

## DONALD F. BOESCH

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- Website:** www.umces.edu/people/president
- Education:** B.S., 1967, Biology, Tulane University  
Ph.D., 1971, Marine Science, College of William and Mary
- Present Positions:** President and Professor of Marine Sciences, 1990-present, University of Maryland Center for Environmental Science  
Vice Chancellor for Environmental Sustainability, 2008-present, University System of Maryland
- Previous Positions:** Interim Vice Chancellor for Academic Affairs, University System of Maryland, 2002-2003  
Executive Director, Louisiana Universities Marine Consortium; Professor of Marine Science, Louisiana State University, Baton Rouge; 1980-90  
Associate Marine Scientist and Assistant Professor, 1972-77; Senior Marine Scientist and Associate Professor, 1977-80; Virginia Institute of Marine Science, College of William and Mary  
Fulbright-Hays Postdoctoral Fellow, University of Queensland, 1971-72.

### Honors and Awards:

Beta Beta Beta (biological honorary society); Federal Water Pollution Control Administration (now U.S. EPA) Predoctoral Fellow; Fulbright-Hays Postdoctoral Fellow; Sigma Xi; National Conference on Ecosystem Restoration Award for Lifetime Leadership in Ecosystem Restoration; Maryland Public Television-Outdoors Maryland Award for Stewardship of the Environment; Maryland-Asia Environmental Partnership Leadership Award; National Associate of the National Research Council; Tulane University 2015 Science and Engineering Distinguished Alumnus; Regional Champion of the Ocean, Monmouth University

### Membership in Professional Societies:

American Geophysical Union; American Society of Limnology and Oceanography; Ecological Society of America; Coastal and Estuarine Research Federation (Vice President, 1985-87, President, 1987-89)

### Research Interests:

Environmental and natural resource management: application of science, adaptive ecosystem management and restoration, oil and gas development, habitat modification, fisheries  
Biological oceanography: benthos, communities, ecosystems, recruitment processes  
Estuaries: ecology, evolution, physical processes, climate change  
Continental shelves: oceanography, ecology  
Sedimentology: effects of organisms on sediment dynamics and geochemistry  
Marine pollution: eutrophication, oil, dredged material  
Global climate change: impacts and adaptation, education

**Appointments to Advisory and Policy Boards** (*Active engagements in italics*):**U.S. Government Agencies**

Department of the Interior: Scientific Committee, OCS Advisory Board, 1979-82, 1984-1987, Chair, 1984-85; Florida Bay Scientific Review Panel, Chair, 1993; Florida Bay Interagency Science Program: Science Oversight Panel, Chair, 1995-1998.

National Science Foundation: Biological Oceanography Panel, 1983-1984; Advisory Committee on Ocean Sciences, 1984-1989, Vice-Chair, 1987-88, Chair, 1988-89.

Environmental Protection Agency: Science Advisory Board, 1990-1994; Gulf of Mexico Program, Environmental Protection Agency, Technical Steering Committee, 1988-1990; Chesapeake Bay Program, Scientific and Technical Advisory Committee 1990-2010, National Advisory Council on Environmental Protection and Technology, 1993-1997.

National Oceanic and Atmospheric Administration: Panel on the Coastal Ocean, 1990-91, Co-Chair, 1990-91; NOAA-University Partnership Action Committee, 1996-1998.

U.S. Army Corps of Engineers: Louisiana Coastal Area Ecosystem Restoration Program, National Technical Review Committee, 2002-2005.

U.S. Geological Survey: Louisiana Coastal Area Ecosystem Restoration Program, Science Board, Chair, 2006-2009.

U.S. Global Change Research Program: Co-chair, Coastal Zone Sector Panel, U.S. National Assessment: The Potential Consequences of Climate Variability and Change, 1998-2000; Committee to Prepare a Unified Synthesis Product, 2008-2009; Review Editor, Coastal Zone Development and Ecosystems, National Climate Assessment, 2013.

U.S. Commission on Ocean Policy, Scientific Advisory Panel, 2001-2004.

U.S. Navy Office of Naval Research: Ocean Research Advisory Panel, 2010-2013.

Executive Office of the President: National Commission on BP Deepwater Horizon Oil Spill and Offshore Drilling, 2010-2011.

**National Research Council**

Marine Board, 1983-89, Executive Committee, 1984-85; Panel on Effects of Drilling Fluids and Cuttings in the Marine Environment, 1981-83; Committee on Assessment of Marine Environmental Monitoring Systems, Chair, 1987-89.

Ocean Studies Board, 1989-1995, 2007-2012; Chair, 2009-2012; Committee on the Coastal Ocean, Chair, 1990-95.

Water Science and Technology Board: Committee to Assess the Army Corps of Engineers Methods of Analysis and Peer Review for Water Resources Project Planning, Chair, Panel on Adaptive Management for Resource Stewardship, 2001-2003; Committee on Independent Scientific Review of Everglades Restoration Progress, 2004-2008.

Board on Life Sciences: Committee on Ecological Impacts of Climate Change, 2008.

Board on Atmospheric Science and Climate: Committee on America's Climate Choices, 2008-2011.

NAS Gulf of Mexico Research Program, Advisory Group, 2013-2014, Advisory Board, 2014-2016.

**State and University**

Louisiana Board of Regents Research and Development Program: Louisiana Stimulus for Excellence in Research (LaSER), Project Director, 1985-1990; Louisiana Education Quality Support Fund, Planning Committee, Vice-Chair, 1987-1990.

University System of Maryland Foundation: *Board of Directors (ex officio)*, 1990-present.

Maryland Governor's Office: *Governor's Chesapeake Bay Cabinet*, 1990-present; *2010 Trust Fund*, *Scientific Advisory Panel*, Chair, 2008-present.

Maryland Department of the Environment: Maryland Environment 2000, Steering Committee, 1994-1996.

Maryland Department of Natural Resources: Maryland Oyster Roundtable, 1993-; Maryland Coastal Bays Program, Implementation Committee, Scientific and Technical Advisory Committee, Chair, 1996-2001; Harmful Algal Outbreak Technical Advisory Committee, Chair, 1997-2002; *Maryland Oyster Advisory Commission, 2007-present.*

Maryland Commission on Climate Change: *Member, 2014-present, Chair of Scientific and Technical Working Group, 2007-present.*

### **Non-Governmental Organizations**

Chesapeake Research Consortium, Inc.: *Board of Directors, 1991-present.*

Chesapeake Bay Foundation: Board of Trustees, 1991-2002, 2004-2013, *Honorary Trustee, 2013-present.*

Alliance for the Chesapeake Bay: Board of Directors, 1992-2008, President, 1994-96.

Town Creek Foundation: *Board of Directors, 2007-present.*

Consortium for Ocean Leadership: Board of Trustees, 2007-2008, 2009-2015.

Council on Ocean Affairs: Steering Committee, 1989-93, Chair, 1989-90.

Consortium for Ocean Research and Education: Board of Governors, 1993-2007; Vice-Chair, 1998-2000; International Scientific Steering Committee, Census of Marine Life, 1999-2004.

National Association of State Universities and Land Grant Colleges: Commission on Food, Natural Resources and Environment, 1996-2002.

Council on Ocean Law: Board of Directors, 1992-2005.

Communication Partnership for Science and the Sea (COMPASS), Group of Scientific Experts, 1999-2004; Scientific Advisor, 2005-2009; *Principal, 2009-present.*

Environmental Defense Fund, Changing Course: Navigating the Future of the Lower Mississippi River Delta, Leadership Team, 2012-2016.

Joint Ocean Commission Initiative, *Leadership Council, 2013-present.*

### **International**

Programa de Ecología, Pesquerías y Oceanografía del Golfo de México (EPOMEX), Universidad Autónoma de Campeche: Scientific Council, 1992-1997.

European Commission, *BONUS for Baltic Sea Science Advisory Panel, 2004-present.*

Swedish Environmental Protection Agency, Expert Panel on Marine Eutrophication, 2005-2006, 2008.

The Ecologic Institute, Berlin, RADOST: Regional Adaptation Strategies for the German Baltic Sea Coast, Advisory Board, 2010-2014.

Frontiers in Global Change and the Future Ocean, *Review Editor, 2014-present*

### **Publications:**

Boesch, D. F. 1971. On the occurrence of *Pinnixa lunzi* (Decapoda: Pinnotheridae) off Virginia. *Crustaceana* 20:219-220.

Boesch, D. F. 1972. Species diversity of marine macrobenthos in the Virginia area. *Chesapeake Sci.* 13:206-211.

Boesch, D. F. and A. E. Smalley. 1972. A new axiid (Decapoda: Thalassinidea) from the northern Gulf of Mexico and tropical Atlantic. *Bull. Mar. Sci.* 22:45-52.

Boesch, D. F. 1973. Three new tanaids (Crustacea, Tanaidacea) from southern Queensland. *Pacific Sci.* 27:168-188.

Boesch, D. F. 1973. Classification and community structure of macrobenthos in the Hampton Roads area, Virginia. *Mar. Biol.* 21:226-244.

Diaz, R. J., M. Bender, D. Boesch and R. Jordan. 1973. Water quality models and aquatic ecosystems: Status, problems and perspectives, p. 137-153. In: R. A. Delinger (ed.) *Models for Environmental Pollution Control*. Ann Arbor.

- Boesch, D. F. and R. J. Diaz. 1974. New records of peracarid crustaceans from oligohaline waters of the Chesapeake Bay. *Chesapeake Sci.* 14:56-59.
- Boesch, D. F., C. H. Hershner and J. H. Milgram. 1974. *Oil Spills and the Marine Environment*. Ballinger, Cambridge. 114 p.
- Boesch, D. F. 1974. Diversity, stability and response to human disturbance in estuarine ecosystems, p. 109-114. *Proc. First Internat. Cong. Ecol.* The Hague.
- McEachran, J. D., D. F. Boesch and J. A. Musick. 1976. Food division within two sympatric species-pairs of skates. *Mar. Biol.* 35:301-317.
- Boesch, D. F., R. J. Diaz and R. W. Virnstein. 1976. Effects of Tropical Storm Agnes on soft-bottom macrobenthic communities of the James and York river estuaries and the bay mouth. *Chesapeake Sci.* 17:246-259.
- Boesch, D. F., M. L. Wass and R. W. Virnstein. 1976. The dynamics of estuarine benthic communities, p. 177-196. In: M. L. Wiley (ed.) *Estuarine Processes*, Vol. 1 Academic Press, New York.
- Boesch, D. F. 1977. A new look at the zonation of benthos along the estuarine gradient, p. 245-266. In: B. C. Coull (ed.) *Ecology of Marine Benthos*. University of South Carolina Press, Columbia.
- Boesch, D. F. 1977. Application of numerical classification in ecological investigations of water pollution. U.S. Environmental Protection Agency. *Ecological Research Report Series*. EPA-600/3-77-0033. 115 p.
- Emig, C.C., D.F. Boesch and S. Rainer. 1977. Phoronida from Australia. *Rec. Australian Mus.* 30: 455-474.
- Bowen, M. A., P. O. Smyth, D. F. Boesch and J. van Montfrans. 1979. Comparative biogeography of benthic macrocrustaceans of the Middle Atlantic (U.S.) continental shelf. *Bull. Biol. Soc. Wash.* 3:214-255.
- Wenner, E. L. and D. F. Boesch. 1979. Distribution patterns of epibenthic decapod Crustacea along the shelf-slope coenocline. *Bull. Biol. Soc. Wash.* 3:106-133.
- Gray, J.S., D. Boesch, C. Heip, A.M. Jones, J. Lassig, R. Vanderhorst, and D. Wolfe. 1980. The role of ecology in marine pollution monitoring. *Rapp. P.-v. Cons. Int. Explor. Mer* 179: 237-252.
- Boesch, D. F. 1980. Evaluating impacts on continental shelf environments -- concepts and prospects, p. 159-169. In: *Biological Evaluation of Environmental Impacts*. U.S. Fish and Wildlife Service FWS/OBS-80/26.
- Boesch, D. F. and R. Rosenberg. 1981. Response to stress in marine benthic communities, p. 179-200. In: G. M. Barrett and R. Rosenberg (eds.) *Stress Effects on Natural Ecosystems*, John Wiley, New York.
- Boesch, D. F. 1982. Ecosystems consequences of alternations of benthic community structure and function in the New York Bight region, p. 543-568. In: G. F. Mayer (ed.) *Ecological Stress in the New York Bight: Science and Management*. Estuarine Research Federation, Columbia, South Carolina.
- Boesch, D. F. (ed.) 1982. *Proceedings of the Conference on Coastal Erosion and Wetland Modification in Louisiana: Causes, Consequences and Options*. U.S. Fish and Wildlife Service FWS/OBS-82/59. 256 p.
- Schaffner, L. C. and D. F. Boesch. 1982. Spatial and temporal resource use by dominant benthic Amphipoda (Ampeliscaidae and Corophiidae) on the Middle Atlantic Bight outer continental shelf. *Mar. Ecol. Prog. Ser.* 9:231-243.

- Boesch, D.F., and M.F. Roberts. 1983. Biological effects, p. 423-517. In: E.P. Myers and E.T. Harding (eds.) *Ocean Disposal of Municipal Wastewater: Impacts on the Coastal Environment*. MIT Sea Grant College Program, Cambridge, Massachusetts.
- Alongi, D. A., D. F. Boesch and R.J. Diaz. 1983. Colonization of meiobenthos in oil-contaminated subtidal sands in the Chesapeake Bay. *Mar. Biol.* 72:325-335.
- Boesch, D. F., Tang Zhican, Xu Fengshan and K. J. Nilsen. 1983. Macrobenthos and biogenic structures in sediments of the East China Sea continental shelf, p. 904-914. In: *Sedimentation on the Continental Shelf with Special Reference to the East China Sea*. Springer-Verlag.
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- Boesch, D. F., R. E. Turner and J. W. Day, Jr. 1984. Deterioration of coastal environments in the Mississippi Deltaic Plain: options for riverine and wetland management p. 447-466. In: V. Kennedy (ed.) *The Estuary as a Filter*. Academic Press, New York.
- Rhoads, D. C., D. F. Boesch, T. Zhican, X. Fengshan, H. Liqiang and K. J. Nilsen. 1985. Macrobenthos and sedimentary facies on the Changjiang delta platform and adjacent continental shelf, East China Sea. *Continental Shelf Res.* 4:189-213.
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- Rabalais, N. N. and D. F. Boesch. 1987. Dominant features and processes of continental shelf environments of the United States, p. 71-148. In: D. F. Boesch and N. N. Rabalais (eds.) *Long-term Effects of Offshore Oil and Gas Development*. Elsevier Applied Science, New York, 695 p.
- Neff, J. M., N. N. Rabalais and D. F. Boesch. 1987. Offshore oil and gas development activities potentially causing long-term environmental effects, p. 149-174. In: D. F. Boesch and N. N. Rabalais (eds.) *Long-term Effects of Offshore Oil and Gas Development*. Elsevier Applied Science, New York, 695 p.
- Boesch, D. F. and G. A. Robilliard. 1987. Physical alterations of marine and coastal habitats resulting from offshore oil and gas development activities, p. 619-650. In: D. F. Boesch and N. N. Rabalais (eds.) *Long-term Effects of Offshore Oil and Gas Development*. Elsevier Applied Science, New York, 695 p.
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- Diaz, R. J., C. Erseus and D. F. Boesch. 1987. Distribution and ecology of Middle Atlantic Bight Oligochaeta. *Hydrobiologia* 155:215-225.

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- Boesch, D.F. 1995. Coastal ecosystem management: Challenges for science, p. 13-26. *In: Improving Interactions Between Coastal Science and Policy: Proceedings of the Gulf of Maine Symposium*. National Academy Press, Washington.
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- Boesch, D.F., M.A. Lewis, W.H. McKee, D. Morrison, P.F. Roscigno, G.I. Scott, and J.K. Summers. 1999. Contaminant fate and effects in coastal and estuarine wetlands, p. 207-242. *In: M.A. Lewis, F. L. Mayer, R.L. Powell, M.K. Nelson, S.J. Klaine, M.G. Henry and G.W. Dickenson (eds.) Ecotoxicology and Risk Assessment for Wetlands*. Society of Environmental Toxicology and Chemistry, Pensacola, Florida.
- Costanza, R., F. Andrade, P. Antunes, M. van den Belt, D. Boesch, D. Boersma, F. Catarino, S. Hanna, K. Limburg, B. Low, M. Molitor, J.G. Pereira, S. Rayner, R. Santos, J. Wilson, and M. Young. 1999. Ecological economics and sustainable governance of the oceans. *Ecol. Economics* 31: 171-187.
- Boesch, D.F. 1999. The role of science in ocean governance. *Ecol. Economics* 31: 189-198.
- Boesch, D.F. 2000. Measuring the health of the Chesapeake Bay: toward integration and prediction. *Environ. Res.* 82: 134-142.
- Boesch, D.F. and R.B. Brinsfield. 2000. Coastal eutrophication and agriculture: contributions and solutions, p. 93-115. *In: E. Balázs, E. Galante, J.M. Lynch, J.S. Schepers, J.P. Toutant, E. Werner, and P.A.Th.J. Werry (eds.) Biological Resource Management: Connecting Science and Policy*. Springer, Berlin.

- Boesch, D.F., J. C. Field, and D. Scavia (eds.) 2000. *The Potential Consequences of Climate Variability and Change on Coastal Areas and Marine Resources*. NOAA Coastal Ocean Program Decision Analysis Series #21, National Oceanic and Atmospheric Administration, Silver Spring, Maryland.
- Boesch, D.F., R.H. Burroughs, J.E. Baker, R.P. Mason, C.L. Rowe, and R.L. Siefert. 2001. *Marine Pollution in the United States*. Pew Oceans Commission, Arlington, Virginia.
- Boesch, D.F. 2001. Science and integrated drainage basin-coastal management: the Chesapeake Bay and the Mississippi Delta, p 37-50. In: B. von Bodungen and K. Turner (eds.) *Science and Integrated Coastal Management*. Dahlem University Press, Berlin.
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- Boesch, D.F., R. B. Brinsfield, and R. E. Magnien. 2001. Chesapeake Bay eutrophication: scientific understanding, ecosystem restoration and challenges for agriculture. *J. Environ. Qual.* 30: 303-320.
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- Boesch, D.F., and J.F. Paul. 2001. An overview of coastal environmental health indicators. *Human and Ecological Risk Assessment* 7:1409-1417.
- Boesch, D., E. Burreson, W. Dennison, E. Houde, M. Kemp, V. Kennedy, R. Newell, K. Paynter, R. Orth, and R. Ulanowicz. 2001. Factors in the decline of coastal ecosystems. *Science* 293:1589-1590.
- Levin, L.A., D.F. Boesch, A. Covich, C. Dahm, C. Erséus, K.C. Ewel, R.T. Kneib, A. Moldenke, M. Palmer, P. Snelgrove, D. Strayer, and J.M. Weslawski. 2001. The function of marine critical transition zones and the importance of sediment biodiversity. *Ecosystems* 4:430-451.
- Scavia, D., J.C. Field, D.F. Boesch, R.W. Buddemeier, V. Burkett, D.R. Cayan, M. Fogarty, M.A. Harwell, R.W. Howarth, C. Mason, D.J. Reed, R.C. Royer, A.H. Sallenger, and J.G. Titus. 2002. Climate change impacts on U.S. coastal and marine ecosystems. *Estuaries* 25:149-164.
- Wood, R.J., D.F. Boesch, and V.S. Kennedy. 2002. Future consequences of climate change for the Chesapeake Bay ecosystem and its fisheries. *American Fisheries Society Symposium* 32:171-184.
- Boesch, D.F. 2002. Causes and consequences of nutrient overenrichment of coastal waters, p. 165-180. In: R. Ragaini (ed.) *International Seminar on Nuclear War and Planetary Emergencies: 26th Session*. World Science Publishing, Singapore.
- Boesch, D.F. 2002. Challenges and opportunities for science in reducing nutrient over-enrichment of coastal ecosystems. *Estuaries* 25:744-758.
- Boesch, D.F., and J. Greer (eds.). 2003. *Chesapeake Futures: Choices for the 21<sup>st</sup> Century*. STAC Publication 03-001. Chesapeake Research Consortium, Edgewater, MD.
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- Boesch, D.F. 2004. The Gulf of Mexico's Dead Zone. *Science* 306: 977-978.
- Boesch, D.F. 2005. Energy, environment and global change: presentation, p. 131-135. In: *Vision 2033: Linking Science and Policy for Tomorrow's World*. Proceedings of the 30<sup>th</sup> Anniversary of the AAAS Science and Technology Policy Fellowship Programs. American Association for the Advancement of Science, Washington, D.C.
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- Roman, E.M. Smith, and J.C. Stevenson. 2005. Eutrophication of Chesapeake Bay: Historical trends and ecological interactions. *Marine Ecology Progress Series* 303:1-29.
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- Galloway, G.E., D.F. Boesch and R.R. Twilley. 2009. Restoring and protecting coastal Louisiana. *Issues in Science and Technology*, Winter 2009: 29-38.
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- Karl, T.R., and others. 2009. *Global Climate Change Impacts in the United States*. Cambridge University Press, Cambridge, UK.
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