

William E. Ensign

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Education

Doctor of Philosophy (1995) in Fisheries Science from Virginia Tech, Blacksburg, VA.

Master of Science (1988) in Ecology from University of Tennessee, Knoxville, TN.

Bachelor of Arts (1982) in Zoology from George Washington University, Washington, DC.

Relevant Work Experience

Professor - January 2015 to present. Department of Ecology, Evolution, and Organismal Biology. Kennesaw State University, Kennesaw, GA.

Professor - August 2009 to December, 2014. Department of Biology and Physics. Kennesaw State University, Kennesaw, GA.

Associate Professor - August 2002 to July 2009. Department of Biology and Physics. Kennesaw State University, Kennesaw, GA.

Assistant Professor - August 1997 to July 2002. Department of Biological and Physical Sciences. Kennesaw State University, Kennesaw, GA.

Research Associate - June 1996 to August 1997. Department of Fisheries and Wildlife Sciences, Virginia Tech, Blacksburg, VA.

Research Associate - August 1995 to May 1996. U. S. Forest Service. Southeastern Forest Experiment Station. Coldwater Fisheries Research Unit. Blacksburg, VA.

Instructor - August 1995 to May 1996. Department of Fisheries and Wildlife Sciences, Virginia Tech, Blacksburg, VA.

Graduate Research Assistant - May 1990 to April 1995. Department of Fisheries and Wildlife Sciences and VA Coop. Fisheries and Wildlife Research Unit, VA Tech, Blacksburg, VA.

Graduate Teaching Assistant - August 1989 to April 1990. Department of Fisheries and Wildlife Science, Virginia Tech, Blacksburg, VA.

Graduate Teaching Assistant - August 1988 to April 1989. Department of Forestry, Wildlife and Fisheries, University of Tennessee, Knoxville, TN.

Research Technician - April 1988 to August 1988. Department of Forestry, Wildlife, and Fisheries, University of Tennessee, Knoxville, TN.

Graduate Teaching Assistant - January 1987 to March 1988. Department of Biology, University of Tennessee, Knoxville, TN.

Biological Technician - May 1986 to September 1986. Office of Natural Resources and Economic Development, Tennessee Valley Authority, Chattanooga, TN.

Publications (* indicates a publication with undergraduate co-author)

Refereed Publications

- * Mutchler, T. **W. Ensign** and C. Yates . 2014. Differences in gut morphology of *Campostoma oligolepis* populations from two watersheds in northwest Georgia, USA. *Journal of Freshwater Ecology* 29:289-293 . DOI:10.1080/02705060.2013.860051.
- * South, E. J and **W. Ensign**. 2013. Life history of Largescale stoneroller (*Campostoma oligolepis*) in urban and rural streams. *Southeastern Naturalist* 12:781-789.
- * Benton, P. L., **W. Ensign** and B. J. Freeman. 2008. The effect of road crossings on fish movements in small Etowah Basin streams. *Southeastern Naturalist* 7:301-310.
- Roy, A., M. Freeman, B. Freeman, S. Wenger, **W. Ensign** and J. Meyer. 2006. Importance of riparian forests in urbanizing watersheds contingent on sediment and hydrologic regimes. *Environmental Management* 37: 523-539.
- Roy, A. H., M. C. Freeman, B. J. Freeman, S. J. Wenger, **W. E. Ensign** and J. L. Meyer. 2005. Investigating hydrologic alteration as a mechanism of fish assemblage shifts in urbanizing streams. *Journal of the North American Benthological Society* 24:656-678.
- * **Ensign, W. E.** and E. E. Leonard. 2004. Diel habitat use by fishes in a Blue Ridge stream, Georgia. *Journal of Freshwater Ecology* 19:47-52.
- Dirnberger, J. M., **W. E. Ensign**, H. Sutton and D. McGarey. 2002. Comparing abiotic and biotic parameters within a geologically diverse area (Bartow County, GA). *Proceedings of the Watershed 2002 Conference*.
- Ensign, W. E.**, A. J. Temple and R. J. Neves. 2002. Effects of fright bias on sampling efficiency for stream fish assemblages. *Journal of Freshwater Ecology* 17:127-139.
- Ensign, W. E.**, K. N. Leftwich, P. L. Angermeier and C. A. Dolloff. 1997. Factors influencing fish recolonization following a large-scale stream disturbance. *Transactions of the American Fisheries Society* 126:895-907.
- Ensign, W. E.**, P. L. Angermeier, and C. A. Dolloff. 1995. Use of underwater observation to estimate abundance of benthic stream fishes. *Canadian Journal of Fisheries and Aquatic Sciences* 52:213-222.
- Ensign, W. E.**, R. J. Strange, and S. E. Moore. 1990. Summer food limitation reduces brook and rainbow trout biomass in a southern Appalachian stream. *Transactions of the American Fisheries Society* 119:894-901.
- Ensign, W. E.**, J. W. Habera, and R. J. Strange. 1989. Food resource competition in southern Appalachian brook and rainbow trout. *Proceedings of the Southeastern Association of Fisheries and Wildlife Agencies*. 43:239-247.

Invited Reviews

- Ensign, W. E.** 1994. Surveys of Fisheries Resources by D. R. Gunderson. (Book review). *Transactions of the American Fisheries Society* 123:679-680.

Technical Reports

- Ensign, W.** 2011. Biological integrity of Bartow County streams assessed using fish communities. Final Report submitted to Fox Environmental.
- Ensign, W.** 2010. Biological integrity of Bartow County streams assessed using fish communities. Final Report submitted to Fox Environmental.
- Ensign, W.** 2010. Biological integrity of northwestern Cobb County streams assessed using fish communities. Final Report submitted to Cobb County Water System.
- Norman, J., E. Franzen, H. Millington, **W. Ensign**, S. Wenger, M. Freeman and M. Hagler. 2006. Etowah Habitat Conservation Plan Stream Crossing and Culvert Design Policy. Report to the U. S. Fish and Wildlife Service.
- Galbreath, G. E., **W. E. Ensign**, and P. L. Angermeier and. 2001. Roanoke River Flood Reduction Project Pre-Construction Monitoring of the Endangered Roanoke Logperch (*Percina rex*). Final Report to the U. S. Army Corps of Engineers, Wilmington District, Wilmington, NC.
- Dirnberger, J. **W. E. Ensign**, D. McGarey and H. Sutton. 2001. Status of Water Quality and Biological Integrity in Major Watersheds in Bartow County, Georgia. 227 pp.
- Ensign, W. E.** , P. L. Angermeier and B. W. Albanese. 2000. Roanoke River Flood Reduction Project Pre-Construction Monitoring of the Endangered Roanoke Logperch (*Percina rex*). Final Report to the U. S. Army Corps of Engineers, Wilmington District, Wilmington, NC.
- Ensign, W. E.** and R. J. Neves. 2000. Re-survey of James Spiny mussel (*Pleurobema collina*) populations in the South Fork Potts Creek, Monroe County, West Virginia. Final Report submitted to the U. S. Fish and Wildlife Service, Elkins, West Virginia. 15 pp.
- Ensign, W. E.** , P. L. Angermeier and B. W. Albanese. 1999. Roanoke River Flood Reduction Project Pre-Construction Monitoring of the Endangered Roanoke Logperch (*Percina rex*). Final Report to the U. S. Army Corps of Engineers, Wilmington District, Wilmington, NC.
- Ensign, W. E.** , P. L. Angermeier and B. W. Albanese. 1998. Roanoke River Flood Reduction Project pre-construction monitoring of the endangered Roanoke logperch. Final Report to the U. S. Army Corps of Engineers, Wilmington District, Wilmington, NC.
- Ensign, W. E.** and R. J. Neves. 1995. A survey for the endangered James Spiny mussel (*Pleurobema collina*) in the South Fork Potts Creek, Monroe County, West Virginia. Final Report submitted to the U. S. Fish and Wildlife Service, Elkins, West Virginia. 19 pp.
- Ensign, W. E.** and P. L. Angermeier. 1994. Use of geographic information systems for development of habitat maps for the Roanoke River Flood Reduction Project Monitoring Project. Report to the Wilmington District, U. S. Army Corps of Engineers, Wilmington, North Carolina. 35 pp.
- Ensign, W. E.**, P. L. Angermeier, and C. A. Dolloff. 1994. Recolonization success of the endangered Roanoke logperch (*Percina rex*) in the South Fork Roanoke River, Virginia. Final report to the Virginia Department of Game and Inland Fisheries. 16 pp.
- Ensign, W. E.** and P. L. Angermeier. 1994. Methods for monitoring of Roanoke logperch in conjunction with Roanoke River Flood Reduction Project. Final report to Wilmington District, U. S. Army Corps of Engineers, Wilmington, North Carolina. 48 pp.
- Leftwich, K. N., **W. E. Ensign** and P. L. Angermeier. 1994. A survey for rare fishes in Russell Fork, Dickenson County, Virginia and Pike County, Kentucky. Final Report submitted to Huntington District, U. S. Army Corps of Engineers, Huntington, West Virginia. 19 pp.

- Ensign, W. E.** and P. L. Angermeier. 1993. Statistical protocol for incorporation of electrofishing data into Roanoke River Flood Reduction Project monitoring program. Report to the Wilmington District, U. S. Army Corps of Engineers, Wilmington, North Carolina. 10 pp.
- Ensign, W. E.** and P. L. Angermeier. 1993. Recolonization success of the endangered Roanoke logperch (*Percina rex*) in South Fork Roanoke River, Virginia. Annual Report to the Virginia Department of Game and Inland Fisheries, Richmond, Virginia. 12 pp.
- Ensign, W. E.** and P. L. Angermeier. 1993. Comparison of underwater observation and electrofishing techniques for monitoring of Roanoke logperch populations in the Roanoke River. Report to the Wilmington District, U. S. Army Corps of Engineers, Wilmington, North Carolina. 23 pp.
- Ensign, W. E.**, and P. L. Angermeier. 1992. Assessment of the construction impacts of the Roanoke River Flood Reduction Project on the endangered Roanoke logperch. Annual Report to the Wilmington District, U. S. Army Corps of Engineers, Wilmington, North Carolina. 45 pp.
- Angermeier, P. L. and **W. E. Ensign.** 1991. Reconnaissance survey of the Roanoke Logperch (*Percina rex*) in the Roanoke River, Salem and Roanoke, Virginia. Final Report to the Wilmington District, U. S. Army Corps of Engineers, Wilmington, North Carolina. 10 pp.

Presentations (* indicates a presentation with undergraduate, # indicates a presentation with graduate student)

Invited Presentations

- Ensign, W. E.** City cow, country cow: What can *Campostoma* tell us about urban streams? Kennesaw State University. Department of Ecology, Evolution and Organismal Biology Seminar Series. March 2016.
- Ensign, W. E.** City cow, country cow: What can *Campostoma* tell us about urban streams? Symposium on Cypriniform fishes in the Southeast. Annual Meeting of the Southern Division of the American Fisheries Society. Savannah, GA. January 2015.
- Ensign, W. E.** Everything I know about fish I learned in kindergarten. Georgia Gwinnett College Biology Seminar Series. Lawrenceville, GA. November 2013.
- Ensign, W. E.** Fish community structure on an urban to rural gradient. Piedmont College Natural Sciences Seminar Series. Demorest, GA. October 2009.
- Ensign, W. E.** , R. Matson and S. Reese. Risk and reward in undergraduate research in the Southeast: A survey of institutional support at southeastern institutions. Symposium on "Research at Undergraduate Institutions: Pitfalls and possibilities". Association of Southeastern Biology Annual Meeting. Spartanburg, S.C. April 2008.
- Ensign, W. E.** and R. E. Jenkins. History of the Roanoke River Fish Fauna. American Fisheries Society Annual Meeting. Charlotte, N.C. August 1999.
- Murphy, B. R., D. W. Smith, **W. E. Ensign**, E. J. Pert, J. M. Watkins, T. M. Wildman, and C. A. Bailey. Enhancing Professional Skills and Academic Success of First-Year Students in Natural Resources. American Fisheries Society Annual Meeting. Charlotte, N.C. August 1999.
- Murphy, B. R., D. W. Smith, **W. E. Ensign**, T. M. Wildman, C. A. Bailey, and E. J. Pert. Enhancing success and professional development of students in natural resources. 2nd Biennial

Conference on University Education in Natural Resources. Utah State University, Logan.
March 1998.

Ensign, W. E. The Roanoke logperch: Why is it endangered and what can we do to help? Virginia Museum of Natural History, Blacksburg, VA. November, 1993.

Ensign, W. E. Use of underwater observation to assess recovery of endangered species. Symposium on endangered species recovery and management. American Fisheries Society Annual Meeting, Portland, OR. September, 1993.

Ensign, W. E. Status and distribution of the Roanoke logperch in the Roanoke River. Roanoke College Biology Seminar Series, Salem, VA. December, 1992

Contributed Presentations (Oral presentations unless indicated otherwise)

Winant, M. E. and **W. Ensign**. Conchological and life history differences in three species of *Elimia* from the lower Etowah River basin. Annual Meeting of the Association of Southeastern Biologists, April 2015. Chattanooga, TN.

*# Haines, D., E. Winant and **W. Ensign**. Habitat associations of three species of pleurocerid snail in an Etowah River tributary. Annual Meeting of the Association of Southeastern Biologists, April 2015. Chattanooga, TN. (Poster)

* Davis, L., and **W. Ensign**. Wastewater treatment plant effluent and its effects on fish diet. Annual Meeting of the Association of Southeastern Biologists, April 2015. Chattanooga, TN. (Poster)

* Cunningham, L., R. Fiorillo, and **W. Ensign**. Parasite loads in *Lepomis spp.* from streams with varying levels of human impact. Annual Meeting of the Association of Southeastern Biologists, April 2015. Chattanooga, TN. (Poster)

*Hoffman, D., T. Mutchler and **W. Ensign**. Quantifying Potential Differences in Trophic Relationships Across Freshwater Streams of Varying Urbanization. Annual Meeting of the Association of Southeastern Biologists, April 2014. Spartanburg, SC.

*Horning, K., T. Mutchler and **W. Ensign**. Exploring the Impacts of Urbanization on Stream Food Webs: Does Urbanization Affect Periphyton Abundance and Composition? Annual Meeting of the Association of Southeastern Biologists, April 2014. Spartanburg, SC. (Poster)

*Quade, C., *B. Drobinski and **W. Ensign**. Univariate and Multivariate Assessment of Habitat Preferences of Stream Fishes. Annual Meeting of the Association of Southeastern Biologists, April 2014. Spartanburg, SC. (Poster)

*Schooling, M. and **W. Ensign**. Urbanization and Gut Length in *Campostoma oligolepis*. Annual Meeting of the Association of Southeastern Biologists, April 2014. Spartanburg, SC. (Poster)

*Howlette, J., T. Mutchler and **W. Ensign**. A comparison of trophic relationships between urbanized and non-urbanized streams based on natural abundances of stable isotopes. Annual Meeting of the Association of Southeastern Biologists, April 2013. Charleston, WV.

#Winant, M. E., #A. K. Mundell and **W. Ensign**. A preliminary survey of the distribution of *Elimia spp.* in lower Etowah River basin tributaries. Freshwater Mollusk Conservation Society Symposium. March 2013. Guntersville, AL. (Poster)

Ensign, W. Fish species richness and stream network topology. Annual meeting of the Association of Southeastern Biologists. April 2012. Athens, GA.

* South, E. and **W. Ensign**. Life history of largescale stoneroller (*Campostoma oligolepis*) in urban

and rural streams. Annual meeting of the Association of Southeastern Biologists. April 2012. Athens, GA.

- Albanese, B., A. George, **W. Ensign**, D. Neely, K. Owens, and J. Smith. Monitoring rare fishes in north Georgia: What are we gaining from shocking, snorkeling and seining? Annual meeting of the Southeastern Fishes Council. November 2011. Chattanooga, TN.
- * Bremner, J., L. Lawson and **W. Ensign**. Water quality as a determinant of largescale stoneroller (*Campostoma oligolepis*) distribution and abundance. Annual meeting of the Southeastern Fishes Council. November 2011. Chattanooga, TN. (Poster)
 - * South, E. and **W. Ensign**. Life history of largescale stoneroller (*Campostoma oligolepis*) in streams with differing levels of catchment urbanization. Annual meeting of the Southeastern Fishes Council. November 2011. Chattanooga, TN. (Poster)
 - * Yates, C., T. Mutchler and **W. Ensign**. The effects of urbanization on food sources and gut morphology in largescale stoneroller (*Campostoma oligolepis*). Annual meeting of the Southeastern Fishes Council. November 2011. Chattanooga, TN. (Poster)
- Ensign, W.** Ordination of fish communities using IBI metrics. Annual meeting of the Association of Southeastern Biologists. April 2011. Huntsville, AL.
- * Christian, J., **W. Ensign** and G. Adams. Urbanization effects on *Campostoma oligolepis*. American Fisheries Society, Southern Division, Student Colloquium. November 2010. Conway, AR (Poster).
 - * Reece, J. and **W. Ensign**. Fish species richness and urbanization in North Georgia streams. Annual meeting of the Association of Southeastern Biologists. April 2010. Asheville, NC (Poster).
 - * Winant, E. and **W. Ensign**. Density and population structure of *Elimia spp.* in North Georgia streams. Annual meeting of the Association of Southeastern Biologists. April 2010. Asheville, NC (Poster).
 - * Gaeta, J. A., **W. Ensign** and T. McElroy. 2009. The effect of water control structures on gene flow in *Campostoma oligolepis*. Annual meeting of the Association of Southeastern Biologists. April 2009. Birmingham, AL. (Poster).
 - * Page, C., **W. Ensign** and T. McElroy. Haplotype variation in *Campostoma oligolepis* in the Etowah River System. Annual meeting of the Association of Southeastern Biologists. April 2008. Spartanburg, SC (Poster).
 - * Pongsuk, J., **W. Ensign** and T. McElroy. Delineation of genetic variation for *Campostoma oligolepis* in the Etowah River System Annual meeting of the Association of Southeastern Biologists. April 2008. Spartanburg, SC (Poster).
 - * Mitchell, D. and **W. Ensign**. Fish species richness in adventitious streams of the Etowah River Basin. Annual meeting of the Association of Southeastern Biologists. April 2008. Spartanburg, SC (Poster).
 - * Beattie, M. and **W. Ensign**. Ecoregion differences in lipid content of *Campostoma oligolepis*. Annual meeting of the Association of Southeastern Biologists. April 2007. Columbia, SC (Poster).
 - * Strand, D., **W. Ensign** and T. McElroy. Genetic characterization of the stone roller (*Campostoma oligolepis*) in the Etowah River system. Annual meeting of the Association of Southeastern Biologists. April 2007. Columbia, SC (Poster).
 - * Dirnberger, J., **W. Ensign**, S. J. Ranney, J. Smith, E. Squires, and R. Stoner. Physical and

- biological signals in streams along an ecoregion boundary. Annual meeting of the Association of Southeastern Biologists. March 2006. Gatlinburg, TN.
- * Ranney, S., **W. Ensign** and J. Dirnberger. Ecoregion effects on fish condition across an ecoregion boundary. Annual meeting of the Association of Southeastern Biologists. March 2006. Gatlinburg, TN (Poster)
 - * Smith, J., **W. Ensign** and J. Dirnberger. Ecoregion effects on physical habitat and fish community structure. Annual meeting of the Association of Southeastern Biologists. March 2006. Gatlinburg, TN (Poster)
 - * Squires, E., J. Dirnberger and **W. Ensign**. Ecoregion effects on stream aquatic invertebrate scraper communities. Annual meeting of the Association of Southeastern Biologists. March 2006. Gatlinburg, TN (Poster)
 - * Steely, C., T. McElroy and **W. Ensign**. Genetic characterization of the stoneroller (*Campostoma oligolepis*) in the Euharlee Creek system. Annual meeting of the Association of Southeastern Biologists. March 2006. Gatlinburg, TN (Poster)
 - * Stoner, R., J. Dirnberger and **W. Ensign**. Ecoregion effects on periphyton standing crops. Annual meeting of the Association of Southeastern Biologists. March 2006. Gatlinburg, TN (Poster)
- Ensign, W. E.**, A. Sukenick and E. Feichtner. A Tale of Two Basins: Fish Distributions in Cobb County, Georgia. Annual Meeting of the Georgia Chapter of the American Fisheries Society. 2005. Fort Gaines, GA.
- Ensign, W. E.** Why fish can't cross the road: The effect of culvert design on fish movements in small Etowah basin streams. Annual Meeting of the Association of Southeastern Biologists. April 2005. Florence, AL.
- * Benton, P. M. and **W. E. Ensign**. The Effect of Road Crossings on Stream Fish Movement in Small Etowah Basin Streams. Annual Meeting of the Association of Southeastern Biologists. April 2004. Memphis, TN.
- Roy, A., M. Freeman, B. Freeman, S. Wenger, **W. Ensign**, J. Meyer. Investigating hydrologic alteration as a mechanism for fish species loss in urbanising streams. 2003. Symposium on Urbanization and Stream Ecology. Melbourne, Australia.
- Dirnberger, J. M., **W. E. Ensign**, H. Sutton and D. McGarey. Comparing abiotic and biotic parameters within a geologically diverse area (Bartow County, GA). Watershed 2002 Conference, February 2002, Ft. Lauderdale, FL.
- Ensign, W. E.** Fish Diversity in Bartow County, Georgia. Annual meeting of the Georgia Academy of Sciences. March 2002. Milledgeville, GA.
- Ensign, W. E.** and J. M. Dirnberger. Fish Community Structure along an Ecoregion Boundary. Annual Meeting of American Fisheries Society. August 2002. Baltimore, MD.
- * Brewer, C. and **W. E. Ensign**. Diet of banded sculpins from Bartow County streams. Annual Meeting of the Georgia Academy of Sciences, March 2001, Brunswick, GA.
- Sutton, H. J. Dirnberger, **W. E. Ensign** and D. McGarey. Water Quality and Biological Integrity of Watersheds in a County Undergoing Increasing Development. Annual meeting of the Society for Environmental Toxicology and Chemistry. November, 2001.
- * Leonard, E. E. and **W. E. Ensign**. Diel habitat use by stream fish. Midyear meeting of the American Fisheries Society, Southern Division. February 2000, Savannah, Georgia. (Poster)
- Albanese, B., P. L. Angermeier, A. Rosenberger, G. Galbreath, J. Roberts, and **W. E. Ensign**.

Monitoring of fishes and their habitats in the Upper Roanoke River. Roanoke River Watershed 2000 Conference, October 2000, Roanoke, Virginia.

Ensign, W. E. and P. L. Angermeier. Factors influencing fish recolonization following a large-scale stream disturbance. Annual meeting of the Association of Southeastern Biologists. April 1998. Monroe, Louisiana.

Ensign, W. E., K. N. Leftwich, P. L. Angermeier, and C. A. Dolloff. Fish population abundance following a large-scale stream disturbance. Midyear meeting of the American Fisheries Society, Southern Division. February 1995, Virginia Beach, VA.

Leftwich, K. N., **W. E. Ensign**, and P. L. Angermeier. Fish distribution in Russel Fork, Virginia, above and below a hydrologic barrier. Virginia Academy of Sciences Annual Meeting. May 1995, Lexington, Virginia.

Ensign, W. E., P. L. Angermeier, and C. A. Dolloff. The importance of proximal habitat units in explaining variation in benthic riffle fish densities. American Fisheries Society Annual Meeting. August 1995, Tampa, Florida.

Ensign, W. E., P. L. Angermeier, and C. A. Dolloff. Use of underwater observation to estimate abundance of benthic stream fishes. American Fisheries Society, Virginia and Potomac Chapters Joint Annual Meeting. April 1994, Luray, VA.

Ensign, W. E., P. L. Angermeier, and C. A. Dolloff. Recovery of the fish community in the South Fork Roanoke River following a catastrophic fishkill. Southern Division, American Fisheries Society Midyear Meeting. February 1993, Chattanooga, TN.

Leftwich, K. N., C. A. Dolloff, P. L. Angermeier, and **W. E. Ensign**. Visual estimation methods for surveying large streams. Southern Division, American Fisheries Society Midyear Meeting. February 1993, Chattanooga, TN.

Ensign, W. E., P. L. Angermeier, and C. A. Dolloff. Comparison of habitat use data obtained by snorkeling and electrofishing. American Fisheries Society annual meeting. September 1992, Rapid City, SD.

Temple, A. J. and **W. E. Ensign**. Comparison of the efficiencies of three stream fish sampling techniques. American Fisheries Society annual meeting. September 1991, San Antonio, TX.

Ensign, W. E. Brook trout and rainbow trout in the southern Appalachians: an alternative view. Southern Division, American Fisheries Society annual meeting. October 1990, Richmond, VA.

Ensign, W. E., J. W. Habera, and R. J. Strange. Food resource competition in southern Appalachian brook and rainbow trout. Southern Division, American Fisheries Society annual meeting. October 1989, St. Louis, MO.

Ensign, W. E. The importance of food resource competition in the interaction between brook and rainbow trout. National Park Service Southeast Region. Annual Scientific Meeting. May 1988, Gatlinburg, TN.

Grants and Contracts

External Funding

Ensign, W. E. 2007 - 2016. Paulding County Water System Stream Fish Assessment. Funding from the Paulding County Water System for \$55,340 (PI).

Ensign, W. E. 2008 - 2016. Cobb County Water System Stream Fish Assessment. Funding from

- the Cobb County Water Authority for \$35,278 (PI).
- Dias, M. and **W. E. Ensign**. 2014-2015. Watershed Conservation: A Cobb/Paulding Environmental Science Curriculum Project. Funding from the Federal Teacher Quality Improvement Grant Program for \$44,573 (Co-PI).
- Ensign, W. E.** 2010-2012. Bartow County Water System Stream Fish Assessment. Funding from Fox Environmental for \$10,129 (PI).
- Ensign, W. E.** 2003 - 2004. Cobb County Water System Stream Fish Assessment. Funding from the Cobb County Water Authority for \$12,202 (PI).
- Ensign, W. E.** 2001-2004. Development of a Habitat Conservation Plan for Imperiled Aquatic Species of the Etowah River Basin. Subcontract with University of Georgia Institute of Ecology for \$59,125 (Co-PI).
- Ensign, W. E.** 2000. A resurvey of essential habitat for the endangered James Spiny mussel in South Fork Potts Creek, West Virginia. Funding from Virginia Tech for \$1,840 (Co-PI).
- McGinnis, H. K., J. Dirnberger, **W. E. Ensign**, D. McGarey and H. Sutton. 2000. Assessment of the Etowah River Watershed in Bartow County, Georgia. Funding from Bartow County, Georgia for \$214,554 (Co-PI).
- Ensign, W. E.** 1998 - 2000. Roanoke River Flood Reduction Project pre-construction monitoring of the endangered Roanoke Logperch (*Percina rex*). Funding from Virginia Tech for \$18,800 (Co-PI).
- Angermeier, P. L. and **W. E. Ensign**. 1997. Roanoke River Flood Reduction Project pre-construction monitoring of the endangered Roanoke Logperch (*Percina rex*). Funding from the U.S. Army Corps of Engineers for \$90,956 (Co-PI).
- Murphy, B. R., **W. E. Ensign**, D. W. Smith, T. M. Wildman and C. A. Bailey. 1997. Enhancing student and faculty development in Natural Resources Education. Funding from U. S. Department of Agriculture, Higher Education Challenge Grants Program for \$79,999 (Co-PI).
- Ensign, W. E.** and P. L. Angermeier. 1996. Roanoke River Sewer Interceptor Pre-Construction Monitoring. Funding from Black and Veatch Consultants, Charlotte, NC for \$45,022 (Co-PI).
- Angermeier, P. L., K. N. Leftwich and **W. E. Ensign**. 1994. A survey for rare darters in Russell Fork, Dickenson County, Virginia and Pike County, Kentucky. Funding from the U. S. Army Corps of Engineers for \$18,046 (Co-PI).
- Angermeier, P. L., **W. E. Ensign**, and C. A. Dolloff. 1991. Investigation of the blotchside logperch (*Percina burtoni*) as a potential experimental surrogate for the federally endangered Roanoke logperch (*P. rex*). Funding from the Virginia Department of Game and Inland Fisheries for \$54,000 (Co-PI).
- Ensign, W. E.** 1987. Competition between brook and rainbow trout in the Great Smoky Mountains National Park. Funding from the Great Smoky Mountains Chapter of Trout Unlimited for \$400.

Internal Funding

- Ensign, W. E.** and T. McElroy. 2016. Effects of Urbanization Induced Variability in Epilithon Distribution on Movement and Abundance of *Campostoma oligolepis*. Office of the Vice President of Research Pilot Grant. \$16,571.
- Ensign, W. E.** 2013-2014. Understanding the nature of science and variability through research

on stream systems. CARET Award from KSU Center for Effectiveness in Teaching and Learning for \$7472.

Ensign, W. E. and E. Winant. 2009. Life history of *Elimia spp.* snails in streams in differing ecoregions. Funding from the Kennesaw State University Mentor-Protege Program for \$800.

Ensign, W. E. and P. Benton. 2003. The effect of road crossings on stream fish movement in small Etowah Basin streams. Funding from the Kennesaw State University Mentor-Protege Program for \$1800.

Ensign, W. E. and N. Mulkey. 2001. Fish community structure as a function of urbanization. Funding from the Kennesaw State University Mentor-Protege Program for \$1200.

Ensign, W. E. and C. Brewer. 2001. Diet of banded sculpin from Bartow County streams. Funding from the Kennesaw State University Mentor-Protege Program for \$500.

Ensign, W. E. 2000. Development of a facility for the production of fathead minnows (*Pimephales promelas*) for use in physiological, ecological, and toxicological research. Funding from the Kennesaw State University Mentor-Protege Program for \$715.

Ensign, W. E. and E. E. Leonard. 1998. Diel habitat use by the Mobile logperch (*Percina sp.*) in Stamp Creek, Cherokee County, Georgia. Funding from the Kennesaw State University College of Science and Mathematics Mentor-Protege Program for \$1,275.

Ensign, W. E. 1998. Abundance and movement of yellowfin shiner (*Notropis lutipinnis*) in impacted and unimpacted Chattahooche River tributaries. Funding from the Kennesaw State University College of Science and Mathematics Mentor-Protege Program for \$1,997.

Ensign, W. E., J. D. Hendrix, and H. D. Sutton. 1998. Interactive biodiversity: A teaching tool for introductory biology. Funding from the Kennesaw State University Master Teaching Program for \$14,219.

Ensign, W. E. 1993. Fisheries and Wildlife Graduate Student Association Natural Resources Speakers Series. Funding from the Virginia Tech Graduate Student Budget Regranting Board for \$3,510.

Honors and Awards

Meritorious Teaching Award, Association of Southeastern Biologists, April 2015

Distinguished Scholarship Award, Kennesaw State University College of Science and Mathematics. 2010

Distinguished Scholarship Award, Kennesaw State University College of Science and Mathematics. 2001

A. B. Massey Award as Outstanding Graduate Student in the College of Forestry and Wildlife Resources, Department of Fisheries and Wildlife Sciences, 1993-1994.

Outstanding Member of the Virginia Tech Chapter of the American Fisheries Society for 1992-1993.

Professional Affiliations and Activities

Southeastern Fishes Council (2008-present)

Association of Southeastern Biologists (1999-present)

Student Awards Committee (2008-2015)

Chair (2010, 2015)

Executive Committee At-large Member (2012 – 2015)

Vice-President (2016 – present)

Society for Freshwater Science (2015-present)

Served as a reviewer for the following journals:

Copeia, Canadian Journal of Fisheries and Aquatic Sciences, Fisheries Management and Ecology, Freshwater Biology, Hydrobiologia, Journal of the North American Benthological Society, North American Journal of Fisheries Management, Proceedings of the Southeastern Association of Fisheries and Wildlife Agencies, Southeastern Naturalist, Transactions of the American Fisheries Society

Courses Taught

Biological Principles II

Introduction to the Culture and Methods of Biology

Introduction to Natural Resources

Scientific Principles and Process I

Scientific Principles and Process II

Fisheries Management

Ecology

Conservation and Management of Biological Resources

Aquatic Biodiversity

Methods in Aquatic Ecology

Vertebrate Zoology

Honors Colloquium: Resource Use

Habitat Selection (Graduate Course)

Stream Habitat Management (Graduate course)

Methods in Integrative Biology (Graduate course)