

# JAMES M. GILBERT, PhD

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## Education & Certifications

- **Ph.D.**, Hydrologic Science and Engineering, Colorado School of Mines, 2016
  - Dissertation: *Exploring Catchment Connections with Integrated Hydrologic Models: System Interactions and Responses to Groundwater Extraction and Climate Change in the San Joaquin River Basin*
- Climate Change, Water and Society IGERT Trainee Certificate, University of California-Davis, 2016
- **M.S.**, Natural Resources Science with specialization in Hydrologic Sciences, University of Nebraska-Lincoln, 2008
  - Thesis: *Groundwater Mixing Dynamics in the Saline Wetlands of the Little Salt Creek Watershed, Lancaster County, Nebraska*
- **B.S.**, Environmental Science, Geology (minor), Iowa State University, 2006, Summa Cum Laude
- Licensed Professional Engineer (PE), Oklahoma No. 31275

## Employment History

Dec 2020 – present	Associate Project Scientist, Institute for Marine Sciences, University of California, Santa Cruz, Santa Cruz, CA ( <i>Affiliate: NOAA Fisheries Southwest Fisheries Science Center</i> )
Dec 2019 – Dec 2020	Specialist, Institute for Marine Sciences, University of California, Santa Cruz, Santa Cruz, CA ( <i>Affiliate: NOAA Fisheries Southwest Fisheries Science Center</i> )
Oct 2016 – Nov 2019	Hydrologic Engineer, US Bureau of Reclamation, Technical Service Center, Denver, CO
Aug 2013 – Aug 2016	PhD student at Colorado School of Mines, Golden, CO
Dec 2012 – Aug 2013	Integrated Water Management Coordinator, Nebraska Department of Natural Resources (NDNR)
Oct 2011 – Dec 2012	Integrated Water Management Analyst, NDNR
Jun 2010 – Oct 2011	Integrated Water Management Specialist, NDNR
Jan 2009 – Jun 2010	Research Technologist I, School of Natural Resources, University of Nebraska-Lincoln
Aug 2006 – Dec 2008	Graduate Research Assistant & MS student at the University of Nebraska-Lincoln
May 2006 – Aug 2006	Hydrologic Technician, USGS Iowa Water Center

## Honors

- Southwest Fisheries Science Center, 2021 Team Member of the Year (recognized in 2022)
- Southwest Fisheries Science Center, Workplace Collaboration Team Staff of the Quarter, 2021
- USBR Technical Service Center Group 8210 Engineer of the Year Nominee, 2019
- USBR Technical Service Center Individual Performance Award, 2017 & 2018
- USBR Technical Service Center Group Performance Award, 2017 & 2018
- Member of team receiving Special Project Team Award from National Management Association, State Government Chapter for floodplain mapping project
- Climate Change, Water, and Society IGERT Trainee, 2013-2016
- Hui Oi-Chow Scholarship & Fellowship Trust Recipient, 2013
- Meritorious Graduate Student Award Nominee, UNL School of Natural Resources, 2008
- Graduated with Distinction (Summa Cum Laude), Iowa State University, 2006
- Graduated in Honors Program, Iowa State University, 2006

## Publications

### *Peer Reviewed Publications*

**Gilbert, J.M.**, Daniels, M.E., Danner, E.M. (*in preparation*) Understanding the contribution of input uncertainties to forecasted water temperature uncertainties in a managed reservoir-river system.

Daniels, M.E., **Gilbert, J.M.**, Danner, E.M. (*in preparation*) Sensitivity of water temperature in a managed reservoir system to environmental forcing variability.

Thatch, L.M., **Gilbert, J.M.**, Maxwell, R.M., 2020. Integrated Hydrologic Modeling to Untangle the Impacts of Water Management During Drought. *Groundwater* 58, 377–391.

<https://doi.org/10.1111/gwat.12995>,

<http://ngwa.onlinelibrary.wiley.com/doi/abs/10.1111/gwat.12995>

**Gilbert, J.** and Maxwell, R., 2018. Contrasting warming and drought in snowmelt-dominated agricultural basins: revealing the role of elevation gradients in regional response to temperature change, *Environ. Res. Lett.*, doi:10.1088/1748-9326/aacb38,

<https://iopscience.iop.org/article/10.1088/1748-9326/aacb38>

**Gilbert, J. M.** and Maxwell, R. M., 2017. Examining regional groundwater–surface water dynamics using an integrated hydrologic model of the San Joaquin River basin, *Hydrol. Earth Syst. Sci.*, 21(2), 923–947, doi:10.5194/hess-21-923-2017, <https://hess.copernicus.org/articles/21/923/2017/>

**Gilbert, J. M.**, Maxwell, R. M. and Gochis, D. J., 2017. Effects of Water-Table Configuration on the Planetary Boundary Layer over the San Joaquin River Watershed, California, *J. Hydrometeor.*, 18(5), 1471–1488, doi:10.1175/JHM-D-16-0134.1,

<https://journals.ametsoc.org/jhm/article/18/5/1471/69708/Effects-of-Water-Table-Configuration-on-the>

**Gilbert, J. M.,** Jefferson, J. L., Constantine, P. G. and Maxwell, R. M., 2016. Global spatial sensitivity of runoff to subsurface permeability using the active subspace method, *Advances in Water Resources*, 92, 30–42, doi:10.1016/j.advwatres.2016.03.020, <https://www.sciencedirect.com/science/article/abs/pii/S030917081630080X>

Jefferson, J. L., **Gilbert, J. M.,** Constantine, P. G. and Maxwell, R. M., 2015. Active subspaces for sensitivity analysis and dimension reduction of an integrated hydrologic model, *Computers & Geosciences*, 83(Supplement C), 127–138, doi:10.1016/j.cageo.2015.07.001, <https://www.sciencedirect.com/science/article/pii/S0098300415300091> .

### *Other Publications*

**Gilbert, J.,** 2014. Pursuing Solutions to Sustain Groundwater in California’s Changing Climate. *Eos Trans. AGU* 95, 307–307. doi:10.1002/2014EO340006, <https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1002/2014EO340006>

**Gilbert, J.M.,** January 15, 2013. Water Policy and Science: Nebraska’s River Basin Evaluation Tools. The Water Report #107. <https://www.thewaterreport.com/issues%20105%20to%20108.html>

## **Professional Service**

### *Reviewer*

Journal of Applied Meteorology and Climatology

Geosciences

Water

Journal of Advances in Modeling Earth Systems

Advances in Water Resources

Journal of Geophysical Research: Atmospheres

International Journal of Climatology

### *Other Service*

Judge - Outstanding Student Presenter Award, American Geophysical Union Fall Meeting, December 2020

## **Teaching Experience**

ParFlow Short Course – Instructor, Colorado School of Mines, May 2016

NRES 453/853 – Hydrology, Graduate Teaching Assistant for F. Edwin Harvey, UNL School of Natural Resources, January-May 2008

## Presentations

### *Workshops*

Panelist, California State Water Resources Control Board Sacramento River Temperature Workshop, March 16, 2022

Panelist, California State Water Resources Control Board Sacramento River Temperature Workshop, April 21, 2021.

Participant, Workshop on hyper-resolution global hydrological modeling, Utrecht Netherlands, June 2015.

Organizer, CCWAS IGERT State of the Science and Policy Workshop, Climate Change and the Future of Groundwater in California, Davis CA, April 2014.

### *Conference Presentations (with abstracts)*

**Gilbert, J.M.**, Daniels, M.E., Danner, E.M. 2022. The Effect of Hydrometeorological Forecast Errors on Temperature Management Projections for the Sacramento River: A 2021 Drought Case Study. Presented at the Interagency Ecological Program 2022 Annual Workshop, Virtual.

**Gilbert, J. M.**, Daniels, M.E., Danner, E.M. 2021. H45V-1468 - The Role of Forecasts in Managing Endangered Salmon in an Engineered River Basin. In H45V - Water and Society: Interdisciplinary Perspectives on Hydroclimatic Forecasting for Water Resources Decision Making III Poster. Presented at the 2021 Fall Meeting, American Geophysical Union, Virtual.

Daniels, M.E., **Gilbert, J.M.**, Danner, E.M. 2021. H52C-03: An Efficient Two-Platform Approach to Determine the Drivers of Discharge Temperature in a Thermally Stratified Reservoir. In H52C - Diagnostics, Sensitivity, and Uncertainty Analysis of Earth and Environmental Models II Oral. Presented at the 2021 Fall Meeting, American Geophysical Union, Virtual.

**Gilbert, J. M.**, Daniels, M. E., & Danner, E. M. 2020. H150-12: Multi-fidelity Temperature Modeling to Better Understand Sensitivities and Uncertainties in a Managed Reservoir-River System. In H150 - Uncertainty Analysis in Hydrology and Water Quality eLightning. Presented at the 2020 Fall Meeting, American Geophysical Union, Virtual.

**Gilbert, J.M.**, Parker, N.L., 2019. Sensitivity of Hydrologic Response to Climate and Water Resources Management in California's Central Valley Using CalSim3, in: Session: Frontiers in Sustainable Agricultural Water Management, Poster (H13M-1899). Presented at the 2019 Fall Meeting, American Geophysical Union, San Francisco, CA.

Thatch, L.M., **Gilbert, J.M.**, Maxwell, R.M., 2019. Remotely estimating groundwater pumping and irrigation: a synthesis approach using GRACE and advances in integrated hydrologic modeling, in: Session: GRACE/GRACE-FO Applications in Terrestrial Hydrology, Poster (H43M-2225). Presented at the 2019 Fall Meeting, American Geophysical Union, San Francisco, CA.

**Gilbert, J.**, Parker, N. A Comparison of CalSimII and CalSim3: Parallel Application of Two Planning Models. 2019 Meeting, California Water and Environmental Modeling Forum, April 2019.

Thatch, L. **Gilbert, J.**, Parker, N., Draper, A. Expansion of CalSim3 into the Tulare Basin. 2019 Meeting, California Water and Environmental Modeling Forum, Folsom, CA, April 2019.

Parker, N., O'Connor, D., **Gilbert, J.**, Becker, A. Reclamation Updates to CalSim-II. 2018 Meeting, California Water and Environmental Modeling Forum, Folsom, CA, April 2018.

- Gilbert, J.,** O'Connor, D., Shannon, J., Parker, N., Draper, A. San Joaquin Hydrology and the Fully-Connected Sacramento-San Joaquin CalSim 3.0 Model. 2018 Meeting, California Water and Environmental Modeling Forum, Folsom, CA, April 2018.
- Gilbert, J.M.,** Maxwell, R.M. Basin-Scale Climate Change Analysis Using High Performance Computing and the Integrated Hydrologic Modeling Platform ParFlow-CLM. 2017 Meeting, American Meteorological Society, abstract J6.5, Seattle, WA, January 2017.
- Gilbert, J.M.,** Maxwell, R.M. Current climate variability as a guide to the 'new normal': exploring multiyear climate warming impacts in the San Joaquin River basin using an integrated hydrologic model. 2016 Fall Meeting, American Geophysical Union, abstract GC13E-1246, San Francisco, CA, December 2016.
- Gilbert, J.M.,** Maxwell, R.M., Gochis, D. J. Impacts of Water Table Configuration on Atmospheric Response over the San Joaquin River Basin. Computational Methods in Water Resources 2016, Toronto, Canada, June 2016.
- Gilbert, J.M.,** Maxwell, R.M., Gochis, D.J., Maples, S., Markovich, K.H. Using Coupled Subsurface-Atmospheric Simulations to Investigate the Impact of Irrigation on Atmospheric Response in the San Joaquin River Basin, California. 2015 Fall Meeting, AGU, abstract H44A-04, San Francisco, CA, December 2015.
- Jefferson, J.L., **Gilbert, J.M.,** Constantine, P.G., Maxwell, R.M. Quantifying the Sensitivity of Energy Fluxes to Land Surface Parameter Selection Using the Active Subspace Method. 2015 Fall Meeting, AGU, abstract H11D-1374, San Francisco, CA, December 2015.
- Gilbert, J.M.,** Maxwell, R.M. Comparing Climate and Irrigation Impacts to San Joaquin Basin Hydrology Using an Integrated Hydrologic-Land Surface Model. MODFLOW and More Conference, Golden, CO, June 2015.
- Jefferson, J.L. **Gilbert, J.M.,** Constantine, Paul C., Maxwell, R.M. Active subspaces for sensitivity analysis and dimension reduction of an integrated hydrologic model. MODFLOW and More Conference, Golden, CO, June 2015.
- Gilbert, J.M.,** Maxwell, R.M. Resolving Spatiotemporal Climate Change Impacts on San Joaquin Basin Hydrology. 2014 Fall Meeting, AGU, abstract GC13G-0735, San Francisco, CA, December 2014.
- Gilbert, J.M.** Integrated Water Management Tools for the Evaluation of Fully Appropriated Status. University of Nebraska-Lincoln Conference on Water Science, Policy, and Practice, Lincoln, Nebraska, 2012.
- Gilbert, J.,** Hallum, D. Balancing Science and Policy in Water Resources Management. NGWA Conference on Great Plains Aquifers: Beyond the Ogallala. Omaha, Nebraska, 2012.
- Gilbert, J.M.,** Harvey, F.E. Groundwater Mixing Dynamics Within The Saline Wetlands Of The Little Salt Creek Watershed, Lancaster County, Nebraska. Annual Meeting of the Geological Society of America, abstract 78-11, Portland, Oregon, October 2009.