STEVEN WILLIAM KELSCH

CURRENT STATUS

Present position: Associate Professor of Biology

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FORMAL EDUCATION

September 1980 - December 1986	Ph.D. in Wildlife and Fisheries Sciences, Texas A&M University, College Station, TX
September 1977 - May 1979	M.S. in Biology, University of North Dakota, Grand Forks, ND
September 1973 - May 1977	B.S. in Natural Science, St. Johns University, Collegeville, MN

MASTER'S THESIS

A comparison of the age and growth of yellow perch, *Perca flavescens* (Mitchill), in Lake Audubon and Lake Sakakawea, North Dakota, 1978. Department of Biology, University of North Dakota, Grand Forks.

DOCTORAL DISSERTATION

The systematics, ecology and zoogeography of the headwater catfish, *Ictalurus lupus* (Pisces). Department of Wildlife and Fisheries Sciences, Texas A&M University, College Station.

PROFESSIONAL EXPERIENCE

Associate Professor of Biology, Dept. Biology, University of North Dakota. Duties include research (45%), teaching (45%), and service (10%) in areas related to the aquatic ecology and biology of fishes at both undergraduate and graduate levels, and supervision of graduate students. (June 2006 – present)

Associate Professor and Chair of Biology (3 year term ending 6/30/2006), Dept. Biology, University of North Dakota. Duties include administration of the Deparment of Biology (40%; 17 faculty, 3 research professors, 5 staff) and research (25%), teaching (30%), and service (5%) in areas related to the biology of fishes at both undergraduate and graduate levels, and supervising graduate students. (July 2003 – June 2006)

Associate Professor of Biology, Dept. Biology, University of North Dakota. Duties include research (45%), teaching (45%), and service (10%) in areas related to the biology of fishes at both undergraduate and graduate levels, supervising graduate students, and participation in introductory biology. (Aug. 1997 – June 2003)

Assistant Professor of Biology, Dept. Biology, University of North Dakota. Duties included research (45%), teaching (45%), and service (10%) in areas related to the biology of fishes at both undergraduate and graduate levels, supervising graduate students, and participation in introductory biology. (Aug. 1991 - Aug. 1997)

Assistant Professor of Biology and Graduate Coordinator, Dept. Biology, Eastern New Mexico University. Duties included teaching (12 credit-hours per semester) in the areas of general biology, zoology, ecology, aquatic sciences, fish biology, and fisheries management; and research in biology of fishes. (Jan. 1988 - Aug. 1991)

Visiting Assistant Professor, Dept. Wildlife and Fisheries Sciences, Texas A&M University. Duties included teaching courses in vertebrate natural history and advanced ecology. (Sept. 1987 - Dec. 1987)

Instructor, National Park Service Workshop on Wildlife Management Techniques. Use of Computers in Natural Resource Management. (June 1987)

Lecturer, Dept. Wildlife and Fisheries Sciences, Texas A&M University. Duties included teaching a junior-level course in vertebrate natural history and teaching the laboratory of a course in fish biology which emphasized physiological ecology. (Jan. 1987 - May 1987)

AWARDS AND HONORS

- Contributing member of Department of Biology that received the Fellows of the University award for departmental excellence in research. (2002)
- Past-Presidents Award from the Dakota Chapter of the American Fisheries Society. (2000)
- Contributing member of Department of Biology that received the Fellows of the University award for departmental excellence in research. (1996)
- Nominated for outstanding faculty award, University of North Dakota. (1995)
- Best Poster Award, Annual meeting of the American Fisheries Society, Sun Valley, Idaho. (1985)
- Outstanding Doctoral Student, Department of Wildlife and Fisheries Sciences, Texas A&M University. (1984 - 1985)
- Tom Slick Research Foundation Fellowship, Texas A&M University. (1984)
- Wilkes Award finalist (for best student paper), Southwest Association of Naturalists, Annual meeting, Little Rock, Arkansas. (1983)
- Second Place Paper Award, Texas A&M Chapter of the American Fisheries Society, Annual Technical Session, College Station, Texas. (1982)

TEACHING

PHILOSOPHY AND GOALS

The quality of interaction between teacher and student is a direct determinant of the quality of education, so it is vital that teachers create the best possible learning experience for students. Some levels of knowledge cannot be taught, per se, but must be learned through more extensive interaction. I envision four progressive levels of knowledge: 1) memorization, 2) understanding, 3) ability to relate and synthesize disjunct concepts, and 4) ability to contribute new knowledge. A quality education should offer the opportunity for students to learn in each of these areas, particularly levels 2 through 4. A successful peer-reviewed research program demonstrates that an instructor is accomplished at each of these levels and offers students the opportunity to learn by example--an important method of learning for students.

I continually strive to improve and enrich my teaching by exposing students to ongoing research. My goals are to provide accurate, up-to-date, exciting, and challenging courses; to aid students in learning basic concepts and important specifics; to give students the tools to critically think about the subject; to tie the subject to other areas of knowledge; and most importantly to help students obtain knowledge necessary to learn more in the subject area--classes end, learning never does. I envision knowledge as a vista bounded by the unknown, and my role as one of helping each student to see more, and hopefully become excited about what lays beyond the horizon of present knowledge. I believe that the excited student will learn more than the most heavily-worked student, and that a university owes each student the opportunity to become excited about one subject or another.

TEACHING DEVELOPMENT

Ichthyophlia Fishes Learning Program:

My Graduate Teaching Assistant for Ichthyology, Eric Bless, and I developed an online computer program for learning the fishes. The goal of this program is to give students a chance to hone their excellent human ability to recognize subtle shape differences, in the process of learning to identify fishes, rather than memorizing crude characters used in fish keys. I use the following example to emphasize to students the power of their shape recognition ability. I tell them to imagine asking a friend to pick up someone at the airport that the friend has never met. We each could likely recognize our friend

out of all people on earth by recognizing subtle shape difference in human faces. But in trying to describe to a friend how to recognize who to pick up at the airport we are restricted to crude characters such as height, hair color, glasses, etc. Fish keys work this way too, using difficult to remember characters that are often complex and vague. For students to really learn the fishes, they need an easy way to see them over and over to hone their ability to recognize shape difference between similar species. This is the purpose and function of the Ichthyphilia program. It also serves to help get the information into their long-term memory.

In developing the program, Eric found online multiple images of each of the fishes to be learned in the course. I developed a program in Power Point that enables students to learn the fishes by quizzing themselves, much like a flash-card program. When running the program, students attempt to identify a fish by viewing an image. Because the images do not always show all the necessary detail for identification, they can move the cursor around the image for details about the fish. These details are invisible unless the student knows what part of the fish is diagnostic and moves the cursor that that position. The student can then attempt to identify the fish to common name, scientific name, genus, family, order, subclass, or class and immediately check their answer by using the mouse cursor. Each fish to be learned in class has three to five different images to avoid memorizing a particular image without recognizing the fish. See the program here: http://www.und.nodak.edu/instruct/skelsch/425~1.htm

Fisheries Management Laboratory:

I have developed a unique laboratory course for fisheries management in an attempt to challenge students to learn by participation in fisheries research. Students analyze both real and simulated fisheries data and explore concepts using computer simulations that I have developed. Students are initially given raw data and the freedom and guidance to determine how to proceed, including the development of objectives, hypotheses, and tests of hypotheses. Related data are added through the semester with the logic that students will learn methods of analysis better, by applying them to data they understand well.

I have programmed a computer model to simulate a lake ecosystem so students can gain experience in a short period of time. This model simulates a fish population in an imaginary lake called Mystery Lake. It enables students to explore the intricacies of experimental design and biological sampling by comparing the results of their simulated samples with characteristics of the population remaining in the lake. Students explore the effects of sample size, population size, degree of clumping, variation in means, variation in standard deviations, and knowledge of the system and organism on sample accuracy and precision. Students spend most of their time developing and testing sample designs and are free to think about the nuances of sampling because the computer handles the tedious calculations and summaries, and the simulation frees them from the time and expense of actually gathering the data in the field. Microcomputers and programs such as these provide powerful tools for exploring and understanding biological concepts.

TEACHING LOAD

My base teaching load at the University of North Dakota has been to develop and teach three biology courses each year (2 as Chair) including Ichthyology (BIOL 425) and Fisheries Management (BIOL 438) and the laboratory sections associated with these courses. These courses have two contact-hours of lecture and three hours of laboratory each week. In addition to these regular courses, I developed and on three occasions taught a graduate course in Physiological Ecology (BIOL 590); I have co-taught Principles of Biology, biology for non-majors [BIOL 100 (now BIOL 111)], on four occasions and once served as laboratory coordinator (100L). I once co taught (with Crawford) Fish and Wildlife Disease (BIOL 432). I have on two occasions co-taught a 1-credit course in aquaculture, and have participated in the instruction of a senior-level capstone course called Concepts in Biology (BIOL 477) on four occasions.

TEACHING EXPERIENCE (to 15 May 2007)

LEVEL		COURSE TOPIC	FREQUENCY
Undergraduate	100	Biology for non-majors	12
		Laboratory Coordinator	1
		Zoology	5
	300	Freshwater biology	2
		Vertebrate natural history	2
	400	Ecology of animals	1
		Fisheries management	18
		General ecology	2
		Ichthyology	13
		Teaching in biology	4
		Aquaculture	2
		Concepts in biology	4
		Seminar	2
		Fish and wildlife disease	1
		Aquatic Ecology	1
Graduate		Fisheries management	3
		Freshwater biology	2
		General ecology	2
		Ichthyology	2
		Physiological Ecology	4
		Seminar	8

PARTICIPATION ON GRADUATE ADVISORY COMMITTEES AT UND (to 15 Sept. 2007)

STUDENT NAME	DEGREE	STUDENT STATUS	START	FINISH	STATUS
Scott Hegrenes	MS	Graduated		Dec. 1992	Member
David Armitage	MS	Resigned		May 1993	Chair
Chris Ottinger	Ph.D.	Graduated		May 1994	Member
Tim Hoffnagle	Ph.D.	Graduated		May 1995	Member
Bruce Pankratz	MS	Graduated		May 1995	Co-Chair
Ian Kitch (Geography)	MS	Graduated		May 1997	Member
Donovan Verrill	Ph.D.	Resigned due to flood		May 1997	Chair
Shirley (Barcome) Pagel	MS	Graduated		May 1996	Member
Matthew Doeringsfeld	MS	Graduated		May 1996	Member
David Price	MS	Graduated		Dec. 1998	Member
Roger Sayre	Ph.D.	Graduated		Dec. 1998	Member
Deb (Greathouse) DeLong	MS	Graduated		May 1998	Member
David DeKrey	MS	Graduated		May 1998	Chair
Jamison Wendel	MS	Graduated	Jan. 1997	Aug. 1999	Chair
Darrell Schindler	MS	Graduated		Dec. 2001	Member
Andrew Allison	MS	Completed comps fall 98	Aug. 1997		Member
Jim Daniels	Ph.D.	Graduated		May 1998	Member
Steve Piepgras	MS	Graduated		May 1998	Member
Margi Coyle	MS	Graduated	Aug. 1997	May 2002	Chair
Joel Bryce	MS	Graduated	Jan. 1997	May 2003	Member
Melanie Tescher	MS	Graduated		Aug 2000	Member
Blane Klemek	MS	Graduated	Aug 1998	Aug 2005	Member
Jeremy Engelstad	MS	Completed comps Apr. 01	Fall 1998		Member
Tim Resseguie	MS	Graduated	May 1999	Aug 2002	Chair
Jeremy Alm	MS	Completed comps Apr. 01	June 1999		Chair
Casey Armour	Ph.D.	Graduated	Aug. 1999	Aug 2002	Member
Dotti Dixon	Ed.D.	Graduated	Fall 1999	Dec 2002	Outside Member
Corinne Carey	Ph.D.	Graduated	Fall 1999	May 2003	Member
Matthew Doeringsfeld	Ph.D.	Completed comps Apr. 01	Fall 2000		Member
Matthew Hahn	MS	Graduated	Fall 2000	May 2002	Member
Ryan Krapp	MS	Graduated	Jan. 2001	Aug 2003	Chair
Jason Smith	MS	Graduated	Aug. 2001	May 2005	Member
Bart Bly	MS	Graduated	Jan 2002	Dec 2004	Member
Juan Pedraza	MS	Began	Aug. 2003		Member
Eric Bless	MS	Completed comps. April 06	Aug. 2004		Chair
Chad Parent	MS	Began			Member
Margi Coyle	Ph.D.	Began	June 2002		Member in 2007

RESEARCH

PHILOSOPHY AND GOALS

The scientific method has been of great value in the acquisition of knowledge. It combines the creativity of hypothesis development and experimental design, with the rigor of hypothesis testing and repeatability. The scientific method requires that knowledge be open to challenge, and while the requirement of hypothesis testing may lead to delay in acceptance of knowledge, it also leads to reduced risk of misconception. The scientific method is an important check to the apparent human tendency of accepting knowledge as absolute, and it plays a major role in communicating knowledge among peoples of diverse philosophy. Research is important for the value of knowledge gained, for training the next generation of scientists, and for teaching students to evaluate knowledge.

I have broad research interests dealing with the biology of fishes including ecology, systematics, ichthyology, physiological ecology, fisheries management, and education. I have interest in both applied and basic research and have established a program that combines both aspects in the field and laboratory. Field research enhances work done in the laboratory by suggesting problems and offering opportunities for testing predictions, and laboratory research enhances field studies by enabling control of environmental variables. My laboratory research is designed to help formulate and test theoretical concepts that I have developed related to responses of fishes to abiotic environmental factors. My field research is designed to test applications of these ideas and to develop innovative methods for fisheries management.

To understand science and to become a scientist, it is important for students to be involved in the process of research, not just the polished results. Toward this end, I involve undergraduate students in research in addition to graduate students. I currently have three graduate and four undergraduate students working together in my laboratory.

Over the years, I have developed some theoretical concepts regarding the nature of life, some of which were presented in "Available Power and Competitive Fitness in Fishes," "Care and Handling of Sampled Organisms," "Temperature Selection and Performance in Bluegills: Evidence for Selection in Response to Available Power," and "More Persistent than Fire: Life from a Thermodynamic Perspective." While the breadth of these concepts makes them difficult to thoroughly test, my goal is to conduct research dealing with specific questions while testing implications of these broader ideas.

LABORATORY DEVELOPMENT

Holding Facility:

I have designed and completed a research facility for holding live fishes. Seventeen tanks of three sizes ranging in capacities from 120 to 800 liters are in place. The facility is designed to function either as a flow-through system using water from the city water supply or as a recirculating system which uses a biofilter, charcoal filter, ultraviolet filter, and paper filter to maintain water quality. The system has a capacity of approximately 100 kilograms of fish when in recirculation mode. Other features of the system include aeration, automatic feeding, and temperature control. The system was completely refurbished in fall 2003.

Temperature Gradient Tank:

I have designed and constructed a prototype temperature-gradient-tank for determining behavioral responses of fishes to temperature. The tank allows monitoring preferred and avoided temperatures as functions of acclimation temperature. The tank is composed of 36 cells, 20 cm in each dimension, organized in a 6 by 6 matrix. Chilled water enters a corner cell and is heated by 100-watt aquarium heaters as it slowly flows through each cell. The tank is capable of generating a nearly linear gradient of 20 to 25 C°, normally from 10° to 33° C. Thermal stratification is reduced by bubbles that mix water. A mirror oriented at a 45° angle below the tank, allows fish to be observed through the tank's clear underside. Fish location and temperature are recorded by a time-lapse video-tape system. This tank was constructed for a specific project but was designed for much broader use. It has and will continue to be applied for research in behavioral thermoregulation, and it was designed be able to generate a two dimensional environment (oxygen and temperature) to study interactions of these variables.

Swimming Chamber:

I have designed and built a swimming chamber for testing swimming performance in fishes. The system consists of a two-meter-long by 20 by 20 centimeter artificial stream capable of generating controlled velocities from 0 to 80 centimeters per second. Water is propelled from a 240 liter reservoir into a 20-centimeter diameter pipe that feeds the stream. A variable-speed, 90-volt DC motor with an attached propeller drives the flow. The whole system is insulated and

temperature is controlled by a heat pump. This system was constructed for a specific project but was designed for much broader use. It has and will continue to be applied for research in swimming performance of fishes.

I have recently (05-06) completed automating the swim chamber so that experiments can be run more frequently and time spent in attendance will be reduced. This automation includes computer control of velocity, temperature, oxygen concentration, and detection of failure-to-swim for individual fish. The system will control a series of trials to automatically record maximum critical swimming speed, which is the speed that a fish cannot maintain its position and falls back. At this point the velocity will be automatically reduced to a nominal level for the fish to recover prior to another trial. A computer-video recording system and a passive integrated transponder tagging system (PIT) has been added to enable running multiple individuals at the same time and recording maximum critical swimming speeds for individual fish.

UNDERGRADUATE STUDENTS INVOLVED IN RESEARCH (1997 to present)

Name	**Dates**	**Position**
Jennifer Johnson	1995-1997	Hughes Undergraduate Fellow: Independent Research
Jennifer Johnson	1996	Hughes Undergraduate Apprentice: Independent Research
Maurice Frey	Summer 1996	Field Assistant: Pembina River Project
Jeramie Tesky	Summer 1997	Field Assistant: Pembina River Project
Jay Cuckla	Summer 1997	Field Assistant: Red River Channel Catfish Project
Paula Vachal	1997-1998	McNair Schloar: Independent Research
Alicia Beltran	Jan-May 98	Hughes Undergraduate Apprentice: Independent Research
Jeramie Tesky	1998	Research Assistant: Missouri River Tributary Project
Mike Fish	Summer 1998	Field Assistant: Red River Channel Catfish Project
Ryan Duffield	Apr 99-Dec 00	Lab and Field Assistant: Honors Student Indep.Research
Alicia Beltran	Aug 98-May 99	Hughes Undergraduate Fellow
Ryan Krapp	Sep 99-May00	Lab. and Field Assistant: Red River Larval Fish Project
Patrick Isaacson	Sep 99-Jan 01	Lab. and Field Assistant: Red River Larval Fish Project
Brandan Mason	Sep 99-Mar 01	Lab. and Field Assistant: Red River Larval Fish Project
Jeramie Tesky	1999	ND Fishes GIS Project and Web Site Creator
Jeramie Tesky	Aug 00-Jun 01	Fisheries Research Associate
Kary Snyder	Sep 00-May 01	Lab. and Field Assistant: Red River Larval Fish Project
Reyne Krapp	May-Aug 2000	Field assistant Riparian Streams Project
Bob Divorak	Spring 2000	Computer assistant: Riparian Streams Project
Arron Larson	Fall 2000	Lab. assistant: Riparian Streams Project
Nate Reineke	Mar 01-Jun 01	Lab. and Field Assistant: Red River Larval Fish Project
Bryce Goebel	Jan 01-May01	Directed Studies: Vertebrate Stress Response
Jamy Kenninger	Summer 01	Field Assistant: Devil's Lake Project
Tracy Pochman	Aug 01-Dec 01	Directed Studies: Stress Response in Fishes
Matt Sorum	Summer 02	Field Assistant: Devil's Lake Project
Austin Hill	Spring 2003	Directed Studies: Devils Lake Amphipod Project
Lisa Maus	Spring 2003	Research Assistant: Devils Lake Amphipod Project
Eric Bless	Spring 2003	Research Assistant: Devils Lake Amphipod Project
Carleen Beglau	Spring 2004	Research Assistant: Automation of Swim Chamber
Ben Moquist	Apr 04—Dec 06	Research Assistant: Automation of Swim Chamber
Treavor Ghylin	Summer 2004	Research Assistant: Parasite project

GRANTS AND CONTRACTS

2005. Title: Application to the North Dakota EPSCoR Program for New Faculty Enhancement Funds—Animal Physiology
Source: North Dakota EPSCoR.
Amount: $125,000 2006-2008 (funded at $40,000)

2004. Title: Application to the North Dakota EPSCoR Program for New Faculty Enhancement Funds

Source: North Dakota EPSCoR.
Amount: $104,000 2005-2007

2004. Title: Determination and Application of Ecological Thresholds for Environmental Protection and Management of Watersheds in the Lake Agassiz Plain Ecoregion: Fish Communities as Bioindicators to Evaluate Causality Between Land Use and Thresholds. (co-principal investigator)
Source: U. S. Environmental Protection Agency.
Amount: $270,458 2005-2007 (not funded)

2004. Title: Effect of Parasite Load on the Bioenergetics of Stream Fishes
Source: UND Biology EPSCoR RNEST Cluster.
Amount: $5,324 2004-2005

2003. Title: Application to the North Dakota EPSCoR Program for New Faculty Enhancement Funds
Source: North Dakota EPSCoR.
Amount: $130,000 2004-2006

2002. Title: Development of Methods for Determining Relative Abundance of Amphipods in Devils Lake
Source: North Dakota Game and Fish Department
Amount: $5,203 2003

2002. Title: Infrastructure Improvement Program—Equipment grant (co-principal investigator)
Source: National Science Foundation, North Dakota EPSCoR program
Amount: $78,274 2002

2002. Title: EPSCoR Biocomplexity cluster (participant)
Source: National Science Foundation, North Dakota EPSCoR program
Amount: $550,000 2002-2005

2001. Title: North Dakota River and Stream Fishes: Resource Development and Analysis—Phase II.
Source: North Dakota Game and Fish Department
Amount: $40,000 1 Oct 2001 - 31 June 2002

2000. Title: Effects of fluctuating water levels on quality and quantity of critical fish habitat in Devils Lake
Source: North Dakota Game and Fish Department
Amount: $110,000 1 August 2000 - 31 May 2003

2000. Title: Effects of land-use and riparian integrity on fish community diversity.
Source: North Dakota Game and Fish Department
Amount: $30,000 1 May 2000 - 31 June 2001

1999. Title: Distribution of fishes of North Dakota and the effects of vegetation removal on fish community diversity.
Source: North Dakota Game and Fish Department
Amount: $30,000 1 March 1999 - 30 June 2000

1998. Title: Distribution and Abundance of Larval Ichthyofauna in the Red River Basin
Source: North Dakota Game and Fish Department
Amount: $90,000 1 January 1999 - 30 June 2002

1998. Title: A comparison of stream-fish assemblages
Source: North Dakota Game and Fish Department
Amount: $30,000 1 May 1998 - 30 June 1999

1997. Title: Effects of environmental factors on stream-fish assemblages
Source: North Dakota Game and Fish Department
Amount: $30,000 15 May 1997 - 30 June 1998

1996. Title: Habitat availability and seasonal use by channel catfish in the Red River of the North and its tributaries
Source: North Dakota Game and Fish Department and the Minnesota Department of Natural Resources
Amount: $59,900 1 Sept. 1996 - 31 Dec. 1998

1996. Title: Fish population and community structure in relation to available stream habitat
Source: North Dakota Game and Fish Department
Amount: $20,000 16 April 1996 - 1 March 1997

1995. Title: General computing upgrade for data analysis room
Source: Research Committee, Dept. Biology
Amount: $8,000

1995. Title: Thermal ecology of fishes
Source: Research Committee, Dept. Biology
Amount: $464

1994. Title: Acquisition of a multidisciplinary water quality laboratory for environmental science and engineering (with seven co-principal investigators)
Source: National Science Foundation

Amount: $192,000

GRANTS AND CONTRACTS continued

1994. Title: Aquaculture (with H. Holloway)
Source: UND Faculty Instructional Development Committee
Amount: $500

1993. Title: Survey of the fishes of the Little Missouri River, North Dakota
Source: U. S. Forest Service, U. S. D. A.
Amount: $5,857

1993. Title: Culturing fish for experimental purposes with commercial implications (with H. Holloway)
Source: UND Faculty Instructional Development Committee
Amount: $500

1993. Title: Development of a computer laboratory for enhancement of undergraduate instruction (with J. La Duke and I. Schlosser)
Source: Academic Computing Advisory Committee, University of North Dakota
Amount: $4,000

1993. Title: Scholarly Book Grant for purchase of *Fish Medicine* by Stoskopf
Source: UND Faculty Instructional Development Committee
Amount: $75

1992. Title: Inverse acclimation in fishes: Selection of metabolic optima?
Source: Faculty Research Grant, University of North Dakota
Amount: $1,500

1991. Title: Temperature preference in fishes: Maximization of surplus power
Source: National Science Foundation's EPSCoR
Amount: $10,000

1991. Title: The role of surplus power in behavioral thermoregulation by fishes
Source: Eastern New Mexico University, Institutional Research Grant
Amount: $2,265

1990. Title: Biochemical analysis of gene products in the Yaqui catfish, *Ictalurus pricei*
Source: U. S. Fish and Wildlife Service
Amount: $5,938

1990. Title: Temperature selection by fishes: Behavior as a function of surplus power
Source: Eastern New Mexico University, Institutional Research Grant
Amount: $3,112

1989. Title: Morphometric comparison of *Ictalurus lupus* populations in New Mexico
Source: New Mexico Department of Game and Fish
Amount: $1,228

1989. Title: Rapid acclimation to ambient temperature in mosquitofish
Source: Eastern New Mexico University, Institutional Research Grant
Amount: $2,395

1989. Title: Base-line study of a proposed site for airport construction near Santa Rosa, NM (with A. L. Gennaro and K. Whitney)
Source: Parsons, Brinckeroff, Quade and Douglas, Inc. Albuquerque, NM
Amount: $3,447

1988. Title: A theoretical model explaining temperature selection in fishes
Source: Eastern New Mexico University, Institutional Research Grant
Amount: $3,000

1982. Title: Investigation of physiological, behavioral, and morphological adaptations of fishes in response to extreme environmental fluctuations
Source: The Society of the Sigma Xi (Scientific Research Society)
Amount: $250

PUBLICATIONS: ***Published Abstracts***

Kelsch, S. W. and W. H. Neill. 1998. Stress: Pain at a safe distance? Pages 1-5 *In* Stress in Fish (extended abstract). T. Barry, B. Barton, and D. MacKinlay (organizers) International Congress on the Biology of Fish, Baltimore, Maryland.

Johnson, J. A., and S. W. Kelsch. 1997. Effects of annual temperature cycles on the evolution of temperature preference in fishes. Proceedings of the North Dakota Academy of Science 51:148

Kelsch, S. W. 1996. Available power and competitive fitness in fishes. Pages 9-13 *In* High Performance Fish II: Symposium Proceedings (extended abstract). D. MacKinlay and J. Nelson (organizers). International Congress on the Biology of Fish, San Francisco, California.

PUBLICATIONS: ***Peer Reviewed***

Wang, X., A. M. Melesse, S. W. Kelsch, and W. Yang. 2006. Discussion of "Adapting Existing Models to Examine Effects of Agricultural Conservation Programs on Stream Habitat Quality," by F. Douglas Shields, Jr., Eddy J. Langendoen, and Martin W. Doyle. Journal of the American Water Resources Association 42(6):1711 – 1713 .

Resseguie, T. and S. W. Kelsch. The effects of temperature and discharge on reproductive timing in common carp *Cyrpinus carpio*. (submitted).

Kelsch, S. W. and J. L. Wendel. 2004 Lotic habitat availability and use by channel catfish in the Red River of the North. Journal of Freshwater Ecology 19:473-484.

Wendel, J. L. and S. W. Kelsch. 1999. Summer range and movement of channel catfish in the Red River of the North. Pages 203-214 *in* E. R. Irwin, W. A. Hubert, C. F. Rabeni, H. L. Schramm, Jr., and T. Coon, editors. Catfish 2000: proceedings of the international ictalurid symposium. American Fisheries Society, Symposium 24, Bethesda, Maryland.

Johnson, J. A., and S. W. Kelsch. 1998. Effects of evolutionary thermal environment on temperature-preference relationships in fishes. Environmental Biology of Fishes 53:447-458. (equal co-authorship, alphabetical listing)

Kelsch, S. W. 1996. Temperature selection and performance by bluegills: evidence for selection in response to available power. Transactions of the American Fisheries Society 125:948-955.

Kelsch, S. W., and B. Shields. 1996. Care and handling of sampled organisms. Pages 121-155 (Chapter 5) *In* Fisheries Techniques, 2nd Edition, B. Murphy and D. Willis (eds.). American Fisheries Society, Bethesda, Maryland.

Kelsch, S. W., C. Ottinger, C. Shoemaker, H. Holloway, D. Jensen, T. Steinwand, F. Ryckman, and B. McDannold. 1995. Introduction to fishes and 41 species descriptions. Aquatic Facts of North Dakota, U. S. Fish and Wildlife Service and N. D. Game and Fish Department. 89 pp.

Kelsch, S. W. 1995. Patterns of morphometric variation in the channel and headwater catfishes. Transactions of the American Fisheries Society 124:272-279.

Kelsch, S. W. 1994. Lotic fish-community structure following transition from severe drought to high discharge. Journal of Freshwater Ecology 9:331-341.

Kelsch, S. W., and F. S. Hendricks. 1990. Distribution of the headwater catfish *Ictalurus lupus* (Pisces: Ictaluridae). Southwestern Naturalist 35:292-297.

Kelsch, S. W., and W. H. Neill. 1990. Temperature preference vs. acclimation in fishes: Selection for changing metabolic optima. Transactions of the American Fisheries Society 119:601-610.

Bryan, J. D., S. W. Kelsch, and W. H. Neill. 1990. The maximum power principle in behavioral thermoregulation by fishes. Transactions of the American Fisheries Society 119:611-621.

Kelsch, S. W., and F. S. Hendricks. 1986. An electrophoretic and multivariate morphometric comparison of the American catfishes *Ictalurus lupu*s and *I. punctatus*. Copeia 1986:646-652.

Amemiya, C. T., S. W. Kelsch, F. S. Hendricks, and J. R. Gold. 1986. The karyotype of the Mexican blindcat, *Prietella phreatophila* Carranza (Ictaluridae). Copeia 1986:1024-1028.

Bettoli, P. W., W. H. Neill, and S. W. Kelsch. 1985. Temperature preference and heat resistance of grass carp, *Ctenopharyngodon idella* (Valenciennes), bighead carp, *Hypophthalmichthys nobilis* (Gray), and their F_1 hybrid. Journal of Fish Biology 27:239-247.

Kelsch, S. W., and F. S. Hendricks. 1982. Biogeography of the fishes of the Tamaulipan Biotic Province. In G. Blacklock and D. Riskind (eds.), International Symposium on the Tamaulipan Biotic Province. Texas Parks and Wildlife Department, Austin, Texas. (accepted for publication; original funding for this publication did not materialize and status is uncertain)

Kelsch, S. W., and F. S. Hendricks. 1982. Temporal analysis of aerial photographs for environmental assessments. Texas Journal of Science 34:23-56.

Kelsch, S. W. 1981. Key to the fishes of North Dakota. Pages 189-199 *In* Distribution of fishes in North and South Dakota basins affected by the Garrison Diversion Unit, by J. B. Owen, D. S. Elsen and G. W. Russell. Fisheries Research Unit, University of North Dakota, Grand Forks, North Dakota. 211 pp.

Kelsch, S. W. 1979. Management of North Dakota Habitats: Native Prairie, North Dakota Outdoors 42:22-24.

OTHER SCHOLARALY ACTIVITIES

Web Site Development:

Kelsch, S. W. and J. Tesky. 2002. North Dakota River and Stream Fishes: Resource Development and Analysis—Phase II. This project adds substantial new features to our web site including advanced searches and interactive map generation using ArcView GIS and ArcView Internet Map server. Queries and analyses can be done on an updated North Dakota stream-fish database. URL = http://star6s.biol.und.nodak.edu.

Kelsch, S. W., J. Tesky, and J. Alm. 2000. Distribution of North Dakota Stream Fishes. This web site enables users to create and view fish distrubiton maps. ArcView is used to interactively create maps of 92 species on the basis of 2030 fish collections made from 1953 to present. URL = http://star6s.biol.und.nodak.edu.

Major Research Reports:

Kelsch, S. W. and A. Hill. 2003. Development of Methods for Determining Relative Abundance of Amphipods in Devils Lake. Final Report Submitted to the North Dakota Game and Fish Department. 18 pp.

Kelsch, S. W. and J. Tesky. 2002. North Dakota River and Stream Fishes: Resource Development and Analysis—Phase II. Final Report Submitted to the North Dakota Game and Fish Department. 37 pp.

Kelsch, S. W. and J. Alm. 2001. Effects of landscape land-use and riparian integrity on stream fish community structure in eastern North Dakota streams. Final Report Submitted to the North Dakota Game and Fish Department. 41 pp.

Kelsch, S. W., and J. Tesky. 2001. Quality assurance and collection analysis of the North Dakota stream-fish database, and a proposed form for reporting scientific permit collections. Final Report Submitted to the North Dakota Game and Fish Department. 9 pp.

Kelsch, S. W., J. Alm, and J. Tesky. 2000. The distribution of North Dakota stream fishes. Final Report Submitted to the North Dakota Game and Fish Department. 44 pp.

Coyle, A. M. and S. W. Kelsch. 2000. A methodology using spatial analysis to estimate the sedimentation potential of watersheds in North Dakota: Possible correlations with fish community structure. Final Report Submitted to the North Dakota Game and Fish Department. 29 pp.

Kelsch, S. W. and J. Tesky. 1999. A comparison of headwater stream-fish assemblages. Final Report Submitted to the North Dakota Game and Fish Department. 32 pp.

Kelsch, S. W. and D. DeKrey. 1998. Effects of environmental factors on stream-fish assemblages. Final Report Submitted to the North Dakota Game and Fish Department. 64 pp.

Kelsch, S. W. and J. Wendel. 1998. Habitat availability and seasonal use by channel catfish in the Red River of the North. Final Report Submitted to the Minnesota Department of Natural Resources and the North Dakota Game and Fish Department. 82 pp.

Kelsch, S. W. and D. DeKrey. 1997. Fish population and community structure in relation to available stream habitat. Final Report Submitted to the North Dakota Game and Fish Department. 44 pp.

PRESENTATIONS

2007. Bless, E. and S. W. Kelsch, Effects of Schooling on the swimming performance of the common shiner (*Luxilus cornutus*), Northern Plains Biological Symposium, University of North Dakota. (14 April 2007)

2005. Bless, E. and S. W. Kelsch, Effects of parasite infection on the bioenergetics of stream fishes. EPSCoR RNEST Workshop, University of North Dakota. (28 March 2005)

2003. Krapp, R, J. and S. W. Kelsch. Effects of dramatically-increasing water levels on spatial and temporal variation in age-0 yellow perch abundance in Devils Lake Dakota. First International Water Conference, Red River Basin Institute, Moorhead, Minnesota. (23-24 April)

2003. Krapp, R, J. and S. W. Kelsch. Spatial and temporal variation in yellow perch (*Perca flavescens*) abundance in response to dramatically-increasing water levels in Devils Lake. Dakota Chapter of the American Fisheries Society, Annual Meeting, Mandan, North Dakota. (11-13 February)

2002. Krapp, R, J. Tesky, and S. W. Kelsch. Developing a GIS baseline project for the Devils Lake Basin.. Dakota and Nebraska Chapters of the American Fisheries Society, Joint Annual Meeting, Chamberlain, South Dakota. (26-28 February)

2002. Resseguie, T. and S. W. Kelsch. Larval drift and reproductive strategies of carp in the Red River of the North. Dakota and Nebraska Chapters of the American Fisheries Society, Joint Annual Meeting, Chamberlain, South Dakota. (26-28 February)

2001. Resseguie, T. and S. W. Kelsch. The Effects of Temperature and Flooding on Larval Fish Distribution in the Red River and Tributaries. Dakota and Minnesota Chapters of the American Fisheries Society, Joint Annual Meeting, Fargo, North Dakota. (5-7 March)

2001. Tesky, J. and S. W. Kelsch. Using ArcView GIS and Extensions in Fisheries Management. Dakota and Minnesota Chapters of the American Fisheries Society, Joint Annual Meeting, Fargo, North Dakota. (5-7 March)

2000. Wendel, J. and S. W. Kelsch. Critical Habitat for Channel Catfish in the Red River of the North 62nd Midwest Fish and Wildlife Conference, Minneapolis, Minnesota (3-6 Dec.)

2000. Alm, J., J. Tesky, and S. W. Kelsch. Distribution of North Dakota stream fishes. Dakota Chapter of the American Fisheries Society, Annual Meeting, Spearfish, South Dakota. (28 Feb.-1 March)

2000. Coyle, A. M. and S. W. Kelsch. Study of watershed sedimentation potential on the effects of fish community structure. Dakota Chapter of the American Fisheries Society, Annual Meeting, Spearfish, South Dakota. (28 Feb.-1 March)

2000. Resseguie, T., R. Duffield, and S. W. Kelsch. Abundance and distribution of icthyoplankton in the Red River Basin in North Dakota: Diel and spatial patterns. Dakota Chapter of the American Fisheries Society, Annual Meeting, Spearfish, South Dakota. (28 Feb.-1 March)

2000. Tesky, J. and S. W. Kelsch. Current and potential applications of the Internet and Geographical Information Systems (GIS) for fisheries biology. Dakota Chapter of the American Fisheries Society, Annual Meeting, Spearfish, South Dakota. (28 Feb.-1 March)

1999. Kelsch, S. W. and W. H. Neill. Is stress a mechanism for risk avoidance? American Fisheries Society, Annual Meeting, Charlotte, North Carolina. (29 Aug.-2 Sept.)

1998. Kelsch, S. W. Stress: A mechanism for risk avoidance? Texas A&M University, Department of Wildlife and Fisheries Sciences, invited seminar. (29 Oct.)

1998. Kelsch, S. W. and W. H. Neill. Stress: pain at a safe distance? International Congress on the Biology of Fish, Baltimore, Maryland. (26-30 July)

1998. Wendel, J. and S. W. Kelsch. Summer range and movements of channel catfish in the Red River of the North. Catfish 2000: International Ictalurid Symposium, Davenport, Iowa. (23-26 June)

1998. Kelsch, S. W. Power and fitness in fishes. Seminar presented to the Department of Biology, University of North Dakota. (1 May)

1998 Wendel, J. and S. W. Kelsch. Patterns of movement and range of channel catfish in the Red River. Dakota Chapter of the American Fisheries Society, Annual Meeting, Pierre, South Dakota. (2-4 March)

1998. DeKrey, D. and S. W. Kelsch. Fish species distribution and environmental variation in three North Dakota streams. Dakota Chapter of the American Fisheries Society, Annual Meeting, Pierre, South Dakota. (2-4 March)

1997. Vachal, P., D. DeKrey, and S. W. Kelsch. Effects of human induced environmental alterations on stream-fish communities. Annual McNair Scholar Poster Session, Grand Forks, North Dakota. (12 Aug.)

1997. DeKrey, D. and S. W. Kelsch. Habitat and community structure in the Pembina River, ND. Dakota Chapter of the American Fisheries Society, Annual Meeting, Fargo, North Dakota. (25-27 Feb.)

1997. Verrill, D., L. Schlueter, and S. W. Kelsch. Relationship of habitat suitability indices to relative fish abundance in North Dakota lakes. Dakota Chapter of the American Fisheries Society, Annual Meeting, Fargo, North Dakota. (25-27 Feb.)

1997. Johnson, J. A. and S. W. Kelsch. Effects of temporal thermal environment on the evolution of temperature preference in fishes. Dakota Chapter of the American Fisheries Society, Annual Meeting, Fargo, North Dakota. (25-27 Feb.)

1996. Jensen, B. L. and S. W. Kelsch. Morphometric comparison of the Yaqui and channel catfishes. Symposium of the Desert Fishes Council, Cuidad de La Paz, Baja California Sur, México (6-9 Nov.)

1996. Johnson, J. A. and S. W. Kelsch. Effects of thermal environment on temperature preference in fishes. North Dakota Science, Engineering, and Mathematics Undergraduate Poster Session, Grand Forks, North Dakota. (July 31)

1996. Kelsch, S. W. Available power and competitive fitness in fishes. International Congress on the Biology of Fishes, Biannual Meeting, San Francisco, California. (July 14-18)

1996. Kelsch, S. W. Temperature selection and available power in bluegill. Dakota Chapter of the American Fisheries Society, Annual Meeting, Pierre, South Dakota. (February 27-29)

1996. Verrill, D. D. and S. W. Kelsch. Effects of stress on glucose levels and swimming performance in yellow perch. Dakota Chapter of the American Fisheries Society, Annual Meeting, Pierre, South Dakota. (February 27-29)

1995. Kelsch, S. W. Temperature selection and swimming performance in bluegill. American Fisheries Society, Annual Meeting, Tampa, Florida

1994. Kelsch, S. W. Ecology of the Little Missouri River during high flow. Dakota Chapter of the American Fisheries Society, Annual Meeting, Aberdeen, South Dakota

1993. Kelsch, S. W. DisBCal89: age and growth of fishes. Invited workshop. Dakota Chapter of the American Fisheries Society, Annual Meeting, Bismarck, North Dakota.

1988. Kelsch, S. W. A theoretical model describing a metabolic basis of behavioral thermoregulation in fishes. Southwestern Association of Naturalists, Annual Meeting, San Angelo, Texas.

1988. Kelsch, S. W. and W. H. Neill. Temperature preference vs. acclimation in fishes: selection for changing metabolic optima. Invited paper. American Fisheries Society, Annual Meeting, Toronto, Canada.

1987. Kelsch, S. W. A theoretical model of temperature preference in fishes. Texas A&M Chapter of the American Fisheries Society, Annual Technical Session, College Station, Texas.

1987. Kelsch, S. W. Ecological segregation of the sibling catfishes *Ictalurus lupus* and *I. punctatus*. Southwestern Association of Naturalists, Annual Meeting, San Marcos, Texas.

1985. Kelsch, S. W. and F. S. Hendricks. Ecological relationships of the sibling catfish species *Ictalurus lupus* (headwater catfish) and *I. punctatus* (channel catfish). Received best poster award. American Fisheries Society, Annual Meeting, Sun Valley, Idaho.

1985. Kelsch, S. W. and F. S. Hendricks. Generic relationships within the family Ictaluridae with special emphasis on the blind catfishes, *Prietella, Satan* and *Trogloglanis*. American Society of Ichthyologists and Herpetologists, Annual Meeting, Knoxville, Tennessee.

1985. Kelsch, S. W. and F. S. Hendricks. Phylogenetic relationships of the subterranean blind catfishes, *Prietella phreatophila, Satan eurystomus* and *Trogloglanis pattersoni*. Texas Academy of Science, Annual Meeting, Dallas, Texas.

1985. Kelsch, S. W. and F. S. Hendricks. Systematic relationships of blind catfishes, family Ictaluridae. Southwestern Association of Naturalists, Annual Meeting, Glendale, Arizona.

1985. Kelsch, S. W. and F. S. Hendricks. Tentative systematic relationships of the North American blind catfishes. Texas A&M Chapter of the American Fisheries Society, Annual Technical Session, College Station, Texas.

1983. Kelsch, S. W. A conceptual model relating acclimation to temperature preference in fishes. Texas A&M Chapter of the American Fisheries Society, Annual Technical Session, College Station, Texas.

1983. Kelsch, S. W. The relationship of acclimation to temperature preference in fishes. Wilkes Award finalist. Southwestern Association of Naturalists, Annual Meeting, Little Rock, Arkansas.

1982. Kelsch, S. W. and F. S. Hendricks. Biogeography of the fishes of the Tamaulipan Biotic Province. International Symposium on the Tamaulipan Biotic Province, Corpus Christi, Texas.

1982. Kelsch, S. W., I. F. Greenbaum, and F. S. Hendricks. Electrophoretic comparison of populations of the channel catfish species complex. Received second place award for best paper. Texas A&M Chapter of the American Fisheries Society, Annual Technical Session, College Station, Texas.

1982. Kelsch, S. W., I. F. Greenbaum, and F. S. Hendricks. Electrophoretic comparison of populations of the channel catfish species complex. Southwestern Association of Naturalists, Annual Meeting, Corpus Christi, Texas.

1982. Kelsch, S. W., I. F. Greenbaum, and F. S. Hendricks. Notes on variations among populations of channel catfish and a closely related species. American Society of Ichthyologists and Herpetologists, Annual Meeting, Dekalb, Illinois.

SERVICE

PROFESSIONAL ACTIVITIES

- Consultant for ENSR International, Larval fish impingement in Missouri River power plants (2004-present)
- Co-Chair, Continuing Education Committee, Dakota Chapter of the American Fisheries Society (2002-present)
- Served as a reviewer for the following scientific journals:
  - American Fisheries Society Symposium on Fish Ecology in North America (1992)
  - Copeia (1996)
  - Canadian Journal of Fisheries and Aquatic Sciences (2004, 2004)
  - Journal of Thermal Biology (2002)
  - Marine Biology (1995)
  - North Americna Journal of Aquaculture (2004)
  - North American Journal of Fisheries Management (1994,1999, 2001, 2007)
  - Prairie Naturalist (1994, 1996)
  - Progressive Fish Culturist (1993)
  - Transactions of the American Fisheries Society (1995, 1997, 2002, 2004, 2006, 2007)
- Reviewed grant proposal for the Florida Sea Grant College Program (1997)
- Reviewed grant proposal for the North Carolina Sea Grant College Program (2001, 2003)
- Served as consultant for the environmental consulting firm Foothill Associates, Roseville, CA (2000)
- Served as external tenure and promotion reviewer for the Department of Range, Wildlife, and Fisheries Management at Texas Tech University (2000)
- Past President, Dakota Chapter of the American Fisheries Society (1999-2000)
- President, Dakota Chapter of the American Fisheries Society (1998-1999)
- President-elect, Dakota Chapter of the American Fisheries Society (1997-1998)
- Newsletter editor, Dakota Chapter of the American Fisheries Society (1997-1998)
- Chair and Member of the Student Paper Awards Committee of the American Fisheries Society (1992-1993)
- Judge of Chapter news letters for the North Central Division of the American Fisheries Society (1992)
- Chair of the Publications Committee for the North Central Division of the American Fisheries Society (1991-1992)
- Back Issues Manager, Texas Journal of Science (1985)
- President of the Texas A&M Chapter of the American Fisheries Society (1982-1983)

- Back Issues Manager, Southwestern Naturalist (1981-1987)
- President of the Texas A&M Chapter of the Phi Sigma Society (1981-1982)

DEPARTMENTAL ACTIVITIES

- Biology Cooperative Education Coordinator (2007-present)
- UND Biology Web Site Supervisor and Designer (2006-present)
- Biology Executive Committee Member (2006-2009)
- UND Biology Web Site--Created Cellular, Molecular and Developmental Biology Web Site and updated Biology Web Site; brought Biology Web Site into compliance with University of North Dakota requirements (2005)
- Chair, Department of Biology (July 2003-2006)
- Program Evaluation Leader for Biology Undergraduate Program Review (2004-2005)
- Leader of the North Dakota Fishery Research Unit (1991-present)
- Curator of Fishes (1991-present)
- Advisor for Fisheries and Wildlife Biology majors--Last initial A through E (1991 - present), Last initial N through Z (Fall 1996-1999), and Last initial A (2003 - 2006)
- Member of the RNEST Parasite core facility group (2002-2005)
- Biology Graduate Student Association Advisor (2003-present)
- Member Biology Field Station Committee (2002-2004; 2007-present)
- Member Ecology Search Committee (2001-2002)
- Ad Hoc Grievance Committee, Chair (2001)
- Senior Honors Advisor for Ryan Duffield (fall 1999-fall 2000)
- Chair, Executive Committee (fall 2000-spring 2001)
- Mentor for Hughes Undergraduate Fellow, Alicia Beltran (fall 1998-spring 1999)
- Mentor for Hughes Undergraduate Apprentice, Alicia Beltran (spring 1998)
- Mentor for McNair Scholar, Paula Vachal (1997-1998)
- Member, Executive Committee (1997-1998 school year, 1998 - 2000)
- Chair, Academic Programs and Student Awards Committee (1997-1999, 2001-2002)
- Library Liaison for Department of Biology (fall 1996-spring 1998)
- Member Ecology Search Committee (1996-1997)
- Supervised Hughes Undergraduate Apprentice, Jennifer Johnson (1996)
- Supervised Hughes Undergraduate Fellow, Jennifer Johnson (1995-1997)
- Supervised Hughes Undergraduate Apprentice, Jennifer Johnson (1995)
- Member Introductory Biology Search Committee (1995)
- Member of the Academic Programs and Student Awards Committee (1992-1999)
- Coordinator of the Data Analysis Room (1992-fall 1996)

UNIVERSITY ACTIVITIES

- University Senate Member, University of North Dakota 2006-2007
- Member of the College of Arts and Sciences, College Council (2003-2006)
- Dept. representative on the Faculty Seed Money Committee, Physical Sciences (2002-2007)
- Member of UND Senate Experiential Learning Committee (2003-2005)
- Elected Member of the Executive Committee of the College Council, Math and Natural Sciences Representative (2003-2004)
- Member of the UND Senate Legislative Affairs Committee (2001-2004)
- Chair of the UND Senate Legislative Affairs Committee (2001-2002; 2002-2003, 2003-2004)
- VPAA Appointee on Undergraduate Program Evaluation Committee for Geology (2001-2002)
- One of three faculty invited to speak and answer questions on the experience of promotion and tenure at UND for the Presidents Advisory Council on Women. (1997)

COMMUNITY SERVICE ACTIVITIES

- Prepared exhibits and hosted (with Jeff Carmichael) the 3rd grade class from Phoenix Elementary School as they learned about biology through exhibits at UND (Spring 2006).
- Gave presentation to Grand Forks Science Teachers on Research in Biology at UND (Apr. 2004)
- Did an interview with an 8th grade student and parent interested in marine biology (Oct. 2002)
- Did an interview with a UND student on biology as a profession (Sept. 2002)
- Gave a presentation on Sharks to students at the University Childrens Center (2002)
- Used our aquatic facility to hold live fish, caught during the Cat's Incredible fishing tournament, for Cabela's during construction of their aquarium.
- Interviewed about larval fish study by Brad Dokken, Grand Forks Herald (1999)

- Interviewed about fish on KCNN radio by Toby Baker on her radio show (1998)
- Interviewed by Dan Haney, MN Public Radio, about channel catfish study (summer 1997)
- Interviewed by Mary Losier, MN Public Radio, about effects of flood on ecosystem (spring 1997)
- Interviewed by Kevin Grinde for articles in Grand Forks Herald about channel catfish study (1996, 1997)
- Interviewed by Grand Forks Herald columnist (Marcia Harris) about the effects of hook & line angling on fish.
- Assisted Kevin Grinde in the preparation of a series of articles on spawning in fish for the Grand Forks Herald.
- Interviewed in a video-taped program entitled "Activities of fish in winter" produced by the North Dakota Game and Fish Department and shown statewide on evening news programs
- Served as faculty mentor for student in the MARC program (minority access to research)
- Participated in community "Job Shadowing" program on six occasions. Junior High School students spend three hours with individuals doing jobs in which they are interested
- Gave a talk on fisheries and tour of fish laboratory (three occasions) to approximately 15 students from Red River High School enrolled in Field Biology, taught by Lori Crummy
- Gave a talk on fisheries and a tour of fish laboratory to approximately 17 members of the Brainy Bunch Science Club. Students were boys in grades 1-3
- Identified fish for Don Shields, City Health Department
- Spoke to a group of students in Grafton, ND about potential careers in Fisheries and Wildlife as part of career awareness
- Met with State Representative Gordon Berg on two occasions to discuss Devils Lake and the proposed introduction of the zander (exotic fish from Europe) into North Dakota