louisiana: Lessons for Boise! October 5, 2007

Selected Outreach Activities (cont.):

Idaho Business Council. Building a globally competitive research program: the example of the Center for Ecohydraulics Research, Idaho Business Council, Arid Club, Boise. June 13, 2007

Boise School District. Mathematics and Science Academy. Landscapes, Sediments and Mathematics – the example of Coastal Louisiana. April 2-3, 2007.

Student Chapter Council Liaison, International Association for Hydraulic Research. Responsible for developing the concept of international educational network between student chapters. Plan presented and approved by IAHR Council, September 2005.

Boise River Watershed Educational Center. Board of Directors. A non-profit organization dedicate funds for educational exhibits for the new educational center as well as educational activities related to the Boise River and Watershed. 2005-present.

Search Committee for Lead Scientist, Science Program, CALFED June 2005-October 2005, June 2007-January 2008

Member, The College of the Engineering and Physical Sciences Research Council, United Kingdom, 2002-2006.

Lecturer and participant in the NSF *"Scientists and Engineers in the Schools"* Program to celebrate the 50th Anniversary of the National Science Foundation, 2000-01.

Invited Reviewer, Draft Strategic Framework, Rocky Mountain Research Station. November 9th, 2001.

Co-Chair of the Flood Mitigation Task Committee for the Treasure Valley, at invitation of Brent Coles, Mayor of Boise, 1999-present.

Interagency Work Group on Temperature and Total Dissolved Gas, at invitation of Idaho Department of Water Resources, 1999-2003.

Scientific Review Panel for the San Dieguito Lagoon, California Coastal Commission, 1999-2003.

Associate Editor for the *Journal of Hydraulic Engineering*, American Society of Civil Engineers. Responsible for computational hydraulics with special emphasis on river and wetland restoration and management, 1997-2001.

Editorial Committee for the *Journal for Hydraulic Research*, International Association for Hydraulic Research, 1998-2002.

Editor, *Journal of Hydroinformatics*. 1999-2003. This new Journal (launched in January 1999) is published jointly by the International Water Association and the International Association for Hydraulic Research. Responsibility for computational hydraulics, environmental modeling and restoration.

Liaison Working Group, Northwest Watershed Research Center, USDA Agricultural Research Service. 1998-2002.

NOAA National Estuarine Research Reserve Program. Technical Review Committee. South Slough, Oregon. 1997-2005.

Selected Outreach Activities (cont.):

Scientific Review Panel, US Army Corps of Engineers, Tidal Inlet Research Program, 1995-97.

Lead Examiner: For Chartered Institution of Water and Environmental Management, London. Examiner and US Correspondent for the international C. Engr. registration (equivalent to PE in US), 1996-98.

Recent Reviews for Journals include:

Nature Geoscience
Journal of Hydraulic Engineering
Journal for Hydraulic Research
Journal of River Basin Management
Canadian Journal of Civil Engineering
Earth Surface Processes and Landforms
Water Resources Research
Environmental Engineering Science
Proceedings of the Institution of Civil Engineers
American Shore and Beach

Selected Reviews of Texts include:

Long-term Benefits and Performance of Dams, Ed. Henry Hewlett. British Dam Society, 676p. Review for the Institution of Civil Engineers.

Restoring Streams in Cities: A Guide for Planners, Policymakers and Citizens, by A.L. Riley, Island Press, p. 340.

Tides, Bores and Mean Sea Level, by N.T. Pugh. John Wiley Publishers. For *Times Literary Supplement* (London).

Conference Organizing Committees:

2019-20 Academic Committee, 3rd International Water Security and Sustainability Forum, November 16-19. NHRI, Nanjing, China. 2020

2017–19 International Scientific Advisory Committee, 38th IAHR World Congress. Panama City, Panama. 2019

2015–17 International Scientific Advisory Committee, 37th IAHR World Congress. Kuala Lumpur, Malaysia . 2017

2013–15 International Scientific Advisory Committee, 36th IAHR World Congress. The Hague, Netherlands. 2015

2012-14 Scientific Organizing Committee. International Conference on Hydroinformatics 2014. New York. IAHR

2012-14 International Scientific Steering Committee, 11th International Symposium on Ecohydraulics. Trondheim, Norway. 2014

2010-13 International Scientific Steering Committee, 35th IAHR World Congress, Chengdu, China.

2011-12 International Scientific Advisory Committee, ICHE Conference, Orlando, Florida. November 2012.

2009-11 International Scientific Editorial Board. 34th IAHR World Congress. Balance and Uncertainty: Water in a Changing World. Brisbane, Australia. June 26-July 1. 2011.

2008-10 Scientific Advisory Committee, 9th International Conference on Hydroinformatics, International Association for Hydraulic Research, Tianjin, China. Sept 7-11, 2010.

2008-10 International Scientific Advisory Committee, 9th International Symposium on Ecohydraulics, International Association for Hydraulic Research, Seoul, Korea, Sept 12-16, 2010.

2007-09 International Advisory Committee for Aquaterra 2009, the Netherlands.

2006-09 International Scientific Advisory Committee, Joint International Conference on Hydroinformatics and Ecohydraulics Symposium, International Association for Hydraulic Research, Concepcion, Chile, 2009.

2004-06 International Scientific Advisory Committee, 7th International Conference on Hydroinformatics, HIC 2006. Joint Conference of International Association for Hydraulic Research, and International Association for Hydrological Sciences. 4th-8th Sept, 2006, Nice, France.

2003-05 XXXI Congress of the International Association for Hydraulic Research, September 2005, Seoul, Korea.

2000-02 Hydroinformatics 2002, 5th International Conference on Hydroinformatics, University of Cardiff, July 2002.

2000-01 First International Conference on River Basin Management, Wessex Institute of Technology, UK, September 2001.

1999-01 NATO Advanced Research Workshop, "New Paradigms in River and Estuarine Management", Sun Valley, Idaho, April 2001.

Conference Organizing Committees (cont.):

1998-00 Hydroinformatics 2000, 4th International Conference on Hydroinformatics, Iowa City, Iowa Institute for Hydraulic Research. July 18-21, 2000.

1997-98 Watershed Management Council 7th Biennial Conference: Western Watersheds: Science, Sense and Strategies, Boise, Idaho, October 19-23, 1998. Local Organizing Committee.

1996-98 ASCE Wetlands Engineering and River Restoration Conference, Denver, March 20-29, 1998.

1992-94 International Conference on Wetland Management. Chair, Overseas Committee. Institution of Civil Engineers, London, June 1994.

1987-92 Co-organizer First, and Second International Conferences on Hydraulic Modeling of Coastal, Estuarine, and River Waters, United Kingdom, September 1989 and 1992.

HONORS AND AWARDS:

Honorary Member, International Association for Hydro-Environment Engineering and Research, 2023.

Distinción, University of Concepción. For research leadership and contributions to the development of the Centro de Ciencias Ambientales, EULA-Chile, 2010.

University Research Professor of the Year Award, University of Idaho, 2008

Governor's Commendation: Lemley Individual Achievement for the Environment, 2007. (State of Idaho)

Outstanding Faculty Award, 2006. College of Engineering, University of Idaho.

Gledden Senior Fellowship, 2003. Australia.

Fulbright Scholar, 2003-04

The DeVlieg Presidential Professorship, 2001-2017

John and Maybelle Tucker Award, University of California, Berkeley, 1986

Hans Albert Einstein Memorial Award, UC Berkeley.1985

Science and Engineering Research Council Award, 1983-85

Fulbright Scholarship, 1981-83

Selected Student Awards

Diego Caamano
Presidente de Republica Scholarship, Chile, 2004-2008.
University of Idaho, International Student of the Year, 2008.

Alex Garcia
Fulbright Scholarship, 2008. University of Concepción student scholarship.

S. Parkinson, 2003.
John F. Kennedy Prize. International Association for Hydraulic Research. *Response of White Sturgeon to Various Hydropower Operating Schemes*. Proceedings of the XXX Biennial Conference. JFK Student Paper volume. 1-7.

D. Fuhrman, 1999.
Fulbright Scholarship. Technical University of Delft, the Netherlands.