



2004 Program Review

Stone Laboratory

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Sea Grant
Ohio Sea Grant College Program

The Ohio State University

STONE LABORATORY PROGRAM REVIEW 2004

F.T. Stone Laboratory
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TABLE OF CONTENTS

Page

EXECUTIVE SUMMARY 1

I. INTRODUCTION 3
VISION FOR THE FUTURE 4
MISSION 4
PROGRAM RELATIONSHIPS AND REPORTING STRUCTURE 5

II. OVERVIEW 5
EDUCATION 5
Courses for College Credit 5
Aquatic Science Field Trips, Workshops, Tours, and Conferences 6
RESEARCH 7
FRIENDS OF STONE LABORATORY 7

III. STONE LABORATORY HISTORY 8

IV. THE LABORATORY IN 2004 AND RECENT YEARS 11
PERSONNEL 11
OPERATIONAL CHANGES 11
Historical Location within the University 11
Relationship to Ohio Sea Grant College Program 12
CURRICULUM 13
Introductory Courses 13
Courses for Teachers 14
PROMOTION AND OUTREACH 15
GUEST LECTURES 16
WORKSHOP PROGRAM 16
SCHOLARSHIPS 17
ENROLLMENT 17

V. FINAL SUMMARY AND PLANS FOR THE NEAR FUTURE 17
PLANS FOR THE FUTURE 18

VI. MILESTONES IN THE HISTORY OF STONE LABORATORY 20

FIGURES 35
TABLES 51

FRANZ THEODORE STONE LABORATORY

2004 PROGRAM REVIEW

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EXECUTIVE SUMMARY

Stone Laboratory, founded in 1895 and located on the 6.5-acre Gibraltar Island in the harbor at Put-in-Bay, Ohio, is Ohio's Lake Erie laboratory, the oldest freshwater biological field station in the country, and the island campus of The Ohio State University. During the summer of 2004, a total of 154 students from 15 colleges and universities and 45 high schools took college courses at Stone Laboratory (Figures 1 and 3). While the majority of our students come from Ohio State University, since 1990, 2,877 students from 93 colleges and universities and 326 high schools have taken college courses at Stone Laboratory, and since 2000, students from 48 colleges and universities and 140 high schools have taken courses there (Figure 2). Enrollment numbers for high school students, undergraduate students, and graduate students were all fair in 2004, but the combined total was about 10% less than 2003 (Figures 1 and 4). A total of 641 credit hours were taken (Figure 5). Our efforts to enhance opportunities for women in science, initiated in 1989, continue to bear fruit as we now annually enroll more women than men (Figure 6). Efforts to expand the number and diversity of course offerings have met with mixed success. In 2004, a total of 22 courses were offered successfully. These included two new one-week courses: Field Ecology and Local Flora for Teachers. Six courses and a workshop we had planned to offer were cancelled due to low enrollment.

Supporting Diversity. An experimental offering of one of our one-week courses for students in the Minority Research Initiative was very successful in 1998 and followed a successful offering for students from the Young Scholars Program in 1997. We enrolled two Young Scholars in 1999, but the program was unable to send any in 2000 due to funding difficulties. Four students from the Young Scholars Program enrolled in 2001, 1 during 2002, 9 in 2003, and 9 in 2004, while the Columbus Public Schools' I Know I Can Program supported 14 students in 2001, 9 in 2002, 11 in 2003, and 3 in 2004.

Workshops, Conferences and Field Trips. During the spring and fall, we offer a field trip/workshop/conference program for students from grade 4 through adult. This program set new

records for the number of groups and the total number of participants each year from 1997-2000 (Figures 7 and 8). Despite the events of 11 September 2001 and a very sluggish economy, 2001 was an excellent year producing the third highest number of groups and participants—162 groups and 5,288 participants. In 2002, our number of groups fell to 153, but we set a new record with 5,755 participants. In 2002 we also set a record for the number of student participants in the workshop program—3,755. While the majority of these students were in the influential middle school years (2,048), we also set a record for high school participants in 2002—975. In 2003 we set a new record for the number of groups with 177 with 5,709 participants, followed by 145 groups and 5,379 participants in 2004. Since 1990, the Laboratory has hosted 1,752 groups with 62,025 participants in the workshop program (Figure 9).

Research. During 2003, 26 investigators and 46 students and technicians from 16 agencies and institutions worked on 24 projects at Stone Laboratory. During 2004, 19 investigators and 47 students and technicians from 12 agencies and institutions worked on 19 projects at Stone Laboratory (Figure 10). During 2003-2004 Ohio Sea Grant supported 41 large, competitively funded projects, including 14 new projects. We also supported 24 development fund projects, including 14 new projects. These investigators came from 11 universities. During 2003-2004 Sea Grant scientists produced 102 publications (41 scientific papers, 27 reports, 18 popular press articles, and 16 scientific papers awaiting publication), made 168 scientific presentations, and supported 48 students on their projects. In 2004, a group of Ohio Sea Grant scientists were awarded a $1.4 million biocomplexity grant from the National Science Foundation.

Scholarships. With the assistance of the Friends of Stone Laboratory (FOSL) we were able to award 36 scholarships totaling $14,254 in 2004 (Figures 11 and 12). The FOSL also received 30 applications and awarded six scholarships to outstanding high school students at State Science Day sponsored by the Ohio Academy of Science. The FOSL initiated their scholarship program at State Science Day in 1996 and awarded 56 scholarships between 1996 and 2004. Finally, using funds from newly created research endowments, we will implement a program of "Research Experiences for Undergraduates" in 2005.

Endowments. Clearly 2003 and 2004 were banner years for our fundraising efforts with the creation of six new research, education, outreach, and development endowments. Two new research endowments (Franz and Kate Stone Fund and John L. Crites Fund) totaling approximately $425,000 were created; two scholarship endowments (Kelly Prochazka and Spark Baumler Memorial Endowments) totaling $50,000 were created; an education, outreach and development endowment (John H. Dunlap, Jr. Fund) with a total of just over $50,000 was created; and a botany teaching endowment was created with a deferred gift of $500,000 (Ronald L. and Darwin Stuckey Fund). Many of the above endowments were completed in 2003 and approved by The Ohio State University Board of Trustees in 2004 and another scholarship endowment ($25,000), the Sally and Jackson Smith Fund, was created in 2004. We also successfully completed a 2 to 1 challenge (the FOSL raised $25,000 and Shirley Bowser matched it with $50,000) that added $75,000 to the Dunlap Fund in 2004. In 2004, our web site was modified to allow electronic donations to any of our endowments. Actual contributions to the endowments surpassed $1 million dollars in early 2005 (Figure 13).

Equipment and Facilities. While Stone Laboratory is the oldest freshwater biological field station

in the country and has served as Ohio's Lake Erie laboratory since 1895, until 2002, we had never received federal funding to improve the Laboratory for the benefit of thousands of students and research scientists each year. Through the hard work and leadership of Senator Mike DeWine, Stone Laboratory received $348,000 for equipment and facilities through NOAA. Most of the new equipment items arrived in 2003—30 new microscopes, 3 new vans for students and researchers, a new research vessel, monitoring equipment for our work on the "Dead Zone," and much more. In 2004, new educational signage was installed at Stone Laboratory including a large walk-through educational kiosk/gazebo. More work is planned for 2005. **Thank you Senator DeWine and NOAA!!** Ohio State University has also committed $2.3 million and completed the planning and design phases to bring city water and sewer lines from the Village of Put-in-Bay to the Stone Laboratory Research Building and then across the bay to Gibraltar Island. This work should be completed in 2006.

Communications, Web Site and Electronic Reports. Our web site (www.sg.ohio-state.edu) was significantly improved in 2003 and 2004 to make it more useful to students, teachers, scientists, elected officials, and the general public, and to make it handicapped accessible. The site contains copies of *Twine Line*, many of our publications, information on courses and programs at Stone Laboratory, and summaries of all of our research projects. This site and our electronic reporting system for research projects were selected as "best management practices" by the National Sea Grant College Program. The site contains over 1000 pages of information. In 1999, the site had 258,165 hits. In 2000 it had over 571,756, in 2001 it had 988,631hits, in 2002 it had 1,623,916 hits, in 2003 it had 1,526,882 hits, and in 2004 it had 1,173,646 hits with over 60,000 unique users in both 2003 and 2004. Our Communications program produced 72 different publications during 2003-04 that were distributed to over 125,000 people. In 2003, *Twine Line* received its second national *APEX Award of Excellence* in the "Feature Writing" category for the *Entering the Zone* article in the Sept/Oct 2002 issue. In April 2003, *Twine Line's* article *Walleye Anglers Keep Pace with Changing Lake Erie* was awarded second place in the "Best Magazine How-To Article" category at the 2003 Outdoor Writers of Ohio Convention. In 2004, Communications' eight-part research review series won another national APEX award in writing.

I. INTRODUCTION

Franz Theodore Stone Laboratory, Ohio's Lake Erie Laboratory, is the nation's oldest freshwater biological field station, and the Lake Erie and North Coast Campus of The Ohio State University. The Laboratory, originally called the "Lake Laboratory," was created in 1895 when The Ohio State University Board of Trustees appropriated $350 to build a second floor on the state fish hatchery in Sandusky. In 1903 the Laboratory moved to a new building at Cedar Point, then to the second floor of the State Fish Hatchery at Put-in-Bay in 1918, and finally to its current location on the 6.5-acre Gibraltar Island with additional holdings on South Bass Island, in 1929. At that time the name was also changed to the Franz Theodore Stone Laboratory in honor of the donor's father.

Lake Erie is biologically the most productive of the Great Lakes, and the Laboratory is ideally located near the boundary of the Lake's western and central basins—"the most favorable location in Ohio, possibly even in the Great Lakes basin," according to Julius F. Stone, a Columbus businessman and a member of the University Board of Trustees, who in 1925 donated Gibraltar Island to The Ohio State

University for teaching and research. Facilities at Stone Laboratory include a research building, a library, a 21-room laboratory/classroom building, a dining hall, five dormitory units, and the historic "Castle" residence (a National Historic Landmark constructed in 1865) of Philadelphia banker and Civil War financier, Jay Cooke.

Today, the Laboratory: provides a facility for year-round research (it has been called "the base for the research that saved Lake Erie"), develops and offers custom-designed aquatic science field trips and workshops for grades 4 through adult, offers college credit through a rigorous summer program of courses, and offers special conference facilities and speakers for groups interested in Lake Erie and the region's natural resources.

This report briefly reviews the past year, beginning with a program overview, followed by a discussion of the history of the Laboratory, and concludes with a more in depth discussion including "Milestones in the History of Stone Laboratory." The figures summarize the past 12-20+ years, while the tables cover only 2004, adding to similar tables in reports produced in 2003, 2002, 2001, 2000, 1999, 1998, 1997 (covering the period 1995-97), and 1995 (covering the period 1988-94.)

VISION FOR THE FUTURE

Our vision is to be universally recognized as the premier freshwater education and research facility in the country. Our education and research programs will be unsurpassed. Our education programs will be models for science education in this country. The results of our research will be used to solve Lake Erie environmental problems and enhance the value of the Lake.

MISSION

The mission of the Franz Theodore Stone Laboratory is to serve The Ohio State University, the Ohio Sea Grant College Program, the State of Ohio, and the people of Ohio as their research, education, and outreach facility on Lake Erie. We must enhance the value of, and improve the management of, our marine and coastal resources through the education, research, and outreach programs conducted at the Laboratory. The Laboratory's programs should address the needs of, and create opportunities for, the following audiences: students in grades 4-12, college undergraduate and graduate students, K-12 teachers, research scientists, decision-makers and elected officials, technical staff in state and federal agencies, and the general public. Within this mission we have several goals:

1) Improve the quality of science education in Ohio by creating high-quality, hands-on science education opportunities for students in grade 4 through adults;
2) Create opportunities for undergraduate and graduate research training;
3) Create special educational opportunities for high school students and teachers;
4) Foster more informed decision-making through education and training programs for decision-makers and elected officials; and,

5) Encourage and support research on critical issues and problems facing Lake Erie, the Great Lakes, and the environment, providing the science behind more informed management decisions.

PROGRAM RELATIONSHIPS AND REPORTING STRUCTURE

Dr. Jeffrey M. Reutter is Director of the Lake Erie Programs at The Ohio State University: the Ohio Sea Grant College Program, F.T Stone Laboratory, Center for Lake Erie Area Research (CLEAR), and Great Lakes Aquatic Ecosystem Research Consortium (GLAERC). Stone Laboratory is part of the School of Natural Resources within the College of Food, Agricultural and Environmental Sciences. The Director of Stone Laboratory reports to the Vice President for Agricultural Administration, Dr. Bobby D. Moser. CLEAR is part of The Ohio State University Office of Research and the Director reports to the Vice President for Research, Dr. Robert McGrath. Structurally, the Ohio Sea Grant College Program is part of CLEAR, and GLAERC is part of Sea Grant, but operationally, Sea Grant is the umbrella organization for the other three: Stone Laboratory, CLEAR, and GLAERC. This operational strategy takes advantage of Sea Grant's broader mission—research, education, and outreach. Stone Laboratory is the shared research facility for GLAERC and the base for many of Ohio Sea Grant's research, education, and outreach programs.

Dr. Reutter also holds the following leadership positions: President of the National Association of Marine Laboratories, Co-Founderand Co-Chair of the Lake Erie Millennium Network, Co-Chair of the Sea Grant AIS Theme Team, Co-Chair of the Sea Grant IOOS Work Group, member of the National GOOS Steering Committee, Member of the Board of Directors of the Great Lakes Protection Fund (term completed in January 2005—originally appointed in 1992), member of the Sea Grant Law Center Advisory Board, member of the NURC NE and Great Lakes Center Advisory Board, member of the Old Woman Creek NERR Advisory Board, member of the Board of Directors of the Ohio Academy of Science, member of the Lake Erie Protection Fund Grant Making Committee, member of the National Federation of Regional Associations of IOOS, member of the Great Lakes Observation System Steering Committee, and more.

II. OVERVIEW

EDUCATION

Courses for College Credit. Stone Laboratory began offering regular courses for college credit in 1900. Each summer The Ohio State University offers 18-28 courses at Stone Laboratory. All courses take advantage of the Laboratory's unique location and capabilities and emphasize a hands-on approach to learning with a combination of lecture, laboratory, and field experience. Enrollment is limited to 12-20 students per course. The curriculum is rigorous with students in class from 8:00 a.m. to 4:00 p.m. six days per week.

Until 1990, the Laboratory offered courses only for upper level undergraduate and graduate students. In 1990, in an effort to join the drive to improve the quality of science and math education in Ohio and in this country, a program of introductory courses for college freshmen and sophomores was developed. This program is also open to superior high school students on a competitive basis, and

allows them to gain college credit while still in high school. These new programs strive to make science exciting and to challenge the best young minds this country has to offer.

Special courses are also offered for teachers with the goal of improving the quality of science education in our schools. The initial courses for teachers—Marine and Aquatic Education, Great Lakes Education Workshop, and Global Change Education—were developed by faculty from the Ohio Sea Grant Education Program and use curriculum activities and reference materials developed with Sea Grant support as text. In addition to these instructional methods courses, science content courses for teachers introduce fundamentals of biological and earth systems topics where they can best be taught—in field settings. Both methods and subject matter courses meet Professional Development Standards established by the National Science Education Standards, and together they assist teachers in preparing their K-12 students for mandated state testing programs.

Teaching at Stone Laboratory, while a great honor, is very different from teaching on the main campus and requires a great deal of expertise and energy—few courses on college campuses are taught for eight hours per day with the opportunity to blend lecture, laboratory, and field work. We search throughout the state, region, and country to get the best faculty to teach at the Laboratory. In addition to faculty from The Ohio State University, it would not be unusual in a given summer to find faculty members from institutions such as Bowling Green State University, Heidelberg College, Kent State University, Miami University, Otterbein College, Penn State University, Syracuse University, the University of Massachusetts, the University of Michigan, Wittenberg University, and the American Museum of Natural History in New York. Student evaluations consistently rank Stone Laboratory courses as being far superior to courses taken at their home institutions.

Enrollment and interest in Stone Laboratory increased significantly in the 1990s. During the 1980s average annual enrollment was approximately 57 students. From 1991-2002, average annual enrollment jumped to over 200 students--an increase of over 350 percent (Figure 1). However, we are concerned that enrollment has fallen significantly since 2001 and are adjusting and increasing our marketing strategies. From 1990-2004, students from 46 Ohio colleges and universities, 47 out-of-state colleges and universities, and 326 high schools participated in the Laboratory's courses (Figure 3).

Aquatic Science Field Trips, Workshops, Tours, and Conferences. During the spring and fall, we continue our efforts to enhance the quality of science education by offering custom-designed field trips and workshops for students from grade 4 to adult. For each grade level 4-12, the workshop is matched with Ohio Science Education Standards to enhance the classroom-based curriculum. These workshops range in duration from 1-3 days and generally include a science cruise on one of the Laboratory's research vessels, the *MV Bio-Lab* or the *MV Gibraltar III.* Students collect samples using fish trawls, bottom samplers, plankton nets, electronic probes, etc. and return with them to the Laboratory, where they are taught to use microscopes and analyze their samples and data. The Laboratory is also used as a conference facility for groups of up to 100. In the past 10 years participation in the workshop/conference/tour program has increased from approximately 1,850 to over 5,000 annually.

RESEARCH

Research is conducted 12 months per year at Stone Laboratory, and the Laboratory's students are involved with many of the projects. From 1995-97, 65 different research projects were conducted at Stone Laboratory by 53 investigators (the average investigator worked at the Laboratory for two of the three years), with 71 student assistants, representing 27 different universities and agencies (Figure 10). In 1998, 30 different research projects, with 29 principal investigators and 44 assistants, from 21 universities and agencies, were conducted at the Laboratory. In 1999, the number of projects dropped to 17, the number of institutions involved dropped to 13, and the number of principal investigators dropped to 21. However, the projects were larger and the number of graduate students and technicians working on the projects set a record at 55. In 2000, the number of projects increased to 23, the number of institutions increased to 14, the number on principal investigators increased to 24, and we set another record with 61 students and technicians working at the Laboratory. The year of 2001 was very similar in numbers to 2000, with 22 projects, 20 investigators, and 57 students and technicians from 15 institutions, as was 2002 with 23 projects, 24 investigators, and 53 students and technicians from 16 institutions, and 2003 with 24 projects, 26 investigators, and 46 students and technicians from 16 institutions, and 2004 with 19 projects, 19 investigators, and 47 students and technicians from 12 institutions. In addition to coming from Ohio's colleges and universities, research scientists come from out-of-state institutions, state agencies, federal agencies, the private sector, city governments, and foreign countries.

Stone Laboratory is the shared research facility of the Great Lakes Aquatic Ecosystem Research Consortium (GLAERC), created in 1992 and composed of aquatic scientists at 12 Ohio colleges and universities: Bowling Green State University, Case Western Reserve University, Cleveland State University, Heidelberg College, John Carroll University, Kent State University, Miami University, Mount Union College, Ohio State University, Ohio University, the University of Toledo, and Wright State University. GLAERC enhances collaboration, cooperation, communication, and equipment and facility sharing to make Ohio's top scientists more competitive for federal funding and to allow them to better address the critical issues and problems affecting Lake Erie and Ohio's surface waters.

FRIENDS OF STONE LABORATORY

In 1981, a group of former Laboratory students, faculty, and individuals concerned with science education and the Lake Erie ecosystem, formed the “Friends of Stone Laboratory.” The goal of the Friends is to enhance the programs at the Laboratory and allow students in the future to experience the same opportunities they had. Many former Stone Laboratory students have said the Laboratory provided the best learning experience of their academic careers. They frequently cite the value of the hands-on approach to learning and the corresponding increase in retention of the information. The words of Benjamin Franklin are frequently used to emphasize this point: “Tell me, I forget. Show me, I remember. Involve me, I understand.”

The Friends raise funds for scholarships, supplies and equipment, and they volunteer time and materials to keep the facilities in good repair. They created their first endowment in 1983 and have since created 11 more. These endowments, with additional contributions from organizations, clubs, industries, and individuals, support dozens of student scholarships each year. Their endowments

reached a very significant milestone in early 2005 as the total of actual donations to the endowments surpassed $1 million.

III. STONE LABORATORY HISTORY

Note: This section is modified from an article in the October 1994 issue of *Twine Line* by Maran Hilgendorf. Research for this article was conducted by Becky Vidra and Ohio State Archivist Bertha Ihnat. Information was obtained from various deeds, reports, and newspaper articles.

It was a time far different from our own. The commercial fishery on Lake Erie was still strong but would soon collapse. Automobiles were being perfected, and only a few roads in the largest of cities were paved. Only a few elite hotels had electric lights and toilets, and the motion picture industry was brand new. The x-ray was discovered, the typewriter and wireless telegraphy were just invented, and the botulism bacterium, *Clostridium botulinum* was isolated.

It was during this time—in 1894—that Professor David S. Kellicott, Chair of the Department of Zoology and Entomology, requested of then Ohio State University President Scott "the establishment in the near future of a lake laboratory at or near Sandusky and the creation of a State collection of fishes in Ohio … to afford an opportunity and a stimulus to instructors and students of biology to spend their vacations investigating living problems in biology, especially such as are connected with important industries like the fisheries."

On 2 September 1895, The Ohio State University Board of Trustees approved the project and appropriated the sum of $350 for the construction of a second floor to the Sandusky Fish Hatchery Building. Kellicott and four graduate students conducted research during the next two summers until Kellicott's death.

Professor Herbert C. Osborn became chair and Laboratory director in 1899. Courses for credit were first offered in 1900, chiefly at the request of high school teachers who wished instruction in field biology. Fourteen students attended that year.

"A more adequate location for field work with more laboratory space" was soon desired, so Osborn obtained a 50-year lease from Cedar Point Resort and for $3,387 erected a frame building that was dedicated 2 July 1903. The number of students attending classes increased to 22 and research continued.

It soon became the policy that two members of the instructional staff were chosen from other institutions to "promote cooperation from the other colleges and universities and to attract students." This practice continued from 1902 throughout the first 50 years.

State Fish Hatchery officials at Put-in-Bay donated the second floor of their hatchery building to the Lake Laboratory in 1913 because Cedar Point had become so large and popular that it was no longer a desirable site for the Laboratory. For the next several years, most of the 20 or so students who attended each year were men who were housed and had their meals in a nearby cottage. Because of the hostilities of the First World War, attendance declined to an all-time low of two students in 1918.

From 1917 to 1937 Professor Raymond C. Osburn was Laboratory director. In 1920 he became a member of the advisory board of the Ohio Fish and Game Division. With this appointment he was able to arrange subsidies to conduct a fisheries survey in Ohio from 1920 to 1923. During this time, enrollment had grown to the point that they were “bursting at the seams.”

On 6 July 1925, Julius F. Stone, a member of The Ohio State University Board of Trustees, presented Gibraltar Island to The Ohio State University as a permanent home for the “Lake Laboratory,” to be devoted to the purposes and uses of teaching and research. In deeding the island to the University, Stone located the Laboratory in “the most favorable location in Ohio, possibly even in the Great Lakes basin.”

In his letter to the Trustees, Stone stated that “with the enormous increase in population and with no indication of any diminution, it seems quite inevitable that human life will sooner or later press against the limit of subsistence, consequently every source of food supply must not only be conserved, but developed.”

The University's Board of Trustees resolved that the Laboratory should thereafter be known as the Franz Theodore Stone Laboratory in honor of the father of Julius F. Stone. On 22 June 1929, the University formally opened the new 21-room Laboratory Building. According to Osburn, moving to Gibraltar Island would “permit more than twice as many students to attend.”

In 1934, a committee appointed by Ohio State President Rightmire determined that the Laboratory should broaden its scope to include research and service in biology and human welfare. They also recommended that a full-time director and permanent staff should operate the Laboratory and that only graduate students be admitted for course work. This continued for nearly two decades, after which time the year-round program was discontinued because of such factors as logistical difficulties, limited facilities, years of economic depression, a second world war, and reduced state support and enrollment (only five students were enrolled in courses during the summer of 1955). Because of the enthusiasm and encouragement of former students, the Ohio State administration continued the summer course program under the direction of Professor Loren S. Putnam. For nearly three decades, approximately 18 courses were offered during two summer terms (5 weeks), with a capacity of 60 students.

After the retirement of Osburn, succeeding directors included Dwight M. DeLong, (1936-1938), Thomas H. Langlois (1938-1955), Loren S. Putnam (1955-1973), Charles E. Herdendorf (1973-1987), and Jeffrey M. Reutter (1988 to present).

By the late 1940s, after 50 years of operation, then retired Professor Osburn noted that students from “nearly every state in the Union” as well as students from Argentina, South Africa, and India had attended Stone Laboratory. “I hesitate to say how many doctor's and especially master's degrees have been completed on the work begun or completed at Stone Lab, and around 200 research papers have been published in connection with the work done at this laboratory.”

In 1981, the Friends of Stone Laboratory was created to provide a way for former students to support the facility in its efforts to be not just the oldest, but the best, freshwater biological field station in the United States. This association raises awareness and funds for scholarships, research, and equipment.

In 1983, the University received $1 million from the State Legislature for a sewage treatment plant, new housing for students and workshop participants; and for upgrading of the utility services, Dining Hall, and teaching laboratories. Construction of a 48-person, 12-unit housing facility was completed in 1986. During construction in 1985, Gibraltar House served as the Dining Hall. In 1989, the University received $1 million dollars for erosion protection, new docks, a new water treatment plant on Gibraltar, and improvements in housing for faculty and research scientists. In 1997, the Laboratory received $500,000 from the University to begin renovation of Jay Cooke's Castle. In 1998, the State Legislature added $500,000 to complete the renovation of the building exterior that was accomplished in 2001.

Beginning in 1987, some courses were offered in either a 2.5-week or 5-week format. In 1990, introductory, one-week, courses were first offered to freshmen and sophomores and to superior high school students.

IV. THE LABORATORY IN 2004 AND RECENT YEARS

PERSONNEL

Dr. Jeffrey M. Reutter has been the Director of Stone Laboratory since 19 September 1988. Before that time he had served as Associate Director beginning in 1982, and as the Acting Director from 19 December 1984 to 31 December 1985 and from 1 November 1987 to 18 September 1988. John R. Hageman has been the Laboratory Manager at Put-in-Bay since 1 May 1987. Arleen Pineda has been the Program Coordinator in the Columbus Office since May 1996 and before that had been our Columbus office secretary dating back to March 1986. Dr. Rosanne Fortner has taught at the Laboratory since the mid-1980s and became our Associate Director on 1 June 2000. Bonita Cordi has been the Office Associate and Receptionist in Columbus since October 1999. Karen Ricker was our Communications Coordinator and the Assistant Director of Ohio Sea Grant from January 1998 to July 2003. Jill Jentes became our Communications Coordinator in July 2003. Prior to that date she had been the Editor of *Twine Line* beginning on 1 October 1998. Kelly Dress became the Office Associate at Put-in-Bay in April 1998. Matt Thomas became the Assistant Laboratory Manager at Put-in-Bay in June 1999 and the Diving Safety Officer for the Laboratory and the University in October 1999. Eugene Braig became our Assistant Director 1 August 2004. Table 1 lists the Laboratory's administrative staff, teaching faculty, graduate teaching associates, research staff, student assistants, and office and technical staff for 2004.

OPERATIONAL CHANGES

A thorough internal and external review of the Stone Laboratory program was completed in 1988 and culminated with the signing of a "Plan of Action" for Stone Laboratory on 5 October 1988. Among other things, this "Plan" called for: (1) efforts to increase enrollment in credit courses taught at the Laboratory, (2) the institution of "a series of experimental calendars over the next few years with the eventual goal of a more flexible, innovative course calendar by 1991," and (3) the development of a teaching budget "sufficient to hire faculty for all courses scheduled for a given year."

Historical Location within the University. The Director reported to the Dean of the College of Biological Sciences until 30 June 1990. During this period the Director did not have a teaching budget for the Laboratory, and, therefore, had to rely on the goodwill of various department chairs to agree to offer courses at Stone Laboratory and pay the faculty. During 1989 and 1990, negotiations were completed that resulted in a transfer of reporting lines to the Office of Academic Affairs beginning 1 July 1990 and the creation of a teaching budget for the Laboratory under the control of the Director. This gave the Director greater flexibility in determining the courses to be offered and in selecting faculty. However, the offering departments still must approve the course offerings, the faculty members selected, and the teaching assistants (TAs). In some cases, the home department assigns the TA and provides part of the stipend. During the summer of 1990, half of the teaching budget came from the departments offering courses and half came from the Office of Academic Affairs. This budget was supported entirely by the Office of Academic Affairs from 1991 through 30 June 1994. The impact of these changes is readily apparent in Figure 1.

In an effort to reduce the number of units reporting to the Office of Academic Affairs, and as a result of university-wide restructuring, Stone Laboratory was moved to the College of Food, Agricultural and Environmental Sciences beginning 1 July 1994. In this college the Laboratory is part of the School of Natural Resources and continues to have its own teaching budget, which is passed each year from the Office of Academic Affairs to the College of Food, Agricultural and Environmental Sciences.

Relationship to Ohio Sea Grant College Program. Dr. Jeffrey M. Reutter is the director of both the Ohio Sea Grant College Program and Stone Laboratory, and Ohio Sea Grant's Education Coordinator, Dr. Rosanne Fortner, is also the Associate Director of Stone Laboratory. These arrangements guarantee maximum cooperation and collaboration between the programs, guarantee that the State of Ohio will receive the maximum benefit from the programs, and eliminate any opportunity for duplication of effort.

The Ohio Sea Grant College Program at The Ohio State University is one of 32 Sea Grant programs in the National Sea Grant College Program, NOAA, U.S. Dept. of Commerce. Patterned after the Land Grant system, a Sea Grant program must be a partnership between academia, government, and the private sector. Ohio Sea Grant strives to improve education, the economy, and the environment using a combination of research, education, and outreach. Our primary goal is to enhance utilization, development, and wise management of Lake Erie, Ohio's most valuable natural resource, to enhance the quality of life for the people of Ohio. Ohio Sea Grant solicits research proposals from every college and university in the state and has supported projects at 12 Ohio universities. The program also supports an education program to enhance the skills of Ohio teachers, an extension program with 8 extension agents located along the shores of Lake Erie, and a communications staff intent on making science understandable to non-scientists. Every federal dollar must be matched by at least $.50 from non-federal sources.

Within Ohio Sea Grant, Stone Laboratory is the facility used by many Sea Grant researchers and a major component in the Ohio Sea Grant Education Program. The Stone Laboratory Manager, John Hageman, has a 25% Ohio State University Extension appointment as a Sea Grant Agent for his support of outreach programs and the workshop/conference/tour program at the Laboratory. Through the Sea Grant Education Program, Sea Grant has supported the development of new courses at Stone Laboratory. Sea Grant also assists in the dissemination of Stone Laboratory education and research materials, and in 1998 the Friends of Stone Laboratory newsletter was successfully incorporated into the Sea Grant newsletter, *Twine Line*, thus increasing the readership of both. It should also be noted that *Twine Line* was selected as the best newsletter in the country at Sea Grant Week in Oregon in 1999. Furthermore, in March 2001, the Stone Laboratory Brochure (including the poster and flier) was selected as the best brochure in the country. In 2003, *Twine Line* received its second national *APEX Award of Excellence* in the "Feature Writing" category for the *Entering the Zone* article in the Sept/Oct 2002 issue. In April 2003, *Twine Line's* article *Walleye Anglers Keep Pace with Changing Lake Erie* was awarded second place in the "Best Magazine How-To Article" category at the 2003 Outdoor Writers of Ohio Convention. In 2004, Communications' eight-part research review series won another national APEX award in writing.

CURRICULUM

Stone Laboratory offered 11-14 courses yearly from 1988-1994. During the summers of 1988 and 1989, the Laboratory offered a relatively traditional group of 13 courses each year. With one exception, these were all graduate and upper-level undergraduate courses. In 1988 there were two offerings specifically for teachers, but only one offering for teachers in 1989. We experimented considerably with the curriculum from 1988-1991 offering 17 upper-level, 5-hour courses. However, the curriculum was much more stable between 1992 and 1997 with a core of the same eight 5-hour courses offered each year. In 1998, we again offered eight upper level term courses, five introductory one-week courses, and four one-week courses for teachers. The one difference from previous years was that "Field Entomology" was replaced due to low enrollment by a new course—"Experimental Aquatic Ecology and Research." The 1999 curriculum was the same as 1998 with two exceptions, we offered two new one-week courses for teachers—"Ornithology for Teachers" and "Lake Erie Shipboard Research for Teachers" on USEPA's 180-ft research vessel, the *Lake Guardian*. New courses offered in 2000 included "Biological Oceanography for Educators" (a one-week course, EEOB 694), "National Curricula for Water Education" (a two credit hour course taught on three Sundays), and "Marine and Aquatic Education: Tropical Studies" (a ten-day course at a marine lab in Jamaica offered jointly with SUNY, Buffalo). New Courses offered in 2001 included "Ichthyoplankton Identification Workshop" (a one-day, one-hour course, EEOB 692), "Waterfowl Ecology" (a one-week course, Natural Resources 629), and "Stream Ecology for Teachers" (a one-week course offered at Old Woman Creek, EEOB 785). Three other new courses were attempted in 2001 but cancelled due to low enrollment: "Natural History of Ohio" (a term course, Natural Resources 510), "Outdoor Recreation Behavior" (a one-week course, Natural Resources 841), and "Watershed, Estuarine and Coastal Ecology" (a term course, Natural Resources and Civil Engineering 694). New courses offered in 2002 included, "Great Lakes Limnology," a one-week course aboard USEPA's 180-ft research vessel, the *Lake Guardian*, for teachers and graduate students; a term course, "Digital and Field Techniques for Coastal Environment Studies" (CE/NR 797), supported by the National Science Foundation's Division of Undergraduate Education; and a one-week educators course "Curriculum Development for Environmental Decision Making" (NR 694), supported by an Ohio Sea Grant's education project. Also new in 2002, the Thursday night lecture series was institutionalized with its own course number (NR 798) for both graduate and undergraduate credit. In 2003, "Individual Study in Herpetology" (EEOB 693, last offered in 1989 as "Herpetology" a regular, 5-credit-hour, term course), was successfully offered as a one-week, 3-credit-hour course. In 2004, 28 courses were planned, six were cancelled due to low enrollment, and 22 were offered including three new one-week courses: "Field Ecology," "Local Flora for Teachers," and "Alien Species Education" (Table 2). Currently about half of the faculty members come from Ohio State University and half come from other institutions.

Introductory Courses. In the late 1980s, several international reviews and evaluations ranked the quality of science and math education in this country, and the capabilities of our students in these subjects, very low—as low as 13th or 14th among the countries of the world. One of the problems is that science frequently is not taught in an exciting fashion or by qualified individuals within many of our schools. Stone Laboratory accepted this problem as a challenge. We felt it was up to us to do our part to improve this situation, for clearly science could be taught in an exciting fashion to all age groups at the Laboratory. However, in order to have a program that addressed science education at all levels, we had two gaps to fill—we needed to create courses for lower level undergraduates (freshmen

and sophomores) and more opportunities for teachers.

Until 1990, Stone Laboratory had offered courses only for upper level undergraduate and graduate students. It seemed unfair that the Laboratory was not available to freshmen and sophomores as they were striving to determine majors and identify careers. It was also very common to receive calls from the parents of high school students inquiring about opportunities for their sons and daughters at the Laboratory. Unfortunately, with the exception of our spring and fall workshop/field trip program, there were no opportunities for these students at the Laboratory. This seemed to be a logical gap to fill if we were to achieve our goal of enhancing science education at all levels. Furthermore, if successful, courses for this audience could serve as a feeder system to our upper level courses, thereby increasing enrollment at that level also, and providing increased flexibility in the academic calendar as we worked for full enrollment.

With this in mind, Dr. Reutter developed a 3-hour, 1-week Introductory Aquatic Biology course (Zoology 125) in 1990. While preference was given to students already in college, the course was also advertised through the Concurrent Enrollment Program at Ohio State so that superior high school students could enroll and receive college credit while still in high school. Enrollment was so great that the course was offered twice and enough students were turned away to offer it two more times. In 1991 four offerings of the course were planned, but again demand necessitated that it be offered five times, and again many students were turned away. The course was also offered four or five times each summer from 1992-98. One of the five offerings in 1997 was limited to students from the Young Scholars Program at Ohio State, and one of the five offerings in 1998 was reserved for students in the Minority Research Initiative.

In 1991, Dr. Reutter encouraged Dr. David Horn in the Entomology Department to develop Introductory Insect Biology (Entomology 126). In 1992, Dr. Reutter contacted Dr. Larry Krissek in the Geology Department who developed an Introductory Oceanography course (Geology 107). This course has been so successful that it was offered twice each summer in 1993 and 1994 and once each year from 1995-04. Also, in 1992, Dr. Reutter worked with John Condit in the Zoology Department to change our 5-hour, upper level ornithology course (Zoology 624) to a 3-hour Introductory Ornithology course (Zoology 126). Consequently, from 1992-94, four introductory level courses were offered each summer, and in 1993 and 1994, due to multiple offerings of two of the courses, Stone Laboratory had a total of nine one-week introductory offerings. In 1996, Dr. Reutter worked with Dr. Robert Klips from the OSU Marion campus to develop an introductory course in Local Flora (Plant Biology 294, now EEOB 110). Consequently, from 1998-04, five one-week introductory courses were offered, and, due to multiple offerings of Introductory Aquatic Biology, the Laboratory had a total of nine one-week introductory offerings from 1997-99 and eight from 2000-04.

Courses for Teachers. While it is very common for teachers to participate in all courses at Stone Laboratory, we have been working to develop more courses specifically for this important audience. Due to the multiplier effect, enhanced teacher training could have a greater impact on the quality of science education in this country than our new introductory courses.

Based on the success of his Introductory Oceanography course (Geological Sciences 107), in 1993 Dr. Krissek, developed a 3-hour, 1-week Oceanography course for teachers (Geological Sciences 584). As a result, we had three 1-week offerings specifically for teachers each year from 1993-95. Combining

the teacher's courses with our introductory offerings resulted in 12, 1-week offerings in both 1993 and 1994.

In 1996, Dr. Krissek, with the assistance of Dr. William Ausich in Geology, offered a new course for teachers, "The Geological Setting of Lake Erie" (Geological Sciences 583). This one-week course was developed with assistance from the Lake Erie Protection Fund and the Ohio Sea Grant College Program and represented a new experiment for the Laboratory. The course, which has been very successful, begins at the Fawcett Center for Tomorrow on main campus on Saturday afternoon. The students travel by van to Stone Laboratory, spend one night and visit Kelleys Island on Sunday, and then go to the mainland. Each day they work their way east along the Lake Erie shoreline visiting geological features and staying in motels. The trip culminates at Niagara Falls prior to driving back to Fawcett Center.

Also in 1996, Dr. Reutter worked with Dr. Carmen Trisler, Wittenberg University, and the Entomology Department to develop a new one-week course for teachers—"Insect Biology for Teachers" (Entomology 520). This course has been well reviewed by students and has been offered annually since 1996, with the exception of 2000 and 2003 when it was cancelled due to low enrollment.

In late 1998 and early 1999, Dr. Reutter worked with John Condit from the Department of Evolution, Ecology and Organismal Biology to develop a new ornithology course for teachers. "Ornithology for Teachers" (EEOB 522) was offered successfully for the first time in 1999 and annually from 2000-04.

In late 1998 and early 1999, Dr. Reutter worked with US EPA's Great Lakes National Program Office to develop a one-week course for teachers taught entirely aboard the US EPA, 180-ft., research vessel, the *Lake Guardian*. The course was taught by Drs. Rosanne Fortner and David Culver and two scientists from US EPA. It was a huge success and was repeated in 2002 and will be offered again whenever we can get participation from EPA.

In 2000 and 2001 Dr. Reutter worked with Dr. Joseph Holomuzki from the OSU Mansfield Campus and the staff at the Old Woman Creek NERR to develop a one-week course for teachers, "Stream Ecology for Teachers" (EEOB 785), that was taught successfully in 2001 and again in 2003 and 2004. In 2002 Dr. Fortner worked with new faculty in environmental communications to teach "Curriculum Development for Environmental Decision Making" (NR 694). Projects developed by teachers in that course are now on an Internet site for use by others [http://earthsys.ag.ohio-state.edu/decision/].

In 2002 and 2003, Dr. David Johnson offered a new Natural Resources course for educators, "Aquatic Environmental Science for Teachers." In 2003, eight one-week courses for educators were offered and two were cancelled due to low enrollment. In 2004, ten one-week courses for educators were offered and three were cancelled due to low enrollment.

PROMOTION AND OUTREACH

Enhancing and refining our promotion and outreach efforts has been a key to our success. Initially, to

both reduce costs and increase awareness, we replaced the distribution of our large and expensive brochure with a less expensive flier and poster that could be distributed much more broadly. Arleen Pineda and Nancy Cruickshank with Ohio Sea Grant maintain our mailing lists (over 21,000 fliers are distributed annually) with assistance from the Ohio Academy of Science, the Ohio Department of Education, and Ohio State University Systems and Personnel. In the early 1990's, other promotional activities were developed including: an annual Open House at Ohio State, special lectures by Dr. Reutter to pre-med majors and university college students in addition to special teachers' organizations, a GLAERC Colloquium at the Laboratory each summer, booths at the Ohio Academy of Science and State Science Day, and numerous other activities. In 1995, Dr. Reutter replaced the single, large Open House on main campus with 4-6 mini-Open Houses conducted at different locations and at different times during the winter and spring. He also initiated guest lectures about the Laboratory in a number of Zoology, Biology, and Natural Resources courses during the winter and spring, in addition to special presentations for UVC advisors.

In 1996, with the assistance of the Friends of Stone Laboratory, we began offering scholarships at the Ohio Academy of Science's State Science Day. In 1996, we reviewed the projects of 33 students and awarded three scholarships covering room and board for a 1-week introductory level course at the Laboratory. The winners have three years to use the award. In 1997, we increased the number of scholarships to six. We awarded six-nine annually from 1998-2004 for a total of 56 scholarships from 1996-2004. This has been a great opportunity to reward and recruit outstanding students.

GUEST LECTURES

In 2004, Stone Laboratory continued its traditional schedule of Thursday evening guest lectures (Table 3). Each of the lectures was preceded by a research lecture in a series we call “Research Briefs.” Thanks to a grant from USEPA to Drs. Fortner and Reutter, we were able to purchase video-conferencing equipment and each lecture was broadcast live to Kottman Hall on the Columbus campus. With support from the Friends of Stone Laboratory and the Office of Student Affairs, these lecturers are encouraged to spend additional time at the Laboratory and participate in some of the classes. Course credit is now available for student participants in the seminar series.

WORKSHOP PROGRAM

Stone Laboratory's custom designed Aquatic Science spring and fall workshop and field trip program for grades 4 through adults continues to flourish, as do our efforts with educational tours and conferences. In 2000 we set records for the number of groups (174) and the number of participants (5,660), and in the six years from 1995-2000, we hosted 816 groups with a total of 27,707 participants, or an average of 136 groups and 4,618 participants per year (Figures 7-9). In 2001, we were on a record-setting pace when the events of 9/11/01 derailed the program for a time. However, it was still one of our best years with 162 groups and 5,288 participants (Table 4). In 2002, our number of groups fell to 153, but we set a new record with 5,755 participants. In 2002 we also set a record for the number of student participants in the workshop program—3,755. While the majority of these students were in the influential middle school years (2,048), we also set a record for high school participants in 2002—975. In 2003, we set a new record for the number of groups (177) with 5,709

participants. The number of groups and participants fell slightly in 2004 due to water quality problems at Put-in-Bay to 145 groups with 5,379 participants (Figure 9).

SCHOLARSHIPS

In 2004, 36 Stone Laboratory students received scholarships valued at $14,254 from the Friends of Stone Laboratory. Thirteen of the scholarship recipients were high school students and 23 were college students. From 1996-2000, 225 students received a total of $63,357 in scholarship support to attend Stone Laboratory (Figures 11 and 12). These numbers have been following a gradual upward trend. During the previous five years, 1991-95, we awarded 156 scholarships totaling $43,146. In 2001, we awarded 32 scholarships totaling $13,005. In 2002 we awarded 49 scholarships with a total dollar value of $17, 736 (new record), and in 2003 we awarded 41 scholarships with a total value of $17,264 (Figures 11 and 12).

ENROLLMENT

During the 1980s enrollment at Stone Laboratory averaged 55-60 students per year. Enrollment jumped to 114 in 1990, 169 in 1991, 209 in 1992, 234 in 1993, and 221 in 1994, 181 in 1995, 195 in 1996, 209 in 1997, 214 in 1998, 222 in 1999, 201 in 2000, 185 in 2001, 199 in 2002, 169 in 2003, and 154 in 2004 (Figure 1 and Table 6). The 154 students that attended during the summer of 2004 came from 15 colleges and universities and 45 high schools (Figure 3).

V. FINAL SUMMARY AND PLANS FOR THE NEAR FUTURE

The development of our program of introductory courses and our new courses for educators, coupled with enhanced promotional efforts and a more targeted curriculum, has allowed enrollment at Stone Laboratory to almost triple since the 1980s (Figure 1). This growth has not come simply from an influx of high school students, as we have seen increases in the number of students of all types including students from other Ohio colleges and universities, out-of-state colleges, and Ohio State University (Figures 2 and 3). However, enrollment in recent years has fallen and this is a source of great concern.

As mentioned many times in this report, the academic program at Stone Laboratory focuses on science education for all ages – grade 4 through adult. Furthermore, while the enrollment of high school students and undergraduates has experienced great increases, graduate student enrollment in the 1990s is also much greater than in the 1980s and set a record in 2001 (Figure 4).

Equally important is the increase in the number of female students at the Laboratory. In 1988 we initiated special efforts to attract women to the sciences and to Stone Laboratory. In 1986, the ratio of men to women was 3:1. As this country works to increase the number of women in science, it is important to note that in every year since 1989, the number of women attending courses at the Laboratory has exceeded the number of men (Figure 6).

It is apparent that as the cost of a college education increases, fewer and fewer students are able to spend an entire summer at Stone Laboratory, and more students are enrolling for one course or one 5-week term.

PLANS FOR THE FUTURE

Renovation of Jay Cooke's Castle began in 1998 with the replacement of the roof, dome and windows. In 1999, the State Legislature, with leadership from Senator Robert Latta, appropriated $500,000 to continue the renovation. Renovation of porches and stonework was completed in 2000. In 1999 we initiated a contract with an architectural firm to develop the plan for the renovation and reuse of the interior of the structure. This plan calls for the construction of 13 private rooms with bathrooms, a kitchen and dining room, a conference room capable of seating 30, several small meeting rooms, and air-conditioning throughout. Our ultimate goal is to use the Castle as an education and outreach/conference center for Stone Laboratory. We believe the Castle will attract influential groups that can help the Laboratory and the University with fund raising and enhance our ability to influence resource management decisions in the Great Lakes region.

In 1997 we replaced all of our computers with 23 donated 386 machines from the OSU Research Foundation. In 1998, ten of these machines were replaced with 486 machines, again from the Research Foundation. In 1999 we added four Pentium machines, and in 2000, with support from the OSU Office of Research, we upgraded to 14 new computers. We hope to again upgrade to new computers in 2005 with support from private donations and the FOSL.

The *Gibraltar II* was decommissioned in 1997. Prior to the 1999 season, the Office of Physical Facilities replaced the engine and cabin on the *BioLab*. At the end of 1999 we took possession of the 1981, 42-foot *Explorer* from the Ohio Division of Wildlife to replace the *Gibraltar II* and renamed it the *Gibraltar III*. The vessel cost $45,000 and the Friends of Stone Laboratory contributed an additional $15,000 to split the cost of an engine rebuild with the Office of Physical Facilities. This vessel has more than twice the work area of the *BioLab* and is about twice as fast. It has greatly increased the capabilities of the program. It is now time to consider replacing the hull of the *BioLab* or replacing the entire boat—built in 1947,

Enhancing communication capabilities at the Laboratory has been a very high priority. In 1999, with assistance from UNITS, Housing and Food Service, Physical Facilities, and the Office of Research, a T1 line was installed at the Laboratory. A telephone and Internet connection was placed in each classroom, dormitory room, faculty and staff office, research area and cottage. This should allow us to do distance learning/teaching from Stone Laboratory to classrooms throughout the state, and to transmit research data anywhere in the world. This system was fully operational when classes began in 2000. In 2001, with assistance from the Office of Research, we purchased and successfully deployed a multi-probe sonde to study and monitor water quality in Lake Erie. In 2003 we purchased four more to begin a sophisticated research effort on the “Dead Zone” in the central basin of Lake Erie. This work was conducted in 2004 and will be repeated in 2005.

In 2001, Senator Mike DeWine was successful in placing $348,000 in the NOAA budget for Stone Laboratory. These funds will be awarded in 2002 and have been used to purchase three 15-passenger

vans, 30 microscopes, the *Lake Erie Monitor* (a 25-ft research boat), the construction of an educational Kiosk (completed in 2004), the final $12,000 payment on the *Gibraltar III*, water quality monitoring buoys for Lake Erie, and renovations at the Lighthouse and Cooke Castle (to be completed in 2005).

In recent years maintaining high enrollments during second term has been difficult due to the late end date—many teachers and college students from schools on the semester system have to return to school before our second term is completed. In 1997 we experimented successfully by reducing second term from 5 to 4.5 weeks. In 1998, we reduced both first and second terms to 4.5 weeks, which allowed us to conclude the entire summer program a week earlier. This process has been used annually ever since. In 2004, we will experiment with a 3-week second term with courses offered 5 days/week for 3 weeks. This strategy was not well received and will not be repeated in the future.

In 2004 many people visiting Put-in-Bay became ill. The aquifer under South Bass Island was found to be contaminated. Tests of the water at Gibraltar Island also revealed contamination. In 2005, we will use a reverse osmosis system, followed by chlorination, followed by ultra-violet treatment and the use of bottled water at Gibraltar. This is a temporary fix. We hope to be completely connected to the village water and sewer system by the end of 2006.

We will continue to host groups of leaders and Great Lakes decision-makers and hope this program will grow when Cooke Castle is completed.

- In February 2003 and 2004 we hosted the fifth and sixth Sea Grant/Stone Laboratory Winter Lecture Series in Columbus. These programs focused on aquatic research conducted at the Columbus Zoo and Aquarium and sport fishing in Lake Erie.
- On 14 August 2003, we co-hosted the second Put-in-Bay Legislative Day with Representative Chris Redfern and Senator Randy Gardner. Over 40 elected officials attended.
- Reutter, J.M. " The Dead Zone in Lake Erie: A Brief History, the Current Status, and Recommendations for the Future." United States Senate Committee on Environment and Public Works. Cleveland, Ohio. 25 August 2003.
- In September 2003 and 2004 the FOSL hosted the 6th and 7th Annual Stone Laboratory Open House with Ohio Sea Grant and the Lake Erie Commission. Over 900 people (new record) attended the all-day event in 2003 and in 2004 over 1300 (new record) were in attendance.
- In September 2003 we hosted a weekend training session for the Great Lakes Fisheries Leadership Institute.
- Reutter, J.M. "The USCOP and the Great Lakes." Briefing for Ohio Congressional Delegation. 2358 Rayburn House Office Building. Washington, DC. 18 May 2004.
- Reutter, J.M. "The USCOP and the Great Lakes." Briefing for Great Lakes Congressional Delegation. 2318 Rayburn House Office Building. Washington, DC. 18 May 2004.
- In July 2004, Ohio Sea Grant hosted its 15th State Legislature/Congressional Day on Lake Erie. The all-day event attracted elected officials and decision makers from over 25 offices. "20th Anniversary of Our First Combined State Legislature/Congressional Day—22 June 1984."
- In August 2004 we hosted the summer meeting of the Great Lakes Aquatic Ecosystem Research Consortium at Stone Laboratory.

- In September 2004 we hosted a meeting of the entire Great Lakes Sea Grant Outreach Network and the Great Lakes Sea Grant Directors at Stone Laboratory. 12-15 Sept.

VI. MILESTONES IN THE HISTORY OF STONE LABORATORY

1895 Professor David S. Kellicott, Chairman of the Department of Zoology and Entomology, presents a proposal to the University to establish a field station for the study of biology at Lake Erie. The University approves the project, appropriating $350 for the construction of a second floor on the State Fish Hatchery in Sandusky.

1896 Professor David S. Kellicott is named the first director of the Lake Laboratory and operates the Laboratory for special studies during the summer.

1899 Professor Herbert C. Osborn is named the second director upon the death of Professor Kellicott.

1900 The first courses are offered at the Lake Laboratory.

1903 The University obtains a 50-year lease for property on Sandusky Bay at Cedar Point, erects a frame building at a cost of $3,376, and moves the Lake Laboratory to this new site.

1918 The Lake Laboratory moves to the upper story of the State Fish Hatchery at Put-in-Bay on South Bass Island; an adjacent lot is purchased by the University.

1925 Mr. Julius F. Stone, Chairman of the Board of Trustees, acquires Gibraltar Island in Put-in-Bay Harbor from the Jay Cooke family and presents it to the University. In accepting the gift, the University changes the name to Franz Theodore Stone Laboratory in honor of Mr. Stone's father.

1926 The Laboratory is moved to Gibraltar Island and utilizes the two buildings on the island, Cooke Castle (1865) and Barney Cottage (1907). A construction program, which includes a new laboratory building, dining hall and two housing units, Stone Cottage and Gibraltar House, is initiated in 1926 and completed in 1930.

1928 “Periodic oscillations in Lake Erie,” by Dr. F.H. Krecker, contribution number 1 of a new series of papers, is published by Stone Laboratory. Contributions 2 through 13 are published from 1929 to 1974.

1929 The Franz Theodore Stone Laboratory on Gibraltar Island is formally dedicated.

1934 President George W. Rightmire appoints an Advisory Committee to study the Laboratory and plan for future development. The committee recommends expansion of the Laboratory's activities into multi-disciplinary studies, year-round operation, and appointment of a full-time director.

1936 Professor Dwight M. DeLong is named the fourth director, the first to be appointed to a full-time position. Professor Thomas H. Langlois serves as assistant director from 1936 to 1938.

1938 Professor Thomas H. Langlois is named the fifth director upon the resignation of Professor DeLong.

The Franz Theodore Stone Laboratory is established as a regular department of the University, assigned to the President's Division. Full-time faculty positions for a fisheries biologist and a limnologist are approved; Drs. Charles F. Walker and David C. Chandler are appointed.

Peach Point Cottage is purchased by Mr. Julius F. Stone and donated to the Laboratory for use as faculty housing.

1939 Professor Milton B. Trautman joins the staff of the Laboratory.

1940 The Federal Fish Hatchery on Peach Point, South Bass Island, is transferred to the University. This facility includes the main hatchery building (converted to the principal research building of the Laboratory), superintendent's residence (converted to the Laboratory Office and Library) and a shop building.

Mr. Julius F. Stone donates a two-acre woodlot on Peach Point to the Laboratory.

1947 The Laboratory purchases a 37-foot steel research boat, the *Bio-Lab*.

1951 The Laboratory name is changed to the Franz Theodore Stone Institute of Hydrobiology.

1953 The Laboratory purchases a 30-foot passenger boat, the *Gibraltar II*.

1955 The Laboratory is renamed Franz Theodore Stone Laboratory, and becomes a program of the Natural Resources Institute, College of Agriculture and Home Economics. The year-round research program is suspended.

Professor Loren S. Putnam is named the sixth director upon the resignation of Professor Langlois.

1964 The bequest of Professor Mary D. Rogick permits the purchase of two faculty housing units, Sycamore Cottage and Rogick Cottage near Peach Point.

1966 The administration of Stone Laboratory is transferred to the new College of Biological Sciences.

The Jay Cooke Home (Cooke Castle) is designated a Registered National Historic Landmark by the U.S. Department of the Interior, National Park Service.

1967 The Hydrospheric Sciences Committee recommend establishment of a research center at Lake Erie.

1970 The Coast Guard Lighthouse on the south point of South Bass Island is transferred to the University and converted to a radiobiology laboratory and faculty housing unit.

1971 The Center for Lake Erie Area Research is established with facilities at Stone Laboratory.

1973 The summer instructional program is suspended and no regular courses are offered. Students attend in independent and group study courses.

The President's Task Force on Stone Laboratory recommends continuation of research and instruction at the Lake Erie field station.

Professor Charles E. Herdendorf is named the seventh director upon the retirement of Professor Putnam.

A lease agreement is negotiated with the U.S. Environmental Protection Agency for the 63-foot research vessel *Hydra* to be docked at Stone Laboratory.

1974 The summer instructional program and year-round research staff are reinstated at Stone Laboratory.

1977 A Sea Grant education project is funded with Dr. Victor Mayer as the principal investigator and Dr. Rosanne Fortner comes to Ohio State to work on the project.

1978 The Ohio Sea Grant Program is established with one research project to market underutilized fish species, one education project working partially at the Laboratory, and one extension agent, Fred Snyder, housed within the offices of the Ohio Division of Wildlife in Sandusky.

1980 The 50th Anniversary of Stone Laboratory on Gibraltar Island is celebrated.

1981 The first meeting of the Friends of Stone Laboratory, a group of alumni and friends of the Laboratory concerned with contributing to and preserving its high academic quality, takes place.

1982 The Ohio State University Board of Trustees holds a summer meeting at Stone Laboratory.

Ohio Sea Grant sponsors the first Congressional Day on Lake Erie.

The Ohio General Assembly provides $950,000 for capital improvements at Stone Laboratory.

Dr. Jeffrey M. Reutter is named Associate Director.

1983 A Scholarship Endowment is established by the Friends of Stone Laboratory.

Ohio Sea Grant sponsors the second Congressional Day on Lake Erie.

1984 Sustaining and Visiting Professorship Endowments are established by the Friends of Stone Laboratory.

The Lake Erie Laboratory Visitors Center is created, with initial displays built by OSU Environmental Interpretation students led by Drs. Gary Mullins and Rosanne Fortner.

Ohio Sea Grant expands Congressional Day to include the State Legislature as Ohio Sea Grants State Legislature/Congressional Day on Lake Erie.

The first course for teachers (NR/EDST 614, Marine and Aquatic Education) is offered by Drs. Rosanne Fortner and Victor Mayer.

1985 Construction is initiated for the new Residence Hall, wastewater treatment plant, and renovations to the existing Stone Laboratory building and Dining Hall.

Dr. Jeffrey M. Reutter is named Acting Director from December 84 - December 85.

Research Vessel *Hydra* returns to operation after two years, with line item support from the Ohio Legislature.

Students from Miami University, Oxford, Ohio are allowed to register for Stone Lab courses by enrolling at Miami, serving as a prototype for all state universities.

1986 New residence hall, Harborview, open for student occupancy.

Governor Richard Celeste, at the request of Ohio Sea Grant, declares 1986 “The Year of the Lake” for Lake Erie.

1987 John R. Hageman is named Laboratory Manager.

Two-and-a-half week courses are offered for the first time.

Dr. Charles E. Herdendorf retires as Director.

Ohio Sea Grant conducts its fifth State Legislature/Congressional Day on Lake Erie ending with a picnic dinner at Stone Laboratory.

Dr. Jeffrey M. Reutter is named Acting Director.

1988 Dr. Jeffrey M. Reutter is named the Laboratory’s eighth Director.

The program begins utilizing the week before the beginning of first term for a one-week early offering for teachers, thereby expanding the original 10-week summer program to eleven weeks.

The Ohio State University is designated a "Sea Grant College" by the U.S. Secretary of Commerce.

Dr. David Garton's class from Ohio State University records the first official record of a zebra mussel in Lake Erie on 15 October while on a field trip at Stone Laboratory.

Ohio Sea Grant funds Dr. Garton on the first research project on zebra mussels on 15 November.

1989 Ohio Sea Grant conducts its sixth State Legislature/Congressional Day on Lake Erie ending with a picnic dinner at Stone Laboratory.

1990 Stone Laboratory is transferred from the College of Biological Sciences to the Office of Academic Affairs.

The first introductory level course (Introductory Aquatic Biology, Zoology 125) is offered at Stone Laboratory. Superior high school students can enroll and receive college credit while still in high school. Demand is so great that the course is offered twice and many students are turned away.

Enrollment reaches 119, surpassing 100 for the first time.

Half of the Laboratory's budget is provided by the Office of Academic Affairs thereby providing increased flexibility for the Director in developing an innovative new curriculum. The other half is still provided by the departments offering courses.

1991 Ohio Sea Grant conducts its seventh State Legislature/Congressional Day on Lake Erie ending with a picnic dinner at Stone Laboratory.

Stone Laboratory's entire budget comes from the Office of Academic Affairs.

A second introductory course, Introductory Insect Biology (Entomology 126), is offered for the first time and demand for Introductory Aquatic Biology is so great that the course is offered five times.

Enrollment reaches 169, surpassing 150 for the first time.

Dr. Michael Ross, University of Massachusetts, is named the "Outstanding Visiting Professor."

1992 New introductory courses in ornithology (Zoology 126) and oceanography (Geology 107) are offered for the first time. Introductory Aquatic Biology is offered five times.

Enrollment reaches 209, surpassing 200 for the first time.

Dr. Ken Krieger, Heidelberg College, is named the "Outstanding Visiting Professor."
The Great Lakes Aquatic Ecosystem Research Consortium (GLAERC) composed of top aquatic scientists from Bowling Green State University, Case Western Reserve University, Heidelberg College, John Carroll University, Kent State University, Miami University, Mount Union College, Ohio State University, and the University of Toledo, is formed with Dr. Reutter as Director and Stone Laboratory as the shared research facility. In subsequent years Cleveland State University, Ohio University, and Wright State University joined the consortium.

1993 Enrollment reaches 234.

Ohio Sea Grant conducts its eighth State Legislature/Congressional Day on Lake Erie ending with a picnic dinner at Stone Laboratory.

Dr. David Moore, Utica College of Syracuse University is named the "Outstanding Visiting Professor."

Erosion protection work is completed as is the new reverse osmosis water treatment system for the Laboratory's water supply.

1994 Franz and Kate Stone visit the Laboratory with their grandson Franz T. Stone IV.

Dr. C. Lavett Smith, American Museum of Natural History, New York, is named the "Outstanding Visiting Professor."

Reporting lines for the Laboratory change from the Office of Academic Affairs to the School of Natural Resources within the College of Food, Agricultural and Environmental Sciences.

1995 Ohio Sea Grant conducts its ninth State Legislature/Congressional Day on Lake Erie ending with a picnic dinner at Stone Laboratory which also serves as the official start of the Laboratory's Centennial Celebration.

The Friends of Stone Laboratory, with assistance from the College of Food, Agricultural and Environmental Sciences, place a new flagpole on the island.

The Stone Laboratory Hall of Fame is created and Franz and Kate Stone are the first to be inducted.

The Oakland Park Conservation Club is inducted into the Hall of Fame.

Former Directors Loren "Puttie" Putnam and Charles E. Herdendorf, and former Associate Directors John L. Crites and Ronald L. Stuckey are given distinguished service awards.

The Geologic Setting of Lake Erie (Geology 583), a one-week course for teachers, is offered for the first time.

The workshop program sets records with over 80 groups and over 3,000 participants.

Bobby D. Moser, Vice President and Dean of the College of Food, Agricultural and Environmental Sciences receives the first Superior Leadership Award.

Dr. Carmen Trisler, Wittenberg University, receives the "Outstanding Visiting Professor Award."

Stone Laboratory receives the first "Lake Erie Award" from the Ohio Lake Erie Commission in recognition of the Laboratory's many contributions to education, research and the improvement of the Lake Erie ecosystem.

1996 Waldock Gazebo and Lakeview Pavilion are built on Gibraltar Island using donations from Jack Waldock, longtime supporter of Ohio Sea Grant and Chair of the Northwest Ohio Sea Grant Advisory Committee.

The Centennial Celebration concludes with a program and gala during which time Jack Waldock and Bobby Moser place capsules into the base of Waldock Gazebo.

We receive resolutions and proclamations honoring the Laboratory from the Governor, Congress, the Ohio House of Representatives, the Ohio Senate, and the Ohio Board of Regents.

The workshop program sets new records for number of groups (100) and participants.

Former Directors Loren "Puttie" Putnam and Charles E. Herdendorf are inducted into the Hall of Fame.

Former Associate Director Walter E. Carey, and retiring Maintenance Supervisor, Timothy P. Luecke, receive Distinguished Service Awards.

Dr. Carmen Trisler, Wittenberg University, receives the "Outstanding Visiting Professor Award" for the second time.

1997 Ohio Sea Grant celebrates its 20th anniversary with its 10th StateLegislature/Congressional Day on Lake Erie. It is also the 15-year anniversary of Ohio Sea Grant's first Congressional Day on Lake Erie in 1982.

New exterior lighting is placed on Gibraltar Island and new blackboards are placed in all of the classrooms.

The Gibraltar II is permanently taken out of service due to hull problems caused by age.

Introduction to Local Flora (Plant Biology 294) is offered for the first time.

The Ohio State University Young Scholars Program sends up an entire class of students for an offering of Introductory Aquatic Biology.

The workshop program sets records for the number of groups and participants for the third year in a row.

The Laboratory sets a record for the number of graduate students—71.

A remotely operated vehicle (ROV) is purchased for the Laboratory by the Office of Research and Ohio Sea Grant.

Dr. David W. Garton is hired as the Associate Director.

1998 Construction is initiated and completed to replace the roof, remove the dome, and repair the windows on Jay Cooke's Castle.

The Ohio State University Minority Research Initiative sends a class for Introductory Aquatic Biology.

The Library is moved from the main office in Bayview on South Bass Island to the third floor of Stone Laboratory on Gibraltar Island, by volunteers from the Friends of Stone Laboratory.

The Laboratory and the Friends of Stone Laboratory sets records for the number of scholarships awarded (43) and the total value of the scholarships ($13,632).

Melissa Haltuch is hired as the 1st ROV operator.

The workshop, tour, and conference program sets records for the number of groups (151) and the number of participants (5,246) surpassing the previous records by 40 groups and over 1200 participants.

The FOSL kick-off the State's Coastweeks Program with tours and programs on Gibraltar Island and the Put-in-Bay Lighthouse. Approximately 1000 people participate.

The Cooke family holds their first reunion on Gibraltar Island with approximately 100 guests. Jim and Ann Harding are the organizers.

Former professor and Associate Director, John L. Crites, donates prints and water colors of

Laboratory buildings which are numbered and used as a fund raiser to support research opportunities for students.

Dr. Ann M. Stoeckmann, Pennsylvania State University, is selected as the Outstanding Visiting Professor.

1999 The Laboratory and the Friends of Stone Laboratory sets records for the number of scholarships awarded (49) and the total value of the scholarships ($14,860).

Matt Thomas is hired as the first Assistant Laboratory Manager and the University's Diving Safety Officer.

Dr. Rosanne W. Fortner is hired as the Associate Director.

On 2 July, the University Board of Trustees meets at the Laboratory for the first time in 17 years.

On 9 July, Ohio Sea Grant and Stone Laboratory host the 11th State Legislature/Congressional Day on Lake Erie.

New carpeting and air conditioning/heat installed in Lecture Hall.

Ornithology for Teachers is offered for the first time.

Collaboration between Stone Laboratory, Ohio Sea Grant, US EPA, and the EPA Great Lakes National Program Office bring about the offering of a new 1-week course for teachers aboard EPA's 180-ft research vessel, the *Lake Guardian.*

The total value of the 6 endowments of the Friends of Stone Laboratory surpasses $500,000.

Enrollment in summer courses reaches 222—the second highest total in history. A total of 125 OSU students enroll—the highest number in history.

During the 1990's, students from 40 Ohio colleges, 31 out-of-state colleges, and 260 high schools take courses at Stone Laboratory.

The workshop, tour, and conference program sets records for the number of groups (173) and the number of participants (5,566).

Dr. David L. Moore, Utica College of Syracuse University, is selected as the "Outstanding Visiting Professor."

2000 The Laboratory and the Friends of Stone Laboratory sets records for the number of scholarships awarded—57.

On 22 July, Ohio Sea Grant and Stone Laboratory host the 12th State Legislature/Congressional Day on Lake Erie.

The workshop, tour, and conference program sets records for the number of groups (174) and the number of participants (5,660).

Dr. R. Chris Stanton is hired as the Assistant to the Director, a newly-created post-doctoral position.

A plan for the renovation of the Castle is developed and approved. The porches are replaced, drainage is repaired, and masonry joints are repointed completing the exterior renovation.

With the assistance of the Friends of Stone Laboratory, the Ohio Division of Wildlife, and the Office of Physical Facilities, we purchase and renovate a research vessel from the Division of Wildlife—the 42-foot, *Explorer*, which is renamed the *Gibraltar III* when the repairs are completed and the vessel is documented.

The Ohio Sea Grant College Program receives the 2000 Lake Erie Award from the Lake Erie Commission.

The first comprehensive strategic plan for the entire program, Ohio Sea Grant, Stone Laboratory, CLEAR (Center for Lake Erie Area Research), and GLAERC (Great Lakes Aquatic Ecosystem Research Consortium) is completed and built around the strategic plan for the National Sea Grant College Program and the Academic Plan for The Ohio State University.

The entire program goes through an extensive review by a Program Assessment Team from the National Sea Grant College Program and receives the highest possible rating: Excellent.

A monitoring instrument is deployed off the north side of Gibraltar Island, beginning the Lake Erie Monitoring Network (LEMNet).

With the assistance of UNITS, Physical Facilities, Housing and Food Service, the University Office of Research, and the FOSL, Stone Laboratory gets a T1 line for telephone and Internet communication. Telephones and Internet connections in all rooms allow 5-digit dialing to main campus and research data transmission worldwide.

The Office of Research at Ohio State donates $50,000 to purchase equipment including: 14 new computers, a laptop computer and LCD projector, an electro-shocker, two hand-held GPS units, a GPS unit for the *Gibraltar III*, a water quality data recorder for our monitoring program, two new trawls, and more.

Housing and Food Service donates chairs for the Lecture Hall. The FOSL clean and transport them to the Laboratory.

Physical Facilities donates 39 new trees and shrubs. The FOSL plant them on Gibraltar Island.

The Council of Great Lakes Research Managers of the International Joint Commission meets at Stone Laboratory for the first time.

Dr. Michael Hoggarth, Otterbein College, is named “Outstanding Visiting Professor.”

2001 In May the main office on campus moves to newly renovated space in The Ohio State University Research Center. The cost of renovation, $585,000 was provided by Ohio State University.

In June 2001 Ohio Sea Grant and Stone Laboratory host the first Lake Erie Leadership Institute for Newly Elected Officials. Ten offices are represented.

In July 2001, Ohio Sea Grant and Stone Laboratory host a special Put-in-Bay Legislative Day developed by State Representative Chris Redfern with the village of Put-in-Bay and a number of other sponsors. Over 45 State Representatives and Senators attended.
While Stone Laboratory is the oldest freshwater biological field station in the country and has served as Ohio’s Lake Erie laboratory since 1895, until this year, it had never received federal funding to improve the Laboratory for the benefit of thousands of students and research scientists each year. Through the hard work and leadership of Senator Mike DeWine, Stone Laboratory receives $350,000 for equipment and facilities.

Friends of Stone Laboratory celebrate their 20th anniversary. The Friends are composed of former students and faculty and just “friends of Lake Erie” who banded together in 1981 to upgrade the Laboratory's facilities and equipment, raise money for scholarships, bring in more outstanding faculty members, make it easier for non-OSU students to attend the Laboratory, and, in general, improve the quality of the research, education, and outreach programs conducted at Stone Laboratory. Annually, the group of about 500 members donates thousands dollars and person-hours to the Laboratory and Lake Erie. They have established 6 endowments and 4 general fund-raising accounts valued at more than $600,000. In the last 10 years they have awarded 400 scholarships valued at approximately $115,000 to students at colleges and universities all over Ohio, to help them attend Stone Laboratory. In 1996 the FOSL began awarding scholarships for outstanding science projects at the Ohio Academy of Science's State Science Day. To date, they have honored and awarded scholarships to 34 high school students from all over Ohio and they have purchased over $100,000 of equipment to support research and courses at Stone Laboratory.

The Stone Laboratory Brochure and Flier took first place in the brochures category during the publications competition at Sea Grant Week 2001.

Dr. Michael A. Hoggarth, Otterbein College, and Dr. David L. Moore, Utica College of Syracuse University, share the “Outstanding Visiting Professor Award.”

2002 The FOSL award 49 scholarships (32 to college students and 17 to high school students) with a total dollar value of $17, 736, a new record.

We set a new record with 5,755 participants in the workshop program. In 2002 we also set a record for the number of student participants in the workshop program—3,755. While the majority of these students were in the influential middle school years (2,048), we also set a record for high school participants in 2002—975.

On 19 July 2002, Ohio Sea Grant and Stone Laboratory host their 14th State Legislature/Congressional Day on Lake Erie. The all-day event attracts elected officials and decision makers from over 25 offices. This is also the 20th anniversary of our first program in 1982 and the 25th anniversary of the Ohio Sea Grant College Program.

The University approves plans to bring village sewer and water from Put-in-Bay to the Research Building and then across to Gibraltar--$2.7 million.

Dr. Michael A. Hoggarth, Otterbein College; Dr. C. Lavett Smith, American Museum of Natural History; and Dr. Carmen E. Trisler, Wittenberg University, share the "Outstanding Visiting Professor Award."

The Friends of Stone Laboratory partner with the Young Buckeyes Club and the College of Biological Sciences Alumni Society to host the first "Buckeye Island Hop" at Stone Laboratory. Groups work at Stone Lab, the South Bass Island State Park, and the Island Historical Society.

The John L. Crites Research Endowment at Stone Laboratory is created with gifts from the sale of John Crites numbered prints of Stone Laboratory, the Research Building, and Cooke Castle.

The Franz T. Stone Research Endowment at Stone Laboratory is created with proceeds from the donation of two farms in the will of Kate Stone.

2003 The FOSL award 41 scholarships (25 to college students and 16 to high school students) with a total dollar value of $17,264.

We set a new record with 177 groups (5,709) participants in the workshop program.

On 14 August 2003, we co-hosted the second Put-in-Bay Legislative Day with Representative Chris Redfern and Senator Randy Gardner. Over 40 elected officials attended.

Dr. R. Chris Stanton, Baldwin-Wallace College, and Dr. Carmen E. Trisler, Wittenberg University, share the "Outstanding Visiting Professor Award."

The Friends of Stone Laboratory partner with the Young Buckeyes Club and the College of Biological Sciences Alumni Society to host the second "Buckeye Island Hop" at Stone

Laboratory. Groups work at Stone Lab, the South Bass Island State Park, and the Island Historical Society.

The John H. Dunlap, Jr. Fund for Education, Outreach and Development at Stone Laboratory is created with gifts from Shirley and Cliff Bowser and the Kellogg Foundation.

The *Erie Monitor*, a 25-foot research boat, enters service at Stone Laboratory with assistance from Senator Mike DeWine.

With support from USEPA to Drs. Fortner and Reutter, the OSU UNITS program, and Ohio Sea Grant, equipment was purchased and the Laboratory conference room was renovated to allow distance-learning broadcasts. The summer Guest Lecture series and Research Briefs were broadcast to main campus and a fish dissection laboratory exercise was broadcast to Westerville North High School.

In July, Matt Thomas placed Stone Laboratory's first recording probe 7 miles north of Huron, Ohio, 0.3 m above the bottom, in the Sandusky sub-basin of the Central Basin of Lake Erie to study the Dead Zone.

On 1 September, the University Treasurer's Office placed the fair market value of two farms in Pickaway County (approximately $390,000) into the Franz Stone Research Endowment.

2004 The FOSL award 36 scholarships (23 to college students and 13 to high school students) with a total dollar value of $14,254.

A large, educational kiosk for the general public is constructed along the sidewalk between Bayview and the Research Building on South Bass Island.

On 16 July 2004, Ohio Sea Grant and Stone Laboratory host their 15th State Legislature/Congressional Day on Lake Erie. The all-day event attracts elected officials and decision makers from over 25 offices.

Dr. Scott Shalaway, author and syndicated nature columnist, and Kristin M. Stanford, Northern Illinois University, share the "Outstanding Visiting Professor Award."

Stone Laboratory, in collaboration with Ohio Sea Grant and the University of Windsor, places a string of water monitoring SONDES off Avon Point in Lake Erie's Central Basin to Monitor the re-expanding anoxic "Dead Zone."

The Kelly Prochazka Memorial Scholarship Endowment is established with gifts from the Prochazka family and the FOSL.

The Spark Baumler Memorial Scholarship Endowment is established with gifts from the family and the FOSL.

The Ronald L. and Darwin Stuckey Botany Teaching Endowment is created with a deferred gift from Darwin Stuckey.

The Sally and Jackson Smith Scholarship Endowment is established by Sally and Jackson Smith.

Ohio Sea Grant and Stone Laboratory host the Great Lakes Sea Grant Network Meeting. 12-15 September 2004.

The FOSL raise $25,000 in response to a challenge from Shirley and Cliff Bowser, who match it with $50,000 from the Kellogg Foundation and add it to the Dunlap Fund.

Stone Laboratory 2004

Program Review Figures

THE OHIO STATE UNIVERSITY

Sea Grant

Ohio Sea Grant College Program

FIGURE 1

Total Student Enrollment at Stone Laboratory
1980-2004

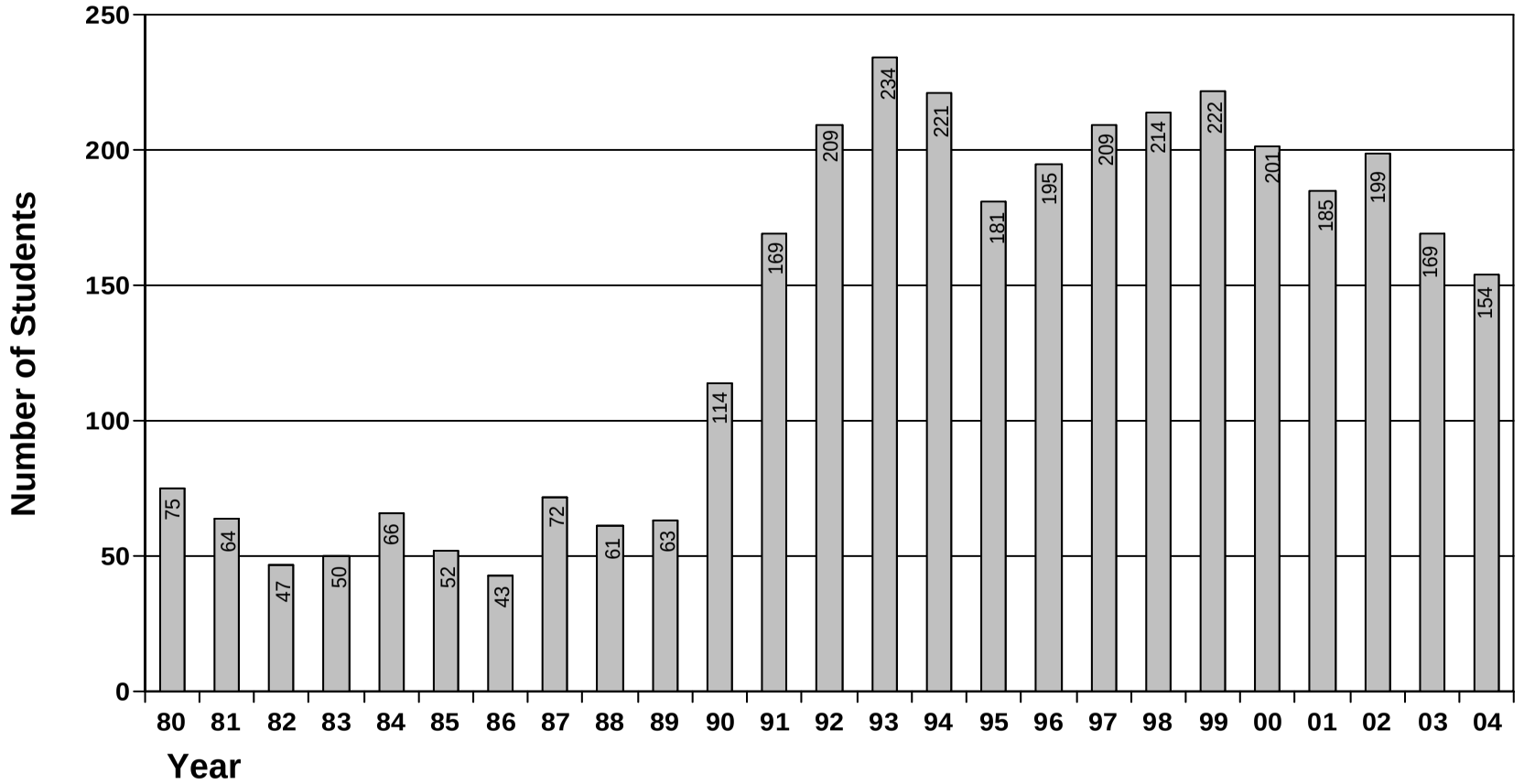
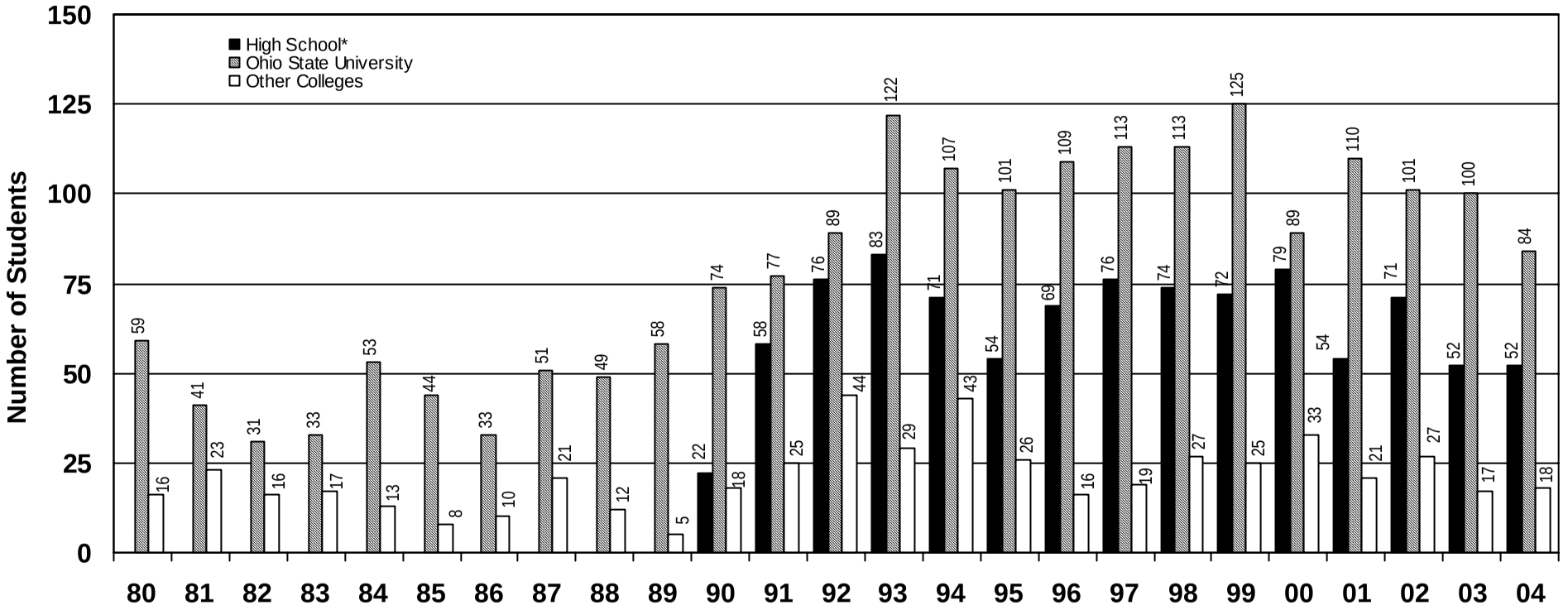


FIGURE 2

Number of Students Attending Stone Laboratory from High Schools, Ohio State University, and Other Colleges 1980-2004

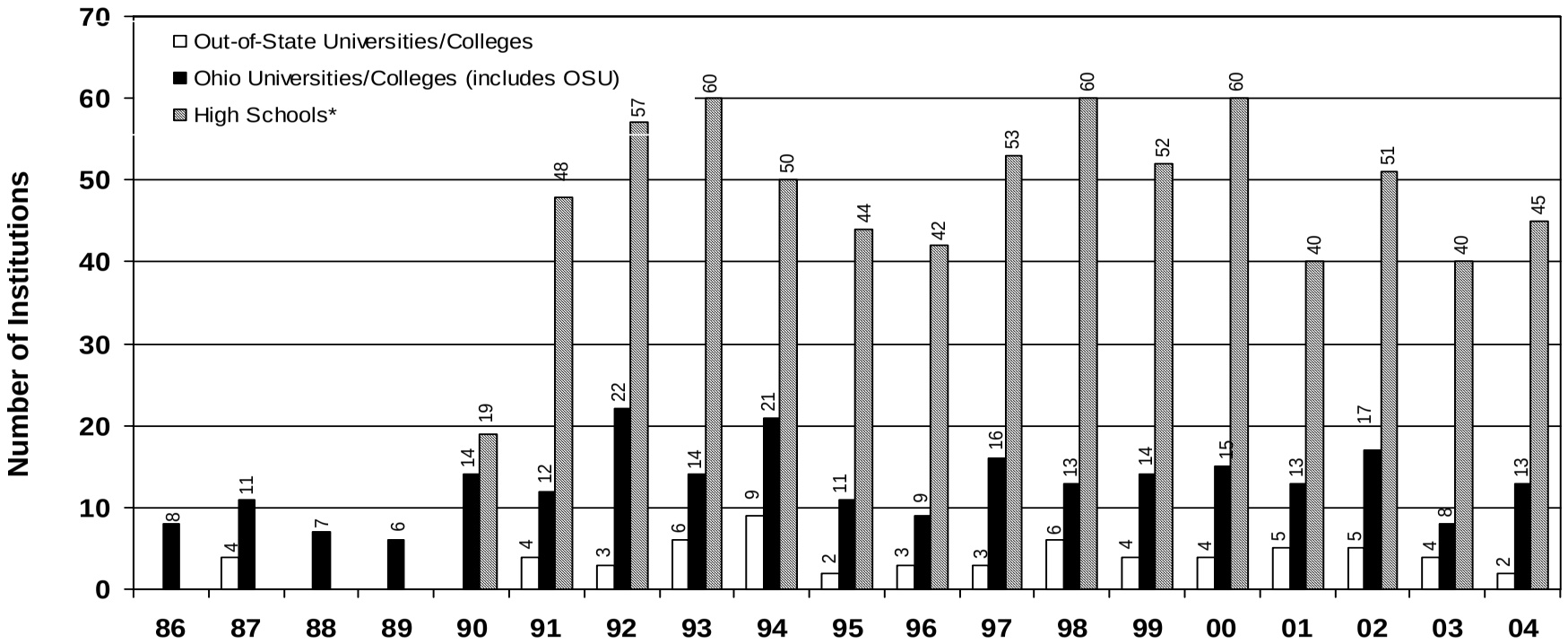


*Introductory courses for high school students began in the summer of 1990. These students enroll through Ohio State and receive undergraduate credit.

Note: Non-credit workshop participants reflected in totals.

FIGURE 3

Number of Institutions Represented by Students at Stone Laboratory 1986-2004

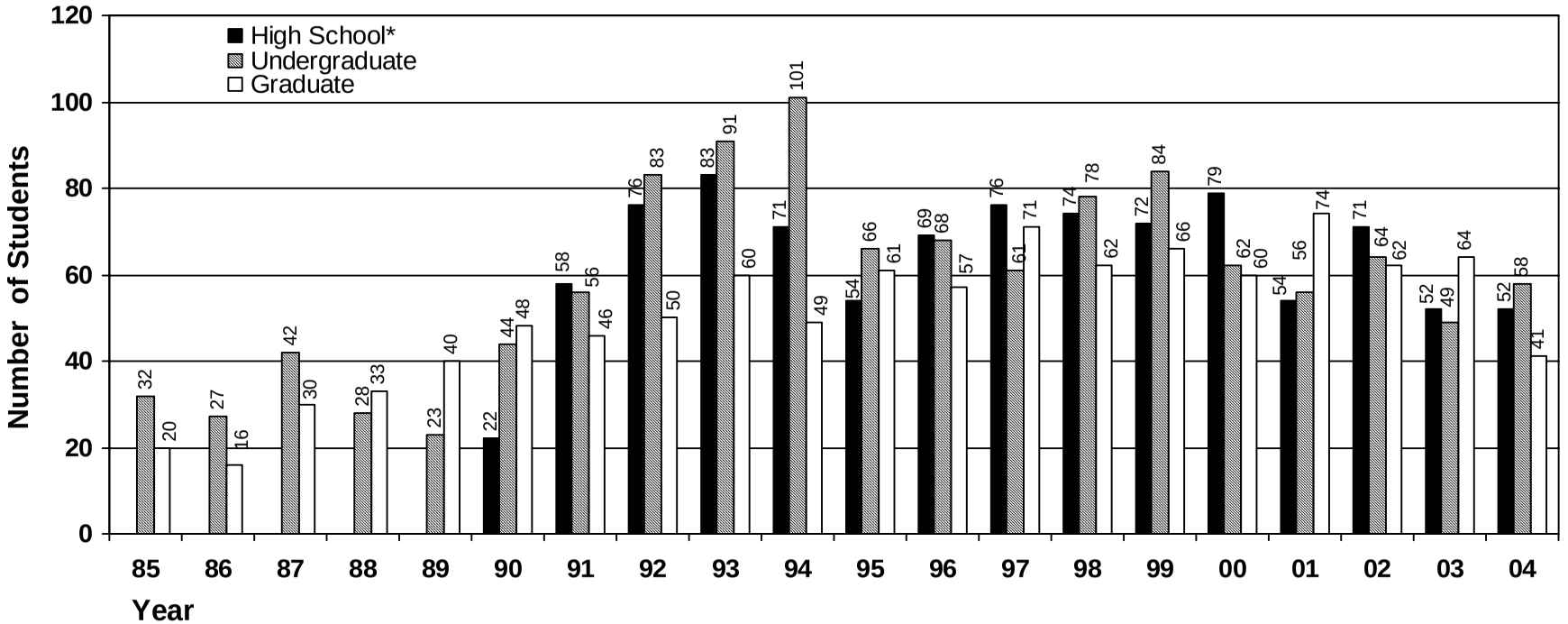


*Introductory courses for high school students began in the summer of 1990. These students enroll through Ohio State and receive undergraduate credit.

Note: Institution not counted if the only representative is a non-credit workshop participant.

FIGURE 4

Number of Undergraduate, Graduate and High School Students Attending Stone Laboratory 1985-2004



*Introductory courses for high school students began in the summer of 1990. These students enroll through Ohio State and receive undergraduate credit.

Note: Non-credit workshop participants not included in totals.

FIGURE 5

Credit Hours of Student Enrollment at Stone Laboratory 1987-2004

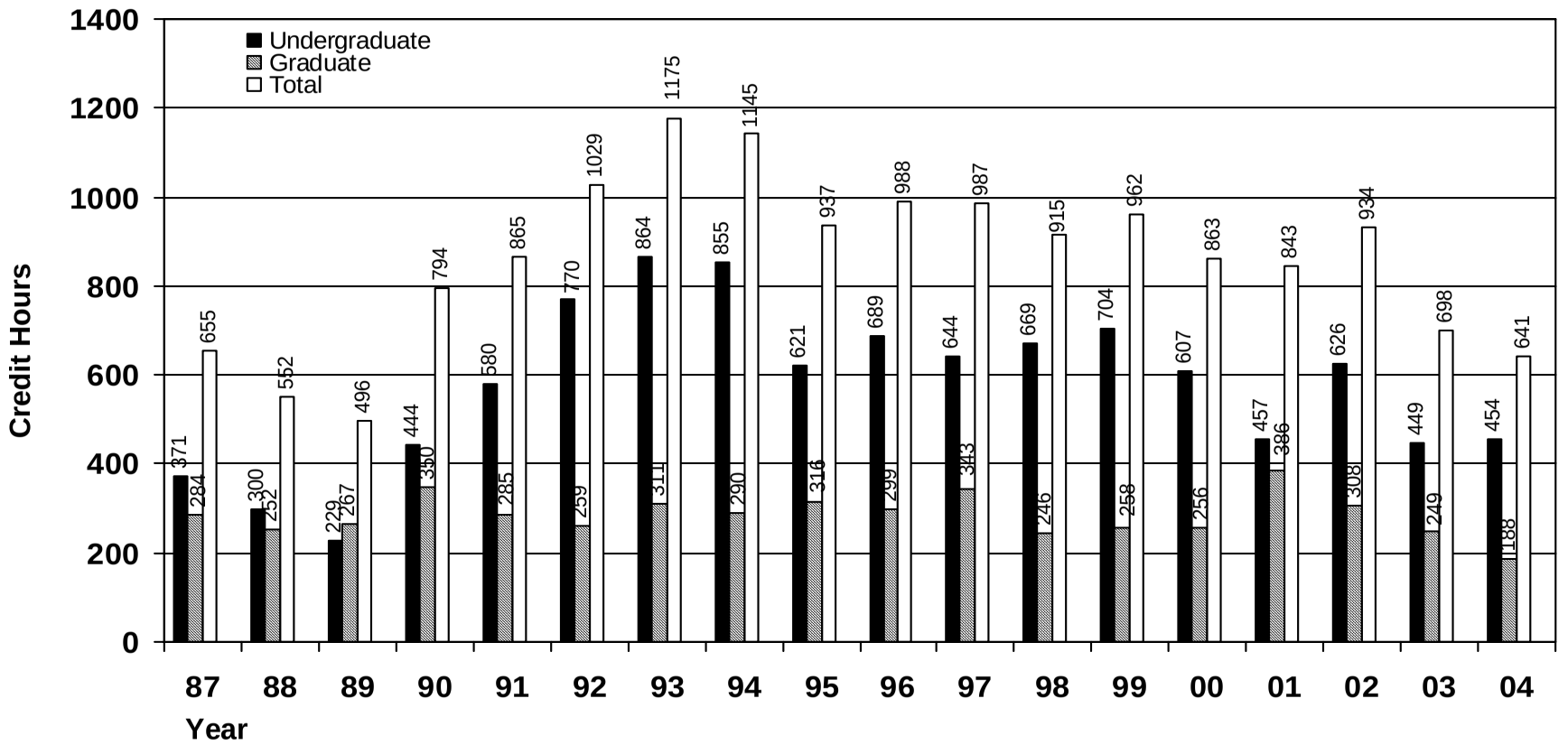


FIGURE 6

Number of Male and Female Students Attending Stone Laboratory 1986-2004

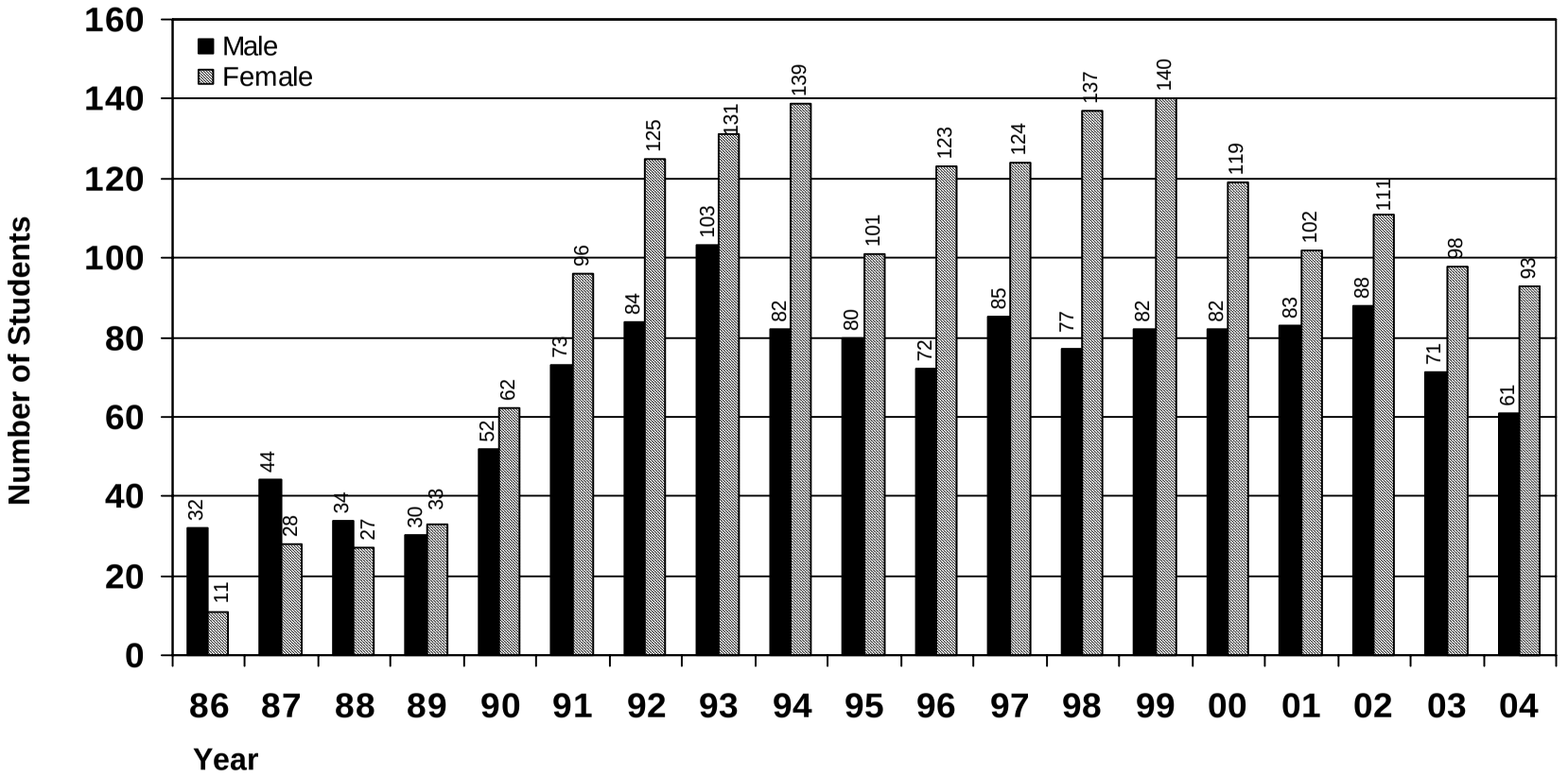


FIGURE 7

Stone Laboratory Workshops, Conferences, and Tours: Number of Groups 1991-2004

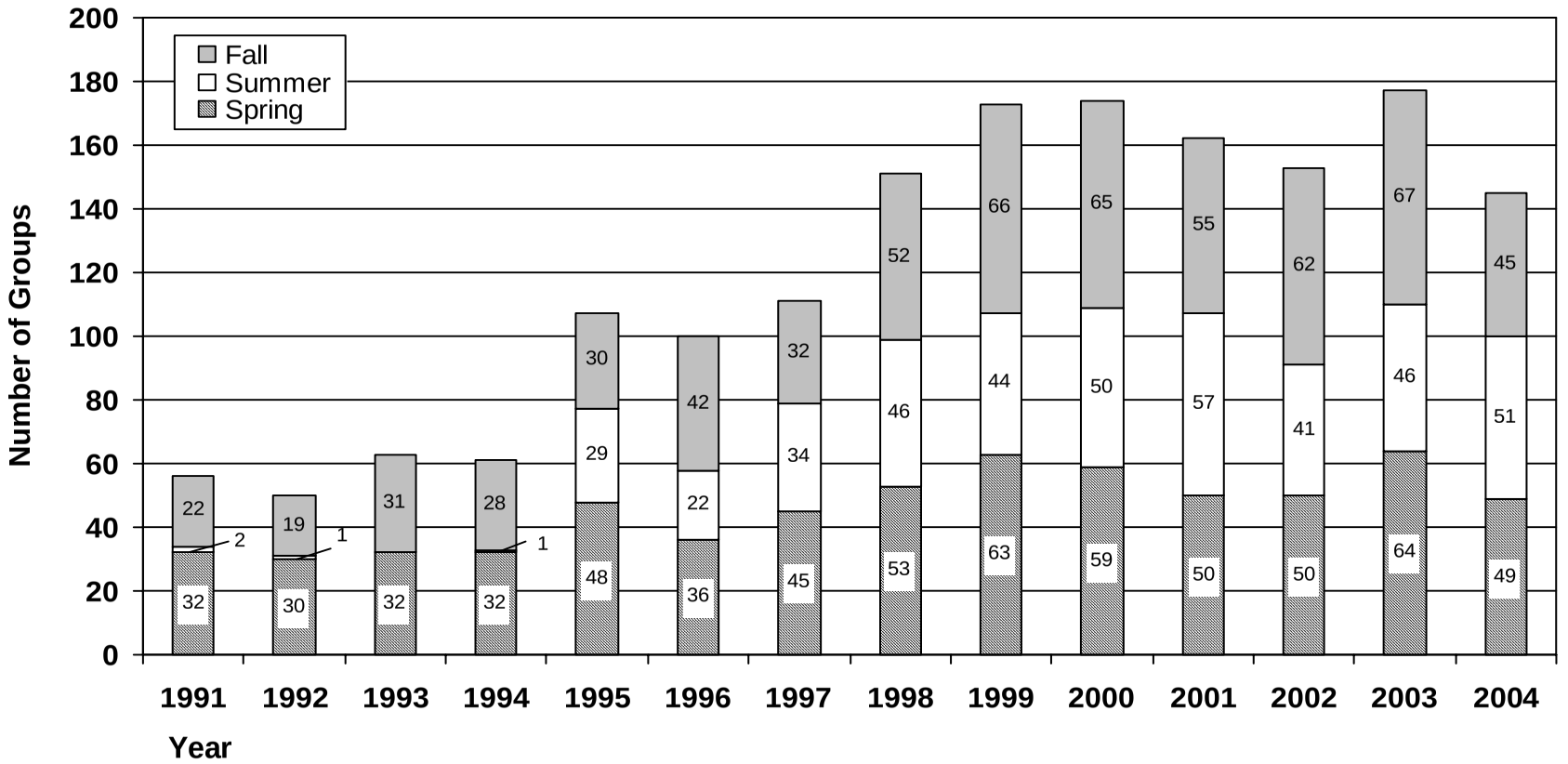


FIGURE 8

Stone Laboratory Workshops, Conferences, and Tours: Number of Participants 1991-2004

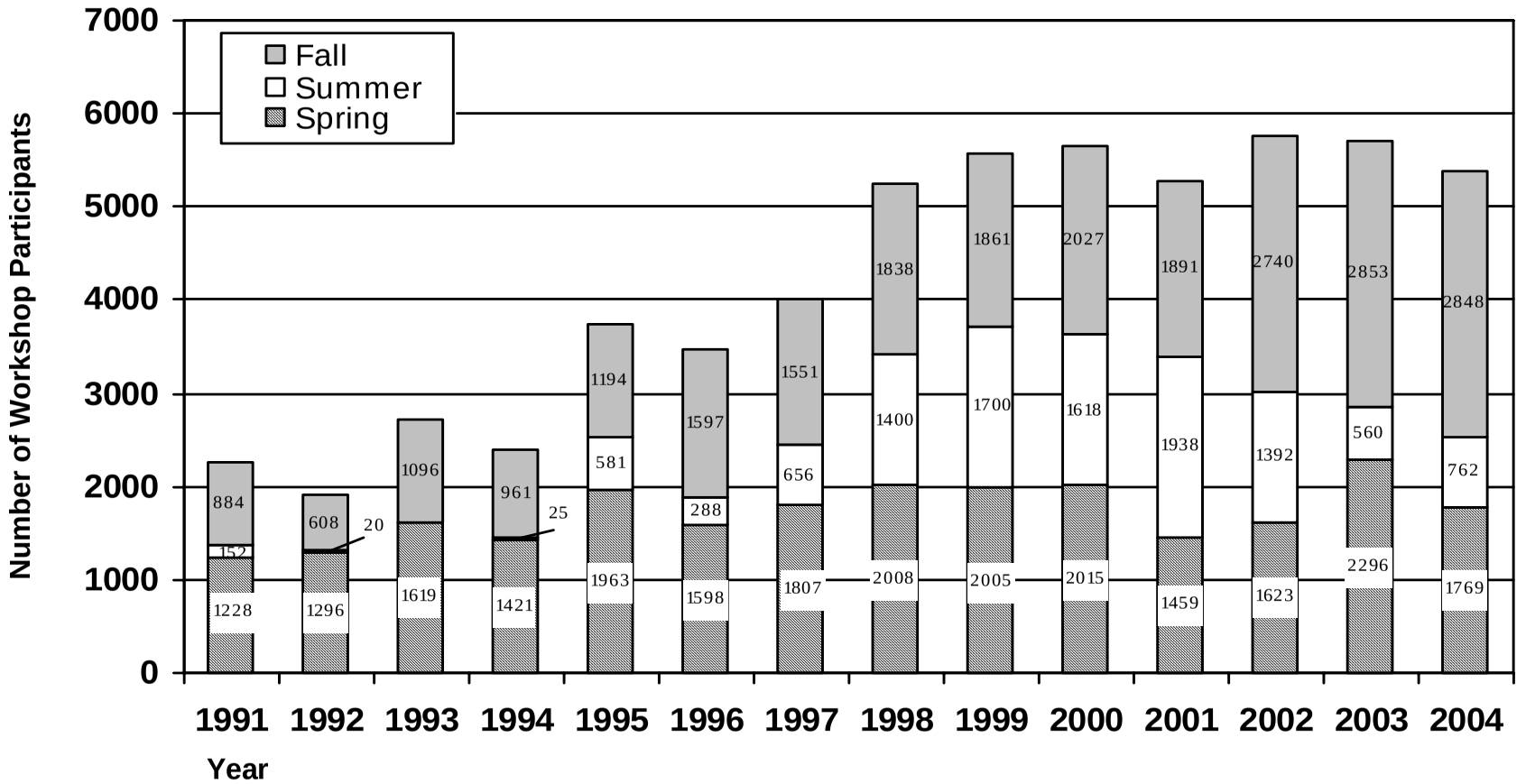
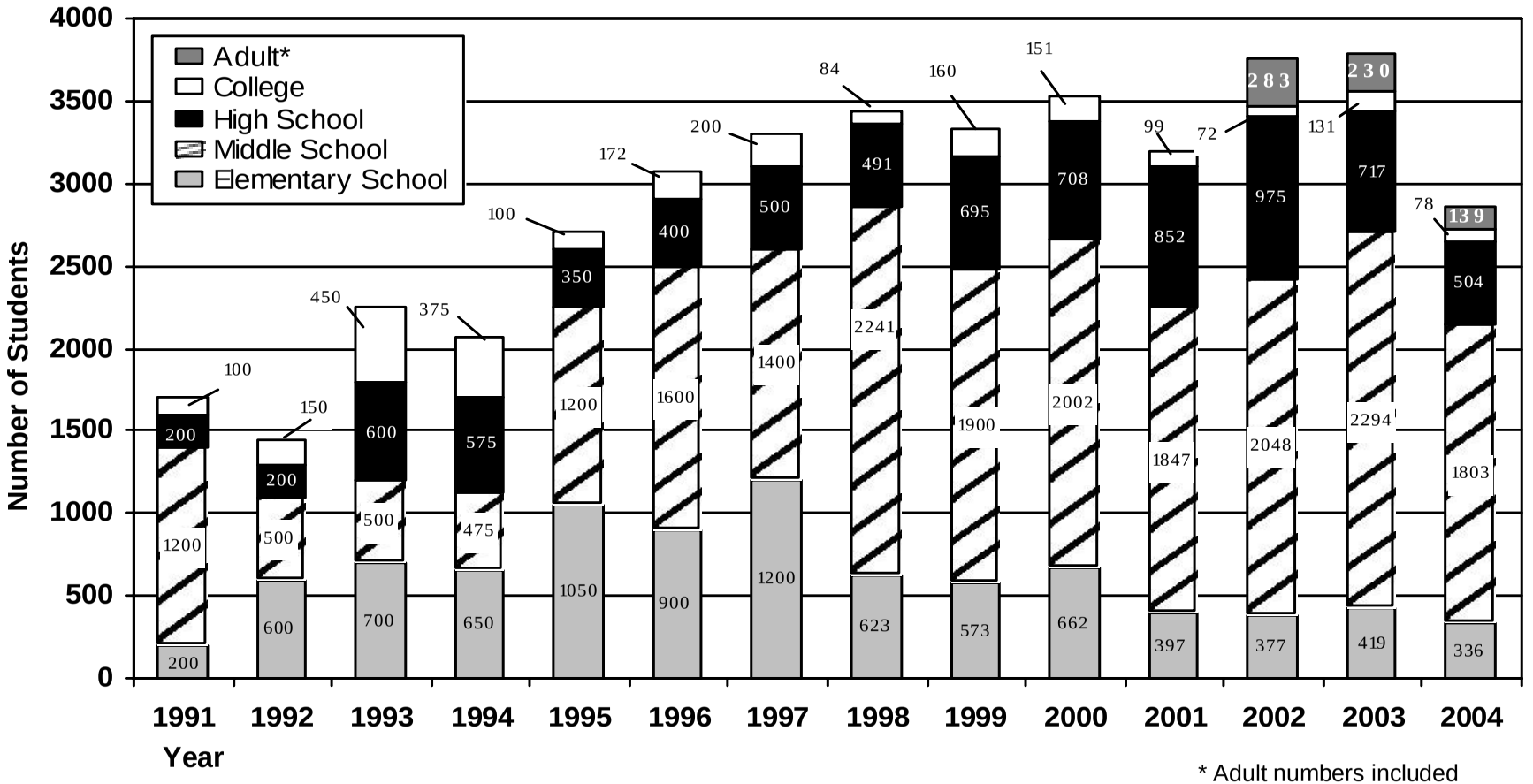


FIGURE 9

Stone Laboratory Workshop Program: Composition of Participating Students* 1991-2004



* Adult numbers included beginning in 2002.

FIGURE 10

Research at Stone Laboratory: Number of Research Projects, Principal Investigators, Research Assistants, and Institutions 1995-2004

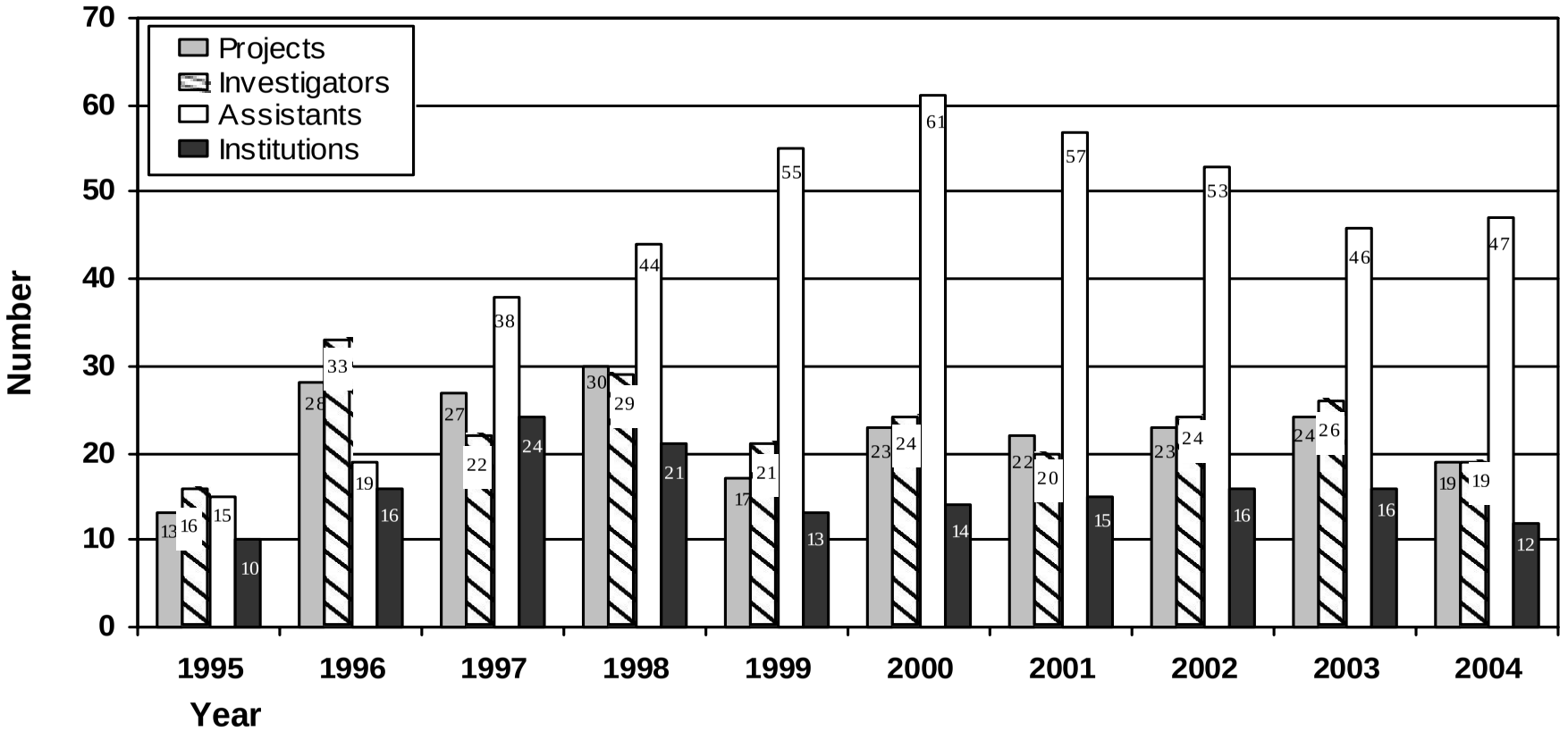


FIGURE 11

Number of Students Receiving Stone Laboratory Scholarships for Summer College Programs 1988-2004

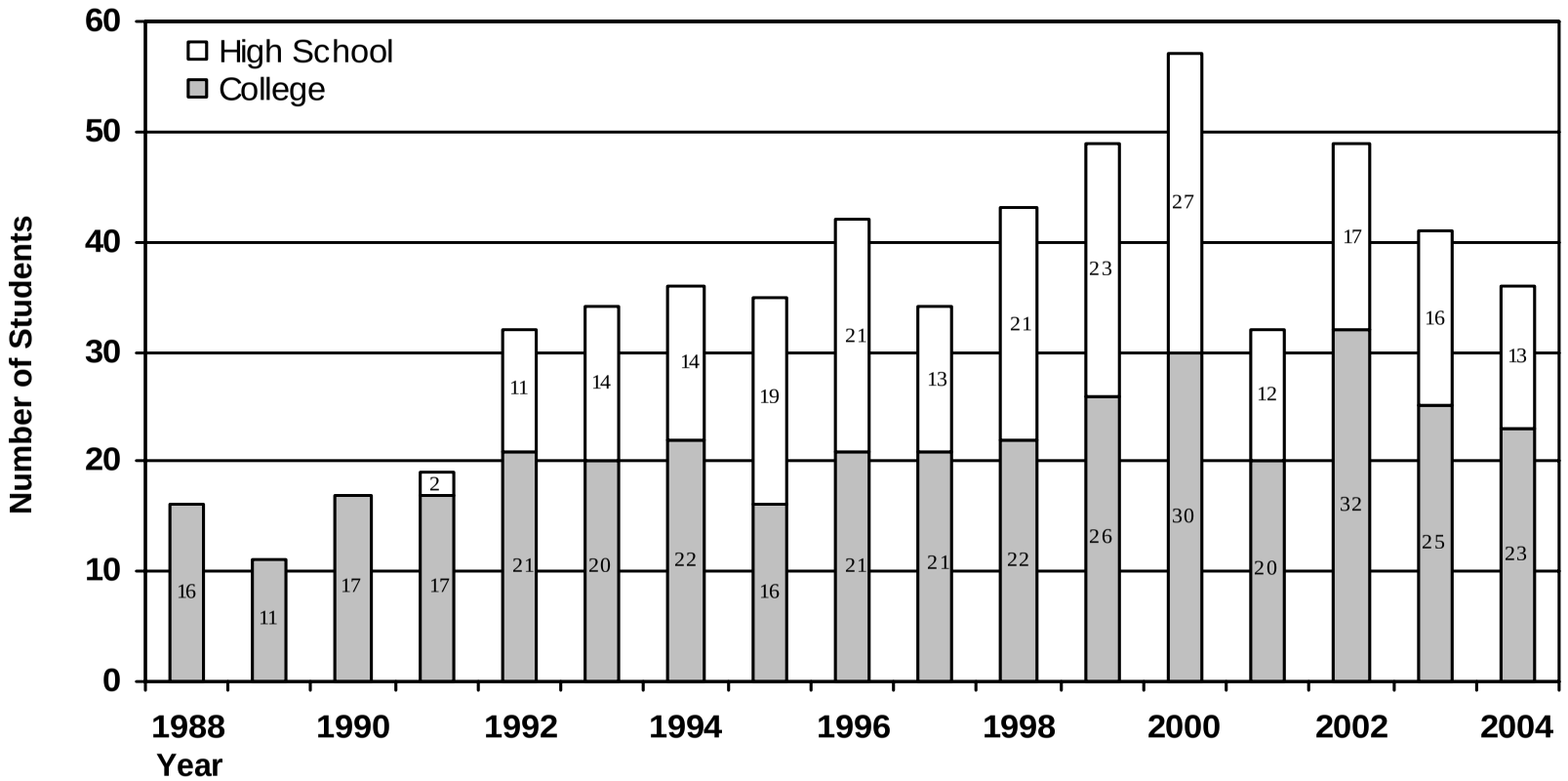


FIGURE 12

Total Value of Scholarships Awarded to College and High School Participants in Stone Laboratory Summer College Program 1988-2004

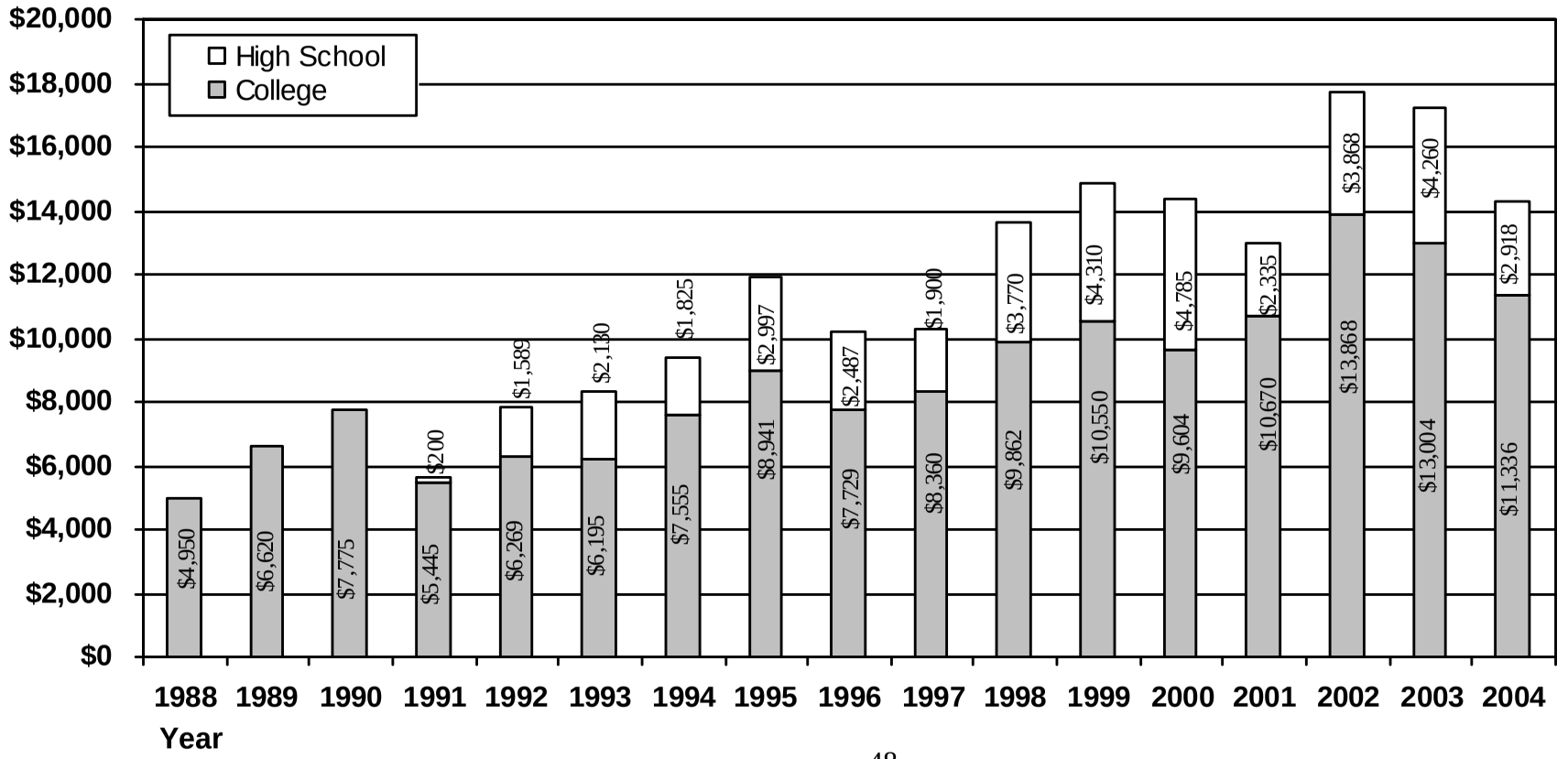
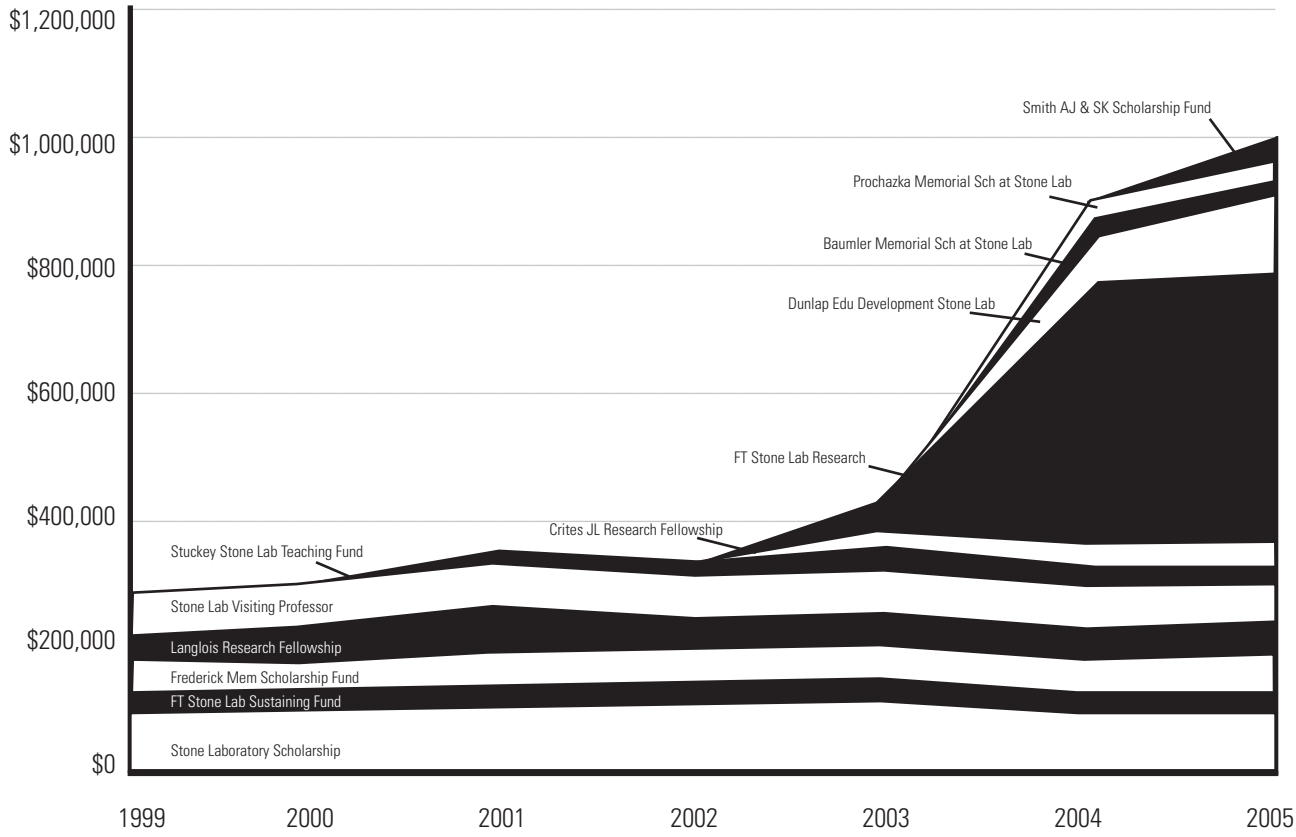


Figure 13—Endowment Values *(30 June of each year vs. Current YTD)*

Fund	Description	1999	2000	2001	2002	2003	2004	*April 2005*
607012	**Stone Laboratory Scholarship** *(Established Sept. 2, 1983)*	$99,731	$104,029	$112,524	$115,349	$117,373	$99,255	*$99,953*
607015	**FT Stone Lab Sustaining Fund** *(Established Dec. 8, 1983)*	$43,766	$44,361	$45,046	$46,016	$46,601	$47,651	*$48,986*
602290	**Frederick Memorial Sch Fund** *(Established April 4, 1986)*	$30,616	$32,524	$45,701	$45,786	$45,911	$45,986	*$46,086*
603930	**Langlois Research Fellowship** *(Established Dec. 5, 1986)*	$33,716	$39,148	$46,638	$34,896	$40,146	$40,271	*$40,296*
607014	**Stone Lab Visiting Professor** *(Established Sept. 7, 1987)*	$45,669	$45,669	$45,719	$45,719	$45,719	$45,779	*$45,791*
607052	**Stuckey Stone Lab Teaching Fund** *(Established Feb. 2, 1996)*	—	—	$16,455	$16,905	$17,325	$18,100	*$18,405*
601510	**Crites JL Research Fellowship** *(Established Sept. 6, 2002)*	—	—	—	—	$30,815	$33,757	*$36,282*
602289	**FT Stone Lab Research** *(Established Sept. 6, 2002)*	—	—	—	—	$67,901	$458,555	*$458,938*
641860	**Dunlap Edu Development Stone Lab** *(Established Feb. 6, 2004)*	—	—	—	—	—	$54,692	*$129,666*
600389	**Baumler Memorial Sch at Stone Lab** *(Established March 5, 2004)*	—	—	—	—	—	$25,000	*$25,170*
605928	**Prochazka Memorial Sch at Stone Lab** *(Established March 5, 2004)*	—	—	—	—	—	$25,025	*$25,330*
646690	**Smith AJ & SK Scholarship Fund** *(Established Nov. 5, 2004)*	—	—	—	—	—	—	*$25,100*
	Total Equity	**$253,498**	**$266,732**	**$312,084**	**$304,672**	**$411,791**	**$894,072**	***$1,000,003***
	Percentage change	—	4.83%	17.44%	-2.37%	35.16%	117.12%	*11.85%*



Stone Laboratory 2004

Program Review Tables





TABLE 1

Stone Laboratory Staff
2004

Administration

Jeffrey M. Reutter	Director
Arthur C. Boone	Chef Manager, Housing and Food Service (5-1-04 to 10-30-04)
Eugene C. Braig	Assistant Director (beginning 8-1-04)
Bonita C. Cordi	Office Associate
Michael S. Dixon	Director, Maintenance, Physical Facilities (beginning 7-12-04)
Kelly L. Dress	Laboratory Office Associate, Put-in-Bay
Rosanne W. Fortner	Associate Director
John R. Hageman	Laboratory Manager, Put-in-Bay
Jill Jentes Banicki	Communications Coordinator
John R. Kleberg	Safety & Risk Management, Student Affairs (beginning 5-21-04)
Steven A. Kremer	Assistant Vice President, Student Affairs (beginning 5-21-04)
Richard D. Lighthiser	Director, Maintenance, Physical Facilities (until 5-1-04)
J. Stephen Martin	Manager, Housing and Food Service, Put-in-Bay (until 4-30-04)
Arleen N. Pineda	Program Coordinator
Gerald K. Pullins	Assistant Director, Maintenance, Physical Facilities
Matt A. Thomas	Assistant Laboratory Manager, Put-in-Bay
John L. Tripp	Business Manager
Diane S. Whitbeck	Assistant Vice President, Student Affairs (until 5-20-04)

Teaching Faculty

D. Derek Aday	EEOB 125-*Introductory Aquatic Biology*	Aug 1 - Aug 7
Rosanne W. Fortner	Natural Resources 614-*Marine and Aquatic Education*	June 13 - June 19
"	Natural Resources 690-*Alien Species Education*	June 27 - July 3
"	Natural Resources 799-*Current Topics in Environment & Engineering*	June 17 - July 23
"	Natural Resources 799-*Current Topics in Environment &Engineering*	July 24 - Aug 27
John E. Gannon	EEOB 653-*Fish Ecology*	July 25 - Aug 13
Robert J. Gates	Natural Resources 629-*Ecology & Management of Wetland Birds*	July 11 - July 17
John R. Hageman	EEOB 692-*Ichthyoplankton Identification Workshop*	July 24
Michael A. Hoggarth	EEOB 651-*Field Zoology*	June 20 - July 23
Joseph R. Holomuzki	EEOB 694-*Stream Ecology for Teachers (at OWC)*	July 11 - July 17
David L. Johnson	EEOB 125-*Introductory Aquatic Biology*	June 6 - June 12
David J. Jude	EEOB 653-*Fish Ecology*	July 25 - Aug 13
Douglas D. Kane	EEOB 694-*Field Ecology*	Aug 15 - Aug 21
Lawrence A. Krissek	Geological Sciences 107-*Field-Based Introduction to Oceanography*	June 27 - July 3
"	Geological Sciences 583-*Geologic Setting of Lake Erie*	July 17 - July 23
"	Geological Sciences 584-*Prin of Oceanography for Science Teachers*	July 4 - July 10
Lisa Kutschbach-Brohl	EEOB 110-*Introduction to Local Flora*	Aug 1 - Aug 7
"	EEOB 694-*Local Flora for Teachers*	Aug 1 - Aug 7
Jeffrey G. Miner	EEOB 125-*Introductory Aquatic Biology*	July 11 - July 17
David L. Moore	EEOB 611-*Aquatic and Wetlands Flora*	July 25 - Aug 13
Paul G. Rodewald	EEOB 126-*Introduction to the Study of Birds*	June 13 - June 19
Scott D. Shalaway	EEOB 522-*Ornithology for Teachers*	June 20 - June 26
C.Lavett Smith	EEOB 621-*Ichthyology*	June 20 - July 23
Frederic L. Snyder	EEOB 125-*Introductory Aquatic Biology*	July 25 - July 31
Kristin M. Stanford	EEOB 693-*Individual Study in Herpetology*	June 13 - June 19
R.Chris Stanton	Entomology 126-*Introductory Insect Biology*	July 18 - July 24
Carmen E. Trisler	Entomology 612-*Aquatic Entomology*	July 25 - Aug 13

Graduate Teaching Associates

Kent Bekker*	Individual Study in Herpetology	Week 02
Heather Ferguson*	Marine and Aquatic Education	Week 02
Katherine Johnson	Field-Based Introduction to Oceanography	Week 04
Jonathan Kahn	Introductory Insect Biology	Week 07
Douglas Kane	Ichthyology	Term 1
Erin McDougall*	Field Ecology	Week 11
Kelsey Reider*[1]	Introduction to Local Flora/Local Flora for Teachers	Week 09
Wayne Rossiter	Field Zoology	Term 1
Mike Sovic	Introductory Aquatic Biology	Week 06
"	Introductory Aquatic Biology	Week 08
"	Introductory Aquatic Biology	Week 09
KathyTrundle*	Geologic Setting of Lake Erie	Week 07
Joseph Wernet	Introductory Aquatic Biology	Week 01
D.Andy Zuwerink	Fish Ecology	Term 2

*non-graduate Ohio State University teaching associate
[1] also enrolled in Stone Laboratory core courses

Student Research Assistants (also enrolled in Stone Laboratory courses)

Matthew Cross	Research - Term 1, MWF	
Kelsey Reider	Research - Term 1, TRS/Term 2, Mon-Sat	*Charles Morin Research Fellowship*

Student Assistants (also enrolled in Stone Laboratory courses)

Jayson Beugly	Laboratory - Term 1, TRS
Joshua Lillvis	Laboratory - Term 1, MWF
Kristina Nemeth	Laboratory - Term 1, MWF

Office, Technical, Physical Facilities, and Housing & Food Service Staff

Greg Alysworth	Graphic Illustrator, Columbus (beginning 7-1-04)
Senthil Balasubramanian	Computer Technical Support, Columbus (until 4-23-04)
Allen J. Duff	Boat Captain and Building Maintenance Superintendent, Physical Facilities, Put-in-Bay
Robin Glauser	Cook, Housing & Food Service, Put-in-Bay
Linda Gray	Housekeeping Manager, Housing & Food Service, Put-in-Bay
Cindy A. Hayter	Graphic Illustrator, Columbus (until 4-23-04)
Susan Joseph	Courier, Put-in-Bay
George Oommen	Computer Technical Support, Columbus (beginning 4-23-04)
Shanny O'Rourke-Scherf	Cook, Housing & Food Service, Put-in-Bay (until 5-24-04) Office Assistant, Housing & Food Service, Put-in-Bay (beginning 5-25-04)
Thomas Siwa, Jr.	Cook, Housing & Food Service, Put-in-Bay
Thomas Thorne	Cook, Housing & Food Service, Put-in-Bay
Mark J. Wilhelm	Maintenance Repair Worker, Physical Facilities, Put-in-Bay
Art L. Wolf	Boat Captain and Plant Maintenance Engineer, Physical Facilities, Put-in-Bay

Workshop Assistants

	Season of Employment		
Lisa Brohl	spring	summer	fall
Carol Ferguson	spring	-------	fall
Heather Ferguson	spring	-------	----
Casey Hanley	-------	-------	fall
Susan Joseph	spring	summer	fall
Courtney Marquette	spring	-------	----
Erin McDougall	spring	summer	fall (until 9-10-04)
Kelsey Reider	-------	summer	fall
Kristin Stanford	spring	-------	----

TABLE 2

Stone Laboratory Curriculum
2004

EEOB 110 • Introduction to Local Flora

Week 9, August 1 -7..... Lisa A. Kutschbach-Brohl, *U.S. Department of Agriculture*
An introduction to the identification and ecology of terrestrial and wetland vegetation.
3 undergraduate credit hours.

EEOB 125 • Introductory Aquatic Biology

Week 1, June 6-12..... Dr. David L. Johnson, *Ohio State University*
Week 6, July 11-17.....Dr. Jeffrey G. Miner, *Bowling Green State University*
Week 8, July 25-31..... Frederic L. Snyder, *Ohio State University*
Week 9, August 1-7..... Dr. D. Derek Aday, *Ohio State University*
An introduction to field techniques and the study of aquatic biology providing undergraduate credit for college students and advanced high school students. 3 undergraduate credit hours.

EEOB 126 • Introduction to the Study of Birds

Week 2, June 13-19.....Drs. Paul G. and Amanda Rodewald, *Ohio State University*
An introduction to the study of birds including field techniques and identification.
3 undergraduate credit hours.

EEOB 522 • Ornithology for Teachers

Week 3, June 20-26..... Dr. Scott D. Shalaway, *Wildlife Biologist*
Field and laboratory studies of the visual and acoustical characteristics of common Ohio birds; discussion of world-wide birds and their classification; and identification of resource materials for classroom use.
3 undergraduate/graduate credit hours.

EEOB 611 • Aquatic and Wetland Flora

Term 2, July 25-August 13, MTWRF ..... Dr. David L. Moore, *Utica College of Syracuse University*
Aquatic plants, other than the algae of the Great Lakes region; field and laboratory work on their identification and ecological and geographical relations. 5 undergraduate/graduate credit hours.

EEOB 621 • Ichthyology

Term 1, June 20-July 23, MWF .....Dr. C. Lavett Smith, *American Museum of Natural History, New York*
Study of the distribution and classification of fishes, which includes methods of identification, collection, and preservation. 5 undergraduate/graduate credit hours.

EEOB 651 • Field Zoology

Term 1, June 20-July 23, TRS..... Dr. Michael A. Hoggarth**,** *Otterbein College*
Field and laboratory identification of aquatic and terrestrial vertebrates and invertebrates of the region, in relation to habitats occupied. 5 undergraduate/graduate credit hours.

EEOB 652 • Limnology **CANCELLED**

Term 1, June 20-July 23, TRS..... Douglas D. Kane, *Ohio State University*
Study of the physical, geological, chemical, and biological factors influencing freshwater life; field and laboratory techniques for determining morphometry, chemistry, and biological productivity of lakes, streams, and wetlands are emphasized. 5 undergraduate/graduate credit hours.

EEOB 653 • Fish Ecology

Term 2, July 25-August 13, MTWRF ..... Drs. John E. Gannon, *Intl. Joint Commission*, and David J. Jude, *University of Michigan*
Field and laboratory studies of life histories and interspecific relationships of fishes, and of the various factors influencing their abundance. 5 undergraduate/graduate credit hours.

EEOB = Department of Evolution, Ecology, and Organismal Biology

EEOB 692 • Ichthyoplankton Identification Workshop

One Day, Saturday, July 24, 9:00 a.m.-5:00 p.m..... John R. Hageman and Dr. Jeffrey M. Reutter (Instructor of Record), *Ohio State University*

This workshop will take students, agency professionals and other interested individuals through the techniques involved with the collection and identification of common larval fishes of the Lake Erie drainage basin. May be taken as a non-credit workshop for $250. This course is graded satisfactory or unsatisfactory (S/U). 1 undergraduate/graduate credit hour.

EEOB 693 • Individual Study in Herpetology

Week 2, June 13-19..... Kristin M. Stanford, *Northern Illinois University*, and Dr. Jeffery M Reutter (Instructor of Record), *Ohio State University*

Study of the distribution and the classification of reptiles and amphibians of Ohio, which includes methods of field research, species identification, collection, preservation and conservation. This course is graded satisfactory or unsatisfactory (S/U). 3 undergraduate/graduate credit hours.

EEOB 694 • Field Ecology

Week 11, August 15-21.....Dr. Douglas D. Kane, *Ohio State University*

NEW COURSE: A field-based introduction to the distribution and abundance of animals and plants in pond, lake, river, marsh, beach, field, and woodland ecosystems for teacher, undergraduates, and graduate students. 3 undergraduate/graduate credit hours.

EEOB 694 • Local Flora for Teachers

Week 9, August 1-7..... Lisa A. Kutschbach-Brohl, *U.S. Department of Agriculture*, and Jeffery M. Reutter, *Ohio State University*

NEW COURSE: A hands-on course for educators that includes botanical and identification skills, field experience, and preparation of lessons for classroom use. Not open to students with credit for EEO 110. 3 undergraduate/graduate credit hours.

Entomology 126 • Introductory Insect Biology

Week 7, July 18-24.....Dr. R. Chris Stanton, *Baldwin-Wallace College*

An introduction to the study of insects including biology, ecology, identification, and field techniques. 3 undergraduate credit hours.

Entomology 612 • Aquatic Entomology

Term 2, July 25-August 13, MTWRF .....Dr. Carmen E. Trisler, *Wittenberg University*

For preparation in the teaching of biology or for research on aquatic resources; emphasis on taxonomy and ecology of immature and adult aquatic insects. 5 undergraduate/graduate credit hours.

Entomology 520 • Insect Biology for Teachers **CANCELLED**

Week 8, July 25-31.....Dr. David J. Horn, *Ohio State University*

A hands-on course for K-12 teachers in formal and informal education. Includes morphology, identification, and unique behaviors of insects as well as activities to use with students for both terrestrial and aquatic insects. Teachers will each develop meaningful and useful curriculum activities about insects. 3 undergraduate/graduate credit hours.

Geological Sciences 107 • Field-Based Introduction to Oceanography

Week 4, June 27-July 3 .....Dr. Larry A. Krissek, *Ohio State University*

An introduction to the study of oceanography including field techniques. 3 undergraduate credit hours.

Geological Sciences 584 • Principles of Oceanography for Science Teachers

Week 5, July 4-10.....Dr. Larry A. Krissek, *Ohio State University*

Origin, development, and structure of oceanic basins and their contents; contemporary oceanic processes of geologic significance. Discussions of effective classroom presentations of oceanographic principles. Not open to students with credit for Geological Sciences 107 or 206. 3 undergraduate/graduate credit hours.

Natural Resources 614 • Marine and Aquatic Education
Week 2, June 13-19..... Dr. Rosanne W. Fortner, *Ohio State University*
Overview of oceanic resources processes and issues. Role of the ocean in human and earth history, climate, commerce, and culture; teaching materials for formal/informal settings. 3 undergraduate/graduate credit hours.

Natural Resources 617 • Aquatic Environmental Science for Teachers **CANCELLED**
Week 7, July 18-24..... Dr. David L. Johnson, *Ohio State University*
Hands-on field and laboratory studies of coastal and lake environmental systems, including current science of physical and biological characteristics and processes, interactions of species, identification of organisms and conditions related to their survival. 3 undergraduate/graduate credit hours.

Natural Resources 690 • Alien Species Education
Week 4, June 27-July 3 ..... Dr. Rosanne W. Fortner, *Ohio State University*
NEW COURSE: Information, instructional materials and methods for teaching about non-native species of plants and animals, their origins, impacts and control. For classroom teachers and informal educators. 3 undergraduate/graduate credit hours.

Natural Resources 629 • Ecology and Management of Wetland Birds
Week 6, July 11-17.....Dr. Robert J. Gates, *Ohio State University*
Ecology, life history, and management of waterfowl (Anseriformes and related species) from a wetland habitat perspective. Emphasis on North American populations and wetland habitats.
3 undergraduate/graduate credit hours.

Natural Resources 694 • Fisheries Science for Teachers **CANCELLED**
Week 10, August 8-14..... Dr. David L. Johnson, *Ohio State University*
Classroom adaptable study of fisheries including physical and biological constraints, species interactions, management principles, and human use. 3 undergraduate/graduate credit hours.

Natural Resources 694 • Structuring Environmental Decisions for the Great Lakes Region **CANCELLED**
Week 11, August 15-21..... Dr. Joseph L. Arvai, *Ohio State University*
A case study-based course that will address theories of judgment and decisions-making as they relate to Great Lakes issues. 3 undergraduate/graduate credit hours.

Natural Resources 799 • Current Topics in Environment and Engineering
Term 1 & Term 2 ..... Dr. Rosanne W. Fortner, *Ohio State University*
These seminars present research, management, and policy on Thursday evenings throughout the summer at Stone Laboratory (or on Columbus campus via video conferencing). Must attend three seminars (six lectures). 1 undergraduate/graduate credit hour. This course is graded satisfactory or unsatisfactory (S/U).

Plant Pathology 685 • Plant Pathology **CANCELLED**
Week 11 (Ten Days), August 15-25.....Drs. Anne E. Dorrance and Sally A. Miller, *Ohio State University*
Study of plant diseases in the field with emphasis on diagnosis and epidemiology; supplementary laboratory work. Cost for room and meals is $513 for the dates August 15-25. Additional prerequisite: General plant pathology course. 3 undergraduate/graduate credit hours.

SPECIAL OFFERINGS:

EEOB 694 • Stream Ecology for Teachers
Week 6, July 11-17..... Dr. Joseph R. Holomuzki, *Ohio State University*
This course introduces high school teachers to hydrology, stream organisms, field techniques and experimental design in ways that can be applied in the classroom and field. Course held at Old Woman Creek, Huron, Ohio. Free lodging: students provide their own meals. 3 undergraduate/graduate credit hours.

Geological Sciences 583 • Geologic Setting of Lake Erie

Week 7, July 17-23.....Dr. Larry A. Krissek, *Ohio State University*
Examination of geologic features along the southern shore of Lake Erie during a week-long van trip, including an interpretation of the geologic history of Ohio in the Lake Erie basin, and an examination of relationships between human activity and the geology of the area. Approximate cost for room, meals, and transportation during one-week long van trip will be $450. Class will originate from and end at the Fawcett Center in Columbus, Ohio. 3 undergraduate/graduate credit hours.

Individual Studies 293/693

Qualified students may select problems in botany, entomology, microbiology, zoology or other participating departments, and may choose the instructor with whom they desire to work. 1-5 credit hours.

Research 998/999

This number is reserved for graduate students in a degree program conducting research for a M.S. thesis or Ph.D. dissertation.

Honor Course H783

This number is reserved for students in the honors program desiring to select problems in Individual Studies.

NON-CREDIT WORKSHOP:

Lake Erie Island Photography Workshop **CANCELLED**

Three Days, July 8-10 .....Ian Adams
Field photography sessions using the natural and cultural subjects unique to the Lake Erie Islands are interspersed with classroom discussions and photo critiques of each student's work. Emphasis on digital techniques. Must be at least 18 years of age and e familiar with the operation of a digital cameras. Student supplies own camera. Workshop fee is $400. Cost includes instructor, lab, room, and meals for two nights and three days.

TABLE 3

STONE LABORATORY GUEST LECTURES*
2004

All lectures begin at 7:45 PM and conclude at approximately 9:00 PM. An OSU boat leaves the dock in front of the OSU Research Building (near State Fish Hatchery) at 7:15 PM before each lecture. Transportation on this boat to and from Gibraltar Island is free. These lectures are also transmitted to the Columbus Campus at 2021 Coffey Road, Kottman Hall, Room 244 and are open to the public.

Week 1	6/10	**No Lecture**
Week 2	6/17	**Dr. Linda Weavers**, Civil Engineering, Ohio State University "Remediation of River Sediments Using Ultrasound"
TERM 1		
Week 3	6/24	**The Honorable Dennis Schornack**, US Chair, International Joint Commission "Terminating Invasions: A Bi-National Perspective on Invasive Species"
Week 4	7/1	**The Honorable Thomas J. Moyer**, Chief Justice, Ohio Supreme Court "Genetics and Jurisprudence"
Week 5	7/8	**John R. Kleberg**, Asst. Vice Pres., Business/Finance, OSU (Retired) "Gibraltar and Jay Cooke"
Week 6	7/15	**Dr. Tom Rosol**, Senior Assoc. Vice President for Research, Ohio State Univ. "Imaging of Cancer Metastasis In Vivo Using Light Emitted from the Firefly Enzyme Luciferase"
Week 7	7/22	**Transition between terms—No Lecture**
TERM 2		
Week 8	7/29	**Dr. Leon Carl**, Director, Great Lakes Science Center, US Geological Survey "Effects of Barriers and Habitat Fragmentation on Fish Community Structure in Southern Ontario Rivers"
Week 9	8/5	**Geoff Wallat,** Aquaculture Specialist, Ohio State University "Development and Growth of Aquaculture in Ohio"
Week 10	8/12	**End of Second Term—No Lecture**
Week 11	8/19	**Dr. Yu-Ping Chin**, Geology, Ohio State University "Photodegradation of Agricultural Herbicides in Wetlands"
Week 14	9/11	**Open House—11:30-4:00 Saturday—Open to Public** Friends of Stone Laboratory Annual Meeting with Educational Programs and Tours of Gibraltar Island and South Bass Lighthouse

*** Sponsored by the Friends of Stone Laboratory, the Ohio Sea Grant College Program, and the Office of Housing and Food Service.**

TABLE 4

Stone Laboratory Workshops, Conferences and Tours
2004

	Date	Group Name/City/Leader	No.	Description
1.	4/15	Wynford High School / Bucyrus, OH Glen Smith	41	Workshop
2.	4/16	Newark Catholic High School / Newark, OH Amy Vonsigh	12	Workshop
3	4/17-18	Friends of Stone Lab / Columbus, OH Chris Stanton	14	Conference
4.	4/22-23	Rootstown High School / Rootstown, OH Stephanie Lanmlein	30	Workshop
5.	4/27	Bucyrus High School / Bucyrus, OH Ron Suter	25	Workshop
6.	4/28–30	Sewickley Academy / Sewickley, PA Lisa Heberling	68	Workshop
7.	4/30	Kenwood Elementary / Bowling Green, OH Kent McClary	81	Workshop
8.	5/3	Bellevue Jr. High School / Bellevue, OH Dave Meadows	27	Workshop
9.	5/4	Rocky River High School / Rocky River, OH Dan Draeger	12	Distance Learning Lab
10.	5/5	Oregon High School / Oregon, OH Robin Sneed	22	Workshop
11.	5/5-6	Lauren Elementary / Shaker Hts., OH Abbie Bole	43	Workshop
12.	5/6	Toledo Zoo Educators Dave Sansing	30	Tour
13.	5/7	Shelby Hand & Amy Aerni / Catawba Is., OH	2	Shadows
14.	5/7-8	Pleasant View Middle School / Grove City Dave Cachet	29	Workshop
15.	5/10	Amherst Steele / Amherst, OH Darlene Elsasser	30	Workshop
16.	5/10	Ford Middle School / BrookPark, OH Troy Trzebuckowski	34	Workshop

Table 4 – cont'd

	Date	Group Name/City/Leader	No.	Description
17.	5/11	Elderhostel Program PIB I / Put-in-Bay, OH Susie Cooper	35	Workshop
18.	5/12	O.S.U. Lima, Reaching Out to Youth / Lima, OH Hope Raschke	34	Workshop
19.	5/12 – 13	Woodside M.S. / Ft. Wayne, IN Jeff Beck	44	Workshop
20.	5/13 –14	Perry/McCord Middle School / Worthington, OH Marty McTigue	68	Workshop
21.	5/14 – 16	OSU Limnology Class / Columbus, OH Dr. David Culver	20	Workshop
22.	5/15	OSU Geology Class / Columbus, OH Dr. Larry Krissek	12	Workshop
23.	5/17	Hudson Montessori / Hudson, OH Jerry Nowak Tour & Travel – Michael Jannazo	30	Tour
24.	5/17	Richmond Heights Christian Academy / Richmond, OH Jerry Nowak Tour & Travel – Michael Jannazo	15	Tour
25.	5/17	All Saints Catholic School / Rossford, OH Carol Gutierrez	39	Workshop
26.	5/17	Meadowlawn School I / Sandusky, OH Dawn Zappa	28	Workshop
27.	5/18	Meadowlawn School II / Sandusky, OH Dawn Zappa	29	Workshop
28.	5/18	Elderhostel Program PIB II / Put-in-Bay, OH Susie Cooper	31	Workshop
29.	5/18	Olmstead Falls / Olmstead Twp., OH Laura Kirchner	24	Tour
30.	5/18	South Amherst High School / Amherst, OH Jerry Nowak Tour & Travel – Michael Jannazo	112	Tour
31.	5/18-19	Kelley's Island School / Kelley's Island, OH Erin Laybourne	5	Workshop
32.	5/18-19	West Carrollton M.S. / West Carrollton, OH Susan Baker	20	Workshop
33.	5/19	Gibsonburg, Middle School / Gibsonburg, OH Stacey Gabel	101	Tour

Table 4 – cont'd

	Date	Group Name/City/Leader	No.	Description
34.	5/19	Meadowlawn School III / Sandusky, OH Dawn Zappa	27	Workshop
35.	5/19-20	Miamisburg Middle School / Miamisburg, OH Michelle Morrison	66	Workshop
36.	5/20	Meadowlawn School IV / Sandusky, OH Dawn Zappa	29	Workshop
37.	5/21	Meadowlawn School V / Sandusky, OH Dawn Zappa	27	Workshop
38.	5/21	Country Living Magazine / Columbus, OH Rich Warren	1	Tour
39.	5/21-22	Village Academy / Powell, OH Monte McCullouch	35	Workshop
40.	5/22	O.S.U. Mansfield / Mansfield, OH Joan Bradley	12	Tour
41.	5/22-23	Thomas More College / Crestview Hills, KY Chris Lorenz	9	Workshop
42.	5/24	Whiteford M.S. / Ottawa Lake, MI Susan Bixler	80	Workshop
43.	5/25	Lake High School / Millbury, OH Jessie Kubuske	28	Workshop
44.	5/26-27	Horizons Program / Toledo, OH Jane Yates	74	Workshop
45.	5/27-28	Erwine Middle School / Akron, OH Jim Trogdon	44	Workshop
46.	5/28-29	Immaculate Conception / Bellevue, OH Darlene DeBlase	68	Workshop
47.	6/1-3	Buckeye Valley Middle School / Radnor, OH Amos Price	55	Workshop
48.	6/3	Amherst South Jr. High School / Amherst, OH Robert Glatz	34	Workshop
49.	6/3	Our Lady of Mt. Carmel / Mount Carmel, OH Jerry Nowak Tour & Travel – Michael Jannazo	33	Tour
50.	6/8	Kent State University / Kent, OH Dr. Bob Heath	7	Workshop

Table 4 – cont'd

	Date	Group Name/City/Leader	No.	Description
51.	6/8	Central State University / Wilburforce, OH Candace Lowell	7	Workshop
52.	6/9	Grizzel Middle School / Dublin, OH Larry Hohman	40	Workshop
53.	6/17	Visitors to See Guest Lecturer, Dr. Linda Weavers "Sediment Remediation"	1	Tour
54.	6/17	Pawlik Family	11	Tour
55.	6/25	American Water Works Association / Marion, OH Michael Herdlick	34	Workshop
56.	6/29	B.G.S.U. Summer Institute / Bowling Green, OH Matt Partin	34	Workshop
57.	6/30	Wednesday Tour Group	2	Tour
58.	6/30	Kelley's Island 4-H Sea Camp / Kelley's Island, OH Dr. Robert Horton	14	Workshop
59.	7/1	Ottawa National Wildlife Refuge Rebecca Hinkle	19	Tour
60.	7/1	Visitors to See Guest Lecturer, Ohio Chief Justice Tom Moyer "Genetics and Jurisprudence"	7	Tour
61.	7/3	Stacy & Rebecca Boston / Cardington, OH	2	Tour
62.	7/7	Wednesday Tour Group	10	Tour
63.	7/8	Krach Family	4	Tour
64.	7/13	B.G.S.U. Summer Institute / Bowling Green, OH Matt Partins	16	Workshop
65.	7/14	Wednesday Tour Group	27	Tour
66.	7/15	Visitors to See Guest Lecturer, Dr. Tom Rosol "Lightning Bug/Cancer Research"	7	Tour
67.	7/16	Ohio Legislators & Invited Guests / Columbus, OH Dr. Jeff Reutter	143	Tour

Table 4 – cont'd

	Date	Group Name/City/Leader	No.	Description
68.	7/21	Nature Camp at the Bay / Put-in-Bay, OH Lisa Brohl, Kristin Stanford and Dr. Carmen Trisler	13	Workshop
69.	7/21	Wednesday Tour Group	13	Tour
70.	7/26 –28	Bowser Family	12	Tour
71.	7/28	Wednesday Tour Group	24	Tour
72.	7/29	Visitors to See Guest Lecturer Dr. Leon Carl "Dam Removal & Fisheries"	5	Tour
73.	7/30	Lorain Community College, / Lorain, OH Kelly Meyer	7	Workshop
74.	7/30	Chief, Division of Wildlife Steve Gray	3	Tour
75.	8/3	National Wildlife Federation & Science Writers Tim Eder	41	Tour
76.	8/3	Girl Scout Troop 60 / Lakewood, OH Eileen Dixon	12	Workshop
77.	8/4	Toledo Zoo Education Department / Toledo, OH Jennifer Fong	9	Workshop
78.	8/4	Wednesday Tour Group	17	Tour
79.	8/5	Great Lakes Ecosystem Research Consortium	31	Conference
80.	8/5	Visitors to See Guest Lecturer, Geoff Wallat "Ohio Aquaculture"	11	Tour
81.	8/6-8	Carmella Massaro Group	3	Tour
82.	8/11	Island Passport Tour Group South Bass Island Lighthouse History	7	Tour
83.	8/11	Island Passport Tour Group Gibraltar Island Science & History	46	Tour
84.	8/17	Great Lakes Historical Society Andy Sukora	14	Tour

Table 4 – cont'd

	Date	Group Name/City/Leader	No.	Description
85.	8/18	Island Passport Tour Group South Bass Island Lighthouse History	13	Tour
86.	8/18	Island Passport Tour Group Gibraltar Island Science & History	37	Tour
87.	8/19	Coastal Resources Advisory Council Dave Mackey	13	Conference
88.	8/19	Visitors to See Guest Lecturer Dr. Yu Ping Chin "Photodegradation"	1	Tour
89.	8/19-20	Mucai Muchivi / Kenya	1	Tour
90.	8/19-20	Bendik Fyha Terjesen / Norway	1	Tour
91.	8/25	Island Passport Tour Group South Bass Island Lighthouse History	6	Tour
92.	8/25	Island Passport Tour Group Gibraltar Island Science & History	11	Tour
93.	8/25	Great Lakes Science Center / Cleveland, OH Carolyn Beer	10	Workshop
94.	8/27	Genoa High School German Club / Genoa, OH Gene Aufderhaar	16	Tour
95.	9/1	Ohio Division of Natural Resources Staff Ken Alvie	12	Tour
96.	9/1-2	Phillips-Osbourne School / Painesville, OH Meg Anderson	17	Workshop
97.	9/2-3	Hathaway Brown School / Shaker Heights, OH Robin Appleby	70	Workshop
98.	9/3	O.S.U. Development Officers	3	Tour
99.	9/7-8	Hilliard Station I / Hilliard, OH Tim Wilson	35	Workshop
100.	9/8-9	Hilliard Station II / Hilliard, OH Tim Wilson	35	Workshop
101.	9/9-10	Hilliard Station III / Hilliard, OH Tim Wilson	37	Workshop

Table 4 – cont'd

	Date	Group Name/City/Leader	No.	Description
102.	9/10	Jefferson Elementary School / Port Clinton, OH Jim Bergeman	46	Workshop
103.	9/10-12	Friends of Stone Lab Board Members Annual Homecoming	25	Conference
104.	9/11	Stone Lab Open House – Gibraltar Island	817	Tour
105.	9/11	Stone Lab Open House – South Bass Island Lighthouse	479	Tour
106.	9/12-15	Great Lakes Sea Grant Networks Conference	70	Conference
107.	9/15	Bataan Elementary School / Port Clinton Marty Willis	45	Workshop
108.	9/15-16	Evangel Christian High School / Gahanna, Ohio Bob Shauck	40	Workshop
109.	9/16	St. Mary of the Falls / Olmsted Falls, OH Loretta Grentzer	18	Workshop
110.	9/16-17	Dempsey Middle School / Delaware, OH Teresa Bettac	40	Workshop
111.	9/17-18	Milford Jr. High School / Milford, OH Lisa Jeffery	60	Workshop
112.	9/20	West Holmes High School / Millersburg, OH Doug Mohr	17	Workshop
113.	9/20-21	The Wellington School / Columbus, OH Sara Harris	56	Workshop
114.	9/21	Dr. Reutter & Mother Gen	2	Tour
115.	9/22	Franklin Elementary / Elyria, OH Charlene Hartley	34	Workshop
116.	9/23	Portage Elementary / Gypsum, OH Troy Diels	53	Workshop
117.	9/23-24	Bellefontaine High School / Bellefontaine, OH Dennis Verselle	7	Workshop
118.	9/24	Lakota Jr. High / Amsden, OH Tom Rymers	34	Workshop

Table 4 – cont'd

	Date	Group Name/City/Leader	No.	Description
119.	9/24	Gibsonburg Middle School / Gibsonburg, OH Heather Whitner	82	Tour
120.	9/25-26	Buckeye Island Hop – Community Service Project Friends of Stone Laboratory Work Weekend Karen Jennings	40	Conference
121.	9/26	Students, Parents and Teacher Open House	18	Tour
122.	9/27	Newark Catholic High School / Newark, OH Amy Vohsing	40	Workshop
123.	9/27	Slimane & Osbourne / England	2	Shadow
124.	9/27-28	Brecksville High School / Brecksville, OH Bob Berg	23	Workshop
125.	9/28	Stacey Boston / Cardington, OH	1	Workshop
126.	9/28	Elderhostel Program PIB II/ Put-in-Bay, OH Susie Cooper	30	Workshop
127.	9/28-29	Worthingway Middle School / Worthington, OH Jim Wrightman	62	Workshop
128.	9/29-10/1	Columbus School for Girls / Columbus, OH Bob Farrell	60	Workshop
129.	10/2	Cleveland Treatment Center Sue Templar	13	Workshop
130.	10/2	Workshop Demonstration for Teachers	9	Workshop
131.	10/4	O.S.U. Development Office with General Mason Linda Heyl	4	Tour
132.	10/4	Avon High School / Avon, OH Tess Wearsh	28	Workshop
133.	10/4-5	Jonathan Alders High School / Plain City Brenda Boyd	23	Workshop
134.	10/6	Rocky River Middle School / Rocky River, OH David Opdycke	62	Workshop
135.	10/8	Owens Community College / Toledo, OH Mark Durvage	7	Workshop

Table 4 – cont'd

	Date	Group Name/City/Leader	No.	Description
136.	10/8-9	Granville Intermediate School / Granville, OH Kay Porr	21	Workshop
137.	10/11-13	Hudson Middle School I / Hudson, OH Ken Radie	37	Workshop
138.	10/13-15	Hudson Middle School II / Hudson, OH Ken Radie	36	Workshop
139.	10/15	Lake Ridge Academy / North Ridgeville, OH Jane Maczuzak	13	Workshop
140.	10/15-17	O.S.U. Plankton Class / Columbus, OH Doug Kane	9	Workshop
141.	10/16-17	O.S.U. Mount Scholars / Columbus, OH Vicky Pitstick	32	Conference
142.	10/18	Cub Scouts Pack 320 / Clyde, OH Tim Billings	9	Workshop
143.	10/19-20	Jackson Middle School / Grove City, OH Dave Crosby	68	Workshop
144.	10/25-26	Hilliard Tharp / Hilliard, OH Jan Snyder	36	Workshop
145.	10/26-27	Hilliard Tharp / Hilliard, OH Jan Snyder	31	Workshop
		TOTAL	**5379**	

TABLE 5

Stone Laboratory Scholarship Recipients -2004

Name	*Institution*	*Name of Scholarship*
Ansel, Christine	Ohio State Univ	Friends of Stone Lab
Bartolotta, Matthew	St Ignatius High	Ray Frederick
Beucler, Matthew	St Francis De Sales High	Ray Frederick
Bianchi, Stephanie	Put-in-Bay High	Ray Frederick
Bircher, Lisa	Ohio State Univ	Ray Frederick
Bozek, Clare	Ohio State Univ	Friends of Stone Lab/Oakland Park
Brewer, Susan	Ohio State Univ	Friends of Stone Lab
Burk, Benjamin	Thomas Worthington High	Ray Frederick
Burris, Jason	Ohio State Univ	Friends of Stone Lab
Cook-Hoggarth, Karen	Ohio State Univ	Friends of Stone Lab
Cross, Matthew	Ohio State Univ-Lima	Friends of Stone Lab
Dean, Sarah	Wm V Fisher Catholic High	Ray Frederick
Font, Ashley	Baldwin-Wallace College	Ray Frederick
Frew, Bethany	Ohio State Univ	Friends of Stone Lab-StateSciDay*
Good, Christopher	Miami Univ	Ray Frederick
Grossman, Eileen	Ohio State Univ	Friends of Stone Lab
Higgins, Katie	St Francis De Sales High	Ray Frederick
Hochstetler, Nikki	Westerville-South High	Ray Frederick
Hoedt, B. Ann	Otterbein College	Ray Frederick
Hutson, Andrew	Ohio State Univ	Friends of Stone Lab
Kim, Chan Kook	Ohio State Univ	Friends of Stone Lab
Lehmann, Sophie	Maumee Val Country Day High	Ray Frederick
Lewicki, Sheila	Ohio State Univ	Polish Fishermen's Club/Wiczulis
Manzo, Lyndsey	Ohio State Univ	Karen Jennings
Monroe, Anthony	Ohio State Univ	Baumler
Nemeth, Kristina	Ohio State Univ	Friends of Stone Lab
Osborn, Kendra	Rutherford B Hayes High	Ray Frederick
Otero, Michael	Elyria High	Kelly Prochazka
Regula Meyer, Lisa	Ohio State Univ-Lima	Friends of Stone Lab
Riddle, Andrew	Put-in-Bay High	Ray Frederick
Samples, Matthew	Ohio State Univ	Friends of Stone Lab
Sasso, Janet	Ohio State Univ	Friends of Stone Lab
Stovicek, Sarah	Ohio State Univ	Friends of Stone Lab
Ucar, Sedat	Ohio State Univ	Friends of Stone Lab
Uhrig, Megan	Southeastern High	Ray Frederick
Zollos, Katelyn	Lutheran West High	Ray Frederick

*State Science Day = Ohio Academy of Science State Science Day participant selected to receive an award from the Friends of Stone Laboratory scholarship fund.

TOTAL number of scholarships – **36** TOTAL value of scholarships – **$14,254**

TABLE 6

Stone Laboratory Student Roster - 2004
(154 students)

Name	*Permanent City/State*	*Rank*	*Major*	*College*	*Institution*
Ryan Allen	Worthington OH	Senior	Fisheries Mgt	Natural Resources	Ohio State Univ
Anne Altor	Columbus OH	Ph.D.	Environmental Sci	Graduate	Ohio State Univ
Christine Ansel	Cincinnati OH	Graduate Non-Degree		Graduate	Ohio State Univ
Matthew Bartolotta	Willoughby Hills OH	High School Senior			St Ignatius High
Adam Beichler	Columbus OH	Junior	Fisheries Mgt	Natural Resources	Ohio State Univ
Matthew Beucler	Westerville OH	High School Sophomore			St Francis De Sales High
Jayson Beugly	Dublin OH	Senior	Fisheries Ecology	Natural Resources	Ohio State Univ
Stephanie Bianchi	Put-in-Bay OH	High School Sophomore			Put-in-Bay High
Lisa Bircher	Columbiana OH	Master's+	Natural Resources	Graduate	Ohio State Univ
Clare Bozek	Steubenville OH	Junior	Fisheries Mgt	Natural Resources	Ohio State Univ
Audrey Bradshaw	Grove City OH	High School Sophomore			Grove City High
Susan Brewer	Columbus OH	Senior	Human Dimensions	Natural Resources	Ohio State Univ
Benjamin Burk	Worthington OH	High School Junior			Thomas Worthington High
Marie Burleson	Columbus OH	Post-Graduate	Microbiology	Continuing Education	Ohio State Univ
Jason Burris	Columbus OH	Master's	Ed Tching & Learning	Graduate	Ohio State Univ
Roxana Capper	Granville OH	Sophomore	Zoology & Biol Engineering	Biological Sciences	Ohio State Univ
Cindy Chapman	Gahanna OH	Senior	French	Arts and Sciences-Humanities	Ohio State Univ
Jessica Chong	Alhambra CA	Junior	Zoology/Pre-Vet	Biological Sciences	Ohio State Univ
Leslie Cisneros	Toledo OH	Post-Graduate		Continuing Education	Ohio State Univ
Daniel Claman	Columbus OH	Junior	Zoology	Biological Sciences	Ohio State Univ
Julie Codispoti	North Canton OH	Junior	Geological Sciences	Arts and Sciences-Math&PhysSc	Ohio State Univ
Gregory Cook	Ashtabula OH	High School Sophomore			Geneva Area High
Karen Cook-Hoggarth	Westerville OH	Master's	Natural Resources	Graduate	Ohio State Univ
Kathleen Costello	Columbus OH	Graduate Non-Degree	General Science	Graduate	Ohio State Univ
Valerie Crane	Lebanon OH	Junior	Zoology	Arts and Sciences	Miami Univ
Matthew Cross	Ottoville OH	Sophomore	Zoology	Biological Sciences	Ohio State Univ-Lima
Benjamin Crusoe	Piqua OH	Senior	Natural Resources-Undecided	Natural Resources	Ohio State Univ
Ann Dean	Lancaster OH	Master's	Ed Tching & Learning-Sci Ed	Graduate	Ohio State Univ
Sarah Dean	Lancaster OH	High School Sophomore			Wm V Fisher Catholic High
Victor Dearing	Westerville OH	High School Sophomore			St Francis De Sales High
Nicole Devanny	Dublin OH	High School Junior			Dublin Coffman High
Brian Dickmann	Hilliard OH	Graduate Non-Degree	Ed Tching & Learning	Graduate	Ohio State Univ
Linda Duellman	Pickerington OH	Graduate Non-Degree	Ed Tching & Learning	Graduate	Ohio State Univ
Thomas Dury	Columbus OH	High School Senior			St Charles Preparatory High

Name	*Permanent City/State*	*Rank*	*Major*	*College*	*Institution*
					2004
Ibraheem El Gallad	Columbus OH	High School Sophomore			Eastmoor High
Meredith Elliott	Newton Falls OH	High School Junior			Newton Falls High
Abigail Erfurt	Columbus OH	Post-Graduate		Education	Capital Univ
Ashley Font	Valley City OH	Junior	Sociology	Social Science	Baldwin-Wallace College
John Frankart	Bascom OH	High School Junior			Hopewell-Loudon Local High
Bethany Frew	Carrollton OH	Sophomore	Food, Ag, and Biological Engr	Engineering	Ohio State Univ
Debra Gamble	Westerville OH	Master's	Natural Resources	Graduate	Ohio State Univ
Devon Garrett	Dayton OH	High School Junior			Dunbar High
Christopher Good	Munroe Falls OH	Sophomore	Economics/English	Arts and Sciences	Miami Univ
Christina Gould	Columbus OH	High School Sophomore			Columbus Alternative High
Eileen Grossman	Dublin OH	Master's	Ed Tching & Learning	Graduate	Ohio State Univ
Jianjun Hao	Columbus OH	Ph.D.	Natural Resources	Graduate	Ohio State Univ
Crystal Haynes	Columbus OH	High School Junior			Whetstone High
Katie Higgins	Westerville OH	High School Sophomore			St Francis De Sales High
Michele Hildebrandt	Circleville OH	Post-Graduate		Continuing Education	Ohio State Univ
Sally Hobson	Columbus OH	Ph.D.	Ed Tching & Learning	Graduate	Ohio State Univ
Nikki Hochstetler	Westerville OH	High School Senior			Westerville-South High
B. Ann Hoedt	Fredericksburg VA	Sophomore	Envir Sci/Biology	Arts and Sciences	Otterbein College
Lisa Huelskamp	Marysville OH	Ph.D.	Ed Tching & Learning-Sci Ed	Graduate	Ohio State Univ
Celeste Hughes	Put-in-Bay OH	High School Junior			Put-in-Bay High
Whitney Huss	Dublin OH	Senior	Theatre	Humanities	College of Wooster
Andrew Hutson	Milford Center OH	Senior	Biology	Biological Sciences	Ohio State Univ
Cassandra Jackson	East Liberty OH	High School Junior			Benjamin Logan High
John Johnson	Dublin OH	Senior	Zoology	Biological Sciences	Ohio State Univ
Katherine Johnson	Columbus OH	Ph.D.	Geological Sciences	Graduate	Ohio State Univ
Joaquin Jordan	Powell OH	Graduate Non-Degree	Education	Graduate	Ohio State Univ
Jonathan Kahn	Columbus OH	Master's	Entomology	Graduate	Ohio State Univ
Douglas Kane	Columbus OH	Ph.D.	EEOB	Graduate	Ohio State Univ
Tom Kaufmann	Brook Park OH	Senior	Conservation	Arts and Sciences	Kent State Univ
Andrew Kender	Spring Valley OH	Senior	Environmental Sci	Natural Resources	Ohio State Univ
Sarah Kilbane	Avon Lake OH	Sophomore	Zoology	Biological Sciences	Ohio State Univ
Chan Kook Kim	Powell OH	Ph.D.	Natural Resources-Env Ed	Graduate	Ohio State Univ
Christopher Klemm	Powell OH	Graduate Non-Degree		Graduate	Ohio State Univ
Joy Koporc	Streetsboro OH	Graduate Non-Degree		Graduate	Ohio State Univ
Stephen Kraus	Columbus OH	Junior	Evolution & Ecology	Biological Sciences	Ohio State Univ
Jere Kubuske	Millbury OH	Senior	AYA Edu, Life Sci	Education	Walsh Univ
Shane LaCoss	Hollis NH	High School Junior			Hollis Brookline High Sch
Laura Lamb	Hilliard OH	Master's	Ed Tching & Learning	Graduate	Ohio State Univ
Jennifer Leandres	Columbus OH	Senior	Math & Sci	Arts and Sciences-Math&PhysSc	Ohio State Univ
Sophie Lehmann	Toledo OH	High School Senior			Maumee Val Country Day High
Dorothy Levenson	West Chester OH	Master's	Ed Tching & Learning-Sci Ed	Graduate	Ohio State Univ
Sheila Lewicki	Avon OH	Graduate Non-Degree	Life Sciences	Graduate	Ohio State Univ

Name	*Permanent City/State*	*Rank*	*Major*	*College*	*Institution*
					2004
Joshua Lillvis	Ashtabula OH	Senior	Zoology	Biological Sciences	Ohio State Univ
Nicholas Linville	Columbus OH	High School Sophomore			Upper Arlington High
Jennifer Lukacsko	Reynoldsburg OH	Master's	Ed Tching & Learning-Sci Ed	Graduate	Ohio State Univ
Lyndsey Manzo	Columbus OH	Master's	Natural Resources	Graduate	Ohio State Univ
Magda Margulies	Lakewood OH	Senior	Biology	Biological Sciences	Mount Holyoke College
Matthew Marrison	Pickerington OH	High School Sophomore			Bishop Hartley High
James McCombs	Dayton OH	High School Junior			Colonel White High
Anna McCreery	Worthington OH	Junior	Sociology	Arts and Sciences-Soc&BhvSci	Ohio State Univ
Wendy Mechling	Blacklick OH	Graduate Non-Degree	Ed Tching & Learning	Graduate	Ohio State Univ
Tess Mederski	Columbus OH	Senior	Interior Space Design	Arts and Sciences-Art	Ohio State Univ
Chestley Miller	Hidalgo TX	Senior	Biology, Ecology	Biological Sciences	Baylor University
James Miller	Fairview Park OH	Junior	Biology	Education	Ashland Univ
Kristy Miller	Cleveland OH	High School Sophomore			Health Careers Voc
Kristy Mishler	Reynoldsburg OH	Master's	Ed Tching & Learning-Sci Ed	Graduate	Ohio State Univ
Nathan Monday	Marblehead OH	High School Sophomore			Danbury High
Anthony Monroe	Tipp City OH	Junior	Fisheries Science	Natural Resources	Ohio State Univ
Jamaal Moore	Cincinnati OH	High School Junior			Hughes Center High
David Murray	Columbus OH	High School Sophomore			Grandview Heights High
John Needham	Sunbury OH	High School Junior			Big Walnut High
Kristina Nemeth	Westlake OH	Junior	Biology	Biological Sciences	Ohio State Univ
Melissa Niese	Put-in-Bay OH	Sophomore	English		Wittenberg Univ
Bret Nolan	Medina OH	High School Junior			Highland High
Kendra Osborn	Delaware OH	High School Junior			Rutherford B Hayes High
Michael Otero	Elyria OH	High School Sophomore			Elyria High
Valerie Owens	Columbus OH	Junior	Fisheries & Wildlife Mgt	Natural Resources	Ohio State Univ
Franklin Pauff	Lima OH	Sophomore	Life Science	Education	Miami Univ
Alyssa Pence	Columbus OH	High School Junior			Fort Hayes Metro Educ Center
Nicole Perez	Lorain OH	High School Junior			Admiral King High
Madeline Pinsonneault	Hilliard OH	High School Junior			Hilliard Davidson High
Danielle Raines	Youngstown OH	High School Junior			Ursuline High
Allison Rapoport	Cleveland Hts OH	High School Junior			Hathaway Brown High
Jennifer Reddington	Waterville OH	Senior	Zoology	Biological Sciences	Ohio State Univ
Lisa Regula Meyer	Elida OH	Senior	Psychology & Biology	Arts and Sciences-Soc&BhvSci	Ohio State Univ-Lima
Kelsey Reider	Oak Harbor OH	Junior	Zoology	Biological Sciences	Ohio State Univ
Diondra Reynolds	Portage OH	Master's	Ed Tching & Learning-Mid Chld	Graduate	Ohio State Univ
Andrew Riddle	Put-in-Bay OH	High School Junior			Put-in-Bay High
•Kelly Riesen	Bay Village OH	Post-Graduate			Ohio Northern Univ
Caroline Ritz	Mason OH	High School Sophomore			Wm Mason High
Natasha Roman	Lorain OH	High School Junior			Lorain Southview High Sch
Wayne Rossiter	Circleville OH	Master's	EEOB	Graduate	Ohio State Univ
Marcia Rutter	Deshler OH	High School Senior			Van Wert High
Matthew Samples	Toledo OH	Sophomore	Zoology	Biological Sciences	Ohio State Univ

Table 6 cont'd

2004

Name	*Permanent City/State*	*Rank*	*Major*	*College*	*Institution*
Pamela Sanchez	Gahanna OH	Junior	Bio Engineering	Engineering	Ohio State Univ
Karen Sapatka	Cleveland OH	Graduate Non-Degree		Graduate	Ohio State Univ
Janet Sasso	Mantua OH	Senior	Biology	Biological Sciences	Ohio State Univ
Melissa Schen	Columbus OH	Ph.D.	Ed Tching & Learning-Sci Ed	Graduate	Ohio State Univ
Kara Schlotterbeck	Columbus OH	Sophomore	Animal Science	Food, Ag, and Env Sci	Ohio State Univ
Chad Schwinnen	Spencerville OH	Senior	Biology	Biological Sciences	Ohio State Univ
Michael Secrest	Blanchester OH	Ph.D.	Biology	Graduate/Arts&Science	Union Institute
April Shoup	Columbus OH	Master's	Ed Tching & Learning	Graduate	Ohio State Univ
Ashley Silva	Lorain OH	High School Junior			Admiral King High
Nicole Solomonoff	Toledo OH	Post-Graduate	Natural Sci / Biology	Arts and Sciences	Owens Community College
Michael Sovic	Hilliard OH	Master's	EEOB	Graduate	Ohio State Univ
Marcie Steen	Mt Vernon OH	Graduate Non-Degree		Graduate	Ohio State Univ
Grant Stephenson	Westerville OH	High School Sophomore			St Charles Preparatory High
Fiona Stokes	Canton OH	High School Junior			McKinley High
Sarah Stovicek	New Philadelphia OH	Post-Graduate	Biology/Edu, Science	Continuing Education	Ohio State Univ
Jessica Taylor	Perrysburg OH	Junior	Environmental Sci	Natural Resources	Ohio State Univ
Sedat Ucar	Columbus OH	Ph.D.	Ed Tching & Learning	Graduate	Ohio State Univ
Megan Uhrig	Chillicothe OH	High School Sophomore			Southeastern High
Barbara VanGilder	Marion OH	Sophomore	Zoology & Photography/Film	Arts and Sciences-Art	Ohio State Univ
Vincent Verweij	Columbus OH	Senior	Geographic Info Sys	Arts and Sciences-Soc&BhvSci	Ohio State Univ
Henry Vonderahe	Blacklick OH	High School Junior			St Charles Preparatory High
Lisa Wade	Columbus OH	Master's	Life Science	Education	Mt. Vernon Nazarene College
Elizabeth Wantz	Mentor OH	High School Junior			Mentor High
Joseph Wernet	Columbus OH	Master's	EEOB	Graduate	Ohio State Univ
Jennifer Wiles	Cortland OH	Junior	Zoology	Biological Sciences	Ohio State Univ
Deborah Williams	Columbus OH	Senior	Criminology	Arts and Sciences-Soc&BhvSci	Ohio State Univ
Scott Wingate	Lima OH	Junior	Biology	Biological Sciences	Ohio State Univ
•Christopher Winslow	Bowling Green OH	Master's		Biological Sciences	Bowling Green State Univ
Katherine Wolf	Lima OH	Senior	Fine Arts & Psych	Arts and Sciences-Art	Ohio State Univ
Tobie Wolfe	Sunbury OH	Master's	Natural Resources	Graduate	Ohio State Univ
•David Wong	Silver Spring MD	Post-Graduate			Univ of Maryland
Chatavia Yates	Akron OH	High School Sophomore			Firestone High
Charles Yaussy	Bucyrus OH	High School Junior			Bucyrus High
David Young	North Canton OH	High School Sophomore			Hoover High
Katelyn Zollos	Rocky River OH	High School Junior			Lutheran West High
David Zuwerink	Lewis Center OH	Ph.D.	EEOB	Graduate	Ohio State Univ

• = Enrolled as a non-credit workshop participant