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TAMU-W-86-001 C3

Marine Education Symposium



March 1, 1986

Texas A&M University

Sea Grant College Program • Department of Educational Certification and Assessment

1986

The seventh annual Marine Education Symposium is intended to acquaint Texas high school students and teachers with current research in the marine sciences, as well as to provide an introduction to some of the more general concerns in marine affairs. The speakers represent a variety of disciplines — science, social studies, literature, music and career counseling — in recognition of the diverse interests of high school students.

All students in grades 9 through 12 are encouraged to attend, along with their teachers, parents or other interested adults. Elementary, middle school and junior high school teachers are also invited.

Location

The 1986 Marine Education Symposium will be Saturday, March 1, 1986, in the J. Earl Rudder Conference Center on the Texas A&M University campus. Participant check-in will be in the first floor lobby, late registration will be in the second floor lobby and all conference sessions will be elsewhere in Rudder Tower.

Exhibits

Exhibits representing various units of Texas A&M University and marine-related service organizations will be displayed in the first floor lobby of Rudder Tower from 8 a.m. until 5 p.m. All participants are encouraged to visit these exhibits, to learn more about the University's departments and about marine animal conservation efforts.

Exhibitors represented in these displays include:

- Center for Environmental Education
- Galveston County Sheriff's Department Beach Patrol (in Rudder mall)
- HEART (Help Endangered Animals—Ridley Turtles)
- High School Credit Study Tour to Hawaii
- Institute of Nautical Archaeology
- Ocean Drilling Program
- Texas A&M University at Galveston
- Texas Marine Mammal Stranding Network
- Texas A&M University Ocean Engineering Program
- Texas A&M University Sea Grant College Program
- Texas A&M University Departments of
 - Educational Curriculum and Instruction
 - Oceanography
 - Wildlife and Fisheries Sciences

Sponsored by the Sea Grant College Program at Texas A&M University in cooperation with the Department of Educational Curriculum and Instruction.

Program at a Glance

The Symposium schedule includes a general session for all participants and two 45-minute sessions featuring a variety of speakers, followed by an afternoon of tours of various facilities on the Texas A&M campus or by hands-on workshops for students and teachers.

Registration	8:00 - 9:00 a.m.
General Opening Session	9:00 - 10:00 a.m.
Seminar Session A	10:15 a.m. - 11:00 a.m.
Seminar Session B	11:15 a.m. - 12 noon
Lunch Break	12:00 - 1:00 p.m.
Tours/Workshops.....	1:00 p.m. - 5:00 p.m.

Registration

All participants—students, teachers, accompanying adults—must register. A name tag will be issued to each registrant as a ticket of admission to all sessions. The preregistration deadline is February 3, 1986; the \$3.00 registration fee covers all Symposium sessions, handouts, tours and workshops. Registrations received at the door on March 1, 1986, must be accompanied by a \$4.00 fee.

Speakers, topics and a brief description of each presentation are listed in the following pages. Each registrant should indicate the first, second and third choices by speaker number for each session. Several sessions are restricted to 25 participants due to space limitations; prompt preregistration will increase participants' chances of receiving their first choice.

Registrants should also indicate first, second and third choices (by number) for tours or workshops. Because of space limitations, participants will be registered for **only one tour or one workshop**.

Further information is available from Amy Broussard, Symposium coordinator, (409/845-7524). Registration forms and fees should be returned to Marine Education Symposium, Sea Grant College Program, Texas A&M University, College Station, Texas 77843-4115.

Keynote Address

Rudder Auditorium

Welcome and Introductions..... Dr. Lauriston R. King
Deputy Director, Sea Grant College Program

Keynote Address William M. Marquet
Senior Research Specialist and Instrumentation Engineer
Woods Hole Oceanographic Institution

Vehicle Systems for Deep Ocean Exploration

Deep ocean seafloor research and exploration requires a family of vehicles with specialized instruments. The way in which both manned and unmanned vehicles are used will be illustrated. The manned vehicles include ALVIN and SEA CLIFF. The unmanned vehicles include ARGO, which found the Titanic, and ANGUS, which conducted the photographic survey of the ship.

Opening Session 9 a.m. - 10 a.m.

Session A 10:15 - 11 a.m.

- 1. The Things You Can Find on Our Beaches!** Anthony Amos, Research Associate, The University of Texas Marine Science Institute at Port Aransas.

An amazing variety of "stuff" can be found on Texas beaches, ranging from natural things such as Sargassum weed, Portugese Men-of-War, and stranded turtles, whales and dolphins, to man-made junk, including plastic, drums of chemicals, bottles, cans and an extraordinary variety of unlikely objects from parts of oil platforms to children's toys. The talk examines how they get there, where they come from, and what effect they have on the beach inhabitants. (Oceanography/beach processes, generally non-technical)
- 2. Seeing with Sound in the Sea,** Dr. Aubrey Anderson, Deputy Department Head, Department of Oceanography, Texas A&M University.

Radar cannot be used beneath the sea's surface and direct observation with light is limited. Fishermen use sonar to "count" fish while geologists map seafloor topography and mineral deposits with multiple-beam echo-sounders and side-scan sonars. (Science, semi-technical)
- 3. Hurricane Evacuation,** Dr. Philip Berke, Assistant Research Scientist, College of Architecture and Environmental Design, Texas A&M University.

Tens of millions of people in the nation's coastal areas are threatened by hurricanes. The principal means of preventing the loss of many lives has been through evacuation of people to safe areas. The current research objective is to both analyze and encourage the use of computers, satellites and other forms of technology in planning for hurricane evacuation. (Planning, non-technical)
- 4. Mechanical Damage to Coral Reefs,** Dr. Thomas J. Bright, Director, Sea Grant College Program, and Professor, Department of Oceanography, Texas A&M University.

Coral reefs within U.S. waters are subject to destructive effects of mechanical damage caused by reef organisms, storms and human activity. Some impacts of current concern are anchoring and, surprisingly, reef destruction by treasure hunters. Several federal and state agencies are now devising ways to regulate activities that result in mechanical damage to coral reefs. (General, non-technical)
- 5. Sea-going Oceanography,** Dr. David Brooks, Associate Professor, Department of Oceanography, Texas A&M University.

To understand the ocean, one must observe it. Sea-going oceanographers use ships and special equipment to measure currents, determine water properties, and collect samples. Some examples of these activities will be given. (Science, non-technical)
- 6. Careers in Diving and Hyperbaric Medicine,** Dr. William Fife, Professor, Department of Biology, Texas A&M University, and Director, Hyperbaric Laboratory.

Diving is one of the oldest careers. One of the newest careers is hyperbaric medicine. They are related by a common thread, and modern diving is nearly as complicated as medicine. (Science, non-technical)

7. **The Old Oceans and the Extinction of the Dinosaurs**, Dr. Stefan Gartner, Professor, Department of Oceanography, Texas A&M University.
The extinction of the dinosaurs is just one aspect of a much larger episode of extinctions that occurred about 65 million years ago. Ocean sediments offer the best evidence for this extraordinary event. (Science, semi-technical)
8. **Offshore Alaska: An Oil Frontier**, Ann Jochens.
Giant oil fields are thought to exist off the Alaskan coasts. Yet the harsh, often frozen, environment and the abundant wildlife challenge man's technology and ingenuity to discover and develop these oil resources in a way that protects the worker and the environment. These challenges are being met through the dedicated work of the oil industry, government and the people of Alaska. (General, non-technical)
9. **Drilling in the Deep Oceans**, Dr. Robert B. Kidd, Professor of Oceanography and Manager of Science Operations, Ocean Drilling Program, Texas A&M University.
Texas A&M University is the science operator for the premier international program in ocean sciences—the Ocean Drilling Program. This presentation reviews the history, goals and major results of scientific ocean drilling. (Science, non-technical)
10. **Hydrolab: Manned Underwater Habitat**, Dr. Andre Landry, Associate Professor, Department of Marine Biology, Texas A&M University at Galveston.
Hydrolab is a manned habitat used by diving scientists who live underwater and study marine life. A typical research mission conducted by a team of Texas A&M scientists living underwater for seven days is described. (Underwater research, technical)
11. **Boiled, Fried and Stuffed—the Saga of Aggie Super Shrimp**, Dr. Addison L. Lawrence, Professor and Project Leader, The Texas A&M University System Shrimp Mariculture Project.
Aggie Super Shrimp—it may not be a household name yet, but the day is fast approaching. Shrimp is a delicacy long associated with Texas' Gulf Coast, but foreign imports far exceed the quantity caught by U.S. fishermen. Shrimp mariculture, or shrimp farming, will be a significant factor in meeting demands for human consumption and could be of economic importance to coastal areas. (Science, semi-technical)
12. **Are Marine Turtles Worth Saving?** Dr. David Owens, Associate Professor, Department of Biology, Texas A&M University.
For several centuries man has utilized the sea turtles to his advantage. In many areas, the sea turtles have been over-exploited. This discussion will cover the basic biology of marine turtles and the current efforts to save these valuable animals from extinction. (Science, non-technical)
13. **Coastal Ocean Pollution—Today and Tomorrow**, Dr. B.J. Presley, Professor, Department of Oceanography, Texas A&M University.
The objectives, techniques and preliminary results from the NOAA "Status and Trends" program will be discussed. This program is intended to assess the current state of coastal ocean pollution and determine future trends. (Marine Pollution, technical)

Session A 10:15 - 11 a.m.

14. **An Ocean Engineer at Work**, Dr. Robert E. Randall, Associate Professor and Associate Head, Ocean Engineering Program, Texas A&M University.
The development and use of ocean resources has provided the impetus for the development of the new ocean engineering discipline. A project for measuring undersea brine plumes and other projects on which ocean engineers are working will be discussed. The ocean engineering curriculum at Texas A&M will be outlined briefly, and career opportunities will be addressed. (Ocean Engineering, non-technical)
15. **Toxic Marine Algae**, Dr. Sammy Ray, Dean, Moody College of Marine Technology, Texas A&M University at Galveston.
Severe, and often fatal, human poisoning following ingestion of certain shellfish and fish occurs sporadically in widely scattered areas throughout the world. The role played by various marine algae in this public health problem will be presented through a series of audio-visual methods. (Science, technical)
16. **Saltwater Sport Fishing Fever—Catch It!** Mel Russell, County Extension Agent-Marine, Sea Grant Marine Advisory Service, Texas A&M University.
Target species and attitudes of today's recreational fishermen will be discussed. There will also be a look at sport fishing tournaments, proper care of catch, fishery resource management, and the bait fishing industry. (General, non-technical)
17. **Marine Mammals in the Gulf of Mexico**, Dr. David Schmidly, Department of Wildlife and Fisheries Sciences, Texas A&M University.
The whales, dolphins, manatees and seals that occur in the Gulf of Mexico are discussed with regard to their life history and conservation status. Special emphasis is directed toward endangered and threatened species. (Zoology, non-technical)
18. **The Beaches Are Moving**, Ginny Agnew and David Preister, Assistant Attorneys General, Environmental Protection Division, Texas Attorney General's Office, Austin, Texas.
A discussion of the legal effect of erosion on the public's use of Texas' beaches.
19. **Defense and Beyond**, Lt. Andrew Segovia, NROTC Unit, Texas A&M University.
The presentation explores the U.S. Navy's role in maritime industry and research from both a historical and contemporary perspective. (Military history, career planning, non-technical)

1. **The Things You Can Find on Our Beaches!** Anthony Amos, Research Associate, The University of Texas Marine Science Institute at Port Aransas.

An amazing variety of "stuff" can be found on Texas beaches, ranging from natural things such as Sargassum weed, Portuguese Men-O-War, and stranded turtles, whales and dolphins, to man-made junk, including plastic, drums of chemicals, bottles, cans and an extraordinary variety of unlikely objects from parts of oil platforms to children's toys. The talk examines how they get there, where they come from, and what effect they have on the beach inhabitants. (Oceanography/beach processes, general non-technical)

2. **Sea Monsters: Fact or Fiction?** Dr. Dennis Berthold, Professor, Department of English, Texas A&M University.

Both mariners and novelists have described dangerous encounters with sharks, whales, mermaids, sea serpents, and other assorted monsters of the deep. Are these real or imagined? Slides and readings will help answer this question. (Humanities, non-technical)

3. **Oceanic Zooplankton: Open Ocean Animals Adrift in an Azure Sea,** Dr. Douglas Biggs, Associate Professor, Department of Oceanography, Texas A&M University.

A slide show survey of animal plankton, their life histories and their life styles, as photographed alive by scientists on research vessels of Texas A&M University and other oceanographic institutions. (Oceanic biology, non-technical)

4. **Mechanical Damage to Coral Reefs,** Dr. Thomas J. Bright, Director, Sea Grant College Program, and Professor, Department of Oceanography, Texas A&M University.

Coral reefs within U.S. waters are subject to destructive effects of mechanical damage caused by reef organisms, storms and human activity. Some impacts of current concern are anchoring and, surprisingly, reef destruction by treasure hunters. Several federal and state agencies are now devising ways to regulate activities that result in mechanical damage to coral reefs. (General, non-technical)

5. **Career Opportunities in the Merchant Marine and Related Fields,** Ralph Davis, Associate Dean, Texas Maritime College, Texas A&M University at Galveston.

The range of career paths in the U.S. Merchant Marine and related fields will be discussed, along with the educational requirements and opportunities of each option. The varying types of employment currently available also will be presented. (Career planning, non-technical)

6. **Careers in Diving and Hyperbaric Medicine,** Dr. William Fife, Professor, Department of Biology, Texas A&M University, and Director, Hyperbaric Laboratory.

Diving is one of the oldest careers. One of the newest careers is hyperbaric medicine. They are related by a common thread, and modern diving is nearly as complicated as medicine. (Science, non-technical)

Session B 11:15 - 12 noon

7. **Minerals from the Sea**, Prof. Jark Elipse, Associate Dean, College of Engineering, Texas A&M University.
Mining the ocean floor for minerals of strategic importance to our nation is a challenging engineering adventure. (Engineering, technical)
8. **The Old Oceans and the Extinction of the Dinosaurs**, Dr. Stefan Gartner, Professor, Department of Oceanography, Texas A&M University.
The extinction of the dinosaurs is just one aspect of a much larger episode of extinctions that occurred about 65 million years ago. Ocean sediments offer the best evidence for this extraordinary event. (Science, semi-technical)
9. **Songs and Stories of the Sea**, Dr. James Kracht, Professor, and Dr. Donna Wiseman, Associate Professor, Department of Educational Curriculum and Instruction, Texas A&M University.
Songs and stories of 19th Century seamen reveal much about life aboard the sailing ships of the period. Samples of songs and stories will be shared and participants will be involved in exploring the meaning of them. (Social studies, language arts, non-technical)
10. **Hydrolab: Manned Underwater Habitat**, Dr. Andre Landry, Associate Professor, Department of Marine Biology, Texas A&M University at Galveston.
Hydrolab is a manned habitat used by diving scientists who live underwater and study marine life. A typical research mission conducted by a team of Texas A&M scientists living underwater for seven days is described. (Underwater research, technical)
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The whales, dolphins, manatees and seals that occur in the Gulf of Mexico are discussed with regard to their life history and conservation status. Special emphasis is directed toward endangered and threatened species. (Zoology, non-technical)
16. **The Vessels of Exploration and Discovery: The Cutting Edge of Maritime Technology**, Joe J. Simmons, Research Assistant, Institute of Nautical Archaeology.
This presentation will highlight the Institute of Nautical Archaeology's activities in the Caribbean. A number of shipwrecks that date to the period of exploration and discovery (c. 1491-1550) are currently being investigated or are slated for future work. Information gathered from excavations and subsequent research will be used in the reconstruction of various Columbus-era ship replicas to be built for the 500th anniversary of the discovery of the New World. (General, non-technical)
17. **Texas' Coastal Birds: A Rich Natural Resource**, Dr. Doug Slack, Professor, Department of Wildlife and Fisheries Sciences, Texas A&M University.
Representatives of the rich diversity of bird life found in habitats from the beach to the marsh will be shown. Special emphasis will be placed on the species unique to Texas. The behavior and management of whooping cranes will be highlighted. (Wildlife, wetlands, non-technical)
18. **Hurricanes Affecting the Texas Coast**, Dr. Ayler Thompson, Professor, Department of Meteorology, Texas A&M University.
The structure and behavior of hurricanes and other tropical cyclones affecting the Texas coast are described. Details of a few hurricanes affecting Texas are given. Some of the forecast problems are described. (Science, semi-technical)
19. **Oceanography On, Under and Over the Water**, Capt. T.K. Treadwell, Assistant Department Head for Marine Operations, Department of Oceanography, Texas A&M University.
Ships, submarines, satellites and divers—a look at oceanography on, under and over the water. (Oceanography, non-technical)

Tours

A variety of tours have been scheduled, including some that will introduce Texas A&M facilities other than those involved in marine education. You are asked to pre-register for all tours. Space will be reserved for you and tickets will be included in your registration packet. The times given for each tour indicate when it will depart from Rudder Tower. The tour length includes both the actual tour and transportation time. Guides will be provided for each tour.

1 p.m.

Tour 1 - Biology of the Endangered Marine Turtles

A slide show will introduce the basic biology of marine animals, followed by a tour of the laboratory and an examination of the three species common to Texas.

Tour length: 1 hour 15 minutes

Capacity: 30

Tour 2 - Hydromechanics Laboratory

Tour the Hydromechanics Laboratory and observe the operation of the wave tanks, towing tank and other hydraulic test facilities.

Tour length: 1 hour 45 minutes

Capacity: 20

1:15 p.m.

Tour 3 - Electron Microscopy

Tour the University facility for high-resolution ultrastructural investigations in life and physical sciences. Capabilities of transmission and scanning electron microscopes and a demonstration of x-ray microanalysis will be shown.

Tour length: 1 hour 15 minutes

Capacity: 20

Tour 4 - Hydrogen Research Center

Tour the center where new, far-reaching developments in hydrogen research have recently been made. See an engine run from hydrogen fuel and drink the water from its exhaust. Observe an electric train run off a hydrogen fuel cell.

Tour length: 2 hours 15 minutes

Capacity: 15

Tour 5 - Texas Cooperative Wildlife Collection

Tour this unique collection, a part of the Texas A&M Department of Wildlife and Fisheries Sciences, and receive an introduction to a research collection of mammals, birds, fish, amphibians and reptiles. Because of the collection's physical location, this tour is not accessible to the handicapped or to persons in spike-heeled shoes.

Tour length: 1 hour 30 minutes

Capacity: 30

Tour 6 - Hyperbaric Medical Laboratory

Tour the hyperbaric laboratory to see the chambers used in diving research and in treatment of various diseases.

Tour length: 1 hour 45 minutes

Capacity: 45

Tour 7 - Forestry in the Eighties

Tour the new Forest Science facilities and greenhouses. See demonstrations of the new technologies used in forestry in the 1980's.

Tour length: 1 hour 30 minutes

Capacity: 25

Tour 8 - College of Veterinary Medicine

Tour the clinical facilities, veterinary anatomy facilities and the pathology museum.

Tour length: 1 hour 30 minutes

Capacity: 30

1:30 p.m.**Tour 9 - Animal Science**

Tour the Meat Science and Technology Center, as well as the Horse Center.

Tour length: 2 hours

Capacity: 40

Tour 10 - Aquaculture Research Center

Tour the facilities used to conduct research with aquatic animals. Research at the facility is conducted with various species, including red drum, catfish, crawfish, bass and tilapia.

Tour length: 2 hours

Capacity: 40

Tour 11 - Nautical Archaeology

Tour the Conservation Laboratory and see artifacts recovered from ancient shipwrecks and underwater archaeological sites that are being restored. A visit to the Ship Reconstruction Laboratory also will show the process of ship reconstruction.

Tour length: 3 hours

Capacity: 80

Tour 12 - Department of Meteorology's Weather Station and Radar Facility

A brief overview of data available to the meteorologist, preparation of forecasts and opportunities in meteorology. Tour the radar facility and the Meteorological Education Center.

Tour length: 1 hour 40 minutes

Capacity: 25

1:45 p.m.**Tour 13 - Hydromechanics Laboratory**

Tour the Hydromechanics Laboratory and observe the operation of the wave tanks, towing tank and other hydraulic test facilities.

Tour length: 1 hour 45 minutes

Capacity: 20

Tours

2 p.m.

Tour 14 - Biology of the Endangered Marine Turtles

A slide show will introduce the basic biology of marine animals, followed by a tour of the laboratory and an examination of the three species common to Texas.

Tour length: 1 hour 15 minutes

Capacity: 30

Tour 15 - Electron Microscopy

Tour the University facility for high-resolution ultrastructural investigations in life and physical sciences. Capabilities of transmission and scanning electron microscopes and a demonstration of x-ray microanalysis will be shown.

Tour length: 1 hour 15 minutes

Capacity: 20

2:15 p.m.

Tour 16 - Texas Cooperative Wildlife Collection

Tour this unique collection, a part of the Texas A&M Department of Wildlife and Fisheries Sciences, and receive an introduction to a research collection of mammals, birds, fish, amphibians and reptiles. Because of the collection's physical location, this tour is not accessible to the handicapped or to persons in spike-heeled shoes.

Tour length: 1 hour 30 minutes

Capacity: 30

Tour 17 - Hyperbaric Medical Laboratory

Tour the hyperbaric laboratory to see the chambers used in diving research and in treatment of various diseases.

Tour length: 1 hour 45 minutes

Capacity: 45

2:30 p.m.

Tour 18 - Hydrogen Research Center

Tour the center where new, far-reaching developments in hydrogen research have recently been made. See an engine run from hydrogen fuel and drink the water from its exhaust. Observe an electric train run off a hydrogen fuel cell.

Tour length: 2 hours 15 minutes

Capacity: 15

Tour 19 - Hydromechanics Laboratory

Tour the Hydromechanics Laboratory and observe the operation of the wave tanks, towing tank and other hydraulic test facilities.

Tour length: 1 hour 45 minutes

Capacity: 20

2:45 p.m.

Tour 20 - Forestry in the Eighties

Tour the new Forest Science facilities and greenhouses. See demonstrations of the new technologies used in forestry in the 1980's.
Tour length: 1 hour 30 minutes
Capacity: 25

Tour 21 - Department of Meteorology's Weather Station and Radar Facility

A brief overview of data available to the meteorologist, preparation of forecasts and opportunities in meteorology. Tour the radar facility and the Meteorological Education Center.
Tour length: 1 hour 40 minutes
Capacity: 25

Tour 22 - College of Veterinary Medicine

Tour the clinical facilities, veterinary anatomy facilities and the pathology museum.
Tour length: 1 hour 30 minutes
Capacity: 30

Tour 23 - Biology of the Endangered Marine Turtles

A slide show will introduce the basic biology of marine animals, followed by a tour of the laboratory and an examination of the three species common to Texas.
Tour length: 1 hour 15 minutes
Capacity: 30

Workshops

The afternoon workshops, for both students and teachers, are designed to offer new information or to provide an opportunity for hands-on activities. You are asked to pre-register for the workshops. Due to space limitations, registrations will be accepted for **only one tour or one workshop**. Workshops listed in Rudder Tower rooms begin at the time indicated. Workshops scheduled elsewhere on campus will depart from the second floor lobby of Rudder Tower at the time indicated. Transportation and a guide will be provided.

1 p.m.

1. How to Set Up a Saltwater Aquarium . . . and What to Do with It Next

Participants will learn how to set up a saltwater aquarium, maintain marine organisms and tips on solving problems that may occur. The demonstration will be followed by an opportunity to perform activities with living marine organisms.

Workshop Length: 2 hours

Capacity: 30

Location: Room 401, Rudder Tower

2. Making Your Day with the Marine Environment, Suzanne Friend, Marine Education Research Assistant, Sea Grant College Program, Texas A&M University

Experience a fun-filled afternoon in activities that relate to the marine environment. The workshop includes experiments plus language arts activities, as well as suggestions for marine education resources.

Workshop Length: 2 hours

Capacity: 30

Location: Room 308, Rudder Tower

1:30 p.m.

3. An Eclectic Approach to Secondary School Science, Gregory Black, Marine Education Research Assistant, Sea Grant College Program, Texas A&M University

The discussion will begin with consideration of scientific research: What is it? Who does it? Who benefits from it? A closer look at marine research will follow. Then, participants will see how other members of the scientific community, mathematicians in this case, can have valuable input into diverse research topics.

Workshop Length: 2 hours

Capacity: 30

Location: Room 402, Rudder Tower

4. It's for the Birds, Mary Judd, Naturalist, Department of Educational Curriculum and Instruction, Texas A&M University.

This workshop focuses on coastal birds. Study skins of various birds will be available for "detective" work. Through several simulation games and activities, participants will come to understand how birds are adapted to life near the sea.

Workshop Length: 2 hours

Capacity: 25

Location: Room 504, Rudder Tower

5. Aging Sharks, Steve Branstetter, Department of Wildlife and Fisheries Sciences, Texas A&M University

The workshop will consist of a short slide presentation of the life history of several shark species, and a discussion of current research on age and growth. This will be followed by a laboratory session to learn the techniques used for analysis.

Workshop Length: 2 hours 30 minutes

Capacity: 15

Location: Nagle Hall (depart from Rudder, second floor)

6. Fish and Shrimp Farming, Granvil Treece and Robert Nailon, Marine Advisory Service, Texas A&M University Sea Grant College Program

Raising fish and shrimp to sell as bait or for food shows much potential for the future. Workshop participants will look at some of the methods currently being used to raise various species and will obtain "hands on" experience by looking at the anatomy, various life stages and the food fed in each stage.

Workshop Length: 2 hours

Capacity: 30

Location: Room 510, Rudder Tower

7. SCUBA—Tips and Techniques, Jim Woosley, Lecturer, Department of Health and Physical Education, Texas A&M University and Master SCUBA Trainer, and Debbie Dorsey, Assistant SCUBA Instructor and Aquatics Director, City of Bryan

Who can have fun with skin or scuba diving? Everyone. This workshop will offer an introduction to and demonstration of skin and scuba diving, and an overview of the equipment involved, physical ability needed and safety procedures.

Workshop Length: 1 hour 30 minutes

Capacity: 50

Location: P.L. Downs Natatorium (depart from Rudder, second floor)

8. The Kemp's Ridley Sea Turtles, Pam Plotkin, Graduate Student, Department of Biology, Texas A&M University

An introduction to the ecology and life history of the Kemp's ridley sea turtle with an emphasis on the conservation methods, current research and existing problems that threaten the Kemp's ridley.

Workshop Length: 2 hours

Capacity: 30

Location: Room 301, Rudder Tower

9. Science Fair Projects, Terry Hehr, Department of Educational Curriculum and Instruction, Texas A&M University

Discover how to integrate science fair projects into the regular science curriculum. With prior planning and organization, creation of science projects can be fun as well as a learning activity during the entire school year. Introduction to this idea will include discussion, handouts with guidelines, and marine-related science project ideas.

Workshop Length: 2 hours

Capacity: 30

Location: Room 404, Rudder Tower

Workshops

10. A Menagerie of Marine Games

Have fun learning about the marine environment with games and simulations from **Investigating the Marine Environment and Its Resources**. Activities will include Who's for Dinner, Who Eats Whom, Make a Dolphin and Shark Bingo.

Workshop Length: 2 hours

Capacity: 50

Location: Room 302, Rudder Tower

11. How Safe Is the Water?, Dr. James McCloy, Director, Coastal Zone Laboratory, Texas A&M University at Galveston, and Lt. Vic Macio, Galveston County Sheriff Department Beach Patrol

Swimming is the number one recreational activity in Texas, which is not surprising considering our access to swimming pools, beaches, lakes, bayous and rivers. It also accounts for nearly half of the water-related deaths in the state each year. This workshop will cover the precautions that apply in any water, with special emphasis on beach safety.

Workshop Length: 2 hours

Capacity: 50

Location: Rudder Fountain Mall Area

12. Sampling Techniques for the Marine Environment, Sea Grant Program Marine Fellows, Texas A&M University

Participants will see a slide show of oceanographic sampling methods and data analysis systems. A demonstration of some of the chemical, biological, physical and geological sampling gear will follow.

Workshop Length: 2 hours 30 minutes

Capacity: 30

Location: Oceanography/Meteorology Building (depart from Rudder, second floor)

13. Identification and Preservation of Vascular Plants, Dr. Stephen Hatch, Associate Professor, Department of Range Science, Texas A&M University

The use of morphological characters for keying plants will be demonstrated. Students will each identify plant materials using specimens found in the local area. Collection, pressing and mounting techniques will be demonstrated.

Workshop Length: 2 hours

Capacity: 30

Location: S.M. Tracy Herbarium (depart from Rudder, second floor)

2 p.m.

14. How to Set Up a Saltwater Aquarium . . . and What to Do with It Next

Participants will learn how to set up a saltwater aquarium, maintain marine organisms and tips on solving problems that may occur. The demonstration will be followed by an opportunity to perform activities with living marine organisms.

Workshop Length: 2 hours

Capacity: 30

Location: Room 501, Rudder Tower

For Teachers Only—1:30 p.m.

1. Marine Education—It Matters Now, Bonnie Blackburn, Marine Education Program Coordinator, Texas A&M University Sea Grant College Program

This workshop will give new insights into the vast possibilities of using marine concepts in the classroom regardless of the subject matter. There will be a slide presentation and numerous hands-on activities.

Workshop Length: 2 hours

Capacity: Unlimited

Location: Room 502, Rudder Tower

Workshops

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NATIONAL SEA GRANT DEPOSITORY
DATE: JAN 14 1985
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