

# Justin S. Baker, PhD

 [jbakerncsu](#) |  [LinkedIn](#) |  [RES-Lab](#) |  [SOFAC](#) |  
 [Scholar](#) |  [justinbaker@ncsu.edu](mailto:justinbaker@ncsu.edu)

## SUMMARY

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Convergence research leader | Applied resource economist | Systems modeler | Global change scholar | PI of the Resource Economics and Sustainability Lab (RES-Lab) | Director of the Southern Forest Resource Assessment Consortium (SOFAC) | Research theme lead for the STEPS Center | Dad | Optimist

## WORK EXPERIENCE

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<b>Associate Professor</b> Dept. of Forestry and Environmental Resources, NC State University, Raleigh, NC	Oct 2020 - present
<b>Senior Economist and Director</b> Center for Applied Economics and Strategy, RTI International, RTP, NC	Oct 2011 - Sep 2020
<b>Lecturer</b> Department of Economics, NC State University, Raleigh, NC	Jan 2017 - May 2018
<b>Guest Lecturer</b> Department of Economics, University of North Carolina at Greensboro, NC	Jan 2014 - May 2014
<b>Research Associate</b> Nicholas Institute for Environmental Policy Solutions and Center on Global Change, Duke University, Durham, NC	Aug 2007 - Oct 2011
<b>Research and Teaching Assistant</b> Department of Agricultural Economics, Texas Tech University, Lubbock, TX	Aug 2005 - Aug 2007
<b>Research Assistant</b> Department of Agricultural Economics, Texas A&M University, College Station, TX	Jan 2004 - Aug 2005

## AFFILIATIONS AND LEADERSHIP

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<b>Director</b> Southern Forest Resource Assessment Consortium (SOFAC), NC State	Oct 2020 - present
<b>Director</b> Forest Carbon Solutions Initiative (FCSI), NC State	Oct 2020 - present
<b>Guest Researcher</b> International Institute for Applied Systems Analysis, Laxenburg, Austria	July 2018 - present
<b>Faculty Affiliate</b> Global One Health Academy, NC State	Jan 2025 - present
<b>Faculty Affiliate</b> Plant Sciences Initiative, NC State	May 2025 - present
<b>Faculty Scholar</b> Center for Environmental and Resource Economic Policy (CEnREP), NC State	Oct 2020 - present

## EDUCATION

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- 2011 Ph.D., Agricultural Economics, **Texas A&M University**  
Dissertation: *The Impact of Biofuel and Greenhouse Gas Policies on Land Management, Agricultural Production, and Environmental Quality*  
Advisor: Distinguished Professor Bruce A. McCarl
- 2005 M.S., Agricultural and Applied Economics, **Texas Tech University**  
Master's Thesis: *Transboundary Water Resource Management and Conflict Resolution: A Coasian Strategic Negotiations Approach*  
Advisor: Dr. David B. Willis
- 2003 B.S., International Economics, **Texas Tech University**  
Minors: Mathematics, Spanish

## PUBLICATIONS

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### Published / Accepted

- Ganjam, M., Baker, J. S., Aguilos, M. M., & Merganicova, K. (n.d.). Maximizing net ecosystem productivity: Integrating chronosequence analysis and ecosystem modeling across contrasting biomes in north america. *Frontiers in Forests and Global Change*, 8, 1702442.
- Dhungel, G., Baker, J., & Henderson, J. D. (2026). Physical presence, practical absence: Accessibility of timber inventory in the eastern us. *Trees, Forests and People*, 101155.
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- Fuller, M. R., Baker, J. S., Daigneault, A., Guo, J., Lauri, P., Favero, A., Forsell, N., Johnston, C., & Sohngen, B. (2025). Global carbon storage in harvested wood products: A forest sector model inter-comparison. *Environmental Research Letters*, 20(11), 114021.
- Fuller, M. R., Ganjam, M., Baker, J. S., & Abt, R. C. (2025). Advancing forest carbon projections requires improved convergence between ecological and economic models. *Carbon Balance and Management*, 20(1). <https://doi.org/10.1186/s13021-024-00290-0>
- Nehra, A., Baker, J. S., Caldwell, P. V., Martin, K. L., Warziniack, T. W., Manner, R. H., Mihiar, C. M., Frey, G. E., & Costanza, J. K. (2025). The potential impact of forest loss on drinking water treatment costs in the southeastern us. *Forest Policy and Economics*, 179, 103603.
- Sohngen, B., Baker, J. S., Favero, A., & Daigneault, A. (2025). Wood harvesting, forest management, and carbon emissions. *Nature*, *In Press*.
- Baker, J. S., Schunk, N., Scholz, M., Merck, A., Muenich, R. L., Westerhoff, P., Elser, J. J., Duckworth, O. W., Gatiboni, L., Islam, M., Marshall, A.-M., Sozzani, R., & Mayer, B. K. (2024). Global-to-local dependencies in phosphorus mass flows and markets: Pathways to improving system resiliency in response to exogenous shocks. *Environmental Science & Technology Letters*, 11(6), 493–502. <https://doi.org/10.1021/acs.estlett.4c00208>
- Favero, A., Wade, C. M., Cai, Y., Ohrel, S. B., Baker, J., Creason, J., Ragnauth, S., Latta, G., & McCarl, B. A. (2024). US land sector mitigation investments and emissions implications. *Nature Communications*, 15(1), 9625. <https://doi.org/10.1038/s41467-024-53915-w>
- Li, W., Wang, J., Zhao, Y., Jiang, S., Zhu, Y., Qi, T., Ling, M., Baker, J. S., Xiong, Y., He, F., et al. (2024). Development path for China's mega-large urban agglomerations based on the water-energy-food nexus. *Journal of Cleaner Production*, 472, 143481. <https://doi.org/10.1016/j.jclepro.2024.143481>

- Puls, S. J., Cook, R. L., Baker, J. S., Rakestraw, J. L., & Trlica, A. (2024). Modeling wood product carbon flows in southern US pine plantations: Implications for carbon storage. *Carbon Balance and Management*, 19(1). <https://doi.org/10.1186/s13021-024-00254-4>
- Raigosa-García, I., Rathbun, L. C., Cook, R. L., Baker, J. S., Corrao, M. V., & Sumnall, M. J. (2024). Rethinking productivity evaluation in precision forestry through dominant height and site index measurements using aerial laser scanning LiDAR data. *Forests*, 15(6), 1002. <https://doi.org/10.3390/f15061002>
- Baker, J. S., Van Houtven, G., Phelan, J., Latta, G., Clark, C. M., Austin, K. G., Sodiya, O. E., Ohrel, S. B., Buckley, J., Gentile, L. E., et al. (2023). Projecting US forest management, market, and carbon sequestration responses to a high-impact climate scenario. *Forest Policy and Economics*, 147, 102898. <https://doi.org/10.1016/j.forpol.2022.102898>
- Caldwell, P. V., Martin, K. L., Vose, J. M., Baker, J. S., Warziniack, T. W., Costanza, J. K., Frey, G. E., Nehra, A., & Mihiar, C. M. (2023). Forested watersheds provide the highest water quality among all land cover types, but the benefit depends on landscape context. *Science of the Total Environment*, 882, 163550. <https://doi.org/10.1016/j.scitotenv.2023.163550>
- Dhungel, G., Rossi, D., Henderson, J. D., Abt, R. C., Sheffield, R., & Baker, J. (2023). Critical market tipping points for high-grade white oak inventory decline in the central hardwood region of the United States. *Journal of Forestry*. <https://doi.org/10.1093/jofore/fvad005>
- Favero, A., Baker, J., Sohngen, B., & Daigneault, A. (2023). Economic factors influence net carbon emissions of forest bioenergy expansion. *Communications Earth & Environment*, 4(1). <https://doi.org/10.1038/s43247-023-00698-5>
- Favero, A., Yoo, J., Daigneault, A., & Baker, J. (2023). Temperature and energy security: Will forest biomass help in the future? *Climate Change Economics*. <https://doi.org/10.1142/S2010007823500185>
- Ile, O. J., McCormick, H., Skrabacz, S., Bhattacharya, S., Aguilos, M., Carvalho, H. D. R., Idassi, J., Baker, J., Heitman, J. L., & King, J. S. (2023). Integrating short rotation woody crops into conventional agricultural practices in the southeastern United States: A review. *Land*, 12(1), 10. <https://doi.org/10.3390/land12010010>
- Mosnier, A., Javalera-Rincón, V., Jones, S. K., Andrew, R., Bai, Z., Baker, J., Basnet, S., Boer, R., Chavarro, J., Costa, W., et al. (2023). A decentralized approach to model national and global food and land use systems. *Environmental Research Letters*, 18(4). <https://doi.org/10.1088/1748-9326/acc044>
- Rossi, D. J., Baker, J. S., & Abt, R. C. (2023). Quantifying additionality thresholds for forest carbon offsets in Mississippi pine pulpwood markets. *Forest Policy and Economics*, 156, 103059. <https://doi.org/10.1016/j.forpol.2023.103059>
- Abt, R., Galik, C., & Baker, J. (2022). When burning wood to generate energy makes climate sense. *Bulletin of the Atomic Scientists*. <https://doi.org/10.1080/00963402.2022.2062941>
- Daigneault, A., Baker, J. S., Guo, J., Lauri, P., Favero, A., Forsell, N., Johnston, C., Ohrel, S. B., & Sohngen, B. (2022). How the future of the global forest sink depends on timber demand, forest management, and carbon policies. *Global Environmental Change*, 102582. <https://doi.org/10.1016/j.gloenvcha.2022.102582>
- Favero, A., Daigneault, A., Sohngen, B., & Baker, J. (2022). A system-wide assessment of forest biomass production, markets, and carbon. *GCB Bioenergy*. <https://doi.org/10.1111/gcbb.13013>
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- Wade, C. M., Baker, J. S., Van Houtven, G., Cai, Y., Lord, B., Castellanos, E., Leiva, B., Fuentes, G., Alfaro, G., Kondash, A., Henry, C. L., Shaw, B., & Redmon, J. H. (2022). Opportunities and spatial hotspots for irrigation expansion in Guatemala to support development goals in the food-energy-water nexus. *Agricultural Water Management*, 267, 107608. <https://doi.org/10.1016/j.agwat.2022.107608>
- Wu, G. C., Baker, J. S., Wade, C. M., McCord, G. C., Fargione, J. E., & Havlik, P. (2022). Contributions of healthier diets and agricultural productivity toward sustainability and climate goals in the United States. *Sustainability Science*. <https://doi.org/10.1007/s11625-022-01232-w>
- Baker, J. S., Van Houtven, G., Cai, Y., Moreda, F., Wade, C., Henry, C., Redmon, J. H., & Kondash, A. J. (2021). A hydro-economic methodology for the food-energy-water nexus: Valuation and optimization of water resources. *RTI Press*. <https://doi.org/https://doi.org/10.3768/rtipress.2021.mr.0044.2105>
- Henry, C. L., Baker, J. S., Shaw, B. K., Kondash, A. J., Leiva, B., Castellanos, E., Wade, C. M., Lord, B., Van Houtven, G., & Redmon, J. H. (2021). How will renewable energy development goals affect energy poverty in Guatemala? *Energy Economics*. <https://doi.org/10.1016/j.eneco.2021.105665>
- Janssens, C., Havlík, P., Krisztin, T., Baker, J., Frank, S., Hasegawa, T., Leclère, D., Ohrel, S., Ragnauth, S., Schmid, E., Valin, H., Van Lipzig, N., & Maertens, M. (2021). International trade is a key component of climate change adaptation. *Nature Climate Change*. <https://doi.org/10.1038/s41558-021-01201-8>
- Kondash, A. J., Herrera, I., Castellanos, E., Baker, J., Leiva, B., Van Houtven, G., Fuentes, G., Alfaro, G., Henry, C., Wade, C., & Redmon, J. H. (2021). Food, energy, and water nexus research in Guatemala—a systematic literature review. *Environmental Science & Policy*, 124, 175–185. <https://doi.org/10.1016/j.envsci.2021.06.009>
- Austin, K. G., Baker, J. S., Sohngen, B. L., Wade, C. M., Daigneault, A., Ohrel, S. B., Ragnauth, S., & Bean, A. (2020). The economic costs of planting, preserving, and managing the world's forests to mitigate climate change. *Nature Communications*, 11, 5946. <https://doi.org/10.1038/s41467-020-19578-z>
- Baker, J. S., Proville, J., Latané, A., Cajka, J., Aramayo-Lipa, L., & Parkhurst, R. (2020). Additionality and avoiding grassland conversion in the prairie pothole region of the United States. *Rangeland Ecology & Management*, 73(2), 201–215. <https://doi.org/10.1016/j.rama.2019.08.013>
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- Baker, J. S., Latta, G., Forsell, N., & Sohngen, B. (2019). State of the art methods to project forest carbon stocks. *Journal of Forest Economics*, 34(1-2), 1–5. <https://doi.org/10.1561/112.00000440>
- Daigneault, A., Johnston, C., Korosuo, A., Baker, J. S., Forsell, N., Prestemon, J. P., & Abt, R. C. (2019). Developing detailed shared socioeconomic pathway (SSP) narratives for the global forest sector. *Journal of Forest Economics*, 34(1-2), 7–45. <https://doi.org/10.1561/112.00000441>
- Jones, J. P. H., Baker, J. S., Austin, K., Latta, G., Wade, C. M., Cai, Y., Aramayo-Lipa, L., Beach, R., Ohrel, S. B., Ragnauth, S., et al. (2019). Importance of cross-sector interactions when projecting forest carbon across alternative socioeconomic futures. *Journal of Forest Economics*, 34(3-4), 205–231. <https://doi.org/10.1561/112.00000449>
- Sohngen, B., Salem, M. E., Baker, J. S., Shell, M. J., & Kim, S. J. (2019). The influence of parametric uncertainty on projections of forest land use, carbon, and markets. *Journal of Forest Economics*, 34(1-2), 129–158. <https://doi.org/10.1561/112.00000445>

- Wade, C. M., Baker, J. S., Latta, G., & Ohrel, S. B. (2019). Evaluating potential sources of aggregation bias with a structural optimization model of the U.S. forest sector. *Journal of Forest Economics*, *34*(3-4), 337–366. <https://doi.org/10.1561/112.00000503>
- Wade, C. M., Baker, J. S., Latta, G., Ohrel, S. B., & Allpress, J. (2019). Projecting the spatial distribution of possible planted forest expansion in the United States. *Journal of Forestry*, *117*(6), 560–578. <https://doi.org/10.1093/jofore/fvz054>
- Baker, J. S., Crouch, A., Cai, Y., Latta, G., Ohrel, S., Jones, J., & Latané, A. (2018). Logging residue supply and costs for electricity generation: Potential variability and policy considerations. *Energy Policy*, *116*, 397–409. <https://doi.org/10.1016/j.enpol.2017.11.026>
- Baker, J. S., Havlík, P., Beach, R., Leclère, D., Schmid, E., Valin, H., Cole, J., Creason, J., Ohrel, S., & McFarland, J. (2018). Evaluating the effects of climate change on US agricultural systems: Sensitivity to regional impact and trade expansion scenarios. *Environmental Research Letters*, *13*(6), 064019. <https://doi.org/10.1088/1748-9326/aac1c2>
- Cai, Y., Wade, C. M., Baker, J. S., Jones, J. P. H., Latta, G. S., Ohrel, S. B., Ragnauth, S. A., & Creason, J. R. (2018). Implications of alternative land conversion cost specifications on projected afforestation potential in the United States. *RTI Press*. <https://doi.org/10.3768/rtipress.2018.op.0057.1811>
- Kim, S. J., Baker, J. S., Sohngen, B. L., & Shell, M. (2018). Cumulative global forest carbon implications of regional bioenergy expansion policies. *Resource and Energy Economics*, *53*, 198–219. <https://doi.org/10.1016/j.reseneeco.2018.04.003>
- Larson, J., Baker, J. S., Latta, G., Ohrel, S. O., & Wade, C. H. (2018). Modeling international trade of forest products: Application of PPML to a gravity model of trade. *Forest Products Journal*, *68*(3), 303–316. <https://doi.org/10.13073/FPJ-D-17-00057>
- Latta, G. S., Baker, J. S., & Ohrel, S. (2018). A land use and resource allocation (LURA) modeling system for projecting localized forest CO2 effects of alternative macroeconomic futures. *Forest Policy and Economics*, *87*, 35–48. <https://doi.org/10.1016/j.forpol.2017.10.003>
- Tian, X., Sohngen, B., Baker, J., Ohrel, S., & Fawcett, A. A. (2018). Will U.S. forests continue to be a carbon sink? *Land Economics*, *94*(1), 97–113. <https://doi.org/10.3368/le.94.1.97>
- Baker, J. S., Sohngen, B. L., Ohrel, S., & Fawcett, A. A. (2017, August). *Economic analysis of greenhouse gas mitigation potential in the US forest sector*. RTI Press. <https://doi.org/10.3768/rtipress.2017.pb.0011.1708>
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- Galik, C. S., Rupert, D., Starkman, K., Threadcraft, J., & Baker, J. S. (2016). Enhancing home energy efficiency through natural hazard risk reduction: Linking climate change mitigation and adaptation in the home. In *Innovations in home energy use: A sourcebook for behavior change* (pp. 111–140). RTI Press. <https://doi.org/10.3768/rtipress.2015.bk.0015.1512.6>
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- Jeuland, M., Baker, J., Bartlett, R., & Lacombe, G. (2014). The costs of uncoordinated infrastructure management in multi-reservoir river basins. *Environmental Research Letters*, *9*(10), 105006. <https://doi.org/10.1088/1748-9326/9/10/105006>
- Lacombe, G., Douangsavanh, S., Baker, J., Hoanh, C. T., Bartlett, R., Jeuland, M., & Phongpachith, C. (2014). Are hydropower and irrigation development complements or substitutes? the example of the Nam Ngum river in the Mekong basin. *Water International*, *39*(5), 649–670. <https://doi.org/10.1080/02508060.2014.956205>
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- Havlík, P., Valin, H., Mosnier, A., Obersteiner, M., Baker, J. S., Herrero, M., Rufino, M. C., & Schmid, E. (2013). Crop productivity and the global livestock sector: Implications for land use change and greenhouse gas emissions. *American Journal of Agricultural Economics*, 95(2), 442–448. <https://doi.org/10.1093/ajae/aas085>
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- Mosnier, A., Havlík, P., Valin, H., Baker, J., Murray, B., Feng, S., Obersteiner, M., McCarl, B. A., Rose, S. K., & Schneider, U. A. (2013). Alternative U.S. biofuel mandates and global GHG emissions: The role of land use change, crop management and yield growth. *Energy Policy*, 57, 602–614. <https://doi.org/10.1016/j.enpol.2013.02.035>
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## Working Papers / Pre-prints

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- Cho, C., Brown, Z. S., Kling, D. M., Gatiboni, L., & Baker, J. S. (2025). *Evaluating optimal farm management of phosphorus fertilizer inputs with partial observability of legacy soil stocks*, SSRN. <https://doi.org/https://dx.doi.org/10.2139/ssrn.5468128>
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- Gong, Z., Baker, J., Davis, E., & Jelliffe, J. (2025). *Understanding the effects of the EUDR on global trade and agricultural land use* [Working paper]. <https://doi.org/https://doi.org/10.22004/ag.econ.361035>
- Liu, B., Sohngen, B., & Baker, J. S. (2025). *Do set-aside increase plantation establishment? the case of us federal harvest restrictions and softwood planting* [Working paper].
- Manner, R. H., & Baker, J. S. (2025). *Influence of daily weather variation on tree growth: An application for portfolio selection to climate-related growth uncertainty in long-lived natural assets* [Working paper].
- Yao, S., Baker, J. S., & Brown, Z. S. (2025). *Optimizing agrivoltaics adoption to support groundwater conservation in California's Central Valley* [Working paper]. <https://doi.org/https://doi.org/10.22004/ag.econ.361209>
- Dhungel, G., Baker, J., & Henderson, J. (2024). *Quantifying potential costs and benefits of alternative oak management regimes in the central hardwood region of the united states* [Working paper].
- Fuller, M., Baker, J., Roberts, Z., Latta, G., & Ohrel, S. B. (2024). *Optimizing the spatial distribution of tree planting under different policy incentive structures* [SSRN preprint 4906556].
- Gong, Z., Baker, J. S., Wade, C. M., & Havlik, P. (2024). *Irrigation intensification in us agriculture under climate change—an adaptation mechanism or trade-induced response?* [Working paper].
- Puls, S. J., Cook, R. L., Baker, J. S., & Rakestraw, J. L. (2024). *A range of management strategies for planted pine systems yields net climate benefits* [EarthArXiv preprint].
- Sodiya, O., & Baker, J. S. (2024). *Factors driving spatiotemporal variation in timber products output (tpo) trends*. <https://doi.org/https://dx.doi.org/10.2139/ssrn.5057078>
- Sohngen, B., Baker, J., Daigneault, A., & Favero, A. (2024). *Why modeling forests requires integrated biological and economic modeling: A response to tim searchinger and steven berry* [SSRN preprint 4927778].
- Yao, S., Baker, J. S., & Brown, Z. S. (2024). *Dynamic decision making of agrivoltaics in california's central valley* [Working paper]. <https://doi.org/https://doi.org/10.22004/ag.econ.343938>
- Gong, Z., Baker, J. S., et al. (2023). *Global food security implications of fertilizer price growth and supply restrictions* [Working paper].
- Hays, A., & Baker, J. S. (2023). *Current and future drivers of food insecurity in california's central valley* [Working paper].
- Roberts, Z., Latta, G., Baker, J. S., & Sodiya, O. E. (2023). *The importance of utilization to the efficacy of climate mitigation through increased fuel reduction harvesting in forests of the northern intermountain west* [Working paper].
- Yao, S., Larson, J., Baker, J. S., Ohrel, S. B., Steller, J., & Bean De Hernandez, A. (2023). *How have renewable portfolio standards affected bioelectricity generation? evidence from diff-in-diff analysis* [Working paper]. <https://ageconsearch.umn.edu/record/335767>
- Proville, J., Parkhurst, R., Koller, S., Kroopf, S., Baker, J., & Salas, W. (2020). *Agricultural offset potential in the united states: Economic and geospatial insights* (tech. rep. No. EDF EDP 20-01). Environmental Defense Fund Economics Discussion Paper Series.
- Proville, J., Parkhurst, R., Koller, S., Kroopf, S., Baker, J. S., & Salas, W. A. (2020). *Agricultural offset potential in the united states* (tech. rep.) (Working paper).

- Baker, J. S., & Galik, C. S. (2009). Policy options for the conservation reserve program in a low-carbon economy. *Nicholas Institute for Environmental Policy Solution. Working Paper*.
- Baker, J. S., & Murray, B. C. (2009). *Groundwater management in the presence of greenhouse gas mitigation incentives for agriculture* (tech. rep.).

## Technical Reports

- Douzal, C., Chemarin, C., Mosnier, A., Orduña-Cabrera, F., Jones, S., Adenäuer, L., Vittis, Y., Cozza, D., Diaz, M., Javalera Rincón, V., et al. (2024). *Fable scenathon database 2023* (tech. rep.). Zenodo.
- Douzal, C., Chemarin, C., Mosnier, A., Orduña-Cabrera, F., Jones, S., Adenäuer, L., Vittis, Y., Cozza, D., Diaz, M., Sanchez, A., et al. (2024). *Scenathon 2023* (tech. rep.). Zenodo.
- Galik, C. S., Baker, J. S., Bartuska, A., & Abt, R. C. (2023). *Accounting considerations for capturing the ghg consequences of beccs* (tech. rep.). Energy Futures Initiative. Washington, DC.
- Baker, J., Beach, R., Feng, H., McLellan, E., Joiner, E., & Toman, M. A. (2022). *Policies to increase mitigation of agricultural greenhouse gas emissions* (tech. rep.). Resources for the Future.
- Detenbeck, N., Rashleigh, B., Van Houtven, G., Loomis, R., & Baker, J. (2022). *Ecosystem services and environmental markets in chesapeake bay restoration* (tech. rep.).
- Fetter, R., & Baker, J. S. (2020). *Harnessing data analytics to accelerate energy access* (tech. rep. No. NI PB 20-03). Nicholas Institute Policy Brief.
- Baker, J., Bartlett, R., Jeuland, M., Lacombe, G., & Douangsavanh, S. (2013). *Analyzing economic trade-offs of water use in the nam ngum river basin, lao pdr* (tech. rep.).
- Bartlett, R., Baker, J., Lacombe, G., Douangsavanh, S., & Jeuland, M. (2012). Analyzing economic tradeoffs of water use in the nam ngum river basin, lao pdr. *Duke Environmental and Energy Economics Working Paper Series No. EE*, 12–10.
- Mosnier, A., Havlík, P., Valin, H., Baker, J. S., Murray, B. C., Feng, S., Obersteiner, M., McCarl, B. A., Rose, S. K., & Schneider, U. A. (2012). *The net global effects of alternative us biofuel mandates: Fossil fuel displacement, indirect land use change, and the role of agricultural productivity growth* (tech. rep. No. NI-12-01). Nicholas Institute for Environmental Policy Solutions.
- Van Houtven, G., Loomis, R., Baker, J., Beach, R., & Casey, S. (2012). *Nutrient credit trading for the chesapeake bay: An economic study* (tech. rep.). Chesapeake Bay Commission.
- Olander, L. P., Eagle, A. J., Baker, J. S., Haugen-Kozyra, K., Murray, B. C., Kravchenko, A., Henry, L. R., & Jackson, R. B. (2011). *Assessing greenhouse gas mitigation opportunities and implementation strategies for agricultural land management in the united states* (tech. rep.). Nicholas Institute for Environmental Policy Solutions, Duke University.
- Beach, R. H., Adams, D. M., Alig, R., Baker, J., Latta, G. S., McCarl, B. A., Murray, B. C., Rose, S. K., & White, E. (2010). *Model documentation for the forest and agricultural sector optimization model with greenhouse gases (fasomghg)* (tech. rep.). US Environmental Protection Agency.
- Ohrel, S. B., Beach, R. H., Adams, D., Alig, R., Baker, J., Latta, G. S., McCarl, B. A., Rose, S. K., & White, E. (2010). *Model documentation for the forest and agricultural sector optimization model with greenhouse gases (fasomghg)* (tech. rep. No. 0210826.016). RTI International.
- Baker, J. S., McCarl, B. A., Murray, B. C., Rose, S. K., Alig, R. J., Adams, D., Latta, G., Beach, R., & Daigneault, A. (2009). The effects of low-carbon policies on net farm income. *Nicholas Institute for Environmental Policy Solutions. NIWP*, 09–04.
- Galik, C. S., Baker, J. S., & Grinnell, J. L. (2009). *Transaction costs and forest management carbon offset potential* (tech. rep.). Climate Change Policy Partnership, Duke University.

## HONORS AND AWARDS

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University Faculty Scholar

NC State University — 2025

Faculty Mentor, KIETS Climate Leaders Program

NC State University — 2022

<b>Duke–RTI Scholar</b>	Duke University — 2019–2020
<b>Highly Cited Author Award</b>	RTI International — 2018
<b>Highly Published Author Award</b>	RTI International — 2018
<b>Highly Cited Author Award</b>	RTI International — 2016
<b>Highly Published Author Award</b>	RTI International — 2014
<b>Early Career Author Award</b>	RTI International — 2014
<b>Outstanding Dissertation Award</b>	Southern Agricultural Economics Association — 2012
<b>Mills Scholarship Program</b>	Texas Water Resources Institute — 2007
<b>Outstanding Master’s Thesis Award</b>	Western Agricultural Economics Association — 2006
<b>Regents Fellowship</b>	College of Agriculture and Life Sciences, Texas A&M University — 2005

## GRADUATE STUDENTS ADVISED

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*Name, degree, date, thesis/dissertation title, current placement*

- Gaurav Dhungel** PhD Forestry — Aug 2025  
– Thesis: *Long-term Sustainability of Oaks in the United States: The Role of Management and Markets.*  
– Current: ORISE Fellow, USDA Forest Service and NC State University.
- Iván Raigosa-García** PhD Forestry (co-chair) — Aug 2025  
– Thesis: *Loblolly Pine Plantations Productivity: Characterization, Response to Fertilizer and Herbicide Application, and its Effects on Net Present Value and Carbon Management.*  
– Current: Postdoctoral Scholar, Plantation Management Research Center, University of Georgia.
- Josephine Geraghty** MS Forestry — Aug 2025  
– Thesis: *Phosphorus Sustainability through an Economic and Communications Lens.*  
– Current: Environmental Engineer, WSP.
- Manaswini Ganjam** PhD Forestry — May 2025  
– Dissertation: *Modeling Forest Carbon Sequestration to Understand the Influence of Stand Age, Management Practices, and Climate Inputs.*  
– Current: Postdoctoral Scholar, University of Missouri.
- Shiyue Yao** PhD Economics — May 2025  
– Dissertation: *Essays on Renewable Energy, Agrivoltaics, and Groundwater Sustainability.*  
– Current: Economist, Amazon.

**Madisen Fuller**

PhD Forestry — Dec 2024

- Dissertation: *Forest Carbon Modeling: Methodological Improvements, Applications to Forest Expansion, Harvested Wood Products, and Environmental Justice Policy.*
- Current: Postdoctoral Research Scholar, NC State University.

**Richard Manner**

MS Forestry — Dec 2024

- Thesis: *A Portfolio of Trees: An Application of Portfolio Selection to Forest Stand Diversification.*
- Current: SOFAC Research Scholar and PhD student, NC State University.

**Chanheung Cho**

PhD Economics (co-chair) — May 2024

- Dissertation: *Essays on Resource and Environmental Economics.*
- Current: Postdoctoral Research Scholar, NC State University.

**Sarah Puls**

MS Forestry (co-chair) — May 2024

- Thesis: *Modeling Carbon and Climate Impacts of Harvested Wood Products from Loblolly Plantations in the Southern U.S.*
- Current: Manager, Sustainability Standards, American Wood Council.

**Thu Ho**

MS Forestry — Dec 2023

- Thesis: *Modeling Fertilizer Market Volatility and Trade Dependencies in a Complex Economic Era.*

**Alexandra Hays**

MS Natural Resources — May 2023

- Thesis: *Scale Considerations for Analysis of Food and Water Insecurity: A Review and Focused Study of California's Central Valley.*
- Current: Energy Trading Analyst, Brookfield Renewable U.S.

**STUDENT ADVISEE AWARDS**

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<b>Olakunle Sodiya</b>	Graduate Student Research Award, Forest Health Research Program, Cal-FIRE, 2025-2026.
<b>Chanheung Cho</b>	Gerald A. Carlson Outstanding Dissertation Award, Dept. of Agricultural and Resource Economics, NC State University, 2024-2025.
<b>Josephine Geraghty</b>	STEPS Center Director's Fellowship Award, 2024-2025.
<b>Madisen Fuller</b>	Best Poster Award, International Union of Forest Research Organizations World Congress, 2024.
<b>Nathan Schunk</b>	Global Change Research Fellow, 2023-2024.
<b>Alexandra Hays</b>	KIETS Climate Leaders Program, 2021-2022.
<b>Olakunle Sodiya</b>	Global Change Research Fellow, 2021-2022.

**SELECTED RESEARCH SUPPORT**

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- **Southern Forest Resource Assessment Consortium (SOFAC).** Director. >20 members, approx. \$175k per year.
- **A GIFT SEED: Accelerated Genetic Improvement of Fir through Sequencing, Economics, Extension, and Diagnostics.** USDA Specialty Crop Research Initiative. Co-Project Director. 2024-2028. \$7.4 Million.
- **Southern Appalachia Forest Products Marketing and Supply Chain Analysis** Land of Sky Regional Council. Principal Investigator. 2025-2026. \$137k.

- **Assessment of Economic and Ecological Costs and Benefits of Urban Tree Planting and Mortality in Durham, NC.** USGS – Southeast Climate Adaptation Sciences Center. Co-Principal Investigator. 2024–2027. \$399k.
- **Federal Agricultural GHG Policy Modeling.** Platform for Agriculture and Climate Transformation (PACT). Co-Principal Investigator. 2024. \$300k.
- **The Trade Impact of the EU’s Deforestation Regulations and Climate Plans.** USDA Economic Research Service. Principal Investigator. 2024. \$40k.
- **Comparing markets and management options for carbon in hardwood and planted pine forests in the United States.** Co-Principal Investigator. 2023–2026. \$373k.
- **Science and Technologies for Phosphorus Sustainability (STEPS).** NSF Science and Technologies Center. Co-Principal Investigator. 2021–2026. \$25 Million.
- **Quantifying intra-regional leakage from extended rotations in the southern United States.** NCASI. Principal Investigator. 2022–2023. \$60k.
- **US–China INFEWS.** National Science Foundation. Principal Investigator. 2021–2025. \$500k.
- **Modeling growth response of loblolly pine and economic returns from nutrient additions based on a gradient of soil characteristics across the southeastern US.** USDA McIntire Stennis Program. Co-Principal Investigator. 2021–2024. \$360k.
- **Bioenergy from Forests Initiative.** Resources for the Future. 2023. \$40k.
- **A multi-scale decision support tool to quantify forest benefits on water quantity and quality in the Southern United States.** USDA Forest Service. Co-Principal Investigator. 2020–2023. \$331k.
- **Utilizing the Subregional Timber Supply Model (SRTS) to Address Hardwood Management and Utilization Options.** Virginia Dept. of Forestry. Co-Principal Investigator. 2020–2022. \$60k.
- **Greenhouse Gas and Nitrogen Emissions Scenarios for U.S. Agriculture and Global Biofuels: An Integrated Assessment Approach.** David and Lucile Packard Foundation. Co-Principal Investigator. 2010–2011. \$300k.
- **Managing Nitrogen in an Evolving U.S. Agricultural Economy.** Environmental NGO. Co-Principal Investigator. 2011. \$50k.
- **Cooperative Agreement with USDA–Office of the Chief Economist.** Duke University and USDA Cooperative Agreement. Co-Principal Investigator. \$110k.

## SELECTED RTI INTERNATIONAL PROJECTS (2012–2020)

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- **Building Resilience in Food, Energy, and Water Systems.** 2020–2021. RTI International Grand Challenge Grant. Principal Investigator.
- **Economic Modeling and Analysis of Clean Air Act Issues.** 2018–2020. U.S. Environmental

Protection Agency, Office of Atmospheric Programs, Climate Change Division. Project Manager and Technical Lead.

- **Food, Agriculture, Biodiversity, Land use, and Energy (FABLE) Consortium.** 2019–2020. U.N. Sustainable Development Solutions Network (SDSN). Co-Principal Investigator.
- **Sustainable Economic Observatory, Guatemala.** 2018–2019. U.S. Agency for International Development. Economic Modeler.
- **B-LEADERS Philippines: Water-Energy-Food Trade-off Analysis in Mindanao.** 2017–2018. U.S. Agency for International Development. Economic Modeler.
- **Economic Modeling of Environmental, Energy, and Climate Issues.** 2017–2018. U.S. Environmental Protection Agency, Office of Atmospheric Programs, Climate Change Division. Project Manager and Technical Lead.
- **Economic analysis of groundwater conservation strategies in the Abu Dhabi Emirate.** 2017–2019. Executive Affairs Authority, Abu Dhabi Emirate. Economic Modeler.
- **Research and Analysis on Biomass and Bioenergy Feedstocks.** 2015–2017. U.S. Environmental Protection Agency, Office of Atmospheric Programs, Climate Change Division. Project Manager and Technical Lead.
- **Analysis of U.S. and Global Impacts of Renewable Fuel Production and Policies.** 2012–2020. U.S. Environmental Protection Agency, Office of Transportation and Air Quality. Work Assignment Leader and Economist.
- **Food-Energy-Water Nexus Case Study Application: Pernambuco, Brazil.** 2015. Inter-American Development Bank. Economic Modeler.
- **Driving Forest Productivity & Conservation through Spatial Analysis.** 2015. American Forest Foundation. Project Manager and Technical Lead.
- **EPA's Biogenic Accounting Framework for Stationary Source Biomass Consumption.** 2014–2015. U.S. Environmental Protection Agency, Office of Atmospheric Programs, Climate Change Division. Project Manager and Technical Lead.
- **Economic Valuation of Groundwater Resources in the Emirate of Abu Dhabi.** 2014–2015. Environment Agency, Abu Dhabi. Project Co-Manager and Technical Lead.
- **Hydro-economic Modeling in the Nam Ngum Basin, Lao PDR.** 2012–2013. Nicholas Institute for Environmental Policy Solutions and the International Water Management Institute. Project Manager and Technical Lead.
- **Nutrient Credit Trading in the Chesapeake Bay.** 2012–2014. Chesapeake Bay Commission and U.S. EPA. Economic Modeler.
- **Economic Analysis of Carbon Sequestration Management Practices on Western U.S. Rangelands.** 2013–2017. Environmental Defense Fund. Project Manager and Technical Lead.

## TEACHING EXPERIENCE

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### University Courses

**NR 400/500: Natural Resource Management** (2021–Present). Natural resource management planning, integrated socio-environmental systems, tradeoff analysis, cost-benefit analysis, linear programming. *NC State University*.

**FOR 801: FER Seminar** (2023–2025). Departmental seminar, required for all graduate students. Exposure to presentation styles and research. *NC State University*.

**FOR 419/519: Forest Economics** (2021–Present). Optimal rotations, discounted cash flow analysis, supply/demand of forest products, and other forest economic concepts. *NC State University*.

**FOR/NR 610: Forest Carbon Accounting and Modeling** (2021–Present). Bookkeeping, economic, and ecological methods for forest carbon accounting and projection modeling, from project to jurisdictional scales. *NC State University*.

**ECG 515: Environmental and Resource Policy** (2017–2018). Economic concepts applied to natural resources and environmental policy. *NC State University*.

### Short Courses and Training Modules

**Hydro-economic Modeling and Water Resource Economics** (2018). Delivered at the *Universidad del Valle de Guatemala*.

**Ecosystem Service Valuation** (2013). Delivered to the *Environment Agency, Abu Dhabi Emirate*.

**Forest Carbon Economics and Modeling Workshop** (2021–Present). Graduate training modules in economic modeling to develop forest carbon projections. Annual workshop, rotating location. *Various institutions*.

## MEDIA, OUTREACH & PRESS (SELECTED)

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**2024 COP26 Takes Aim at Climate Change** — College of Natural Resources news feature quoting **Justin S. Baker** on natural climate solutions and modeling. [CNR News \(NC State\)](#)

**2021 Economics of U.S. Forests as a Natural Climate Solution** — Invited webinar by **Justin S. Baker**; joint AEDE (Ohio State) & NC State announcement. [OSU AEDE Event Page](#)

**2022 When burning wood to generate energy makes climate sense** — Op-ed by Abt, Galik & Baker. *Bulletin of the Atomic Scientists*

**2023 Accounting Considerations for Capturing the GHG Consequences of BECCS** — Report coauthored by **Justin S. Baker**. [Energy Futures Initiative](#)

**2021– STEPS Center — Researcher Profile** — Center profile for **Justin S. Baker**. [NSF STC: Science and Technologies for Phosphorus Sustainability](#)

**2023 Director’s Update (Justin Baker)** — SOFAC site news under **Baker’s** leadership. [SOFAC \(NC State\)](#)

**2025 University Faculty Scholar** profile highlighting leadership of SOFAC and research impact. *NC State College of Natural Resources News*.

**2023 “Why Forests Are Essential to the Fight Against Deforestation.”** Expert explainer quoting **Baker, J. S.** on forest economics and policy. *NC State College of Natural Resources News*.

**2020 “Five Ways to Save the Planet and Boost the Economy.”** Faculty perspectives feature with **Baker, J. S.** commentary on forests and climate. *NC State College of Natural Resources News*.

2020 “**Carbon-Friendly Forests and the Fight Against Climate Change.**”

## PROFESSIONAL SERVICE AND OUTREACH

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- Director of the **Southern Forest Resource Assessment Consortium (SOFAC)**
- Director of the **Forest Carbon Solutions Initiative**, NC State University
- Principal Investigator of the **Baker Resource Economics and Sustainability Lab (RES-Lab)**
- Research Theme Co-Lead (Regional and Global Scale Analysis), Executive Committee Member, and Co-PI for NSF STC **Science and Technologies for Phosphorus Sustainability (STEPS)**
- Co-organizer of the **Forest Carbon Economics and Modeling Workshop**
- Co-organizer of the **Forest Carbon Quantification Consortium**
- Co-organizer and Co-PI of the **Forest Model Inter-Comparison Project (For-MIP)**
- External Advisory Board, **ForestNavigator** (European Commission Horizon2020 Project led by IIASA)
- Steering Committee Member and co-organizer, 11th **Forestry and Agriculture GHG Modeling Forum**, Raleigh, NC (March 2024)
- Organized and hosted kickoff meeting for the **Forest Carbon Solutions Initiative**, NC State University (March 2024)
- Organized 2020/2021 Technical Meeting and 2021 Annual Meeting for SOFAC
- Co-organized stakeholder workshop: **Data Analytics and Accelerating Energy Access**, with Duke University Energy Access Project (Washington, D.C., Dec. 2019)
- Co-organized one-day workshop to initiate the **Forest Model Inter-comparison (For-MIP)** effort, Ohio State University, Columbus, OH (2019)
- Guest editor, Special Issue on projecting future forest carbon stocks, **Journal of Forest Economics** (2019)
- Led capacity building workshop on water resource valuation, hydro-economic modeling, and policy analysis at **Universidad del Valle de Guatemala**, Guatemala City (2019)
- Coordinating partner, U.S. team of the **FABLE Consortium** (<http://sdg.iisd.org/news/fable-consortium-lau>)
- Course Instructor: Environmental and Resource Policy (Graduate), NC State University (Spring 2017, 2018)
- Co-organized forest economic modelers meeting, International Institute for Applied Systems Analysis (IIASA)
- Technical/logistical support and presentation at EPA workshop: **Fostering Dialog on the Role of Biomass in Supporting Stationary Source Carbon Strategies** (2016)
- Co-organized Forestry and Agricultural GHG Modeling Forums (2014, 2016, 2018)

- Presented at U.S. Govt. stakeholder workshops on developing economic projections of GHG emissions for UNFCCC communication (2015–2016)
- Prepared and co-hosted training seminar on **ecosystem service valuation techniques** (Abu Dhabi Emirate, 2014)
- Course Instructor: Environmental Economics (Undergraduate), University of North Carolina, Greensboro (Fall 2014)
- Co-organized and spoke at multiple forums on implications of climate and energy policy on farmers and foresters (2009–2011)
- **Professional Memberships:** Agricultural and Applied Economics Association (current); Association of Environmental and Resource Economists (previous); International Society of Forest Resource Economics (previous).
- **Conference Organization and Moderation:** Invited Papers Session, AAEA Annual Meeting (2012, organizer); AAEA Annual Meetings (2014, 2012, 2010, moderator); WAEA Annual Meeting (2006, moderator).
- **Reviewer for Journals:** American Journal of Agricultural Economics, Biomass and Bioenergy, Climatic Change, Ecological Economics, Economics Research International, Energy Policy, Energy, Environmental Research Letters, Forest Policy and Economics, Greenhouse Gas Measurement and Management, Land Economics, Journal of the Association of Environmental and Resource Economists, Journal of Environmental Economics and Management, Journal of Forest Economics, Natural Hazards Review, Policy Issues, Resource and Energy Economics, Risk Analysis, Science, Sustainability, Water Resources Research, Western Economic Forum.
- **Reviewer for Agencies:** USDA Economic Research Service; U.S. National Science Foundation (Decision, Risk, and Management Sciences); Maine Natural Resources Extension Service (grant proposals).

## PROFESSIONAL PRESENTATIONS

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### Invited Presentations, Seminars, and Webinars

**Baker, J. S.** (2024, February). Economic Modeling of Phosphorus Management from Local to Global Scales. *Phosphorus Forum*. Tempe, Arizona.

**Baker, J. S.** (2024, January). 2023 Annual Update for the Southern Forest Resource Assessment Consortium. *Southern Group of State Foresters Annual Meeting*. Online.

**Baker, J. S.** (2024, January). Tradeoff analyses using spatially informed resource economic modeling. *Center for Geospatial Analytics Geospatial Forum*. NC State University.

**Baker, J. S.** (2023, September). Ongoing modeling forum initiatives in North America. *EU Policy Modeling Forum, IIASA*. Laxenburg, Austria.

**Baker, J. S.** (2023, September). Potential impacts of Climate Change on the US Forest Sector: State of the Science and Key Knowledge Gaps. *NCASI Climate Change Webinar*.

**Baker, J. S.**, Wu, G., Wade, C. M., McCord, G., Gong, Z. (2023, January). FABLE US Country Team Update (2022). Webinar, FABLE Consortium.

**Baker, J. S.**, Latta, G. (2022, December). Forest management and carbon markets: Recent developments and knowledge gaps. *Forest Productivity Cooperative Webinar*.

**Baker, J. S.** (2022, October). US Forest Pathways Modeling in a Changing Policy Context. *ForestNav-*

*igator Kickoff, EU Horizon 2020 Project.*

- Baker, J. S.** (2022, September). The U.S. Forest and Agricultural Sector Optimization Model (FASOM). USDA Carbon Sinks Modeling Meeting. Atlanta, GA.
- Baker, J. S.** (2022, February). How Might Climate and Sustainability Policies Affect Agricultural Water Management in California's Central Valley? *Asian International Water Week (remote)*.
- Baker, J. S.** (2022, January). Modeling forest carbon policies at different scales. *NC State University CNR Foundation*.
- Baker, J. S.** (2021, November). Integrated Modeling Applications in Resource and Environmental Economics. *CEnREP Colloquia Seminar*. Virtual.
- Baker, J. S.** (2021, September). Climate Change Policy and the U.S. Forest Sector. *Timberland Investment Resources Annual Meeting*. Virtual.
- Baker, J. S.** (2021, April). The Economics of U.S. Forests as a Natural Climate Solution. Webinar, The Ohio State University.
- Baker, J. S.** (2021, March). Alternative Carbon Futures. *North American Carbon Program*. Virtual.
- Baker, J. S.** (2019, September). Management and Market Considerations when Projecting Forest Carbon Stocks. *Aspen Global Change Institute*. Snowmass, CO.
- Baker, J. S.** (2018, October). Economic and Policy Considerations on the Role of Natural Climate Solutions. NC State University.
- Havlik, P., and **Baker, J. S.** (2018, September). Land for mitigation, food, biodiversity and energy. *Low Emissions Solutions Conference*. San Francisco, CA.
- Baker, J. S.** (2018, September). Asymmetric mitigation price incentives in agriculture and forestry. *9th Forestry and Agriculture GHG Modeling Forum*. Shepherdstown, WV.
- Baker, J. S.**, et al. (2017, March). The Role of the U.S. and Global Forest Sectors in Achieving Climate Stabilization Goals. *North American Carbon Program PI Meeting*. Bethesda, MD.
- Baker, J. S.**, et al. (2017, March). Potential food security implications of U.S. biomass electricity expansion. IIASA, Laxenburg, Austria.
- Baker, J. S.**, et al. (2017, February). Potential Complementarity between Biomass Energy Expansion and Forest Carbon Sequestration. *CEnREP Colloquia Seminar*. Raleigh, NC.
- Baker, J. S.** (2016, October). Land use mitigation in the U.S. *IIASA Pre-COP 22 Planning Conference*. Laxenburg, Austria.
- Baker, J. S.** (2016, April). Potential Biomass Demand and Recent Assessments of Biomass Expansion. *NC Breathe Conference*. Charlotte, NC.
- Baker, J. S.**, et al. (2016, April). Biomass Demand and Recent Biogenic CO<sub>2</sub> Assessments. *EPA Stakeholder Workshop*. Washington, DC.
- Baker, J. S.** (2016). Economic valuation studies in sustainable groundwater management. *International Water Summit*. Abu Dhabi, UAE.
- Baker, J. S.** (2015). Integrating watershed hydrology and economic optimization for FEW Nexus research. *NSF Workshop*. Washington, DC.
- Baker, J. S.**, Van Houtven, G., Cai, Y., and Allpress, J. (2015). Economic Valuation of Groundwater Resources in Abu Dhabi. Environment Agency, Abu Dhabi.
- Baker, J. S.**, Beach, R., Zhang, Y. (2012). Modeling climate change impacts on U.S. agriculture and forestry using FASOMGHG. *AgMIP North America Meeting*. Ames, IA.
- Baker, J. S.**, Murray, B. C., McCarl, B. A., Johannson, R., & Feng, S. (2011). Implications of alternative

agricultural productivity growth assumptions. *USDA-ERS Seminar*. Washington, DC.

**Baker, J. S.** (2010). Agricultural Sector Modeling for Policy Analysis and FASOMGHG. *Iowa State Bioenergy and Climate Change Camp*. Perry, IA.

**Baker, J. S.** (2010). Energy and Climate Policy and Implications for U.S. Agriculture. *Iowa State University*. Ames, IA.

**Baker, J. S.** (2010). Economic Effects of Energy and Climate Policy on U.S. Agriculture and Forestry. *NWF Forum*. Columbia, SC.

**Baker, J. S.** (2009). Implications of Bioenergy and GHG Mitigation Policies on Land and Water Resources. Syngenta Co. Greensboro, NC.

**Baker, J. S.** (2009). Land Use and Commodity Market Implications of U.S. Energy and Climate Legislation. *American Farm Bureau*. Albuquerque, NM.

**Baker, J. S.** (2009). GHG Offset Potential in Forestry and Agriculture. *Texas Ag Forum*. Austin, TX.

**Baker, J. S.** (2009). Water Resource Implications of Agricultural GHG Mitigation. *RTI Climate Change Seminar Series*. RTP, NC.

Murray, B. C. and **Baker, J. S.** (2008). Bioenergy Expansion and Indirect Land Use Change. *Lifecycle GHG Workshop*. Berkeley, CA.

## Invited Panel Discussant

**Baker, J. S.** (2019, March). Economic and Policy Considerations on the Role of Carbon Offsets. *National Humanities Center*. Durham, NC.

**Baker, J. S.** (2019, March). Technology and the Agriculture-Energy-Water Nexus. *Center for Strategic and International Studies*. Washington, D.C.

**Baker, J. S.** (2018, April). Accessing Renewable Energy in a Water-Stressed World. *Nexus 2018*. UNC Chapel Hill.

## Academic Conference Presentations

Gong, Z., **Baker, J. S.**, Havlik, P. (2024, June). Balancing Climate Mitigation, Food Security, and other Sustainable Development Goals. *Association of Environmental and Resource Economics Annual Meeting*. Washington, DC.

**Baker, J. S.**, et al. (2024, March). Sustainable phosphorus futures and tradeoffs across C, N and P policy objectives: Global-to-regional scale considerations. *11th Forestry and Agriculture GHG Modeling Forum*. Raleigh, NC.

**Baker, J. S.**, et al. (2023, November). Synthesis of economic literature on land cover and economic costs of water supply/treatment. *American Water Resources Association Annual Meeting*. Raleigh, NC.

Nehra, A., **Baker, J. S.**, et al. (2023, November). Valuation of forests for drinking water around the southern United States. *American Water Resources Association Annual Meeting*. Raleigh, NC.

Fuller, M., **Baker, J. S.**, et al. (2023, July). Projecting the spatial distribution of tree planting under different policy incentive structures. *Agricultural and Applied Economics Association Annual Meeting*. Washington, DC.

Yoder, B., **Baker, J. S.**, Jeuland, M., Wade, C. (2023, May). Electricity Farming in California's Central Valley? Comparing Central Planner and Farmer Resource Allocation Decisions under Solar Power Incentive Regimes. *Association of Environmental and Resource Economics Annual Meeting*. Portland, Maine.

- Baker, J. S.**, Rossi, D., Abt, B. (2022, August). Quantifying additionality thresholds for forest carbon offsets from pine pulpwood systems. *Agricultural and Applied Economics Association Annual Meeting*. Anaheim, CA.
- Baker, J. S.**, et al. (2022, August). How might climate and groundwater policies drive agricultural resource management change in California's Central Valley? *Agricultural and Applied Economics Association Annual Meeting*. Anaheim, CA.
- Baker, J. S.**, et al. (2022, January). Can healthier diets and agricultural productivity growth support climate and sustainability policies in the United States? *ASSA Annual Meeting*. Virtual.
- Liu, B., Sohngen, B. S., **Baker, J. S.** (2021, August). Dynamics and Investments in Forest Carbon Leakage. *Agricultural and Applied Economics Association Annual Meeting*. Austin, TX.
- Zerriffi, H., Gallardo, R. R., Gonzalez Abraham, C., **Baker, J. S.**, McCord, G. C., Mosnier, A., Wu, G. C. (2020, December). Multi-country modeling of sustainable land use futures for North America. *American Geophysical Union Fall Meeting*. Virtual.
- Daigneault, A., **Baker, J. S.**, Favero, A., Sohngen, B. (2020, August). A forest model inter-comparison project (For-MIP). *AAEA Annual Meeting*. Virtual.
- Wade, C. M., **Baker, J. S.**, Cobourn, K. (2019, November). Groundwater Management and Limiting Damages from Land Subsidence. *Southern Economic Association Annual Meeting*. Fort Lauderdale, FL.
- Baker, J. S.**, et al. (2019, July). Climate Change, International Trade, and Food Security. *AAEA Annual Meeting*. Atlanta, GA.
- Larson, J., **Baker, J. S.**, Steller, J., Bean, A., Ohrel, S. (2019, June). Effects of Renewable Portfolio Standards on Bioenergy. *International Association of Energy Economists*. Montreal, Quebec.
- Latta, G., **Baker, J. S.**, Sohngen, B., Ohrel, S., Ragnauth, S. (2019, May). Large-scale investments in natural climate solutions. *AERE Annual Meeting*. Lake Tahoe, NV.
- Baker, J. S.**, et al. (2019, May). Downscaling global forestry projections to regional conditions. *International Society of Forest Resource Economists*. Columbus, OH.
- Baker, J. S.**, et al. (2019, May). Evaluating aggregation bias with a structural model of the U.S. forest sector. *International Society of Forest Resource Economists*. Columbus, OH.
- Baker, J. S.**, et al. (2018, September). Asymmetric mitigation price incentives in agriculture and forestry. *9th Forestry and Agriculture GHG Modeling Forum*. Shepherdstown, WV.
- Baker, J. S.**, et al. (2018, June). Bioenergy Expansion and Global Agriculture and Forestry Mitigation. *International Energy Workshop*. Gothenburg, Sweden.
- Baker, J. S.**, et al. (2018, April). A general framework for addressing the food-energy-water nexus in the developing world. *Nexus 2018*. UNC Chapel Hill.
- Baker, J. S.**, et al. (2018, April). Hydro-economic Modeling Approach to Quantify FEW Nexus Trade-offs. *Nexus 2018*. UNC Chapel Hill.
- Baker, J. S.**, et al. (2017, August). Complementarity between forest carbon sequestration and biomass energy expansion. *AAEA Annual Meeting*. Chicago, IL.
- Baker, J. S.**, et al. (2017, August). Climate change impacts on U.S. agricultural markets. *AAEA Annual Meeting*. Chicago, IL.
- Baker, J. S.**, et al. (2016, July). Will the U.S. Forest Sector Remain a Carbon Sink? *AAEA Annual Meeting*. Boston, MA.
- Latta, G. S., **Baker, J. S.**, Ohrel, S., & Latane, A. M. (2015). U.S. forest GHG impacts of expanded EU wood pellet demand. *Symposium for Systems Analysis in Forest Resources*. Uppsala, Sweden.
- Latane, A. M., **Baker, J. S.**, Proville, J., & Cajka, J. C. (2015). Additionality and avoiding grassland

conversion. *AAEA & WAEA Joint Annual Meeting*. San Francisco, CA.

**Baker, J. S.**, Latta, G. S., Ohrel, S., & Latane, A. M. (2015). U.S. forest greenhouse gas fluxes under spatial partial equilibrium. *Western Forest Economists Annual Meeting*. Vancouver, Canada.

Sohngen, B., **Baker, J. S.** (2015). Will US forests continue to be a carbon sink? *AERE Annual Meeting*. San Diego, CA.

Latta, G., **Baker, J. S.**, Ohrel, S., Latane, A. M. (2015). Domestic forest sector model overview. *EPA Forest Sector Modelers Workshop*. Washington, DC.

Latta, G., Adams, D., **Baker, J. S.**, Beach, R., Galik, C., Abt, R., Vegh, T. (2014). Marginal abatement cost curves for the United States. *Laboratory of Forest Economics Workshop*. Nancy, France.

Latta, G., S. Ohrel, D. Adams, **Baker, J. S.**, R. Beach, J. Cole, and B. Murray. (2014). Additionality and leakage in forest offset programs. *IUFRO World Congress*. Salt Lake City, UT.

Latta, G. S., **Baker, J. S.**, Beach, R. H., Rose, S. K., & McCarl, B. A. (2014). GHG implications of U.S. biomass electricity expansion. *Forest and Agriculture GHG Modeling Forum*. Shepherdstown, WV.

Latta, G. S., Adams, D. M., **Baker, J. S.**, Beach, R. H., McCarl, B., Murray, B. C., & Ohrel, S. B. (2014). Modeling voluntary participation in carbon offset programs. *ISFRE Symposium*. St. Louis, MO.

**Baker, J. S.**, Latta, G. S., Beach, R. H., Rose, S. K., & McCarl, B. A. (2013). GHG implications of U.S. biomass electricity expansion. *AAEA Annual Meeting*. Washington, DC.

Van Houtven, G. L., Loomis, R. J., **Baker, J. S.**, Casey, S. E. (2013). Nutrient credit trading in the Chesapeake Bay. *AAEA Annual Meeting*. Washington, DC.

**Baker, J. S.**, Bartlett, R., Jeuland, M., Lacombe, G., Douangsavanh, S., Ward, J. (2013). Trade-offs of water use in the Nam Ngum River Basin. *Mekong Environmental Symposium*. Ho Chi Minh City, Vietnam.

Lacombe, G., Douangsavanh, S., **Baker, J. S.**, Hoanh, C., Bartlett, R., Phongpachith, C., Jeuland, M. (2013). Hydropower and irrigation in Nam Ngum River. *Mekong Environmental Symposium*. Ho Chi Minh City, Vietnam.

Beach, R. H., McCarl, B. A., Ohrel, S. B., Latta, G. S., **Baker, J. S.**, Zhang, Y., & Rose, S. K. (2012, December). Expanded U.S. bioenergy production impacts. *ACES & Ecosystem Markets Conference*. Fort Lauderdale, FL.

**Baker, J. S.**, Murray, B. C., McCarl, B.A., Johannson, R., Feng, S. (2012, July). Alternative agricultural productivity growth assumptions. *AAEA Annual Meeting*. Seattle, WA.

Van Houtven, G. L., Loomis, R. J., **Baker, J. S.**, Casey, S. E. (2012, June). Economic impact of trading on Chesapeake Bay TMDL. *STAC Quarterly Meeting*. Annapolis, MD.

Van Houtven, G. L., Loomis, R. J., **Baker, J. S.**, Casey, S. E. (2012, May). Trading and Chesapeake Bay TMDL. *Congressional Luncheon, Chesapeake Bay Commission*. Washington, DC.

Murray, B. C., Mosnier, A., Valin, H., Havlik, P., **Baker, J. S.**, Feng, S., Obersteiner, M., Rose, S. K., Schneider, U. (2011, June). Global effects of U.S. biofuel mandates. *AERE Annual Meeting*. Asheville, NC.

**Baker, J. S.**, Murray, B. C., McCarl, B.A., Johannson, R., Feng, S. (2011, September). Alternative agricultural productivity growth assumptions. *Agricultural GHG Modeling Forum*. Shepherdstown, WV.

**Baker, J. S.**, Murray, B. C. (2011, June). Emissions-intensity approach to GHG mitigation in agriculture. *AERE Annual Meeting*. Seattle, WA.

**Baker, J. S.**, McCarl, B. A., Murray, B. C., Jackson, R. B. (2010, July). U.S. biofuel expansion and leakage. *World Congress of Environmental and Resource Economists*. Montreal, Canada.

**Baker, J. S.** and Murray, B. C. (2009, July). Groundwater Management in the Presence of GHG

Mitigation Incentives. *AAEA Annual Meeting*. Milwaukee, WI.

**Baker, J. S.** (2008, August). Trading Water for Carbon? *Camp Resources XV*. Wilmington, NC.

**Baker, J. S.** and Shaw, W. D. (2007, November). Location Choice and WTP to Reduce Hurricane Risks. *Southern Economic Association Annual Meeting*. New Orleans, LA.

**Baker, J. S.** and Shaw, W. D. (2007, July). Risk Perceptions and Location Choice. *UCOWR Annual Meeting*. Boise, ID.

**Baker, J. S.** and Willis, D. B. (2006, July). Transboundary Water Resource Management. *WAEA Annual Meeting*. Anchorage, AK.

## Poster Presentations

**Baker, J. S.** and Hays, A. (2023, August). Current and future drivers of food insecurity in California's Central Valley. *AAEA Annual Meeting*. Washington, DC.

Gong, Z., **Baker, J. S.**, Havlík, P. (2023, August). Global food security implications of fertilizer price growth and supply restrictions. *AAEA Annual Meeting*. Washington, DC.

Cho, C., Brown, Z., **Baker, J. S.**, Gatiboni, L. (2023, August). Optimal management of legacy phosphorus. *AAEA Annual Meeting*. Washington, DC.

Yao, S., **Baker, J. S.**, Larson, J., Bean de Hernandez, A., Ohrel, S., Steller, J. (2023, August). Renewable Portfolio Standards and bioelectricity generation. *AAEA Annual Meeting*. Washington, DC.

**Baker, J. S.**, Wade, C. M., Cai, Y., Ho, T., Muenich, R. (2022, November). U.S. fertilizer demands under policy and technology change. *Sustainable Phosphorus Summit*. Raleigh, NC.

Cho, C., Brown, Z., **Baker, J. S.**, Gatiboni, L. (2023, May). Legacy phosphorus management under limited information. *STEPS NSF Site Visit Poster Session*. Raleigh, NC.

Gong, Z., **Baker, J. S.**, Havlík, P. (2023, May). Regional implications of global fertilizer supply restrictions. *STEPS NSF Site Visit Poster Session*. Raleigh, NC.

Ho, T., **Baker, J. S.** (2023, May). Global phosphorus fertilizer price trends. *STEPS NSF Site Visit Poster Session*. Raleigh, NC.

Wade, C., **Baker, J. S.**, Cai, Y., Muenich, R. (2023, May). Fertilizer demand in a carbon neutral world. *STEPS NSF Site Visit Poster Session*. Raleigh, NC.

**Baker, J. S.**, Sohngen, B. L., Latta, G., Ohrel, S., Ragnauth, S. (2019). Natural Climate Solutions investments. *AAEA Annual Meeting*. Atlanta, GA.

**Baker, J. S.**, Wade, C. H., Sohngen, B. L., Ohrel, S. (2018, August). Forest climate mitigation efficiency. *AAEA Annual Meeting*. Washington, DC.

**Baker, J. S.**, Naumenko, A., Havlik, P., Frank, S., Ragnauth, S. (2018, August). Asymmetric mitigation price incentives in agriculture and forestry. *AAEA Annual Meeting*. Washington, DC.

Latta, G., Ohrel, S., Adams, D., **Baker, J. S.**, Beach, R., Cole, J., Murray, B. (2014, December). Additionality and leakage in offset programs. *ACES & Ecosystem Markets Conference*. Washington, DC.

**Baker, J. S.**, McCarl, B. A., Murray, B. C. (2012, August). Biofuels, Climate Mitigation, and Water Management. *AAEA Annual Meeting*. Pittsburgh, PA.

**Baker, J. S.**, McCarl, B. A., Murray, B. C., Jackson, R. B. (2008, December). Land Conservation in an Agricultural Era. *AGU Fall Meeting*. San Francisco, CA.

**Baker, J. S.**, McCarl, B. A. (2008, March). Renewable Fuel Standards, GHG Mitigation, and Biofuels. *TAMEST Conference*. College Station, TX.

**Baker, J. S.** (2008, March). Bioenergy, GHG Mitigation, and the Environment. *Ecological Society of*

*America: Ecological Dimensions of Biofuels.* Washington, DC.