

Curriculum Vitae

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NATHAN C. HABANA

Assistant Professor of Groundwater Hydrology
Water and Environmental Research Institute
of the Western Pacific, University of Guam
Principal Hydrologist
DBA NCHabana

OBJECTIVE: Ina diskubre setbe (enlighten discover and serve)

DEGREES:

Ph.D., Environmental Engineering, Mapua Institute of Technology, 2015
A.A.S., Health Care Management, Community College of the Air Force, 2010
M.S., Environmental Science, University of Guam, WERI, Mangilao, 2009,
A.A.S., Biomedical Equipment Technology, CCAF, 2008
B.S., Chemistry, minor Mathematics, University of Guam, 2001

PROFESSIONAL DEVELOPMENT:

Groundwater Flow and Transport Modeling with Groundwater Modeling Systems (GMS), C.E.U. 28 Hours, Aquaveo, Provo, UT, 2019.

ACADEMIC POSITIONS:

Assistant Professor, Groundwater Hydrology, WERI, UOG, 2015-Present.
Staff Hydrologist, WERI, UOG, 2009-2015.
Graduate Research Assistant, WERI, UOG, 2006-2009.
Research Assistant, WERI, UOG, 2003-2004, 2005.
Secondary Education Science Teacher, GDOE, 2001-2003.
Undergraduate Research Assistant, WERI, UOG, 1998-1999, 2000-2001.

NON-ACADEMIC POSITIONS:

Health Service Management, USAFR, 2008-2016.
Biomedical Equipment Technician, USAFR, 2005-2008.
Basic Military Training and Technical School, USAF, 2004-2005.

PROFESSIONAL ACTIVITIES:

WERI Groundwater Hydrology Researcher; Graduate Faculty Member, Graduate Studies Environmental Science Program; and Principal Hydrologist, DBA NCHabana, Environmental Consultant and Technical Services, Guam.

RESEARCH FOCUS AND DUTIES:

Hydrologic observation, data organization, analysis, and interpretation; groundwater flow and solute transport processes; hydrologic site characterization; hydrologic and nitrogen cycle; hydrogeology; water quality analysis; Guam Hydrologic Survey (GHS) Program and Operations Management.

TEACHING:

EV-511 Engineering and Geosciences, Block 3 Hydrogeology, SP 2015-Present
EV-543 Hydrogeology, Block 2 Groundwater Physics, F-Odd 2015, 2017, 2019
ES-100 Intro to Engineering, Guest Lecturer, 2014-2018
Undergraduate and Graduate Research Assistant mentorship, 2015-Present
GHS Workshop, 2016, 2017, 2020
Northern Guam Lens Aquifer Tour, Spring 2015-2019
Annual Guam Water Research Advisory Council Meeting, 2006-Present
GHS Interagency: Groundwater Resource Development and Technical Experts Group, quarterly and upon request, 2015-2019

PUBLICATIONS:

- Dougher, B., N.C. Habana, J.W. Jenson, M.A. Lander, and K. Ho. 2019. Dynamic Response of a Freshwater Lens to Natural Variations in Recharge, *International Journal of Advances in Science Engineering and Technology*, Vol. 7: 20-27.
- Denton, G.R.W., C.A. Emborski, N.C. Habana, and J.A. Starmer. 2014. Influence of urban runoff, inappropriate waste disposal practices and World War on the heavy metal status of sediments in the southern half of Saipan Lagoon, Saipan, CNMI. *Marine Pollution Bulletin*. 81(1): 276-281.
- Habana, N.C., J.W.L. Salvacion, J.W. Jenson, J.D. Rouse. 2013. VADOCHARGE-N: a vadose flow and N-transport simulation model for the Northern Guam Lens Aquifer. *International Journal of Engineering Science Technology and Research*. Vol. 1(11):268-287.
- Habana, N.C., L.F. Heitz, A.E. Olsen, J.W. Jenson, J.W.L. Salvacion. 2013. VADOCHARGE: Groundwater Recharge Model for an Uplifted Island Karst Aquifer, Guam, USA. *International Journal of Engineering Science Technology and Research*. 1(8):141-164.

TECHNICAL REPORTS:

- Bourke, P., J.W. Jenson, N.C. Habana, and M.A. Lander. 2020. A hydrogeologic survey of Santa Rita Spring, Guam: engineering and design recommendations for rehabilitation. WERI Technical Report 172, 102 pp.
- Superales, D.G., N.C. Habana, and J.W. Jenson. 2019. Defining and evaluating production capacity for the Northern Guam Lens Aquifer. WERI Technical Report 170: 57 pp.
- Dougher, B., N.C. Habana, J.W. Jenson, M.A. Lander, K. Ho., and G.C. Aguilar. 2019. Dynamic response of the freshwater lens to natural variations in recharge, Northern Guam Lens Aquifer. WERI Technical Report 168: 39 pp.
- Habana, N.C., L.F. Heitz, and M. Ziobro. 2020. Development of a GIS based imagery database for groundwater recharge areas and key reaches of streams on Guam phase II. WERI Technical Report 171: 49 pp.
- Habana, N.C., L.F. Heitz, and M. Ziobro. 2019. Development of a GIS based imagery database for groundwater recharge areas and key reaches of streams on Guam. WERI Technical Report 169: 59 pp.
- Simard, C.A., J.W. Jenson, M.A. Lander, R.M. Manzanilla, D.G. Superales, and N.C. Habana. 2015. Salinity in the Northern Guam Lens Aquifer. WERI Technical Report 143: 82 pp.
- Vann, D.T., V.M. Bendixson, D.F. Roff, C.A. Simard, R.M. Schumann, N.C. Habana, and J.W. Jenson. 2014. Topography of the basement rock beneath the Northern Guam Lens Aquifer and its implications for groundwater exploration and development. WERI Technical Report 142: 72 pp.
- Bendixson, V.M., J.W. Jenson, and N.C. Habana. 2014. The Northern Guam Lens Aquifer Database w/ accompanying CD. WERI Technical Report 141, 2nd Edition: 95 pp.
- Habana, N.C., L.F. Heitz, A.E. Olsen, and J.W. Jenson. 2009. Vadose Flow Synthesis for the Northern Guam Lens Aquifer. WERI Technical Report 127: 231 pp.

M.S. THESIS PAPER:

- Bourke, P. 2020. A hydrogeologic survey of Santa Rita Spring, Guam: engineering and design recommendations for rehabilitation. M.S. thesis. Water and Environmental Research Institute of the Western Pacific, University of Guam.

- Superales, D.G. 2019. Defining and evaluating production capacity for the Northern Guam Lens Aquifer. M.S. thesis. Water and Environmental Research Institute of the Western Pacific, University of Guam.
- Dougher, B. 2019. Dynamic response of the freshwater lens to natural variations in recharge, Northern Guam Lens Aquifer, Yigo-Tumon Basin. M.S. thesis, Water and Environmental Research Institute of the Western Pacific, University of Guam.

SCIENTIFIC ADVISORY REPORTS:

- Jenson, J.W., Y.S. Kim, and N.C. Habana. 2020. Hydrogeological assessment of the Urban Combat Training Project Site, Anderson AFB, Guam, Final Draft for Comment. Research Corporation University of Guam (RCUOG) WERI Scientific Advisory Report (SAR) for Merrick and Company: 227 pp.
- Jenson, J.W., Y.S. Kim, and N.C. Habana. 2019. Hydrogeologic assessment for closed-contour depressions identified in the J-0001B Finegayan Utilities and site improvements project. RCUOG WERI SAR for Granite-Obayashi a Joint Venture (GOJV): 200 pp.
- Jenson, J.W., Y.S. Kim, and N.C. Habana. 2019. Geotechnical assessment of the NSSAR Site, Live-Fire Training Range Complex, Northwest Field, Andersen Air Force Base, Guam. RCUOG WERI SAR for Black Construction Corporation: 108 pp.
- Jenson, J.W., Y.S. Kim, and N.C. Habana. 2019. Hydrogeologic assessment of the suspect sinkhole area at AC15 NIC Site: J-001B Finegayan Utilities and Site Improvements Project, Phase 1, Marine Corps Activity Guam. RCUOG WERI SAR for GOJV: 74 pp.
- Jenson, J.W., Y.S. Kim, and N.C. Habana. 2018. Hydrogeological assessment: Live-Fire Training Range Complex, sinkhole, Northwest Field, Andersen Air Force Base, Guam. West Pacific Geoscience Consulting (WPGC) SAR for Black Construction Corporation 2018: 98 pp.
- Jenson, J.W., Y.S. Kim, and N.C. Habana. 2018. Terrain analysis and sinkhole reconnaissance: planned firing range, Northwest Field, Andersen Air Force Base, Guam (P735 Firing Range). WPGC SAR for Duenas Camacho and Associates (DCA): 66 Pp.
- Jenson, J.W., and N.C. Habana. 2015. Terrain analysis and sinkhole reconnaissance: planned firing range area Northwest Field, Andersen Air Force Base, Guam, WPGC SAR for DCA.
- Jenson, J.W., and N.C. Habana. 2015. Guam International Airport, Stormwater infiltration analysis and recommendations in support of design of stormwater system improvements, WPGC and Allied Pacific Environmental Consulting SAR for Gutteridge Haskins & Davey: 46 pp.

CONFERENCE PAPERS:

- Kim, Y.S., M.N. Duenas, N.C. Habana, R. Lohmann, and J. Becanova. 2019. Perfluoroalkyl Substances (PFAS) Concentrations in Water Resources of Guam, International Conference on Geological and Environmental Sustainability, Seoul, December 21, 2019.
- Dougher, B., N.C. Habana, J.W. Jenson, and M.A. Lander. 2019. Dynamic response of a freshwater lens to natural variations in recharge. Proceedings of 186th International Academy of Science, Technology, Engineering, and Management - International Conference on Environment and Natural Science, Seoul, 4-5 July. IASTEM, <http://iastem.org>.
- Denton, G.R.W., C.M. Sian Denton, Y.S. Kim, J.W. Jenson, N.C. Habana, and M.A. Lander. 2018. Perfluorooctane Sulfonate (PFOS): a contaminant of emerging concern in Guam's groundwater, Proceedings of the 125th The Institute of Research Engineers and Scientists (The IRES) International Conference, Beijing, 29-30 June. The IRES, <http://theires.org>

- Habana, N.C., J.W.L. Salvacion, J.W. Jenson, J.D. Rouse. 2013. VADOCHARGE-N: a vadose flow and N-transport simulation model for the Northern Guam Lens Aquifer. International Conference on Sustainable Environmental Technologies, Pasay City, 30 September to 01 October. Intramuros, ICSET.
- Habana, N.C., L.F. Heitz, A.E. Olsen, J.W. Jenson, and J.W.L. Salvacion. 2012. AQUA CHARGE: a model for estimating groundwater recharge in an uplifted island karst aquifer, Guam, USA. International Water Association: World Water Congress, Busan, 16-21 September.

PRESENTATIONS AND ABSTRACTS:

- Jenson, J.W. and N.C. Habana. 2019. Toward a Sustainable Management Concept for Coastal and Island Aquifers. National Groundwater Association (NGWA), Groundwater Week, Summit Conference Sessions: Sustainability and Planning Session, Las Vegas Convention Center, 3-5 December. NGWA: <https://ngwa.confex.com/ngwa/gw19/meetingapp.cgi/Paper/12869>.
- Bourke, P., J.W. Jenson, N.C. Habana, and M.A. Lander. 2019. Hydrogeologic Survey of Santa Rita Spring, Guam: Determination of its Natural Capacity and Development Options. NGWA, Groundwater Week, Summit Conference Sessions: Sustainability and Planning Session, Las Vegas Convention Center, 3-5 December. NGWA: <https://ngwa.confex.com/ngwa/gw19/meetingapp.cgi/Paper/12886>.
- Kim, Y.S., M.A. Duenas, N.C. Habana, G.R.W. Denton, J.W. Jenson, and M.A. Lander. 2019. Groundwater contamination by polyfluoroalkyl substances (PFAS) in Guam. Proceedings of 186th IASTEM International Conference, Seoul, 4-5 July. IASTEM, <http://iastem.org>.
- Dougher, B., N.C. Habana, J.W. Jenson, M.A. Lander, and K. Ho. 2018. Dynamic response of the freshwater lens to natural variations in recharge, Northern Guam Lens Aquifer, Yigo-Tumon Basin. NGWA, Groundwater Week, Poster Sessions, Las Vegas, 3-6 December. NGWA: <https://ngwa.confex.com/ngwa/gw18/webprogram/Paper12197.html>.
- Superales, D.G., N.C. Habana, J.W. Jenson, and S.B. Gingerich. 2018. Defining and Evaluating Groundwater Production Capacity for an Island Aquifer: Production Well System in the Parabasal Zone, Northern Guam Lens Aquifer. NGWA, Groundwater Week, Poster Sessions, Las Vegas, 3-6 December. NGWA: <https://ngwa.confex.com/ngwa/gw18/webprogram/Paper12153.html>.
- Kim, Y.S., J.W. Jenson, and N.C. Habana. 2018. Consideration Factors of Production-Well Rehabilitation Assessment on Guam. NGWA, Groundwater Week, Poster Sessions, Las Vegas, 3-6 December. NGWA: <https://ngwa.confex.com/ngwa/gw18/webprogram/Paper12160.html>.
- Bautista, K., J.W. Jenson, N.C. Habana, and Y.S. Kim. 2018. Guam Water Resources Monitoring Program. NGWA, Groundwater Week, Poster Sessions, Las Vegas, 3-6 December. NGWA: <https://ngwa.confex.com/ngwa/gw18/webprogram/Paper12199.html>.
- Habana, N.C., and J.W. Jenson. 2018. The Northern Guam Lens Aquifer Map. NGWA, Groundwater Week, Poster Sessions, Las Vegas, 3-6 December. NGWA: <https://ngwa.confex.com/ngwa/gw18/webprogram/Paper12200.html>.
- Habana, N.C., J.W. Jenson, and S.B. Gingerich. 2017. Evaluating Best-Practice Capacities for a Carbonate Island Karst Aquifer, Northern Guam Lens Aquifer, Guam, USA. NGWA Groundwater Summit 2017, Nashville, 4-7 December. NGWA: <https://ngwa.confex.com/ngwa/2017gws/webprogram/Session12289.html>.

- Simard, C., J.W. Jenson, M.A. Lander, M.Q. McDonald, and N.C. Habana. 2016. Salinity in the Northern Guam Lens Aquifer: Natural and Human Factors. American Water Works Association, Hawaii Section, Western Pacific Subsection (AWWA-HIWPS) Annual Conference, Tumon and Hagåtña, 11-12 April. AWWA-HIWPS: <https://www.awwahiwps.org/2016-conference.html>.
- Habana, N.C., J.W. Jenson, and S.B. Gingerich. 2015. Exploring Best-Practice Capacities in the Northern Guam Lens Aquifer. 2nd Conference on Water Resource Sustainability Issues on Tropical Islands, Honolulu, 1-3 December. Water Resources Research Center (WRRI), University of Hawaii at Manoa: <http://www.wrrc.hawaii.edu/2015conference/Program11315.pdf>.
- Denton, G.R.W., C. Sian Denton, and N.C. Habana. 2015. Dieldrin: An Unregulated Drinking Water Contaminant of Potential Concern in Guam's Groundwater. 2nd Conference on Water Resource Sustainability Issues on Tropical Islands, Honolulu, 1-3 December. Water Resources Research Center (WRRI), University of Hawaii at Manoa: <http://www.wrrc.hawaii.edu/2015conference/Program11315.pdf>.
- Habana, N.C., Jenson, J.W., and Gingerich, S.B. 2015. Exploring Best-Practice Capacities in the Northern Guam Lens Aquifer. AWWA-HIWPS Water and Wastewater Conference, Tumon, 13-14 April. AWWA-HIWPS: <https://www.awwahiwps.org/2015-conference.html>.
- Habana, N.C., J.W.L. Salvacion, J.W. Jenson, J.D. Rouse, and L.F. Heitz. 2013. VADOCHARGE-N: Deep Karst Vadose Flow and N Transport Simulation Model for the Northern Guam Lens Aquifer. 27th Pacific Islands Environment Conference, Tumon, 26-28 June. Guam EPA: https://issuu.com/guamepa/docs/piec_conferencebrochure/17.