Dr. Derek H. Ogle

derekogle.com

EDUCATION

Ph.D. (1996), University of Minnesota, Fisheries.

Dissertation Title: *"The Temporal Signature Technique for Assigning Age to Fish: Introduction, Development, and Software."*

Brief Description: *Developed the temporal signature technique, a statistical method to estimate age from the incomplete growth history found on a fish's scales. Authored computer programs to perform temporal signature analyses and to readily manipulate growth increment data files. Designed and conducted research into critical life history traits that may affect age and growth analyses for Lake Trout (*Salvelinus namaycush*).*

M.S. (1992), University of Minnesota, Fisheries.

Thesis Title: *"Trophic Relations of Ruffe (*Gymnocephalus cernuus (L.)*) in the St. Louis River Harbor, Lake Superior."*

Brief Description: *Assisted in the design and supervised the execution of a stratified, random sampling program to monitor the population dynamics of Ruffe and other species, collect Ruffe for biological analyses, and collect potential predators of Ruffe for diet analysis. Specifically, analyzed the temporal, spatial, and diel diets of Ruffe and the diets of potential predators of Ruffe. The results from this research are some of the first data collected for this species in North America and have served as the scientific basis for further research and management.*

B.S. (1989), Northland College, Environmental Studies (Biophysical). Magna cum laude.

ACADEMIC POSITIONS

Professor of Mathematical Sciences, Northland College, 2019-2022

Professor of Mathematical Sciences & Natural Resources, Northland College, 2012-2019

Professor of Mathematical Sciences, Northland College, 2009-2012

Honorary Associate, College of Natural Resources, University of Wisconsin Stevens Point, 2014-2020

Associate Professor of Mathematics, Northland College, 2000-2009

Assistant Professor of Mathematics, Northland College, 1998-2000

Visiting Assistant Professor of Mathematics, Northland College, 1996-1998

TEACHING

Experience:

Professorship, Northland College.

Introduction to Statistical Concepts and Applications (originally called Elementary Statistics) – *lecture and laboratory material covered univariate and bivariate exploratory data analysis, including regression; producing data including designing experiments and random sampling; concepts of inference including probability, sampling distributions, confidence intervals, and hypothesis testing; specific hypothesis tests including 1-sample z, 1-sample t, matched-pairs t, 2-sample t, 1-sample proportions, and chi-square. Course website.*

Biometry – *lecture and laboratory material covered intermediate linear models (simple linear regression, one-way ANOVA, two-way ANOVA, indicator variable regression with ANCOVA, and logistic regression) and probability including basic theory, named distributions, and applications to natural resources topics. Course website.*

Communicating Ideas with Great Graphs from R – lecture (online) and laboratory material that covered principles for constructing a wide variety of graphs in R to convey a message to a variety of audiences. *Course website*.

Fisheries Science and Management – *lecture materials covered sampling fish populations for the purpose of examining population dynamics including estimates of population size, mortality rate, growth rate, and stock-recruitment relationships. Weekly field experiences included sampling fish with gillnets (aboard WiDNR R/V Hack Noyes), bottom trawls (with USFWS), seining (with WiDNR), and fyke nets; collecting biological information (length, weight, ageing structures); clipping and tagging fish; and observing habitat enhancement structures. The management process was also discussed and students were responsible for researching the efficacy of various specific regulations for managing a specific fish species.*

Environmental Mathematics in the Lake Superior Watershed – *lecture and laboratory materials for a liberal education mathematics course around environmental issues primarily focused on issues in the Lake Superior watershed. Mathematical topics included accuracy and precision; unit conversions; ratios, proportions, and percentages; basic summary statistics and graphics; linear, exponential, and power functions; double- and half-lives; basic series and sequences; and basic difference equations. This course was formerly called "Superior Fisheries."*

Environmental Mathematics – *lecture and laboratory materials for a liberal education mathematics course around a theme of environmental issues. Mathematical topics included accuracy and precision; unit conversions; ratios, proportions, and percentages; basic summary statistics and graphics; linear, exponential, and power functions; double- and half-lives; basic series and sequences; and basic difference equations.*

Experimental Design and Applied ANOVA -- *lecture and laboratory material covered single factor, factorial, complete block, Latin-square, repeated-measures, and nested designs. Related analyses included the concepts of sources of variance and partitioning, one-way and multi-way ANOVAs, multiple comparisons, transformations, and pseudoreplication. This course was replaced with Biometry.*

Sample Design and Applied Linear Models -- *lecture and laboratory material covered the design, analysis, and comparison of simple random, stratified random, cluster, multi-stage, systematic, and non-random (including line-transect and point-count methods) sampling strategies. The identification of primary and secondary sampling units, pseudoreplication, and other inappropriate designs was emphasized. Introduction to the concept of variance partitioning and identification of residual and model variation; simple and multiple regression including diagnosing assumption violations, variable transformation, use of indicator variables, analysis of interactions, and analysis of covariance. This course was replaced with Biometry.*

Applied Statistics – *lecture and laboratory material covered advanced analysis of linear models including multiple regression, ANOVA, and contingency tables. Assumptions, diagnostics, and inferential interpretations were emphasized for each model. Non-parametric statistics were introduced. This course was replaced with Experimental Design and Applied ANOVA and Sampling Design and Applied Linear Models and later returned as Biometry.*

Mathematical Statistics – *lecture material covered probability, discrete random variables, expectation, discrete and continuous probability distributions, sampling distributions, estimation, and decision-making, including Bayesian concepts.*

Multivariate Statistics – *lecture and laboratory material covered the introduction and application of matrix algebra techniques; analysis of covariance and correlation structures including principal component, factor, and canonical correlation analyses; discrimination and clustering techniques; and inferences about multivariate means including Hotelling's T^2 and MANOVA.*

Finite Mathematics – *lecture material covered basic algebra review including logarithms, functions, and linear functions; linear equations including Gauss-Jordan, Gaussian elimination, and matrix algebra; linear programming; mathematics of finances including simple and compound interest, annuities, and loan amortizations; counting techniques including permutations and combinations; and basic probability.*

Problem Solving – *lecture and lab material covered mental mathematics tools, basic algebra review including logarithms, functions, and linear functions; mathematics of finances including simple and compound interest, annuities, and loan amortizations; counting techniques including permutations and combinations; and basic probability. This course was replaced with Finite Mathematics.*

Pre-Calculus – *lecture material covered the real number system, functions and graphs, polynomials and zeroes, rational functions, exponential and logarithmic functions, trigonometric functions, solutions of triangles, and elements of coordinate geometry.*

Mathematical Modeling – *lecture and lab material covered deterministic, stochastic, and simulation models including differential and difference equation population, predator-prey, competition, genetic, Markov chain, and linear programming models.*

Northland Highways – *discussions provided freshman an introduction to college life to help the student become integrated with the college community, become familiar with the goals of a college education, establish personal and academic goals, and acquire information needed to succeed in the first-year of college. This course was formerly called "Northland Seminar."*

Communicating Ideas with Great Graphics from R – *an online course that taught students how to create elegant and engaging data visualizations using the "grammar of graphics" through the ggplot2 R package. The foundation of the grammar was introduced though examples drawn from a variety of fields including the environmental, natural resources, and social sciences; business; and sports.* Course website.

Workshop/Short Course Instructor

17. Introductory Fisheries Analyses with R (2018), Midwest Fisheries and Wildlife Conference, Milwaukee, WI. – Instructor for one day course that described the foundational theory of common fisheries population dynamic rate functions and how to estimate function parameters in R. Course website.
16. R for Fisheries Population Dynamics (2017), Western Division of the American Fisheries Society Student Colloquium – Instructor for one day course that described the foundational theory of common fisheries population dynamic rate functions and how to estimate function parameters in R. Course website.
15. Introduction to R and Statistics with Fisheries Examples (2016), Division of Fisheries and Sealing, Nunavut Territorial Government, Iqaluit, Nunavut, CA – Instructor for a four day workshop to introduce R and fisheries analyses to graduate students and professionals in the fisheries and wildlife fields. *Course website*.
14. Age and Growth Analyses with R (2016), 146th Annual Meeting of the American Fisheries Society at Kansas City, MO – Instructor for a one day continuing education course demonstrating the use of R for age comparisons, age-length keys, and growth modeling. *Course website*.
13. Introduction to R Using the FM Database (2016), Wisconsin Department of Natural Resources at Wisconsin Dells, WI – Primary instructor for an 0.5 day training on loading FM data (DNR's database) into R, basic data manipulations, and size structure summaries for biologists and technicians in the Wisconsin DNR. *Course website*.
12. Age and Growth Analyses with R (2015), 145th Annual Meeting of the American Fisheries Society at Portland, OR – Instructor for a one day continuing education course demonstrating the use of R for age comparisons, age-length keys, and growth modeling. *Course website*.
11. Introduction to R Using the FM Database (2015), Wisconsin Department of Natural Resources at Madison, WI – Primary instructor for an 1.5 day training on loading FM data (DNR's database) into R, basic data manipulations, size structure summaries, and analyzing age data for biologists and technicians in the Wisconsin DNR. *Course website*.
10. Introduction to R using Fisheries Examples (2014), Vermont Cooperative Fish and Wildlife Research Unit – a 3 day workshop to introduce R and fisheries analyses to graduate students and professionals in the fisheries and wildlife fields. *Course website*.
9. Wisconsin DNR Age and Growth Workshop II (2014), Wisconsin Department of Natural Resources at Stevens Point, WI – Co-instructor (with Dr. Daniel Isermann, University of Wisconsin – Stevens Point and Ryan Koenigs,

Wisconsin DNR) with responsibilities for instruction on the concepts and application of models for back-calculation, von Bertalanffy growth, and comparing growth metrics among populations. *Course website*.

8. Analyzing Age Data with R (2013), Minnesota Chapter of the American Fisheries Society at St. Paul, MN – primary instructor for a 1.5 day continuing education workshop designed to introduce intermediate R users to methods for analyzing common data related to age assessments. Part of a 3-day workshop that also included a 1.5 day workshop on gathering age assessment data that was primarily taught by Dr. Daniel Isermann, University of Wisconsin – Stevens Point.
7. Introduction to R Using Basic Fisheries Methods (2012), Midwest Fish & Wildlife Conference at Wichita, KS – *A one day continuing education workshop designed to introduce R to fisheries professionals.*
6. Introduction to R Using Basic Fisheries Methods (2012), Joint Meeting of the Walleye, Centrarchid, and Esocid Technical Committees of the North Central Division of the American Fisheries Society at Hayward, WI – *A one day continuing education workshop designed to introduce R to fisheries professionals.*
5. Introduction to R Using Basic Fisheries Methods (2011), Minnesota Chapter of the American Fisheries Society at Duluth, MN – *A 1.5 day continuing education workshop designed to introduce R to fisheries professionals.*
4. Statistics Refresher for Fisheries Professionals (2010), Minnesota Chapter of the American Fisheries Society at Duluth, MN – *A 1.5 day continuing education workshop designed to provide a refresher on basic statistical methods used by fisheries professionals.*
3. Fisheries Population Dynamics (2008), Minnesota Department of Natural Resources, Research Section (with Dr. George Spangler, University of Minnesota) – *A week-long short course designed specifically for MnDNR research personnel as a review and update on the current state of analytical population dynamics methodology with an emphasis on performing analyses in R.*
2. Modern Population Dynamics (2005), Minnesota Chapter of the American Fisheries Society at Duluth, MN (with Dr. George Spangler, University of Minnesota) – *A 2-day continuing education workshop designed for fisheries professionals and graduate students as a review and update on the current state of analytical population dynamics methodology. My portion of the workshop included an introduction to the R programming language, use of R in length-weight regressions, Von Bertalanffy growth models, length-age keys, and Weisberg's linear growth model. In addition, I discussed the current state of the temporal signature technique.*
1. Beginning Web Pages (1999), WFIC/Ameritech workshop at Northland College (with Carol Sabbar, Carthage College) -- *A workshop designed for college faculty and staff who have never created web pages but have some basic computing skills, such as word processing and web surfing. The workshop covered the basics of web page creation, including text, images, and links to other pages and web sites. Participants created an entire web page from start to finish.*

Teaching Assistant & **Laboratory Instructor** (1996), Univ. Minnesota, Dept. Fisheries & Wildlife.

Assessment and Management of Vertebrate Populations -- *Introduction to theory and methods for estimating vital statistics of fish populations. Students used statistical software to describe and model attributes of fish populations in case studies drawn from the literature of marine and freshwater fisheries management.*

Invited Guest Lecturer

Biology Capstone (2008, 2010, 2013), Northland College, Biology Department – *Presentation on the "Temporal Signature Technique" as a demonstration of professional presentations.*

Fishery Science (2005), Univ. Minnesota, Dept. Fisheries & Wildlife – *R programming for fisheries scientists.*

Philosophy of Science (2001), Northland College, Philosophy and Religion Department -- *Brief introduction to statistics and the use of statistics in science.*

Introduction to Fisheries and Wildlife (1993), Univ. Minnesota, Dept. Fisheries & Wildlife. -- *Brief history of exotic species in the Great Lakes.*

Assessment and Management of Vertebrate Populations (1994, 1995), Univ. Minnesota, Dept. Fisheries & Wildlife. -- *Determination of age and growth from calcified structures of terrestrial and aquatic vertebrates. Analysis of growth of fishes using a variety of statistical models.*

Development (Seminars, Workshops, Short Courses, and Professional Webinars):

A Gentle Introduction to Program MARK for Fisheries Scientists, a one-day continuing education course taught by Dr. Jim Petersen at the 145th Annual Meeting of the American Fisheries Society, Portland, OR, August 2015.

Master R Developer Workshop, a two day course taught by Dr. Hadley Wickham from RStudio, Chicago, IL 27-28May2015.

Introduction to linear mixed effects models and GLMM with R, a week-long course taught by Drs. Alain Zuur and Elena Ieno, Highland Statistics, LTD, Banff, Alberta, Canada, June 2013.

Linear Quantile Regression, a two-hour webinar taught by Dr. Brian Cade from U.S. Geological Society, Fort Collins Science Center, 12March2009.

Regression Modeling Strategies, a continuing education workshop taught by Dr. Frank Harrel at the 2007 UseR Conference, Iowa State University, Ames, IA, June 2007.

Biological Statistics for Fisheries Management, a continuing education workshop sponsored by the Wisconsin Chapter of the American Fisheries Society, University of Wisconsin – Stevens Point, January 2006.

Mixed Models for Environmetric Applications, a graduate level course in the Statistics Department, University of Minnesota, Spring 2005.

Assessment: A Shared Commitment, sponsored by the American Association for Higher Education, (Boston, MA), June 2003.

Assessment of General Education and Values Assessment in Higher Education, sponsored by St. Norbert College, (DePere, WI), April 2002

Making Assessment Meaningful: Practical Approaches to Documenting and Using Evidence for Student Learning, sponsored by The Collaboration for the Advancement of College Teaching and Learning, (Bloomington, MN), November 2001.

Changing Institutional Priorities: Developing a Shared Understanding of the Value of Assessing Student Learning, sponsored by the American Association of Higher Education, (Denver, CO), June 2001.

Beyond the Formula III, (Rochester, NY), August 1999

Classrooms of the Future, (Macalaster College, St. Paul, MN), May 1999

Learning and Teaching Online, *14th Annual Conference on Distance Teaching & Learning* (Madison, WI), August 1998.

Computer-Intensive Simulation: Bootstrapping and Approximate Randomization in the Elementary Statistics Course, Chautauqua course at St. Thomas University (St. Paul, MN), August 1998.

Statistics: An Indispensable Tool for Decision-Making, Chautauqua course at Christian Brothers University (Memphis, TN), July 1998.

Technology in Statistics Education: A One-day Conference for Teachers of Statistics, sponsored by the Boston Chapter of the American Statistical Association (at Babson College), March 1998.

Enhancing Learning through Electronic Media, sponsored by Ameritech/WFIC (at Alverno College), July 1997.

Bayesian Data Analysis (0.6 CEUs), American Statistical Association Annual Meeting (Chicago, IL), August 1996.

Teaching Bayesian Statistics in Introductory Classes, American Statistical Association Annual Meeting (Chicago, IL), August 1996.

Presentations:

Belmont, C., and **D.H. Ogle**. Using the Web in Teaching. Northland College Faculty Development Workshop. 28 October 1999.

Ogle, D.H. Webpage and PowerPoint use in an interactive television course. 25 February 1999.

Ogle, D.H. Fisher's Web. Northland College Brown-Bag Luncheon Series. 18 March 1998.

RESEARCH:

Books

1. **Ogle, D.H.** 2015. Introductory Fisheries Analyses with R. Chapman & Hall/CRC. ISBN 9781482235203. Book website.

Book Chapters

1. **Ogle, D.H.**, T.O. Brenden, and J.L. McCormick. 2017. Growth Estimation: Growth Models and Statistical Inference. In Quist, M.C. and D.A. Isermann, editors. Age and Growth of Fishes: Principles and Techniques. American Fisheries Society. ISBN: 978-1-934874-48-6. Book website.

Peer-reviewed publications (*=Northland College student author,^=Other student author):

28. Lant*, M.L., **D.H. Ogle**, Z.S. Feiner, and G.G. Sass. 2022. Does local knowledge matter? A comparison of fish catch rates among local, non-local, and non-resident anglers of three northern Wisconsin lakes. Fisheries Research 250:106286. DOI: 10.1016/j.fishres.2022.106286
27. Young^, A.L., R.F. Tallman, and **D.H. Ogle**. 2021. Life history variation in Arctic charr (*Salvelinus alpinus*) and the effects of diet and migration on the growth, condition and body morphology of two Arctic charr populations in Cumberland Sound, Nunavut. Arctic Science 7:436-453. DOI: 10.1139/AS-2019-0036
26. Lusk, S.C., C.R. Middaugh, and **D.H. Ogle**. 2021. Evaluating the performance of methods used to estimate growth parameters from subsampled age data. North American Journal of Fisheries Management 41:570-584. [FEATURED PAPER] DOI: 10.1002/nafm.10570
25. Robinson K.F., C.R. Bronte, D.B. Bunnell, P.T. Euclide, D. Hondorp, J.A. Janssen, M.S. Kornis, **D.H. Ogle**, W. Otte*, S.C. Riley, M.R. Vinson, S.L. Volkel, and B. Weidel. 2020. A synthesis of the biology and ecology of sculpin species in the Laurentian Great Lakes and implications for the adaptive capacity of the benthic ecosystem. Reviews in Fisheries Science & Aquaculture 29:96-121. DOI: 10.1080/23308249.2020.1782341
24. Crane, D.P., **D.H. Ogle**, D.E. Shoup. 2019. Use and misuse of a common growth metric: guidance for appropriately calculating and reporting specific growth rate. Reviews in Aquaculture. 12:1542-1547. DOI: 10.1111/raq.12396
23. Embke^, H.S., A.L. Rypel, S.R. Carpenter, G.G. Sass, **D.H. Ogle**, T. Chichosz, J. Hennessy, T.E. Essington, M.J. Vander Zanden. 2019. Production dynamics reveal hidden overharvest of inland recreational fisheries. Proceedings of the National Academy of Sciences. 116(49):24676-24681. DOI: 10.1073/pnas.1913196116
22. Puchala^, E.A., D.L. Parrish, and **D.H. Ogle**. 2018. Size and age of Lake Champlain Stonecats: Estimating growth at the margin of their range to aid in population management. North American Journal of Fisheries Management. 38:1316-1323. DOI: 10.1002/nafm.10230
21. Lepak*, T.A., **D.H. Ogle**, and M.R. Vinson. 2017. Age, year-class strength variability, and partial age validation of Kiyis from Lake Superior. North American Journal of Fisheries Management. 37:1151-1160. DOI: 10.1080/02755947.2017.1350222
20. **Ogle, D.H.** and D.A. Isermann. 2017. Estimating age at a specified length from the von Bertalanffy growth function. North American Journal of Fisheries Management. 37:1176-1180. DOI: 10.1080/02755947.2017.1342725
19. **Ogle, D.H.** 2017. An algorithm for the von Bertalanffy seasonal cessation in growth function of Pauly *et al.* (1992). Fisheries Research 185:1-5. DOI: 10.1016/j.fishres.2016.09.020
18. Menebroeker*, R.C., P.S. Anich, **D.H. Ogle**, and N.M. Anich. 2016. Recent declines in Gray Jays on Christmas bird counts in northern Wisconsin. The Passenger Pigeon 78:161-170. Full Text
17. Stewart*, T.R., **D.H. Ogle**, and M.R. Vinson. 2016. Age and growth of Lake Superior Pygmy Whitefish, *Prosopium coulterii*. American Midland Naturalist. 175:24-36. DOI: 10.1674/amid-175-01-24-36.1

16. Brunk*, K.M., M.R. Vinson, **D.H. Ogle**, and L.M. Evrard**.** 2014. Burrowing mayfly population in Chequamegon Bay: 2002 and 2012. Journal of Freshwater Ecology 29:337-344. DOI: 10.1080/02705060.2014.896294
15. **Ogle, D.H.** and K.F. Schanning. 2012. Use of 'sex' and 'gender.' Fisheries (Bethesda). 37:271-272. DOI: 10.1080/03632415.2012.687265
14. Garcia-Berthou, E., G. Carmona-Catot, R. Merciai, and **D.H. Ogle**. 2012. A technical note on Somers (1988) seasonal growth model. Reviews in Fish Biology and Fisheries. 22:635-640. DOI: 10.1007/s11160-012-9262-x
13. Czypinski, G.D. and **D.H. Ogle**. 2011. Evaluating the physical removal of Ruffe (*Gymnocephalus cernuus*) with bottom trawling. Journal of Freshwater Ecology. 26:442-443. DOI: 10.1080/02705060.2011.569336
12. Austin*, M.L., B. Martin, A. Yoshino, K. Schanning, **D.H. Ogle**, and R. Mittelstaedt. 2010. The intersection of community and place in an outdoor orientation program. Journal of Outdoor Recreation, Education, and Leadership. 2:74-92.
11. **Ogle, D.H.** and I.J. Winfield. 2009. Ruffe weight-length relationships with a proposed standard weight equation. North American Journal of Fisheries Management. 29:850-858. DOI: 10.1577/M08-176.1
10. Austin*, M.L., B. Martin, R. Mittelstaedt, K. Schanning, and **D.H. Ogle**. 2009. Outdoor orientation program effects: Sense of place and social benefits. Journal of Experiential Education 31:435-439. DOI: 10.5193/JEE.31.3.390
9. **Ogle, D.H.** 2009. The effects of freezing on the length and weight measurements of Ruffe (*Gymnocephalus cernuus*). Fisheries Research 99:244-247. DOI: 10.1016/j.fishres.2009.06.009
8. **Ogle, D.H.** and L. Kret*. 2008. Experimental evidence that captured Rusty Crayfish (*Orconectes rusticus*) exclude uncaptured rusty crayfish from entering traps. Journal of Freshwater Ecology. 23: 123-129. DOI: 10.1080/02705060.2008.9664563
7. **Ogle, D.H.,** B.A. Ray*, and W.P. Brown. 2004. Diet of larval Ruffe (*Gymnocephalus cernuus*) in the St. Louis River Harbor, Lake Superior. Journal of Great Lakes Research 30:287-292. DOI: 10.1016/S0380-1330(04)70346-9
6. **Ogle, D.H.** 1998. A synopsis of the biology and life history of Ruffe. Journal of Great Lakes Research. 24:170-185. DOI: 10.1016/S0380-1330(98)70811-1
5. **Ogle, D.H.**, and G.R. Spangler**.** 1996. Check formation on the scales of hatchery-reared lake trout prior to and soon after release into Lake Superior. North American Journal of Fisheries Management 16:896-904. DOI: 10.1577/1548-8675(1996)016<0896:CFOTSO>2.3.CO;2
4. **Ogle, D.H.**, R.C. Pruitt, G.R. Spangler, and M.J. Cyterski. 1996. A Bayesian approach to assigning probabilities to fish ages determined from temporal signatures in growth increments. Canadian Journal of Fisheries and Aquatic Sciences 53:1788-1794. DOI: 10.1139/f96-110
3. **Ogle, D.H.,** J.H. Selgeby, J.F. Savino, R.M. Newman, and M.G. Henry. 1996. Predation on Ruffe by native fishes of the St. Louis River Estuary, Lake Superior, 1989-1991. North American Journal of Fisheries Management 16:115-123. DOI: 10.1577/1548-8675(1996)016<0115:PORBNF>2.3.CO;2
2. **Ogle, D.H.,** J.H. Selgeby, R.M. Newman, and M.G. Henry. 1995. Diet and feeding periodicity of Ruffe (*Gymnocephalus cernuus*) in the St. Louis River Harbor, Lake Superior. Transactions of the American Fisheries Society 124:356-369. DOI: 10.1577/1548-8659(1995)124<0356:DAFPOR>2.3.CO;2
1. **Ogle, D.H.**, G.R. Spangler, and S.M. Shroyer. 1994. Determining fish age from temporal signatures in growth increments. Canadian Journal of Fisheries and Aquatic Sciences 51:1721-1727. DOI: 10.1139/f94-173

Technical reports, non-reviewed publications, and theses:

23. **Ogle, D.H.** 2013. Inch Lake Fish Community Study 2007-2013. Progress Report submitted to the Wisconsin DNR.
22. **Ogle, D.H.** 2011. Simulations to aid understanding mark-recapture assumptions. American Fisheries Society Education Section Newsletter 32(1):4-5.
21. **Ogle, D.H.** 2010. fishR: Using R for fisheries analysis – A website. American Fisheries Society Fish Information and Technology Section Newsletter 2010(Fall):4-5.
20. **Ogle, D.H.** 2009. fishR: Using Program R for fisheries analyses. American Fisheries Society Education Section Newsletter 30(1):13.

19. **Ogle, D.H.**, A. BeBault, D. Biersteker, B. Braden, L. Schmidt, J. Spiegel, B. White, and A. Young. 2008. Beaver and Nymphia Lakes Trout Population Assessment, October 2008. Final Report submitted to the Wisconsin DNR and U.S. Forest Service.
18. **Ogle, D.H.** 2008. Happles Lake Baseline Study, September, 2007 and May, 2008. Progress Report submitted to the Wisconsin DNR and U.S. Forest Service.
17. **Ogle, D.H.** 2007. Inch Lake Baseline Study, 2007-8. Progress Report submitted to the Wisconsin DNR.
16. **Ogle, D.H.** 2007. Inch Lake Baseline Study, May, 2007. Progress Report submitted to the Wisconsin DNR.
15. Schanning, K.F., and **D.H. Ogle.** 2001. Attitudes concerning development and satisfaction with services in a small lakeshore community: Lessons for the future. Conference Proceedings: 14th Conference on the Small City and Regional Community.
14. **Ogle, D.H.** 1996. The temporal signature technique for assigning age to fish: Introduction, development, and software, Volume 1. Ph.D. Dissertation, University of Minnesota, St. Paul, MN. 201 p.
13. **Ogle, D.H.** 1996. The temporal signature technique for assigning age to fish: Software code, Volume 2. Ph.D. Dissertation, University of Minnesota, St. Paul, MN. 201 p.
12. **Ogle, D.H.**, R.C. Pruitt, G.R. Spangler, and M.J. Cyterski. 1995. The temporal signature technique in a Bayesian Framework. Graduate Student Symposium on Fish Population Dynamics and Management. Fisheries Centre Research Reports 3(2):19.
11. **Ogle, D.H.**, and S. Weisberg. 1995. Linear Growth Model Program: Windows and Macintosh Versions. A manual distributed with the program disks by Minnesota Sea Grant.
10. **Ogle, D.H.** 1995. Notice of availability and summary of "Ruffe (*Gymnocephalus cernuus*): A Review of Published Literature." American Fisheries Society Introduced Fishes Section Newsletter 14(1):9.
9. **Ogle, D.H.** 1995. Notice of availability and summary of "Diet and feeding periodicity of Ruffe in the St. Louis River estuary, Lake Superior." American Fisheries Society Introduced Fishes Section Newsletter 14(1):8.
8. **Ogle, D.H.** 1995. Ruffe (*Gymnocephalus cernuus*): An Annotated Bibliography. Available via Minnesota Sea Grant Gopher (Internet).
7. **Ogle, D.H.** 1995. Ruffe (*Gymnocephalus cernuus*): A Review of Published Literature. Wisconsin Department of Natural Resources, Bureau of Fisheries Management, Administrative Report no. 38.
6. Selgeby, J.H., and **D.H. Ogle**. 1992. Biology of Ruffe. pages 24-39 *in* Ruffe in the Great Lakes: A Threat to North American Fisheries. Report of the Ruffe Task Force of the Great Lakes Fishery Commission.
5. **Ogle, D.H**. 1992. Trophic relations of Ruffe (*Gymnocephalus cernuus* (L.)) in the St. Louis River Harbor, Lake Superior. M.S. Thesis, University of Minnesota, St. Paul, MN. 173 p.
4. Selgeby, J.H., and **D.H. Ogle**. 1992. Trophic relations of Ruffe and status of ongoing research in the St. Louis River Estuary, Lake Superior, 1991. Great Lakes Fishery Commission, Lake Superior Committee. 10 p.
3. **Ogle, D.H**. 1991. Ruffe in Lake Superior. Minnesota Chapter of the American Fisheries Society, Newsletter, October 1991:8.
2. Selgeby, J.H., and **D.H. Ogle**. 1991. Trophic relations of Ruffe and status of ongoing research in the St. Louis River Estuary, Lake Superior, 1990. Great Lakes Fishery Commission, Lake Superior Committee. 15 p.
1. Selgeby, J.H., and **D.H. Ogle**. 1990. Trophic relations of Ruffe and status of ongoing research in the St. Louis River Estuary, Lake Superior, 1989. Great Lakes Fishery Commission, Lake Superior Committee.

Presentations and Posters at Scientific Meetings (*=NC student author,^=Other student author):

59. Lant*, M.J., G.G. Sass, Z.S. Feiner, and **D.H. Ogle.** 2022. Does local knowledge matter? Explaining catch rates among angler groups of three northern Wisconsin lakes. Dakota Chapter of the American Fisheries Society Annual Meeting. 22-24 Feb 2022.
58. Lant*, M.J., G.G. Sass, Z.S. Feiner, and **D.H. Ogle**. 2021. Does local knowledge matter? Using ZIP code information to compare catch rates among local, non-local, and non-resident anglers of three northern Wisconsin lakes. North Dakota Chapter of The Wildlife Society Annual Meeting, VIRTUAL. 8 Feb 2021.

57. Lant*, M.J., G.G. Sass, Z.S. Feiner, and **D.H. Ogle**. 2021. Does local knowledge matter? A comparison of fish catch rates among local, non-local, and non-resident anglers of three northern Wisconsin lakes. Wisconsin Chapter of the American Fisheries Society Annual Meeting, VIRTUAL. 7-10 Feb 2021.
56. Middaugh, C.R., S.C. Lusk, and **D.H. Ogle**. 2021. Evaluating the performance of methods used to estimate growth parameters from subsampled age data. American Fisheries Society Annual Meeting, Baltimore, MD. Oct 2021.
55. Edwards^, R., T. Skiles^, T.C. Roberts, D. Hanson, A. Latzka, **D.H. Ogle**, S. Sitar, T. Treska, and W. Fetzer. 2021. Development of a platform to facilitate remote collaboration and improve accuracy and precision of fish aging. Western Division of the American Fisheries Society Annual Meeting, VIRTUAL, 10 Mar 2021.
54. Lant*, M.J., G.G. Sass, Z.S. Feiner, and **D.H. Ogle**. 2021. Explaining catch rates among local, non-local, and non-resident anglers of Wisconsin's Northern Highland Fishery Research Area lakes. Wisconsin Chapter of the American Fisheries Society Annual Meeting, VIRTUAL. 8-11 Feb 2021.
53. **Ogle, D.H.** Demonstration of the RFishBC package at the R-Expo. Wisconsin Chapter of the American Fisheries Society Annual Meeting, Eau Claire, WI. 4-6 February 2020.
52. Otte*, J.T., **D.H. Ogle**, and M.R Vinson. Length, age, and growth of Deepwater Sculpin from shallow and deep waters of Lake Superior. Wisconsin Chapter of the American Fisheries Society Annual Meeting, Green Bay, WI. 19-21 February 2019.
51. **Ogle, D.H.** RFishBC. (poster) Wisconsin Chapter of the American Fisheries Society Annual Meeting, Green Bay, WI. 19-21 February 2019.
50. Lyons*, J. and **D.H. Ogle**. Precision metrics summarized from 20+ years of fish age estimation studies. (poster) Wisconsin Chapter of the American Fisheries Society Annual Meeting, Green Bay, WI. 19-21 February 2019.
49. Embke H.^, S.R. Carpenter, T. Cichosz, D. Goto, J. Hennessy, **D.H. Ogle**, A. Rypel, G. Sass, and J. Vander Zanden. 2018. Declining productivity leads to hidden overfishing of inland recreational fisheries. Association for the Sciences of Limnology and Oceanography Summer Meeting. Victoria, British Columbia. 10-15 June 2018.
48. Gilligan*, E.K. and **D.H. Ogle**. Using model for tag-recapture data to assess growth of Bluegill and Largemouth Bass in Inch Lake, Wisconsin. (poster) Wisconsin Chapter of the American Fisheries Society Annual Meeting, Milwaukee, WI. 30 February – 1 March 2017.
47. Kopp*, D.R., **D.H. Ogle**, and W.P. Mattes. An historical comparison of Lake Superior Sea Lamprey fecundity and egg characteristics. (poster) Wisconsin Chapter of the American Fisheries Society Annual Meeting, Milwaukee, WI. 30 February – 1 March 2017.
46. Mrnak, J.T., **D.H. Ogle**, and L.S. Tate. Prototype R function for computing the Lyons *et al.* (2001) Wisconsin Large-River IBI. (poster) Wisconsin Chapter of the American Fisheries Society Annual Meeting, Milwaukee, WI. 30 February – 1 March 2017.
45. **Ogle, D.H.** and D.A. Isermann. Modified von Bertalanffy growth function to directly estimate the age at a critical length. Wisconsin Chapter of the American Fisheries Society Annual Meeting, LaCrosse, WI. 17-19 February 2016.
44. Mrnak*, J.T., **D.H. Ogle**, and M.R. Vinson. What is the best method to estimate the age of Rainbow Smelt and has their age and growth in Whitefish Bay, Lake Superior changed in the last 35 years? (poster) Wisconsin Chapter of the American Fisheries Society Annual Meeting, LaCrosse, WI. 17-19 February 2016.
43. Windschitl*, K., **D.H. Ogle**, D. Boyarski, and M. Ward. Size and age characteristics of Leech Lake Burbot in 2002 and 2015. (poster) Wisconsin Chapter of the American Fisheries Society Annual Meeting, LaCrosse, WI. 17-19 February 2016.
42. Stewart*, T.R., **D.H. Ogle**, O.T. Gorman, and M.R. Vinson. Age, Growth, and Size of Lake Superior Pygmy Whitefish *Prosopium coulterii*. 145th Annual Meeting of the American Fisheries Society, Portland, OR. 16-21 August 2015.
41. Lebeda*, D.D., **D.H. Ogle**, G. Miller, R.P. Koenigs, and T.J. Haxton. Can a Fatmeter™ be used to determine the sex of Lake Sturgeon (*Acipenser fulvescens*)? (poster) Society of Freshwater Science Annual Meeting, Milwaukee, WI. 17-22 May 2015.

40. Menebroeker*, R.C., P.S. Anich, **D.H. Ogle**, and N.M. Anich. Recent declines in Gray Jays on Christmas Bird Counts in Northern Wisconsin. Minnesota-Wisconsin Chapters of The Wildlife Society Annual Meeting, Duluth, MN. March 2015. [*earned best student paper award*.]
39. Goethlich*, J., S. Klobucar, **D.H. Ogle**, and P. Budy. The Effects of Experimental Lake Fertilization on Condition and Diet of Slimy Sculpin (*Cottus cognatus*) in Oligotrophic Arctic Lakes, North Slope, AK. Wisconsin Chapter of the American Fisheries Society Annual Meeting, Eau Claire, WI. 24-26 February 2015.
38. Lepak*, T.A., **D.H. Ogle**, and M.R. Vinson. Age and Growth of *Coregonus kiyi* in Lake Superior. Wisconsin Chapter of the American Fisheries Society Annual Meeting, Eau Claire, WI. 24-26 February 2015.
37. Belnap^, M.J., D. Isermann, B. Sloss, J. VanDeHey, **D.H. Ogle**, and S. Hansen. Stock characteristics of Lake Whitefish in Lake Michigan. Wisconsin Chapter of the American Fisheries Society Annual Meeting, Green Bay, WI. 25-27 February 2014.
36. Stewart*, T.R., **D.H. Ogle**, and M.R. Vinson. Age and growth of Pygmy Whitefish, *Prosopium coulterii*, in Lake Superior. (poster) Wisconsin Chapter of the American Fisheries Society Annual Meeting, Green Bay, WI. 25-27 February 2014.
35. Mead*, J. **D.H. Ogle**, and S.E. Johnson. Effects of herbivore exclusion on Eastern Hemlock (*Tsuga Canadensis*) seedlings and associated plant communities in Northern Wisconsin, USA. National Council for Undergraduate Research Annual Meeting, LaCrosse, WI. 10-13 April 2013.
34. Harings*, M.A., and **D.H. Ogle**. Bluegill population dynamics following implementation of no-harvest regulations. (poster) Wisconsin Chapter of the American Fisheries Society Annual Meeting, Marinette, WI. 7-9 February 2012.
33. Seider, M.J., **D.H. Ogle**, S.C. Chong. Age, growth, and maturity of Siscowet Lake Trout in Lake Superior, 1994-2007. 54th Annual Conference on Great Lakes Research, International Association of Great Lakes Research, Duluth, MN. 31 May – 3 June 2011.
32. Bronte, C., S. Chong, **D.H. Ogle**, M. Seider, S. Sitar, M. Vinson. The biology of Siscowet Lake Trout in Lake Superior. Great Lakes Fishery Commission Annual Lake Committee Meeting. Ypsilanti, MI. 22 March 2011.
31. Davis-Foust^, S. and **D.H. Ogle**. Back-calculations vs. Biochronology: Is there a better method for interpreting fish growth responses. Wisconsin Chapter of the American Fisheries Society Annual Meeting. 31 January - 1 February 2011.
30. Schmidt*, L., M. J. Seider, and **D.H. Ogle**. A comparison of spatial distributions of Lake Whitefish in the Apostle Islands, 2007-2009, to historical distributions. . Wisconsin Chapter of the American Fisheries Society Annual Meeting, Stevens Point, WI. 31 January - 1 February 2011.
29. Czypinski, G. and **D.H. Ogle**. The effectiveness of bottom trawling in physically removing isolated colonies of Ruffe. (poster) Wisconsin Chapter of the American Fisheries Society Annual Meeting. 1-2 February 2010.
28. Davis-Foust^, S., R. Bruch, J. Janssen, G.R. Spangler, **D.H. Ogle**, and D.L. Pereira. Using a biochronology to detect the effects of Zebra Mussel establishment and food resource abundance. Wisconsin Chapter of the American Fisheries Society Annual Meeting. 1-2 February 2010. [*earned Steve Yeo Best Student Paper Award*]
27. Seider, M. and **D.H. Ogle**. Age, growth and maturity of Siscowet Lake Trout in Wisconsin waters of Lake Superior, 1994-2007. Wisconsin Chapter of the American Fisheries Society Annual Meeting. 1-2 February 2010. [*earned Steven Serns Best Professional Paper Award*]
26. Davis-Foust^, S., R. Bruch, G.R. Spangler, **D.H. Ogle**, and D.L. Pereira. Drumming out the truth in Lake Winnebago part II: Using otolith biochronologies to assess environmental impacts to Freshwater Drum populations. 139th Annual Meeting of the American Fisheries Society. 30 August - 3 September 2009. Nashville. TN.
25. Austin*, M.L., B. Martin, R. Mittelstaedt, K. Schanning, and **D.H. Ogle**. Outdoor orientation program effects: Sense of place and social benefits. Association for Experiential Education Annual International Conference. 6-8 November 2008. Vancouver, BC, Canada.
24. **Ogle, D.H.** and G.R. Spangler. FSA – R functions for fisheries stock assessment. (poster) Wisconsin Chapter of the American Fisheries Society Annual Meeting. 6 February 2008. Wausau, WI.

23. Grigas*, D.R. and **D.H. Ogle**. Effects of freezing on length and weight measurements of Ruffe (*Gymnocephalus cernuus*). (poster) Wisconsin Chapter of the American Fisheries Society Annual Meeting. 6 February 2008. Wausau, WI.
22. **Ogle, D.H.** and G.R. Spangler. FSA – R functions for fisheries stock assessment. (poster) 2007 UseR Conference. 11 June 2007. Ames, IA.
21. Schanning, K.F., and **D.H. Ogle.** Attitudes concerning development and satisfaction with services in a small lakeshore community: Lessons for the future. 14th Conference on the Small City and Regional Community. October 2000. Madison, WI.
20. **Ogle, D.H.** A Ruffe introduction. Ninth Zebra Mussel and Aquatic Nuisance Species Conference. 29 April 1999, Duluth, MN.
19. Czypinski, G.D., and **D.H. Ogle.** An experiment to evaluate the effectiveness of bottom trawling in physically removing isolated colonies of Ruffe. (poster) Ninth Zebra Mussel and Aquatic Nuisance Species Conference. 29 April 1999, Duluth, MN.
18. **Ogle, D.H.** Overview of Ruffe biology. International Symposium on the Biology and Management of Ruffe. 22 March 1997, Ann Arbor, MI.
17. Trexel^, J.D., R.M. Newman and **D.H. Ogle.** Ruffe prey selection and diet overlap with native fishes. International Symposium on the Biology and Management of Ruffe. 22 March 1997, Ann Arbor, MI.
16. Newman, R.M., **D.H. Ogle**, J.D. Trexel^ and F.G. Henson^. Trophic relations of Ruffe in North America: concern for interactions with native species. International Symposium on the Biology and Management of Ruffe. 22 March 1997, Ann Arbor, MI.
15. **Ogle, D.H.** Temporal signature with lake trout scales. Lake Superior Technical Committee of the Great Lakes Fishery Commission. January 28, 1997.
14. **Ogle, D.H.**, M.J. Cyterski, and G.R. Spangler. Ageing the Unageable: Use of Temporal Signatures (poster). American Fisheries Society, 125th Annual Meeting. 29 August 1995. Tampa, FL.
13. **Ogle, D.H.**, R.C. Pruitt, G.R. Spangler, and M.J. Cyterski. The temporal signature technique in a Bayesian Framework. 1st Annual Graduate Student Symposium on Fish Population Dynamics and Management. 23 April 1995. Vancouver, British Columbia, Canada.
12. **Ogle, D.H.** A Brief Introduction to the Temporal Signatures Technique. CSAGES Workshop. 9 February 1995. Glenora, Ontario, Canada.
11. **Ogle, D.H.**, G.R. Spangler, S.M. Shroyer, and M.J. Cyterski. Using temporal signatures to age fish with an example from Red Lakes, MN Walleye. American Fisheries Society, 124th Annual Meeting. 25 August 1994. Halifax, Nova Scotia, Canada.
10. Selgeby, J.H. and **D.H. Ogle** (presented by R.M. Newman). Impacts of invading Ruffe (*Gymnocephalus cernuus*) on the native fish community of the St. Louis River. 40th Annual North American Benthological Society Meeting. 27 May 1992. Louisville, KY. [Bulletin of the North American Benthological Society 9(1):84.]
9. **Ogle, D.H.** Update on research findings concerning the trophic relations of Ruffe in the St. Louis River Harbor, Lake Superior. Upper Lakes Committee Meeting, Great Lakes Fishery Commission. 18 March 1992. Duluth, MN.
8. Giese*, B.D., **D.H. Ogle**, R.M. Newman, and J.H. Selgeby**.** Back-calculation of the growth of European Ruffe. (poster). Minnesota Chapter of the American Fisheries Society, 25th Annual Meeting. 11 March 1992. Duluth, MN.
7. **Ogle, D.H.**, M.G. Henry, R.M. Newman, and J.H. Selgeby. Trophic relations of Ruffe in the St. Louis River Harbor, Lake Superior: A synopsis. Minnesota Chapter of the American Fisheries Society, 25th Annual Meeting. 11 March 1992. Duluth, MN.
6. **Ogle, D.H.**, M.G. Henry, R.M. Newman, and J.H. Selgeby. Predation on Ruffe by indigenous piscivores of the St. Louis River Harbor, Lake Superior. 53rd Midwest Fish and Wildlife Conference. 4 December 1991. Des Moines, IA.
5. Selgeby, J.H. and **D.H. Ogle**. Ruffe in the St. Louis River Harbor. Ruffe Task Force (Great Lakes Fishery Commission) meeting. 1 October 1991. Superior, WI.

4. **Ogle, D.H.** Update on research findings concerning the trophic relations of Ruffe in the St. Louis River Harbor, Lake Superior. Upper Lakes Committee Meeting, Great Lakes Fishery Commission. 20 March 1991. Milwaukee, WI.
3. **Ogle, D.H.**, M.G. Henry, R.M. Newman, and J.H. Selgeby. Diel feeding and distribution of Ruffe (*Gymnocephalus cernuus*) in the St. Louis River Harbor, Lake Superior. Minnesota Chapter of the American Fisheries Society, 24th Annual Meeting. 24 January 1991. Hudson, WI.
2. **Ogle, D.H.**, M.G. Henry, R.M. Newman, and J.H. Selgeby. Foods and feeding patterns of Ruffe (*Gymnocephalus cernuus*) in the St. Louis River Harbor, Lake Superior. 52nd Midwest Fish and Wildlife Conference. 3 December 1990. Minneapolis, MN.
1. **Ogle, D.H.** Update on research findings concerning the trophic relations of Ruffe in the St. Louis River Harbor, Lake Superior. Upper Lakes Committee Meeting, Great Lakes Fishery Commission. 21 March 1990. Ann Arbor, MI.

Presentations and Posters at non-Scientific Meetings:

9. **Ogle, D.H.** First Results from Inch Lake. Northland College Student Sub-unit of the American Fisheries Society. 22 October 2013. Ashland, WI.
8. **Ogle, D.H.** First Results from Inch Lake. Delta Diner Blue Plate Lecture Series. 20 July 2013. Delta, WI.
7. **Ogle, D.H.** First Results from Inch Lake. Wausau Area Power Squadron Luncheon. 19 July 2013. Delta, WI.
6. **Ogle, D.H.** CMD: Crayfish of Mass Destruction. 2004 Northwest Wisconsin Lakes Conference. 25 June 2004. Telemark Resort & Convention Center, Cable, WI.
5. **Ogle, D.H.** Rusty Crayfish in Wisconsin: Review of Research Findings. Learn Where You Live. 24 September 2003. Northland College, Ashland, WI.
4. **Ogle, D.H.** Rusty Crayfish in Wisconsin. Northland College Presents. 14 August 2002. LaPointe, Madeline Island, WI.
3. **Ogle, D.H.** Bayesian Fish Ageing. Northland College Student Chapter of the Mathematical Association of America. October 7, 1996.
2. **Ogle, D.H.** Exotic Ruffe. 20th Annual Meeting of the Minnesota Conservation Federation. 12 September 1992. Brainerd, MN.
1. **Ogle, D.H.** Ruffe. Exotics in Minnesota: The Inland Invasion (sponsored by Minnesota Sea Grant and the Freshwater Foundation). 20 March 1992. Breezy Point, MN.

Released Software Packages or Functions:

11. *RFishBC*: a package that helps fisheries scientists collect measurements from calcified structures and back-calculate estimated lengths at previous ages. Available from http://derekogle.com/RFishBC/.
10. *FSA:* a package of R functions to perform various fisheries stock assessment analyses. Available from http://derekogle.com/FSA/.
9. *FSAdata:* a package of R data frames containing fisheries population data. Available from https://github.com/droglenc/FSAdata/.
8. *FSAWs:* a package of R functions for creating standard weight equations. Available from https://github.com/droglenc/FSAWs/.
7. *FSASim:* a package of R functions for simulating various aspects of fish populations and assessment data. Available from https://github.com/droglenc/FSASim/.
6. *fishWiDNR:* a package of R functions to support work with the Fisheries Management Database of the Wisconsin Department of Natural Resources. Available from https://github.com/droglenc/fishWiDNR.
5. *NCStats:* a package of R functions that support my statistics and fisheries courses. Available from https://github.com/droglenc/NCStats/.
4. *histStack()*: a function to construct histograms with bars stacked according to a categorical variable. This was a new function released in the *plotrix* package (maintained by Jim Lemon) in August, 2013.

3. *kruskalmc()*: a generic R wrapper function for performing multiple comparisons for a Kruskal-Wallis test. This was a modification of an existing *kruskalmc()* function in the *pgirmess* package. Implemented and released in Patrick Giraudoux' *pgirmess* package in July, 2010.
2. *levene.test()*: a generic R wrapper function for performing Levene's homogeneity of variances test. This was a modification of an existing *levene.test()* function in the *car* package. Implemented and released in John Fox's *car* package in April, 2008.
1. *plotH()*: a function to construct histogram-like modifications of scatterplots. This was a new function released in the *plotrix* package (maintained by Jim Lemon) in August, 2013.

Service:

College and University:

Advising

General, Northland College (1996-current), all undergraduate levels in a variety of majors (Atmospheric Sciences, Biology, Chemistry, Directed Studies, Earth Science, Environmental Chemistry, Environmental Studies, Geosciences, Mathematics, Natural Resources, Outdoor Education, Peace Studies, Pre-Law, Pre-Vet, Psychology, Sociology, Sustainable Community Development, and Writing).

Advisor, McNair Scholars Program, Kaitlyn Windschitl (2015), Brittany Brown (2018).

Academic Advisor, Northland College Student Sub-Unit of the Wisconsin Chapter of the American Fisheries Society (2006-current).

Academic Advisor, Northland College Sportsmen's Theme Community (2012).

"Expert" advisor, University of Wisconsin - Lacrosse (2001-2002), M.Ed. capstone project of Kristie Gustafson and Randy Gustafson -- "Alignment of the Mathematics Curriculum of Stanley-Boyd High School to the Standards of the State of Wisconsin."

Student Mentor, Univ. Minnesota (1992-96), two masters-level fisheries graduate students.

Senior Thesis (Capstone) Advising (resulted in a peer-reviewed publication)*

35. Michael Lant (Natural Resources). 2021. Explaining catch rates among local, non-local, and non-resident anglers of Wisconsin's Northern Highland Fishery Research Area lakes. (with Greg Sass and Zach Feiner, Wisconsin Department of Natural Resources)
34. Joshua Lyons (Natural Resources). 2019. Precision metrics summarized from 20+ years of fish age estimation studies.
33. Will Otte* (Natural Resources). 2019. Age and growth of Deepwater Sculpin. (with Mark Vinson, U.S. Geological Survey).
32. Logan Sikora (Natural Resources). 2018. Movement and home ranges of game fishes in Sanford Lake. (with Greg Sass, Wisconsin Department of Natural Resources).
31. Erin Gilligan (Biology). 2017. Using model for tag-recapture data to assess growth of Bluegill (*Lepomis macrochirus*) and Largemouth Bass (*Micropterus salmoides*) in Inch Lake, Wisconsin.
30. Callie Kopp (Natural Resources). 2017. An historical comparison of Lake Superior Sea Lamprey fecundity and egg characteristics. (with Bill Mattes and Mike Plucinski, Great Lakes Indian Fish and Wildlife Commission).
29. Ritchie Grainger (Natural Resources). 2016. Can Ratios of Linear Morphometric Measurements Delineate among Lake Trout Morphotypes? (with Mike Seider, U.S. Fish & Wildlife Service).
28. Kevin Johnson (Natural Resources). 2016. Effectiveness of Smith-Root's Fish Handling Gloves to Immobilize Lake Trout and Rainbow Trout. (with Greg Fischer, Northern Aquaculture Demonstration Facility, Uni. Wisconsin – Stevens Point)..
27. Joseph Mrnak (Natural Resources). 2016. Rainbow Smelt (*Osmerus mordax*) age and growth in Whitefish Bay, Lake Superior, with an analysis of age estimation effort. (with Mark Vinson, U.S. Geological Survey).
26. Kaitlyn Windschitl (Natural Resources). 2016. Size and Age Characteristics of Leech Lake Burbot in 2002 and 2015. (with Matt Ward, Minnesota Department of Natural Resources).
25. Ian Woest and Kert Wuestenberg (Natural Resources). 2016. An Assessment of Otoliths, Spines, and Scales for Assigning Ages to Ruffe.
24. Jamie Goethlich (Natural Resources). 2015. The effects of experimental lake fertilization on condition and diet of Slimy Sculpin (*Cottus cognatus*) in oligotrophic Arctic lakes, North Slope, AK. (with Stephen Klobucar and Phaedra Budy, Utah State University).

23. Taylor Lepak (Natural Resources). 2015. Age and Growth of *Coregonus kiyi* in Lake Superior. (with Mark Vinson, U.S. Geological Survey).
22. Ryan Menebroeker* (Natural Resources). 2015. Comparing the relative abundance of Lake Whitefish (*Coregonus clupeaformis*) caught in areas exposed to differential rates of fishing pressure (with Jared Myers, Wisconsin Department of Natural Resources).
21. Dalton Lebeda (Natural Resources). 2014. Can a Fatmeter™ be Used to Determine the Sex of Lake Sturgeon (*Acipenser fulvescens*)? (with Glenn Miller, U.S. Fish & Wildlife Service).
20. Allison DeRose (Natural Resources). 2014. Evaluating the Total Catch, Release and Gillnetting Mortality Rates of Lean Lake Trout By-catch in Commercial Fisheries in the Apostle Islands of Lake Superior. (with Jared Myers, Wisconsin Department of Natural Resources)
19. Hanna Fiorio (Natural Resources). 2014. Age comparisons of Siscowet Lake Trout. (with Bill Mattes, Great Lakes Indian Fish & Wildlife Commission).
18. Taylor Stewart* (Natural Resources). 2014. Age and growth of Pygmy Whitefish. (with Mark Vinson, U.S. Geological Survey).
17. Kristin Brunk* (Natural Resources). 2013. Burrowing mayflies (*Hexagenia* spp. and *Ephemera* spp.) as indicators of ecosystem health in the Chequamegon Bay. (with Mark Vinson, U.S. Geological Survey)
16. Kevin Grand (Natural Resources). 2013. Factors related to the assemblage of Brook Trout (*Salvelinus fontinalis*) and non-native salmonids in Lake Superior Tributaries. (with Anna Varian, U.S. Fish & Wildlife Service)
15. Drew Negengard (Natural Resources). 2013. Effects of a minimum length limit on Bluegill (*Lepomis macrochirus*) and Largemouth Bass (*Micropterus salmoides*) size structure in a small lake in Illinois.
14. Margaret Harings (Natural Resources). 2012. An analysis of sexual dimorphism in length and weight relationships of Iowa Darters.
13. Kelsey Norton (Natural Resources). 2012. Impact of black flies on Common Loon nesting success: A proposal for research.
12. Steve Whitlock (Biology). 2011. Density and size structure comparison among Lake Trout (*Salvelinus namaycush*) and Rainbow Smelt (O*smerus mordax*) using summer gillnet indices between 1959-2010 from the Apostle Islands of Lake Superior. (with Owen Gorman, U.S. Fish & Wildlife Service)
11. Amber Mealman (Natural Resources). 2011. Did lampricide treatments effect the year class strength of Lake Sturgeon? (with Bill Mattes, Great Lakes Indian Fish & Wildlife Commission)
10. Laura Schmidt (Natural Resources). 2011. Summer spatial distribution of Lake Whitefish in the Apostle Islands, 2007-2009. (with Mike Seider, Wisconsin Department of Natural Resources)
9. Anthony Young (Natural Resources). 2010. Field observations of the timing and characteristics of Brook Trout redds in the Whittlesey Creek. (with Henry Quinlan, U.S. Fish & Wildlife Service)
8. April BeBault (Biology). 2010. Analysis of water quality data at selected locations in the Marengo River basin. (with Matt Hudson, Bad River Watershed Association)
7. Jennifer Courtwright* (Biology). 2009. The effects of freshwater tidal swamp microtopography on ecosystem function. (with Stuart Findlay, Cary Institute, REU)
6. Katie Renschen (Natural Resources). 2009. Experimental analysis of rheotaxis behavior of Coaster Brook Trout fry. (with Henry Quinlan, U.S. Fish & Wildlife Service)
5. Jason Meacham (Natural Resources). 2008. Comparison of scale and otolith ages of Lake Whitefish from the south shore of Lake Superior" (with Bill Mattes, Great Lakes Indian Fish & Wildlife Commission)
4. Andrew Fox (Natural Resources). 2008. Can Largemouth Bass abundance be predicted from a count of active nests?
3. Roxanne Johnson (Environmental Studies). 2003. Energy footprint analysis for Northland College. (with Melissa Damaschke and co-advised with Prof. Dorothy Lagerroos).
2. Bradley Ray* (Biology). 2002. Diet of larval Ruffe from two locations in the St. Louis River Harbor, Lake Superior.
1. Jennifer Milan (Biology). 2000. Comparison of two capture techniques for birds.

Administrative Positions

Mathematics Program Coordinator, Northland College (2020-), responsible for program review, curriculum development, course scheduling, classroom observations of program faculty, and communication with department chair and academic dean.

Faculty Athletic Representative, Northland College (2003-2004, 2005-2007), responsible for overseeing academic eligibility requirements and facilitating communication among faculty, athletic administration, and student-athletes.

Assessment Coordinator, Northland College (2002-2004), responsible for the coordination, development, and implementation of the Northland College assessment program.

Natural Science Division Representative (January 2009) – temporary replacement (for a member on sabbatical) to Academic Council (a committee that oversees the curriculum) and Academic Standings Committee (a committee that deliberates on issues and petitions related to students' academic standing).

Past Committees, Northland College,

Academic Council (2011-2012) – elected departmental representative to the committee with oversight of the College curriculum.

Advising Task Force (*1998-1999*) – member of committee writing a Title III grant intended to improve the advising process at Northland.

Alumni Association Board (*1998-2001*) – member of board, communications and events committee, and co-coordinator for the 1999 all-class reunion.

Assessment Committee (*2001-2004*) – member of Faculty standing committee to advise and steer the development and implementation of the College's academic assessment plan. Served as chair (2002-2004)

Assessment Steering Committee (*2001*) – member of committee to advise and steer the development and implementation of the College's academic assessment plan.

Athletic Advisory Committee (2005-2007) / Athletic Advisory Board (*1996-1999*) – member of committee that provided guidance to the athletic director regarding athletic department polices and goals.

*Athletics and Academics Task Force (*2005) – chaired task force that made recommendations to the president regarding the interface between athletics and academics at Northland.

Athletic Department Division III Application Self-Study (*1999*) – member of two-person work group to identify strengths, concerns, and recommendations regarding campus sportsmanship as part of the College's application to the NCAA for provisional membership in Division III.

Distance Education Task Force (*1998-1999*) – member of committee that steered the development of distance education technologies on campus.

Enrollment Management Task Force (*2007*) – member of task force that summarized a variety of recruitment and retention reports and made recommendations for increasing recruitment and retention to the President and Board of Trustees.

Faculty Development and Promotion (2008-2010) – member of committee that evaluated faculty proposals for funding travel related to development, sabbatical proposals, and promotion applications. [*Note: in 2008-2009 I did not participate in the review of sabbatical proposals or promotion applications as I submitted a sabbatical proposal and a promotion application.*]

Highway Advisory Board (*2000-2001*) – member of board that advised on the editorial content and physical design of the Northland Alumni publication.

Honors Program Task Force (*1998-1999*) – member of task force that developed rationale and procedures for honors-level courses.

Instructional Technology Coordinator Support Committee (*2000-2001*) – member of committee that provided support to the College's Instructional Technology Coordinator.

Natural Science Division Equipment Proposal Review (*2001-2002*) – member of committee that developed criteria and evaluated proposals for determining the dissemination of gift monies for equipment purchases within the Natural Science division.

Natural Science Division Representative (January 2009 – interim as sabbatical replacement) – represented Natural Sciences Division on Academic Council during discussions aimed primarily at the administration and discussion of the "new" curriculum. Also served on the Academic Standings Committee.

New Science Building (*1998-2000*) – member of committee to counsel in the conceptualization, planning, and constructing of a new state-of-the-art Science Building.

Nicholas C. Bystrom Memorial Award in Mathematics and Statistics (2002-2016) – member of committee that evaluated applications for an academic award for students studying statistics or mathematics or applying statistical or mathematical methods to their major.

North Central Association Accreditation Steering Committee (*1999-2001*) – appointed member of committee to coordinate sub-committees for and author the college self-study for accreditation. Served as co-chair of Criterion II sub-group.

President's Council on Enrollment, Marketing, and Planning (2002-2003) – member of committee that advised College President on enrollment, marketing, and planning issues and strategies. Chair of sub-committee to identify strengths, concerns, and strategies related to "Walking the Talk."

Retention Advisory Group (2008-2009) – member of committee that advised Director of Student Retention on data analyses.

Retention Task Force (2018-2021) – member of task force to analyze data, interpret results, and suggest programs to positively impact student retention.

Service and Leadership Scholarship Selection (*1997*) – member of committee that evaluated student applications for service and leadership scholarships.

Student Debt (*1998*) – member of committee that evaluated and chose alternative loan programs to make available to students.

Tech Team (*1998-2000*) – member of committee to advise the conception, development, and execution of campus goals regarding the acquisition and use of technologies.

Tenure Review Committee (2010-2016, 2017-2020) – member of committee that meets with tenure-track members of the faculty to provide guidance regarding the tenure process, conducts end-of-year evaluations for each tenure-track member, provides recommendations to the Academic Dean regarding a candidate's movement from the first to second stage of tenure, and provides a recommendation to the tenured faculty of the College regarding a candidate's movement from the second stage to full tenure.

Tim Carpenter Memorial Award (*1998-2002, 2006-2016*) – member of committee that evaluated applications for an academic award for students interested in fisheries and wildlife studies.

Web Management Team (*1999-2001*) – member of committee to steer development and review the College's web page.

Welfare and Review, Faculty (*1998-2001, 2005-2007*) – elected member of committee to negotiate with the President on matters of compensation, working conditions, and fringe benefits and receive, investigate, and make recommendations about faculty grievances. Served as Chair from 1999-2001.

Personnel Selection Committees – Admissions Counselor (1998), Assistant Alumni Director (1998), Mathematics Specialist (1997, 1998), Director of Alumni Relations (1999), Head Coach Hockey (2000,2005), Assistant Registrar for Institutional Research (2000), Campus Technology Assistant (2000), Sigurd Olson Environmental Institute Ecologist/Educator (2001), Director of Institutional Research (2001), Assistant Professor (Music – Choral; 2003), Head Coach Nordic Skiing and Cross-Country (2005), Assistant Professor (Mathematics and Applied Statistics; 2005, 2007), Assistant Professor (Philosophy, 2009), Teaching Fellow (Mathematical Sciences; 2011, 2014), Assistant Professor (Mathematical Sciences; 2012,2015), Academic Dean and Vice President for Academic Affairs (2011), Head Coach Men's Basketball (2012), Head Coach Women's Basketball (2014), Head Coach Women's Lacrosse (2017), Assistant Professor (Natural Resources, 2022).

Other service, Northland College,

Consultant, Campus Research (1997-Current) – to Dr. Erik Olson on error propagation in triangulation in Wolf howl surveys (2018); to Dr. Erik Olson on simulations for lake vegetation sampling design (2017); to Dr. Kayla Bieser on data analysis of gene expression data (2013); to Petra Hofstedt (campus Institutional Researcher) on data analysis for a retention study (2012); to Dr. Jim Meeker on data analysis related to the invasion of cattails in the Bad River Watershed (2009); to Ryan Brady (Northland alum), Wisconsin DNR, James Paruk, and Anthony Kern, on the development of a discriminant function analysis for identifying the sex of shrikes from morphological measurements (2008); to Aleya Nelson (Northland alum) on data management issues related to common loon nest success in Voyageur's National Park (2006); to Dr. Jim Meeker on data analysis of measurement error in aquatic vegetation samples from Voyageur's National Park (2006); to Cory Counard MacNulty, Sigurd Olson Environmental Institute, on sampling design and analysis considerations for the proposal "Assess the Impacts of International Lake Level Management by Using an Interdisciplinary Approach: Common Loon Nest Success."

(2003); to Dr. Kevin Schanning on construction of a survey and sampling design for the "State of the Wolf" project (2002); to Hilary Pollock on statistical analysis of the evaluation of teaching methods on reading comprehension (2001); to Ted Gostomski, Sigurd Olson Environmental Institute, on the estimation of the total number of loon adults and chicks in Wisconsin (from statewide loon count data) (2000); to Dr. Richard Verch (and two students), Northland College, on Wisconsin bird survey analysis (1997, 1998); to Terry Daulton (and student), Sigurd Olson Environmental Institute, on Wisconsin frog survey results (1997, 1998).

Consultant (1996-current), to various students on statistical analyses for their senior theses, capstones, or course projects.

Chapter Reviewer (2008) to Kevin Schanning, Northland College, Chapter 17: Human dimensions: Public opinion research concerning wolves in the Great Lakes states of Michigan, Minnesota, and Wisconsin.

Chaperone (1997-2002) -- campus dance (1997, 1998, 1999); Senior Class Party (1999-2002); Toys-for-Tots fundraiser (1998).

Evaluator (2000, 2001), of student academic portfolios.

Consultant, Campus Data Analysis (1996-2000) -- to Assessment Coordinator on analysis of alumni survey results (1996), to Alumni Director on analysis of alumni surveys regarding web-page usage (2000), to student portfolio coordinator on analysis of portfolio evaluations (2000).

Moderator (2000), of Northland College Technology Forum, a Community Time event.

Treasurer (1999-2000), Northland Chapter of the American Association of University Professors.

Invited Guest Interviewee (1999), Environmental Journalism course.

Drafter (1996), of tactics for the College Strategic Plan (Goal 1, Obj. 3, Strategy B; 1996).

Other service, University of Minnesota,

Long-Range Planning Committee (1995), Curriculum Committee (1994), Seminar Committee (1992), Assistant Professor Search Committee (1992), Council of Graduate Students Representative (1991).

Professional:

Manuscript Referee (1992-current; approx. 1-2 per year), Canadian Journal of Fisheries and Aquatic Science, Transactions of the American Fisheries Society, North American Journal of Fisheries Management, Journal of Great Lakes Research, Environmental Biology of Fishes, Ecology of Freshwater Fish, Fisheries Research, Asian Fisheries Science Journal, Bulletin of Marine Science, PeerJ, Acta Ichtyologica et Piscitoria.

Past-President (2019), President (2018), President-Elect (2017), for Wisconsin Chapter of the American Fisheries Society.

Emmiline Moore Prize Review Committee (2019), part of committee to choose the recipient of this award that recognizes the efforts of an individual that promotes demographic diversity within the American Fisheries Society.

External Reviewer (2019), for Full Professor promotion decision at Wright State University – Lake campus.

Plenary Session Planning Committee (2018), for plenary session at the 78th Midwest Fish and Wildlife Conference meeting.

Session Moderator (2018), for concurrent session at the 78th Midwest Fish and Wildlife Conference meeting.

Session Moderator (2009, 2015-2017), for concurrent session at Wisconsin Chapter of the American Fisheries Society annual meeting.

Master's Committee Member (*2013-14*), for Matthew Belnap, a M.Sc. candidate in the Natural Resources Department of the University of Wisconsin – Stevens Point.

Member (2010-2012) of the Awards Committee for the North Central Division of the American Fisheries Society.

Member (2009-2011) of the Best Paper Award Committee for the Wisconsin Chapter of the American Fisheries Society.

Doctoral Committee Member (2011-12), for Shannon Davis-Foust, a Ph.D. candidate in the Biology Department of the University of Wisconsin-Milwaukee.

Analyst (2009-2012, 2013-2015, 2016-current) for Red Cliff Fisheries and National Fisheries & Wildlife Conservation Office (Ashland), of the diets of predator fish captured in Lake Superior. Work was conducted with students.

Manuscript Reviewer (2010), United States Geological Survey (Fort Collins (CO) Science Center).

Book Tester (2006), of Langkamp, G. and J. Hull, *Quantitative Reasoning and the Environment*, Prentice Hall.

Developer (2005), for Don Pereira and Andy Thompson, Minnesota Department of Natural Resources, of a computer program to analyze catch-per-unit-effort data.

Book Manuscript Reviewer (2005), of Langkamp, G. and J. Hull, *6 Billion and Counting*, Prentice Hall. [book name later changed to *Quantitative Reasoning and the Environment*]

Reviewer (2001), of tenure candidate file, University of Minnesota, Department of Fisheries and Wildlife.

Chapter Reviewer (*1998*), Seeing Statistics Web Project, Wadsworth Publishers.

Thesis Reviewer (*1998*), Swanson, T. An analysis of the structure of macrobenthos communities in the St. Louis River Harbor. University of Minnesota-Duluth, Biology Department.

Proposal Referee (*1997*), Wisconsin Sea Grant.

Steering Committee Member (*1996-97*), International Symposium or Ruffe Biology, Management, and Control, sponsored by Great Lakes Sea Grant Network.

Adviser (*1993*), to Mike McLean, Minnesota Sea Grant, on the accuracy and layout of a manual for a Linear Growth Model Program.

Co-Chair (*1992*), Student Concerns Committee, Minnesota Chapter of the American Fisheries Society.

Adviser (*1992*), to Mike McLean, Minnesota Sea Grant, on the accuracy of facts about Ruffe on a "Ruffe Fact Sheet."

Adviser (*1992*), to Lansing Shepard, Bell Museum of Natural History, on the accuracy of facts about Ruffe on a public information poster entitled "Exotics in Minnesota."

Co-Student Representative (*1990-91*), Executive Committee, Minnesota Chapter of the American Fisheries Society.

Consultant (1996-current) -- Ted Gostomski (1996), Sigurd Olson Environmental Institute, on statistical analysis for "Gostomski, T.J., and D.C. Evers. 1998. Time-activity budget for Common Loons, *Gavia immer*, nesting on Lake Superior. Canadian Field-Naturalist 112(2): 191-197"; Paul Mavrakis (1998), Wyoming Fish and Game, on estimating fishing effort on Wyoming reservoirs; Gary Czypinski (2002), United States Fish and Wildlife Service – Ashland Fisheries Resources Office, on the winter diet of Ruffe on whitefish spawning grounds; Ida Royer (2006) on data analysis of instrument readings for her master's thesis; Mike Ackerman (2007) on analysis of CPUE trends for endangered Grand Canyon fishes; Edie Evarts (2008), Minnesota DNR, on the estimation of abundance of trout from mark-recaptured data separated by length category; Reuben John Sulu (2008), School of Marine Science and Technology, University of Newcastle Upon Tyne (U.K.), on modeling growth of *Plectropomus leopardus* from Gela (Solomon Islands) and four sites in Australia; William Ardren (2009), Lake Champlain Fish and Wildlife Resources Office, U.S. Fish and Wildlife Service, on summarizing genetic evidence of population expansion and contraction of pallid sturgeon in the Missouri Rive

Community:

Consultant (2007, 2009, 2010, 2012, 2013, 2014), to several high school students under the direction of Mr. Richard Erickson, Bayfield High School, on statistical analysis for their science fair projects.

Consultant (2008) to Mike Mlynarek, Darienne McNamara (Northland alum), and Martin Schoof (student), U.S. Fish & Wildlife Service, on the analysis of various treatments to control Reed Canarygrass at the Northern Great Lakes Visitor Center and Whittlesey Creek National Refuge.

Field Worker (2008) to U.S. Fish & Wildlife Service (Ashland Fisheries Resources Office), on the detection of native brook trout in the headwaters of the North Fork of Whittlesey Creek.

Consultant (2007-2008), to Tri-County Transportation, on an assessment of customer characteristics and attitudes and satisfaction with transportation services in Ashland, Bayfield, and Douglas counties. (with Dr. Kevin Schanning, Sociology Department).

Consultant (2005-2006), to Lauren Hildebrandt and Scott Posner, United States Forest Service, Washburn, on the analysis of relationships between vegetation community structure and burn history of plots in the Moquah barrens.

Consultant (2003), to Lauren Hildebrandt, United States Forest Service, Washburn, on the analysis of bluebird nesting box data.

Consultant (2002-2003), to Chequamegon Area Nutrition Coalition, on a food security assessment for Ashland and Bayfield counties (with Dr. Kevin Schanning, Sociology Department).

Consultant (2003), to Chequamegon Area Nutrition Coalition, on development of a web page (with Craig Sparks, CIS student).

Consultant (2002-2003), to the Chequamegon Food Cooperative, on an assessment of customer characteristics, attitudes, and satisfaction with products and services (with Dr. Kevin Schanning, Sociology Department).

Consultant (2002), to Ashland Area Farmer's Market, on an assessment of customer characteristics, attitudes, and satisfaction with products and services (with Dr. Kevin Schanning, Sociology Department).

Member (2002-2003), Chequamegon Area Nutrition Coalition.

Consultant (*2001*), to Memorial Medical Center, on the evaluation of the hospital's main entrance (with Dr. Kevin Schanning, Sociology Department).

Volunteer (*2000*), to Sigurd Olson Environmental Institute, on the counting of loon adults and chicks on Flynn and Half Moon Lakes, Bayfield County.

Consultant (*1999*), to Mike Screnock, City Administrator for the City of Washburn, on analysis of city-wide resources survey (with Dr. Kevin Schanning, Sociology Department)

Consultant (*1998, 1999*), to Dr. Lelyn Stadnyk, Superior Shores Agricultural Cooperative, analysis of market research data for yogurt cheese and Dairy Berry products.

Consultant (*1997-1998*), to Family Forum, Inc. (Ashland, WI), on survey of the attitudes of Ashland County residents (results used to support a grant proposal).

Adviser (*1994-1996*), to Christopher Voss, Anoka (MN) High School, on his Science Fair projects assessing the effects of lake acidification on fish growth.

Other:

Invited Speaker. Alumni Association Address at the 93rd Northland College Commencement, 26 May 2004.

Invited Speaker. Marshall Honor's Day Address at Northland College Honors Day, 6 April 2000.

Additional Information:

Honors and Honor Societies:

American Fisheries Society, Certified Fisheries Professional, first awarded 2014, continues through 2019.
Northland College Distinguished Alumni Award, 2018.
Northland College Outstanding Faculty Scholarship (Research) Award, 2014, 2019.
Northland College Outstanding Faculty Service Award, 2012.
Northland College Outstanding Faculty Teaching Award, 1999, 2009.
Northland College Academic Dean's Award for Achievement in Assessment, 2002.
Awarded Tenure, 2002.
Who's Who Among American Teachers, 1998, 2000, 2008.
Sigma Xi (Associate 1993).
Honorable Mention, Student Oral Presentation, 52nd Midwest Fish & Wildlife Conference, 1990.
Senior Biology Award, Northland College, 1989.
Alpha Chi, Northland College, 1988-1989.
Arthur J. Ingolls, Jr. Junior Award, Northland College, 1988.

Scientific and Professional Membership:

American Fisheries Society.

Awards and Grants:

Northland College Faculty Sabbatical, "Introductory Fisheries Analyses with R", 2015

Northland College Faculty Sabbatical, "Development of R Programs to supplement The Analysis and Interpretation of Freshwater Fisheries Data", 2009-10.

Tri-County Transportation Team, assessment of customer characteristics and attitudes and satisfaction with transportation services in Ashland, Bayfield, and Douglas counties, 2007-08, $3300 (with Dr. Kevin Schanning, Sociology Department).

Northland College Faculty Development Grant, "Assessing the process variability of the individual age assignments derived from an age-length key as proposed by Isermann and Knight (2005)", 2006, $500

Northland College Faculty Development Grant, "Simulation models to aid student learning about the effect of violating model assumptions on the results of statistical models used to estimate key population parameters of fish stocks", 2006, $500

Northland College Faculty Sabbatical, “Development of a Fisheries Population Dynamics Textbook”, 2004-05.

Morris O. Rivstedt Professorship, “Development of a Fisheries Population Dynamics Textbook”, 2004-05, $1000.

Northland College Faculty Development Grant, "Development of the Applied Statistics Curriculum", 2004, $500

Chequamegon Area Nutrition Coalition, *food security assessment for Ashland and Bayfield counties*, 2003-2004, $16,500 (with Dr. Kevin Schanning, Sociology Department).

Chequamegon Food Cooperative, *assessment of customer characteristics, attitudes, and satisfaction with products and services*, 2002-2003, $2000 (with Dr. Kevin Schanning, Sociology Department).

Morris O. Rivstedt Professorship, “Development of Web-based Resources for Upper-Level Statistics Courses”, 2002-03, $1000.

Northland College Faculty Development Grant, "Development of MTH150 Curriculum", 2003, $500 (with Dr. William Long, Mathematics Department).

Ashland Area Farmers Market, *assessment of customer characteristics and attitudes and satisfaction with products and services*, 2001-2002, $2000 (with Dr. Kevin Schanning, Sociology Department).

Peter’s Foundation, *occurrence and density of rusty crayfish in Northern Wisconsin*, 2001, $5000.

Memorial Medical Center, *evaluation of the hospitals main entrance*, 2001, $4500 (with Dr. Kevin Schanning, Sociology Department).

University of Minnesota, *development of a Ruffe resources web page*, 2000, $1000.

City of Washburn, *analysis of city-wide resources survey*, 1999, $2000 (with Dr. Kevin Schanning, Sociology Department).

Northland College Faculty Development Grant, *Video-Based Statistical Case Studies*, 1999, $500.

Morris O. Rivstedt Professorship, *Visualizing Statistical Concepts*, 1996-97, $1000.

Wisconsin Department of Natural Resources, *Ruffe Literature Review*, 1994, $3000.

Skinner Memorial Award, AFS Student Travel Award, 1994.

Bob Erickson Memorial Fellowship Award, 1994. (Department of Fisheries & Wildlife award).

Graduate School Fellowship, University of Minnesota, 1989.