

**ANNUAL REPORT
2006**

DIVISION OF FISHES

PERSONNEL

Curator: Ted M. Cavender

Associate Curator: Marc R. Kibbey

Assistant Cataloger: Tamela Brown

Student Catalog and/or
Field Assistants:

Clara Folb
Katie Abel
Hongyan Zhang
Kristi Harraman
Chad Schwinnen
Kyle Tulisiak
Aloah Pope

Museum Research Associates:

Dr. Brady Porter
Dr. Jonathan Bowen
Dr. Paul Fuerst
Dr. Miles Coburn
Dan Rice
Craig Ciola
Mike Sandel
Rob Gaebel

Graduate Student:

Foreign Research Collaborations:

Dr. Seiro Kimura
Dr. Norbert Micklich
Dr. Jola Sczlachiak
Dr. Alexander Kozhara

SUMMARY OF THE YEAR 2006

Part of the present focus for the OSUM Fish Collection is on making the collection more accessible to researchers. Toward that end we have been reorganizing and updating our holdings,

Work began in 2006 to produce a compilation of the Current Status and Distribution of Ohio Fishes to update those portions of Milton Trautman's Fishes of Ohio. Fish Division Research Assistant Chad Schwinnen's training in ARC-GIS will help produce distribution maps that will reflect changes in Ohio's fish populations including new records, areas where fish species have expanded or experienced diminishment in their ranges. Sections included in the publication will document establishment of invasive species populations and their effects on native fishes.

In 2005 the Ohio portion of the cataloged database was transformed to a format that will allow it to be posted on the college website (www.biosci.ohio-state.edu/~paleoich). Continuation of the transformation found and corrected several catalog entry errors, making the records more reliable. Posting of the database in early 2007 will allow internet searches of the OSUM Fish Division's holdings of the Ohio cataloged fish collection as well as the already web-accessible Indiana collections from the Shelby Gerking investigations. Much progress was made on database entry of the card-cataloged records of the holdings of Missouri fishes. The Missouri collection will be the next data set to be posted on the internet after the Ohio web-accessible collection is completed.

A study was begun with Aloah Pope, an EEOB major in the Honors program, on behavior of darters. The study is being conducted primarily in the Fish Division laboratory with several aquarium tanks and the goal is to finish the first part of the research by end of Spring Quarter, followed possibly by studies on corresponding behavior of closely and distantly related species.

A project was initiated late in 2005 in collaboration with the Columbus Zoo and supported by the Division of Wildlife to propagate host fishes for the established bivalve mussel propagation and reintroduction project run by OSUM Bivalve Division Curator Tom Watters. This project took off in January 2006 with the construction of a series of aquarium habitats and the hire of a Research Assistant. Fishes are a necessary part of the life cycle for many species of bivalve mussels wherein they serve as temporary hosts for the larvae (glochidia). Projected expansion of propagation facilities on the Columbus Zoo Bivalve Mussel Research Laboratory will include work on imperiled fish species that may see reintroduction of regionally extirpated populations or augmentation of diminished populations.

Two projects were undertaken in 2006 utilizing the x-ray machine housed in Room 1508, one an investigation by Ted Cavender and Marc Kibbey into the presence of geographical subspecies level differences in the quillback carpsucker *Carpionodes cyprinus*, another utilizing some of the same sets of x-ray photos plus x-rays of river carpsuckers and highfin carpsuckers to determine the presence of hybridization between the quillback and the last mentioned two species in conjunction with a molecular genetics study for the same problem with Mike Sovic, graduate student in the Department of Molecular Genetics.

Two projects were conducted by the Curator Ted Cavender and Ohio Historical Society Curator Jonathan E. Bowen. Bowen was in charge of excavating the Fuert Village site on the Lower Scioto River when he uncovered remains of approximately 20 species of fish identified here at the museum. A second site on the Maumee River was excavated by the University of Toledo with Dave Davies in charge. Bowen sorted out all the fish remains from the site and carried the several lots to the Fish Division.

One project was carried out with Brady Porter on the distribution and status of darter species *Etheostoma camurum*, *Etheostoma tippecanoe* and *Etheostoma maculatum*.

A project with Fish Division Associate Rob Gaebel was conducted in 2006 on the systematics of North American and Eurasian cyprinidae utilizing cleared and stained specimens. Rob cleared and stained about 50 lots of cyprinids for the project.

PERSONNEL CHANGES AND TRACKS

Among the events affecting Fish Division operations in 2006 was the procurement of a grant from the Ohio DNR Division of Wildlife to support an Assistant Cataloger, hired in July of 2006. This will allow us to expand our research capabilities at the same time as increasing our ability to reduce the backlog of Ohio voucher collections.

Among the many students and employees of the Fish Division who keep in contact with us is Chad Whaley, formerly an EEOB student and Fish Division student research assistant, who continued to work in the field doing fish distribution surveys in Wyoming. Clara Folb, a Fish Division research assistant in 2006, graduated last Spring and went to work at the New England Aquarium as an intern, and is currently seeking a graduate studies appointment at several universities. Former EEOB student and Fish Division student research assistant Jason Martin graduated from Capitol University with a law degree and is working at a firm in Colorado. Former Fish Division student James Norrocky is still working with US Fish and Wildlife Service and contacts Ted Cavender to seek advice on fish otolith research. Lee Kittle has applied to the OSU Veterinary School. Rob Gaebel who graduated with a Master's degree in 2005, currently is employed with the OSU Office of Responsible Research Practices and is continuing to work on ichthyological research with the Fish Division. EEOB undergraduate student and Fish Division student research assistant Mike Sandel is currently in the second year of his doctoral program in ichthyology at the University of Alabama. Former Fish Division student research assistant Tim Kiser has been accepted into the graduate program at the University of Idaho after working for several summers with the Idaho Fish and Game Commission. Vickie Gordon, former EEOB student and Fish Division student research assistant, was promoted to head of the EA Engineering, Science, and Technology, Inc. ichthyology laboratory at Louisville, Kentucky.

A large segment of the marine collection of fishes was entered in our computer database by Hongyan Zhang, a graduate student assigned to the Fish Division for Spring Quarter. Also assigned to the Fish Division for graduate research assistant obligations was Katie Abel who assisted us in our catalog operations and the 2006 Museum Open House.

Volunteer Kyle Tulisiak, a student currently enrolled in the OSU School of Natural Resources, assisted the Fish Division in the Autumn of 2006 with our catalog operation and with stream fish collecting for our projects. Chad Schwinnen also volunteered in similar areas and was hired to work for us as a Research Assistant and Assistant Cataloger.

COLLECTIONS

The research collection of fishes at the Museum of Biological Diversity, 1315 Kinnear Road, consists of the following components:

Cataloged Research Collection of Fishes - Alcohol stored and shelved in Room 2600.

Cataloged Osteological Collection of Fishes - Cabinet stored in Room 2500.

Teaching Collection of Fishes - Alcohol stored and shelved in Room 2500.

Genetic tissue specimen collection - preserved in 95% ethanol, stored and shelved in Room 2500.

Uncataloged Research Collection of Fishes - Alcohol stored and shelved in Room 2500.

Subfossil Fish Collection from Archaeological Sites in Ohio (on loan) – shelved in room 2500.

RESEARCH COLLECTIONS

GROWTH OF THE COLLECTIONS

The pace of growth of the cataloged research collection of fishes continued during the past year due to the agreement between the Emeritus head curator Ted Cavender, and Midwest Biodiversity Institute leader Chris Yoder, to confirm identifications, process and catalog their fish vouchers from several Midwestern states. These collections have significantly bolstered our holdings from states other than Ohio, as well as our standing as a regional collection. The agreement will continue in 2007.

A total of 930 lots were added to the alcohol and skeleton holdings in 2006, from the MBI as well as other collections. Ted Cavender and Marc Kibbey spent over 100 hours confirming identification of fishes for Midwest Biodiversity Institute according to our arrangement where some of the time was reimbursed in funds to run the Fish Division. The cataloged research collection at the end of 2006 stood at a total of 104,450 lots and 1,469,172 specimens. New accessions of uncataloged material in 2006 amounted to approximately 2,160 lots and 30,225 specimens.

MAJOR ADDITIONS

1. ALCOHOL COLLECTIONS: Specimens were collected from a number of the drainages in 2006:

Ben Rich, Alex Johnson and Lon Hersha deposited fish voucher collections for the Midwest Biodiversity Institute from several stream drainages of the states of Ohio, Wisconsin, Michigan, Illinois, Indiana and Maine.

2. Specimens added to the OSTEOLOGICAL COLLECTION in 2006:

Several skeletal specimens previously prepared were cataloged including samples of *Amia calva*, *Acipenser fulvescens*, *Ctenopharyngodon idella*, *Semotilus atromaculatus*, *Catostomus commersonii*, *Moxostoma breviceps*, *Moxostoma carinatum*, *Stizostedion vitreum*, and *Aplodinotus grunniens*. The Associate Curator prepared new specimens of *Ictiobus bubalus*, hybrid *Ictiobus bubalus x I. niger*, and *Ictalurus furcatus*.

3. ZOOARCHAEOLOGICAL COLLECTIONS:

Several lots of subfossil fish remains from Ohio Indian middens were deposited with the Fish Division for analysis by Ted Cavender.

4. FISH COLLECTION LIBRARY: Added to the library in 2006 were the following texts:

Bailey, Reeve M., William C. Latta, and Gerald R. Smith. 2004. An Atlas of Michigan Fishes with Keys and Illustrations for Their Identification. University of Michigan Museum of Zoology Miscellaneous Publications No. 192. 215p.

Lyons, J., Philip A. Cochran, and Don Fago. Wisconsin Fishes 2000: Status and Distribution. University of Wisconsin Sea Grant Publication No. WISCU-B-00-001. 87p.

Miller, Rudolph J., and Henry W. Robison. 2004. Fishes of Oklahoma. Oklahoma Press. 450p.

Cross, Frank B., and Joseph T. Collins. 1995. Fishes in Kansas. University Press of Kansas. 315p.

FIELD COLLECTIONS COLLECTIONS MADE BY THE CURATOR in 2006

Ted Cavender made 7 collections in 2006 with data table and field notes. The following collections were made in connection with research projects and teaching or personal activities.

- **One collection each from West Branch Black Creek in New York and from a tributary to the Battenkill River in New York**
- Two collections from Big Darby Creek
- **Three collections from Kokosing River**
- **A two day reconitering survey was made of lower Kokosing and upper Walhonding Rivers for best access sampling sites for the Nothonotus darter survey**

COLLECTIONS MADE BY THE ASSOCIATE CURATOR in 2006

Marc Kibbey made 16 collections in 2006 with data table and field notes. The following collections were made in connection with research projects and teaching or personal activities.

- **One collection each from the Belize River (Belize Province near Burrell Boom), Blues Creek, Qu Qua Creek, Cedar Run, Walnut Creek, Ohio Brush Creek**
- **Two collections each from Mill Creek,**
- **Three collections each from Olentangy River**
- **Five collections each from Kokosing River**

COLLECTIONS MADE BY MUSEUM RESEARCH EMPLOYEES, STUDENTS AND ASSOCIATES in 2006

Undergraduate Student Employees or Volunteers Clara Folb, Kyle Tulisiak, Kristi Harraman, Chad Schwinnen and Aloah Pope assisted the curator and/or associate curator in 2006 with several of the above collections.

PROGRESS IN THE CURATION OF THE COLLECTION

Emphasis was placed on cataloging the backlog of accessions in conjunction with the project sponsored by the Ohio Department of Natural Resources Division of Wildlife, in the first half of the 2005-2006 fiscal year, and on cataloging the vouchers deposited by the Midwest Biodiversity Institute, also in the first half of the 2005-2006 fiscal year.

NEW ACCESSIONS ADDED IN 2006 WERE AS FOLLOWS (several of the collections by Fish Division personnel include whole fish specimens or fin clips in 95% EtOH):

DONOR	Description of Collection
Clara Folb and Marc Kibbey	One collection from Walnut Creek
Ben Rich, Lon Hersha Midwest Biodiversity	Voucher collections from Wisconsin, Michigan, Illinois, Indiana
Mike Hoggarth, Dan Rice	Voucher collections from the Little Muskingum River drainage study
Ken Cummings, OSU	Brought in one Odontocetine vertebrae for ID
Dana Schmidt, ODNR DOW	One shovelnose sturgeon stored in freezer for Skeleton
Hongyan Zhan, OSU	One jar icefish from Asian market
Matt DeLaVega	Two invasive studfish from Spring Valley Run for ID confirmation
Marc Kibbey	Three collections from Ohio Brush Creek including one young of the year gar - possibly shortnose
Ted Cavender, B. Porter Marc Kibbey et al.	Two collections from the Kokosing River for Nothonotus darter subgenus research
Pat Howard, ODNR DOW	Young of the year striped bass from Senacaville Hatchery for comparisons
Ted Cavender, Sarah Hazzard, Mike Sandel,	One collection from Big Darby Creek @ State Rte. 42 to procure Lythrurus fasciolaris

Silas Buehler, Marc Kibbey

Vickie Gordon, EA Blue catfish and stonerollers from Ohio and
Engineering Indiana for ID confirmation

Erin Quinlan, Mike Sovic 2 tubenose gobies and a rosyface shiner from
And EEOB 621 class North Bass Island, Lake Erie

Brady Porter and three One collection from Big Darby Creek at Rte. 104
Graduate students, Marc for Nothonotus darter subgenus study
Kibbey

Brady Porter and three Three collections from Kokosing River for
Graduate students, Marc Nothonotus darter subgenus study
Kibbey

Marc and Susan Kibbey One collection from Belize River, Belize
Including fin clips in 95% EtOH

South Carolina via One jar of specimens in 95% EtOH from research at
Mike Brittsan of thethe Bivalve Mussel Facility
Columbus Zoo & Aquarium

J.E. Bowen, Ohio subfossil fish bones from native American
Historical Society middens along the Scioto River

Kirk Roth, EA Engineering 2 jars white perch and one bluebreast darter
For ID confirmation

Tom Zabloutny, Northeast One mimic shiner from the Cuyahoga River for
OH Regional Sewer Dist. ID confirmation

Kristi Harrman, Kyle One collection from Mills Creek including two
Tulisiak, Marc Kibbey Noturus flavus in 95% EtOH

T. Zabloutny, Northeast 1 flathead catfish, 1 lake trout head from
Ohio Regional Sewer Cuyahoga River for ID confirmation - preserved
District fin clip and muscle in 95% EtOH

Mike Sovic, OSU grad Carpiodes cyprinus from various localities for
Student skeletons

Midwest Biodiversity Vouchers from Illinois, Indiana, Ohio and Maine
Institute

J.E. Bowen, Ohio Subfossil fish bones from Fuert Village middens
Historical Society Scioto County, Ohio

The research and teaching collections of the Fish Division in the Museum of Biological Diversity have been made available to the scientific community and the interested public by the Fish Curator and Collection Manager. We provide loans, teaching materials and informational tours of the Fish Division to professional and lay visitors, University students and classes as well as secondary school and high school classes. In addition many unknown specimens brought or sent to the Fish Division have been identified by the curator as a public

service. This portion represents a complete account of our service with the public, governmental, professional and education areas.

LOANS AND EXCHANGES PROCESSED in 2006

Loan Invoice No. 2006-01. Returned 2 lots of fossil fish specimens to the Carnegie Museum of Natural History.

Loan Invoice No. 2006-02. Received return of four lots of alcohol preserved fishes from Missouri Department of Conservation.

Loan Invoice No. 2006-03. A loan of five lots of alcohol preserved Lake Erie invasive species to Gene Kim of OSU Aquatic Ecology Lab for the Ohio Sea Grant's 16th State Legislature/Congressional Day on Lake Erie Friday, 14 July 2006

Loan Invoice No. 2006-04. Loan of 3 lots of alcohol preserved Etheostoma sp. to Brady Porter, Duquesne University.

Loan Invoice No. 2006-05. Extended loan of synoptic teaching collection to Brady Porter, Duquesne University, for an ichthyology class.

Loan Invoice No. 2006-06 175 lots of cataloged specimens and uncataloged study specimens representing all the Ohio species loaned for a weekend long fish identification workshop given by the Associate Curator.

Loan Invoice No. 2006-07. Loan of three lots of alcohol preserved Campostoma anomalum to Jeff Johansen, John Carroll University.

VISITORS TO THE FISH DIVISION IN 2006

VISITOR	HOME INSITUTION
James Garvey	Southern Illinois University Carbondale
Dan Cincotta	West Virginia Division of Natural Resources
Stuart Welsh	West Virginia University
Chad Snavelly	ODNR Division of Wildlife
Kipp Brown	ODNR Division of Wildlife
Andrew Burt	ODNR Division of Wildlife
Ben Rich, Alex Johnson	Midwest Biodiversity Institute
Chad Schwinnen	Alum Creek Municipal Water Reclamation Facility
Trent Sutton	Purdue University
Glenn Trueb	ODNR Division of Wildlife
Rich Carter	ODNR Division of Wildlife

Ken Cunningham	ODNR Division of Wildlife
Sarah Hazzard	OSU Museum of Biological Diversity Mollusks
Michael Black	OSU
Hongyan Zhang	OSU Limnology Lab
Pat Howard	Hebron Fish Hatchery
Clara Folb	OSU
Lon Hersha	Midwest Biodiversity Institute (3 visits)
Roger Troutman	Former Zoology Student and Museum Associate
Vickie Gordon	EAEngineering
Kirk Roth	EAEngineering (2 visits)
Deb Hersha	Midwest Biodiversity Institute
Brady Porter	Duquesne University
Ben Kelley	Midwest Biodiversity Institute
Jeb Bowen	Ohio Historical Society (3 visits)

**RESEARCHERS CONSULTING THE COLLECTION and CURATORIAL SERVICE PROVIDED
in 2006**

INVESTIGATOR	HOME INSTITUTION	SERVICE PROVIDED
Dan Cincotta and Stuart Welsh	West Virginia Division Of Natural Resources West Virginia University	Advice and training on identifying lampreys
Mark Dugo	Mississippi Museum of Natural History	Provided information on Collectors for <i>Percina Copelandi</i>
Creighton Freeman	OSU MBD Entomology	Information on names for gobies from China
Mike Austin	Ohio Department of Transportation, Southeast District	Information on collecting sites in the Muskingum River
Mike Austin	ODOT, Southeast Dist.	Historical ollection Data for <i>Percina macrocephala</i>
Michael Collins, Asst. Professor	College of Wooster	Fish preservation advice
Chad Schwinnen, student	Columbus State Community College	Random database of fish distribution records for use in an ARC-GIS class
Ben Rich, Aquatic Biologist	Midwest Biodiversity Institute	Information on container storage
Michael DeLong, Professor and Director	Large River Studies Ctr. Winona State University	Disseminated catalog info on Ohio River fish
David Etnier, Professor	University of Tennessee	Contact info for <i>Noturus flavus</i> genetic work

Justin C. Bagley	University of Alabama	reliability of molecular divergence calculated from Centrarchid fossils
Todd C. Crail	University of Toledo	Current distribution and status of <i>Etheostoma microperca</i>
Todd C. Crail	University of Toledo	Locality information for <i>Clinostomus elongatus</i> and <i>Percina phoxocephala</i>
Todd C. Crail	University of Toledo	Contact information for sampling fishes in State regulated waters
Todd C. Crail	University of Toledo	Status of <i>Catostomus catostomus</i> in Lake Erie
Michael Durkalec, Aquatic Biologist	Cleveland Metroparks	Identification confirmation for a <i>Salvelinus namaycush</i> Specimen from the Cuyahoga River
Rob Hopkins, PhD student	Southern Illinois University	Catalog records for fishes of the Green and Barren River drainages Kentucky and Tennessee
Michael Compton	Texas Commission on Environmental Quality	Catalog records for <i>Notropis amnis</i>
Chuck Boucher, Environmental Specialist	Ohio EPA, Surface Water Division	Pre-1941 catalog records for upper Mad River Tributaries
Mike Greenlee	ODNR Division of Wildlife	Presence of <i>Esox americanus</i> and <i>Esox masquinongy</i> in Raccoon Creek, Ohio
Todd C. Crail	University of Toledo	Presence of <i>Noturus eletherus</i> and <i>Noturus stigomusus</i> in Paint Creek, Ohio
Mike Austin	ODOT Southeast District	Info on presence of <i>Etheostoma camurum</i> in Little Muskingum River
Kali Stacey	Adrian Elementary School, Cleveland	Life history and photos of <i>Ichthyomyzon unicuspis</i>

Kevin Donahue	Ohio State University	Partial identification of an Odontocetine vertebrae
Kevin Lumney	Ohio State University	Procurement of live <i>Lepisosteus</i> specimens for lab session
Doug Warmolts, Asst. Director of Living Exhibits	Columbus Zoo and Aquarium	Ohio distribution of <i>Aphredoderus sayanus</i> , <i>Esox niger</i> and <i>Minytrema melanops</i>
Tom Watters	OSU Museum of Biological Diversity	Fish fauna list for the Appalachicola River, FL
Cal Borden, PhD student	Cleveland State Univ.	Sampling techniques for <i>Micropterus</i>
Mike Sovic, PhD student	Ohio State University	Distribution of <i>Carpiodes sp.</i>
Mike Austin, Aquatic	ODOT Southeast District	Distribution of <i>Etheostoma camurum</i> in Ohio streams
Andrew Burt, Fisheries Biologist	ODNR DOW District III	Identified <i>Salvenlinus fontinalis</i> from pictures
Brian Zimmerman, Master's Student	Heidelberg College	Distribution and status of <i>Clinostomus elongatus</i>
Ken Cummings, Scientist	EA Engineering, Science And Technology	Distribution and taxonomy for <i>Campostoma oligolepis</i>
Douglas Noltie, Prof.	Dept. Fisheries & Wildlife Research, University of Missouri	Distribution records for <i>Lepomis humilis</i>
Mike Wilkerson, Fisheries Biologist	ODNR DOW District II	Comments on status of extinct or extirpated Ohio fish species
Mike Sandel, PhD student	University of Alabama	Status of <i>Percina macrocephala</i>
Konrad Schmidt, Ichthyologist	Department of Natural Resources, Minnesota	Recent Midwest Bio-Diversity Institute collections

Holly Tucker, Environmental Specialist	Ohio EPA Surface Water Division	Comments on declining Ohio fish species
Todd C. Crail, Master's Student	University of Toledo	Status and distribution of <i>Fundulus diaphanous menona</i>
Erin Quinlan, Postdoc	Ohio State University	Provided fish study specimens and advice for preparation to teach the summer 2006 Stone Lab Ichthyology Course
Brady Porter, Prof., Beth Dakin and 2 more Grad students	Dept. of Biological Sciences, Duquesne University	Locality information and collection assis- tance for <i>Etheostoma camurum</i> and <i>maculatum</i> (with proper endangered species permits)
Jonathan E. Bowen, Curator	Ohio Historical Society	Identified - lots of subfossil fish specimens from Indian middens
Alex Johnson	Midwest Biodiversity Institute	Provided fish specimens for study
Brady Porter, Prof.	Duquesne University	X-rayed 80 specimens of <i>Notropis</i> sp. for Vertebral counts in Systematic research

TOURS OF FISH COLLECTION BY THE Associate CURATOR AND, OR, THE CURATOR in 2006

James Garvey	Southern Illinois University Carbondale
Dan Cincotta	West Virginia Division of Natural Resources
Stuart Welsh	West Virginia University
Chad Snavely	ODNR Division of Wildlife
Alex Johnson	Midwest Biodiversity Institute
Chad Schwinnen	Alum Creek Municipal Water Reclamation Facility
Trent Sutton	Purdue University
Glenn Trueb	ODNR Division of Wildlife
Rich Carter	ODNR Division of Wildlife
Ken Cunningham	ODNR Division of Wildlife
Sarah Hazzard	OSU Museum of Biological Diversity Mollusks
Michael Black	OSU
Hongyan Zhang	OSU Limnology Lab
Pat Howard	Hebron Fish Hatchery
Clara Folb	OSU
Roger Troutman	Former Zoology Student and Museum Associate
Kirk Roth	EAEngineering
Deb Hersha	Midwest Biodiversity Institute

Ben Kelley	Midwest Biodiversity Institute
Eric Norrocky	Open House
Dan & Joanne Hall	"
Nadine Hilton	"
Conner & Colin Crotty	"
Helen, Wanda & Caleb Williams	
Margaret Maybrook	"
Donna & Bruce Siple	"
Jennifer Dunlap	
Anne & Bruce Belhauer	"
The Lopez Family	"
The Satterfields	"
Bob & Polly Yocom	"
Caitlin	"
Brian & Sally Kessie	"
Dr. J.L. & Lynne Herson	"
Luke Kappen	"
Matt DeLaVega	North American Native Fishes Association
Kenneth Bowman Jr.	North American Native Fishes Association
David Hepp	Prospective RA candidate
Tami Brown	Prospective RA candidate
Josh Newton	Prospective RA candidate
25 students & their guides	Prospective Honor's Students
Mandy S. Gill	OSU Astronomy
Ernst Wehausen	Columbus Academy High School
Aloah Pope	OSU EEOB
Beth Dakin	Duquesne University
Ben Kelley	Midwest Biodiversity Institute

TEACHING

The Curator gave a Graduate Student Seminar (Museum meeting and tour of the collections) for EEOB 880

The Associate Curator gave a guest lecture on Radiation of the Bony Fishes and assisted with the corresponding lab section for the EEOB 470 Biology of Vertebrates course in Autumn of 2006

USE OF THE COLLECTION IN TEACHING in 2006

Specimens from the Research and Teaching Collections of Fishes were used in the following classes:

EEOB 470	Biology of the Vertebrates	Au
Duquesne University	Biology	Biology of Fishes class
		Wi

RESEARCH SUPERVISION (Students) Research in Progress in 2006

Aloah Pope (Undergraduate) – Pheromone regulated behavior in the greenside darter, *Etheostoma blennioides*

Mike Sovic (Doctoral Level Student) – working on genetics of Ohio River carpsuckers

SERVICE

Outside Service Outreach by the Associate Curator

Guided a fish field station for the Cedar Bog Symposium, Saturday, 17 June, 2006.

Taught a fish identification workshop for the Edge of Appalachia Nature Preserve (Nature Conservancy and Cincinnati Museum of Natural History) on Friday through Sunday, 02-04 June, 2006. This workshop gave the participants a survey of the fish species in Ohio waters, taught them the basic skills of fish identification, and introduced them to seine sampling for fishes in several habitats in Ohio Brush Creek. Over 160 OSUM cataloged or study lots of Ohio fish species were used during the workshop.

LETTERS OF RECOMMENDATION in 2006

- The Curator wrote four letters of recommendation for Clara Folb for graduate school.
- The Curator wrote one letter of recommendation for Brady Porter to the University of Tennessee.
- The Curator wrote one letter of recommendation for Lee Kittle to the OSU School of Veterinary Medicine.

Publications Reviewed by the Curator in 2006

Reviewed manuscript CI-06-141: "Evolution of palatine morphology in Cenozoic *Esox* (Teleostei: Esocidae) of North America." For the journal Copeia.

Reviewed manuscript JVP-2006-0091: "Oldest known Mylopharyngodon (Teleostei: Cyprinidae) from Mongolian Plateau and its biogeographical implications based on the ecological niche modeling" for the Journal of Vertebrate Paleontology.

Reviewed manuscript EBFI 250: "Rapid Radiation of *Salmo*, *Salvelinus*, and *Oncorhynchus*", for submission to the journal Environmental Biology of Fishes.

Reviewed manuscript #2714: "Life history traits of lake trout phenotypes in Lake Superior" by for the Journal of Great Lakes Research

RESEARCH

Presentations by the Curator in 2006

Cavender, T.M. "Osteological Review of the Ictalurid Catfish Skeleton with Emphasis on Noturus." Poster, 2006 Joint Meeting of the American Society of Ichthyologists and Herpetologists. New Orleans, Louisiana. 12-17 July, 2006.

RESEARCH FUNDED IN 2006

Projects on which Marc Kibbey is the Co-PI:

Title	Agency	Begin Date	End Date	Co-PI	RF Project #	Total Funding (Direct + Indirect)
Propagation of Freshwater Fishes for Unionid Bivalve Mussel Hosts	ODNR	01 July 2006	30 Jun. 2007	Kibbey		\$11,700.00
Assistant Cataloger	ODNR	01 July 2006	30 Jun. 2007	Kibbey		\$

PROBLEMS AND GOALS FOR 2007

The issue of greatest importance for the Fish Division is to continue and increase the research mission. Research is currently being carried out in the area of behavior and reproduction as well as in the area of systematics by the Acting Curator and the Associate Curator. The hire of a new Head Curator of ichthyology is paramount to ensuring the Ohio State Collection of Fishes remains a viable resource. Among options being explored is the hire of a staff curator.

One long-term goal concerns replacement of the stoneware containers holding large fish specimens with much improved, and more permanent, stainless steel tanks. To date we have replaced about 70% of the stoneware containers with other glass or stainless steel. At our present rate of replacement (we buy four to five stainless steel tanks per year) it will take another four years to complete this job.

Retrieve all longstanding loans.

Return all longstanding loans.

With the Gerking collection on-line we now need to continue working toward completion of the georeferencing of the collection, updating all nomenclature and correct mistakes made by Gerking in the original identification.

There is a large project involving the curation of the Atlantic coast collections which will improve long term storage, that is to change fluid on the uncataloged Atlantic coast collection from 40% isopropyl to 70% ethanol. Change jars and caps as needed, and change any cataloged jars still in isopropyl.

We will continue to work on the remaining Missouri collections, obtained from the State of Missouri Dept. of Conservation through William Pflieger, that is still uncataloged.

One high priority item is the processing and cataloging of the native salmonid collection obtained from Colorado State University at Fort Collins. It will become an important addition to the research collection when it is cataloged.

Processing and cataloging of the skeleton specimens will continue. A small part of this project was completed during 2006.

The addition of a Research Assistant Cataloger has improved our capabilities to carry out cataloging of the backlog of voucher specimens from Ohio waterways. We will continue to selectively catalog ODOT collections (no bluntnose, white sucker, creek chub or green sunfish), selectively catalog OEPA collections (no common species), and catalog Stone Lab collections (1972-1990).

A priority that has been established is the need to add to our small collection of 95% ethanol fixed and preserved specimen material for genetic research. At present we have in the collection a series of whole specimens complementing the tissue bank including a series of darters (part of Brady Porter's doctoral dissertation), a series of young of the year lake sturgeon specimens and an assortment of miscellaneous freshwater Ohio species formerly held in the ultra-cold freezer. This collection is currently being improved by taking of whole specimens, fin clips and muscle plugs preserved in 95% ethanol in conjunction with field trips carried out for other research purposes.