

CURRICULUM VITA

Dr. Raymond P. Morgan II **Professor of Aquatic Science**

Personal Data:

Business Address: Appalachian Laboratory
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Education:

BS Frostburg State College, 1966
Major: Biology
Minors: Chemistry, Secondary Education

PhD University of Maryland, 1971 (Department of Zoology)
Major: Ecology
Minor: Physiology

Honors:

Honors in Biology, Frostburg State College
Sigma Zeta
Fellow, American Institute of Fishery Research Biologists
UMCES President's Award for Excellence in Application of Science (2003)
Good Neighbor Award, Nemaquin Chapter of Trout Unlimited (2006)

Current Societies and Professional Organizations:

American Fisheries Society
American Association for the Advancement of Science
American Institute of Fishery Research Biologists
American Society of Ichthyologists and Herpetologists
Atlantic Estuarine Research Society
Estuarine Research Federation
North American Benthological Society

Past Societies and Professional Organizations:

American Society of Limnology and Oceanography
Conservation Biology Society
Society of Environmental Toxicology and Chemistry

Research Interests:

Pollution and Aquatic Restoration Ecology

I was an ecotoxicologist long before the term was considered within the scientific community as a discipline. In the field of pollution ecology, the major focus of my work centers on organismal response to stresses, particularly anthropogenic stressors, at a number of different strata including molecular/cellular, population, community, and ecosystem levels. To this end, I have often used the overall environmental impact of electric production on aquatic organisms, communities, and ecosystems as a research area to test hypothesis concerning organism response to stresses. Over the years, my research efforts in this field have evolved from the eras of caefaction effects on aquatic systems, to analyses of impingement and entrainment impacts on aquatic biota, to mysteries of biocide chemistry and its associated toxic effects on populations and communities, to the current vogue of acidic precipitation with its ecological and economic ramifications, and now urbanization effects.

Besides many contemporary studies in Maryland on the effects of acidic precipitation, other research centers on environmental impacts of small-scale hydroelectric production, ash disposal from coal-fired steam electric stations, and restoration of AMD-affected aquatic systems -- now a major emphasis within the Chesapeake Bay watershed. Of particular interest has always been the effect of stressors on early life stages of fishes as well as the physiological, biochemical, histological, and behavioral responses of fishes to pollution, essentially attempting to assay ecological integrity in aquatic ecosystems. Recently, my work is evolving into analyses of impacts on watersheds at the landscape level, especially urbanizing watersheds, and the restoration ecology of lotic systems.

Conservation Biology and Fishery Genetics

Overall, I am interested in the varied effects of the Pleistocene, with its four major glaciations, on the population structure of fishes in the mid-Atlantic region since the Pliocene. My primary focus is directed towards moronids and salmonids, although I have worked with many freshwater, estuarine, and marine fishes. I completed a major study on the population genetics of the bay anchovy, the most abundant fish within Chesapeake Bay, as well as continuing work on the genetic structure of brook trout populations and other Appalachian fishes. In addition to my inquisitiveness in identifying fish populations, I am interested in solving problems associated with the field of conservation biology such as the effect of bottlenecks and founder effects on the genetic structure of populations as well as species and subspecies identification, generic relationships, and hybridization effects.

Selected Publications:

- Eshleman, KE, **RP Morgan II**, JR Webb, FA. Deviney and JN Galloway. 1998. Temporal patterns of nitrogen leakage from mid-Appalachian forested watersheds: Role of forest disturbance. *Water Resources Research* 34(8): 2005-2116.
- Roth, NE, MT Southerland, SB Weisberg, JC Chaillou, PF Kazzyak, SA Stranko, RJ Klauda, LW Hall and **RP Morgan II**. 1998. Development and evaluation of a fish index of biotic integrity for Maryland streams. *Envir. Monitor. Assess.* 51: 89-106.
- Danzmann, RG, **RP Morgan II**, MW Jones, L Bernatchez and PE Ihssen. 1998. A major sextet of mitochondrial DNA phylogenetic assemblages extant in eastern North American brook charr (*Salvelinus fontinalis*): Distribution and post-glacial dispersal patterns. *Can. J. Zool.* 76: 1300-1318.
- Castro, MS and **RP Morgan II**. 2000. Input-output budgets of major ions for a forested watershed in western Maryland. *Water, Air and Soil Pollution* 119:121-137.
- Killgore, KJ, ST Maynard, MD Chan and **RP Morgan II**. 2001. Evaluation of propeller-induced mortality on early life stages of selected fish species. *North America Journal of Fisheries Management* 21:947-955.
- Hall, MR, **RP Morgan II**, and RG Danzmann. 2002. Mitochondrial DNA analyses of mid-Atlantic USA populations of brook trout (*Salvelinus fontinalis*): the zone of contact for major historical lineages. *Transactions of the American Fisheries Society* 131:1140-1151.
- Castro, MS, EN McLaughlin, SL Davis and **RP Morgan II**. 2002. Total mercury concentrations in lakes and fish of Western Maryland. *Archives of Environmental Contamination and Toxicology* 42:454-462.
- Hall, Jr., LW, **RP Morgan II**, ES Perry and A Waltz. 2002. Development of a physical habitat index for Maryland freshwater streams. *Environmental Monitoring and Assessment* 77:265-291.
- Wiley, DJ, **RP Morgan II**, RH Hilderbrand, RL Raesly and DL Shumway. 2004. Relations of physical habitat and American eel abundance in five river basins in Maryland. *Transactions of the American Fisheries Society* 133:515-526.
- Southern Division of the American Fisheries Society Trout Committee [J. Habera and S. Moore (lead authors); J. Boaz, L. Keefer, M. Kruse, M. Kulp, D. Besler, J. Borawa, D. Rankin, F. Fiss, J. Kosa, S. Bryan, M. Hudy, M. Seehorn, **R. Morgan**, L. Mohn, and S. Reeser). 2005. Managing southern Appalachian brook trout: A position statement. *Fisheries* 30:10-20.
- Morgan II, RP** and SF Cushman. 2005. Urbanization effects on stream fish assemblages in Maryland, USA. *J. North American Benthological Society* 24:643-655.
- Walsh, CJ, AH Roy, JW Feminella, PD Cottingham, PM Groffman and **RP Morgan II**. 2005. The urban stream syndrome: current knowledge and search for a cure. *J. North American Benthological Society* 24:706-723.
- Southerland, MT, GM Rogers, MJ Kline, **RP Morgan**, DM Boward, PF Kazzyak, RJ Klauda and SA Stranko. 2007. Improving biological indicators to better assess the condition of streams. *Ecological Indicators* 7:751-767.
- Morgan II, RP**, KM Kline and SF Cushman. 2007. Relationships among nutrients, chloride and biological indices in urban Maryland streams. *Urban Ecosystems* 10:153-166.
- Kline, KM, KN Eshleman, **RP Morgan II** and NM Castro. 2007. Analysis of trends in episodic acidification of streams in western Maryland. *Environmental Science and Technology* 41(16): 5601-5607.
- Morgan II RP** and SF Cushman. 2007. Urbanization effects on stream fishes in Maryland's Piedmont. Pp. 134-136. In: DN Laband (ed.), *Emerging issues along urban-rural interfaces II: Linking land-use science and society*, April, 2007, Atlanta GA.
- Eshleman, KN, KM Kline, **RP Morgan II**, NM Castro, and TM Negley. 2008. Contemporary trends in the acid-base status of two acid-sensitive streams in western Maryland. *Environmental Science and Technology* 42(1): 56-61.

- Stranko, SA, RH Hilderbrand, **RP Morgan II**, MW Staley, AJ Becker, A Roseberry-Lincoln, ES Perry and PT Jacobsen. 2008. Brook trout declines with land cover and temperature changes in Maryland. *North American Journal of Fisheries Management* 28:1223-1232.
- Kaushal, SS, PM Groffman, LE Band, CE Shields, **RP Morgan**, MA Palmer, KT Belt, CM Swan, SEG. Finley and GT Fisher. 2008. Interaction between urbanization and climate variability amplifies watershed nitrate export in Maryland. *Environmental Science and Technology* 42(16):5872-5878.
- Lookingbill, TR, SS Kaushal, AJ Elmore, R Gardner, KN Eshleman, RH Hilderbrand, **RP Morgan**, WR Boynton, MA Palmer and WC Dennison. 2009. Altered ecological flows blur boundaries in urbanizing watersheds. *Ecology and Society* 14:10-19 pp.

Popular Articles:

- Morgan II, RP.** 1971. Effects of enlargement of the Chesapeake and Delaware Canal under study by state laboratory. *Comm. Fish. News* 4(6): 4.
- Morgan II, RP** and MJ Reber. 1974. Bay bottom aesthetics. *Maryland Magazine* 6(4): 12-15.
- Morgan II, RP.** 1994. The future for fish and wildlife in Potomac's Appalachia. *Potomac Valley Chronicle, Journal of the Potomac River Basin Consortium.* 1(1): 48-51.
- Morgan II, RP.** 1997. "A twist of lime." *Journal of the Alleghenies.* Vol. XXXIII: 43-50.

Teaching Interests:

Aquatic Ecology/Stream Ecology
Environmental Toxicology
Aquatic Toxicology
Animal Ecology

Fish Physiology
Fisheries Science
Fisheries Genetics
Conservation Biology