Eric D. White, PE

Louisiana Coastal Protection & Restoration Authority
Planning & Research Division
150 Terrace Ave
Baton Rouge, 70802
eric.white@LA.gov; ewhite12@tulane.edu
225.342.1286

LA Coastal Master Plan
Google Scholar profile
ORCID profile
Research Gate profile
GitHub profile

Eric D. White, P.E., is an engineer in the Research and Planning Division of the Louisiana Coastal Protection and Restoration Authority, where he works primarily with the development, integration, and application of hydrologic, hydraulic, and landscape models to assess restoration and engineering project alternatives and planning optimization. He is a licensed Professional Engineer with more than a decade of experience in the field of hydrologic and hydraulic modeling. In 2019, Eric started a PhD program in River-Coastal Science and Engineering at Tulane University in New Orleans.

Education

2023 (planned) - Tulane University – PhD Student in River-Coastal Science & Engineering
2010 - Cornell University – M.S. in Biological & Environmental Engineering
2007 - Pennsylvania State University- B.S. in Agricultural & Biological Engineering

Professional Experience

Louisiana CPRA | Research & Planning Division | *Engineer 6-DCL*	2019 - present
The Water Institute of the Gulf | Natural Systems Modeling | Research Engineer	2013 - 2018
Philadelphia Water Department | Engineering Design | E*ngineering Specialist*	2010 - 2013
URS Corporation | Water Resources Engineering | *Graduate Engineer*	2010
Cornell University | Soil and Water Lab | *EPA STAR Fellow/Research Assistant*	2007 - 2009
USDA Agricultural Research Service | Pasture Sys. and Watershed Mgmt. | *Hydrologic Modeler*	2007

Registration / Certification

Professional Engineer Louisiana – PE #42925
Professional Engineer Pennsylvania – PE #081908

Professional Memberships

American Geophysical Union
American Society of Civil Engineers
Coastal & Estuarine Research Federation

Professional Interests

Model code development (Fortran, Python, R)
Data analysis
Engineering planning and decision-support
Uncertainty analysis
Stormwater management

Hydrologic & hydraulic modeling

- CPRA-ICM
- EPA-SWMM
- USDA-SWAT
- HEC-HMS
- HEC-RAS
- DHI MIKE-FLOOD

Peer-Reviewed Publications

1. Meselhe, E.A., **White, E.D.**, Wang, Y., Reed, D.J. (accepted, minor revisions). Uncertainty Analysis for Landscape Models Used for Coastal Planning. *Estuarine, Coastal and Shelf Science.*

2. de Mutsert, K., Lewis, K.A., **White, E.D.**, & Buszowski, J. (2021). End-to-End Modeling Reveals Species-Specific Effects of Large-Scale Coastal Restoration on Living Resources Facing Climate Change. *Frontiers in Marine Science.* https://doi.org/10.3389/fmars.2021.624532

3. Knighton, J., Buchanan, B., Guzman, C., Elliott, R., **White, E.**, & Rahm, B. (2020). Mapping flood insurance claims with hydrologic and social demographic predictors via machine learning: re-evaluating riverine flood insurance rate maps. *Journal of Environmental Management.* 272. https://doi.org/10.1016/j.jenvman.2020.111051

4. Meselhe, E., Lamjiri, M.A., Flint, K., Matus, S., **White, E.D.** & Mandli, K. (2020). Continental scale heterogeneous channel routing strategy for operational and forecast models. *Journal of the American Water Resources Association.* 1-13. https://doi.org/10.1111/1752-1688.12847

5. Reed, D., Wang, Y., Meselhe, E. & **White, E.** (2020). Modeling wetland transitions and loss in coastal Louisiana under scenarios of future relative sea-level rise. *Geomorphology*. 352(1) 106991. https://doi.org/10.1016/j.geomorph.2019.106991

6. Baustian, M. M., Jung. H., Bienn, H. C., Barra, M., Hemmerling, S., Wang, Y., **White, E.**, & Meselhe, E. (2019). Engaging coastal community members about natural and nature-based solutions to assess their ecosystem function. *Ecological Engineering: X*. 5(2020) 100015. https://doi.org/10.1016/j.ecoena.2019.100015.

7. Rivera-Monroy, V., Elliton, C., Narra, S., Meselhe, E., Zhao, X., **White, E.**, Sasser, C.E., Visser, J.M., Meng, X., Wang, H., Zue, Z., & Jaramillo, F. (2019). Wetland Biomass and Productivity in Coastal Louisiana: Base Line Data (1976-2015) and Knowledge Gaps for the Development of Spatially Explicit Models for Ecosystem Restoration and Rehabilitation Initiatives. *Water*. 11(10), 2054. https://doi.org/10.3390/w11102054

8. Hemmerling, S., M. Barra, Bienn, H. C., Baustian, M. M., Jung. H., Meselhe, E.,Wang, Y.,**& White, E.**, (2019). Elevating Local Knowledge through Participatory Modeling: Active Community Engagement in Restoration Planning in Coastal Louisiana. *Journal of Geographic Systems*, 22(2), 241-266. https://doi.org/10.1007/s10109-019-00313-2

9. **White, E.D.**, Meselhe, E., Reed, D., Renfro, A., Snider, N.P., & Wang, Y. (2019). Mitigating the Effects of Sea-Level Rise on Estuaries of the Mississippi Delta Plain using River Diversions. *Water*. 11(10), 2028. https://doi.org/10.3390/w11102028

10. Meselhe, E.A., Y. Wang, **E.D. White**, H. Jung, M. M. Baustian, S. Hemmerling, M. Barra, & H. Bienn. (2019). Development of Knowledge-Based Predictive Tools to Assess Effectiveness of Natural and Nature-based Solutions for Coastal Restoration and Protection Planning. *Journal of Hydraulic Engineering*, (Accepted – in press).

11. **White, E. D**., Reed, D. J., & Meselhe, E. A. (2019). Modeled sediment availability, deposition, and decadal land change in coastal Louisiana marshes under future sea level rise scenarios. *Wetlands*. 1-16. https://doi.org/10.1007/s13157-019-01151-0

12. **White, E. D**., Messina, F., Moss, L., & Meselhe, E. (2018). Salinity and marine mammal dynamics in Barataria Basin: historic patterns and modeled diversion scenarios. *Water*, 10*(8)*, 1015. https://doi.org/10.3390/w10081015

13. Baustian, M. M., Clark, F. R., Jerabek, A. S., Wang, Y., Bienn, H. C., & **White, E. D.** (2018). Modeling current and future freshwater inflow needs of a subtropical estuary to manage and maintain forested wetland ecological conditions. *Ecological Indicators*, *85*, 791–807. https://doi.org/10.1016/j.ecolind.2017.10.005

14. Hijuelos, A. C., Sable, S. E., O'Connell, A. M., Geaghan, J. P., Lindquist, D. C., & **White, E. D**. (2016). Application of species distribution models to identify estuarine hot spots for juvenile nekton. *Estuaries and Coasts*, 1–12. https://doi.org/10.1007/s12237-016-0199-5

15. Knighton, J., Lennon, E., Bastidas, L., & **White, E. D.** (2016). Stormwater Detention System Parameter Sensitivity and Uncertainty Analysis Using SWMM. *Journal of Hydrologic Engineering*, *21*(8), 05016014. https://doi.org/10.1061/(ASCE)HE.1943-5584.0001382

16. Knighton, J., **White, E**., Lennon, E., & Rajan, R. (2014). Development of probability distributions for urban hydrologic model parameters and a Monte Carlo analysis of model sensitivity. *Hydrological Processes*, *28*(19), 5131–5139. https://doi.org/10.1002/hyp.10009

17. **White, E. D.,** Easton, Z. M., Fuka, D. R., Collick, A. S., Adgo, E., McCartney, M., … Steenhuis, T. S. (2011). Development and application of a physically based landscape water balance in the SWAT model. *Hydrological Processes*, *25*(6), 915–925. https://doi.org/10.1002/hyp.7876

18. Easton, Z. M., Walter, M. T., Fuka, D. R., **White, E. D.,** & Steenhuis, T. S. (2011). A simple concept for calibrating runoff thresholds in quasi-distributed variable source area watershed models. *Hydrological Processes*, *25*(20), 3131–3143. https://doi.org/10.1002/hyp.8032

19. Easton, Z. M., Fuka, D. R., **White, E. D**., Collick, A. S., Biruk Ashagre, B., McCartney, M., … Steenhuis, T. S. (2010). A multi basin SWAT model analysis of runoff and sedimentation in the Blue Nile, Ethiopia. *Hydrol. Earth Syst. Sci.*, *14*(10), 1827–1841. https://doi.org/10.5194/hess-14-1827-2010

20. Steenhuis, T. S., Collick, A. S., Easton, Z. M., Leggesse, E., Bayabil, H., **White, E. D**., … Ahmed, A. A. (2009). Predicting discharge and sediment for the Abay (Blue Nile) with a simple model - Steenhuis - 2009 - Hydrological Processes - Wiley Online Library. *Hydrological Processes*, *23*, 3728–3737. http://onlinelibrary.wiley.com/doi/10.1002/hyp.7513/full

21. **White, E. D.,** Feyereisen, G. W., Veith, T. L., & Bosch, D. D. (2009). Improving Daily Water Yield Estimates in the Little River Watershed: SWAT Adjustments. *Transactions of the ASABE*, *52*(1), 69–79. https://doi.org/10.13031/2013.25948

Technical Reports

1. Allison, M. A., Chen, Q. J., Couvillion, B., Leadon, M., McCorquodale, A., Meselhe, E., … **White, E. D.** (2017). *2017 Coastal Master Plan: Model Improvement Plan, Attachment C3-2: Marsh Edge Erosion*. (No. Final). Coastal Protection and Restoration Authority of Louisiana. http://coastal.la.gov/wp-content/uploads/2017/04/Attachment-C3-2_FINAL_02.23.2017.pdf
2. Alymov, V., Cobell, Z., de Mutsert, K., Dong, Z., Duke-Sylvester, S., Fischbach, J., … **White, E.** (2017). 2017 Coastal Master Plan: Appendix C: Modeling Chapter 4 - model outcomes and interpretations (pp. 1–448). Baton Rouge, Louisiana: Coastal Protection and Restoration Authority. http://coastal.la.gov/wp-content/uploads/2017/04/Appendix-C_chapter4_FINAL_06.19.2017.pdf
3. Brown, S, Couvillion, B, Conzelmann, C, de Mutsert, K, Fischbach, J, Hunnicutt, C, … **White, E**. (2017). *2017 Coastal Master Plan: Appendix C: Modeling Chapter 3 - Modeling Components and Overview. Version Final* (p. 72). Baton Rouge, Louisiana: Coastal Protection and Restoration Authority. http://coastal.la.gov/wp-content/uploads/2017/04/Appendix-C_chapter3_FINAL_6.19.2017.pdf
4. Brown, S., Couvillion, B., Dong, Z., Meselhe, E., Visser, J., Wang, Y., & **White, E.** (2017). 2017 Coastal Master Plan: Attachment C3-23: ICM calibration, validation, and performance assessment (pp. 1–95). Baton Rouge, Louisiana: Coastal Protection and Restoration Authority. http://coastal.la.gov/wp-content/uploads/2017/04/Attachment-C3-23_FINAL_03.09.2017.pdf
5. Meselhe, E., **White, E. D**., & Reed, D. J. (2017). 2017 Coastal Master Plan: Appendix C: Modeling Chapter 2 – future scenarios (pp. 1–32). Baton Rouge, Louisiana: Coastal Protection and Restoration Authority. http://coastal.la.gov/wp-content/uploads/2017/04/Appendix-C_chapter2_FINAL_3.16.2017.pdf
6. Meselhe, E., **White, E.,** & Wang, Y. (2017). 2017 Coastal Master Plan: Attachment C3-24: Integrated compartment model uncertainity analysis (p. 68). Baton Rouge, Louisiana: Coastal Protection and Restoration Authority. http://coastal.la.gov/wp-content/uploads/2017/04/Attachment-C3-24_FINAL_04.03.2017.pdf
7. **White, E. D.,** Meselhe, E., McCorquodale, A., Couvillion, B., Dong, Z., Duke-Sylvester, S. M., & Wang, Y. (2017). 2017 Coastal Master Plan: Attachment C3-22: Integrated compartment model (ICM) development (pp. 1–49). Baton Rouge, Louisiana: Coastal Protection and Restoration Authority. http://coastal.la.gov/wp-content/uploads/2016/04/Attachment-C3-22-ICM-Development_10-5-16.pdf
8. **White, E**., Knighton, J, Martens, G, Plourde, M., & Rajan, R. (2013). *Geoprocessing Tools for Surface and Basement Flooding Analysis in SWMM*. In *Pragmatic Modeling of Urban Water Systems*, Monograph 21. James, Irvine, Joksimovic, Li, McBean, Pitt, Vasconcelos, Wright and Wu, Eds. CHI Press. https://doi.org/10.14796/JWMM.R246-03

Conference Proceedings and Presentations (p presenter, c non-presenting collaborator)

p *Optimizing hydraulic routing at the continental scale: identifying where and when dynamic wave routing is required*. AGU 2020 Fall Meeting. December 11, 2020. Online.

p*Analysis of stream channel properties and hydraulic routing methodologies towards regionally-specific channel routing algorithms at a continental scale*. Unified Forecast System Users' Workshop. July 27-29, 2020.

c *Continental Scale Heterogeneous Channel Routing Strategy for Operational and Forecast Models*. AGU 2019 Fall Meeting. December 9-13, 2019. San Francisco, CA.

[p] *Ecological flow modeling in Louisiana and Texas Estuaries.* NCER 2018 – National Conference on Ecosystem Restoration – Building connections from the local to the landscape scale. August 26-30, 2018. New Orleans, LA.

[p] *Working with local communities to develop a nature-based defense assessment and solution tool.* NCER 2018 – National Conference on Ecosystem Restoration – Building connections from the local to the landscape scale. August 26-30, 2018. New Orleans, LA.

[p] *Louisiana's Coastal Master Plan Modeling Suite – the Integrated Compartment Model.* Gulf of Mexico Alliance – 2018 All Hands Meeting. June 11-15, 2018. St. Petersburg, FL.

[p] *Analysis of modeled landscape uncertainty: model performance versus unknown future environmental conditions.* CERF 2017 – Coastal Science Inflection Point: Celebrating Successes, Learning from Challenges. November 5-9, 2017. Providence, Rhode Island.

[c] *Bring the Freshwater - The Anahuac Wetlands Restoration Project, TX.* CERF 2017 – Coastal Science Inflection Point: Celebrating Successes, Learning from Challenges. November 5-9, 2017. Providence, Rhode Island.

[c] *Informing the Selection of Environmental Scenarios*. CERF 2017 – Coastal Science Inflection Point: Celebrating Successes, Learning from Challenges. November 5-9, 2017. Providence, Rhode Island.

[c] *Key insights and lessons learned from the 2017 Coastal Master Plan process.* CERF 2017 – Coastal Science Inflection Point: Celebrating Successes, Learning from Challenges. November 5-9, 2017. Providence, Rhode Island.

[c] *Modeling long-term freshwater inflow needs of a subtropical estuary to manage and maintain forested wetlands.* CERF 2017 – Coastal Science Inflection Point: Celebrating Successes, Learning from Challenges. November 5-9, 2017. Providence, Rhode Island.

[c] *Understanding the potential long-term performance of coastal restoration projects*. CERF 2017 – Coastal Science Inflection Point: Celebrating Successes, Learning from Challenges. November 5-9, 2017. Providence, Rhode Island.

[p] *Integrated Compartment Model (ICM): Application, Scenarios, Uncertainties and Project Evaluations.* State of the Coast. June 1-3, 2016. New Orleans, Louisiana.

[c] *Introduction to the 2017 Coastal Master Plan Future Scenarios (Poster)*. State of the Coast. June 1-3, 2016. New Orleans, Louisiana.

[p] *Linking Downscaled Global Climate Models to Planning Level Ecosystem Models.* NCER 2016 – National Conference on Ecosystem Restoration: Ecosystem Restoration in Action. April 18-22, 2016. Coral Springs, Florida.

[p] *Integrated Compartment Model Application: Scenarios, Uncertainties, and Project Evaluations.* Special session: Modeling Louisiana's 2017 Coastal Master Plan. CERF 2015 - Grand Challenges in Coastal & Estuarine Science: Securing Our Future. November 8-12, 2015. Portland, Oregon.

[c] *A water balance-based Soil and Water Assessment Tool (SWAT) for improved performance in the Ethiopian Highlands.* Proceedings of the Intermediate Results Dissemination Workshop- "Improved water and land management in the Ethiopian highlands and its impact on downstream stakeholders dependent on the Blue Nile". February 5-6, 2009. Addis Ababa, Ethiopia.

[c] *Assessment of hydrological and landscape controls on gully formation and upland erosion near Lake Tana, Northern Highlands of Ethiopia.* Proceedings of the Intermediate Results Dissemination Workshop- "Improved water and land management in the Ethiopian highlands and its impact on downstream stakeholders dependent on the Blue Nile". February 5-6, 2009. Addis Ababa, Ethiopia.

[p] *Improved Soil and Water Assessment Tool (SWAT) Performance by Removal of the Curve Number Method (Poster).* Proceedings of the AGU 2008 Fall Meeting. December 15-19, 2008. San Francisco, CA.

[c] *Adapting the Soil and Water Assessment Tool (SWAT) for the Nile Basin*. Proceedings of the Second International Forum on Water and Food: IFWF2. November 10-14, 2008. Addis Ababa, Ethiopia.

[c] *Improving Daily Water Yield Estimates in the Little River Watershed: SWAT Adjustments.* Proceedings of the Annual International Meeting of the ASABE. June 29 – July 2, 2008. Providence, RI.

[c] *Bioremediation of Biodiesel and Biohydraulic Oils by Food Waste Composting.* Proceedings of ASABE's 2007 International Symposium on Air Quality and Waste Management for Agriculture. September 16-19, 2007. Broomfield, CO.

[c] *Effects of Moisture Content and Soil Additions on Physical Properties and Transport Phenomena for Compost Windrow Design.* Proceedings of ASABE's 2007 International Symposium on Air Quality and Waste Management for Agriculture. September 16-19, 2007. Broomfield, CO.

Selected Projects

Louisiana's 2023 Coastal Master Plan (2018 - ongoing)
Role: Technical Lead for modeling efforts and member of the Master Plan Delivery Team

Louisiana Watershed Initiative (2019 – ongoing)
Role: CPRA representative on the Data & Modeling Technical Advisory Group

Louisiana's 2017 Coastal Master Plan (2013 – 2017)
Role: Lead developer in model integration and development tasks
Responsible for leading extensive H&H and landscape model calibration and validation efforts and lead developer responsible for updating physical processes simulated in legacy numerical model code. Developed new, higher level model code which integrated and linked 5 legacy models into a single model. Updated physical processes were focused on hydrology and hydraulics, sediment resuspension and deposition, geomorphology and habitat suitability indices. Additional responsibility dealt with developing metrics to quantitatively assess model outputs and differences between various scenarios and project alternatives.

Development and Application of a Hydrologic Model in the Anahuac National Wildlife Refuge in Southeast Texas (2017 – 2018)
Role: Lead engineer in model integration and development
Customized and applied the Integrated Compartment Model (ICM) to provide a more thorough understanding of the flow paths, fluxes, inundated areas, and salinity patterns in certain wetland tracts within the Anahuac National Wildlife Refuge in coastal Texas. A study was conducted to examine the effectiveness of purchasing freshwater and distributing it across the two wetland tracts to minimize drought-induced salinity stress.

Hydrodynamic Modeling for the Fritchie Marsh Hydrologic Restoration Project in Southeast Louisiana (2017 – 2018)
Role: Lead engineer in model application and analysis tasks
Utilized a 2-D hydrodynamic model to evaluate hydrologic conditions in Fritchie Marsh, a wetland system on the North Shore of Lake Pontchartrain region where several marsh creation restoration projects are currently under design and construction. The data and tools developed for this project were used in conjunction with existing drainage models of the Slidell area to identify future hydrologic restoration projects within Fritchie Marsh that could ultimately have a benefit of increased drainage capacity upstream.

Storm Flood Relief Planning and Design-Support Hydrologic and Hydraulic Modeling in Philadelphia, PA (2010 – 2013)
Role: Hydrologic and hydraulic modeler
While working for the Philadelphia Water Department, developed and utilized numerical models to develop design parameters of capital-improvement projects and assisted in quantifying the relative costs and benefits of numerous sewer design projects. Conducted additional planning studies which required the development of a numerical and geospatial model which coupled sewer flows with surface ponding of floodwaters. This model was then used to determine the extent and depth of surface flooding within certain areas that have historically been known to experience severe surface flooding as a result of overflowing and surcharged sewers. Economic damages to buildings and vehicles in the flood-prone area were estimated from model results.