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Coordinating Board Mission

The Texas Higher Education Coordinating Board’s mission is to work with the Legislature, Governor, governing boards, higher education institutions, and other entities to provide the people of Texas the widest access to higher education of the highest quality in the most efficient manner.

THECB Strategic Plan

Coordinating Board Philosophy

The Texas Higher Education Coordinating Board will promote access to quality higher education across the state with the conviction that access without quality is mediocrity and that quality without access is unacceptable. The Board will be open, ethical, responsive, and committed to public service. The Board will approach its work with a sense of purpose and responsibility to the people of Texas and is committed to the best use of public monies. The Coordinating Board will engage in actions that add value to Texas and to higher education; the agency will avoid efforts that do not add value or that are duplicated by other entities.

THECB Strategic Plan
Executive Summary

The Research Assessment Program, established in Chapter 144 of the Texas Education Code, mandates a review by the Coordinating Board of separately budgeted research programs at Texas institutions of higher education. The Legislative Budget Board selects programs for review, and the Coordinating Board reports its findings to that body. Chapter 144 requires the Board to recommend either reauthorization, revision, or discontinuation of the programs selected for review.

In the 2004 review, 11 programs were evaluated:

Automation and Robotics Research Institute, The University of Texas at Arlington

Center for Coastal Studies, Texas A&M University-Corpus Christi

Coastal Zone Laboratory, Texas A&M University at Galveston

Gulf of Mexico Environmental Research Laboratory, Texas A&M University-Corpus Christi

Marine Science Institute, The University of Texas at Austin

McDonald Observatory, The University of Texas at Austin

Real Estate Research Center, Texas A&M University Texas

Texas Center for Superconductivity and Advanced Materials, University of Houston

Texas Institute for Oceanography, Texas A&M University at Galveston

Texas Learning and Computation Center, University of Houston

Texas Sea Grant College Program, Texas A&M University

Each of these programs completed a self-study in a format prescribed by the Coordinating Board staff. All of the programs were reviewed by an external consulting team of experts. The evaluation of all the programs was reviewed by the Coordinating Board’s Advisory Committee on Research Programs before being submitted to the Board.

All 11 programs are recommended for reauthorization. Specific program improvements recommended by the expert review teams who visited the programs are included in the assessments.
# Table of Contents

**Executive Summary** ................................................................................................................................. i

**Background** ............................................................................................................................................... 1

**Program Assessments** ............................................................................................................................. 3

Automation and Robotics Research Institute, The University of Texas at Arlington ........... 4

Center for Coastal Studies, Texas A&M University-Corpus Christi............................... 7

Coastal Zone Laboratory, Texas A&M University at Galveston................................. 9

Gulf of Mexico Environmental Research Laboratory, 
Texas A&M University-Corpus Christi................................................................. 11

Marine Science Institute, The University of Texas at Austin................................. 13

McDonald Observatory, The University of Texas at Austin............................... 16

Real Estate Research Center, Texas A&M University Texas ....................................... 20

Texas Center for Superconductivity and Advanced Materials, 
University of Houston ................................................................................................. 23

Texas Institute for Oceanography, Texas A&M University at Galveston.................. 27

Texas Learning and Computation Center, University of Houston ......................... 30

Texas Sea Grant College Program, Texas A&M University ...................................... 33

**Appendices**

A – Texas Education Code, Chapter 144 – Research Assessment Program

B – 2004 Research Assessment Program Self-Study

C – Executive Summaries from Program Self-Studies

D – External Review Teams

E – Assessment Form

F – Advisory Committee on Research Programs
Background

The Texas Select Committee on Higher Education recommended in 1987 that “a greater portion of state-appropriated research funds be distributed through peer review rather than line-item appropriation.” The 70th Texas Legislature translated this recommendation into action by creating three new peer-review research programs and by initiating a Research Assessment Program to evaluate programs that are separately funded through special item appropriations.

The statutory language of the Research Assessment Program directs the Texas Higher Education Coordinating Board to evaluate programs selected by the Legislative Budget Board for review (see Appendix A). For the 2004-2005 biennium, the Legislative Budget Board selected eleven programs for review:

- Automation and Robotics Research Institute, The University of Texas at Arlington
- Center for Coastal Studies, Texas A&M University-Corpus Christi
- Coastal Zone Laboratory, Texas A&M University at Galveston
- Gulf of Mexico Environmental Research Laboratory, Texas A&M University-Corpus Christi
- Marine Science Institute, The University of Texas at Austin
- McDonald Observatory, The University of Texas at Austin
- Real Estate Research Center, Texas A&M University Texas
- Texas Center for Superconductivity and Advanced Materials, University of Houston
- Texas Institute for Oceanography, Texas A&M University at Galveston
- Texas Learning and Computation Center, University of Houston
- Texas Sea Grant College Program, Texas A&M University

Each of these programs was asked to complete a self-study in a format, as shown in Appendix B, prescribed by the Coordinating Board. The executive summaries from the self-studies submitted by the programs are included in Appendix C. Copies of the self-studies completed by each program are available from the Coordinating Board’s Division of Finance, Campus Planning, and Research.

After reviewing the self-study documents, all programs were selected for additional review. The external review teams reviewed the self-study documents, heard presentations by institutional representatives for each program, and advised the Coordinating Board staff of each program’s performance. The external review teams are listed in Appendix D. The assessment form used by the review teams to rate each program is included in Appendix E.
Coordinating Board staff finalized written evaluations that were initially prepared for each program by the review team. The evaluations were then forwarded to program administrators at the respective institutions for review and comment. These evaluations address each of the four criteria included in the Research Assessment Program’s enabling legislation:

1) Intrinsic Merit;

2) Research Performance;

3) Potential Contribution to the Development of Knowledge and Instruction in Advanced and Emerging Technologies; and

4) Potential Contribution to Economic Development.

The evaluations were reviewed by the Coordinating Board’s Advisory Committee on Research Programs (see Appendix F) before being submitted to the Coordinating Board.
Program Assessments

Ratings used throughout the report follow:

Very Good: One of the best programs in the nation.

Good: A quality program that may be of value to the state but not yet of national stature.

Fair: A program that is making positive contributions but could be expected to do better.

Poor: A program that has serious deficiencies.

N/A: Not applicable.

The program assessment form is found in Appendix E.
Automation and Robotics Research Institute  
The University of Texas at Arlington

Funded Since: FY 1985  
Annual Appropriation: $1,310,594

Background:

The Advanced Robotics Research Institute was created in 1984 through a letter of understanding among The University of Texas System, Newell and Newell, Ltd., and the Fort Worth Chamber Foundation. The ensuing campaign to raise support resulted in the donation of land, a building, and furnishings and the establishment of three endowments. In 1987, the Institute changed its name to “Automation and Robotics Research Center” (ARRI) in recognition that a broader research scope would provide greater benefit for high technology industry growth.

The Institute’s mission is to improve the competitiveness of manufacturing and related enterprises through excellence in research and the sharing and deployment of knowledge. ARRI faculty and staff conduct multidisciplinary research and develop deployment programs in advanced and applied robotics, industrial automation, manufacturing process development and improvement, and enterprise process improvement. ARRI uses the Small Business Development Center for Enterprise Excellence (funded by the U.S. Small Business Administration), the Cross Timbers Procurement Center (funded by the U.S. Department of Defense), and the Texas Manufacturing Assistance Center (funded by the National Institute of Standards and Technology’s Manufacturing Extension Partnership) to deploy research findings.

ARRI is located in Fort Worth and its director reports to the Dean of the College of Engineering at The University of Texas at Arlington.

A site visit to the Automation and Robotic Research Institute was made on August 24, 2004 by Dr. Adedeji B. Badiru, Professor and Department Head for Industrial Engineering, University of Tennessee, Knoxville, and Dr. David Hunn, Director, Missiles and Fire Control, Lockheed Martin Corporation, Grand Prairie. Drs. Deborah L. Greene, Linda Domelsmith, and Reinold Cornelius served as the Coordinating Board facilitators for the visit.

Evaluation:

**Intrinsic Merit**  
Rating: Very Good

The goals and objectives set out by ARRI are realistic and reflect a carefully thought out, high-quality strategic program with goals that align with industry and state needs. The Institute has a metric set that is periodically reviewed to help ensure progress towards the goals as well as effectiveness of ARRI in working with academia and industry. It is recommended that the ARRI continue to refine its metric set and use the data to actively tailor its program now and in the future. The Institute is emphasizing the right metrics in basing its overall strategy.

ARRI’s facilities and associated laboratories are outstanding and offer a unique advantage for improved leveraging of state funds through its endowment structure and donation structure because state line item funds are not needed for infrastructure uses. The Institute has robust international linkages, including significant cross-border programs, which operate through joint
programs, research initiatives, and professor/student relationships. The new Director of ARRI brings further international/national recognition. Other investigators have world-class capabilities.

A recent independent study of the university’s research programs was performed by the Washington Advisory Group, and it was comprehensive and positive. ARRI is responsive to and has many contracts with small regionally based businesses, which further reflects the quality of the program and its value to the state.

**Research Performance**

**Rating: Very Good**

ARRI has made a substantial contribution to new knowledge based on the number of patents, disclosures, conference proceedings, papers, and books published. This knowledge is effectively disseminated through various means throughout the region, based on surveys of local businesses.

Strategic changes in research direction have occurred, indicating a willingness to adapt the program to rapidly changing needs of local industry while maintaining a strategic focus. It is recommended that ARRI continue to focus on publications in varied and cross-functional refereed journals to continue garnering increased national recognition. It is also recommended that ARRI establish a current publication repository in the administration office or on the web for increased visibility and rapid access to published works.

The quality of work reviewed indicates very good leveraging of state funds with respect to research performance. ARRI also has a strong linkage of research to industry needs and focuses its effort on relevant research topics.

Further evidence of research dissemination was found in the high number of workshops, seminars, and training programs that are sponsored monthly. Leveraging of funds is highly successful. The ratio of line item funding to total operating budget is 30 percent.

**Potential Contribution to the Development of Knowledge and Instruction in Advanced and Emerging Technologies**

**Rating: Very Good**

ARRI focuses its efforts on advanced and emerging technologies as they change. The primary mechanism for this is the annual strategic planning session held at the facility, which is augmented by the metrics gathered and reviewed monthly. For instance, the Institute’s new work on manufacturing MEMS, bio-systems, Homeland Security, and in developing pervasive computing is advanced and “cutting-edge,” meeting a substantial need in local industry. The program is also covering enterprise management and leaning/improving efficiency of business operations, which is important for bridging hard-core research with direct applications. ARRI is likely to make substantial contributions in these target areas.

ARRI has an appropriate balance of participants among faculty, researchers, and students. In some cases, students get credit for their research contributions by being listed first on patents.

A high school outreach program provides significant opportunities for K-12 students and could be expanded as a unified strategy. The Institute is operated as an educational research facility of the College of Engineering and functions as a bridge between the main campus and industry. There is a good cross-flow of information and talent with the main campus. The existing facility will support the Institution’s growth.
**Potential Contribution to Economic Development**

ARRI’s potential contribution to economic development is considered to be very good. One indicator is its independent pursuit and attainment of ISO9000 certification, which demonstrates appropriate orientation toward economic responsibility and careful stewardship of state funds.

Institute faculty and staff are continually pursuing commercialization of research results, and all of the regional small business contracts contribute to economic development, especially in Texas. A comprehensive Institute Advisory Council is comprised primarily of senior industry executives. The Council recently formed a new committee working group focused on transportation and logistics. Continuing assessment of industry needs is positive and responded to appropriately.

Cross-border activities are robust and also contribute to the economic development of Texas. ARRI exhibits a high potential for technology transfer, human resources development, and leveraging of state funds.

**Other Comments from the Review Panel**

Texas can derive significant benefit from continuation of ARRI. The review committee recommends continued funding by the state based on clear economic advantages for manufacturing maturation/development, small business impacts, international content, human resource development and generation/dissemination of knowledge. The activity is efficiently run, responsive to industry’s needs, and relevant. The demonstrated positive leveraging of prior investments and the unique endowment arrangement for the facility and staff offers a unique and sizable advantage to the state to further leverage state funds.

**Recommendations:**

Special Item funding for the Automation and Robotics Research Institute should be continued. ARRI should continue to refine its metrics and use them to enhance its programs. ARRI should continue to focus on publications to enhance national recognition for the Institute and should establish a publication repository for rapid and improved access.
Center for Coastal Studies
Texas A&M University-Corpus Christi

Funded Since: FY 1992
Annual Appropriation: $265,969

Background:

Corpus Christi State University, now known as Texas A&M University-Corpus Christi, founded the Center for Coastal Studies (CCS) in 1984 and sustained a limited program solely through “soft-money” grants and contracts until it received state funding beginning in FY 1992. The Center focuses mainly on applied research for state and federal natural resource agencies along the Texas coast. Its mission is to increase the understanding of the marine ecosystem, habitats, flora, fauna, and socioeconomics of the Texas coast and Gulf of Mexico.

The goals of CCS are to 1) conduct research with emphasis on the Texas Coastal Bend and South Texas coasts, 2) educate post-graduate students as coastal and marine science managers for state and industry, 3) serve as an educational laboratory through undergraduate and graduate assistantships, 4) provide educational outreach programs, and 5) disseminate research results through the press and its website. The CCS research programs are geared toward monitoring and observations related to management issues.

A site visit to the Center for Coastal Studies was made on August 19, 2004 by Dr. Edward Chesney, Associate Professor, Louisiana Universities Marine Consortium, DeFelice Center, Chauvin, Louisiana; Mr. Ed Hegen, Regional Director, Texas Parks and Wildlife Department, Rockport; Dr. Mark S. Peterson, Professor, Department of Coastal Sciences, University of Southern Mississippi, Ocean Springs; and Dr. Kenneth R. Tenore, Professor and Director, Chesapeake Biological Laboratory, University of Maryland Center for Environmental Science, Solomons, Maryland. Drs. Deborah Greene, Linda Domelsmith, and Reinold Cornelius served as Coordinating Board facilitators for the visit.

Evaluation:

Intrinsic Merit  
Rating: Good

The Center for Coastal Studies is poised to become a nationally prominent program as it develops its faculty and research programs, expanding its scope and breadth.

The Center has realistic goals and objectives and is conducting high-quality work that focuses on local and regional needs. The university is evolving from a teaching institution to a research and teaching university due, in part, to this special item funding. The Center’s integration of students into its research program has strengthened the value it offers to its students.

The review team notes that this program suffers “growing pains” as the institution develops from a teaching university into a research and teaching university. The program is well-regarded regionally and nationally, however.
**Research Performance**

Rating: Very Good

The Center for Coastal Studies is doing a good job of responding to regional and state needs. The unique presence of federal and state agencies on campus and in adjacent offices within the Center has been an asset to the institution’s transition into research.

The Center for Coastal Studies is disseminating results of its research through publications, reports, books, presentations, and outreach. The publication record of the Center is good to very good given the size of the research faculty, its involvement in teaching, and its focus on applied research topics. The relatively new research faculty members have been successful in attracting external funding.

The review team recommends that they develop a mechanism for stakeholder involvement outside of their formal ties with state agencies on campus.

**Potential Contribution to the Development of Knowledge and Instruction in Advanced and Emerging Technologies**

Rating: Fair

This program is focused on research related to state and local needs without an emphasis on emerging technologies. Although research scientists are not developing new technologies in the Center for Coastal Studies, they are using emerging technologies in scientific diving, geographic information science, and state-of-the-art water-level instrumentation developed at the university. Future program emphasis is likely to change as new initiatives develop.

Faculty, students, and research staff conduct research at the Center for Coastal Studies and this research is integrated into the academic program of the university.

**Potential Contribution to Economic Development**

Rating: Good

A marine science program at a traditional teaching university cannot be expected to make a strong contribution to economic development. However, the Center’s research is highly relevant to the state agencies and managers and contributes to economic sustainability and stability of the coastal community through improved coastal management.

The Center’s students transfer research results by taking their training into the public and private sectors.

The Center currently does not have a strong advisory component, but plans are in progress to establish an advisory committee. The review team recommends that the Center for Coastal Studies seek increased industry support and involvement through advisory relationships.

**Recommendations:**

Special Item funding for the Center for Coastal Studies should be continued. The Center should develop a mechanism for stakeholder involvement and seek industry support and involvement through advisory relationships.
Coastal Zone Laboratory  
Texas A&M University at Galveston  

Funded Since: FY 1973  
Annual Appropriation: $22,882  

Background:  

The Coastal Zone Laboratory (CZL), established in 1973, facilitates laboratory instrumentation support and provides training and advising for Texas' marine sciences departments. CZL maintains a common-use instrumentation park for use with external grants and contracts. Areas of expertise include coastal processes, marine seafood safety, and marine environmental risk analysis and contingency planning. The program supports the only laboratory specializing in trace metals and toxic contaminants that affect consumable seafood in Texas waters.

Currently, the limited funding is being used to provide partial support for maintenance agreements for critical equipment.

A site visit to the Coastal Zone Laboratory was made on August 18, 2004 by Dr. Edward Chesney, Associate Professor, Louisiana Universities Marine Consortium, DeFelice Center, Chauvin, Louisiana; Mr. Ed Hegen, Regional Director, Texas Parks and Wildlife Department, Rockport; Dr. Mark S. Peterson, Professor, Department of Coastal Sciences, University of Southern Mississippi, Ocean Springs; and Dr. Kenneth R. Tenore, Professor and Director, Chesapeake Biological Laboratory, University of Maryland Center for Environmental Science, Solomons, Maryland. Drs. Linda Domelsmith and Reinold Cornelius served as Coordinating Board facilitators for the visit.

Evaluation:

Intrinsic Merit Rating: Fair but Under Funded

The Coastal Zone Laboratory (CZL) has an important intrinsic value within the Texas Institute of Oceanography (TIO) and the Laboratory of Oceanographic and Environmental Research at Texas A&M University at Galveston because it supports their respective research objectives. The CZL is an essential infrastructure platform that supports laboratory instrumentation and graduate student staff. The program has drastically changed its function and scope since its original inception in 1972. Despite its evolution and ensuing funding reductions, the CZL remains essential for use by many researchers to maintain and enhance the overall productivity of the TIO.

Research Performance Rating: Fair but Under Funded

The CZL’s contribution to research programs lies in its availability to multiple researchers within the TIO. Thus, its performance depends on the TIO’s research programs. The amount of funding for the CZL, albeit relatively small, does allow for some limited degree of research grant fund leveraging. The lab’s potential would be magnified with enhanced funding.
Potential Contribution to the Development of Knowledge and Instruction in Advanced and Emerging Technologies Rating: N/A

Not applicable.

Potential Contribution to Economic Development Rating: Good but Under Funded

The CZL directly contributes to human health issues. CZL’s equipment is used by the Texas Seafood Safety Lab that is funded by the Texas Department of Health and specializes in analyses of trace metals and toxic contaminants within consumable seafood.

Additional Comments:

The four core criteria for the Research Assessment Program provided by the Texas Higher Education Coordinating Board as set forth in the enabling legislation are inadequate and inappropriate to properly assess the CZL. The current mission of CZL is dramatically different than as originally funded, although important today as it currently functions. Academic, administrative, and research programs have changed since the CZL’s original enabling legislation. The current mission to provide analytical instrumentation and expertise to multiple researchers is limited by the level of funding. The review panel recommends that the CZL be combined with the TIO with consideration given to increased funding.

Recommendations

Special item funding for the Coastal Zone Laboratory should be continued. The Laboratory should be combined with the Texas Institute of Oceanography.
Gulf of Mexico Environmental Research Laboratory
Texas A&M University-Corpus Christi

Funded Since: FY 2002
Annual Appropriation: $262,500

Background:

The Gulf of Mexico Environmental Research Lab (GMERL) is a young program that is a state component of the privately endowed Harte Research Institute (HRI), which began operations in fall 2001 based on a personal gift of $46 million from Mr. Ed Harte, a publisher emeritus of the Corpus Christi Caller-Times. The state has contributed $18 million in funding for a new building to house the HRI. The goals for the HRI are to become a premier research center of excellence for supporting and advancing the long-term sustainable use and conservation of the Gulf of Mexico. Funding for GMERL supports the development and operation of a research lab focused on the Gulf of Mexico ecosystem.

The mission of HRI and GMERL is to 1) provide facilities and funding for interdisciplinary scientific research, public policy initiatives, and education of the public concerning the Gulf of Mexico, 2) encourage tri-national responsibility for the Gulf of Mexico ecosystem among the United States, Mexico, and Cuba, and 3) foster an appropriate use of the Gulf of Mexico by freely disseminating research results. HRI and GMERL seek research opportunities funded by national and international agencies, as well as by private industry and organizations, involving the Gulf of Mexico.

A site visit to the Gulf of Mexico Environmental Research Lab was made on August 19, 2004 by Dr. Edward Chesney, Associate Professor, Louisiana Universities Marine Consortium, DeFelice Center, Chauvin, Louisiana; Mr. Ed Hegen, Regional Director, Texas Parks and Wildlife Department, Rockport; Dr. Mark S. Peterson, Professor, Department of Coastal Sciences, University of Southern Mississippi, Ocean Springs; and Dr. Kenneth R. Tenore, Professor and Director, Chesapeake Biological Laboratory, University of Maryland Center for Environmental Science, Solomons, Maryland. Drs. Deborah Greene, Linda Domelsmith, and Reinold Cornelius served as Coordinating Board facilitators for the visit.

Evaluation:

Intrinsic Merit

Rating: Potentially Very Good

The Gulf of Mexico Environmental Research Lab is a new program that is using special item funding to jump-start a more comprehensive program with a clear set of goals and a realistic timetable for development. Program and institutional staff are meeting those goals in a rational and deliberate manner. Current plans are likely to produce a high-quality research center.

Established sister institutions, such as The University of Texas Marine Science Institute in Port Aransas, already have developed relationships with the program and are planning to increase collaborative research after the Harte Research Institute opens. Although the program is too young to be nationally recognized, it is drawing international attention for its focus on issues involving the entire Gulf of Mexico.
The review team recognizes that this program is in a growth phase and undergoing development with a plan for national stature through endowed faculty and new facilities that will make a difference nationally and internationally.

**Research Performance**

**Rating:** Potentially Very Good

This new program has strong potential to establish a platform of marine science research at a national and international level with a unique formula for fitting into a region with established marine programs. The new Harte Research Institute will provide excellent potential for leveraging.

**Potential Contribution to the Development of Knowledge and Instruction in Advanced and Emerging Technologies**

**Rating:** Strong Potential

Although the program is not yet developed, the planned faculty enhancements will provide a strong potential to focus and develop advanced and emerging technologies. The program’s future emphasis is likely to increase its contribution in this area as the Harte Research Institute develops. Faculty, students, and research staff are contributing to the research program that is being incorporated into the university’s academic program.

This new initiative will strengthen the integration of research and academic programs at TAMU-CC allowing it to develop in tandem the two pillars of a true research university: 1) state of the art research and 2) a doctoral program (in coastal and marine system science).

**Potential Contribution to Economic Development**

**Rating:** Potentially Very Good

The proposed marine policy programs and Geographic Information System program will impact economic development by helping to sustain and manage the coastal zone.

The program has a mechanism in place to disseminate information through traditional means that include publications, reports, books, workshops, and scientific presentations at meetings and other institutions. Graduated students transfer technology from the program by taking their training into the public and private sectors.

The program has established a multifaceted, international advisory committee representing various stakeholders. The review panel recommends that the program consider adding local advisors to the committee. The review panel also recommends that the program seek future industry support.

**Recommendations:**

Special item funding for the Gulf of Mexico Environmental Research Laboratory should be continued. The program should seek industry support.
Marine Science Institute
The University of Texas at Austin

Funded Since: FY 1972
Annual Appropriation: $605,303

Background:

The University of Texas Marine Science Institute (UTMSI), founded in 1941, is dedicated to education, research, public service, and outreach as it applies to the Texas coastal zone and other marine environments.

The Institute's expertise lies in the areas of fish physiology and ecology, ecosystem dynamics, and biogeochemistry. Physical oceanography and geology are part of the research and teaching mission. The Institute concentrates most of its research effort in the coastal near shore and in-shore marine environments in the central and south Texas Gulf coast regions, extending from Matagorda Bay to Mexico. The research program focuses on defining global mechanisms and processes. Goals are 1) education of post-graduate students, 2) securing federal research funding, 3) providing professional marine-science knowledge and expertise to state agencies and other organizations, 4) disseminating research results through peer-reviewed publications, and 5) providing educational experiences for schools and private citizens.

UTMSI staff offer education and research opportunities to students in masters and doctoral degree programs through the Department of Marine Science at The University of Texas at Austin. The Institute operates a research vessel fleet that supports local, state, national, and international organizations. It provides shore-side laboratories, classrooms, and dormitories for faculty, students, and visitors. The Institute supports state and federal agencies. Its economic impact includes a strong emphasis on public outreach and education to further stewardship of coastal natural resources.

A site visit to the Marine Science Institute in Port Aransas was made on August 20, 2004 by Dr. Edward Chesney, Associate Professor, Louisiana Universities Marine Consortium, DeFelice Center, Chauvin, Louisiana; Mr. Ed Hegen, Regional Director, Texas Parks and Wildlife Department, Rockport; Dr. Mark S. Peterson, Professor, Department of Coastal Sciences, University of Southern Mississippi, Ocean Springs; and Dr. Kenneth R. Tenore, Professor and Director, Chesapeake Biological Laboratory, University of Maryland Center for Environmental Science, Solomons, Maryland. Drs. Deborah Greene, Linda Domelsmith, and Reinold Cornelius served as Coordinating Board facilitators for the visit.

Evaluation:

Intrinsic Merit: Rating: Very Good

The Marine Science Institute's administration recognizes that the engine for growth and productivity comes from faculty, and this special item is geared to support and expand faculty productivity. The campus administration of The University of Texas at Austin recognizes that the UTMSI faculty and program administration are in the process of developing a sound strategic plan to grow and is willing to support the UTMSI.
They are developing a good strategic plan based upon their current research strengths and are moving forward with initiatives for new faculty that complement regional efforts in south Texas to develop marine science research such as the Harte Research Institute of Texas A&M University-Corpus Christi.

The program is responsive to client needs. Research activities in the Antarctic, Andes, and elsewhere, have brought international recognition to the Institute.

**Research Performance**

**Rating: Very Good**

The Institute has an excellent publication record across a breadth of applied and basic research topics. It provides very good dissemination of its research findings through publications, websites, presentations and public outreach. The Institute has established an excellent record of leveraging state funds with external grants.

The faculty developed an excellent initial strategic plan for future program development. The UTMSI also recently had an external review by eminent marine scientists that provided guidance and support for program development. The Institute provides good community involvement in its marine center through the public aquarium that draws tourists, advisory relationships that involve the local community, and outreach services that include open houses.

**Potential Contribution to the Development of Knowledge and Instruction in Advanced and Emerging Technologies**

**Rating: Very Good**

Marine science and oceanography programs are not typically characterized by research focused on the development of emerging or advanced technologies. However, the UTMSI is exceptional in that its faculty and staff are conducting some research that has cutting edge, highly applied elements that should be nurtured. Good examples are Thomas' endocrine work that has potential for pharmaceutical development and Holt's aquaculture research that is contributing to expanding the local industry.

The program is integrated into the academic program at The University of Texas at Austin. Research at the UTMSI is being done primarily by faculty and students, and is being incorporated into the academic programs of the university.

**Potential Contribution to Economic Development**

**Rating: Very Good**

Marine science and oceanography programs are not typically characterized by strong economic development components. However, some of the UTMSI’s research is directed toward the economic sustainability and stability of coastal areas by bolstering tourism through visitors and through studies of fisheries, the aquaculture industry, toxicological research and other studies of anthropogenic effects on the coastal zone. Although economic impacts are not eminent or likely to be local, Thomas' research on unique steroid receptors has drawn national attention from pharmaceutical companies and also promises to bolster economic development.

The Institute has produced quality students who have been placed well within the state and nation. It contributes to industry through outreach and by taking its training programs into the public and private sectors. Winter Texans thrive on the intellectual stimulation provided by the
Institute with approximately 100 people attending biweekly public lecture series. The UTMSI's Wetland Education Center will open in the near future.

The Institute receives some industry support from the recreational fishing industry, tourism, and the local Chamber of Commerce. The UTMSI's fisheries group is working with local fisheries and the aquaculture industry. Recent advances in endocrine research by a UTMSI researcher have drawn national and international attention from pharmaceutical companies.

Although there is a laudable advisory group, it is geared primarily toward fund-raising. It is recommended that the UTMSI establish a technical advisory committee with membership to include representatives from industry, academe, and governmental and nongovernmental organizations.

**Recommendations:**

Special item funding for the UTMSI should be continued. The Institute should establish a technical advisory committee.
McDonald Observatory
The University of Texas at Austin

Funded Since: FY 1933
Annual Appropriation: $2,853,587

Background:

The University of Texas at Austin served as the beneficiary of an estate that was established to found the McDonald Observatory. The McDonald Observatory was created in 1932 by a 30-year agreement between The University of Texas System Board of Regents and the University of Chicago. The agreement provided the University of Chicago with an 82-inch telescope and responsibility for operating the Observatory. The University of Texas was charged with building and equipping the Observatory which is located near Fort Davis in West Texas. When the 30-year agreement ended, The University of Texas at Austin founded its Department of Astronomy and assumed operational responsibilities for the Observatory. The Observatory currently operates a number of telescopes on-site and has access to others.

The Observatory’s mission is to conduct and support research in astronomy and to sustain and develop effective programs for public outreach and education. Research focuses on astrophysics and has included discovery of near-earth asteroids, star formation, detection and characterization of black holes, determining chemical compositions of stars, searching for planets around stars, and measurements of dark matter in external galaxies. During the site visit, the program was preparing to announce its discovery of a new planet.

The West Texas Visitors’ Center, completed in 2002, is expected to serve 200,000 visitors in 2004. The Visitors’ Center hosts star parties three times each week and conducts telescope tours as well as workshops for K-12 teachers. Outreach activities include the daily radio programs *Stardate* and its Spanish language version *Universo*.

A site visit to the research offices of the McDonald Observatory on The University of Texas at Austin main campus was made on August 27, 2004 by Dr. Bruce Carney, Senior Associate Dean for Sciences and Samuel Baron Professor, Department of Physics and Astronomy, University of North Carolina, Chapel Hill; Dr. Catherine A. Pilachowski, Kirkwood Chair and Professor, Astronomy Department, Indiana University, Bloomington; and Dr. Dennis Zaritsky, Professor, Steward Observatory, University of Arizona, Tucson. Drs. Linda Domelsmith and Reinold Cornelius served as the Coordinating Board facilitators for the visit.

Evaluation:

Intrinsic Merit: Rating: Very Good

Texas distinguishes itself from almost all other states by investment in the McDonald Observatory, and has done so for many decades. The steady investments have been well repaid in terms of public education, student training, income from grants, and scientific stature.
The McDonald Observatory is highly engaged in its West Texas community and with the undergraduates and graduates at The University of Texas at Austin and has growing relationships with Texas A&M University, Texas Tech University, University of North Texas, The University of Texas at El Paso, and Texas Christian University.

The scientific and technical staff, as well as associated academic staff, is of very high quality, and many of the individuals in several research areas enjoy world-class reputations. The current capabilities of McDonald Observatory and their continuing enhancements are critical to these reputations and to the retention of the individuals.

The goals and objectives have proven to be realistic, from the modest investment in the Caltech Sub-millimeter Observatory and the great return therefrom, to the promise of a longer term of involvement (with Texas A&M University) in planning for a major role in Giant Magellan Telescope (GMT) Consortium.

The administrative and scientific programmatic practices are very good, with an understanding of the strengths of their facilities, staff, and technical resources.

The “clients” are assumed to be the students and faculty within the university system, as well as the citizens of the state, and the local community. It appears that the Observatory has been very responsive to the needs of all these disparate communities through degree programs, public outreach, and involvement with local community activities.

McDonald Observatory enjoys an excellent international reputation.

**Research Performance**

**Rating: Very Good**

The research productivity of the Observatory is impressive, covering many disciplines within modern astrophysics, including, but not limited to, massive black holes in other galaxies, chemical abundances in stars and galaxies, star formation, astro-seismology, and extra-solar planets.

The publications of the combined Observatory and Department of Astronomy are of good to excellent quality and consistent with a world-class program.

The grant funding, $9 million, is one indication of a very successful leveraging of state funds. Related to this is the use of McDonald Observatory resources to become deeply involved in major external projects, including major contributions to NASA’s Space Interferometer Mission and the Legacy program of the Spitzer Space Telescope.

A good metric of research performance and capabilities is the quality of newly-hired staff. In terms of the individuals hired within the past few years, and with whom the reviewers are familiar, the quality has been very high.

Another metric is the capability of developing and deploying new technologies, and the existing telescopes certainly enable new instrumentation to be tested and potentially exported. Instrumentation for McDonald telescopes and others has been a good focus for activities for McDonald resources.
Like many other observatories, McDonald Observatory faces difficult choices within limited budgets. Are resources best spent upgrading the current telescopes and their instrumentation to provide for maximal opportunities for staff, Department faculty, postdoctoral students, and graduate students, as well as for major projects that require many tens of nights of observing? Or should the Observatory invest more heavily in larger facilities that may have greater international impact? We believe the division between these two general important needs has been handled very effectively.

**Potential Contribution to the Development of Knowledge and Instruction in Advanced and Emerging Technologies**

Rating: Very Good/Good

McDonald Observatory has concentrated on emerging technologies, including detector technologies, novel spectroscopic capabilities, and, in particular, the development of the unique design of the Hobby-Eberly Telescope. The available funding has been used widely and effectively. However, international leadership in technology development lies primarily elsewhere, in much larger and much better-funded enterprises (European Southern Observatory, or ESO; Harvard-Smithsonian Center for Astrophysics; and the University of Arizona). McDonald Observatory nonetheless has a very good national-level reputation and appears to maximize the return on the current level of investment. Indeed, despite a modest budget, McDonald Observatory design work has contributed to some of those much larger programs, including the Southern African Large Telescope (in which The University of Texas at Austin has gained a share of its use, in consequence) and ESO in Chile. Specific instrumentation from McDonald Observatory and its partners at The University of Texas at Austin have gone to or are going to the International Gemini Observatory and to NASA’s Stratospheric Observatory for Infrared Astronomy (SOFIA) project, again with benefits reaped by McDonald Observatory and The University of Texas at Austin.

The research and instrumentation efforts are extremely well integrated into the academic program at The University of Texas at Austin. Faculty, students, and professional staff all contribute in a collegial and synergistic manner. The program is therefore extremely attractive to potential students, faculty, and staff.

**Potential Contribution to Economic Development**

Rating: Very Good/Good

Technology transfer is relatively uncommon in astronomical research or academic enterprises, although some major examples exist. But following the general trends in modern observatories, only external grants and contributions to the economic vitality of the community surrounding McDonald Observatory are considered.

In terms of external grant funding, the awards to both the McDonald Observatory and Department of Astronomy at The University of Texas at Austin are at a commendably high level. Grants to the Department of Astronomy are very tightly coupled to the success of McDonald Observatory.

The modest investment by the Observatory in public outreach (equivalent to two FTE, with external grants supplying support for many other individuals) is very good. Through tourism, this modest investment has apparently benefited its neighbors in Jeff Davis County at a level of perhaps $8 million.
The outreach activities are extremely successful, at the state and national levels, and may well provide a long-term economic impact by direct attraction of young students to science and technology careers, and to the national view of Texas as a center for such activities. While more remains to be done in terms of optimizing such programs for the diverse communities in Texas, McDonald Observatory’s public outreach and education programs surpass those of any other astronomical observatory in the world.

**Recommendations:**

Special item funding for the McDonald Observatory should be continued.
Real Estate Research Center
Texas A&M University

Funded Since: FY 1972
License Fees: $2,317,195 (FY 2003)

Background:

The Real Estate Research Center was created in 1971 by the 62nd Legislature in response to requests from real estate professionals who had viewed materials created by the University of Connecticut’s real estate research center while attending a conference in the Northeast. The real estate industry agreed to pay special license fees to underwrite the costs of operating such a center. The Center opened for business in 1972. It was initially housed in the Agricultural Economics Department and was later moved to Mays School of Business at Texas A&M University. The Center continues to be supported by real estate license application and renewal fees.

The Center serves as an unbiased source of research that benefits licensees and the public. It maintains an extensive web presence featuring various data series, numerous publications, and straightforward presentations of real estate issues and research findings. The Center’s quarterly magazine, Tierra Grande, reaches a large audience. Over 35,000 copies of its English-Spanish Real Estate Glossary have been distributed since it was first published in 1991. Center staff present talks to approximately 100 external groups throughout the state each year. The Center also hosts a workshop each year for Texas real estate educators.

A site visit to the Real Estate Research Center on Texas A&M University’s main campus in College Station was made on August 27, 2004 by Dr. Joseph S. Rabianski, Richard Bowers and Company Professor and Chair, Department of Real Estate, Georgia State University, Atlanta, and Mr. George C. Stephens, President and Broker of Record, ERA Stephens Properties, Houston. Dr. Linda Domelsmith served as the Coordinating Board facilitator for the visit.

Evaluation:

Intrinsic Merit: Rating: Very Good

The Real Estate Research Center has realistic goals and objectives and is a good investment for the state. The Center is providing high-quality research disseminated through high-quality print media publications and standard report documents. Every printed article and publication, with the exception of English-Spanish Real Estate Glossary, is mirrored on the Center’s well-designed web site. The printed and electronic media publications are timely and informative and provide information that is beneficial to the state of Texas and its economic development.

There is an excellent match between the desires of the Center’s funding source (real estate licensees), the goals and objectives of the Center, and the needs of its customers and clients.

The Center has a mutually beneficial relationship with Texas A&M University’s Mays School of Business and the university as a whole. These relationships appear to be long-term with good prospects for continuing into the future.

The Center has evidence to show that it is known in the state and is also known nationally and internationally.
Research Performance  
**Rating: Very Good**

The Real Estate Research Center is statutorily required to conduct research and disseminate the results of the research. The Center has a reputation for providing unbiased and new information on relevant issues. It has several mechanisms in place to disseminate research findings.

The Center’s research is focused on current and timely issues. The Center’s mechanism for focusing on the most important research topics involves assessment of input from contacts Center personnel make during statewide visits and its accessibility to those same groups (trade associations, housing industry-related associations, and consumer groups) via e-mail or letters requesting information on timely topics.

The Center provides and is expected to continue to provide research and information on multiple topics annually as evidenced by current publication lists and a detailed work plan for the future.

Potential Contribution to the Development of Knowledge and Instruction in Advanced and Emerging Technologies  
**Rating: Very Good**

The Center is using the up-to-date technology in web page and distance learning activities to reach clients.

The Center provides information that is valuable to instructors teaching in real estate proprietary schools and community colleges throughout the state.

Potential Contribution to Economic Development  
**Rating: Very Good**

The economic development of the state of Texas is inextricably linked to real estate development. Research and programs offered by the Center contribute to this development in numerous ways. Examples include, but are not limited to, the following:

1. Education of students working in the real estate industry,
2. Education of consumers who are involved in the acquisition of land and property, e.g., market data reports (especially in markets smaller than Houston, Dallas, El Paso, etc.) that are provided to real estate licensees to be used in economic development in the specific area;
3. Teaching materials for instructors who are discussing issues of economic development in their classes, and,
4. State agencies that have sought specific research from the Center.

The real estate industry is the primary funding source for the Center. The Center has an advisory committee appointed by the Governor. Members serve six-year terms.

The Center uses personal contacts with real estate practitioners, consumers, and educators across the state to foster an effective assessment mechanism for its programs.
Recommendations:

Special item funding for the Real Estate Research Center should be continued.
Texas Center for Superconductivity and Advanced Materials
University of Houston

Funded Since: FY 1987
Annual Appropriation: $3,797,500

Background:

The Texas Center for Superconductivity (TcSUH) was created in 1987 by the 70th Texas Legislature and was funded initially through the State Energy Conservation Office (formerly the Governor’s Energy Office-Stripper Well Fund). Since 1996, TcSUH has received general revenue funding. The Center is now commonly known as the Texas Center for Superconductivity and Advanced Materials (TcSAM). The mission of TcSAM is to understand and develop fundamental properties of high temperature superconducting and other advanced materials, create new applications based on these materials, and disseminate fundamental and applied knowledge through education, outreach, and technology transfer.

TcSAM currently focuses much of its resources on applied research and technology transfer while still leading nationally and internationally in the fundamental efforts that lead to new material discovery and improvement. The program has produced five spin-off companies, the largest of which employs approximately 100 people.

The Center is adding a state-of-the-art scanning tunneling microscopy facility and is engaged in a multi-year, multi-department effort to recruit new faculty.

A site visit to the Texas Center for Superconductivity and Advanced Materials on the University of Houston’s main campus was made on August 17, 2004 by Dr. John Mitchell, Chemist, Materials Science Division, Argonne National Laboratory and Dr. Dean E. Peterson, Center Leader, Superconductivity Technology Center, Los Alamos National Laboratory. Drs. Linda Domelsmith and Reinold Cornelius served as Coordinating Board facilitators for the visit.

Evaluation:

Intrinsic Merit

Rating: Very Good

All advanced technologies depend on materials. By addressing both fundamental and applied issues in materials systems of significance to the Texas science and technology sector, the TcSAM demonstrates the relevance and intrinsic merit of its activities.

The TcSAM continues the tradition of high-quality, high-profile research of its predecessor, the TcSUH, with a broadened emphasis on advanced materials, including superconductors, fuel cell materials, magnetic oxides, and semiconductors. The Center has redirected some of its activities, as recommended by the 1996 Research Assessment Program (RAP), to emphasize technology transfer and applied science of relevance to the Texas and U.S. economy. The outcome of this shift has been reflected in the number and quality of research partnerships with industry, spin-off companies, and industrial positions filled by its graduates. The Center has a well-defined process for identifying new research directions, seeding and nurturing such activities, and evaluating their future promise (terminating them if necessary). Those programs deemed
successful have a well-deserved international stature, bringing recognition to the program as well as to the University of Houston. A key factor in this process is an assessment of potential for applied science, for which the Center is guided by an Industrial Advisory Board.

The Center leadership is to be commended for initiating a substantial new program in low-temperature scanning tunneling microscopy (STM) for fundamental studies of high-temperature superconductor physics. This world-class facility will add considerable value to the Center and will advance scientific understanding of superconductivity and related materials. It is anticipated that this facility will also impact the more broadly defined arenas of nanoscience and nanotechnology in the future. As such, it will dovetail with the more applied activities in place at the Center.

**Research Performance**

The TcSAM continues its important contributions to both the basic and applied knowledge base in materials of technological relevance. The Center’s publication and presentation records over the past two to three years are outstanding, with an impressive number of publications in high profile science and engineering journals. The sustained record of this high level of performance for over a decade is testimony to the success of the Center’s research performance. Likewise, the ability of the Center to leverage substantial resources from outside the state of Texas speaks to the quality of its activities.

Recognizing that the high-Tc superconductivity field had begun to mature, the 1996 RAP review suggested that the Center shift its focus toward technology transfer to push forward in applied superconductivity. The Center has responded to this suggestion comprehensively, contributing seminally to coated conductor development, wire processing for motors, levitators, etc., and medical imaging advances, among others.

The review panel would like to caution, however, that the Center not "overshoot the mark" and move too far from fundamental studies of advanced materials. Control of “materials destiny,” ultimately for potential application, is best served by maintaining a vigorous, unfettered basic materials program. The Center does have such activities (for example the project headed by Paul Chu, the growing theory program, and the nascent scanning probe facility) that have contributed substantially to its publication record. It should continue to foster such activities to the extent that funding opportunities allow. Establishing a viable balance between basic and applied research work is a challenge the Center will continue to face in a competitive funding environment. Center leadership should make a deliberate policy decision in this regard and tailor its research portfolio accordingly.
Potential Contribution to the Development of Knowledge and Instruction in Advanced and Emerging Technologies  

**Rating:** Very Good

The program is well-focused on fundamental research and application development of both high temperature superconductors and other advanced materials. The vision and commitment of the management in recently moving to establish international leadership in materials modeling and scanning tunneling microscopy are very impressive. It is apparent that TcSAM has a broad program incorporating education, instruction, outreach activities, as well as technology transfer to industry. Their successful integration of multidisciplinary efforts across eight departments is a model that other universities should emulate. This coordination role should enhance the quality of academic hiring across many departments. Their publications and presentations are notable in the quantity as well as the quality and breadth of technical work described. Center staff members are well-recognized internationally as first-rate researchers, and Paul Chu returning to work full time in the Center represents a further enhancement in capabilities. Their contributions in teaching new classes in superconductivity and other advanced materials advance academic and graduate research programs across the university and have resulted in about 14 advanced degree graduates annually. The outreach and minority efforts associated with TcSAM are outstanding. The extensive spectrum of government sponsors that contribute a large fraction of operating costs is a testament to the excellent research and development taking place within the Center.

Potential Contribution to Economic Development  

**Rating:** Very Good

The Center has done a good job in bridging materials research developments into applications that are made available to industry. Formation in Texas of five spin-off companies committed to commercializing TcSAM technologies is impressive. This technology transfer resulted in new product lines with associated high-paying jobs. TcSAM has attracted other world-class scientists to Texas and has been very successful in attracting federal research funding based on their state-supported efforts. Texas can be proud of the high technology image resulting from the Center’s achievements that are a basis for new business development. The strong patent portfolio that has led to over $2 million in annual industrial support for Center activities is very impressive. Their industrial advisory committee and formal process for selecting and patenting new technological areas is commendable. The Center has been a regional and national resource for trained scientists and engineers who can rapidly contribute to exciting new technological areas. Their collaborations with over 160 research organizations illustrate the breadth of their program.

**Additional Comments:**

- The review panel recommends that the Center be funded by the State of Texas at the highest possible level.
- Center staff are to be commended for smoothly making the transition to new leadership over the past two years. The current Center director is a dynamic leader with a vision for the future of the Center that will have a measurable impact on the Texas science and technology sector.
- The external advisory committee (EAC) is being reformed after a two-year hiatus (presumably due to leadership change in the Center). The review panel recognizes the need to emphasize applications in the makeup of the board but urges the Center to keep a vocal fundamental science representation on the EAC.
- The Center faces an aging infrastructure and will soon need upgrades to a number of core instruments. The foreseen hiring of new staff should help to mitigate this problem if strategically chosen. Additionally, interactions with spin-off companies have been a
creative mechanism granting Center researchers access to equipment, albeit on a temporary basis. Other avenues of capital funding should be pursued vigorously, as the reported $400 thousand annual capital equipment budget is substandard for an $11 million research enterprise that wishes to be at the forefront of materials research.

**Recommendation:**

Special item funding for the Texas Superconductivity Center should be continued. It should continue to foster a vigorous basic materials program and pursue other avenues of funding to increase its annual capital equipment budget.
Texas Institute of Oceanography
Texas A&M University at Galveston

Funded Since: FY 1989
Annual Appropriation: $469,326

Background:

The Texas Institute of Oceanography (TIO) facilitates research for scientists at Texas A&M University and other locations in the management of Texas waters, aquatic life, beaches, and shores, including the effects of natural and man-made episodic events. Areas of expertise include marine mammal, fish, shellfish, algae, and sea turtle biology and ecology, toxic contaminant analysis, erosion processes and control, wetlands management, and physical profiling of the coastal regions. TIO also serves as a research and technology base for marine-related private industry.

The President of TIO prioritizes and awards research funds, based on TAMU staff recommendations and under advice by TIO’s Research Advisory Council. Federal and state agencies, as well as Texas citizens, may suggest research targets.

TIO research has made impacts on 1) fish and shellfish production through the study of phytoplankton, 2) health regulation for the oyster harvest through the study of pathogenic bacteria, 3) commercially important shrimp classification assay, and 4) mapping capabilities used for oyster reef management and the study of beach sand resources.

A site visit to the Texas Institute of Oceanography was made on August 18, 2004 by Dr. Edward Chesney, Associate Professor, Louisiana Universities Marine Consortium, DeFelice Center, Chauvin, Louisiana; Mr. Ed Hegen, Regional Director, Texas Parks and Wildlife, Rockport; Dr. Mark S. Peterson, Professor, Department of Coastal Sciences, University of Southern Mississippi, Ocean Springs; and Dr. Kenneth R. Tenore, Professor and Director, Chesapeake Biological Laboratory, University of Maryland Center for Environmental Science, Solomons, Maryland. Drs. Linda Domelsmith and Reinold Cornelius served as Coordinating Board facilitators for the visit.

Evaluation:

Intrinsic Merit

Rating: Very Good

The Texas Institute of Oceanography is one of the few marine centers in the country that has a campus located in the coastal zone for both graduate and undergraduates. This unusual setting for a university campus provides unique opportunities for marine research and education due to easy access to coastal field sites and a local perspective on coastal problems.

The Institute has realistic goals and objectives and is conducting high-quality work. The Institute’s programs are well-regarded regionally and nationally. Some of its programs are known internationally.

TIO is making sound decisions in expending special item funding, but should more clearly define program goals and the decision-making process for funding use. The Institute should identify and consult with stakeholders as part of its advisory process and use these contacts and their input to justify current and future special item support.
Research Performance  
Rating: Very Good

The Texas Institute of Oceanography maintains a very good breadth of applied and basic research topics with an impressive and extensive array of academic disciplines. There is strong involvement of undergraduate students in the Institute’s research component, particularly in the cephalopod and beach monitoring programs.

TIO has demonstrated entrepreneurship in seeking external grants. The Institute disseminates its research results through publications, websites, presentations and outreach.

TIO has done a good job of responding to regional and state needs, but stakeholder involvement would enhance its mechanism for identifying those needs.

Potential Contribution to the Development of Knowledge and Instruction in Advanced and Emerging Technologies  
Rating: Very Good

TIO is applying and developing a good combination of traditional and advanced technologies that should prove useful to solve problems relevant to local and regional needs. Its programs are making contributions to developing methods and technologies that can be used in science and the private sector.

TIO has many good examples of integrating undergraduate students into research. The cephalopod research and outreach program, the beach erosion studies, and program are the Laboratory for Applied Biotelemetry and Biotechnology (Department of Marine Biology, Texas A&M University Galveston) are laudable educational opportunities. Programs like these should be fostered as much as possible in the future.

Potential Contribution to Economic Development  
Rating: Good/Very Good

Marine science and oceanography programs are not typically characterized by strong economic development components, and TIO does not differ in this respect. However, much of the Institute’s research is highly relevant to the state and contributes to economic sustainability and stability of coastal industries such as fisheries, aquaculture, and anthropogenic effects on the coastal zone.

The Institute’s work on cephalopods resulted in six patents. Students transfer the results of the program’s research by taking their training into the public and private sectors.

Although there is some industry support for the Institute’s research programs, the TIO should seek to develop or highlight efforts to secure more.
**Recommendations:**

Special item funding for the Texas Institute of Oceanography should be continued. It should more clearly define program goals and the decision-making process for funding use. TIO should involve stakeholders in identifying regional and state needs. TIO should secure more industry support for its programs.
Texas Learning and Computation Center  
University of Houston  

Funded Since: FY 2000  
Annual Appropriation: $2,037,690  

Background:  

The mission of Texas Learning and Computation Center (TLC\textsuperscript{2}) is to foster multidisciplinary research, education, and training in computational and computer science at the University of Houston. Its mission includes stimulating and enhancing 1) research in disciplines that benefit from information technologies in a broad sense, such as computing networking, visualization, and databases; 2) education in both the design and use of such technologies; and 3) training related to operations and use of such technologies; and 4) outreach to communicate the benefits of the technologies to high schools, community colleges, and the public at large.  

The Center was created in 1999 with special item funding. TLC\textsuperscript{2} operates an on-campus, state-of-the-art computing and visualization facility. The research objectives of the Center include development of innovative algorithms, methodologies, software tools and systems for sciences that depend on large data sets or require large computational resources.  

A site visit to the Texas Learning and Computation Center was made on August 27, 2004 by Dr. Juan C. Meza, Department Head, High Performance Computing Research Department, Lawrence Berkeley National Laboratory, Dr. Sanguthevar Rajasekaran, UTC Professor, Department of Computer Science and Engineering, University of Connecticut, and Mr. John Towns, Senior Associate Director, National Center for Supercomputing Applications, University of Illinois at Urbana-Champaign. Drs. Deborah L. Greene and Reinold Cornelius served as the Coordinating Board facilitators for the visit.  

Evaluation:  

Intrinsic Merit  

Rating: Very Good  

The panel found that the research supported by TLC\textsuperscript{2} is generally of a high quality and that the personnel involved in the Center are both well-known and respected. The major goal of this Center, as stated in its presentation, is to foster and support collaborative interdisciplinary research, education, and training. Overall, the panel found that the Center was meeting this goal as evidenced by several good examples of collaborations between math, computer science, physics, biology, and psychology. Most of the programs are regional and usually within the University of Houston campus itself although there were some statewide and national components of this program. One minor concern of the panel was that the administrative practices could use some fine-tuning, e.g. the process for allocating seed funding and innovative awards within the Center could be improved so that they are better defined and structured.
**Research Performance**

Rating: Good

Although the research programs are not the major component of this Center, the panel found that the projects that were described were all successful as reflected by publications (over 150), patents (7), and conference proceedings. In addition, TLC² appears to leverage these funds with other funding agencies (National Aeronautics and Space Administration, National Institutes of Health, and Department of Energy) to enhance these research projects. In the case of the innovative awards, the review process appears to be fairly rigorous. The process for using seed money for the centers however does not have such rigor and, in the view of the panel, a similar process would benefit the Center. In addition, a more formally defined relationship and set of processes between TLC² and the participating centers should be put into place.

**Potential Contribution to the Development of Knowledge and Instruction in Advanced and Emerging Technologies**

Rating: Good

Overall, the program focuses on very interesting and important emerging technologies that are quite worthy of support. The review team had difficulty in identifying the clear connections between the outcome of the supported research activities with the incorporation of those outcomes into curricula. The noted seminars and training activities are important and partially fulfill this need, but the review panel would like to see the process by which this content makes it into the courses taken by graduate, undergraduate, and K-12 students.

One suggestion is to connect instructors of courses with strong similarities to work being supported by TLC² to offer both class days for on-campus classes and field trips for off-campus students to come to TLC²’s training facility to experience some of its training offerings as part of their coursework.

**Potential Contribution to Economic Development**

Rating: Good

Some of the research activities could potentially benefit the economy. In particular, the works presented (such as on the wavelet transforms, drug design, etc.) could benefit the society at large. The review members are pleased to note that negotiations are taking place to license some of the software developed at the Center. Several patent applications have been filed. The claims on one of the patents have been approved by the U.S. patent office. The Center seems to encourage the creation of intellectual property and the process of filing for patents. Many students who were a part of the Center now serve industry. These students can be expected to transfer the knowledge they gained from the Center to the industry. TLC² is encouraged to enhance its technology transfer effort through starting up new ventures. It is not clear if there have been any efforts to start up any new companies.

The panel notes that no mechanism has been identified for assessing the needs of industry. Such assessments will be of great help in steering the focus of the Center in a direction that will result in maximum benefit to the economy of the state. An advisory board consisting of relevant industrial partners would prove useful in making these assessments. There is some evidence of industry support although this support could be improved.
Recommendations:

Special item funding for the Texas Learning and Computation Center should be continued. The Center should better define its administrative practices for allocating seed funding and innovative awards. TLC\textsuperscript{2} should more formally define its relationship to and processes involving participating centers. TLC\textsuperscript{2} should establish an advisory board of relevant industrial partners and secure additional industry support.
Texas Sea Grant College Program  
Texas A&M University

Funded Since: FY 1971  
Annual Appropriation: $359,678

**Background:**

The Texas Sea Grant College Program (TSG) is a member of a national program funded by the National Oceanic and Atmospheric Administration (NOAA) to support university-based coastal resource use and conservation programs. The national program requires that participating state programs provide matching funds. The program supports research projects at both the Texas A&M University System and The University of Texas System institutions through a competitive process. In Texas, state matching funds for federal dollars has not kept pace with increased funding available from the NOAA Sea Grant program.

Goals of the program are to 1) develop and support innovative research to address understanding of marine and coastal resources and the wise use and conservation thereof for broad economic impact, 2) disseminate information on topics ranging from hurricane preparedness to seafood safety as well as the Texas Shores magazine and conduct outreach programs for K-12 education, 3) assist Texas natural resource agencies, and 4) educate citizens about environmental impact of civilization on the coastal zone. The program supports sustainable development while improving the coastal environment. Areas of expertise range from marine business, marine education, and coastal community development to marine policy, environmental science, and seafood safety. Program staff and county marine agents provide input on concerns from Texas citizens. A broad-based advisory committee identifies research targets.

TSG, the only sea grant college program in the state, is a non-regulatory provider of science-based information. TSG is a member of a confederation of 30 Sea Grant programs nationwide and thus allows Texas scientists to network with over 300 other institutions.

Representatives of the TSG presented their program to the review panel on August 18, 2004 at the headquarters for the Texas Institute of Oceanography at the Texas A&M University at Galveston. The review panel members were Dr. Edward Chesney, Associate Professor, Louisiana Universities Marine Consortium, DeFelice Center, Chauvin, Louisiana; Mr. Ed Hegen, Regional Director, Texas Parks and Wildlife Department, Rockport; Dr. Mark S. Peterson, Professor, Department of Coastal Sciences, University of Southern Mississippi, Ocean Springs; and Dr. Kenneth R. Tenore, Professor and Director, Chesapeake Biological Laboratory, University of Maryland Center for Environmental Science, Solomons, Maryland. Drs. Linda Domelsmith and Reinold Cornelius served as Coordinating Board facilitators for the visit.

**Evaluation:**

**Intrinsic Merit**  
Rating: Very Good

The TSG provides high return on the state’s investment and is highly relevant to the state’s needs in applied marine research, outreach, and extension. The TSG deals with local and regional issues and attracts competitive external funding. The program provides good incorporation of local and current issues. Products used by industry, management agencies, and the public attest to the quality of the program’s work.
The program has a highly qualified staff, uses appropriate administrative practices, and is fulfilling its stated objectives. The Texas Sea Grant College Program was strongly supported by a recent, externally constituted Program Assessment Team review sponsored by the National Sea Grant Office.

The TSG is designed to address local and regional needs so international recognition is limited. The program is peer-reviewed by experts to assure quality. Recognition also takes place through international meetings and presentations. Because of Texas’ proximity to Mexico, some international recognition has developed through collaborative research efforts.

**Research Performance**

**Rating:** Very Good

The TSG addresses problems of an applied nature that are important to the people of Texas. It does a good job of responding to regional and state needs through advisory committee and stakeholder involvement. Publications from the program are placed in diverse and highly regarded journals. The TSG also disseminates its research through extension services, published products, compact discs, websites, presentations, and outreach.

TSG accomplishes sequential leveraging of matching and program funds. Program grants are used to promote research efforts that need seed money to develop ideas and modest research initiatives.

**Potential Contribution to the Development of Knowledge and Instruction in Advanced and Emerging Technologies**

**Rating:** Very Good

Advanced technologies are not a focus of the TSG due to national program limitations, but advanced technologies develop as opportunities arise. The program is making contributions by developing methods and technologies that can be used in science and in the private sector.

TSG strongly supports graduate student research projects and encourages student participation rather than participation by technicians. The Program has also been successful in landing Knauss Sea Grant fellowships for Texas students that broadens their educational experience to include public service as part of their scientific careers.

**Potential Contribution to Economic Development**

**Rating:** Very Good/Good

The TSG has a very strong economic sustainability and development component that includes studies of commercial and recreational fisheries and extension services. For example, work on red drum, spotted seatrout, and oyster biology provides valuable service to the public. The Sea Grant Program has very strong advisory relationships that include program advisors from industry, state and federal agencies, and academia providing good models for applied research initiatives.

The TSG disseminates research through extension services, published products, compact discs, websites, presentations and outreach. Patents have been generated through the Sea Grant research in the past and are expected in the future. Advanced technologies for the culture of marine fish and invertebrates have been patented through Texas Sea Grant-funded research. Students transfer results most directly by taking jobs in marine and coastal management programs and industry.
The TSG has no direct funding or matched dollars from industry at this time, but programs and projects supported through donations of boat time by fishermen and other extension activities constitute matching support.

**Recommendation:**

Special item funding for the Texas Sea Grant College Program should be continued. The program should develop activities to secure increased industry contributions.
Appendix A

Texas Education Code, Chapter 144 -- RESEARCH ASSESSMENT PROGRAM

Sec. 144.001. Definitions.

In this chapter:
(1) "Assessment program" means the research assessment program established under this chapter.
(2) "Coordinating board" has the meaning assigned by Section 141.001 of this code.
(3) "Research program" means research conducted by separate research divisions, including research bureaus or institutes and separately budgeted or financed research investigations, that is subject to evaluation and review under this chapter, but does not include departmental research not separately budgeted or financed or contract research and services.
(4) "Institution of higher education" has the meaning assigned by Section 61.003(8) of this code.

Sec. 144.002. Establishment; Purpose.

The research assessment program is established to provide for biennial review and evaluation by the coordinating board of all research programs in all public institutions of higher education.

Sec. 144.003. Guidelines and Procedures.

(a) The coordinating board shall appoint an advisory committee consisting of representatives of higher education and private enterprise and other experts in relevant research areas to review and evaluate the research programs.

(b) The coordinating board with the advice of the advisory committee shall develop guidelines and procedures to evaluate the research programs for intrinsic merit, research performance, and the potential contribution of the research to the development of knowledge and instruction in advanced and emerging technologies and the economic growth of this state.

Sec. 144.004. Report of Findings.

(a) Not later than September 1 of the second year of each biennium, the coordinating board shall report to the Legislative Budget Board the preliminary findings of the advisory committee’s assessment conducted under this chapter and make recommendations concerning reauthorization, revision, or discontinuation of each research program.

(b) The Legislative Budget Board shall determine the schedule for the review of the research and technology programs that are subject to biennial review and evaluation under this chapter.
# Appendix B
Texas Higher Education Coordinating Board

## 2004 RESEARCH ASSESSMENT PROGRAM SELF-STUDY

<table>
<thead>
<tr>
<th>Name of Program:</th>
<th>Director:</th>
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<tr>
<th>Name of Institution:</th>
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<thead>
<tr>
<th>Program Mailing Address/Telephone/Fax/E-Mail:</th>
<th>Name/Address/Telephone/Fax/E-Mail of Person to whom questions concerning this document should be addressed:</th>
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**Executive Summary (200-word description of mission, objectives, benefits to State):**

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<th>Director Signature:</th>
<th>Authorized Institutional Representative Signature:</th>
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<th>Title:</th>
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<th>Date:</th>
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## Program Summary

<table>
<thead>
<tr>
<th></th>
<th>FY2002 Dollars</th>
<th>FY2003 Dollars</th>
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</thead>
<tbody>
<tr>
<td>Special Item Expenditures (see Part III.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>External Support: (see Part IV.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Federal Research</td>
<td></td>
<td></td>
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<tr>
<td>Federal Other</td>
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<tr>
<td>Industrial Research</td>
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<tr>
<td>Private or Foundation</td>
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<tr>
<td>State and Local Agency</td>
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<tr>
<td>Other</td>
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<tr>
<td>Licensing Income (see Part IV.7.)</td>
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<td></td>
</tr>
<tr>
<td>Personnel Receiving Support (FTE’s): (see Part II.3)</td>
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</tr>
<tr>
<td>Faculty</td>
<td></td>
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<tr>
<td>Professional Staff</td>
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<tr>
<td>Support Staff</td>
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<tr>
<td>Students</td>
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<td>Publications: (see Part IV.9)</td>
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<td>Conference Proceedings</td>
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<td>Technical Reports</td>
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<td>Theses (MS or Ph.D.)</td>
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<tr>
<td>Other</td>
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<td>Intellectual Property: (see Part IV.5 and 6)</td>
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<td>Patents Filed</td>
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<tr>
<td>Patents Awarded</td>
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<tr>
<td>Copyrights Issued</td>
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<tr>
<td>Public Service: (see Part IV.11)</td>
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<tr>
<td>Workshops</td>
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<td></td>
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<tr>
<td>Symposia</td>
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</tbody>
</table>
PART I - RESEARCH MISSION AND HISTORY

1. Please check the box which most closely describes your program:

☐ Facility Operation    ☐ “Mini” Granting    ☐ Other
☐ Research Unit         ☐ Public Service Organization

2. Describe the goals and objectives of the research activities of this program.

3. When was this program created and by what action? Attach a copy of the enabling action, e.g., statute, Board of Regents minute order, etc.

4. What was the purpose of the program when it was created?

5. How has the purpose of this program changed since it was created?

6. When did the program first receive special item funding? (Indicate any interruptions in state funding). If the program existed prior to receiving special item funding, what was the source of funding?

7. List other programs in Texas with comparable goals and objectives and comment, to the extent possible, on the similarities and differences.

8. How does the program contribute to the economic development of Texas? (This is one of the evaluation criteria listed for the Research Assessment Program).

9. Who are the program’s clients, how are they identified, and how are their needs determined?

10. Does the program have an advisory group? If so, provide a list of members, dates convened during 2002 and 2003, and most significant contributions to the program to date.

PART II - ORGANIZATION STRUCTURE AND OPERATIONS

1. Provide an organization chart that shows how the program fits into the university structure.

2. Provide an organization chart that shows the major functional components of the program.

3. Personnel Summary

   Provide a list of all individuals who received financial support from the program during fiscal year 2003. Include name, full/part time (%), and status (faculty, other professional staff, support staff, students). If more than 12 people were supported, show the number and full-time equivalent (FTE) of each category of employee only. If the program is new, show projected staffing for FY2000.

   FY2003

<table>
<thead>
<tr>
<th>Name/Title</th>
<th>Status</th>
<th>Percent Time</th>
</tr>
</thead>
</table>

4. How is the special item program integrated into the academic program of the institution?
PART III - FINANCIAL SUMMARY

1. Budgets for FY2004 and FY2005

Attach a completed copy of the research program’s Legislative Budget Board Appropriations Request forms for FY2004-2005 to this report. Be sure it includes the “SPECIAL ITEM SUPPLEMENTAL INFORMATION” page.

2. Budget Summary Table FY2002 to FY2003

Fill in the table below. If data are not available for specific entries, make estimates and indicate them with an asterisk (*).

<table>
<thead>
<tr>
<th>Source of Funds:</th>
<th>FY2002</th>
<th>FY2003</th>
<th>FY2004 (est.)</th>
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<td>Special Item</td>
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<td>Other State Support</td>
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<tr>
<td>Federal</td>
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<td>Private</td>
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<td></td>
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<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Operating Budget for Entity</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Expenditure of Special Item Funds FY2002 and FY2003

Fill in the table below. If data are not available for specific entries, make estimates and indicate them with an asterisk (*).

<table>
<thead>
<tr>
<th></th>
<th>FY2002</th>
<th>FY2003</th>
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<tbody>
<tr>
<td>A. Personnel</td>
<td></td>
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<tr>
<td>Faculty</td>
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<tr>
<td>Professional Staff</td>
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<td>Support Staff</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Permanent Equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Travel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. Facilities, Rent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. Other Direct Costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PART IV - PROGRAM OUTCOMES

This section requires information about the results of the program’s activities. Please complete all sections that are appropriate.

1. Briefly describe the program’s three most significant research accomplishments during FY2002 and FY2003.

2. List any major collaborative research associations with other programs or organizations during FY2003.

3. List external support received for FY2002 and FY2003.

<table>
<thead>
<tr>
<th>Period Covered</th>
<th>Source</th>
<th>Total Amount</th>
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</thead>
<tbody>
<tr>
<td>a. Federal research</td>
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<td></td>
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<tr>
<td>b. Federal other</td>
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</tr>
<tr>
<td>c. Industrial research</td>
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<td>d. Private and foundation</td>
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<tr>
<td>e. State and local agency</td>
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<tr>
<td>f. Other</td>
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</tr>
</tbody>
</table>

4. Describe commercializations of program-developed technologies which occurred in FY2002 and FY2003.

5. Patents filed and/or issued in FY2002 and FY2003.

6. Copyrights filed and/or issued FY2002 and FY2003.


8. List visiting scientists who participated in the program during FY2003. (Give institutional affiliation).

9. List of publications based on program’s research effort during FY2003, including those in press. Put an asterisk next to the refereed publications. If more than ten in any category, briefly describe them instead of providing a list.
   a. Journal Publications
   b. Conference Proceedings
   c. Technical Reports
   d. Theses (indicate M.S. or Ph.D.)
   e. Other

10. List names, companies, and locations of students supported by the program who accepted industrial positions during FY2002 and FY2003.


12. List website urls or attach up to five reports from news agencies or other external groups that highlight the program’s research activities.

PART V - FUTURE ACTIVITIES

1. Do you expect to request continued special item funding for FY2006-2007 and subsequent biennia?
   □ No  □ Yes, how much? _________________________

2. Describe the major opportunities facing the program in the next five years.

3. Describe the major problems facing the program in the next five years.
Appendix C

EXECUTIVE SUMMARIES FROM PROGRAM SELF-STUDIES

Automation and Robotics Research Institute, The University of Texas at Arlington....................... C-3
Center for Coastal Studies, Texas A&M University-Corpus Christi ........................................... C-4
Coastal Zone Laboratory, Texas A&M University at Galveston ..................................................... C-5
Gulf of Mexico Environmental Laboratory, Texas A&M University-Corpus Christi ....................... C-6
Marine Science Institute, The University of Texas at Austin ......................................................... C-7
McDonald Observatory, The University of Texas at Austin............................................................ C-8
Real Estate Research Center, Texas A&M University Texas......................................................... C-9
Texas Center for Superconductivity, University of Houston......................................................... C-10
Texas Institute for Oceanography, Texas A&M University at Galveston ...................................... C-11
Texas Learning and Computation Center, University of Houston ................................................. C-12
Texas Sea Grant Program, Texas A&M University ........................................................................ C-13
Texas Higher Education Coordinating Board

2004 RESEARCH ASSESSMENT PROGRAM SELF-STUDY

<table>
<thead>
<tr>
<th>Name of Program: The Automation &amp; Robotics Research Institute</th>
<th>Director: D. H. Liles, Ph.D., P.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Institution: The University of Texas at Arlington</td>
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<table>
<thead>
<tr>
<th>Program Mailing Address/Telephone/Fax/E-Mail:</th>
<th>Name/Address/Telephone/Fax/E-Mail of Person to whom questions concerning this document should be addressed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7300 Jack Newell Blvd., S. Fort Worth, Texas 76118-7115 817 272 5900 phone 817 272 5952 fax <a href="mailto:kelfrink@uta.edu">kelfrink@uta.edu</a></td>
<td>D. H. Liles 7300 Jack Newell Blvd., S. Fort Worth, Texas 76118-7115 817 272 5902 817 272 5952 <a href="mailto:dlilies@uta.edu">dlilies@uta.edu</a></td>
</tr>
</tbody>
</table>

Executive Summary (200-word description of mission, objectives, benefits to State):

The mission of the Automation & Robotics Research Institute (ARRI) is to improve the competitiveness of manufacturing and related enterprises through excellence in research and the sharing and deployment of knowledge. The research programs include advanced controls and sensors, MEMS, process automation, enterprise engineering, and new initiatives in pervasive computing in manufacturing, autonomous systems, and free form fabrication. The deployment programs include the Small Business Development Center for Enterprise Excellence, the Cross Timbers Procurement Center and the Texas Manufacturing Assistance Center.

The Institute endeavors to be a premier source of knowledge and innovative solutions for industry and society. Specific objectives for research and deployment are consistent with this vision.

The manufacturing enterprise is one of the engines that society has to create wealth. ARRI seeks to improve the competitiveness of manufacturing companies and, therefore, helps create wealth for Texas and the owners and employees of the Texas manufacturing companies that we serve. Data from our customers suggest that our impact has been significant. In addition, because of the experience gained by participating in ARRI programs, students are better prepared to enter the workforce.

Texas is a manufacturing state, second only to California. The Dallas-Fort Worth Metroplex is home to about one third of the manufacturers in the state. It is appropriate for a research institute with our mission to be located in the Metroplex.

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| Date: 30 Mar 04     | Date: 31 Mar 04                           |

C-3
Texas Higher Education Coordinating Board

2004 RESEARCH ASSESSMENT PROGRAM SELF-STUDY

<table>
<thead>
<tr>
<th>Name of Program:</th>
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<tbody>
<tr>
<td>Center for Coastal Studies</td>
<td>John W. Tunnell, Jr., Ph.D.</td>
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<tbody>
<tr>
<td>Texas A&amp;M University-Corpus Christi</td>
<td>J.W. (Wes) Tunnell, Jr., Director</td>
</tr>
<tr>
<td></td>
<td>Contact information at left (same)</td>
</tr>
</tbody>
</table>

Program Mailing Address/Telephone/Fax/E-Mail:
6300 Ocean Drive
Corpus Christi, TX 78412
Phone: (361) 825-2736
Fax: (361) 825-2770
email: jtunnell@falcon.tamucc.edu

Executive Summary (200-word description of mission, objectives, benefits to State):

**Mission:** The mission of the Center for Coastal Studies is to increase knowledge and understanding of the marine ecosystems, habitats, flora, fauna, and socioeconomics of the Texas coast and Gulf of Mexico through education and research.

**Objectives:** Center for Coastal Studies primary goals and objectives include:
- to conduct relevant research on Texas coastal issues, particularly in the Texas Coastal Bend and South Texas.
- to train, advise, and mentor TAMU-CC graduate students for further graduate education or as coastal and marine science managers for state and federal agencies, as well as industry.
- to provide hands-on undergraduate and graduate research assistantships and experiences in coastal and marine science.
- to disseminate research results and other activities to the scientific community and general public through press releases, websites, peer-reviewed publications, technical reports, and presentations in regional, national, and international meetings.
- to provide coastal and marine education outreach programs.

**Benefits to State:** The following list demonstrates the products or outcomes of the Center for Coastal Studies during FY 2002-FY 2003 that benefits to the State of Texas:
- 53 research, education and service projects conducted.
- $2,217,468 in research grants/contracts received.
- 89 students (42 B.S., 47 M.S.) funded in research experiences.
- 38 publications in journals, proceedings, and book chapters were produced.
- 28 technical reports were produced.
- 3 edited books were produced by CCS scientists, one on Texas world famous Laguna Madre.

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<th>Director Signature:</th>
<th>Authorized Institutional Representative Signature:</th>
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<tbody>
<tr>
<td>John W. Tunnell, Jr.</td>
<td>Hammy Knoll</td>
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Date: 30 March 2004
Date: 3-31-04
Texas Higher Education Coordinating Board

2004 RESEARCH ASSESSMENT PROGRAM SELF-STUDY

<table>
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<tr>
<th>Name of Program:</th>
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<tbody>
<tr>
<td>Coastal Zone Laboratory (CZL)</td>
<td>Dr. Peter H. Santschi</td>
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<thead>
<tr>
<th>Name of Institution:</th>
<th>Name/Address/Telephone/Fax/E-Mail of Person to whom questions concerning this document should be addressed:</th>
</tr>
</thead>
</table>
| Texas A&M University at Galveston | Dr. Tammy Holliday  
Texas A&M University at Galveston  
P.O. Box 1675  
Galveston, Texas 77553  
409-740-4941 (phone)  
409-740-4754 (fax)  
hollidat@tamug.edu |

Program Mailing Address/Telephone/Fax/E-Mail:
5007 Avenue U  
Galveston, TX 77551  
409-740-4476 (phone)  
409-740-4787 (fax)  
santschip@tamug.edu

Executive Summary (200-word description of mission, objectives, benefits to State):

The mission of Coastal Zone Laboratory (CZL), which is associated with the Laboratory for Oceanographic and Environmental Research (LOER), is to facilitate and coordinate technical know-how to University faculty, especially those in the Marine Sciences (MARS) and Marine Biology (MARB) Departments through laboratory instrumentation support, training and advising, which helps to foster scientific research in the Coastal Zone. The goals and objectives of the Coastal Zone Laboratory (CZL) are three fold: 1) Provide the scientific expertise of faculty and students to respond to important problems facing the Coastal Zone, 2) Educate and train students in solving environmental problems and 3) Provide vital health, economic data and expertise on coastal problems to Texas regulatory agencies. This requires that CZL facilitates obtaining external grants and contracts for research in the coastal zone that use the common-use instrumentation park. The instrument park is currently maintained by a staff that includes postdoctoral and research scientists, graduate students and undergraduate student workers/technicians who are mostly paid by these grants and contracts. The State also benefits from this small investment through increased expertise of faculty and students at Texas A&M University at Galveston who communicate their state-of-the-art knowledge and insights via peer-reviewed research publications, presentations at local, national and international meetings, as well as by involvement in outreach at the K-12 level.

Director Signature:  
Authorized Institutional Representative Signature:  

Title: Assoc. Vice President for Research and Academic Affairs
Texas Higher Education Coordinating Board

2004 RESEARCH ASSESSMENT PROGRAM SELF-STUDY

<table>
<thead>
<tr>
<th>Name of Program:</th>
<th>Director:</th>
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<tbody>
<tr>
<td>Gulf of Mexico Environmental Research Lab</td>
<td>John W. Tunnell, Jr., Ph.D.</td>
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<th>Name/Address/Telephone/Fax/E-Mail of Person to whom questions concerning this document should be addressed:</th>
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<tr>
<td>Texas A&amp;M University-Corpus Christi</td>
<td>J.W. (Wes) Tunnell, Jr., Director</td>
</tr>
<tr>
<td>Program Mailing Address/Telephone/Fax/E-Mail:</td>
<td>Contact information at left (same)</td>
</tr>
<tr>
<td>6300 Ocean Drive</td>
<td></td>
</tr>
<tr>
<td>Corpus Christi, TX 78412</td>
<td></td>
</tr>
<tr>
<td>Phone: (361) 825-2736</td>
<td></td>
</tr>
<tr>
<td>Fax: (361) 825-2770</td>
<td></td>
</tr>
<tr>
<td>email: <a href="mailto:jtunnell@falcon.tamucc.edu">jtunnell@falcon.tamucc.edu</a></td>
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</table>

The Gulf of Mexico Environmental Research Laboratory (GMERL) Special Item Funding was established to assist in development and operation of a premier research lab focused on the Gulf of Mexico ecosystem.

It is the vision of the Harte Research Institute for Gulf of Mexico Studies to be a research center of excellence providing international leadership in generating and disseminating knowledge about the Gulf of Mexico ecosystem and its critical role in the economies of the North American region.

The mission of the Harte Research Institute, an endowed research component of Texas A&M University-Corpus Christi, is to support and advance the long-term sustainable use and conservation of the Gulf of Mexico. This mission will be accomplished by:

- Providing an environment to conduct meaningful and successful programs in research and education with highly qualified faculty, staff, and students.
- Promoting excellence and innovation in interdisciplinary scientific research, public policy initiatives, and education of the public concerning the Gulf of Mexico.
- Encouraging a tri-national responsibility and approach to understanding the Gulf of Mexico ecosystem, involving the United States, Mexico, and Cuba.
- Collaborating and cooperating with other organizations that are dedicated to addressing issues related to the Gulf of Mexico, in order to achieve common goals.
- Freely disseminating research results to the scientific community, management agencies, the general public, and policy makers, in order to foster wise and appropriate use of the Gulf of Mexico.

Benefits to the state will include recognition as the leading marine research institute in the Gulf. A highly educated workforce will develop in and around the institute, and Texas coastal resources will be conserved by wise use and management. GMERL funding provides a long-term connection of the State of Texas to this soon-to-be prestigious, new research institute.

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<th>Director Signature:</th>
<th>Authorized Institutional Representative Signature:</th>
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<tr>
<td>Date: 30 March 2004</td>
<td>Date: 3-31-04</td>
</tr>
</tbody>
</table>
# Texas Higher Education Coordinating Board

## 2004 Research Assessment Program Self-Study

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<thead>
<tr>
<th>Name of Program:</th>
<th>Marine Science Institute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director:</td>
<td>Wayne S. Gardner</td>
</tr>
<tr>
<td></td>
<td>TEXAS HIGHER EDUCATION COORDINATING BOARD</td>
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<table>
<thead>
<tr>
<th>Name of Institution:</th>
<th>The University of Texas at Austin</th>
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<tr>
<td>Program Mailing Address/Telephone/Fax/E-Mail:</td>
<td>Name/Address/Telephone/Fax/E-Mail of Person to whom questions concerning this document should be addressed:</td>
</tr>
<tr>
<td>750 Channel View Drive</td>
<td>Wayne S. Gardner</td>
</tr>
<tr>
<td>Port Aransas, TX 78373-5015</td>
<td>Marine Science Institute</td>
</tr>
<tr>
<td>(361) 749-6730 phone</td>
<td>750 Channel View Drive</td>
</tr>
<tr>
<td>(361) 749-6777 fax</td>
<td>Port Aransas, TX 78373-5015</td>
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<td>(361) 749-6730 phone</td>
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<tr>
<td></td>
<td><a href="mailto:gardner@utmsi.utexas.edu">gardner@utmsi.utexas.edu</a></td>
</tr>
</tbody>
</table>

### Executive Summary (200-word description of mission, objectives, benefits to State):

The Institute is dedicated to education, research, and service/outreach, as applied to Texas coastal zone and other marine environments. A primary goal of the Institute is to train students/youth professionals and improve our understanding of these marine systems through education and rigorous scientific investigations in the Department of Marine Science (DMS), housed at UTMSI. The research, teaching, and outreach functions take advantage of the unique facilities of the Institute and its shore-side location on the Texas Gulf coast. The Institute's missions focus on three general interdisciplinary areas: Fish Physiology/Ecology, Ecosystem Dynamics, and Biogeochemistry and also incorporate Geology and Physical Oceanography into research and training. The Institute operates a fleet of research vessels that support missions of UTMSI and other local, state, national and international organizations. The Institute is a field station and provides housing and laboratories to support visiting scientists to study the Texas coast. The scope of research ranges from molecular studies to ecosystem level investigations and includes biogeochemical studies of coastal and oceanic regions. Success is gauged by the number of graduate students; federal and state funding; peer-reviewed publications; awards and honors for outstanding research and teaching; and the accomplishments of DMS graduates. State benefits include: training of young professionals to fill needed positions, providing professional marine-science knowledge and expertise to state agencies and other organizations, providing educational experiences to school children, teachers, and other citizens and bringing federal funding into the state.

<table>
<thead>
<tr>
<th>Director Signature:</th>
<th>Authorized Institutional Representative Signature:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wayne S. Gardner</td>
<td>Dean, College of Natural Sciences</td>
</tr>
</tbody>
</table>

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<tr>
<th>Date:</th>
<th>Date:</th>
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<tbody>
<tr>
<td>Nov 31, 2004</td>
<td>Apr 1, 2004</td>
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</tbody>
</table>
Texas Higher Education Coordinating Board

2004 RESEARCH ASSESSMENT PROGRAM SELF-STUDY

Name of Program: McDonald Observatory
Director: David L. Lambert

Name of Institution: The University of Texas at Austin

Program Mailing Address/
Telephone/Fax/E-Mail:
The University of Texas at Austin
McDonald Observatory
1 University Station C1402
Austin, Texas 78712-0259
Tel: 512/471-3303
Fax: 512/471-1635
Email: director@astro.as.utexas.edu

Name/Address/Telephone/Fax/E-Mail of Person to whom questions concerning this document should be addressed:

David L. Lambert, Director
The University of Texas at Austin
McDonald Observatory
1 University Station C1402
Austin, Texas 78712-0259
Tel: 512/471-3300
Fax: 512/471-1635
Email: director@astro.as.utexas.edu

Executive Summary (200-word description of mission, objectives, benefits to State):

The McDonald Observatory's mission and objective is to conduct and support research in astronomy at UT Austin and to sustain and develop effective programs of public outreach and educational activities.

The Observatory operates optical telescopes in West Texas primarily for use by observatory scientists, and faculty and graduate students of UT Austin's Department of Astronomy. Instrumentation and detector development is undertaken by the observatory in Austin.

Research is conducted into problems of contemporary astrophysics from the solar system through Galactic stars to external galaxies and issues of cosmology.

A vigorous effort in public outreach and education is undertaken. The West Texas Visitors' Center opened in 2002 includes a modern exhibit hall and runs star parties and telescope tours, and regular workshops for K-12 teachers. Approximately 200,000 visitors are expected to pass through the Visitors' Center this year. The popular daily radio program Stardate and its Spanish counterpart Universo are produced in Austin.

The benefits to the State include the presence of a first-class scientific facility to support the educational mission of UT Austin, and to bring non-State funds to Texas. The Visitors' Center is a premier tourist attraction and an economic stimulant for West Texas.

Director Signature:

Authorized Institutional Representative Signature:

Title: Dean, College of Natural Sciences

Date: March 31, 2004

* Assistant Dean, Research & Facilities
Texas Higher Education Coordinating Board

2004 RESEARCH ASSESSMENT PROGRAM SELF-STUDY

<table>
<thead>
<tr>
<th>Name of Program:</th>
<th>Director:</th>
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<tbody>
<tr>
<td>Texas Real Estate Research Center</td>
<td></td>
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<tr>
<td>(Real Estate Center)</td>
<td>R. Malcolm Richards, Ph.D.</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Name of Institution:</th>
<th>Name/Address/Telephone/Fax/E-Mail of Person to whom questions concerning this document should be addressed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texas A&amp;M University</td>
<td>R. Malcolm Richards</td>
</tr>
<tr>
<td>Real Estate Center</td>
<td>2115 TAMU</td>
</tr>
<tr>
<td>College Station, TX 77843-2115</td>
<td>College Station, TX 77843-2115</td>
</tr>
<tr>
<td>Telephone: (979) 845-2076</td>
<td>Telephone: (979) 845-2076</td>
</tr>
<tr>
<td>Fax: (979) 845-0460</td>
<td>Fax: (979) 845-0460</td>
</tr>
<tr>
<td>Email: <a href="mailto:rmr@tamu.edu">rmr@tamu.edu</a></td>
<td>Email: <a href="mailto:rmr@tamu.edu">rmr@tamu.edu</a></td>
</tr>
</tbody>
</table>

Executive Summary (200-word description of mission, objectives, benefits to State):

The Texas Real Estate Research Center (Real Estate Center) was created in 1971 by the 62nd Texas Legislature with passage of Senate Bill 338. The Center’s creation was the result of an industry led initiative. A group of Texas real estate professionals attending a conference in the Northeast ran across materials from another real estate center and thought that Texas’ real estate sector would benefit from having a similar entity available within the State.

Thus, the Real Estate Center was created to be an unbiased source of research that would benefit licensees and the public. In pursuit of those objectives, the Center publishes a quarterly magazine, Tierra Grande, maintains an extensive web presence with various data series and the results of research studies being available and reaches out to serve Texas’ real estate sector in a variety of other ways. A detailed summary of the Centers “Purpose, Objectives, and Duties” is available in Paragraph 86.53 of the Texas Education Code (http://www.capitol.state.tx.us/statutes/edtoc.html).

The Center’s funding comes from Texas real estate licensees as a portion of each application and renewal fee collected by the Texas Real Estate Commission. When the Center was created, licensees agreed to provide funding through this mechanism. That the industry has been willing to continue to fund the Center speaks to the perceived value of the “investment” that has been made.

The Center’s web site is available at http://recenter.tamu.edu.

<table>
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<tr>
<th>Director Signature:</th>
<th>Authorized Institutional Representative Signature:</th>
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<tr>
<td>[Signature]</td>
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<tr>
<td>Date: March 23, 2004</td>
<td>Date: March 29, 2004</td>
</tr>
</tbody>
</table>
# 2004 Research Assessment Program Self-Study

**Name of Program:** Advanced technology Materials Research, Texas Center for Superconductivity at the University of Houston (TcSUH)

**Director:** Alex Ignatiev

**Name of Institution:** University of Houston

**Program Mailing Address/Telephone/Fax/E-Mail:**

- UHSC 202
- University of Houston
- Houston, TX 77204-5002
- 713-743-8200/713-743-8201 FAX
- ignatiev@uh.edu

**Name/Address/Telephone/Fax/E-Mail of Person to whom questions concerning this document should be addressed:**

- Alex Ignatiev
- University of Houston
- Houston, TX 77204-5002
- 713-743-8200/713-743-8201 FAX
- ignatiev@uh.edu

**Executive Summary (200-word description of mission, objectives, benefits to State):**

The Texas Center for Superconductivity focuses on the understanding and development of the fundamental properties of high temperature superconducting and other advanced materials, on the creation of new applications based on these materials, and on the dissemination of the fundamental and applied knowledge through education and outreach, and technology transfer. TcSUH integrates the scientific talents of university faculty involved in research in superconductivity and advanced materials with the applications interests of industry to not only undertake world-class basic research in superconductivity and advanced materials, but to also link that basic research with an application focused on technology transfer and commercialization for future economic benefit to Texas and the nation. To these ends, TcSUH is known worldwide for its preeminent contributions to research and development in superconductivity. TcSUH has also taken these basic works in materials science and moved them to the private sector through the formation in Texas of four spin-off companies committed to commercializing TcSUH technologies in superconducting wire, advanced infrared lasers, chemical sensors, and optical microdetectors. In addition, TcSUH plays a critical role in science outreach to the K-12 community by hosting more than 1,000 students per year in the TcSUH facilities through such events as Science Carnival, teacher workshops, and student science exhibitions.

**Director Signature:**

[Signature]

**Date:** 3-26-04

**Authorized Institutional Representative Signature:**

[Signature]

**Title:** Vice President for Research

**Date:** 7/15/04
Texas Higher Education Coordinating Board

2004 RESEARCH ASSESSMENT PROGRAM SELF-STUDY

<table>
<thead>
<tr>
<th>Name of Program:</th>
<th>Interim President:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texas Institute of Oceanography</td>
<td>Dr. James McCloy</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of Institution:</th>
<th>Texas A&amp;M University at Galveston</th>
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<table>
<thead>
<tr>
<th>Program Mailing Address/Telephone/Fax/E-Mail:</th>
<th>Name/Address/Telephone/Fax/E-Mail of Person to whom questions concerning this document should be addressed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texas A&amp;M University at Galveston P.O. Box 1675 Galveston, TX 77553 409-740- (phone) 409-740-(fax)</td>
<td>Dr. Tammy Holliday Texas A&amp;M University at Galveston P.O. Box 1675 Galveston, Texas 77553 409-740-4941 (phone) 409-740-4754 (fax) <a href="mailto:hollidayt@tamug.edu">hollidayt@tamug.edu</a></td>
</tr>
</tbody>
</table>

Executive Summary (200-word description of mission, objectives, benefits to State):

The Texas Institute of Oceanography (TIO) serves as a focus of marine research excellence and operations for TAMUS and other academic institutions in Texas and facilitates marine related research that attracts federal, federal flow-through and private industry support. Results from TIO's research efforts have provided important information for the management of Texas waters, aquatic life, beaches and shores. Studies in Galveston Bay and the Gulf of Mexico have led to increased knowledge and predictive capabilities on the effects of natural and man-made episodic events in this vital marine ecosystem. Areas of expertise include marine mammal, fish, shellfish, algae and sea turtle biology and ecology, toxic contaminant analysis, erosion processes and control, wetlands management and physical profiling of the coastal regions. New faculty hires on the Galveston and College Station campuses will result in a dramatic increase of research expertise available to the TIO. This will allow TIO to continue to expand its mission to encompass marine researchers throughout the state of Texas, work toward enhancing research quality devoting effort to the study of marine ecosystems as a whole and development of models for managing their constituent resources, and increasing federal funds in order to make TIO the premier marine science facility in the southern United States.

<table>
<thead>
<tr>
<th>Interim President's Signature:</th>
<th>Authorized Institutional Representative Signature:</th>
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<td>[Signature]</td>
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</table>

| Date: 4-8-04 | Date: 4-8-04 |
Texas Higher Education Coordinating Board

2004 RESEARCH ASSESSMENT PROGRAM SELF-STUDY

<table>
<thead>
<tr>
<th>Name of Program:</th>
<th>Director: S. Lennart Johnsson, Ph.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texas Learning and Computation Center</td>
<td></td>
</tr>
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<table>
<thead>
<tr>
<th>Name of Institution:</th>
<th>University of Houston</th>
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<tr>
<th>Program Mailing Address/Telephone/Fax/E-Mail:</th>
<th>Name/Address/Telephone/Fax/E-Mail of Person to whom questions concerning this document should be addressed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>218 Philip G Hoffman Hall 3800 Calhoun Blvd</td>
<td>Rosalinda Mendez 218 Philip G Hoffman Hall 3800 Calhoun Blvd</td>
</tr>
<tr>
<td>Houston, TX, 77204-3058 713- 743-3361 (p) 713-743-1250 (f)</td>
<td>713- 743-3361 (p) 713-743-3376 (f) <a href="mailto:rcmendez@tlc2.uh.edu">rcmendez@tlc2.uh.edu</a></td>
</tr>
<tr>
<td><a href="mailto:info@tlc2.uh.edu">info@tlc2.uh.edu</a></td>
<td></td>
</tr>
</tbody>
</table>

Executive Summary (200-word description of mission, objectives, benefits to State):

The Texas Learning and Computation Center (TLC²) is a university center with a mission to foster and support multidisciplinary research, education and training in the computational and computer science. The center’s objective is to enhance the competitiveness of research in academic disciplines that critically depend upon large-scale computing and storage facilities, high-performance networking, and state-of-the-art visualization and collaboration technologies; thereby enhancing the quality and skill sets of students pursuing careers in computational and computer science.

TLC² established and operates a state-of-the-art computational and storage facility (currently the second most powerful higher education facility in Texas), as well as visualization and networking facilities for production and experimentation. TLC² encourages the pursuit of external research funding opportunities and assists in management of received awards. It facilitates outreach, and dissemination of research through various events. The educational and workforce objectives are addressed by operating “high-tech” classrooms and curriculum development.

The benefit to the state is the production of a trained workforce in segments of the economy that exhibit strong growth, such as the health care, energy, computer and communications sectors. The State benefits from researchers receiving federal funds for significant parts of necessary infrastructure, student assistantships, and professional staff for operation of laboratories.

<table>
<thead>
<tr>
<th>Director Signature:</th>
<th>Authorized Institutional Representative Signature:</th>
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</thead>
<tbody>
<tr>
<td>&lt;Signature&gt;</td>
<td>Author's Signature</td>
</tr>
<tr>
<td>Date: 3/25/04</td>
<td>Title: Vice President for Research</td>
</tr>
<tr>
<td>Date: 7/15/04</td>
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</tbody>
</table>
Texas Higher Education Coordinating Board

2004 RESEARCH ASSESSMENT PROGRAM SELF-STUDY

<table>
<thead>
<tr>
<th>Name of Program:</th>
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<tbody>
<tr>
<td>Texas Sea Grant College Program</td>
<td>Dr. Robert R. Stickney</td>
</tr>
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</table>

Name of Institution: Texas A&M University

<table>
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<tr>
<th>Program Mailing Address/Telephone/Fax/E-Mail:</th>
<th>Name/Address/Telephone/Fax/E-Mail of Person to whom questions concerning this document should be addressed:</th>
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</thead>
<tbody>
<tr>
<td>2700 Earl Rudder Frwy South Suite 1800</td>
<td>Dr. Robert R. Stickney</td>
</tr>
<tr>
<td>College Station, TX 77845</td>
<td>2700 Earl Rudder Frwy South Suite 1800</td>
</tr>
<tr>
<td>979/845-3854 FAX 979/845-7525</td>
<td>College Station, TX 77845</td>
</tr>
</tbody>
</table>

Executive Summary (200-word description of mission, objectives, benefits to State):

The mission of the Texas Sea Grant College Program is to develop and support innovative research, education and outreach programs that address local, state and national needs directed toward improved understanding of our marine and coastal resources and the wise use and conservation thereof.

As a Sea Grant College, Texas A&M University provides support to faculty involved in marine-related research not only at the parent institution, but also at institutions of higher education throughout the state. These research grants are made through a competitive process. The Program also supports a team of communicators and extension personnel who disseminate research findings and other information to the coastal and marine resource community.

Texas Sea Grant focuses its activities on marine and coastal issues and problems that directly relate to the citizens of the state and to entities that manage the state’s natural resources. In addition to supporting research that addresses important problems as identified by a broad-based advisory committee, Sea Grant reaches tens to hundreds of thousands of people annually through the dissemination of information on topics ranging from hurricane preparedness to seafood safety. Sea Grant also provides a critical link between the state’s natural resource agencies and the wealth of talent and information that resides in the state’s institutions of higher education.

Sea Grant believes all Texans have a stake in the state’s coastal environment and the Program has a major role in educating citizens and visitors about that environment and how actions taken far inland can have profound impacts on the coast.

Sea Grant is a matching program funded at the national level by the National Oceanic and Atmospheric Administration. A local match of one dollar for every two federal dollars is required by law. Currently, the federal appropriation to Texas is approximately $1.9 million annually. That figure is supplemented through variable levels of funding received as a result of national competitions for additional research dollars and personnel support (Ports and Harbors specialist, Knauss Fellows, Industrial Fellows).

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<th>Director Signature:</th>
<th>Authorized Institutional Representative Signature:</th>
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</table>

Title: Executive Vice President & Provost

Date: 26 March 2004 Date: 29 March 2004
Appendix D

EXTERNAL REVIEW TEAMS

AARI
Dr. Adedeji Badiru
Department Head
Industrial Engineering
University of Tennessee
Knoxville, TN

Dr. David L. Hunn
Lockheed-Martin
Missiles and Fire Control
Kennedale, TX 76060

Learning and Computation
Dr. Sanguthevar Rajasekaran
Professor, Department of Computer Science and Engineering
University of Connecticut
Storrs, CT

Mr. John Towns
Senior Associate Director for Scientific Computing
National Center for Supercomputing Applications
University of Illinois at Urbana-Champaign
Champaign, IL

Dr. Juan Meza
Head, High Performance Computing Research Department
Lawrence Berkeley National Laboratory
Berkeley, CA

Real Estate
Mr. George C. Stephens
President and Broker of Record
deRaat Stephens, Inc.
Houston, TX

Dr. Joseph S. Rabianski
Professor of Real Estate and Chair
Department of Real Estate
J. Mack Robinson College of Business
Georgia State University

Marine/Coastal
Dr. Mark Peterson
Gulf Coast Research Laboratory
Department of Coastal Sciences
The University of Southern Mississippi
Ocean Springs, MS 39564

Mr. Ed Hegen
Regional Director
Coastal Fisheries division
Texas Parks and Wildlife Dept.
Rockport, TX

Dr. Edward Chesney
Associate Professor
Louisiana Universities Marine Consortium
Chauvin, LA

Dr. Kenneth Tenore
Professor and Director
Chesapeake Biological Laboratory
University of Maryland Center for Environmental Science
Solomons, MD

Superconductivity
Dr. John Mitchell
Chemist
Materials Science Division
Argonne National Laboratory
Argonne, IL

Dr. Dean E. Peterson
Center Leader
Superconductivity Technology Center
Los Alamos National Laboratory
Los Alamos, NM
McDonald Observatory  
Dr. Dennis Zaritsky  
Professor of Astronomy  
Steward Observatory  
Univ. of Arizona  
Tucson, AZ 85721

Dr. Catherine A. Pilachowski  
Professor  
Astronomy Department  
Indiana University  
Bloomington, IN

Dr. Bruce Carney  
Professor  
Dept. of Physics and Astronomy  
University of North Carolina  
Chapel Hill, NC

Texas Higher Education Coordinating Board Staff Support:

Dr. Reinold Cornelius  
Program Director, Research Programs  
Finance, Campus Planning, and Research

Dr. Linda Domelsmith  
Director, Research  
Finance, Campus Planning, and Research

Dr. Deborah L. Greene  
Assistant Commissioner  
Finance, Campus Planning, and Research
Appendix E

Texas Higher Education Coordinating Board
Research Assessment Program – 2004

Program Visited: ______________________________________________________

Date: ___________   Program Contact Person: ____________________________

Site Visitors: _______________________________________________________

Chapter 144 of the Texas Higher Education Code describes the Research Assessment Program. Under this program, the Texas Higher Education Coordinating Board is charged with reviewing separately-budgeted research programs under a schedule determined by the Legislative Budget Board. The legislation specifies that four aspects of these programs shall be evaluated: intrinsic merit, research performance, potential contribution of the research to the development of knowledge and instruction in advanced and emerging technologies, and the potential contribution to economic development. The following are working definitions of each of these criteria. Because of the heterogenous nature of the programs evaluated under the Research Assessment Program, evaluators may find it necessary to enlarge on these criteria.

**Intrinsic merit** – the importance of the problem to Texas, technical excellence, capabilities of the investigators, quality of facilities.

**Research performance** – the research output of the program as measured by publications, leveraging of funds, new discoveries and other developments.

**Potential contribution to the development of knowledge and instruction in advanced and emerging technologies** – the program’s potential to create new knowledge and the integration of the program in the institution’s academic program.

**Potential contribution to economic development** – the importance of the program to the economic base of the state, potential for technology transfer, patents and copyrights, human resources development, leveraging.

Evaluators are encouraged to address all aspects of the program being reviewed, but it is requested that these four criteria be specifically addressed in the written comments. In addition, it is requested that a rating be provided for each of these criteria. The following ratings should be used:

**Very Good:** One of the best programs in the nation.
**Good:** A quality program that may be of value to the State but not yet of national stature.

**Fair:** A program that is making positive contributions but could be expected to do better.

**Poor:** A program that has serious deficiencies.

**Intrinsic Merit**

**Rating:** ______________

Questions that may help you address this topic:

1. Is a program such as this a good investment for the State?
2. Does the program have realistic goals and objectives?
3. Is the work being done of high quality?
4. Does the program have a highly-qualified staff?
5. Are the administrative practices of the program appropriate?
6. Is the program fulfilling its stated objectives?
7. Is the program responsive to its clients’ needs?
8. Is the program well thought of regionally? nationally? internationally?

**Comments of evaluators:**
Research Performance

Rating: _____________

Questions that may help you address this topic:
1. Has the program made a substantial contribution to new knowledge?
2. How would you rate the performance of the program regarding publications?
3. How would you rate the performance of the program regarding leveraging of funds?
4. Does the program have a mechanism to ensure that it focuses its efforts on the most relevant research topics?
5. Does the program have a mechanism for actively disseminating the results of its research?

Comments of evaluators:
Potential contribution to the development of knowledge and instruction in advanced and emerging technologies

Questions that may help you address this topic:
1. Does this program focus its efforts on advanced and emerging technologies?
2. Is the program likely to make substantial contributions in this area?
3. Is the program integrated into the academic program of the institution?
   - is the research being done by faculty and students or by professional staff?
   - is the research relevant to the instructional program of the institution and being incorporated into it?

Comments of evaluators:
Potential contribution to economic development

Questions that may help you address this topic:
1. Are the results of the research program important to the economic development of the state?
2. Does the program have a program for disseminating the results of its research?
3. What evidence is there that the program is contributing to the economic development of the State?
4. Does the program encourage patents, copyrights, and commercialization of its research results?
5. Is there evidence that students from the program transfer the results of the program’s research to industry?
6. Does the program have an advisory committee or other mechanism for assessing the needs of the industry or group being served?
7. Is there evidence of industry support?

Comments of evaluators:
Other comments you wish to make:
Appendix F

TEXAS HIGHER EDUCATION COORDINATING BOARD
ADVISORY COMMITTEE ON RESEARCH PROGRAMS

Norman Hackerman, Ph.D., Chair (2004)*
President Emeritus
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512/471-5835 (office)
512/472-5725 (home); FAX: 512/471-8696
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Bonnie J. Dunbar, Ph.D. (2003)*
Assistant Director, University Research
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Managing Partner, Medical Ventures
STARTech Early Ventures
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214/576-9804; FAX: 214/576-9849
frank@startech.org

John McKetta, Ph.D. (2005)*
Professor Emeritus and
Joe C. Walter, Jr. Chair Emeritus
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mcketta@che.utexas.edu

Bettie Sue Siler Masters, Ph.D. (2005)*
Welch Foundation Professor of Chemistry
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San Antonio, TX 78284-7760
210/567-6627; FAX: 210/567-6984
masters@uthscsa.edu

Roberto A. Osegueda, Ph.D. (2004)*
Director, College of Engineering
The University of Texas at El Paso
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El Paso, TX 79968
915/747-7950; FAX: 915/747-5921
osegueda@utep.edu

Max D. Summers, Ph.D. (2004)*
Distinguished Professor
Holder, Chair in Agricultural Biotechnology
Texas A&M University
Minnie Bell Heep Building, Room 324
College Station, TX 77843-2475
979/847-9036; FAX: 979/845-8934
m-summers@tamu.edu

*(year) indicates term expires in December that year

Coordinating Board Research Committee Officer
Gerry Griffin, Chair
PO Box 526
Hunt, TX 78024
Related reports available from the Texas Higher Education Coordinating Board, Division of Finance, Campus Planning, and Research:

*Research Experiences for High School Science and Math Teachers – Summer 2004, August 2004*

*Research Expenditures, September 1, 2002 – August 31, 2003, April 2004*

*Research Assessment Program – 2002 Final Report, October 2002*

Related information is also available at these websites:

http://www.thecb.state.tx.us/ResearchExpenditures/
http://www.thecb.state.tx.us/RestrictedResearch/
http://www.thecb.state.tx.us/research/
http://www.arpatp.com/
http://www.researchinTexas.com

For information about this program contact:

Dr. Linda Domelsmith  
Texas Higher Education Coordinating Board  
Division of Finance, Campus Planning, and Research  
P.O. Box 12788  
Austin, Texas 78711  
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