

TEXAS STATE VITA**I. Academic/Professional Background**

A. Name: Dr. Thom Hardy Title: Professor

B. Educational Background

<i>Degree</i>	<i>Year</i>	<i>University</i>	<i>Major</i>	<i>Thesis/Dissertation</i>
PHD	1988	Utah State University	Civil Engineering, General	State-parameter estimation of real time river water quality
MS	1985	University of Nevada, Las Vegas	Biological and Physical Sciences	
BS	1978	University of Nevada, Las Vegas	Biological and Physical Sciences	
BSED	1977	University of Nevada, Las Vegas	Secondary Education and Teaching	

C. University Experience

<i>Position</i>	<i>University</i>	<i>Dates</i>
Professor, Department of Biology	Texas State University. San Marcos, TX	2014 - Present
Chief Science Officer, Meadows Center for Water and the Environment	Texas State University. San Marcos, TX	2009 - Present
Research Professor/Senior Lecturer, Department of Biology	Texas State University. San Marcos, TX	2009 - 2014
Associate Director, Utah Water Research Laboratory	Utah State University	2002 - 2009
Professor, Department of Civil and Environmental Engineering	Utah State University	2002 - 2009
Director, Institute for Natural Systems Engineering	Utah State University	1987 - 2009
Associate Professor, Department of Civil and Environmental Engineering	Utah State University	1995 - 2002
Assistant Professor, Department of Civil and Environmental Engineering	Utah State University	1990 - 1995
Research Assistant Professor, Department of Civil and Environmental Engineering	Utah State University	1988 - 1990

Acting Research Assistant Professor, Department of Civil and Environmental Engineering	Utah State University	1987 - 1988
Research Scientist, Aquatic Biology	University of Nevada at Las Vegas	1980 - 1982

D. Relevant Professional Experience

<i>Position</i>	<i>Entity</i>	<i>Dates</i>
Principal	Watershed Systems Group, INC	1978 - Present
Principal	Environmental Mapping and Remote Sensing, Inc.	1994 - 1999
Instructor	Computer Techniques, Utah Division of Wildlife Resources	1998
Research Engineer	BIO/WEST, Inc.	1984 - 1987
Project Manager/Aquatic Ecologist	Environmental Consultants, Inc.	1979 - 1985
Research Diver	University of Nevada at Las Vegas Utah Water Research Laboratory	1979 - 1985
Civil Engineer	Twelve-Nine, Inc.	1984
Surveyor	Clark County Engineering Department	1976

II. TEACHING

B. Courses Taught:

Texas State University:

BIO 4350E - TECHN IN AQUATICS

BIO 5114 - RESEARCH EXPER

BIO 5199B - THESIS

BIO 5214 - RESEARCH EXPER

BIO 5299B - THESIS

BIO 5314 - RESEARCH EXPER

BIO 5399A - THESIS

BIO 5399B - THESIS

BIO 7114 - RESEARCH EXPER
BIO 7199A - DISSERTATION
BIO 7199A - DISSERTN AQUA RES
BIO 7214 - RESEARCH EXPER
BIO 7299A - DISSERTATION
BIO 7299A - DISSERTN AQUA RES
BIO 7303 - RESEARCH
BIO 7360F - APPR AQ RES MODEL
BIO 7360V - TECHN IN AQUATICS
BIO 7399A - DISSERTATION
BIO 7399A - DISSERTN AQUA RES
BIO 7699A - DISSERTATION
BIO 7699A - DISSERTN AQUA RES

Utah State University:

CEE 103 - Digital Computer applications in engineering
CEE 363 - Introduction to Environmental Engineering
CEE 369 - Environmental Systems Engineering
CEE 493/693 - Special Problems in natural systems engineering
CEE 5690/6690 - Natural Systems Engineering
CEE 5700/6700 - Field sampling techniques
CEE 5720/6720 - Natural Systems Modeling
CEE 588 - Senior Design Seminar
CEE 596/696 - Management of Regulated Rivers
CEE 6930 - Special Problems

CEE 693 - Ecology and management of regulated rivers

C. Directed Student Learning (i.e. theses, dissertations, exit committees, etc.):

Member, Master's Thesis, "Consequences of Long-term Changes in Fish Community on Ecosystem Functioning in a Subtropical", Status: In Progress. (July 1, 2017 - Present). Biology, Texas State University.
Student(s): Aine Carroll, MS.

Member, Master's Thesis, "Effects of stromwaters in Sessom Creek and the San Marcos River, San Marcos, TX: Nutrients, sediment and other contaminants", Status: In Progress. (May 1, 2017 - Present). Biology, Texas State University.
Student(s): Dalila Loiacomo, MS.

Member, Dissertation, Status: In Progress. (2016 - Present). Biology, Texas State University.
Student(s): Amanda Moore.

Member, Dissertation, "Controls on conduit development in a carbonate platform: Quintana Roo, Mexico", Status: In Progress. (January 1, 2016 - Present). Biology, Texas State University.
Student(s): Aubri Jenson, Doctoral, PhD.

Member, Master's Thesis, "The Impact of Invasie Hypostomus plecostomus on Endangered Texas wild rice *Zizania texana* in the San Marcos River", Status: In Progress. (2016 - Present). University of Houston - Clear Lake.
Student(s): Allison Norris.

Member, Master's Thesis, Status: In Progress. (2016 - Present). Department of Inegrative Biology, University of Guelph.
Student(s): Carolyn Trombley.

Member, Master's Thesis, "Assessment of Invasive Armored Catfishes (*Pterygoplichthys disjunctivus* and *Hypostomus plecostomus*) Instream Habitat Use in the San Marcos and Buffalo Bayou Watersheds", Status: In Progress. (2016 - Present). University of Houston - Clear Lake.
Student(s): Kristopher Warner.

Member, Master's Thesis, Status: Proposal. (2016 - Present). Biology, Texas State University.
Student(s): Nathan Krupka.

Committee member, Dissertation, Status: In Progress. (2015 - Present). Geography, Texas State University.
Student(s): Francesco Zignol.

Committee member, Dissertation, "Social Demand for Ecosystem Services of Blue Spaces", Status: In Progress. (2015 - Present). Geography, Texas State University.
Student(s): Graham Daly.

Committee chair, Dissertation, "Recreation induced impacts on Texas wild rice growth and fitness", Status: In Progress. (2015 - Present). Biology, Texas State University.
Student(s): Michele Crawford.

Committee member, Dissertation, "Examination of Ecophysiology and Trophic Ecology of Epigeal and Hypogean Invertebrates from the Edwards Aquifer", Status: In Progress. (2015 - Present). Biology, Texas State University.
Student(s): Paravathis Nair.

Committee chair, Master's Thesis, Status: In Progress. (2015 - Present). Integrative Studies, Texas State University.
Student(s): Ariane McClendon.

Supervisor / Chair, Master's Thesis, "Comparing Upstream Migration Models of Adult Chinook Salmon (*Oncorhynchus tshawytscha*) in the Klamath River, USA", Status: In Progress. (2015 - Present). Biology, Texas State University.
Student(s): Emily Cowles.

Committee chair, Dissertation, "Predicting future range expansion of Whooping Crane (*Grus americana*) winter habitat using long-term censure and remotely sensed data", Status: In Progress. (2014 - Present). Biology, Texas State University.
Student(s): Nikki Davis.

Committee chair, Master's Thesis, "Freshwater mussel biodiversity survey within the Big Thicket National Preserve, Texas", Status: In Progress. (2014 - Present). Biology, Texas State University.
Student(s): Alison Tarter.

M.S. Committee member/exit committee, Master's Thesis, "Influence of Recreation on Spatial and Temporal Patterns in Water Quality and Periphyton Growth and their Effect on Texas wild-rice (*Zizania texana*)", Status: In Progress. (2014 - Present). University of Houston- Clear Lake.
Student(s): Rachel Byrne.

M.S. Committee member/exit committee, Master's Thesis, "Short term responses of nutrient uptake and release of *Eichhornia crassipes*, *Pistia stratiotes*, and *Ceratophyllum demersum* to nutrient pulses via precipitation events in Spring Lake, San Marcos River, Texas", Status: Completed. (2012 - Present). Biology, Texas State University.
Student(s): Kerstin Hoesel.

Member, Master's Thesis, "Identifying host fish for threatened unionid mussels in Central Texas", Status: Completed. (2016 - 2017). Biology, Texas State University.
Student(s): Ashley Seagroves.

Member, Master's Thesis, "Delineating the Springshed of Cave Without a Name", Status: Completed. (2016 - 2017). Biology, Texas State University.
Student(s): Mark Hiler.

- Member, Master's Thesis, "Evaluating the use of unmanned aerial systems (UAS) in surveying mixed-species waterbird colonies", Status: Completed. (2015 - 2017).
Student(s): Jared Barr.
- Member, Master's Thesis, "Salmonellae in the Intestine of *Hypostomus plectostomus* in the San Marcos River", Status: Completed. (2016). Biology, Texas State University.
Student(s): Anna Gates.
- M.S. Committee member/exit committee, Master's Thesis, "Movement behavior of unionid mussels in central Texas", Status: Completed. (2016). Texas State University.
Student(s): Bianca Hernandez.
- Supervisor / Chair, Master's Thesis, Status: Completed. (2016). Integrative Studies, Texas State University.
Student(s): Catherine Stumberg, MSIS Environmental SustainabilityM.
- Member, Master's Thesis, "Pixel-based and object-based classification methods for surveying wetland vegetation with an unmanned aerial system", Status: Completed. (2016). Geography, Texas State University.
Student(s): Nicholas Villarreal.
- Committee chair, Master's Thesis, "Seasonal and longitudinal investigation of the impacts of recreational activities on aquatic macroinvertebrates community of the San Marcos River", Status: Completed. (2016). Biology, Texas State University.
Student(s): Ovie Shola.
- M.S. Committee member/exit committee, Master's Thesis, "Geochemical Clues to Groundwater Sources of the Pedernales River, Texas", Status: Completed. (2016). Biology, Texas State University.
Student(s): Sarah Zappitello.
- Committee chair, Master's Thesis, "Habitat association of Rainbow Trout in the Canyon Reservoir tailrace", Status: Completed. (2015). Biology, Texas State University.
Student(s): Greg Cummings.
- Committee chair, Master's Thesis, "Seasonal impact of recreation based suspension of turbidity on the macroinvertebrate assemblage of the San Marcos River", Status: Completed. (2015). Biology, Texas State University.
Student(s): Jacob Bilbo.
- M.S. Committee member/exit committee, Master's Thesis, "Potential role of stygobitic species in nutrient dynamics of the Edward's Aquifer in central Texas", Status: Completed. (2015). Texas State University.
Student(s): Lauren Loney.
- Member, Dissertation, Status: Completed. (2014). Civil and Environmental Engineering, Utah State University.
Student(s): Omar Alminagorta, PhD.

- M.S. Committee member/exit committee, Master's Thesis, Status: Completed. (2014).
Texas State University.
Student(s): Anna Perez.
- M.S. Committee member/exit committee, Master's Thesis, "Habitat characterization of Zizania texana in the San Marcos River", Status: Completed. (2014). Geography, Texas State University.
Student(s): Kristina Tolman.
- Committee chair, Master's Thesis, "Applications of unmanned autonomous vehicle systems: Mapping salt cedar and change detection of petroleum exploration", Status: Completed. (2014). Geogra, Texas State University.
Student(s): Laura Clark.
- Committee member, Dissertation, "Applications of Bayesian Statistics in Fluvial Bed Load Transport", Status: Completed. (2013). Utah State University.
Student(s): Mark Schmelter.
- M.S. Committee member/exit committee, Master's Thesis, "Influence of connectivity and habtat heterogeneity of fishes in the upper San Marcos River, Texas", Status: Completed. (2013). Texas State University.
Student(s): Kenneth Behen.
- Committee member, Dissertation, "Using Relevance Vector Machines Approach for Prediction of Total Suspended Solids and Turbidity to Sustain Water Quality and Wildlife in Mud Lake", Status: Completed. (2012). Civil and Environmental Engineering, Utah State University.
Student(s): Ahmed Mohamed.
- Committee member, Dissertation, "Using Relevance Vector Machines Approach for Prediction of Total Suspended Solids and Turbidity to Sustain Water Quality and Wildlife in Mud Lake", Status: Completed. (2012). Utah State University.
Student(s): Hussein Batt.
- Committee member, Dissertation, "Analysis of Irrigation Decision Behavior and Forecasting Future Irrigation Decisions", Status: Completed. (2012). Utah State University.
Student(s): Sanyogita Andriyas.
- Committee member, Dissertation, "Variability of Water Storage and Instream Temperature in Beaded Arctic Streams", Status: Completed. (2011). Utah State University.
Student(s): Madeline Merck.
- M.S. Committee member/exit committee, Master's Thesis, "Numerical analysis of rivers using the depth-averaged equations of motion", Status: Completed. (2011). Utah State University.
Student(s): Ben Case.

M.S. Committee member/exit committee, Master's Thesis, "Relative Importance of Environmental Variables for Spawning Cues and Tributary Use by an Adfluvial Lake Sucker", Status: Completed. (2011). Utah State University.
Student(s): Brian Hines.

Committee member, Dissertation, "A Systems Approach to Modeling and Impact Assessment in an Urbanizing Watershed", Status: Completed. (2010). Biology, Texas State University.
Student(s): Adrian Vogl.

Committee member, Dissertation, "Characterizing Ecologically Relevant Variations in Streamflow Regimes", Status: Completed. (2010). Utah State University.
Student(s): Kiran Chinnayakanahalli.

M.S. Committee member/exit committee, Master's Thesis, "Cyprinid assemblage structure along physical, longitudinal, and seasonal gradients, and life history and reproductive ecology of the Sabine Shiner", Status: Completed. (2010). Texas State University.
Student(s): Casey Williams.

Committee chair, Dissertation, "Integrating surface and sub-surface flow models of different spatial and temporal scales using potential coupling interfaces", Status: Completed. (2008). Civil and Environmental Engineering, Utah State University.
Student(s): Alphonse Guzha.

Committee member, Dissertation, "Rank-Date Distribution Method (R-D Method) For Daily Time-Series Bayesian Networks And Total Maximum Daily Load Estimation", Status: Completed. (2008). Utah State University.
Student(s): Joon Hee Lee.

Committee chair, Dissertation, "Virgin River operations optimization model", Status: Completed. (2007). Civil and Environmental Engineering, Utah State University.
Student(s): Leon Basdekas.

Committee chair, Dissertation, "Two-dimensional mobile bed hydrodynamic model for the transport of mixed sediments", Status: Completed. (2006). Civil and Environmental Engineering, Utah State University.
Student(s): Anji Dodd.

Committee chair, Dissertation, "Habitat modeling of river ecosystems: multidimensional spatially explicit and dynamic habitat templates at scales relevant to fish", Status: Completed. (2006). Civil and Environmental Engineering, Utah State University.
Student(s): Craig Addley.

Committee chair, Dissertation, "Development of an instream flow-based extrapolation procedure for the Nooksack Watershed", Status: Completed. (2006). Civil and Environmental Engineering, Utah State University.
Student(s): Ekaterina Saraeva.

- M.S. Committee member/exit committee, Master's Thesis, "Use of Bayesian belief network to quantify the uncertainty in estimates of salt loading from an irrigated watershed", Status: Completed. (2006). Utah State University.
Student(s): Lizzette Oman.
- Committee chair, Master's Thesis, "A simplified method for estimating sediment transport flow regimes based on a stream classification system", Status: Completed. (2005). Civil and Environmental Engineering, Utah State University.
Student(s): Britanie Ames.
- Committee chair, Master's Thesis, "A behavioral-based, mechanistic population model for sympatric stream salmonids using the SWARM simulation system", Status: Completed. (2005). Civil and Environmental Engineering, Utah State University.
Student(s): Eric McKlesky.
- Committee chair, Master's Thesis, "Estimating uncertainty in fish habitat modeling using two-dimensional hydraulics", Status: Completed. (2004). Civil and Environmental Engineering, Utah State University.
Student(s): Mikhail Bhosle.
- Committee member, Dissertation, "Water Management: Partnerships for Future Directions (Research and Testing Education Support Outreach)", Status: Completed. (2003). Utah State University.
Student(s): Bethany Neilson.
- Committee chair, Master's Thesis, "A comparative evaluation of instream flow protection criteria for aquatic resources on Forest Service managed stream systems", Status: Completed. (2003). Civil and Environmental Engineering, Utah State University.
Student(s): Hans Milliken.
- Committee chair, Master's Thesis, "A methodology for assessing aquatic habitat and riparian habitat quality at the watershed scale", Status: Completed. (2003). Civil and Environmental Engineering, Utah State University.
Student(s): Jason Thompson.
- Committee member, Dissertation, "Watershed -scale hydrology: Influences of spatial variability of snowpack in a semiarid, mountainous environment", Status: Completed. (2001). Utah State University.
Student(s): Rajiv Prasad.
- Committee chair, Master's Thesis, "Development and testing of a rapid assessment methodology for instream habitat", Status: Completed. (2000). Civil and Environmental Engineering, Utah State University.
Student(s): Nathan Kennard.
- Committee member, Dissertation, "Polder design for conjunctive flood-groundwater management", Status: Completed. (1999). Utah State University.
Student(s): Shyamal Bikash Chowdhury.

- Committee chair, Master's Thesis, "Validation of an individual-based, mechanistic habitat selection model for drift-feeding salmonids", Status: Completed. (1999). Civil and Environmental Engineering, Utah State University.
Student(s): Greg Guensch.
- Committee chair, Master's Thesis, "The application of multi-spectral airborne imagery for the detection of temporal changes in stream channel characteristics", Status: Completed. (1999). Civil and Environmental Engineering, Utah State University.
Student(s): Loni Johnson.
- Committee chair, Master's Thesis, "Comparison of physical habitat simulation models with energetic modeling for habitat use", Status: Completed. (1997). Civil and Environmental Engineering, Utah State University.
Student(s): Jennifer Ludlow.
- Committee chair, Master's Thesis, "Development and utilization of a physical habitat model for *Etheostoma fonticola* in the Landa Lake and Comal River systems", Status: Completed. (1997). Civil and Environmental Engineering, Utah State University.
Student(s): Nathan Bartsch.
- Committee member, Dissertation, Status: Completed. (1996). Civil and Environmental Engineering, Utah State University.
Student(s): Anga Rebane.
- Committee chair, Master's Thesis, "Evaluation of two-dimensional hydraulic modeling in a natural river and implications in instream flow assessment methods", Status: Completed. (1996). Civil and Environmental Engineering, Utah State University.
Student(s): Karl Tarbet.
- Committee member, Dissertation, "Evaluation of pavement distress images using artificial neural networks", Status: Completed. (1995). Utah State University.
Student(s): Jacing Chou.
- Committee chair, Master's Thesis, "Statistical modeling methodology for the determination of habitat suitability and habitat preferences of the endangered fountain darter", Status: Completed. (1995). Civil and Environmental Engineering, Utah State University.
Student(s): Michael Chulick.
- M.S. Committee member/exit committee, Master's Thesis, "Seasonal streamflow effects on salmonid habitat, and observations of fish movement in Beaver Creek, Idaho-Utah", Status: Completed. (1995). Utah State University.
Student(s): Shanda Fallau.
- Committee member, Dissertation, "Command area decision support system for irrigation projects", Status: Completed. (1994). Utah State University.
Student(s): Somkiat Prajamwong.

- Committee chair, Master's Thesis, "Delineation of mesoscale hydraulic features, subaqueous sediments, spawning sites, and riverine bathymetry in the south fork of the Salmon River utilizing multispectral, airborne videography", Status: Completed. (1994). Civil and Environmental Engineering, Utah State University.
Student(s): Brent Crowther.
- Committee chair, Master's Thesis, "Use of multispectral aerial videography for jurisdictional delineation of wetland areas", Status: Completed. (1994). Civil and Environmental Engineering, Utah State University.
Student(s): James Shoemaker.
- Committee chair, Master's Thesis, "Classification of mesoscale hydraulic features based on spectral analysis of multispectral aerial videography", Status: Completed. (1994). Civil and Environmental Engineering, Utah State University.
Student(s): Kiran Panja.
- Committee chair, Master's Thesis, "Use of airborne multispectral videography for the classification and delineation of riparian vegetation", Status: Completed. (1994). Civil and Environmental Engineering, Utah State University.
Student(s): Thomas Redd.
- Committee chair, Master's Thesis, "A mechanistic approach to modeling habitat needs of drift feeding salmonids", Status: Completed. (1991). Civil and Environmental Engineering, Utah State University.
Student(s): Craig Addley.
- Committee chair, Master's Thesis, "Sources of uncertainty and effects on interpretation of results in the development of instream flows for fisheries habitat", Status: Completed. (1990). Civil and Environmental Engineering, Utah State University.
Student(s): Brent Bartz.
- Committee member, Dissertation, Status: Completed. (1925). Utah State University.
Student(s): David Kikkert.
- Committee member, Dissertation, Status: Completed. (1925). Utah State University.
Student(s): Karen Williams.
- Committee member, Dissertation, Status: Completed. (1925). Utah State University.
Student(s): Miaohsi Wang.
- Committee member, Dissertation, Status: Completed. (1925). Utah State University.
Student(s): Robert Black.
- Committee member, Dissertation, Status: Completed. (1925). Utah State University.
Student(s): Tong Yin.
- M.S. Committee member/exit committee, Master's Thesis, Status: Completed. (1925). Utah State University.
Student(s): Abdelmonaim Angallouch.

M.S. Committee member/exit committee, Master's Thesis, Status: Completed. (1925).
Utah State University.
Student(s): Bruce Savage.

M.S. Committee member/exit committee, Master's Thesis, Status: Completed. (1925).
Texas State University.
Student(s): Clara Fobb.

M.S. Committee member/exit committee, Master's Thesis, Status: Completed. (1925).
Utah State University.
Student(s): Cynthia Tyler.

M.S. Committee member/exit committee, Master's Thesis, Status: Completed. (1925).
Utah State University.
Student(s): El-Hassan K. El-Hassan.

M.S. Committee member/exit committee, Master's Thesis, Status: Completed. (1925).
Utah State University.
Student(s): Mark Woodbury.

M.S. Committee member/exit committee, Master's Thesis, Status: Completed. (1925).
Utah State University.
Student(s): Paul Badame.

M.S. Committee member/exit committee, Master's Thesis, Status: Completed. (1925).
Utah State University.
Student(s): Rajan Phadnis.

M.S. Committee member/exit committee, Master's Thesis, Status: Completed. (1925).
Utah State University.
Student(s): Walter Wilson.

D. Courses Prepared and Curriculum Development:

BIOL 7360 – Approaches to Aquatic Resource Modeling, Curriculum Development: 1925.

CEE 103 – Digital computer applications in engineering, Curriculum Development: 1925.

CEE 363 – Introduction to Environmental Engineering, Curriculum Development: 1925.

CEE 369 – Environmental Systems Engineering, Curriculum Development: 1925.

CEE 493/693 Special problems in natural systems engineering, Curriculum Development: 1925.

CEE 5690/6690 – Natural Systems Engineering, Curriculum Development: 1925.

CEE 5700/6700 – Field sampling techniques, Curriculum Development: 1925.

CEE 5720/6720 – Natural Systems Modeling, Curriculum Development: 1925.

CEE 596/696 – Management of Regulated Rivers, Curriculum Development: 1925.

CEE 693 – Ecology and management of regulated rivers, Curriculum Development: 1925.

IF310 – Using the computer based PHABSIM system, Curriculum Development: 1925.

III. SCHOLARLY/CREATIVE

A. Works in Print (including works accepted, forthcoming, in press):

1. Books:

b. Textbooks:

Non-refereed:

Hardy, T. (2006). *The Theory and Application of the Physical Habitat Simulation System (PHABSIM)* (p. 148).

c. Edited Books:

Refereed:

Hardy, T., & Davis, N. (2017). *Texas Riparian Areas*. College Station, Texas, United States: Texas A7M University Press.

d. Chapters in Books:

Refereed:

Hardy, T., & Shaw, T. A. (2013). Application of real-time management for environmental flow regimes. In I. Maddock, A. Harby, P. Kemp, & P. Woods (Eds.), *Ecohydraulics: An Integrated Approach*. Chichester, UK: Jon Wiley & Sons. <https://doi.org/10.1002/9781118526576> doi: 10.1002/9781118526576

Hardy, T., Bowles, D. S., & Bosworth, K. (1987). Recursive river water quality estimation using abstract evolution equations in functional Sobolev spaces. In M. B. Beck (Ed.), *Systems analysis in water quality management* (pp. 321–331). London: Pergamon Press. <https://doi.org/10.1002/9781118526576> doi: 10.1002/9781118526576

Hardy, T., & Deacon, J. E. (1984). Streamflow requirements of woundfin (*Plagopterus argentissimus*): Cyprinidae in the Virgin River, Utah, Arizona, Nevada. In N. V. Horner (Ed.), *Festschrift for Walter W. Dalquest in Honor of His Sixty-sixth Birthday* (pp. 141–163).

Hardy, T., Prewitt, C. G., & Voos, K. A. (1982). Application of a physical habitat usability model to the fish community in a spring-fed desert stream. In Lauenroth, Skogerboe, & Flug (Eds.), *Analysis of Ecological Systems: State-of-the-Art in Ecological Modeling* (pp. 391–397). Elsevier Scientific Publishing Company.

e. Creative Books:

Hardy, T. (2003). *Arielle's Answer*.

2. Articles:

a. Refereed Journal Articles:

Trombley, C., Hardy, T., & Schwalb, A. (Accepted / In Press). Changes in fish assemblage after disturbance event caused by sudden increase in salinity in a perennial desert stream. *Environmental Biology of Fishes*.

Birdsong, T. W., Bean, M., Grabowski, T. B., Hardy, T., Heard, T., Holdstock, D., ... Tolman, K. (2015). Unmanned Aerial Systems in Aquatic Resources Management. *Journal of the Southeastern Association of Fish and Wildlife Agencies*. Accepted / In Press.

Hardy, T. B., Wright, K. A., Goodman, D. H., Som, N. A., Alvarez, J. J., & Martin, A. (2016). Improving hydrodynamic modelling: An analytical framework for assessment of two-dimensional hydrodynamic models. *River Research and Applications*. Published. <https://doi.org/DOI: 10.1002/rra.3067>
doi: DOI: 10.1002/rra.3067

Hardy, T., Kollaus, K., Tolman, K., Heard, T., & Howard, M. (2015). Ecohydraulics in applied river restoration: a case study in the San Marcos River, Texas, USA. *Journal of Applied Water Engineering and Research*. Published. Retrieved from <http://dx.doi.org/10.1080/23249676.2015.1090352>

Som, N. A., Goodman, D. H., Perry, R. W., & Hardy, T. (2015). Habitat suitability criteria via parametric distributions: Estimation, model selection, and uncertainty. *River Research and Applications*. Published. Retrieved from <http://dx.doi.org/10.1080/23249676.2015.1090352>

Kollaus, K. A., Behen, K. P., Heard, T., Hardy, T., & Bonner, T. H. (2014). Influence of urbanization on a karst terrain stream and fish community. *Urban Ecosystems*. Published. <https://doi.org/10.1007/s11252-014-0384-x> doi: 10.1007/s11252-014-0384-x

- Basdekas, L., Bastidas, L. A., Hardy, T., Caplan, A. J., & McKee, M. (2012). Virgin River multi-objective optimization: Maximizing endangered fish habitat and minimizing costs. *International Journal of River Basin Management*, 12(1), 15–28.
- Perkin, J. S., Shattuck, Z. R., Bean, P. T., Bonner, T. H., Saraeva, E., & Hardy, T. (2010). Movement and microhabitat associations of Guadalupe Bass in two Texas rivers. *North American Journal of Fisheries Management*, 30, 33–46.
- Guzha, A. C., & Hardy, T. (2009). Application of the distributed hydrological model, TOPNET, to the Big Darby Creek watershed, Ohio, USA. *Water Resources Management Journal* 24:979-1003. Published. <https://doi.org/10.1007/s11269-009-9482-6> doi: 10.1007/s11269-009-9482-6
- Saraeva, E., & Hardy, T. (2009). Extrapolation of site-specific weighted usable area curves and instream flow requirements to unmeasured streams within the Nooksack watershed in support of strategic watershed planning. *International Journal of River Basin Management*, 7, 91–103.
- Saraeva, E., & Hardy, T. (2009). Prediction of fisheries physical habitat values based on hydraulic geometry and frequency distributions of depth and velocity. *International Journal of River Basin Management*, 7, 31–41.
- Hardy, T., Shaw, T., Addley, R. C., Smith, G. E., Rode, M., & Belchik, M. (2006). Validation of chinook fry behavior based escape cover modeling in the lower Klamath River. *International Journal of River Basin Management*, 4, 169–178.
- Hardy, T., & Addley, C. (2003). Instream flow assessment modeling: combining physical and behavioral-based approaches. *Canadian Water Resources Journal*, 28, 1–10.
- Gregory, P. J., I. Ingram, J. S., Anderson, R., Betts, R. A., Brovkin, V., Chase, T. N., ... Wilinon, M. J. (2002). Environmental consequences of alternative practices for intensifying crop production. *Agriculture, Ecosystem and Environment*, 88, 279–290.
- Guensch, G. R., Hardy, T., & Addley, R. C. (2001). Validation of an individual-based, mechanistic habitat selection model for drift-feeding salmonids. *Canadian Journal of Fisheries and Aquatic Science*, 58, 446–457.
- Goodwin, P., & Hardy, T. (1999). Integrated simulation of physical, chemical and ecological processes for river management. *Journal of Hydroinformatics*, 1, 33–58.
- Gilver, D. J., Bryant, R., & Hardy, T. (1999). Remote sensing of channel morphology and in-stream fluvial processes. *Progress in Environmental Science*, 1, 257–284.

Hardy, T. (1998). The future of habitat modeling and instream flow assessment techniques. *Regulated Rivers. Research and Management*, 14, 405–420.

Hardy, T. (1995). Assessing environmental effects of severe sustained drought. *Water Resources Bulletin*, 867–875.

Modde, T., & Hardy, T. (1992). Influence of different microhabitat criteria on salmonid habitat simulation. *Rivers*, 3, 37–44.

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- Hardy, T., & Caupp, C. C. (1986). *Development of a steady-state physical habitat model for the fishes of the Virgin River* (p. 230). Logan, Utah: Utah State University.

Hardy, T. (1985). *Development of a physical habitat model for use in determining instream flow requirements of the ichthyofauna in the Virgin River* (p. 63). Logan, Utah: Utah State University.

Messer, J. J., Hardy, T., & Ihnat, J. M. (1984). *Sediment phosphorus relationships in Deer Creek Reservoir* (p. 45).

Hardy, T., & Deacon, J. E. (1982). *Distribution and status of the ichthyofauna for localities with known collections of exotic or introduced species: Arizona, California, Colorado, Nevada, New Mexico, Texas and Utah* (p. 480). Las Vegas, Nevada: Department of Biological Sciences, University of Nevada at Las Vegas.

Hardy, T. (1982). *Ecological interactions of the introduced and native fishes in the outflow of Ash Springs, Lincoln County, Nevada* (p. 110). Las Vegas, Nevada: Department of Biological Sciences, University of Nevada at Las Vegas.

6. Book Reviews:

Hardy, T., Panja, P., & Mathias, D. (2002). WinXSPRO: a channel cross-section analyzer user's manual, v. 3.2.

Mathias, J. D., Hardy, T., Killigore, K. J., & Jorden, J. (1995). *The aquatic habitat appraisal guide*. U.S. Army Corps of Engineers Waterways Experiment Station.

Hardy, T. (1989). *Computer manual for the PCSIM hydraulic simulation software system*. Hardy and Associates.

Hardy, T., & Mathias, J. D. (1989). *Interactive curve development library for use in suitability index curve analyses*. Utah State University.

10. Other Works in Print:

Peer Reviewed Research Reports:

Hardy, T., Crawford, M., Agare, O., Williamson, P. S., & Nowlin, W. H. (2016). *Suspended sediment impacts on Texas wild-rice and other aquatic plant growth characteristics and aquatic macroinvertebrates*.

USGS Open File Reports:

Perry, R., Jones, E., Plumb, J., Som, N., Hetrick, N., Hardy, T., ... De Julio, K. (Accepted / In Press). *Application of the Stream Salmonid Simulator to Trinity River Chinook Salmon*: United States: U.S. Geological Survey.

B. Works Not in Print:

1. Papers Presented at Professional Meetings:

- Kollauss, K. (Presenter), Howard, M., Hardy, T., Texas Aquatic Plant Management Society, "San Marcos River Habitat Conservation Plan: Putting river restoration into practice Part 2.," Texas Aquatic Plant Management Society, San Antonio, TX, United States. (November 27, 2017).
- Robertson, S. (Presenter), Birdsong, T., Smith, R., Wolaver, B., Hardy, T., Lewey, J., American Fisheries Society 147th Annual Meeting, "A Multidisciplinary Approach to Developing the Science and Public Support Needed to Maintain Instream Flows in the Devils River Basin, Texas," American Fisheries Society, Tampa, FL, United States. (August 24, 2017).
- Hoeninghaus, D. (Presenter), Jennsen, J., Hardy, T., Winemiller, K., Pease, A., Allen, Y., Texas Chapter AFS Annual Meeting, "Quantification of alligator gar recruitment dynamics using a river-stage specific floodplain inundation model," Texas Chapter of the American Fisheries Society, Corpus Christi, TX, United States. (January 19, 2017).
- Tolman, K., Hardy, T., Texas Colonial Waterbird Society Symposium, "Application of high-resolution, low-cost, unmanned aerial vehicles (UAVs) for surveying Brown Pelican nesting sites at North Deer Island in Galveston Bay," Galveston, TX. (November 18, 2016).
- Hardy, T. (CoAuthor), Meitzen, K. M. (CoAuthor/Presenter), Jensen, J. (CoAuthor), 112th Annual meeting of the American Association of Geographers (AAG), "Modeling floodplain inundation to evaluate Gar (Lepisosteiformes) habitat suitability in the lower Guadalupe River, USA," American Association of Geographers, San Francisco, San Francisco, CA, United States. (March 29, 2016).
- Jensen, J. L.R. (CoAuthor), Hardy, T. (Presenter CoAuthor), Meitzen, K. M. (CoAuthor), 11th ISE 2016, Melbourne, Australia, "APPLICATION OF AN UNMANNED AERIAL SYSTEM TO OBTAIN REMOTELY SENSED DATA TO DERIVE A HIGH RESOLUTION DIGITAL TERRAIN MODEL OF RIVER TOPOGRAPHY FOR USE IN FLOW DEPENDENT INUNDATION MODELING OF RIPARIAN VEGETATION AND GAR (LEPISOSTEIFORMES) HABITAT," International Association for Hydro-Environment Engineering and Research, Melbourne, Melbourne, Australia. (February 2016).
- Hardy, T. (CoAuthor/Presenter), Meitzen, K. M. (CoAuthor), Jensen, J. (CoAuthor), 11th ISE 2016, Melbourne, Australia, "DEVELOPMENT OF A FLOW DEPENDENT INUNDATION MODEL FOR EVALUATING GAR (LEPISOSTEIFORMES) HABITAT SUITABILITY IN THE LOWER GUADALUPE RIVER, USA," International Association for Hydro-Environment Engineering and Research, Melbourne, Melbourne, Australia. (February 2016).
- Hardy, T. (CoAuthor/Presenter), Perry, R. W. (CoAuthor), Plumb, J. M. (CoAuthor), Som, N. A. (CoAuthor), Hetrick, N. (CoAuthor), 11th ISE 2016, Melbourne, Australia, "MODELING FISH MOVEMENT IN A SPATIALLY EXPLICIT POPULATION MODEL OF JUVENILE CHINOOK SALMON IN THE

- KLAMATH RIVER, USA," International Association for Hydro-Environment Engineering and Research, Melbourne, Melbourne, Australia. (February 2016).
- Hardy, T. (CoAuthor/Presenter), Perry, R. W. (CoAuthor), Plumb, J. M. (CoAuthor), Som, N. A. (CoAuthor), Hetrick, N. (CoAuthor), 11th ISE 2016, Melbourne, Australia, "MODELING INFECTION AND MORTALITY IN A OF JUVENILE CHINOOK SALMON DUE TO DISEASE CAUSED BY CERATONOVA SHASTA IN THE KLAMATH RIVER," International Association for Hydro-Environment Engineering and Research, Melbourne, Melbourne, Australia. (February 2016).
- Hardy, T. B. (Presenter), Raphelt, N. (CoAuthor), 11th ISE 2016, Melbourne, Australia, "APPLICATION OF ADAPTIVE HYDRAULICS FOR ESTIMATION OF RIVER BED EVOLUTION AFTER DAM REMOVAL ON THE HABITAT QUANTITY AND QUALITY OF AQUATIC RESOURCES AND RIVER RECREATION," International Association for Hydro-Environment Engineering and Research, Melbourne, Australia. (February 7, 2016).
- Kollaus, K. A., Heard, T. C., Tolman, K. M., Birdsong, T., Hardy, T., Texas Chapter of the Wildlife Society, "Evaluation of a low-cost unmanned aerial system to support management and conservation efforts of Texas coastal resources," Corpus Christi, TX. (January 19, 2015).
- Villarreal, N., Symmank, M., Frisbie, M., Hardy, T., Tolman, K., Jensen, J., Texas Chapter of the Wildlife Society, "Surveying wetland vegetation with an unmanned aerial system," Corpus Christi, TX. (January 19, 2015).
- Hardy, T., Techniques and Technologies Workshop. 51st Annual Meeting of the Texas Chapter of the Wildfire Society, "Unmanned autonomous vehicles," Corpus Christi, TX. (January 19, 2015).
- Hardy, T., Texas Chapter of the American Fisheries Society, "Application of an unmanned aerial vehicle system supporting Guadalupe bass restoration during drought," Tyler, TX. (January 17, 2015).
- Clark, L., Tolman, K., Hardy, T., Texas Natural Resources Information System. 26th Annual GIS Forum, "UAV exotic vegetation classification and interactive web mapping." (October 24, 2014).
- Alvarez, J., Goodman, D., Martin, A., Hardy, T., 2013 Western Division Annual Meeting, American Fisheries Society, "Level of effort and prediction success: techniques for 2D hydrodynamic habitat modeling," Boise, ID. (April 18, 2013).
- Behen, K. P., Curtis, S. G., Kollaus, K. A., Hardy, T., Bonner, T. H., Texas Chapter American Fisheries Society, "Effects of recreational activities on the spatial and temporal trends in habitat associations for the fish assemblage of the San Marcos River," Galveston, TX. (2012).

- Kollauss, K., Behen, K. P., Heard, T. C., Tennant, J. M., Hardy, T., Bonner, T. H., Texas Chapter American Fisheries Society, "Influence of watershed and instream alterations on the upper San Marcos River fish assemblage," Galveston, TX. (2012).
- Tolman, K., Hardy, T., Kollauss, K., Heard, T., Tennant, J., TNRIS GIS Forum, "Use of small, autonomous unmanned aerial vehicles for capturing multispectral aerial imagery," Pickle Center, Austin, TX. (2012).
- Hardy, T., Kollauss, K., Heard, T., Tennant, J., 14th World Lake Conference, "Use of UAV for remote sensing of surface water systems," Austin, TX. (November 4, 2011).
- Kollauss, K. K., Hardy, T., Heard, T., Tennant, J., Jensen, A., American Fisheries Society 141st Annual Meeting, "Deployment and flight training procedures associated with using small, autonomous unmanned aerial vehicles for capturing multispectral aerial imagery," Seattle, WA. (September 8, 2011).
- Hardy, T., Nowlin, W. H., Schwartz, B., Bonner, T., American Fisheries Society 141st Annual Meeting, "San Marcos Observing System: integrating physical, chemical, and biological data at high resolution spatial and temporal scales," Seattle, WA. (September 8, 2011).
- Behen, K., Kollauss, K. K., Hardy, T., Bonner, T. H., American Fisheries Society 141st Annual Meeting, "Spatial and temporal trends in habitat associations of the fish community in Spring Lake and the headwaters of the San Marcos River," Seattle, WA. (September 8, 2011).
- Mock, L., Schwartz, B. F., Nowlin, W. H., Hutchins, B. T., Hardy, T., Bonner, T. H., Lockwood, A., Steinback, A., National Conference of Standards Laboratories International Workshop and Symposium, "The role of metrology in monitoring and preserving the water quality in the Edwards Aquifer in Central Texas," Gaylord National Convention Center, National Harbor, MD. (August 25, 2011).
- Tower, K., Hardy, T., Kollauss, K., Heard, T. C., Tennant, J. M., Southwestern Association of Naturalist 58th annual meeting, "Habitat characterization of *Zizania texana* within the San Marcos River," University of Texas, Tyler, TX. (April 22, 2011).
- Tower, K., Hardy, T., Kollauss, K., Heard, T. C., Tennant, J. M., Texas Academy of Science, "Modeling the spatial relationship of riparian shade distribution as it relates to aquatic species distribution within the San Marcos River," St. Edwards University, Austin, TX. (March 4, 2011).
- Bonner, T., Hardy, T., Mayes, K., Texas Chapter American Fisheries Society, "Calculating habitat suitability for Texas fishes from expert perception: a request for participation," San Marcos, TX. (February 12, 2011).
- Mayes, K., Aziz, K., Botros, J., Robertson, C., Hardy, T., Littroll, B., Texas Chapter American Fisheries Society, "Using envelope curves to derive fish habitat suitability indices for instream flow assessments," San Marcos, TX. (February 12, 2011).

- Williams, C. R., Hardy, T., Tower, K., Texas Aquatic Plant Management Society, "Spring Lake aquatic vegetation mapping project," Bandera, TX. (October 27, 2010).
- Williams, C. R., Hardy, T., Steinback, A., Texas Aquatic Plant Management Society, "Distribution and habitat of *Hygrophila polysperma* along the San Marcos River," Bandera, TX. (October 25, 2010).
- Hardy, T., McKee, M., 139th meeting of the American Fisheries Society, "Role of science and scientists in stakeholder driven instream flow assessments." (September 3, 2009).
- Hardy, T., Saraeva, E., The 7th International Symposium on Ecohydraulics, "A comparative evaluation of habitat mapping versus hydraulic based habitat modeling to assess river restoration actions," Concepcion, Chile. (February 16, 2009).
- Hardy, T., The 7th International Symposium on Ecohydraulics, "Addressing repeatability, uncertainty, scalability and bias in habitat mapping based approaches to instream flow assessments," Concepcion, Chile. (February 16, 2009).
- Hardy, T., Saraeva, E., Jensen, L., The 7th International Symposium on Ecohydraulics, "Application of stochastic time series modeling for incorporation of increased variability of flow in the development of instream flow recommendations," Concepcion, Chile. (February 16, 2009).
- Perkin, J., Bonner, T., Hardy, T., The 7th International Symposium on Ecohydraulics, "Moving beyond a flat river – multidimensional attributing of river characteristics for aquatic resource investigations," Concepcion, Chile. (February 16, 2009).
- Hardy, T., Addley, R. C., The 6th International Symposium on Ecohydraulics, "Physical habitat and bioenergetic assessments of anadromous fish flow needs. An integrated application of the natural flow paradigm to recommending instream flows," Christchurch, New Zealand. (February 27, 2007).
- Basdekas, L., Hardy, T., Addley, R. C., Bradford, W., Hammond, J., Presented at the 5th International Symposium on Ecohydraulics, "Benefits evaluation of channel reconstruction on Lower LaVerkin Creek using two-dimensional hydrodynamics and biological habitat modeling," Madrid, Spain. (September 17, 2004).
- Combs, M., Gowing, I., Hardy, T., Presented at the 5th International Symposium on Ecohydraulics, "Comparative evaluation of a rapid assessment methodology for instream flow assessments with intensive physical habitat simulation (PHABSIM) approaches," Madrid, Spain. (September 17, 2004).
- Thompson, J., Hardy, T., Presented at the 5th International Symposium on Ecohydraulics, "Development and application of a GIS based river basin assessment tool for prioritization of aquatic habitat restoration at the watershed level," Madrid, Spain. (September 17, 2004).

- Saraeva, E., Hardy, T., Presented at the 5th International Symposium on Ecohydraulics, "Development and application of GIS based instream flow extrapolation procedure for watershed planning in the Nooksack River basin," Madrid, Spain. (September 17, 2004).
- Bhosle, M., Hardy, T., Presented at the 5th International Symposium on Ecohydraulics, "Estimating uncertainty in fish habitat modeling using two-dimensional hydraulics," Madrid, Spain. (September 17, 2004).
- Hardy, T., Addley, R. C., Presented at the 5th International Symposium on Ecohydraulics, "Incorporation of fish behavior in physical habitat models," Madrid, Spain. (September 17, 2004).
- Basdekas, L., Bastidas, L., Caplan, A., Hardy, T., McKee, M., Stevens, D., UCOWR/NIWA Conference, "Balancing water use, water rights, endangered species, and economics: a multi-objective, system operations optimization approach," Portland, OR. (July 22, 2004).
- Hardy, T., Lower Klamath Basin Science Conference, "Field validation of habitat modeling in the lower Klamath River," Redding, CA. (June 9, 2004).
- Hardy, T., Lower Klamath Basin Science Conference, "Field validation of habitat modeling of Chinook spawning and fry life stages in the lower Klamath River," Redding, CA. (April 23, 2004).
- Hardy, T., American Fisheries Society Conference, "An applied decision support system using multidisciplinary assessment methods for instream flows – Nooksack River basin," Austin, TX. (February 9, 2004).
- Dodd, A. M., Cashman, E. M., Hardy, T., American Geophysical Union Fall Meeting, "One-Dimensional Sediment Transport and Turbulence," San Francisco, CA. (December 12, 2003).
- Hardy, T., Institute for Natural Systems Engineering, "EDN 1: Hydraulic model calibration files and supporting analysis files. Prepared for The WRIA 1 Watershed Management Project," Utah Water Research Laboratory, Utah State University, Logan, UT. (2002).
- Addley, R. C., Hardy, T., 4th International Symposium on Ecohydraulics, "A decade of 2-dimensional instream flow modeling experience: Part 1 - Benefits and pitfalls of data collection and hydrodynamic modeling," Cape Town, South Africa. (March 8, 2002).
- Hardy, T., Addley, R. C., Annual Meeting of the Bonneville Chapter American Fisheries Society, "Vertical integration of spatial and hydraulic data for improved habitat modeling in GIS." (March 18, 1999).

- Addley, R. C., Hardy, T., American Fisheries Society Annual Meeting, "Bioenergetics: a biological response base approach to instream flow assessments," Monterey, CA. (1997).
- Hardy, T., Proceedings of the Annual Spring Symposium of the American Water Resources Association, Water in the 21st Century: Conservation, Demand, and Supply, "Water resource system operations and endangered species in the Virgin River Basin: past, present and future," Salt Lake City, UT. (April 26, 1995).
- U. Neale, C. M., Hardy, T., Shomaker, J. A., Department of Civil and Environmental Engineering, "Evaluation of coastal wetland states using spatial and spectral metrics derived from multispectral videographic imagery," Utah State University, Logan, UT. (1994).
- Hardy, T., Anderson, P., U. Neale, C. M., Stevens, D. K., Proceedings of the American Water Resources Association, on Effects on Human Induced Changes on Hydrologic Systems, "Application of multispectral videography for the delineation of riverine depths and mesoscale hydraulic features," Jackson Hole, WY. (June 29, 1994).
- Hardy, T., American Water Resources Association, Effects on Human-Induced Changes on Hydrologic Systems, "Use of GIS in multidisciplinary studies for instream flow assessments of endangered species in the Comal River ecosystem," Jackson Hole, WY. (June 29, 1994).
- Hardy, T., Utah Water Users Group Annual Meetings, "Issues on endangered species," St. George, UT. (April 17, 1994).
- Hardy, T., American Fisheries Society Winter Technical Meeting, Bonneville Chapter, "Application of multi-spectral videography for resource management in the Virgin River Basin," Wendover, NV. (November 14, 1993).
- Hardy, T., Addley, R. C., American Fisheries Society Bonneville Chapter and Wildlife Society Utah Chapter Joint Winter Technical Session, "Distribution and abundance of Virgin Spinedace (*Lepidomeda mollispinis mollispinis*) in the Virgin River basin," St. George, UT. (February 26, 1993).

2. Invited Talks, Lectures, and Presentations:

- Perry, R., Plumb, J., Jones, E., Som, N., Hetrick, N., Hardy, T., Department of Biology Seminar Series, "The Stream Salmonid Simulator (S3): a Decision Support Model for Assessing Effects of Water Management and Habitat Restoration on Juvenile Salmon Production," Texas State University, San Marcos, United States. (2017).
- Hardy, T., Envision Austin, "The importance of the environment and ecosystems in the urban environment," Austin. (2015).
- Hardy, T., Capital Area Erosion Control Network (CAECN), "Case Studies and Investigations – Meadows Foundation." (November 12, 2015).

- Hardy, T., Instream Flow Council, "Protecting Rivers and Lakes in the face of Uncertainty," Portland, OR. (April 30, 2015).
- Hardy, T., Texas Commission on Environmental Quality (TCEQ) – Surface Water Quality Monitoring Workshop, "Status of aquatic habitat in Texas," Bandera, TX. (October 28, 2014).
- Hardy, T., Regional Livability Symposium - Water: Key to Our Future, "Environmental economics," University of Texas Union. (February 15, 2013).
- Hardy, T., Texas Commission on Environmental Quality, "The ESP of instream flows." (November 13, 2008).
- Hardy, T., Texas Commission on Environmental Quality, "The ESP of instream flows." (November 13, 2008).
- Hardy, T., International Symposium on the Stream Corridor Restoration, "River restoration: Integration of sediment and riparian modeling for assessment of long-term post restoration conditions for aquatic resources," River Environmental Technology Institute, Seoul, North Korea. (November 11, 2008).
- Hardy, T., Instream Flow Council 2008 Conference, "Instream flow council science panel." (October 2008).
- Hardy, T., 4th International Workshop on River Environment - Prospects for the River Restoration Technique Harmonizing with Flood Control and River Environment, "Applied river restoration under high flow constraints – A case study of design and implementation of fish habitat, sediment augmentation, and channel maintenance/riparian flow regimes in the Trinity River, California, USA," Seoul, North Korea. (June 4, 2008).
- Hardy, T., River Systems Institute, "The role of decision support systems in strategic watershed planning: practice to pitfalls," Texas State University. (May 2008).
- Hardy, T., Texas Geographic Information Committee, "The use of aerial drone technology to collect remote sensing data for GIS applications." (January 2008).
- Hardy, T., Texas Geographic Information Council Quarterly Meeting, "The use of aerial drone technology to collect remote sensing data for GIS applications," Austin, TX. (January 30, 2008).
- Hardy, T., 2008 Texas Chapter of the American Fisheries Society meeting, "Modeling game and non-game species – assessing flow dependent needs," Texas Tech University. (January 19, 2008).
- Hardy, T., Texas Chapter of the American Fisheries Society, "Application of physical habitat modeling for game and non-games fish interactions." (January 8, 2008).

- Chen, Y., Hardy, T., McKee, M., International Symposium on the Stream Corridor Restoration, "Unmanned autonomous vehicles: Emerging cost effective technologies for fisheries research and management," Texas Chapter American Fisheries Society. (January 8, 2008).
- Hardy, T., Addley, R. C., 6th International Symposium on Ecohydraulics, "Physical habitat and bioenergetic assessments of anadromous fish flow needs. An integrated application of the natural flow paradigm to recommending instream flows," Christchurch, New Zealand. (2007).
- Hardy, T., American Fisheries Society annual meeting, "Conceptual validation of flow recommendations for salmon in the Klamath Basin using independent models," San Francisco, CA. (September 2007).
- Acreman, M. C., Booker, D. J., Dunbar, M. J., Goodwin, T., Young, A. R., Gowing, I. M., Rivas-Casado, M., Maddock, I., Hill, G., Hardy, T., Allan, S., Texas Geographic Information Council Quarterly Meeting, "A risk-based approach to rapid assessment of physical habitat sensitivity to abstraction," TISOR International Conference on "Riverine Hydroecology: advances in research and applications", Sterling University, United Kingdom. (2006).
- Hardy, T., LCRA/SAWS Science Symposium, "Incorporating ecological risk in assessing instream flows," Austin, TX. (March 2006).
- Hardy, T., Institut National Recherche Scientifique - Eau, Terre et Environnement/ Université Laval, "Modeling impact assessments in fluvial systems – A virtual river view," Geosalar Conference, Geomatics and Fish Habitat Modeling in Rivers and Estuaries, Quebec City. (November 18, 2005).
- Hardy, T., GIS in Water Resources course taught concurrently at University of Texas at Austin and USU (CEE 6440), "Use of GIS to integrate spatial data in instream flow assessments." (November 15, 2005).
- Hardy, T., Flows for the Future, 2005 Environmental Flows Conferences, "The science of instream flows – Evidence of an adaptive process and the dichotomy of perceived information needs," River Systems Institute, Texas State University, San Marcos, TX. (November 1, 2005).
- Hardy, T., Water in the West: Use-Abuse-and Scarcity, "Managing water for endangered fishes," An NR Week Symposium of the College of Natural Resources and the USU Water Initiative, Utah State University, Logan, UT. (October 2005).
- Hardy, T., Stevens, D. K., GSA Annual Meeting and Exposition, "Linking operational hydrology and water quality modeling in the Weber basin: A decision support system," Salt Lake City, UT. (October 16, 2005).
- Hardy, T., Lower Klamath Basin Science, "Field validation of habitat modeling in the lower Klamath River," Redding, CA. (June 9, 2004).

- Hardy, T., Lower Klamath Basin Science Conference, "The use of hydrologic modeling in the development of flow recommendations," Redding, CA. (June 9, 2004).
- Hardy, T., American Fisheries Society Conference, "An applied decision support system using multidisciplinary assessment methods for instream flows – Nooksack River Basin," Austin, TX. (February 11, 2004).
- Bishop, B., Hardy, T., McKee, M., Northern Utah Conference on Evidence, Eccles Conference Center, Utah State University, Logan, UT. (October 10, 2003).
- Hardy, T., Inland Northwest Research Alliance 2003 Subsurface Science Symposium, "Role of Stakeholders in Determining Environmental Policy," Salt Lake City, CA. (October 6, 2003).
- Hardy, T., Addley, C., American Fisheries Society 133rd Annual Meeting, "Instream flow assessment modeling: combining physical and behavioral-based approaches," Quebec City. (August 12, 2003).
- Hardy, T., Western Division of the American Fisheries Society Annual Meeting, "Technical assessment of instream flows in the lower Klamath River," San Diego, CA. (April 15, 2003).
- Hardy, T., 14th Annual International HydroVision Conference, "The state-of-the-art in habitat modeling," Seattle, WA. (August 1, 2002).
- Hardy, T., Fourth International Ecohydraulics Conference, "A decade of 2-dimensional instream flow modeling experience benefits and pitfalls of 2-dimensional habitat modeling," Cape Town, South Africa. (March 2002).
- Hardy, T., Guensch, G., Hydro-ecology Session at IAHS Annual Meeting, "Field validation of a mechanistic based bioenergetic model for drift feeding salmonids," Birmingham, United Kingdom. (July 1999).
- Hardy, T., Addley, R. C., Hydro-ecology Session at IAHS Annual Meeting, "Vertical integration of spatial and hydraulic data for improved habitat modeling in GIS," Birmingham, United Kingdom. (July 1999).
- Hardy, T., Addley, R. C., Hydro-ecology Session at IAHS Annual Meeting, "Vertical integration of spatial and hydraulic data for improved habitat modeling in GIS," Birmingham, United Kingdom. (July 1999).
- Hardy, T., Waite, P., Geuntsch, G., International Symposium for Ecology, "Evaluation of a mechanistically based salmonid model for stream position choice," INTECOL 1998, Florence, Italy. (1998).
- Hardy, T., International Symposium for Ecology, "Linkages between spatial sampling strategies, habitat heterogeneity and hydraulic modeling with implications to applied instream flow assessments," INTECOL 1998, Florence, Italy. (1998).

- Hardy, T., Addley, R. C., Trout Population Dynamics at Stream Reach and Stream Network Scales: Quantifying Physical and Biological Processes, "Physical data necessary to describe trout populations at the stream reach and larger scale," Fort Collins, CO. (April 1998).
- Hardy, T., 17th International Symposium of the North American Lake Management Society, "Moving toward trophic-level-based, ecologically-based instream flow regimes," Instream and Environmental Flows Symposium Technology and Policy Issues, Houston, TX. (December 2, 1997).
- Hardy, T., Fourth Annual Water Summit, "Understanding the biology of your watershed," Utah Water Users Association, Salt Lake City. (November 1997).
- Shoemaker, J., Dey, P., Hardy, T., Panja, K., Annual ERDAS Users Group Meeting, "Application of multispectral videography for natural resource classifications." (1996).
- Hardy, T., Bartsch, N., Connor, P., American Water Resources Association Annual Water Resources Conference, "Habitat and flow requirements – instream flow methodology, monitoring, and the best guess," Watershed Management to Protect Declining Species and Symposium on Water Resources and World Wide Web, Seattle, WA. (December 9, 1996).
- Hardy, T., Winter Meeting of the Bonneville Chapter of the American Fisheries Society, "Integration of Low Cost GPS with GIS for Fisheries Resource Management," Logan, UT. (February 29, 1996).
- Gubala, C. P., Hardy, T., Eilers, J., Trimble Surveying and Mapping Users Conference and Exposition, "SONAR-GPS mapping of aquatic ecosystems and GPS assisted survey of small rivers, streams and creeks," Houston, TX. (August 11, 1995).
- Hardy, T., 29th Annual Conference and Symposium "Effluent Use Management" American Water Resources Association, "Environmental impacts of severe sustained drought: case studies," Tucson, AZ. (September 2, 1993).
- Anderson, P. C., Hardy, T., U. Neale, C. M., 14th Biennial Workshop on Color Photography and Videography for Resource Monitoring, "Application of multispectral videography for the delineation of riverine depths and mesoscale hydraulic features," Utah State University, Logan, UT. (May 28, 1993).
- Shoemaker, J., U. Neale, C. M., Dobrowolski, J. P., Hardy, T., 14th Biennial Workshop on Color Photography and Videography for Resource Monitoring, "Use of multispectral videography for jurisdictional delineation of wetland areas," Utah State University, Logan, UT. (May 25, 1993).
- Hardy, T., Panja, K. V., Anderson, P. C., American Fisheries Society Bonneville Chapter and Wildlife Society Utah Chapter Joint Winter Technical Session, "Application of multi-spectral videography for resource management in the Virgin River basin," St. George, UT. (February 26, 1993).

Dupont, R. R., Hardy, T., 81st Annual Conference of the Air Pollution Control Federation, "Estimating the uncertainty of hazardous air emissions from land treatment systems using the Thibodeaux-Hwang air emission model," Dallas, TX. (June 24, 1988).

Hardy, T., Bowles, D. S., Finney, B. A., American Geophysical Union Fall Annual Meeting, "A case for real time water quality management in the United States," San Francisco, CA. (1986).

3. Consultancies:

Development of tribal instream flow water right claims on the Flathead Indian Reservation, Montana. - Confederated Salish and Kootenai Tribes. (1925).

Expert witness in behalf of her Majesty the Queen of England in the Axford Inquiry. - The Crown of England. (1925).

Lead expert witness for federal fish related water claims on Forest Service lands in the Snake River Basin Adjudication. - Department of Justice. (1925).

Member of science team for development and application of a Chinook Salmon full life cycle model to evaluate Klamath River Dams removals for the Secretarial Determination (Secretary of the Interior). - Department of Interior. (1925).

Mono Basin Hearings before the California Water Development Board, Los Angeles. (1925).

Technical facilitator for Alberta Environment with first nations and oil sands development companies for water withdraw from the Athabasca River. Provincial Government of Alberta, Canada. (1925).

Technical review of Forest Service claims for fisheries in the Upper Klamath River Basin, Oregon. - Department of Justice. (1925).

4. Workshops:

Hardy, T., Texas Parks and Wildlife Department, "Unmanned Autonomous Vehicle Workshop," Kerr Wildlife Management Area, TX. (April 2013).

Hardy, T., Texas Parks and Wildlife Department, "Unmanned Autonomous Vehicle Workshop," Kerr Wildlife Management Area, TX. (April 2011).

Hardy, T., 8th International Symposium on Ecohydraulics, "Masters Class - Instream Flow Assessment Techniques," Seoul, North Korea. (September 11, 2010).

Hardy, T., Buckley Valley Resource Center, "Application of physical habitat modeling for salmonid restoration," Smithers, Canada. (2009).

- Hardy, T., 7th International Symposium on Ecohydraulics, "Application of physical habitat and behavior based modeling in fish communities," Concepcion, Chile. (February 16, 2009).
- Hardy, T., National Ecology Research Center, "IF310 Using the computer based PHABSIM system," U.S. Fish and Wildlife Service. (2008).
- Hardy, T., "Instream Flows 101," Texas State University. (2008).
- Hardy, T., "Instream Flows – Integration and Interpretation of study results," Texas State University. (2008).
- Hardy, T., Southwest Florida Water Management District, "Two-dimensional hydraulic and habitat modeling." (2008).
- Hardy, T., "Physical Habitat Simulation," Yamaguchi University. (2006).
- Hardy, T., U.S. Forest Service, "Application of habitat based assessment of project impacts on fisheries." (2001).
- Hardy, T., Alberta Environment, "Application of habitat based assessment of project impacts on fisheries," Alberta, Canada. (1998).
- Hardy, T., Department of Fisheries and Wildlife, "Wildlife habitat and plant management," Utah State University. (1998).
- Hardy, T., International Workshop-Institute of Hydrology, "Advanced instream flow techniques," Center of Hydrology and Ecology, Wallingford, England. (1997).
- Hardy, T., Mexico Institute of Freshwater Ecology, "Advanced instream flow techniques for quantification of impacts in rivers," Chutepeck, Mexico. (1997).
- Hardy, T., "Advanced instream flow techniques," Vienna, Austria. (1996).
- Hardy, T., "Advanced instream flow techniques in ephemeral rivers," Lisbon, Portugal. (1996).
- Hardy, T., "Applications of advanced instream flow techniques for protection of aquatic resources," University of Portugal. (1996).
- Hardy, T., National Rivers Authority, "Applications of advanced instream flow techniques for protection of aquatic resources," United Kingdom. (1995).
- Hardy, T., Utah Water Research Laboratory, "Research Methods." (1995).
- Hardy, T., USAID, "Central Asian Republic Interactive Site Workshops on Water Management." (1994).
- Hardy, T., Bureau of Land Management, "Instream Flow Techniques." (1994).

Hardy, T., Alberta Fish and Wildlife Service, "Northern Rivers Basin Instream Flow Technical Workshop," Canada. (1994).

Hardy, T., Bureau of Land Management, "Threatened and Endangered Species Consultation and Management Short Course." (1994).

Hardy, T., U.S. Forest Service Technical Training, "Development of instream flows for fisheries." (1991).

Hardy, T., U.S. Forest Service Technical Training, "IFIM Field techniques." (1991).

Hardy, T., "Instream negotiation strategies," Utah State University. (1991).

Hardy, T., Utah Division of Water Resources Professional Development Series, "Development of instream flows for fisheries." (1989).

5. Other Works not in Print:

a. Works "submitted" or "under review":

Journal Articles:

Gates, A., Guerra, T., Morrison, F., Forstner, M., Hardy, T., & Hahn, D. (Submitted / Under Review). Detection of Salmonella in the intestine of *Hypostomus plecostomus* from the upper San Marcos River, Texas. *Journal of Water and Health*.

Reports:

Meitzen, K. M., Hardy, T., & Jensen, J. (Submitted / Under Review). *Floodplain inundation analysis of the lower Guadalupe River: linking hydrology and floodplain-dependent resources*.

c. Other Works Not in Print:

Keynote / Plenary Addresses:

Hardy, T., 10th International Symposium on Ecohydraulics 2014, "The evolution of ecohydraulics: The emergence of holistic systems in decision making from simple beginnings," Trondheim, Norway. (June 27, 2014).

Hardy, T., International Conference on Ecological Modeling, "Incorporating behavior and production estimates into instream flow assessments," Ube Yamaguchi, Japan. (September 1, 2007).

C. Scholarly / Creative Grants and Contracts:

1. Funded External Grants and Contracts:

- Hardy, Thomas (Co-Principal), Ahlman, Todd Michael (Principal). USACE Omaha Sikes Act Cooperative Agreement, US Army Corp of Engineers, Federal, \$45,000,000.00. (Funded: August 25, 2016 - August 25, 2021). Grant.
- Hardy, Thomas (Principal), Percent Contribution: 50%, Forstner, Michael R (Co-Principal), Percent Contribution: 50%. Dunes Sagebrush Lizard, Texas Comptroller, State, \$936,109.39. (Funded: November 11, 2016 - January 31, 2020). Grant.
- Schwartz, Benjamin F, Nowlin, Weston Hugh, Hardy, Thomas, Jeong, Jaekak (Co-Principal), Wolfe, June (Co-Principal). Sessom Creek Sediment Export Study, Edwards Aquifer Authority - Habitat Conservation Plan, State, \$156,306.00. (Submitted: October 2017, Funded: March 2018 - December 2019). Contract.
- Hardy, Thomas. exas Conservation Plan (TCP) specific to the Dunes Sagebrush Lizard (*Sceloporus arenicolus*) (DSL), Texas Comptroller Office, State, \$555,135.00. (Funded: December 15, 2017 - December 31, 2019). Sponsored Research.
- Hardy, Thomas, Schwalb, Rodriguez, Forstner. TxDOT Evaluating the Effectiveness of, \$243,317.00. (Funded: September 1, 2015 - September 30, 2018). Grant.
- Hardy, Thomas (Principal). Hurlburt Natural Resource Support, Monitor Wetlands, US Army Corp of Engineers, Federal, \$82,987.00. (Funded: October 31, 2017 - July 1, 2018). Contract.
- Hardy, Thomas. Edwards Aquifer Habitat Conservation Plan, City of San Marcos and Edwards Aquifer Habitat Conservation Plan, State, \$219,800.00. (Funded: January 1, 2017 - December 31, 2017). Contract.
- Hardy, Thomas, Schwalb. CESU-COE Impacts of Navigation on, \$55,038.90. (Funded: November 1, 2015 - September 30, 2017). Grant.
- Hardy, Thomas, Hoeinghaus. GCPLLC - Quantification of Alligator, \$331,180.00. (Funded: September 1, 2015 - September 30, 2017). Grant.
- Hardy, Thomas. TPWD Assessment/Model Environment, \$83,838.00. (Funded: August 4, 2015 - June 30, 2017). Grant.
- Hardy, Thomas. TPWD Lower Guadalupe Gar Modeling, \$104,206.00. (Funded: October 29, 2015 - March 31, 2017). Grant.
- Hardy, Thomas (Principal), Nowlin, Weston Hugh (Co-Principal), Williamson, Paula S (Co-Principal). Effects of suspended sediments on Texas wild rice, other macrophytes, and macroinvertebrates, Edwards Aquifer Authority

(Edwards Aquifer Habitat Conservation Plan), Federal, \$75,000.00. (Funded: 2015 - 2016). Grant.

Hardy, Thomas, Schwalb. TPWD Development of HSC for, \$26,000.00. (Funded: September 1, 2015 - September 30, 2016). Grant.

Hardy, Thomas, Green, Others. Evaluation of the use of unmanned, \$43,809.00. (Funded: July 1, 2015 - September 30, 2016). Grant.

Hardy, Thomas. UAV Based Remote Sensing - Year 2, TPWD, State, \$17,506.65. (Funded: September 1, 2015 - August 31, 2016). Grant.

Hardy, Thomas. TPWD Peer Review Instream Flows, \$10,000.00. (Funded: September 1, 2015 - March 31, 2016). Grant.

Hardy, Thomas (Principal), McClellan, Stanley A (Co-Principal). JETS FOP / Wilkinson (STO-S24611), Jacobs Technology Group, Private / Foundation / Corporate, \$175,174.00. (Funded: January 2015 - December 2015). Contract.

Hardy, Thomas (Principal), McClellan, Stanley A (Co-Principal). JETS FOP / Wilkinson (STO-S24611/A), Jacobs Technology Group, Private / Foundation / Corporate, \$5,000.00. (Funded: January 2015 - December 2015). Contract.

Hardy, Thomas. EAA Sediment Impacts on TX Wild Rice, \$75,000.00. (Funded: January 1, 2015 - December 31, 2015). Grant.

Hardy, Thomas. UHCL HCP Texas Wild Rice- Year 3, \$516,813.00. (Funded: January 1, 2015 - December 31, 2015). Grant.

Hardy, Thomas. TPWD UAV Based Remote Sensing, \$17,506.65. (Funded: September 1, 2014 - August 31, 2015). Grant.

Hardy, Thomas. CONFEDERATED SALISH, \$362,778.00. (Funded: March 13, 2014 - June 30, 2015). Grant.

Hardy, Thomas. UHCL HCP Texas Wild Rice- Year 2, \$446,150.00. (Funded: January 1, 2014 - December 31, 2014). Grant.

Hardy, Thomas, Sansom. COYPU Expansion of Whooping Crane, \$45,000.00. (Funded: October 2, 2013 - December 31, 2014). Grant.

Hardy, Thomas. LIVINGSTON LURES Behavioral, \$40,384.00. (Funded: March 20, 2014 - August 31, 2014). Grant.

Hardy, Thomas. City Of Victoria Conduct Phase II, \$73,603.00. (Funded: September 1, 2013 - August 31, 2014). Grant.

Hardy, Thomas. GLEASON San Marcos WQPP, \$25,862.00. (Funded: April 1, 2013 - December 31, 2013). Grant.

- Hardy, Thomas. UHCL HCP Texas Wild Rice- Year 1, \$448,588.00. (Funded: March 5, 2013 - December 31, 2013). Grant.
- Hardy, Thomas. CofNB Technical Assistance for Habitat, \$11,000.00. (Funded: May 1, 2013 - November 30, 2013). Grant.
- Hardy, Thomas. TPWD Texas Instream Flow Program, \$189,998.00. (Funded: September 1, 2009 - August 31, 2013). Grant.
- Hardy, Thomas. TxDOT Fountain Darter Mgmt Cape, \$43,203.00. (Funded: September 1, 2012 - February 28, 2013). Grant.
- Hardy, Thomas. TPWD Texas Wild Rice, \$50,000.00. (Funded: October 16, 2012 - January 13, 2013). Grant.
- Hardy, Thomas. GRTU Guadalupe River Habitat, \$10,000.00. (Funded: January 1, 2011 - December 31, 2012). Grant.
- Hardy, Thomas. CofSM Hydro Simulation Water Model, \$10,000.00. (Funded: July 16, 2012 - September 30, 2012). Grant.
- Hardy, Thomas. City of New Braunfels USU Hydro, \$25,341.00. (Funded: March 1, 2012 - September 30, 2012). Grant.
- Hardy, Thomas. TWDB Evaluation of Riparian Process, \$38,500.00. (Funded: March 1, 2011 - September 30, 2012). Grant.
- Hardy, Thomas. CofNB HCP Work Plan Development, \$54,302.00. (Funded: July 23, 2012 - August 31, 2012). Grant.
- Hardy, Thomas. Sul Ross YR5-Hardy, \$41,485.00. (Funded: June 30, 2009 - August 31, 2012). Grant.
- Hardy, Thomas. TWDB Channel Cross Section, \$36,500.00. (Funded: January 1, 2011 - July 31, 2012). Grant.
- Hardy, Thomas. TWDB Robotic Aerial Videography, \$34,966.00. (Funded: January 1, 2011 - July 31, 2012). Grant.
- Hardy, Thomas. City of New Braunfels Interlocal Agreement, \$5,625.00. (Funded: February 1, 2012 - April 30, 2012). Grant.
- Hardy, Thomas. UT Subcontract Creation of Models, \$20,641.00. (Funded: September 1, 2011 - January 5, 2012). Grant.
- Hardy, Thomas. CoVictoria Effects on Guadalupe River, \$62,976.00. (Funded: May 15, 2011 - December 31, 2011). Grant.

Hardy, Thomas. TPWD Application of UAV Tech, \$51,999.00. (Funded: April 26, 2011 - December 31, 2011). Grant.

Hardy, Thomas. TAES (EAA) Setup Run Model, \$40,070.00. (Funded: June 1, 2010 - September 30, 2011). Grant.

Hardy, Thomas. CoSM GPR to Map River Sediments, \$25,000.00. (Funded: April 12, 2011 - September 1, 2011). Grant.

Hardy, Thomas, Sansom (Co-Principal), Schwartz (Co-Principal). ARRA-River System's Monitoring Project, \$106,300.00. (Funded: October 1, 2009 - August 31, 2011). Grant.

Hardy, Thomas, Sansom (Co-Principal), Bonner. ARRA-River System's Monitoring Project, \$109,000.00. (Funded: October 1, 2009 - August 31, 2011). Grant.

Hardy, Thomas, Sansom (Co-Principal), Nowlin. ARRA-River System's Monitoring Project, \$185,745.00. (Funded: October 1, 2009 - August 31, 2011). Grant.

Hardy, Thomas, Sansom (Co-Principal). ARRA-River System's Monitoring Project, \$226,000.00. (Funded: October 1, 2009 - August 31, 2011). Grant.

Hardy, Thomas, Sansom (Co-Principal). ARRA-River System's Monitoring Project, \$372,955.00. (Funded: October 1, 2009 - August 31, 2011). Grant.

Hardy, Thomas. Facilitating Sustain Water-YR4-XIA, \$50,429.00. (Funded: July 15, 2008 - June 14, 2011). Grant.

Hardy, Thomas, Sansom. TWDB- Guadalupe Santonio/Mission, \$5,709.48. (Funded: October 1, 2010 - February 15, 2011). Grant.

Hardy, Thomas. TAES (EAA) Rsch Improv Instream, \$165,940.00. (Funded: November 1, 2009 - October 31, 2010). Grant.

Hardy, Thomas. EAA Recovery Implementation Plan, \$254,940.00. (Funded: August 1, 2008 - December 31, 2009). Grant.

2. Submitted, but not Funded, External Grants and Contracts:

Jensen, Jennifer (Co-Principal), Green, Michael Clay (Principal), Hardy, Thomas (Co-Principal). Developing a process and conservation application for Landscape Conservation Design for the Gulf Coast Prairie Landscape Conservation Cooperative., Gulf Coast Prairie Landscape Conservation Cooperative, Private / Foundation / Corporate, \$200,000.00. (Funded: April 2017 - October 2018). Grant.

Hardy, Thomas. USDA AFRI Water for Agriculture Challenge Area Proposal
“Precision Remote Sensing and Advanced Modeling Approaches for
Sustainable Crop Water and Fertilization Management. (Funded: 1925).
Grant.

D. Scholarly / Creative Fellowships, Awards, Honors:

Award / Honor Recipient: College of Engineering Research Excellence, Utah State
University.

February 25, 1994

Award / Honor Recipient: NATO Advanced Study Institute for the use of Expert Systems
in Civil Engineering through a grant awarded by the National Science Foundation in
Edinburgh, Scotland. 1989.

1986

IV. SERVICE

A. Institutional

1. University:

Chair, Spring Lake Environmental Committee. (2012 - Present).

Prepared the Edwards Aquifer Habitat Conservation Plan 2017 Technical Work
Plans for Texas State University and the City of San Marcos collaboratively with
Ms. Melani Howard of the City of San Marcos. (2016).

Prepared the Edwards Aquifer Habitat Conservation Plan 2016 Technical Work
Plans for Texas State University and the City of San Marcos collaboratively with
Ms. Melani Howard of the City of San Marcos. (2015).

Prepared the Edwards Aquifer Habitat Conservation Plan 2015 Technical Work
Plans for Texas State University and the City of San Marcos collaboratively with
Ms. Melani Howard of the City of San Marcos. (2014).

Prepared the Texas State University Edwards Aquifer Habitat Conservation Plan
2014 Annual Report Chapter. (2013).

Prepared the Edwards Aquifer Habitat Conservation Plan 2013 Technical Work
Plans for Texas State University and the City of San Marcos collaboratively with
Ms. Melani Howard of the City of San Marcos. (2012).

Central Promotion and Tenure Review, Utah State University. (2009).

College of Engineering – Promotion and Tenure Review Committee, Utah State
University. (2004 - 2009).

Presidents Task Force on a Campus Wide Water Program, Utah State University. (2001 - 2005).

ASCE Student Chapter Faculty Advisor, Utah State University. (1990 - 1996).

Natural Resource Policy Program Advisory Committee, Utah State University. (1995).

President's Diversity Team, Utah State University. (1995).

Member. (1925).

3. Department/School:

Co-Chair, Vehicle Use Committee. (October 1, 2016 - Present).

Department of Biology. Aquatic Ecologist Faculty Search Committee. Texas State University. (2013).

College of Engineering – Promotion and Tenure Committee Chair, Utah State University. (2008 - 2009).

College of Engineering Post-Tenure Review Committee, Utah State University. (2006 - 2009).

Division of Environmental Engineering Curriculum Committee, Utah State University. (1998 - 2000).

CEE Computer Committee, Utah State University. (1990 - 1999).

College of Engineering Computer Committee, Utah State University. (1996 - 1998).

College of Engineering Outstanding Junior Committee, Utah State University. (1994 - 1995).

ASCE Student Chapter Faculty Advisor, Utah State University. (1989 - 1995).

EE/CEE Microcomputer Laboratory Steering Committee, Utah State University. (1989 - 1992).

B. Professional:

Editor, Korean Journal of Civil and Environmental Engineering. (2011 - Present).

Member, IAHR Ecohydraulics Committee. (January 1, 2006 - Present).

Reviewer / Referee, Norwegian Science Board of Strategic Research Proposals. (1990 - Present).

Reviewer / Referee, International Association for Hydro-Environment Engineering and Research. (1988 - Present).

International Scientific Committee - 11th IDE 2016, Melbourne, Australia, International Association for Hydro-Environment Engineering and Research, Melbourne, Australia. (January 2015 - February 2016).

Reviewer / Referee, Virgin River Fishes Recovery Team, USFWS. (1991 - 2009).

American Fisheries Society - Certified Fisheries Scientist. (1925).

American Society of Civil Engineers. (1925).

American Society of Photogrammetry and Remote Sensing. (1925).

American Water Resources Association. (1925).

International Association for Hydro-Environment Engineering and Research. (1925).

D. Organization Memberships:

President for the International Association for Hydro-Environment Engineering and Research Ecohydraulics Committee (IAHR). (2012 - 2014).

Secretary for the International Association for Hydro-Environment Engineering and Research Ecohydraulics Committee (IAHR). (2010 - 2012).

Associate Director for the Utah Water Research Laboratory. (2002 - 2009).

Director of the Institute for Natural Systems Engineering, Utah State University. (1989 - 2009).

E. Service Honors and Awards:

Award / Honor Recipient: Texas Environmental Excellence Award, Texas Commission on Environmental Quality.

May 1, 2012 - May 4, 2016

Award / Honor Recipient: Lifetime Achievement Award, Instream Flow Council.

2015

Award / Honor Recipient: 1st ever named Fellow of the Utah Water Research Laboratory.

2009