1999

STONE LABORATORY PROGRAM REVIEW

Jeffrey M. Reutter, Ph.D. Director

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OHSU-TB-044
May 2000

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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 north coast campus of The Ohio State University. The past 12 months have been very productive at Stone Laboratory. Enrollment in the summer program in 1999 was 222 students, the second highest in the history of the Laboratory, surpassing 220 students for only the third time in over 100 years (Figure 1). While the majority of our students come from Ohio State University (we set a record in 1999 with 125 Ohio State students participating in the program), since 1990 our summer students have come from 40 different Ohio colleges, 31 out-of-state colleges, and 265 different high schools (Figures 2 and 3). Undergraduate, graduate, and high school student enrollment were all strong in 1999, providing the balance that we desire and have been able to achieve annually since 1995 (Figure 4). The number of credit hours taken each summer is holding steady between 900 and 1,000 (Figure 5). Our efforts to enhance opportunities for women in science, initiated in 1989, continue to bare fruit as we now annually enroll more women than men, and set a new record with 140 women enrolled in the program in 1999 (Figure 6). Efforts to expand the number and diversity of 1-week course offerings have been very successful, and we now have nine different 1-week courses with up to five sections per course, and eight 5-week courses. An experimental offering of one of the 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 attempted to duplicate these offerings in 1999, but the Young Scholars Program was only able to send two students to the Laboratory.

During the spring and the fall, we offer a workshop/conference/tour program for students from grade 5 through adults. This program has set new records for the number of groups and the total number of participants each year from 1997-1999 with 173 groups and 5,566 participants in 1999 (Figures 7 and 8). The vast majority of these students are in the influential middle school years (Figure 9).

The demand for research space at the Laboratory continues to grow. In 1999, 76 scientists and students from 13 different colleges and agencies worked on 17 different research projects at Stone Laboratory (Figure 10).

With the assistance of the Friends of Stone Laboratory, we have been able to continue the trend of increasing the number of scholarships and the total amount of money we are able to award, and in 1999 set records for both (Figures 11 and 12). While these trends are indeed pleasing, we are still providing scholarships to less than 25% of the students attending Stone Laboratory and covering only about 30% of the costs for those students. Since 1995, additions to our endowments through deferred gifts as part of the donor's estate total over $2,500,000.

We also received donations, which have allowed us to construct a large gazebo/outdoor classroom (Waldock Gazebo), a speaker's pavilion (Lakeview Pavilion), and to purchase a new van for the Laboratory. With assistance from the University, construction was completed to replace the roof, remove the dome, and repair the windows on Cooke's Castle, and plans are underway to renovate space for the program on the University's main campus in Columbus. With the assistance of Senator Robert Latta and the State Legislature, capital improvement funds were provided to continue the renovation of the Castle in 2000 with the reconstruction of the porches and the repair of exterior masonry. With support from the Office of Research, Housing and Food Service, Physical Facilities, and UNITS a T1 line was installed connecting the Laboratory to the main campus and providing telephone service, internet connections, and data transmission capabilities in all buildings and all rooms on both South Bass and Gibraltar Islands.

I. INTRODUCTION

Franz Theodore Stone Laboratory, Ohio's Lake Erie Laboratory, is this 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 (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 5 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 1999, adding to similar tables in reports produced in 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 a model for science education in this country. The results of our research will be solving Lake Erie environmental problems and enhancing 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 5-12, 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 5 through adults;
2) Create opportunities for undergraduate and graduate research training and fellowships;
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, that will provide the science behind more informed management decisions.

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, the Center for Lake Erie Area Research (CLEAR), and the 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 the Laboratory reports to the Vice President for Agricultural Administration. CLEAR is part of the Office of Research and the Director reports to the Vice President for Research. 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.

II. OVERVIEW

EDUCATION

Courses for College Credit. Stone Laboratory began offering courses for college credit in 1896. Each summer The Ohio State University offers 14-20 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 AM to 4:00 PM 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 earliest 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.

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 have increased significantly in the 1990s. During the 1980s average annual enrollment was approximately 57 students. From 1991-1999, average annual enrollment jumped to over 200 students--an increase of over 350 percent (Figure 1). Furthermore, from 1990-1999, students from 40 different Ohio colleges and universities, 31 out-of-state colleges and universities, and 265 different 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 5 to adults. These workshops range in duration from 1-3 days and generally include a science cruise on the Laboratory's research vessel, the *MV Bio-Lab*. The 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 5,500 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 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 well-being of Lake Erie, 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 five more, and the total for all six endowments now exceeds $500,000. These endowments, with additional contributions from organizations, clubs, industries, and individuals, support dozens of student scholarships each year.

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 another $500,000 to continue this work.

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. 1999 REVIEW

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. Bonita Cordi has been the Office Associate and Receptionist for the program in Columbus since October 1999. Karen Ricker was hired as our Communications Coordinator and the Assistant Director of Ohio Sea Grant in January 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. Table 1 lists the Laboratory's administrative staff, teaching faculty, graduate teaching associates, research staff, student assistants, and office and technical staff for 1999.

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 department still must approve the course offering, the faculty member selected, and the teaching assistant (TA). 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.

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. This arrangement guarantees maximum cooperation and collaboration between the programs, guarantees that the State of Ohio will receive the maximum benefit from the programs, and eliminates any opportunity for duplication of effort.

The Ohio Sea Grant College Program at The Ohio State University is one of 29 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 6 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 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.

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 different 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 one exception, we offered a new one-week course for teachers—Ornithology for Teachers. 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 1995-99. 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). Consequently, in 1998 and 1999, five one-week introductory courses were offered, and, due to multiple offerings of Introductory Aquatic Biology, the Laboratory again had a total of nine one-week introductory offerings.

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 teachers. 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 (Geology 107), in 1993 Dr. Krissek, developed a 3-hour, 1-week Oceanography course for teachers (Geology 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" (Geology 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 go 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 very popular and well reviewed by students and has been offered annually since 1996.

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 694) was offered successfully for the first time in 1999 and will be repeated in 2000.

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 will be repeated whenever we can get participation from EPA.

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, which 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 Board of Education, Ohio Biological Survey, the Science Education Council of Ohio, and others. In the early 1990's, other promotional activities were developed. These included: 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 seven in 1998 and six in 1999. This has been a great opportunity to reward and recruit outstanding students and we have found that the majority of the students do indeed attend the Laboratory and use the scholarship.

GUEST LECTURES

In 1999, Stone Laboratory continued its traditional schedule of Thursday evening guest lectures (Table 3). With support from the Friends of Stone Laboratory and the Office of Residence and Dining Halls, these lecturers are encouraged to spend additional time at the Laboratory and participate in some of the classes.

WORKSHOP PROGRAM

Stone Laboratory's custom designed Aquatic Science spring and fall workshop and field trip program for grades 5 through adults continues to flourish as do our efforts with educational tours and conferences. In 1999 we set records for the number of groups (173) and the number of participants (5,566), and in the five years from 1995-99, we hosted 642 groups with a total of 22,047 participants, or an average of 128 groups and 4,409 participants per year (Table 4 and Figures 7-9).

SCHOLARSHIPS

In 1999, 49 Stone Laboratory students received scholarships valued at $14,860—both records for the program (Table 4). Twenty-three of the scholarship recipients were high school students and 26 were college students. In the last five years, 1995-99, 203 students received a total of $60,906 in scholarship support to attend Stone Laboratory (Figures 11 and 12). These numbers have been gradually increasing each year. During the previous four years, 1991-94, we awarded 121 scholarships totaling $31,208.

ENROLLMENT

During the 1980s enrollment at Stone Laboratory averaged 55-60 students per year. This 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, and 222 in 1999 (Figure 1 and Table 6). The 222 students that attended during the summer of 1999 came from 18 colleges and universities and 52 high schools (Figure 3).

V. FINAL SUMMARY AND PLANS FOR THE NEAR FUTURE

The development of our program of introductory courses and our new teachers courses, coupled with enhanced promotional efforts and a more targeted curriculum, has allowed enrollment at Stone Laboratory to almost quadruple since the 1980s (Figure 1). However, 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 Ohio colleges and universities, out-of-state colleges, and Ohio State University (Figures 2 and 3).

As mentioned many times in this report, the academic program at Stone Laboratory focuses on science education for all ages – grade 5 through adults. 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 in 1997 and 1998 we had numbers higher than any previous year (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. Nevertheless, the total number of credit hours taken at the Laboratory has still more than doubled since the 1980s (Figure 5).

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 stone work will commence in 2000 and we will continue to work with the Legislature to complete the renovation. 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 13-14 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 a 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 will add four Pentium machines, and in 2000, with support from the OSU Office of Research, we added 14 new computers.

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*. 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 should greatly increase the capabilities of the program and should be in service in 2000.

Enhancing communication capabilities at the Laboratory has been a very high priority. In 1999, with assistance from UNITS, Housing and Food Service, and Physical Facilities, a T1 line was installed at the Laboratory. A telephone and Internet connection was placed in each classroom, dormitory room, cottage, our main office, and the Research Building. 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 should be fully operational when classes begin in 2000.

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 was repeated in 1999.

In April 1999, Ohio Sea Grant and Stone Laboratory co-hosted with US EPA, Environment Canada, and the University of Windsor, a major conference on Lake Erie research needs and priorities—"Lake Erie at the Millennium."

On 2 July, Stone Laboratory hosted a meeting of the Ohio State University Board of Trustees. This was the first time the group had met on the island in more than 15 years.

On 9 July 1999, Ohio Sea Grant and Stone Laboratory hosted their 11th State Legislature/Congressional Day on Lake Erie with over 160 participants. In 2000 we will shift to an even numbered year cycle and host the 12th event of this type.

A major weakness of the Laboratory continues to be our dilapidated research building. We will continue to develop proposals to renovate this building and construct new docks for larger vessels in front of the building. We also expect to move into newly renovated space in the Research Center on main campus in late 2000.

In 2000, we will continue our efforts to develop a Masters Degree Program for teachers at Stone Laboratory and a large Lake Erie monitoring program centered at Stone Laboratory.

VI. MILESTONES IN THE HISTORY OF STONE LABORATORY

1895 Professor David S. Kellicott, Chairman of the Department of Zoology and Entomology, presentes 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 buildings then 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 recommendd 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.

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 State Legislature/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.

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.

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.

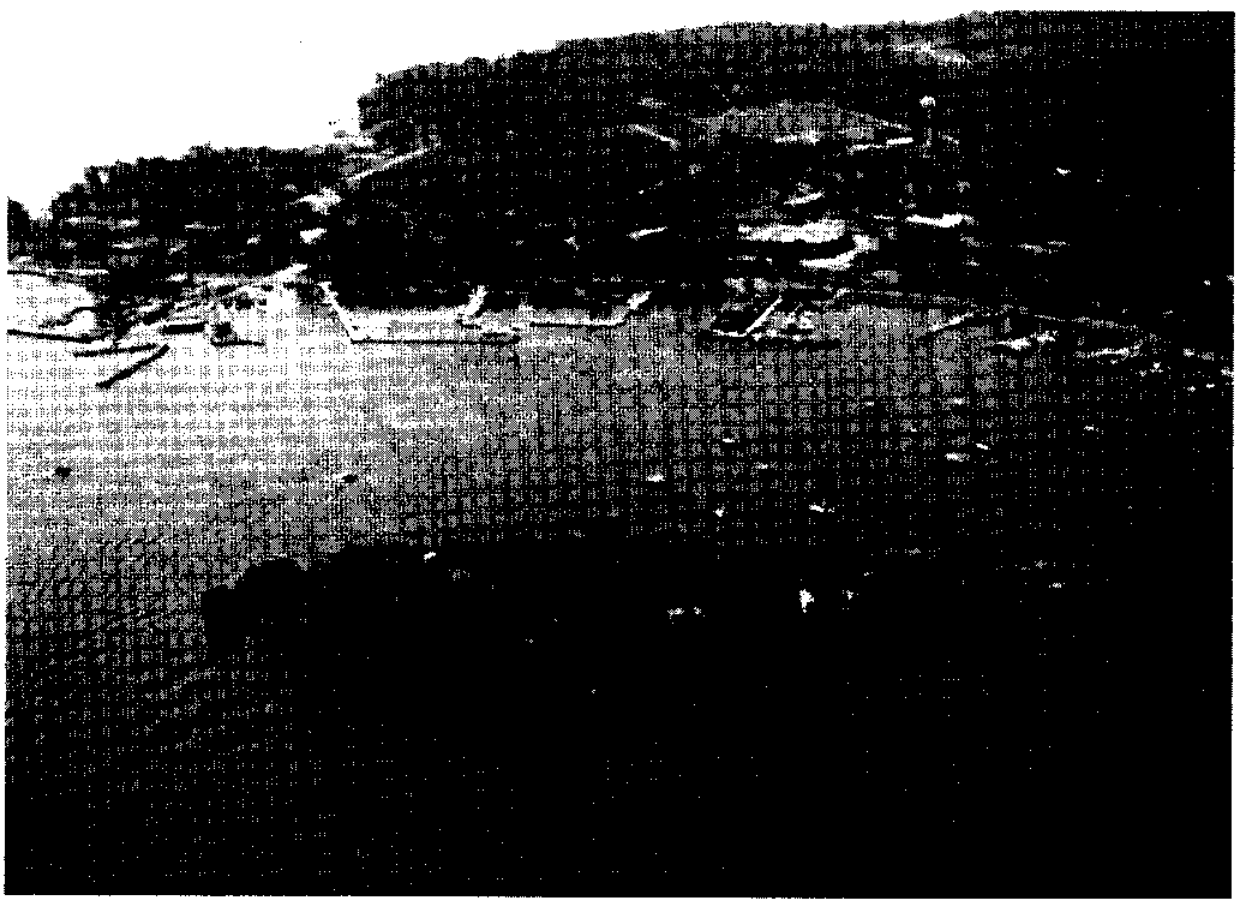
During the 1990's, students from 40 Ohio colleges, 31 out-of-state colleges, and 265 high schools take courses at Stone Laboratory.

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.

1999

STONE LABORATORY PROGRAM REVIEW



FIGURES

THE OHIO STATE UNIVERSITY

Sea Grant
Ohio Sea Grant College Program

FIGURE 1

Total Student Enrollment at Stone Laboratory 1980-1999

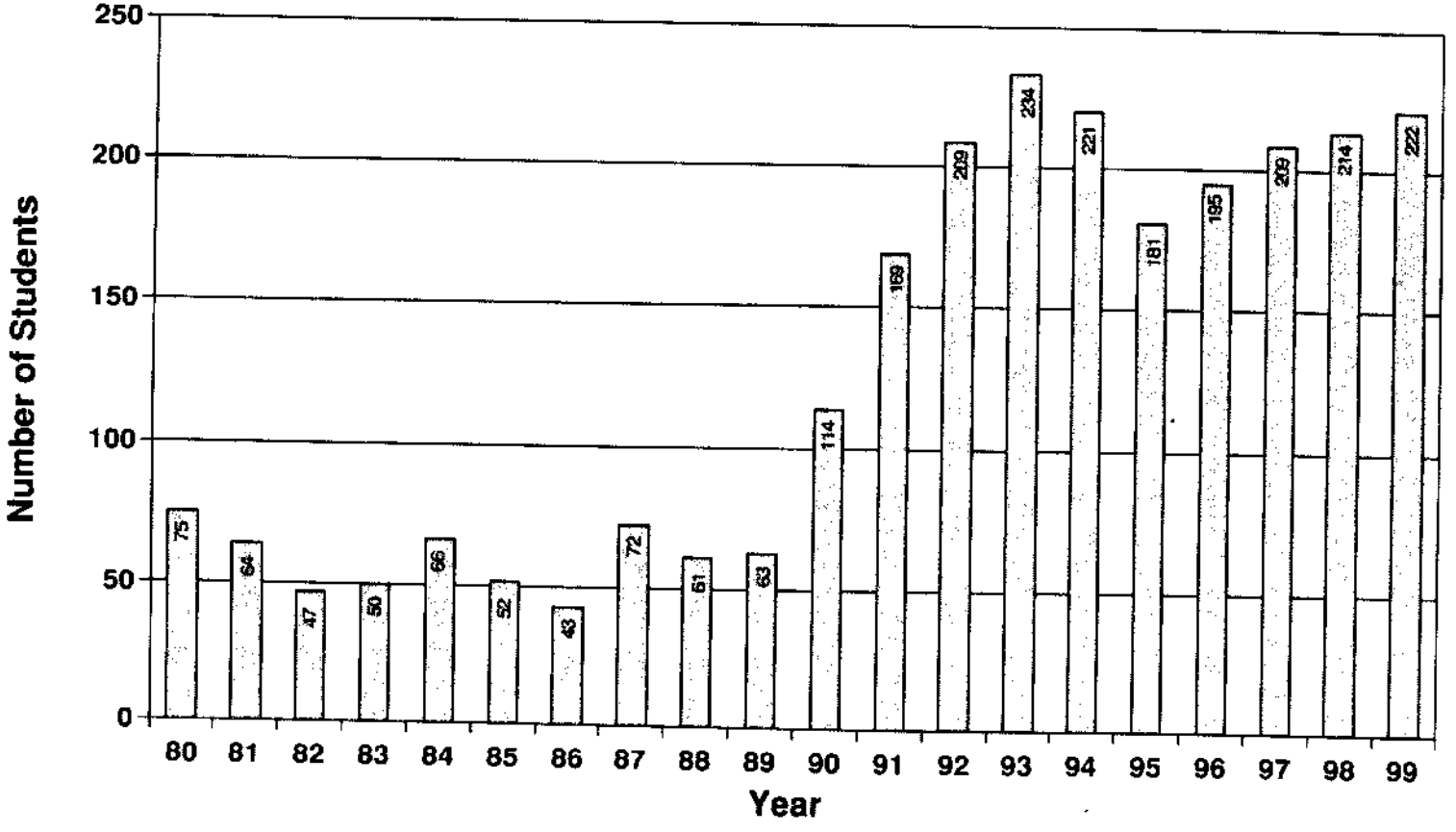
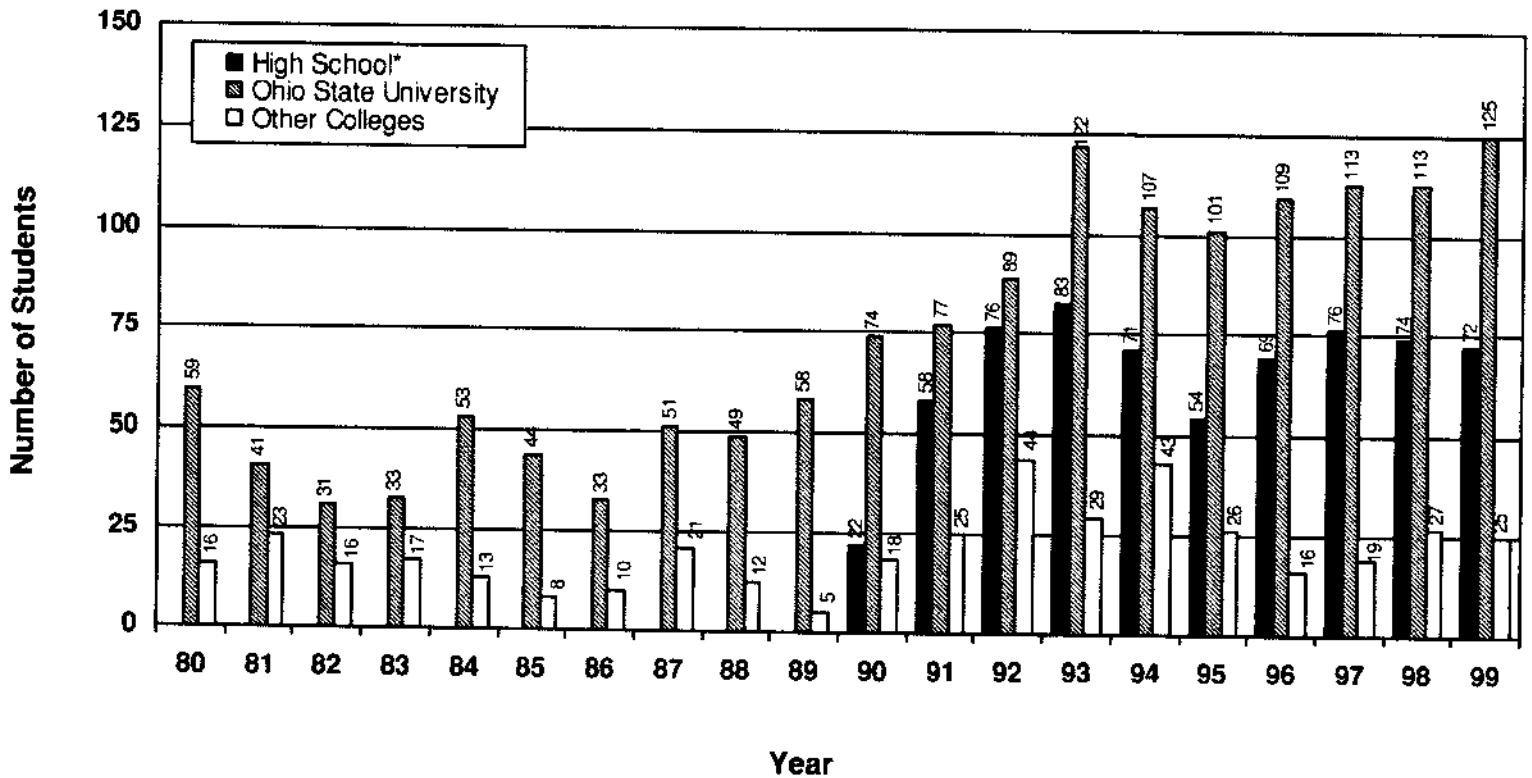


FIGURE 2

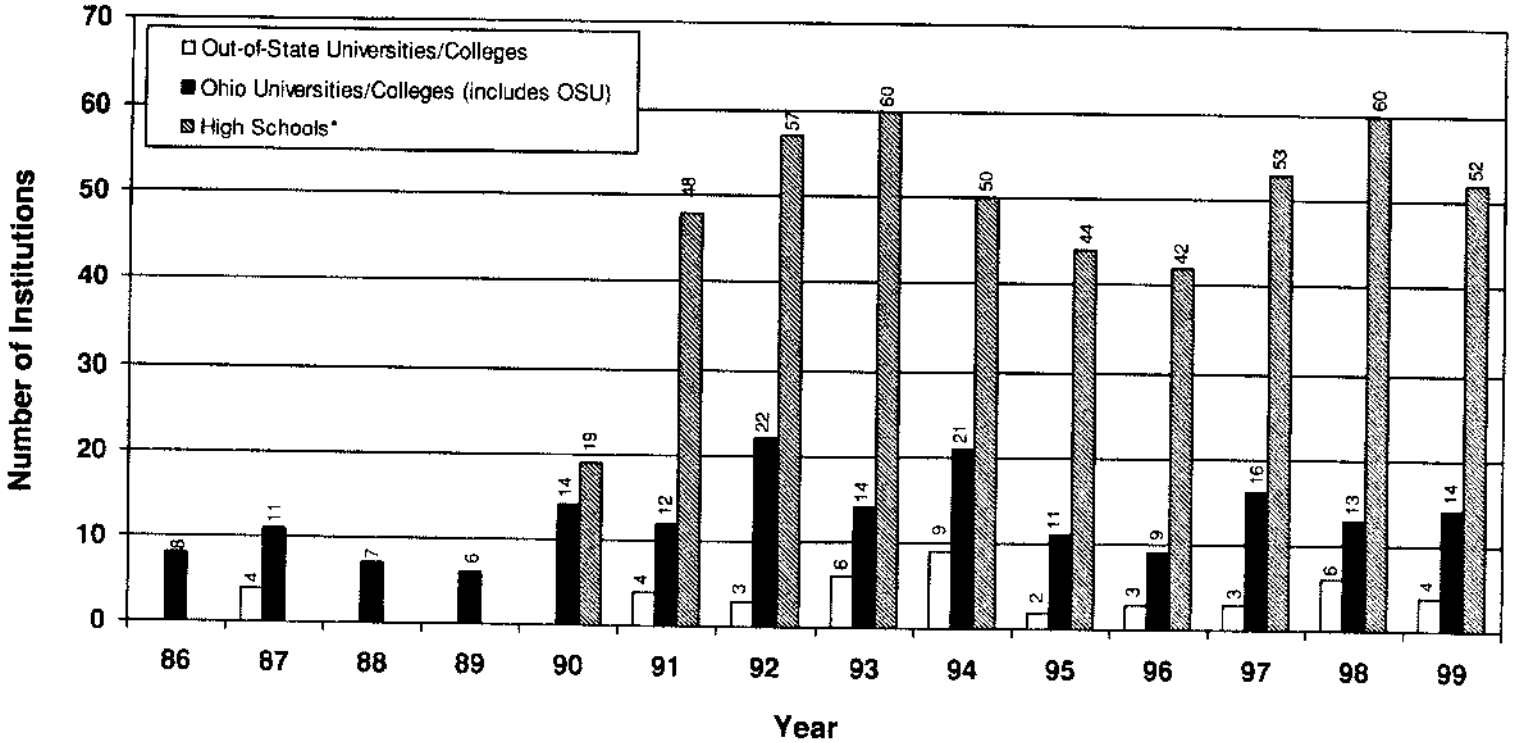
Number of Students Attending Stone Laboratory from High Schools, Ohio State University, and Other Colleges 1980-1999



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

FIGURE 3

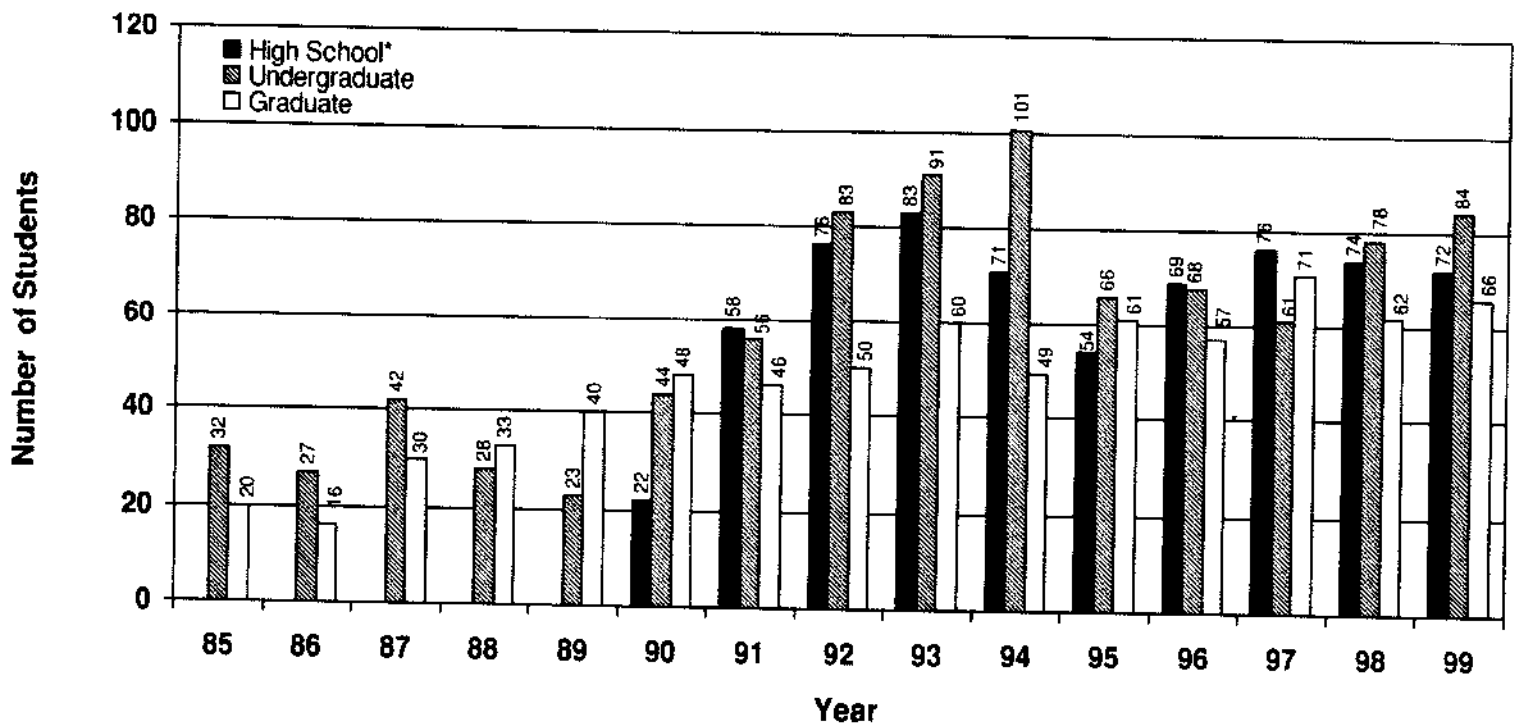
Number of Institutions Represented by Students at Stone Laboratory 1986-1999



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

FIGURE 4

Number of Undergraduate, Graduate and High School Students Attending Stone Laboratory 1985-1999



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

FIGURE 5

Credit Hours of Student Enrollment at Stone Laboratory 1987-1999

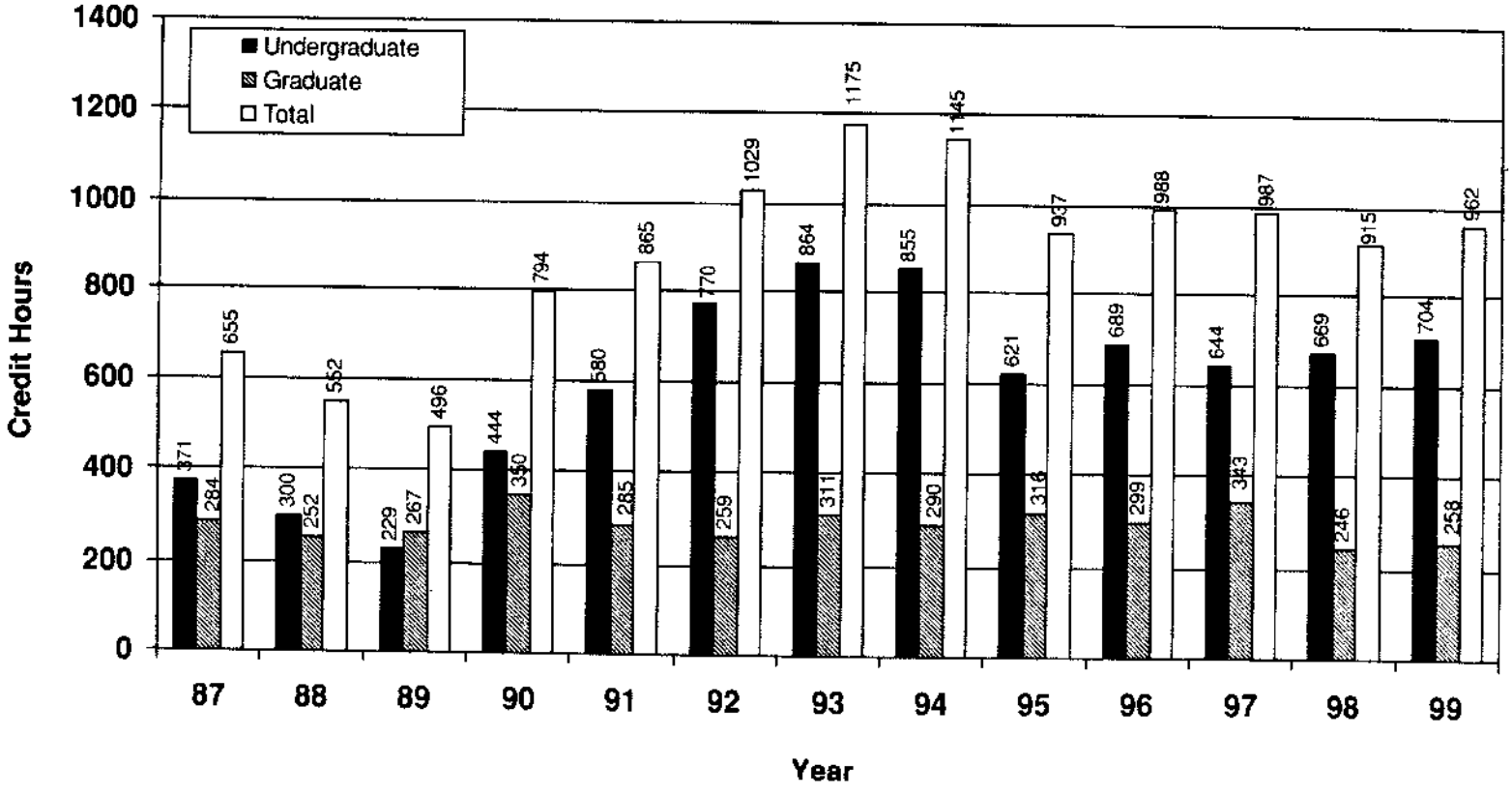


FIGURE 6

Number of Male and Female Students Attending Stone Laboratory 1986-1999

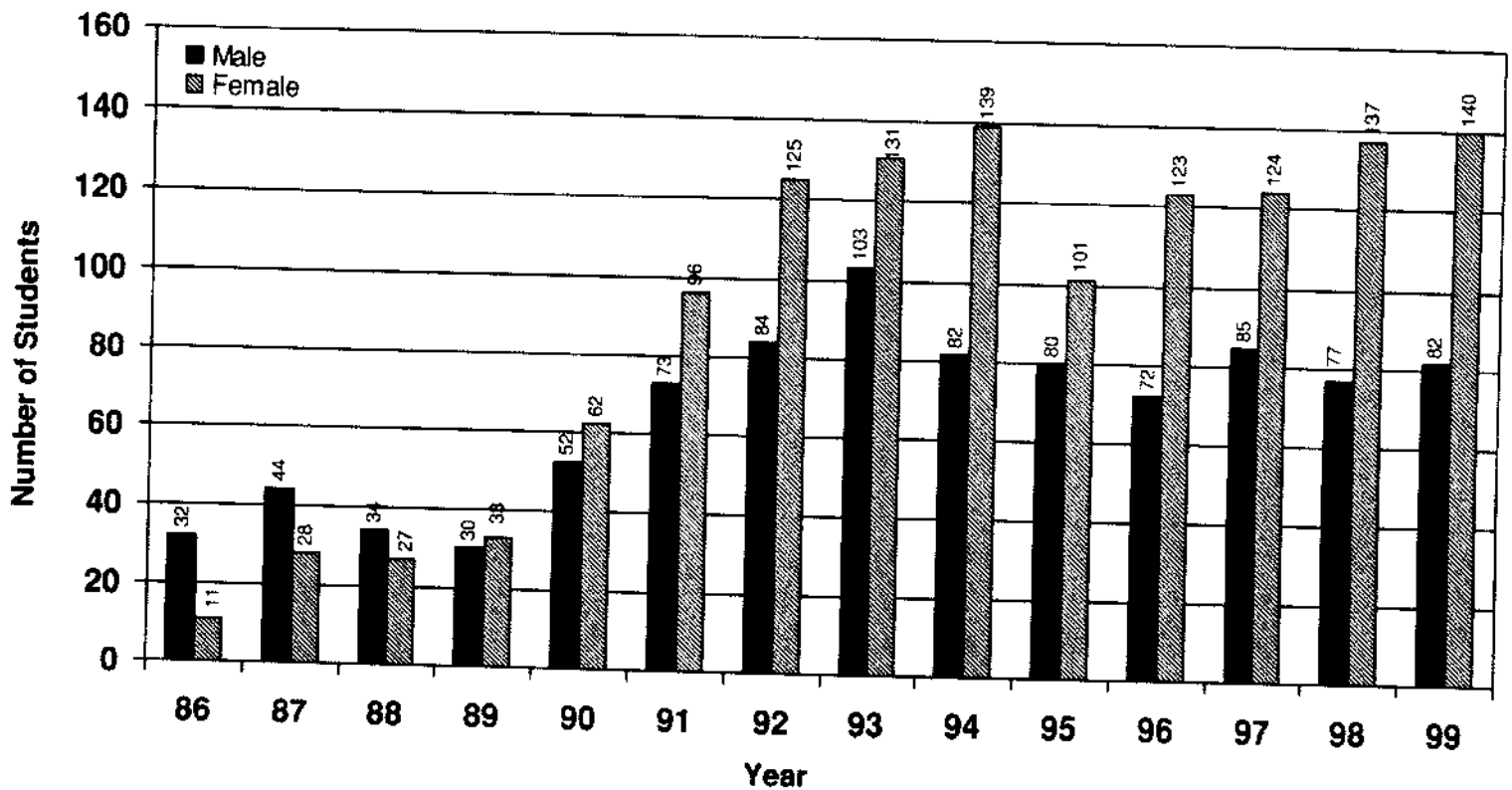


FIGURE 7

Stone Laboratory Workshops, Conferences, and Tours: Number of Groups 1991-1999

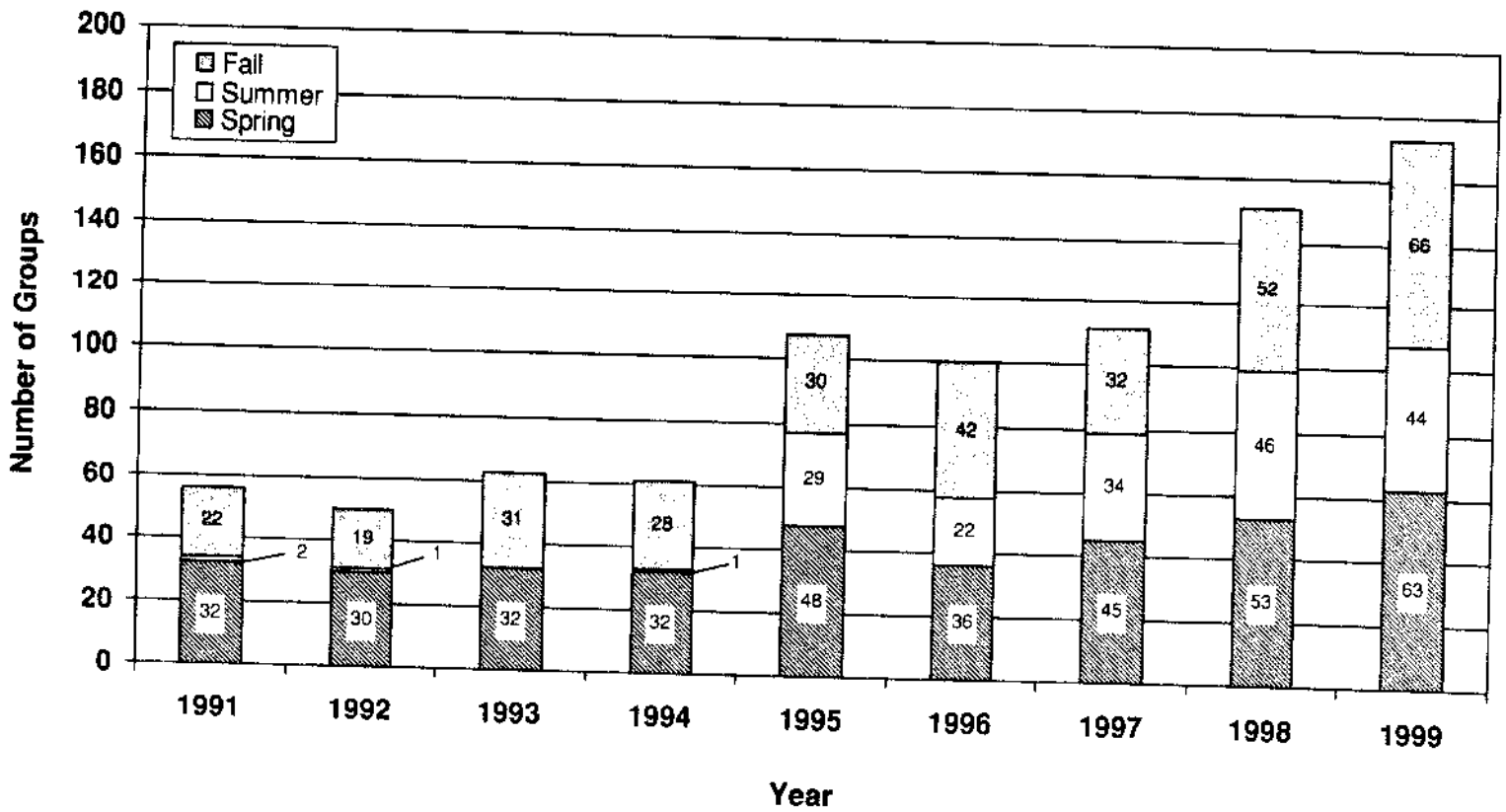


FIGURE 8

Stone Laboratory Workshops, Conferences, and Tours: Number of Participants 1991-1999

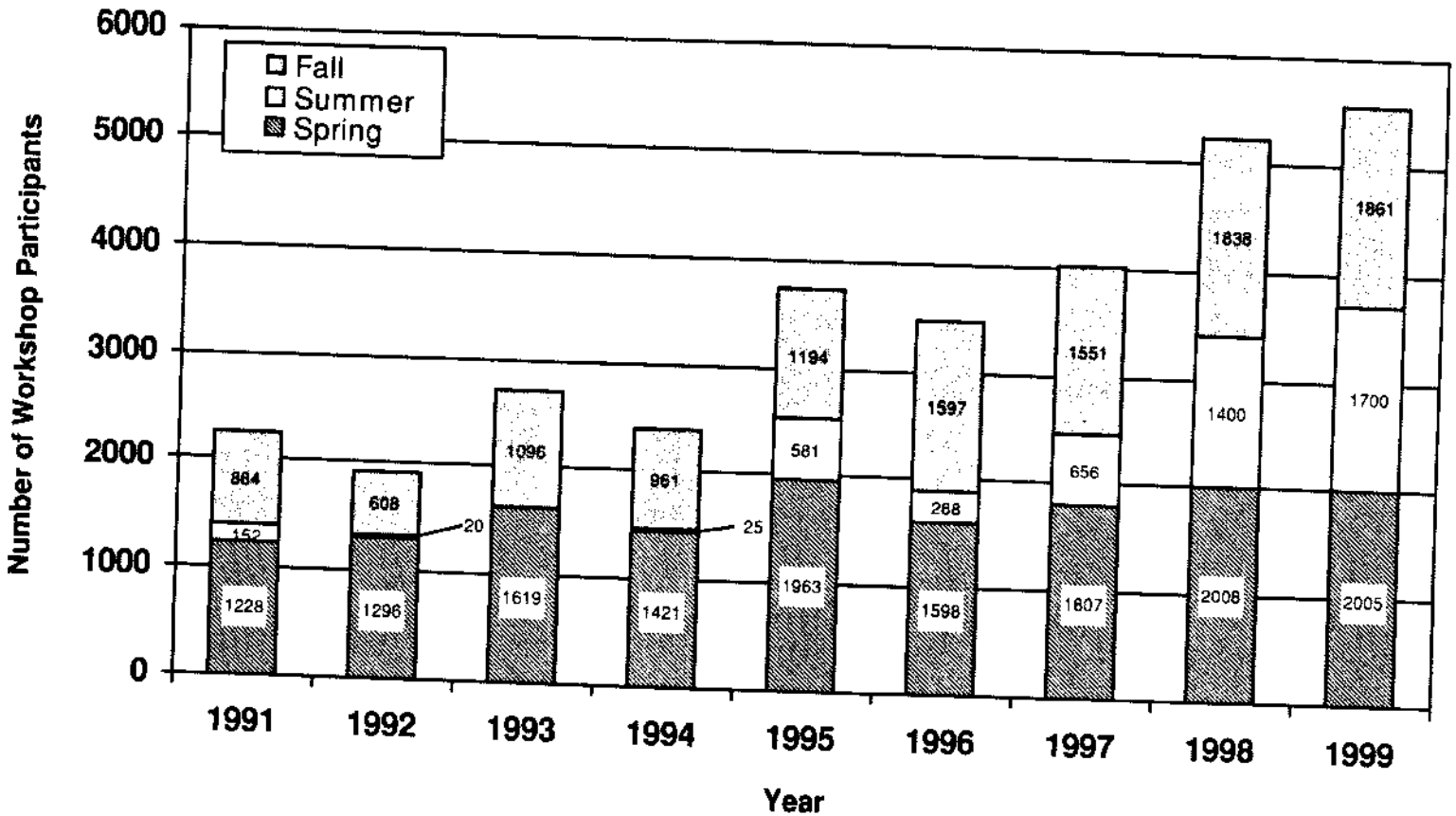
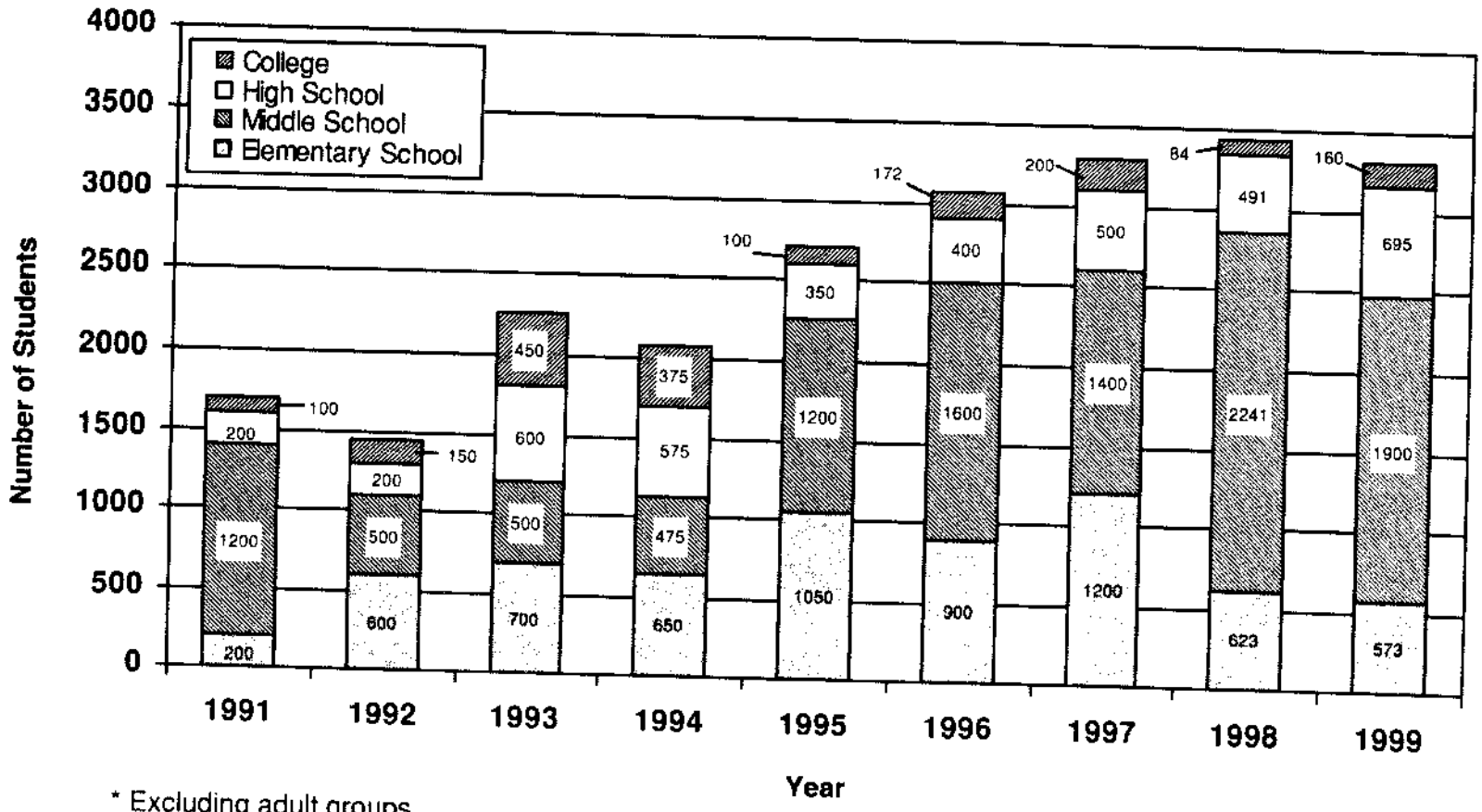


FIGURE 9

Stone Laboratory Workshop Program:Composition of Participating Students* 1991-1999



* Excluding adult groups

FIGURE 10

Research at Stone Laboratory: Number of Research Projects, Principal Investigators, Research Assistants, and Institutions 1995-1999

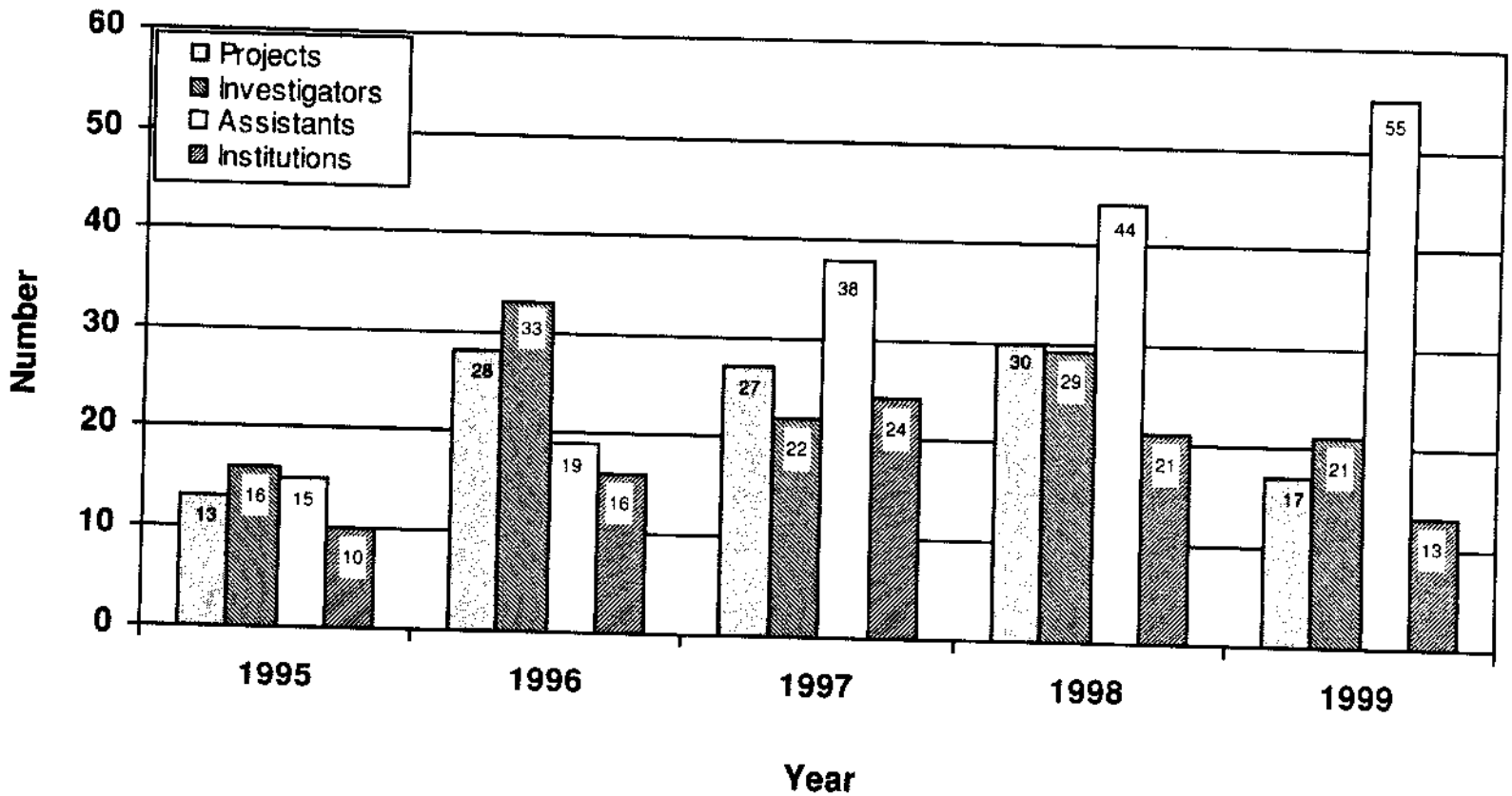


FIGURE 11

Number of Students Receiving Stone Laboratory Scholarships for Summer College Programs 1988-1999

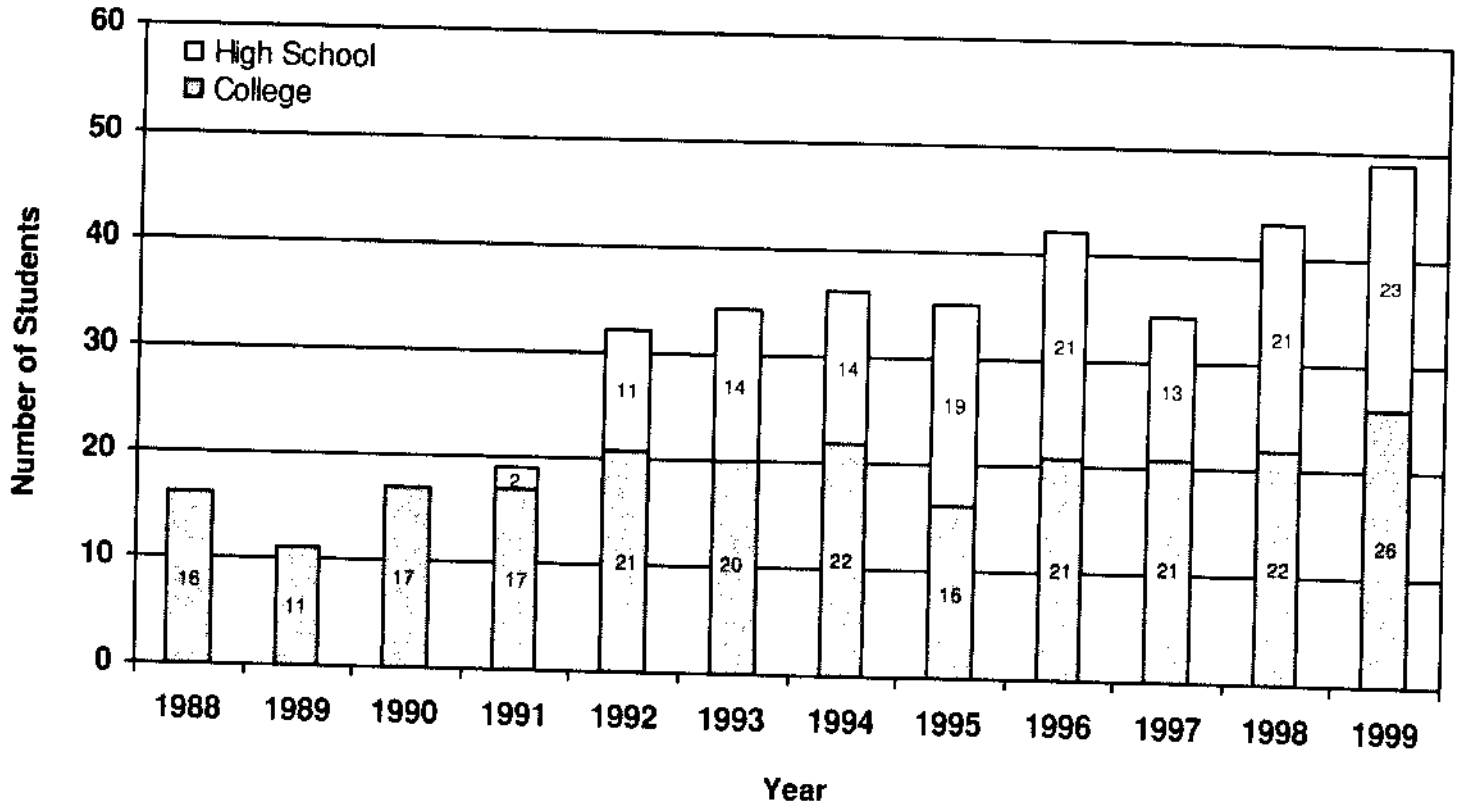
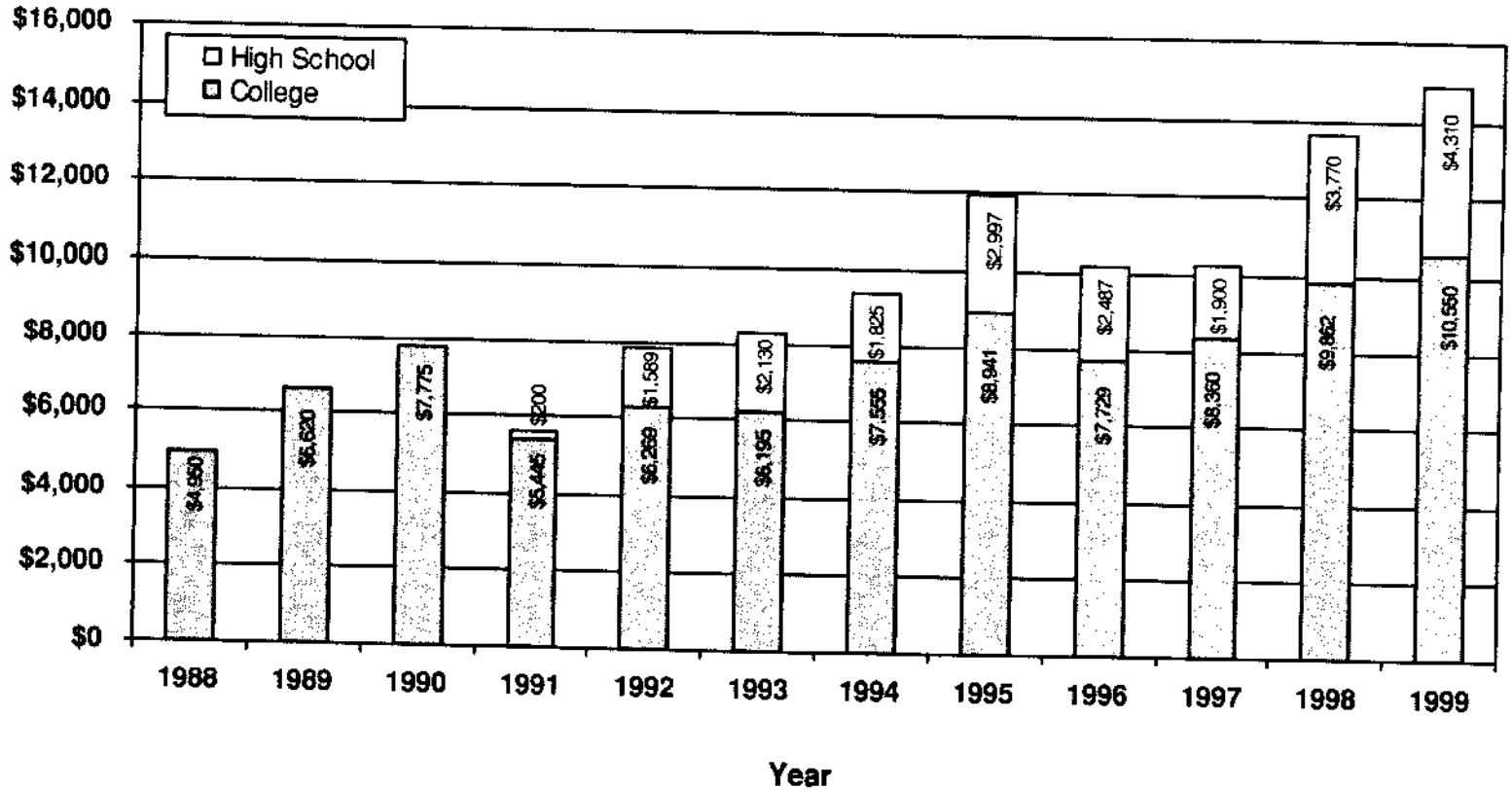


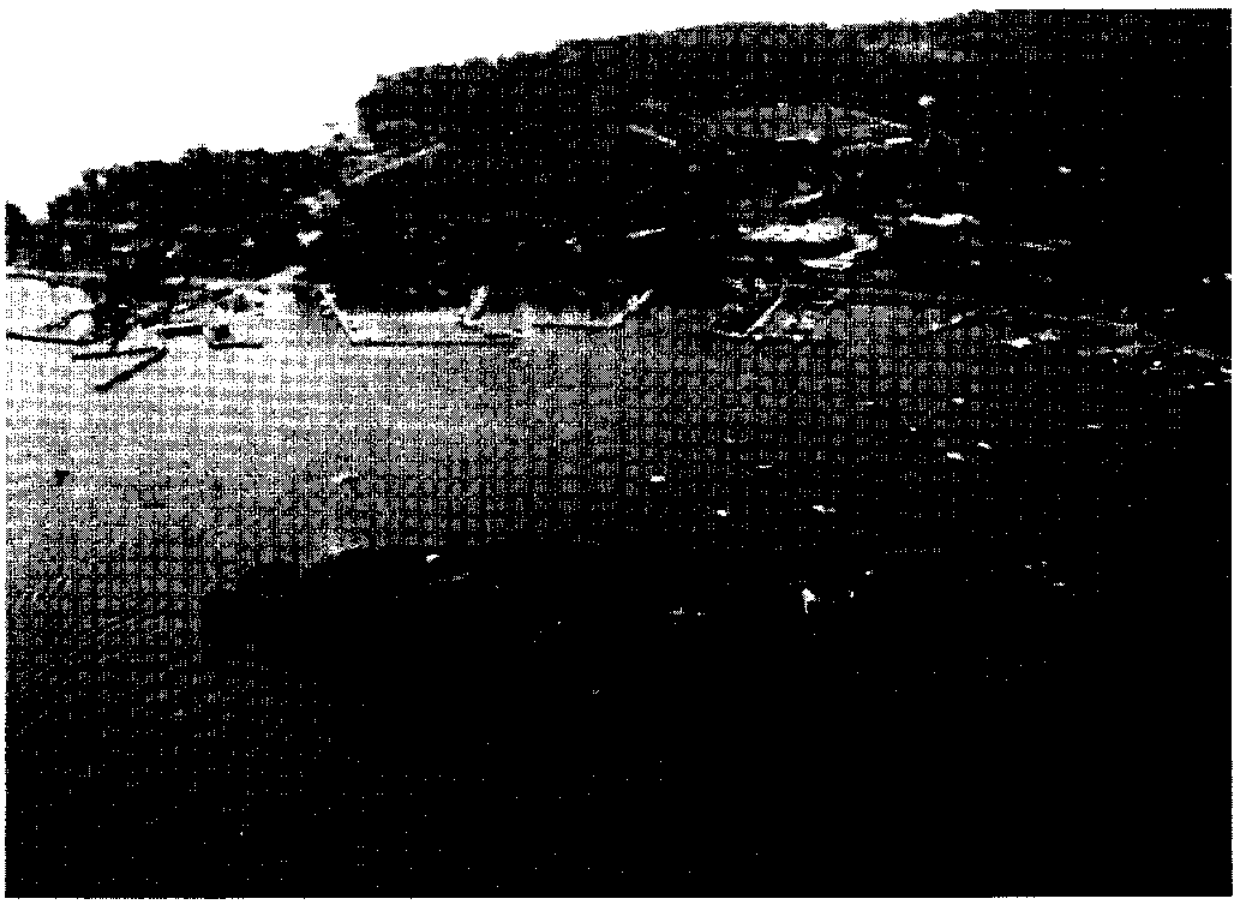
FIGURE 12

Total Value of Scholarships Awarded to College and High School Participants in Stone Laboratory Summer College Program 1988-1999



1999

STONE LABORATORY PROGRAM REVIEW



TABLES

THE OHIO STATE UNIVERSITY

Sea Grant
Ohio Sea Grant College Program

TABLE 1

Stone Laboratory Staff
1999

Administration

Jeffrey M. Reutter	Director
Bonita C. Cordi	Secretary and Receptionist, Columbus Office, (from 10/25/99 to present)
Allen J. Duff	Building Maintenance Superintendent, Physical Facilities
Kelly L. Dress	Laboratory Secretary, Put-in-Bay Office
Rosanne W. Fortner	Associate Director (from 6/1/99 to present)
John R. Hageman	Laboratory Manager
Kit A. Kilen	Secretary and Receptionist, Columbus Office, (to 9/8/99)
Richard D. Lighthiser	Director, Maintenance, Physical Facilities
Lisa A. Main	Housing Manager, Residence & Dining Halls (to 3/31/99)
J. Stephen Martin	Housing Manager, Residence & Dining Halls (from 3/1/99 to present)
Arleen N. Pineda	Program Coordinator
Gerald K. Pullins	Assistant Director, Maintenance, Physical Facilities
Karen T. Ricker	Communications Coordinator
R. Chris Stanton	Assistant to the Director (from 9/22/99 to present)
John L. Tripp	Business Manager
Diane S. Whitbeck	Assistant Director, Residence & Dining Halls

Teaching Faculty

William I. Ausich	Geol Sciences 583-*Geologic Setting of Lake Erie*	Aug 7 - Aug 13
"	Geol Sciences 801-*Sem in Sedimentation & Sedimentary Rocks*	Aug 7 - Aug 13
David J. Berg	EEOB 125-*Introductory Aquatic Biology*	Aug 1 - Aug 7
Paul A. Berkman	EEOB 505-*Marine Biology & Ecology*	Jul 22 - Aug 21
John M. Condit	EEOB 126-*Introduction to the Study of Birds*	Jun 13 - Jun 19
"	EEOB 694-*Ornithology for Teachers*	Jun 27 - Jul 3
David A. Culver	EEOB 698.02-*Study Tour(foreign)* **Lake Erie Shipboard Rsh for Tchrs**	Jul 18 - 24
Rosanne W. Fortner	Nat Res 611-*Great Lakes Education Workshop*	Jun 13 - Jun 19
"	Nat Res 611-*Great Lakes Education Workshop*	Jul 4 - Jul 10
"	Nat Res 797-*Interdept Sem* **Lake Erie Shipboard Rsh for Tchrs**	Jul 18 - 24
David W. Garton	EEOB 125-*Introductory Aquatic Biology*	Jun 6 - Jun 12
"	EEOB 125-*Introductory Aquatic Biology*	Jul 25 - Jul 31
Charles E. Herdendorf	EEOB 505-*Marine Biology & Ecology*	Jul 22 - Aug 21
Michael A. Hoggarth	EEOB 651-*Field Zoology*	Jun 20 - Jul 21
David L. Johnson	EEOB 125-*Introductory Aquatic Biology*	Jun 6 - Jun 12
Robert A. Klips	EEOB 294-*Introduction to Local Flora*	Jul 18 - Jul 24
Lawrence A. Krissek	Geol Sciences 107-*Field-Based Introduction to Oceanography*	Jun 13 - Jun 19
"	Geol Sciences 584-*Prin of Oceanography for Science Teachers*	Jun 20 - Jun 26
"	Geol Sciences 583-*Geologic Setting of Lake Erie*	Aug 7 - Aug 13
"	Geol Sciences 801-*Sem in Sedimentation & Sedimentary Rocks*	Aug 7 - Aug 13
Jeffrey G. Miner	EEOB 653-*Fish Ecology*	Jul 22 - Aug 21
David L. Moore	EEOB 611-*Higher Aquatic Plants*	Jul 22 - Aug 21
Lowell R. Nault	Entomology 126-*Introductory Insect Biology*	Aug 15 - Aug 21
C.Lavett Smith	EEOB 621-*Ichthyology*	Jun 20 - Jul 21
Frederic L. Snyder	EEOB 125-*Introductory Aquatic Biology*	Aug 8 - Aug 14
Ann M. Stoeckmann	EEOB 652-*Limnology*	Jun 20 - Jul 21
Carmen E. Trisler	Entomology 520-*Insect Biology for Teachers*	Jul 11 - Jul 17
"	Entomology 612-*Aquatic Entomology*	Jul 22 - Aug 21

Graduate Teaching Associates

Deborah E. Allan	Field-Based Introduction to Oceanography	w02
"	Principles of Oceanography for Science Teachers	w03
Marc Branham	Introductory Insect Biology	w11
Lisa A. Brohl*	Aquatic Entomology	t2
Bradford H. Coupe	Field Zoology	t1
Julia T. Froschauer*[1]	Fish Ecology	t2
Deborah L. Green*	Introduction to Local Flora	w07
Douglas D. Kane*[1]	Higher Aquatic Plants	t2
Jeff P. Neubig	Introduction to the Study of Birds	w02
Justin T. Rich	Insect Biology for Teachers	w06
Samantha J. Romanello	Great Lakes Education Workshop	w02
"	Great Lakes Education Workshop	w05
Amy B. Spencer*[1]	Marine Biology & Ecology	t2
Thomas J. Thorne*	Introductory Aquatic Biology	w01
"	Introductory Aquatic Biology	w01a
"	Ichthyology	t1
"	Limnology	t1
"	Introductory Aquatic Biology	w08
"	Introductory Aquatic Biology	w09
"	Introductory Aquatic Biology	w10
None	Geologic Setting of Lake Erie	w10
None	Lake Erie Shipboard Research for Teachers	w07

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

Student Research Assistants (also enrolled in Stone Laboratory courses)

Sean A. Burke	Research, t1 **(Heidelberg College, Dr. Krieger)***; Research, t2 trs
Melissa C. Hague	Research, t1 mwf & t2 trs
Marla J. Leopold	Research, t1 trs
Scott M. Miehls	Research, t2 mwf
Tracy J. Minnich	Research, t1 mwf **(Charles Morin Research Fellowship)**
Karen A. Sankovich	Research, t1 trs & t2 mwf **(Bowling Green State University, Dr. Miner)***

* Student paid by researcher, not by Stone Lab

Student Assistants

Sarah A. Daily	Library, t2
Kelly A. Danczak	Laboratory, t1 trs
Sherrita S. Jones	Laboratory, t1 mwf
Marla J. Leopold	Laboratory, t2 trs
Scott M. Miehls	Laboratory, t1 mwf
Lynette C. Overholser	Bookstore, t2 trs
Taye M. Rieger	Laboratory, t2 mwf
James E. Ritchie	Bookstore, t1 mwf
Jason A. Roehrig	Laboratory, t1 trs
Lydia R. Schlegel	Laboratory, t2 trs
Andrew L. Sutphin	Laboratory, t2 mwf
Bekki L. Zeigler	Library, t1

Table 1 – 1999 cont'd

Office and Technical Staff

Bonita C. Cordi	Office Associate, Columbus Office, (from 10/25/99 to present)	
Paul F. Genzman	Courier/Office Assistant , Put-in-Bay Office	
Cindy A. Hayter	Graphic Illustrator, Columbus Office	
Kathleen A. Kilen	Office Associate, Columbus Office, (to 9/8/99)	

Workshop Assistants

Lisa A. Kutschbach-Brohl	spring	fall
Ryan T. Lubbers		fall
Scott M. Miehls		fall
Cortney L. Marquette	spring	
Emily S. Reed	spring	
Karen N. Riddle		fall
Thomas J. Thorne	spring	fall

TABLE 2

Stone Laboratory Curriculum
1999

EEOB 110(294) • Introduction to Local Flora

Week 7, July 18-July 24 ..... Dr. Robert A. Klips

An introduction to the identification and ecology of terrestrial and wetland vegetation. 3 undergraduate credit hours.

EEOB 611 • Higher Aquatic Plants

Term 2, July 22-August 21 ..... Dr. David L. Moore

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 125 • Introductory Aquatic Biology

Week 1, June 6-June 12 ..... Dr. David L. Johnson
Week 1a*, June 6-June 12 ..... Dr. David W. Garton
Week 8, July 25-July 31 ..... Dr. David W. Garton
Week 9, August 1-August 7 ..... Dr. David J. Berg
Week 10, August 8-August 14 ..... Mr. Frederic L. Snyder

* Scheduled for Young Scholars Program

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-June 19 ..... Mr. John M. Condit

An introduction to the study of birds including field techniques and identification providing undergraduate credit for college students and advanced high school students. 3 undergraduate credit hours.

EEOB 505 • Marine Biology and Ecology

Term 2, July 22-August 21 ..... Drs. Paul A. Berkman and Charles E. Herdendorf

Modern concepts in oceanography, including chemical, physical, and biological processes of the sea, environmental factors influencing marine life, and human impact on ocean resources. 5 undergraduate/graduate credit hours.

EEOB 621 • Ichthyology

Term 1, June 20-July 21 ..... Dr. C. Lavett Smith

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 21 ..... Dr. Michael A. Hoggarth

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 = Department of Evolution, Ecology, and Organismal Biology

Table 2 - 1999 cont'd

EEOB 652 • Limnology

Term 1, June 20-July 21 ..... Dr. Ann M. Stoeckmann

Study of the physical, geological, chemical, and biological factors influencing freshwater life; field and laboratory techniques for determining lake morphometry, chemistry, and biological productivity are emphasized. 5 undergraduate/graduate credit hours.

EEOB 653 • Fish Ecology

Term 2, July 22-August 21 ..... Dr. Jeffrey G. Miner

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 694 • Experimental Aquatic Ecology and Research **CANCELED**

Term 1, June 20-July 21 ..... Drs. David A. Culver, Robert T. Heath, and Lin Wu

Course designed to prepare students for undergraduate or graduate research in aquatic ecology by introducing them to the techniques of literature review, hypothesis testing, data collection and analysis, and publication. 5 undergraduate/graduate credit hours.

EEOB 694 • Ornithology for Teachers

Week 4, June 27-July 3 ..... Mr. John M. Condit

Field and laboratory studies of the visual and acoustical characteristics of common Ohio birds; discussion of world-wide birds and their classification; identification of resource materials for classroom use; for classroom teachers and nonformal educators. 3 undergraduate/graduate credit hours.

Entomology 126 • Introductory Insect Biology

Week 11, August 15-August 21 ..... Dr. Lowell R. Nault

An introduction to the study of insects including biology, ecology, identification, and field techniques providing undergraduate credit for college students and advanced high school students. 3 undergraduate credit hours.

Entomology 612 • Aquatic Entomology

Term 2, July 22-August 21 ..... Dr. Carmen E. Trisler

Designed 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 694(520) • Insect Biology for Teachers

Week 6, July 11-July 17 ..... Dr. Carmen E. Trisler

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 2, June 13-June 19 ..... Dr. Larry A. Krissek

An introduction to the study of oceanography including field techniques providing undergraduate credit for college students and advanced high school students. 3 undergraduate credit hours.

Table 2 - 1999 cont'd

Geological Sciences 583 • Geologic Setting of Lake Erie

Special Offering, August 7-August 13 ..... Dr. Larry A. Krissek

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 $300. Class will originate from and end at the Fawcett Center in Columbus, Ohio. 3 undergraduate/graduate credit hours.

Geological Sciences 584 • Principles of Oceanography for Science Teachers

Week 3, June 20-June 26 ..... Dr. Larry A. Krissek

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 611 • Great Lakes Education Workshop

Week 2, June 13-June 19 ..... Dr. Rosanne W. Fortner

Week 5, July 4-July 10 ..... Dr. Rosanne W. Fortner

Techniques and curriculum for presenting interdisciplinary aspects of the oceans and Great Lakes in formal and nonformal education settings. 3 undergraduate/graduate credit hours.

SPECIAL OFFERING: *Lake Erie Shipboard Research for Teachers*

EEOB 698.02 • Study Tour (Foreign)

Week 7, July 18-July 24 ..... Dr. David A. Culver

Natural Resources 797 • Interdepartmental Seminar

Week 7, July 18-July 24 ..... Dr. Rosanne W. Fortner

An examination of the physical and biological components of the Lake Erie ecosystem at numerous points between Detroit and Buffalo. Students learn how scientists study weather, water quality, bottom sediments, aquatic insects, internal currents and flow, diurnal changes in plankton and other Lake parameters, and how this information is used to answer management questions. 3 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.

TABLE 3

Stone Laboratory Guest Lectures*
1999

All lectures begin at 7:45 PM. A university boat leaves the dock in front of the Research Building at 7:30 PM before each lecture. Lectures normally conclude at approximately 9:00 PM. Transportation to and from Gibraltar Island is free.

Week 1	6/10	**No Lecture**
Week 2	6/17	**Dr. Bobby D. Moser**, Vice President and Dean, College of Food, Agricultural and Environmental Sciences, Ohio State University "Environmental Issues in Agriculture in Ohio"
TERM 1		
Week 3	6/24	**Dr. Jane Forsythe**, Bowling Green State University "The Geology of Lake Erie"
Week 4	7/1	**John R. Kleberg**, Asst. Vice President, Business and Finance, OSU "Jay Cooke and his Castle"
Week 5	7/8	**Gary L. Isbell**, Executive Administrator, Fish Management and Research, Ohio Division of Wildlife "Lake Erie Fisheries Update and Future Directions in Fisheries Management and Research"
Week 6	7/15	**David O. Kelch,** Ohio Sea Grant Extension "Artificial Reefs in Lake Erie: Biological and Economic Impacts"
Week 7	7/22	**Transition between terms—No Lecture**
TERM 2		
Week 8	7/29	**Dr. Charles E. Herdendorf**, Ohio State University "Science on a Deep Ocean Shipwreck: Exploring the Gold Rush Steamer SS Central America"
Week 9	8/5	**Dr. Scudder D. Mackey**, Div. of Geological Survey, ODNR "Current Issues Facing Geological Survey on Lake Erie: Water Levels, Flooding, Erosion, Sedimentation, Zebra Mussels, etc."
Week 10	8/12	**Dr. Sam Speck**, Director, Ohio Dept. of Natural Resources "Lake Erie: Whose Lake Is It Anyway?"
Week 11	8/19	**Finals Week—No Lecture**

* Sponsored by the Friends of Stone Laboratory and the Office of Residence and Dining Halls.

TABLE 4

Stone Laboratory Workshops, Conferences and Tours
1999

Date	Group Name/City/Leader	No.	Description
4/10	O.S.U. Board of Trustees - Pre-visit / Columbus, OH Bill Napier and Mike Colley	4	Tour
4/11	Lake Erie Watch - Lighthouse Tour	12	Tour
4/12	Susan and Mike Harrison Pre-Visit Sewickley Academy / Pittsburg, PA	2	Tour
4/14	Franklin Alternative Middle School / Columbus, OH Tracey Trezbuckowski	22	Workshop
4/15	Kenwood Elementary I / Bowling Green, OH Kent McClary	39	Workshop
4/19	Fall-Meyer School - 6th Grade / Toledo, OH Claudia Trombla	45	Workshop
4/20-21	Robinson Jr. High / Toledo, OH Diane McClellan	28	Workshop
4/21	Kenwood Elementary II / Bowling Green, OH Kent McClary	38	Workshop
4/22-23	Arlington Elementary / Toledo, OH Ruth Paul	52	Workshop
4/24-25	Friends of Stone Lab. Strategic Planning Karen Jennings	13	Conference
4/26	Erie-Ottawa Co. Educational Service Center / Erie-Ottawa Co., OH Ellen Bergman	29	Workshop
4/26-27	Jonathan Alders High School / Plain City, OH Brenda Boyd	21	Workshop
4/27-28	Worthington Christian High School / Worthington, OH Bill Williams	15	Workshop

Table 4 – 1999 cont'd

Date	Group Name/City/Leader	No.	Description
4/29-5/1	Bloom Carrol, Fairfield Union, Liberty Union High School / Carroll, OH Diane Gabriel	62	Workshop
4/30	Huron County E.S.C. Gifted Program / New London, Norwalk, OH Susan Graham	53	Workshop
5/1	O.S.U. Geology Seminar - Oceanography / Columbus, OH Dr. Larry Krissek	8	Workshop
5/3	Put-In-Bay Bird-a-thon / Ottawa Co., OH (Visitors Bureau) Melinda Huntley	4	Tour
5/3-4	Mills School I - 6th Grade / Sandusky, OH Park Schaefer and Marcia Fordham	52	Workshop
5/4-5	Mills School II - 6th Grade / Sandusky, OH Park Schaefer and Marcia Fordham	44	Workshop
5/6	Lyons Elementary - 4th & 5th Grade / Lyons, OH Carla Lever	111	Workshop
5/5-6	Mills School III - 6th Grade / Sandusky, OH Park Schaefer and Marcia Fordham	52	Workshop
5/6-7	Mills School IV - 6th Grade / Sandusky, OH Park Schaefer and Marcia Fordham	49	Workshop
5/7	Rogers High School / Toledo, OH John Calderonello	18	Workshop
5/7	Minnich Family	4	Tour
5/7-8	Sewickley Academy-6th Grade / Pittsburgh, PA Susan Harrison	63	Workshop
5/8	Cleveland State University / Cleveland, OH Beth Congdon	11	Tour
5/10	Wanda Shirkey and Ashley Johansen / Port Clinton	2	Tour
5/10-11	Mills School V - 6th Grade / Sandusky, OH Park Schaefer and Marcia Fordham	44	Workshop

Table 4 – 1999 cont'd

Date	Group Name/City/Leader	No.	Description
5/11	Dayton Daily News / Dayton, OH Jim Morris and Bill Reinke	2	Tour
5/11-12	Mills School VI - 6th Grade / Sandusky, OH Park Schaefer and Marcia Fordham	47	Workshop
5/12	Amherst Steel High School / Lorain, OH Darline Elsasser	76	Workshop
5/12-13	Mills School VII - 6th Grade / Sandusky, OH Park Schaefer and Marcia Fordham	38	Workshop
5/13-14	Mills School VIII - 6th Grade / Sandusky, OH Park Schaefer and Marcia Fordham	43	Workshop
5/14	Springfield South High School / Springfield, OH Mike Willets	12	Workshop
5/14	Central Catholic High School/ Springfield, OH Dick Dellapina	12	Workshop
5/14-16	O.S.U. Limnology - College / Columbus, OH Dr. David Culver	27	Workshop
5/15	Brownie Troop # 318 / Huron, OH Holly Payne	14	Tour
5/15	Brownie Troop #532 / Berlin Heights, OH Connie Lamb	54	Tour
5/17	Fort Meigs Elementary / Perrysburg, OH Julie Fishbaugh	18	Workshop
5/17-18	McCord/Perry Middle School / Worthington, OH Marty McTigue	68	Workshop
5/18	O.S.U. Board of Trustees Staff / Columbus, OH Maureen Sharkey and Lucy Gandert	2	Tour
5/18-19	Toth Elementary / Perrysburg, OH Kay Wagner	63	Workshop
5/19	Elderhostel / Toledo, OH Jim Chamberlain	2	Tour

Table 4 – 1999 cont'd

Date	Group Name/City/Leader	No.	Description
5/19-20	New Albany I - 7th Grade / New Albany, OH Jay Walker	54	Workshop
5/20-21	New Albany II - 7th Grade / New Albany, OH Jay Walker	54	Workshop
5/21	Rogers High School / Toledo, OH C.J. Washington	16	Workshop
5/21	Lucas Co. Youth Treatment - High School / Toledo, OH Delores Sampson	16	Workshop
5/21-23	O.S.U. Molecular Genetics / Columbus, OH Mark Muller	38	Conference
5/24	Fallen Timbers LEAP - 5th Grade / Whitehouse, OH Jane Yates	15	Workshop
5/24	Perrysburg High School / Perrysburg, OH Janice Ray	9	Workshop
5/24-25	West Carrolton - 5th Grade / West Carrolton, OH Ruth Charles	39	Workshop
5/25-26	Toledo Horizons I Gifted and Talented / Toledo, OH Nadine Schroeder	48	Workshop
5/26-27	Toledo Horizon II Gifted and Talented / Toledo, OH Nadine Schroeder	46	Workshop
5/27-28	Englewood Elementary / Englewood, OH Sis Litvin	23	Workshop
6/1	Whiteford Middle School / Ottawa Lake, MI Susan Bixler	79	Workshop
6/2	Jones Junior High / Toledo, OH Sue Kost	7	Workshop
6/2	Genoa High School / Genoa OH Mark White	14	Workshop

Table 4 – 1999 cont'd

Date	Group Name/City/Leader	No.	Description
6/2	O.S.U. Young Scholars - Robinson High School / Toledo, OH JoAnn Halbig	14	Workshop
6/2	Layton Elementary / Wooster, OH Neil Savowski	62	Tour
6/3	Putnam Co. S.W.C.D. Envirothon / Putnam Co., OH Bonnie Brooks	8	Workshop
6/3-4	Jones Middle School - 8th Grade / Upper Arlington, OH David Evans	36	Workshop
6/5	Boy Scout Troop #271 / Grove City, OH Ben Brace	27	Tour
6/7	Lakota School System Staff / Amsden, OH Tom Bentley	21	Tour
6/8	Lake Erie Buffer Team- Soil & Water Conservation District Steve Davis	16	Meeting
6/10	Northwest District Extension Margi Griffiths	26	Meeting
6/12	Catawba Island Club / Catawba Island, Ohio Gordon Adams	78	Tour
6/17	Visitors to See Bobby Moser Guest Lecture	64	Tour
6/20	Bill Hirzel / Northwood, OH	5	Tour
6/21	Don Seaman	1	Tour
6/24	Visitors to See Jane Forsyth Guest Lecture	62	Tour
6/28-29	Ohio Division of Natural Resources Carolyn Caldwell	13	Meeting
6/29	Bowling Green State University - Governors Summer Institute Brenda Joy	31	Workshop
6/30	O.S.U. - A.T.I. Upward Bound Gail Miller	37	Workshop

Table 4 – 1999 cont'd

Date	Group Name/City/Leader	No.	Description
7/1	Visitors to see John Kleberg Guest Lecture	35	Tour
7/2	O.S.U. Board of Trustees/ Columbus, OH Mike Colley, Board of Trustees President	40	Meeting
7/6	Nichols Family	11	Tour
7/8	Visitors to See Gary Isbell Guest Lecture	14	Tour
7/8	O.S.U. Distance Learning Dottie Wolf	1	Tour
7/9	Congressional Day	160	Conference
7/10	Piketon School Staff Robbins/Conley/Wooldige	3	Tour
7/13	Tim Mason	9	Tour
7/15	Visitors to See Dave Kelch Guest Lecture	12	Tour
7/17	Jeffry Armbruster, Ohio Senator	10	Tour
7/19	O.S.U. Extension - A.B.E Center / Bowling Green, OH Amy Stone	8	Workshop
7/24	Jim Saylor	10	Tour
7/29	Visitors to see Dr. Herdendorf Guest Lecture	40	Tour
7/30	WBGU T.V. / Bowling Green, OH Marlene Harris - Taylor	2	Tour
7/30	O.D.N.R. Division of Wildlife Melissa Hathaway	5	Tour
7/31	Kent State University / Kent, OH	25	Tour
7/31	North Harbor Sailing Club / Port Clinton, OH Elma Burge	10	Tour

Table 4 – 1999 cont'd

Date	Group Name/City/Leader	No.	Description
8/5	BBC Natural History Unit / Bristol David Reithert and Tom Fitz	2	Tour
8/5	Stewart Family Jeff Stewart	5	Tour
8/5	Visitors to See Scudder Mackey Guest Lecture	15	Tour
8/9	Mr. Heldt	3	Tour
8/9	Martha Garland, OSU Dean of Academic Affairs and Tom David	2	Tour
8/12	Visitors to See Sam Speck Guest Lecture	15	Tour
8/13 - 15	O.S.U. Council of Graduate Students Kathleen Carberry	6	Conference
8/17	Allen Olsen	5	Tour
8/18	Colin and Karen Jones	2	Tour
8/19	Ohio Farm Bureau Deering Dyer	33	Workshop
8/21	Ron Engel and Amy Newell	6	Tour
8/25 - 27	O.S.U. Resident Life Scott Boden	40	Conference
8/27	Friends of Stone Lab Board Members	17	Meeting
8/28	Stone Laboratory Open House	450	Tour
8/28	South Bass Island Lighthouse Open House	300	Tour
8/29	Friends of Stone Lab Annual Meeting	50	Meeting
8/30 - 9/1	International Under Water Welding Workshop Dr. Chon Tsai	26	Workshop

Table 4 – 1999 cont'd

Date	Group Name/City/Leader	No.	Description
8/31	Ohio Lake Erie Commission	15	Meeting
9/1	Natural Resource Conservation Service Karl Schneider	25	Workshop
9/2	Put-In-Bay High School / Put-In-Bay, OH Paul Genzman	19	Workshop
9/2	Phillip - Osborne M.S. / Painsville, OH Meg Anderson	26	Workshop
9/7 -8	Hilliard Station I / Hilliard, OH Lynda Floehr	40	Workshop
9/8	Genoa High School / Genoa, OH Connie Schwegman	15	Tour
9/8 - 9	Hilliard Station II / Hilliard, OH Lynda Floehr	39	Workshop
9/9	Ohio Farm Service Agency / Columbus, OH Floyd Reinhardt	15	Meeting
9/9 - 10	Hilliard Station III / Hilliard, OH Lynda Floehr	37	Workshop
9/9 - 10	O.S.U. Agricultural Technical Institute Pat Harbert	5	Conference
9/10	Erie Basin R.C.D. Ed McConoughey	44	Tour
9/10	Beth Anderson	4	Tour
9/10 -11	Part Street Middle School / Grove City, OH David Crosby	60	Workshop
9/11	Carol Judge	2	Tour
9/11	Bud Davis	2	Tour

Table 4 – 1999 cont'd

Date	Group Name/City/Leader	No.	Description
9/13	Jefferson Elementary School / Port Clinton, OH Jim Bergeman	42	Workshop
9/13 -14	Bellevue Jr. High School / Bellevue, OH David Meadows	15	Workshop
9/14 - 15	Bexley Middle School / Bexley, OH Marge Galloway	40	Workshop
9/15 - 16	Highland High School / Medina, OH Betsy Gleason	48	Workshop
9/16	Ohio Farm Service Agency / Columbus, OH Todd Warner	15	Conference
9/17	Glen Funk, OSU Director of Facility Planning R.S.C.P.L.	2	Tour
9/17	Padua Franciscan High School / Parma, OH Terry Mansfield	32	Workshop
9/17 - 19	Molecular Genetics Dr. Long Chang	73	Conference
9/20	Avon High School / Avon, OH Tess Wearsh	18	Workshop
9/20	Erie County Extension / Erie County OH Bob Holmes	11	Tour
9/20	West Holmes High School / Millersburg, OH Doug Mohr	13	Workshop
9/21	Amherst Steel High School / Amherst, OH Darline Elsasser	52	Workshop
9/21 - 22	Willis Middle School / Delaware, OH Teresa Bettac	22	Workshop
9/22 - 24	The Wellington School / Columbus, OH Sara Harris	56	Workshop
9/24	St. Mary of the Falls / Olmsted Falls, OH Loretta Grentzer	23	Workshop

Table 4 – 1999 cont'd

Date	Group Name/City/Leader	No.	Description
9/24	McCormick Middle School / Huron, OH Elaine Bores	145	Tour
9/24 -25	Lakota Jr. High / Amsden, OH Tom Bentley	28	Workshop
9/25	Heidelberg College / Tiffin, OH Dr. Ken Baker	24	Workshop
9/27	Heights Tiffin City School / Tiffin, OH Danielle Bour	22	Workshop
9/28	Bataan Elementary / Port Clinton, OH Marty Willis	60	Workshop
9/29	Portage School / Gypsum, Ohio Miss Warner and Greg Twarek	55	Workshop
9/29 - 30	Bellefontaine High School / Bellefontaine, OH Dennis Verselle	17	Workshop
10/1	Laurel School / Shaker Hts, OH Kay Ford	20	Workshop
10/1	Capital University / Columbus, OH Terry Lahm	15	Workshop
10/2	Owens Community College / Toledo, OH Dave Gardener	17	Workshop
10/2	Shell Club / Cleveland, OH Phil Rundo	10	Tour
10/2	Sharpe Family	8	Tour
10/2	Oberlin College / Oberlin, OH Mary Garvin	28	Workshop
10/3	O.S.U. Ottawa County Alumni Club, Ottawa Co., OH	8	Tour
10/4 - 5	Worthingway Middle School / Worthington, OH Kevin Swabb	56	Workshop

Table 4 – 1999 cont'd

Date	Group Name/City/Leader	No.	Description
10/5 - 6	Woodside Middle School / Ft. Wayne, IN Jeff Beck	25	Workshop
10/6	Hinohara Chikara and Vic Mayer Comprehensive Education Center of Shizuoka Prefecture Kakegawa City, Japan	2	Tour
10/6 - 8	Columbus School for Girls / Columbus, OH Julie Biswas	71	Workshop
10/8 -10	Erie County Family Foundation / Sandusky, OH Dave Harlan	11	Conference
10/8 - 9	Granville Middle School / Granville, OH Kay Porr	20	Workshop
10/9	Bowling Green State Univ. / Bowling Green, OH Jeff Miner	20	Workshop
10/11	Cuyahoga Heights High School / Cleveland, OH Tish McGill	28	Workshop
10/11 - 12	Society for Environmental Journalists Randy Edwards	18	Workshop
10/12 - 13	Hathaway Brown School / Shaker Heights, OH Robin Appleby	70	Workshop
10/14	Tim Granata O.S.U. Civil Engineering Dept.	3	Tour
10/14 -15	Rocky River Middle School / Rocky River, OH David Opdycke	40	Workshop
10/15	Leadership Ohio / Columbus, OH Sherry Barger	31	Workshop
10/15 - 17	O.S.U. Plankton Class / Columbus, OH Dr. David Culver	18	Workshop
10/15 - 16	Mount Union College / Alliance, OH Dr. Lin Wu	3	Workshop

Table 4 – 1999 cont'd

Date	Group Name/City/Leader	No.	Description
10/18-19	Brecksville High School A.P. Biology / Broadville, OH Bob Berg	21	Workshop
10/ 19 -20	Hudson Middle School I / Hudson, OH Ken Radie	45	Workshop
10/20 -21	Hudson Middle School II/ Hudson, OH Ken Radie	45	Workshop
10/21 - 22	Edgewood School Challenge Program / Trenton, OH Dee Wells	18	Workshop
11/22	Jerry Conner, National Geodetic Survey	1	Tour
11/23	Port Clinton Jr. High, Port Clinton Bart Anderson	22	Tour
		====	
	TOTAL	**5566**	

TABLE 5

Stone Laboratory Scholarship Recipients
1999

Name	*Institution*	*Name of Scholarship*
Barnhart, Brian	St Charles Preparatory	Pepsi-Cola Bottling Company
Best, Jessica	Geneva High School	Pepsi-Cola Bottling Company
Blair, Ryan	Ashland High School	Pepsi-Cola Bottling Company
Brown, Emily	The Ohio State University	Franz and Kate Stone
Brown, James*	Hamilton High School	Franz and Kate Stone-StateSciDay
Burnett, Katherine	Vanguard High School	Pepsi-Cola Bottling Company
Cho, Kye Joong	The Ohio State University	Pepsi-Cola Bottling Company
Chuang, Janet	Upper Arlington High School	Pepsi-Cola Bottling Company
Chuang, Joyce	Upper Arlington High School	Pepsi-Cola Bottling Company
Cornett, Crystal*	Big Walnut High School	Friends of Stone Lab-StateSciDay
Curtis, Jeanne	John Carroll University	Ray Frederick
Danczak, Kelly	The Ohio State University	Pepsi-Cola Bottling Company
Duane, Katherine	Xavier University	Ray Frederick
Friend, Louise	Elyria High School	Kelly Prochazka
Froschauer, Julia	The Ohio State University	Oakland Park Conservation Club
Geist, Krista	Wm Henry Harrison High School	Pepsi-Cola Bottling Company
Greer, Christina	Bowling Green State University	Ray Frederick
Hobson, Sally	The Ohio State University	Karen Jennings
Hrenko, Rikki	Newton Falls High School	McDonald's
Hulme, Matthew	Highland High School	Pepsi-Cola Bottling Company
Iverson, Aaron*	Buckeye Valley High School	Oakland Park Cons Club & StateSciDay
Johnson, Heather	The Ohio State University	Franz and Kate Stone
Kane, Douglas	The Ohio State University	Franz and Kate Stone
Kohli, John	Geneva High School	Pepsi-Cola Bottling Company
Kremer, Kurt	The Ohio State University	Franz and Kate Stone
Lee, Hyonyong	The Ohio State University	Pepsi-Cola Bottling Company
Martin, Karl	The Ohio State University	Franz and Kate Stone
Mastrobuono, Andrea	Mayfield High School	Pepsi-Cola Bottling Company
McHugh, Peter	The Ohio State University	Oakland Park Conservation Club
Meyers, Stephanie*	Ursuline Academy	Pepsi-Cola Bottling Co & StateSciDay
Minges, Sarah	Wm Henry Harrison High School	Pepsi-Cola Bottling Company
Reynolds, Julie	The Ohio State University	Oakland Park Conservation Club
Roehrig, Jason	The Ohio State University	Oakland Park Conservation Club
Roten, Holly	Bowling Green State University	Franz and Kate Stone
Rowell, Gregory	St Thomas Aquinas High School	Pepsi-Cola Bottling Company
Sandver, Kimberly*	Upper Arlington High School	Franz and Kate Stone-StateSciDay
Sankovich, Karen	Bowling Green State University	Ray Frederick
Schlegel, Erin*	Coshocton High School	Friends of Stone Lab-StateSciDay
Seiple, Robert	The Ohio State University	Franz and Kate Stone
Shuster, Sara	The Ohio State University	Franz and Kate Stone
Spalding, Noelle	Washington University	Ray Frederick
Spencer, Amy	The Ohio State University	Franz and Kate Stone
Takacs, Traci	Bowling Green State University	Ray Frederick
Trzebuckowski, Tracey	The Ohio State University	Oakland Park Conservation Club
Vaka, Vikram	Upper Arlington High School	Pepsi-Cola Bottling Company
Walton, Amelia	Big Walnut High School	Oakland Park Conservation Club
Welch, Lena	The Ohio State University	McDonald's
Whinnery, Sarah	Crestview High School	McDonald's
Zeigler, Bekki	The Ohio State University	Franz and Kate Stone

*Scholarship recipient from Ohio Academy of Science State Science Day

TOTAL number of scholarships -- **49** TOTAL value of scholarships -- **$14,860**

TABLE 6

Stone Laboratory Student Roster -- 1999
(222 students)

Name	*Permanent City/State*	*Rank*	*Major*	*College*	*Institution*
Julie Albert	Columbus OH	Master's	Secondary Earth Sci	Graduate	The Ohio State University
Deborah Allan	Columbus OH	Master's	Geology	Graduate	The Ohio State University
Carl Amerine	Columbus OH	High School Sophomore			Franklin Heights HS
Lydia Bailey	Mechanicsburg OH	Junior	Real Estate & Finance	Business	The Ohio State University
Misty Baker	Caledonia OH	Senior	Wildlife Mgt	Natural Resources	The Ohio State University
Crista Banbury	Columbus OH	High School Junior			Mifflin HS
Brian Barnhart	London OH	High School Junior			St Charles Preparatory
Fay Barry	Reynoldsburg OH	High School Junior			Reynoldsburg HS
Jessica Best	Austinburg OH	High School Sophomore			Geneva HS
John Biancamano	Pickerington OH	High School Junior			Pickerington HS
Lisa Bircher	East Palestine OH	Graduate Non-Degree	Science Education	Graduate	The Ohio State University
Julie Biswas	Galena OH	Graduate Non-Degree	Education	Graduate	The Ohio State University
Melinda Bixel	Worthington OH	Post-Graduate	Cont Educ	Continuing Education	The Ohio State University
Donna Bixler	Burton OH	Post-Graduate		Continuing Education	The Ohio State University
Ryan Blair	Jeromesville OH	High School Junior			Ashland HS
Abigail Bole	Cleveland Hts OH	Graduate Non-Degree		Graduate	The Ohio State University
Matthew Bradford	Amlin OH	High School Junior			Hilliard Davidson HS
Marc Branham	Columbus OH	Ph.D.	Entomology	Graduate	The Ohio State University
Marsha Bratzel	Austinburg OH	Sophomore		Arts and Sciences	The Ohio State University
Shawn Bremer	Defiance OH	High School Junior			Tinora HS
Michael Brickell	Grove City OH	Graduate Non-Degree		Graduate	The Ohio State University
Emily Brown	Columbus OH	Junior	Biology Education	Continuing Education	The Ohio State University
James Brown	Hamilton OH	High School Junior			Hamilton HS
Jennifer Browne	Circleville OH	Graduate Non-Degree		Graduate	The Ohio State University
Sean Burke	South Euclid OH	Junior	Biology	Arts and Sciences	Cleveland State University
Katherine Burnett	McIntosh FL	High School Sophomore			Vanguard HS
Brandon Burton	Columbus OH	High School Junior			Walnut Ridge HS
Jeannine Carducci	Hilliard OH	Post-Graduate		Continuing Education	The Ohio State University
Jeffrey Carnes	Dellroy OH	Graduate Non-Degree		Graduate	The Ohio State University
Steven Castellano	Cincinnati OH	Sophomore	Biology		Cincinnati State
Kye Joong Cho	Columbus OH	Ph.D.	Env Ed & Interpretation	Graduate	The Ohio State University
Janet Chuang	Columbus OH	High School Junior			Upper Arlington HS
Joyce Chuang	Columbus OH	High School Junior			Upper Arlington HS

Table 6 cont'd

1999

Name	*Permanent City/State*	*Rank*	*Major*	*College*	*Institution*
Constance Cole	Hilliard OH	Post-Graduate	Science	Continuing Education	The Ohio State University
V. Collis	Columbus OH	Junior	Finance	University College	The Ohio State University
Brianna Colon	Columbus OH	High School Junior			Columbus Academic HS 2000
Crystal Cornett	Sunbury OH	High School Junior			Big Walnut HS
Kathleen Costello	Columbus OH	Graduate Non-Degree		Graduate	The Ohio State University
Bradford Coupe	Columbus OH	Ph.D.	EEOB	Graduate	The Ohio State University
Wendy Crane	Columbus OH	Master's	Education	Graduate	The Ohio State University
Jeanne Curtis	Toledo OH	Sophomore	Biology		John Carroll University
Sarah Daily	West Chester OH	Junior	Zoology	Arts and Sciences	The Ohio State University
Kelly Danczak	Columbus OH	Senior	Environmental Science	Natural Resources	The Ohio State University
Alice Day	Columbus OH	Post-Graduate		Education	The Ohio State University
Todd Deem	Toledo OH	Post-Graduate	Elem Ed	Continuing Education	University of Toledo
Amanda Deery	Elyria OH	Senior	History	Arts and Sciences	The Ohio State University
Brian Dickmann	Galloway OH	Master's	Education Teaching & Learning	Graduate	The Ohio State University
Erin DiGiacomo-Rine	Newark OH	Master's	Education	Graduate	The Ohio State University
Helen Domske	Buffalo NY	Graduate Non-Degree		Graduate	The Ohio State University
Margaret Donauer	Minster OH	High School Senior			Minster HS
Katherine Duane	West Chester OH	Junior	Biology		Xavier University
Cheryl Duda	Hilliard OH	Master's	Secondary Sci Ed	Graduate	The Ohio State University
Kimberlee Eberle	London OH	High School Junior			London HS
Coleen Edwards	Columbus OH	Graduate Non-Degree		Graduate	The Ohio State University
William Edwards	Columbus OH	Ph.D.	EEOB	Graduate	The Ohio State University
Heidi Ehret	Canton OH	Senior	Environmental Sci	Natural Resources	The Ohio State University
Alexis Eigenseher	Rocky River OH	High School Junior			Rocky River HS
Alexis Evans	London OH	Senior	Environmental Sci	Natural Resources	The Ohio State University
Jason Evans	Cleveland OH	High School Senior			John Marshall HS
Chelsea Feerer	Columbus OH	High School Sophomore			Bexley HS
Louise Friend	Elyria OH	High School Junior			Elyria HS
John Frim	Columbus OH	Graduate Non-Degree	Environmental Sci	Graduate	The Ohio State University
Elaine Frock	Springboro OH	Graduate Non-Degree		Graduate	The Ohio State University
Julia Froschauer	Cincinnati OH	Senior	Fisheries	Natural Resources	The Ohio State University
Andrea Fyffe	Columbus OH	Master's	Elementary Education	Graduate	The Ohio State University
Art Gardella	Lancaster OH	Post-Graduate		Continuing Education	The Ohio State University
Colleen Garrett	Lambertville MI	Continuing Education		Continuing Education	The Ohio State University
Krista Geist	Harrison OH	High School Junior			Wm Henry Harrison HS
Jeffrey Gerish	Strongsville OH	Junior	International Studies	Arts and Sciences	The Ohio State University
Alexander Glass	Columbus OH	Master's		Graduate	The Ohio State University
Christina Greer	Port Clinton OH	Freshman	Biology		Bowling Green State University
Evan Griswold	Ashland OH	High School Junior			Ashland HS

Table 6 cont'd

1999

Name	*Permanent City/State*	*Rank*	*Major*	*College*	*Institution*
Melissa Hague	Massillon OH	Senior	Biological Sciences	Science & Mathematics	Wright State University
Jessica Hahn	Bucyrus OH	High School Sophomore			Bucyrus HS
Michael Hall	Galloway OH	Graduate Non-Degree		Graduate	The Ohio State University
Kathleen Hathway	Richmond Hts OH	Post-Graduate	Natural History/Ecology	Continuing Education	The Ohio State University
Kristin Henthorne	Granville OH	High School Junior			Granville HS
Patrick Herak	Columbus OH	Graduate Non-Degree		Graduate	The Ohio State University
Jose Hernandez	Cleveland OH	High School Senior			Lincoln West HS
Judy Herr	Sylvania OH	Graduate Non-Degree	Education	Graduate	University of Toledo
Sally Hobson	Columbus OH	Master's	Elem Education	Graduate	The Ohio State University
Brian Hoff	Pickerington OH	Master's	Education	Graduate	The Ohio State University
Harold Hoffman	Lockbourne OH	High School Senior	Biology/Pre-Vet/Zoology	Arts and Sciences	Bishop Ready HS
Patricia Holowecky	Avon OH	Senior	Zoology	Arts and Sciences	The Ohio State University
Rikki Hrenko	Newton Falls OH	High School Sophomore			Newton Falls HS
Matthew Hulme	Wadsworth OH	High School Sophomore			Highland HS
Aaron Iverson	Radnor OH	High School Sophomore			Buckeye Valley HS
Charmille Jackson	Cleveland OH	High School Sophomore			East Tech HS
Heather Johnson	Canal Winchester OH	Master's		Graduate	The Ohio State University
Natalie Johnson	Bucyrus OH	High School Sophomore			Bucyrus HS
Sherrita Jones	Dayton OH	Senior	Sustainable Resource Mgt	Natural Resources	The Ohio State University
Jennifer Kalb	Columbus OH	Master's	Art Ed	Graduate	The Ohio State University
Douglas Kane	Westlake OH	Master's		Graduate	The Ohio State University
Brandi Kent	Columbus OH	High School Sophomore			Marion-Franklin HS
Brian King	Granville OH	High School Senior			Granville HS
Steven Kline	Miamisburg OH	Graduate Non-Degree		Graduate	The Ohio State University
John Kohli	Geneva OH	High School Junior			Geneva HS
Danielle Konfal	Columbus OH	Sophomore	Life Science		Otterbein College
Kurt Kremer	Centerville OH	Sophomore	Zoology	Arts and Sciences	The Ohio State University
Jessie Kubuske	Millbury OH	Graduate Non-Degree		Graduate	The Ohio State University
Hyonyong Lee	Columbus OH	Ph.D.	Science Education	Graduate	The Ohio State University
Hannah Lehmann	Toledo OH	High School Junior			Maumee Valley Country Day Sch
Marla Leopold	Ottawa OH	Senior	Biology	Science & Mathematics	Wright State University
Frank Lichtkoppler	MentorOnTheLake OH	Graduate Non-Degree	Agriculture	Graduate	The Ohio State University
Zachary Locher	Galloway OH	High School Sophomore			Hilliard Darby HS
Scott Logsdon	Canal Winchester OH	Master's	Math,Sci, & Tech Ed	Graduate	The Ohio State University
Angela Lorensen	Oak Harbor OH	Post-Graduate	Agr Edu	Food, Ag, and Env Sci	The Ohio State University
Elizabeth Lowrey	Kettering OH	Senior	Education	Continuing Education	The Ohio State University
Courtney Lucas	Ashland OH	High School Junior			Ashland HS
Thomas Lucha	Mentor OH	Freshman	Natural Resources	University College	The Ohio State University
Jonathan Magalski	Newark OH	Senior	Fisheries Mgt	Natural Resources	The Ohio State University

Table 6 cont'd

Name	*Permanent City/State*	*Rank*	*Major*	*College*	*Institution*
					1999
Marilena Marchetti	Rocky River OH	High School Junior			Rocky River HS
Karl Martin	Galion OH	Graduate Non-Degree		Graduate	The Ohio State University
Andrea Mastrobuono	Highland Hts OH	High School Sophomore			Mayfield HS
Matthew Maurer	Columbus OH	Ph.D.	Science Ed	Graduate	The Ohio State University
Jennifer McGeehan	Marengo OH	Junior	Microbiology	Arts and Sciences	The Ohio State University
Peter McHugh	Poland OH	Senior	Fisheries Management	Natural Resources	The Ohio State University
Landon McKenzie	London OH	High School Junior			London HS
Josh McKinley	Columbus OH	Senior	Industrial Design	Art	The Ohio State University
Sara McKinley	Columbus OH	Graduate Non-Degree		Graduate	The Ohio State University
Jeffrey McManus	Columbus OH	High School Sophomore			Grandview Heights HS
Beth McNally	Highland Hts OH	Master's	Education, Teaching & Lrng	Graduate	The Ohio State University
Hallie McNaughton	Delaware OH	High School Sophomore			Olentangy HS
Martha McTigue	Worthington OH	Ph.D., rank P	Education T & P	Graduate	The Ohio State University
Stephanie Meyers	Goshen OH	High School Sophomore			Ursuline Academy
Scott Miehls	Ft Jennings OH	Junior	Fisheries Management	Natural Resources	The Ohio State University
Sarah Minges	Harrison OH	High School Junior			Wm Henry Harrison HS
Gwendolyn Minich	Galloway OH	Graduate Non-Degree	Science Education	Graduate	The Ohio State University
Tracy Minnich	Greenville OH	Junior	Zoology, Psychology		Miami University
David Munson	Chesterland OH	High School Junior			West Geauga HS
Mohammed Najib	Columbus OH	Senior	International Studies	Arts and Sciences	The Ohio State University
Erin Nenadal	Hudson OH	High School Senior			R B Chamberlin/Twinsburg HS
Jeff Neubig	Columbus OH	Ph.D.	Zoology	Graduate	The Ohio State University
Kathleen O'Neil	Erie PA	Senior	Environmental Science		St Bonaventure Univ
Gaylord Odegaard	Galloway OH	Graduate Non-Degree		Graduate	The Ohio State University
Lynette Overholser	Granville OH	Senior	Horticulture	Food, Ag, and Env Sci	The Ohio State University
Susan Parkins	Columbus OH	Post-Graduate	Environmental Studies/Biology	Continuing Education	The Ohio State University
Glenn Payne	Enon OH	Post-Graduate		Continuing Education	The Ohio State University
Ryan Pederson	Westerville OH	High School Sophomore			St Francis DeSales HS
Georgia Peet	Gahanna OH	Ph.D.	Science Education	Graduate	The Ohio State University
Autumn Pennington	Columbus OH	High School Senior			Franklin Heights HS
Catherine Peters	Columbus OH	High School Junior			Columbus Academic HS 2000
Kristen Petersen	Maumee OH	Freshman	Zoology	University College	The Ohio State University
Mary Peterson	Pataskala OH	Master's		Graduate	The Ohio State University
Mark Porter	Avon Lake OH	Graduate Non-Degree	Biology Education	Graduate	The Ohio State University
Rebecca Raimonde	Reynoldsburg OH	Graduate Non-Degree		Graduate	The Ohio State University
William Rand	Cincinnati OH	Post-Graduate		Continuing Education	The Ohio State University
Sarah Rankin	Westlake OH	High School Senior			Westlake HS
Richard Rathjens	Mogadore OH	Post-Graduate		Continuing Education	University of Akron
Ralph Redman	Westerville OH	Senior	Environmental Sciences	Natural Resources	The Ohio State University

Table 6 cont'd

1999

Name	*Permanent City/State*	*Rank*	*Major*	*College*	*Institution*
Justin Reinhart	Sandusky OH	Post-Graduate		Continuing Education	The Ohio State University
Julie Reynolds	Rossford OH	Senior	EEOB	Arts and Sciences	The Ohio State University
Justin Rich	Kirtland OH	Master's	Entomology	Graduate	The Ohio State University
Taye Rieger	Westerville OH	Senior	Entomology	Arts and Sciences	The Ohio State University
Krysta Rife	Columbus OH	High School Junior			Mifflin HS
James Ritchie	Shiloh OH	Senior	Zoology	Arts and Sciences	The Ohio State University
Elizabeth Robinson	Geneva OH	Graduate Non-Degree		Graduate	The Ohio State University
Jason Roehrig	Defiance OH	Senior	Fisheries Mgt	Natural Resources	The Ohio State University
Samantha Romanello	Columbus OH	Ph.D.	Environmental Educ	Graduate	The Ohio State University
Danielle Ross	Gahanna OH	Master's	Natural Resources	Graduate	The Ohio State University
Holly Roten	Bowling Green OH	Master's	Biology	Graduate	Bowling Green State University
Gregory Rowell	Mogadore OH	High School Sophomore			St Thomas Aquinas HS
Sarah Ryder	Cleveland OH	High School Sophomore			John Marshall HS
Marilyn Saad	Dublin OH	Graduate Non-Degree	Education	Graduate	The Ohio State University
Kimberly Sandver	Upper Arlington OH	High School Junior			Upper Arlington HS
Karen Sankovich	Fremont OH	Senior	Biology	Arts and Sciences	Bowling Green State University
Greg Sattler	Euclid OH	High School Sophomore			Euclid HS
Katie Sauer	Brook Park OH	High School Junior			Berea HS
Emily Savage	Rocky River OH	High School Junior			Rocky River HS
Eliza Schaefer	Columbus OH	High School Junior			Whetstone HS
Erin Schlegel	Coshocton OH	High School Sophomore			Coshocton HS
Lydia Schlegel	Columbus OH	Senior	Wildlife Management	Natural Resources	The Ohio State University
Jeff Schuster	Columbus OH	Master's	Science	Graduate	The Ohio State University
Sandra Seifert	Lancaster OH	Post-Graduate		Continuing Education	The Ohio State University
Robert Seiple	Montgomery OH	Graduate Non-Degree		Graduate	The Ohio State University
Amy Selby	Lakewood OH	High School Junior			Lakewood HS
Greg Sestili	Columbus OH	Master's	Education	Education	The Ohio State University
Jessica Sharon	Strongsville OH	Sophomore	Environmental Communications	Natural Resources	The Ohio State University
James Shepherd	Nashport OH	Master's		Graduate	The Ohio State University
Eissa Shively	Columbus OH	Sophomore	Journalism/Art Hist	University College	The Ohio State University
Alisha Shumaker	Bowling Green OH	Junior	Biology & Geography	Arts and Sciences	Bowling Green State University
Darlyn Shumaker	Marengo OH	Sophomore	Education	University College	The Ohio State University
Jack Shumaker	Marengo OH	Post-Graduate		Continuing Education	The Ohio State University
Sara Shuster	Westerville OH	Senior	ECEI	Natural Resources	The Ohio State University
Christine Smallridge	Columbus OH	High School Junior			West HS
Darrah Smith	Bay Village OH	Master's	Elementary Education	Graduate	The Ohio State University
Mary Smolko	Sunbury OH	High School Junior			Buckeye Valley HS
Noelle Spalding	Olmsted Twp OH	Sophomore	Undeclared	Arts and Sciences	Washington University
Paula Speirs	Wooster OH	Master's	Atmos Sci/Geography	Graduate	The Ohio State University

Table 6 cont'd

Name	*Permanent City/State*	*Rank*	*Major*	*College*	*Institution*
					1999
Amy Spencer	Columbus OH	Senior	EEOB	Arts and Sciences	The Ohio State University
Audrey Stanley	Columbus OH	High School Junior			Marion-Franklin HS
Catherine Suematsu	San Francisco CA	Senior	Biology		San Francisco State Univ
Andrew Sutphin	Mason OH	Sophomore	Fish & Wildlife Mgt		Hocking College
Traci Takacs	Vermilion OH	Sophomore	Biological Sciences		Bowling Green State University
Susan Taylor	Toledo OH	Graduate Non-Degree		Graduate	The Ohio State University
Elaina Tess	Butler OH	High School Junior			Clear Fork HS
Sara Thomas	Columbus OH	Senior	Zoology:EEOB	Arts and Sciences	The Ohio State University
Kristine Thrush	Lancaster OH	Graduate Non-Degree		Graduate	The Ohio State University
Trevor Tolley	Worthington OH	Graduate Non-Degree	Science	Graduate	The Ohio State University
Frances Topping	Sagamore Hills OH	Post-Graduate		Continuing Education	The Ohio State University
Tracey Trzebuckowski	Parma OH	Graduate Non-Degree		Graduate	The Ohio State University
Troy Trzebuckowski	Middleburg Hts OH	Graduate Non-Degree		Graduate	Cleveland State University
Vikram Vaka	Columbus OH	High School Sophomore			Upper Arlington HS
Dennis Versele	Bellefontaine OH	Graduate Non-Degree		Graduate	The Ohio State University
Amanda Volk	Broadview Hts OH	Senior	Comp Secondary Sci Ed	Education	Bowling Green State University
Amelia Walton	Sunbury OH	High School Junior			Big Walnut HS
William Wapplehorst	Lima OH	Freshman	Zoology	University College	The Ohio State University
Krystie Warren	Columbus OH	High School Junior			West HS
Lena Welch	Columbus OH	Senior	Psychology	Arts and Sciences	The Ohio State University
Jennifer West	Vermilion OH	Senior	Biology		College of Wooster
Chad Whaley	Dayton OH	Junior	Zoology	Arts and Sciences	The Ohio State University
Sarah Whinnery	Leetonia OH	High School Senior			Crestview HS
Mark White	Gibsonburg OH	Graduate Non-Degree		Graduate	The Ohio State University
William Wiebell	Lewis Center OH	Master's	Elem Education	Graduate	Ashland University
Sarah Williams	ColumbiaStation OH	Senior	Biology	Biological Sciences	Mary Washington College
Jarrod Wilson	New Albany OH	High School Junior			New Albany HS
Tracy Wirthman	Blacklick OH	Post-Graduate		Continuing Education	The Ohio State University
Nichole Witchey	Shelby OH	Sophomore		University College	The Ohio State University
Jill Workman	Columbus OH	Master's		Graduate	The Ohio State University
Michelle Workman	Gahanna OH	Graduate Non-Degree	Education	Graduate	The Ohio State University
Bekki Zeigler	Bowling Green OH	Graduate Non-Degree		Graduate	The Ohio State University
Michael Zeleniuch	Parma OH	High School Junior			Parma HS