

**GREGORY B. BAECHER, PHD NAE**

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**QUALIFICATIONS SUMMARY**

Dr. Baecher is Glenn L Martin Institute Professor of Engineering at the University of Maryland. He works principally in risk and reliability of geotechnical and water resource infrastructure. He has authored five books and 250+ publications on these topics.

**RECENT PROJECTS RELEVANT TO DAM SAFETY, RELIABILITY, AND RISK MANAGEMENT**

2020- Uniper Energy, Stockholm, International dam safety audit.  
 2020- USBR, Seminal papers in risk analysis training program.  
 2020- Oak Ridge National Laboratory, Tenn., Hydropower template for non-hydro dams  
 2019- California Department of Water Resources, Aqueduct Subsidence Program consulting board  
 2019- TransAlta Generation, Calgary, Spillway system risk analysis program.  
 2019-2020 USACE, Seminal papers in risk analysis training program.  
 2019-2020 USACE-USBR-FERC, Tri-Agency Review of Federal dam safety risk methodologies.  
 2019-2020 CEATI, Research needs for floating debris management at dams.  
 2017-2020 USACE, Seminal Concepts in Risk, senior risk cadre training program.  
 2017-2019 US Nuclear Regulatory Commission and ORNL, State of practice in dam safety risk analysis.  
 2011-2016 Panama Canal Authority. Development of enterprise risk management guidance for natural risks.  
 2008-2015 BC Hydro, Ontario Power Generation, Elforsk, USACE. Joint industry study on spillway safety.  
 2007-2013 US Army Corps of Engineers, Lakes and Rivers Division Development of risk-screening tools.  
 2006-2012 Ontario Ministry of Natural resources: Risk-based dam safety regulations.  
 2006-2010 US Army Corps of Engineers, New England District IDIQ for geotechnical risk management services  
 2006-2008 California DWR, Consultant, California Delta Risk Management Study of levee systems  
 2005-2009 Interagency Performance Evaluation Taskforce Evaluation of existing and future risk protection provided by the New Orleans Hurricane Protection System

**PROFESSIONAL EXPERIENCE**

1995- University of Maryland, College Park, Maryland  
 Glenn L. Martin Institute Professor of Engineering, and former Chair  
 1988-1995 ConSolve Incorporated, Lexington, Massachusetts, Chief Executive Officer  
 1975-1988 Massachusetts Institute of Technology, Cambridge, Massachusetts  
 Tenured Professor of Civil Engineering  
 1980-1981 Technical University Munich, Germany, Visiting Professor  
 1974-1975 International Institute for Applied System Analysis, Laxenburg, Austria  
 Rockefeller Foundation Post-Doctoral Fellow  
 1972-1980 US Army, Corps of Engineers  
 Captain USAR, Active duty 1972-73, Active Reserves 1973-1980

**EDUCATION**

1972 PhD, Geotechnical Engineering, Massachusetts Institute of Technology  
 1972 MSc, Geotechnical Engineering, Massachusetts Institute of Technology  
 1968 BSCE, Civil Engineering, University of California, Berkeley.

**AWARDS AND SIGNIFICANT LECTURES**

2021 59<sup>th</sup> Terzaghi Lecture, Geo-Institute of ASCE (invited), Dallas  
 2019 27<sup>th</sup> Buchanan Lecture, Texas A&M University, College Station  
 2017 2<sup>nd</sup> Lacasse Lecture of GEOSnet, ASCE GeoCongress, Denver.  
 2015 GEOSnet Distinguished Achievement Award for contributions to geotechnical reliability  
 2014 UC Berkeley Civil Engineering Academy of Distinguished Alumni  
 2012 Panamanian National Award for Science and Technology Innovation  
 2010 Harleman Lecture, Pennsylvania State University, State College.

- 2007 Commander's Award for Public Service, HQ US Army Corps of Engineers
- 2006 US National Academy of Engineering
- 1996 Thomas A Middlebrooks Award American Society of Civil Engineers
- 1991 State-of-the Art Award American Society of Civil Engineering
- 1974 Rockefeller Foundation Post-Doctoral Fellow
- 1969 NSF Graduate Fellowship

#### RECENT GOVERNMENT AND RELATED SERVICE

- Science Advisory Board, Chair, The Water Institute of the Gulf, Baton Rouge, LA, 2011-present.
- Coastal Master Plan Science and Engineering Board, State of Louisiana, 2009-2011.
- Sub-Committee on Planetary Protection, Science Mission Directorate, NASA, 2007-2012.
- Chairman, Committee on Geotechnical and Geological Engineering, National Research Council, DC, 2006-2009.
- Member, Board on Earth Science and Resources, National Research Council, DC, 2006-2009.
- Member, Water Science and Technology Board, National Research Council, DC, 2000-2008.
- Member, Board on Infrastructure and the Constructed Environment, National Research Council, DC, 2001-2005.
- Team Leader, Technical Assistance to the Shared Vision Program, Nile Basin Initiative, USAID, 1998-2001.

#### SELECTED PUBLICATIONS: BOOKS

1. Hartford, D.N.D., Baecher, G.B., Zielinski, P.A., Patev, R.C., Ascila, R., and Rytter, K., *Operational safety of dams and reservoirs*, Thomas Telford, Ltd., London, 400pp, 2016.
2. Makhutov, N. and Baecher, G.B. (Eds.), *Comparative Analysis of Technological & Sociological Consequences of Terrorism (NATO Science Series)*, IOS , Amsterdam, 2012.
3. Frolov, K. and Baecher, G.B. (Eds.), *Protection of Civil Infrastructure from Acts of Terrorism (NATO Science Series)*, Kluwer Academic Publishers, Dordrecht, 2006.
4. Hartford, D., and Baecher, G.B., *Risk and Uncertainty in Dam Safety*, Thomas Telford, Ltd., London, 416pp., 2004.
5. Baecher, G.B., and Christian, J.T., *Reliability and Statistics in Geotechnical Engineering*, John Wiley and Sons, London and New York, 605pp., 2003.

#### SELECTED PUBLICATIONS: NATIONAL ACADEMY STUDIES

1. NRC, *Engineering Sciences at the Army Research Office*, National Academies, DC (pending).
2. NRC, *Assessing the Risks of Unmanned Aircraft Systems (UAS)*, National Academies, DC 2018.
3. NRC, *Long-term Management of the Spirit Lake/Toutle River System*, National Academies, DC 2017.
4. NRC, *Coastal Risk Reduction*, National Academies, DC 2014.
5. NRC, *Evaluation of the Updated Site-Specific Risk Assessment for the National Bio- and Agro-Defense Facility in Manhattan, Kansas*, National Academies, DC 2012.
6. NRC, *Corps of Engineers Water Resources Infrastructure: Deterioration, Investment, or Divestment?* National Academies, DC 2012.
7. NRC, *National Water Resources Challenges Facing the U.S. Army Corps of Engineers*, National Academies, DC 2011.
8. NRC, *A review of the Department of Homeland Security's approach to risk analysis*, National Academies, DC 2010.
9. NRC, *A Review of the Proposed Revisions to the Federal Principles and Guidelines Water Resources Planning Document*, National Academies, DC 2010.
10. NRC, *Scientific Review of the Proposed Risk Assessment Bulletin from the Office of Management and Budget*, National Academies, DC 2007.
11. NRC, *A review of the OMB's proposed risk analysis guidelines*, National Academies, DC, 2007.
12. NRC, *Load and Resistance Factor Design (LRFD) for Deep Foundations*, NCHRP 507, National Academies, DC 2004.
13. NRC, *A review of the EPA water security research and technical support action plan: Parts I and II*, National Academies, DC, 2003.
14. NRC, *Analytical methods for water resource project evaluation*, National Academies, DC, 2003.
15. NRC, *Making the nation safer: The role of science and technology in countering terrorism*, National Academies, DC, 2002.
16. NRC, *Risk analysis and uncertainty in flood damage reduction studies*, National Academies, DC, 2000.