

# SeaScripts

The Newsletter of the South Carolina Marine Educators Association

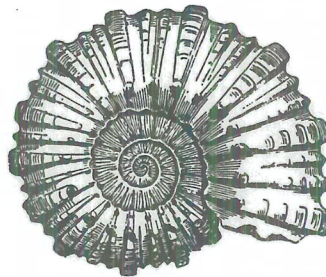
Spring 1995

## Captain's Corner

I hope this finds you finishing another productive school year as you teach your students the last concepts of the year. These are skills they will need to be successful, environmentally aware citizens in our complex and ever-changing world. Remember each of our students has a dream for his or her future. It is our responsibility as educators to give our students what they need to identify their visions and design a course of action to attain those dreams. At the same time we want to leave them with pleasant memories of their experiences in our classrooms. This is no small task.

The last week in February, nine board members gathered at Pritchards Island, near Beaufort for an overnight retreat (generously arranged by Elizabeth King). Our goal was to develop a vision for the future of SCMEA. As we gazed upon vast expanses of *Spartina* which forms green sanctuaries for many coastal species and smelled the sweet, salt air as it blew in from the calm, sparkling ocean, we talked about the roots of the

organization, where we are today, and where we hope to go in the future. We are not finished and realize that our vision will change with time and experience. As you read this newsletter and when you attend our annual fall conference, we hope you will continue to benefit from and enjoy being an active member of SCMEA. Please share any ideas you have with any of the Board Members or plan to attend the summer Board meeting on June 9, 1995 in Charleston.

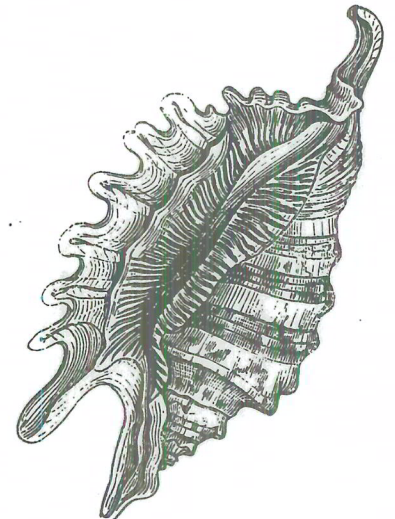


Leslie Sautter is ahead of schedule planning our exciting fall conference "Contours of the Coast: the Variable Shape of the SC Coastline". Start collecting auctions items, "stuff" to trade at Marine Meringue and ideas you would like to share in a session. This is another SCMEA conference you won't want to miss!

I will be attending the NMEA conference in San Diego along with several other SCMEA members in early August. This is an excellent opportunity to trade ideas with colleagues from across the world. I hope some of you will plan to go.

Until next time,

Julie Cliff  
SCMEA President





## SCMEA Board

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Wando High School  
1560 Mathis Ferry Road  
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College of Charleston  
Department of Geology  
66 George Street  
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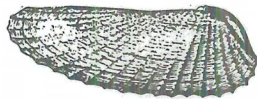
Robin Sheek  
Devon Forest Elementary School  
1127 Dorothy Street  
Goose Creek, SC 29445, (803)821-3885

### NMEA Chapter Representative:

Julie Cliff (address above)

## In memory of ...

*In early March we were shocked and saddened to hear of the sudden passing of our fellow educator, Burney Fair. Burney, only 25 years old, died of a massive heart attack on her favorite ski run in Telluride, Colorado. Many may remember her as the Island Environmentalist for DeWees Island. Burney also attended the Fall '93 SCMEA Conference at Camp St. Christopher and led a field trip to her Island. I feel blessed to have known her for the two years she was at DeWees. Her great enthusiasm and zest for life and knowledge will stay with me forever. Burney would call me frequently for information on everything from trapping amphibians to cleaning gator skulls, and I never tired of hearing her bubbly voice. She gave tirelessly of her time to host school groups on the Island and conducted numerous outreach programs in the Charleston area. Burney has touched so many with her contagious exuberance that it seems fitting that DeWees Island is building a nature center in her name. She will be greatly missed.*



Bruce C. Lampright  
SCMEA Past-President

## LORD OF THE SEA

*by Michael W. O'Shea*

The oceans teem with wondrous forms,  
That captivate the eye,  
From barking seals to moray eels,  
And soaring ernes on high.

The flippers, large and spade-shaped,  
The flukes of moderate size,  
The conical teeth and gaping jaws,  
The white spot by the eyes.

We marvel at King Neptune's world,  
And his children, wild and free,  
But he favors one above them all,  
Orcinus -- Lord of the Sea.

A remarkable cetacean,  
Living pelagically,  
I hope one day you'll get to meet,  
Orcinus -- Lord of the Sea.

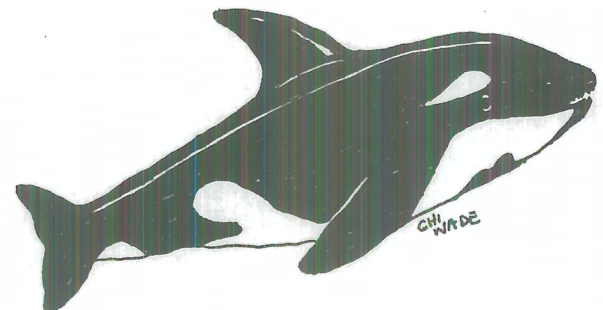
*Orcinus orca*, Killer Whale,  
Gleaming black and white,  
They reign supreme where ere they roam,  
Thirty feet of might.

The largest of the dolphins,  
With salient dorsal fin,  
Erect in males and six feet long,  
They hunt in pods with kin.

Attaining speeds of thirty knots,  
Their ferocity's unmatched,  
Gobbling mammals, squid or fish,  
Even penguins might be snatched.

The Romans named him "orca",  
The "devil of the sea",  
He's really tame and beautiful,  
While in captivity.

His high-pitched squeals might paralyze  
A larger whale with fear,  
But humans need not worry,  
When a killer whale is near.



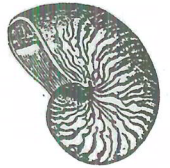
*Drawing by Chi Wade of Wando High School,  
Mt. Pleasant, SC.*

*Poem and drawing contributed by Julie Cliff,  
Wando High School.*



# 1995 SCMEA Conference

*"Contours of the Coast: the Variable Shape of the South Carolina Coastline"*  
Litchfield Resort Hotel, October 20 - 22, 1995



Have you ever wondered what the South Carolina coast looks like from the air? Have you ever wanted to explore a remote, uninhabited barrier island? Chances to get a bird's-eye view and trek to the edge of our continent are samples of the opportunities that await at this year's annual SCMEA conference. Our theme will focus on the many geomorphic ("*geo*" means earth, "*morph*" means shape) changes along our beautiful and varied coastline: from the Grand Strand of Myrtle Beach, past the barrier islands of the region surrounding Charleston, to the sea islands of the Beaufort area. Many of the field trips and workshops, as well as the Keynote Address will offer a wealth of information on the processes that cause this geomorphic variability and the resultant variety of coastal environments: from marshes to beaches to estuaries. Join many of your colleagues and explore the evolution of our coastline while experiencing what a marvelous classroom it offers.

Here's a *small* sampling of what will be offered (complete conference details will be printed in the summer newsletter):



## Lodging:

The conference will be held in a wonderful conference center located at the Litchfield Resort Hotel, just north of Pawley's Island. Fifty suites have been reserved for the nights of Oct. 20 and 21. Each suite has 2 rooms and comfortably sleeps three adults (the bedroom has 2 queen beds; the sitting room has a queen sleep sofa). The suites include a kitchenette (sink, small refrigerator, microwave, coffee pot), 2 TVs, a bathroom and spare vanity (in the bedroom), living area, and dinette table and chairs. All suites have a balcony overlooking a waterfowl-filled pond. A wonderful heated indoor pool (and an outdoor pool), sauna, jacuzzi, exercise room, and game room will beckon you! The beach is a 3-minute drive. The conference rate per suite is \$85/night (+ tax; 1-4 people). We'll help you to arrange roommates if necessary. Take advantage of the resort life!

*(Although the conference will be more expensive than the previous two conferences at Camp St. Christopher, we are making great effort to keep the expenses as low as possible. Costs will be comparable to our previous meetings held in the Myrtle Beach area. Plan ahead and please consider bringing your family to this beautiful resort!)*

## Field Trips :

- \* 1-hour overflights of the coast, from Georgetown to Isle of Palms and back
- \* half-day boat trips to Cape Romain or Capers Island
- \* 2.5 hour Explorer Cruise from Captain Dick's Marina
- \* canoe and kayak trips through old rice fields at Brookgreen Gardens
- \* geology and biology of Huntington Island State Park

## Workshops:

We need *you!* We hope that many of you will share your experiences, hands-on activities, and enthusiasm with your colleagues. Not all workshops need to relate specifically to the conference theme! PLEASE contribute to the success of the 1995 meeting by making a presentation! A form is enclosed within this newsletter issue: please return it to Leslie Sautter by June 30. Thank you for your help!

If you'd like to lead a field trip, help with a committee or if you have any questions, give Leslie Sautter a call at 953-5586, or write her at Dept. of Geology, College of Charleston, Charleston, SC 29424. We hope to see you at Litchfield!



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## *Exotic Travel ... Free Money ...*

### *All these for great SCMEA educators!*

Each year, the SCMEA awards some of South Carolina's terrific marine educators money for their work! We have three awards of \$250 each that you can use for your marine education project. We also have funds to help you attend the National Marine Educators Annual Conference - this year the meeting will be in sunny San Diego - and it's one of the best meetings possible for marine and aquatic educators. So take a look in this issue of the newsletter and fill out a form and send it in - use more paper if you have lots to say. The Scholarship Committee will review the applications and award funds this summer. Questions? Please call Rhet Wilson, SCMEA Scholarship Chair, at (803) 720-1990 or write or fax her at South Carolina Aquarium, 57 Hasell Street, Charleston, SC 29401, Fax: (803) 720-3861.



## Marine Happenings:

### Barrier Island

#### Environmental Education Program:

Environmental education classes on a barrier island for a 3 day/2 night stay. Hands-on biology, field studies. September - May. *Contact:* Director, 2810 Seabrook Island Road, John's Island, SC 29455. (803)768-0429.

### Bellefield Nature Center:

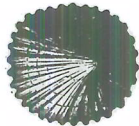
*Contact:* Hope Smiley and Scott Kennedy, Bellefield Nature Center, Route 5, Box 1003, Georgetown, SC 29440. (803)546-4623.

### Brookgreen Gardens:

Environmental education day camps, seasonal programs and workshops. *Contact:* Stuart Dudley, Brookgreen Gardens, 1931 Brookgreen Gardens Drive, Murrells Inlet, SC 29576. (803)237-4218.

### Coalition for Natural Resource Education:

Sponsors of Project KATE. Summer teacher training includes the course, "Teaching Teachers to Teach Kids About the Environment", offered in July at Camp Summerton. *Contact:* Dr. George Kessler, 272 Lehotsky Hall, Clemson University, Clemson, SC 29634. (803)656-2478.



### Tugaloo Environmental Education Center (TEEC):

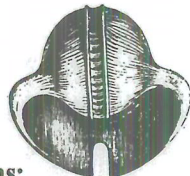
A Study of Culture and Ecosystems of Southern Appalachia. A six day curriculum that offers 3 hours of graduate credit for an additional fee. Cost is \$450 for the workshop. *Contact:* Joanne Smedna, MRD, PO Box 787, Key Largo, FL 33037. (1-800-741-1139).

### Cypress Gardens:

Classroom and family programs that explore and celebrate the blackwater cypress swamp. Special spring and summer programs offered, including stargazing programs in April. *Contact:* Cheryl Baskins or Kathy Bradley, Cypress Gardens, 3030 Cypress Gardens Road, Moncks Corner, SC 29461. (803)553-0515.

### Harborwatch:

Offers citizen water quality monitoring programs, in-service training, participatory environmental theater for elementary and middle school students, slide shows and graduate level training in Charleston. *Contact:* Sharon Robles at (803) 577-2103.



### COASTeams Programs:

Unique graduate credit course in marine science for elementary teachers in Charleston County (June 19-29), Horry County, Richland I School District and Georgetown. Two participants (the COASTeam) from a school must enroll concurrently and lead teacher workshops as part of their graduate work. Charleston County *contact* Dr. Leslie Sautter at the College of Charleston, 953-5586; Horry County, *contact* Rob Young, at Coastal Carolina, 349-2277; Richland I, *contact* Phil Astwood, USC Center for Science Education, 777-6920; Georgetown County, *contact* Wendy Allen, Baruch Institute, 546-6219.

### SC Department of Health and Environmental Control (DHEC):

The *Educational Resources Center* serves as the clearinghouse for health and environmental materials, videos and teaching aids for all programs within DHEC. Hundreds of publications and film/videos are available free of charge. Catalogues and referrals for other services (such as speakers) are also offered. *Contact:* Marie Horton, SC DHEC, 2600 Bull Street, Columbia, SC 29201. (803)734-3941.

*Ocean and Coastal Resource Management:* COASTWEEKS '95, September 17 - October 7, is a time for people of all ages to enjoy and learn about our coastal resources. Coast-related events are offered from the Grand Strand to Hilton Head Island. *Also available:* *Carolina Currents* and *Legislative Updates* newsletters. *Contact:* Donna Bates, SC DHEC-OCRM, 4130 Faber Pl., Suite 300, Charleston, SC 29405. (803) 744-5838.

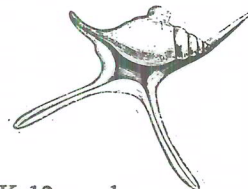
### North Inlet - Winyah Bay National Estuarine Research Reserve:

Estuarine information, field programs and resources are offered for many audiences.

*Contact:* Wendy Allen, Education Coordinator, North Inlet-Winyah Bay NERR, PO Box 1630, Georgetown, SC 29440. (803)546-6219.

### USCB Coastal Zone Education Center:

Field studies and outreach programs are offered for school groups K-12. *The Maritimes* is the free, quarterly newsletter. Spring and summer public programs include an unforgettable 5 day, 4 night residential program on Pritchards Island May 22-26, June 12-16 and August 7-11. All Pritchards programs include participation in the Loggerhead Sea Turtle Conservation Project. There is a fee for the Pritchards Island programs. *Contact:* Lynn Corliss, USCB Coastal Zone Education Center, 285 Sawmill Creek Road, Bluffton, SC 29910. (803)837-4848.



### Riverbanks Zoo:

Educational programs K-12, grade specific and multi-grade level, are offered covering human/animal, wildlife and marine topics. Programs focus on natural themes (senses, habitats, adaptations, etc.). Additional offerings for college level students. *Contact:* Riverbanks Zoological Park and Botanical Garden, Ed. Dept., PO Box 1060, Columbia, SC 29202-1060. (803)256-4773.

### SC Coastal Conservation League:

A membership organization that leads conservation activities. Family and teacher-training programs offered seasonally. *Contact:* Jane Lareau, SC Coastal Conservation League, PO Box 1765, Charleston, SC 29402. (803)723-8035.

### National Audubon Society-Beidler Forest:

Naturalist guided excursions into the virgin heart of Four Holes Swamp Sanctuary. Paddle yourself. All equipment provided. Reservations required. \$20 per person. Families with children over 8 and adults are welcome. *Contact:* Michael Dawson or staff, National Audubon Society's Francis Beidler Forest, 336 Sanctuary Road, Harleyville, SC 29448.





### South Carolina Department of Parks, Recreation and Tourism

Topics for school programs and public programs are as diverse as SC's parks with cool mountain streams, mysterious Carolina bays, rolling sandhills,

prehistoric and historic sites, beaches and marshes. Many environments can be explored with well-trained park naturalists. Special programs include Wildlife Watch and Wildflower Walks. For a copy of the Programs and Special Events Brochure contact SC State Parks, Program Section, 1205 Pendleton St., Columbia, SC 29201. (803)734-0156.



**USC - Spartanburg and SC DNR:** SETE 755 "Teaching Environmental Education" is a graduate level course for SC educators funded by the SC DNR and the Harry Hampton Wildlife Fund. This 3 semester hour course explores environmental education programs such as Project WILD, Project Learning Tree, SC DHEC programs and more. Field trips are required on Fridays. There is a \$30 resources fee; all tuition, books and travel are covered. Limit 25 educators. June 12-30. *Contact:* Dr. Ed Donovan, School of Ed., USC- Spartanburg, Spartanburg, SC 29303. (803)599-2527, fax (803)599-2574.

**Winthrop University/Bowater Inc.:** WSDT 580, "Forestry and the Environment" is a graduate, non-degree course for teachers that explores the science and the practice of forestry from a public, private and industrial viewpoint. June 12-23. Audience: certified teachers-general and environmental sciences, especially vocational agriculture. *Contact:* Barry Graden, Communications Forester, Bowater Inc., PO Box 7, Catawba, SC 29704.

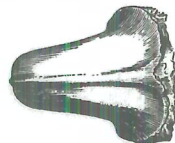
**Environmental Media Corporation:** This company designs, produces and distributes media to support environmental education. For a catalog, *contact:* Bill Pendergraft or Gwen Gerber, Environmental Media Corp., PO Box 1016, Chapel Hill, NC 27514. (919)933-3003, fax (919) 942-8785.

**South Carolina Wildlife Federation:** The state's oldest and largest conservation organization offers a variety of programs and resources for teacher, family and classroom use. Prepared program materials for National Wildlife Week, teacher packets, and weekend family trips are among the offerings. *Contact:* C. J. Frye, SCWF, 715 Woodrow Street, Columbia, SC 29205. (803)771-4417.

**Project Learning Tree Workshops:** *Contact:* Charles Moore, SC PLT Coordinator, PO Box 21707, Columbia, SC 29221. (803)896-8851.

**USC, Center for Science Education:** The CSE was established to strengthen the teaching of science and math in SC's schools. Activities include graduate-level courses in the sciences specifically designed for in-service teachers, a variety of graduate degree programs for in- and pre-service science teachers, and the development, evaluation and distribution of science teaching materials. *Contact:* Center for Science Education, USC, Columbia, SC 29208. (803)777-6920.

**South Carolina Sea Grant Consortium:** Educational programs supported by the Consortium include: participation in the development of the Clemson Extension Service 4-H Marine Camp; teacher in-service training on water quality issues; *Sea Things ... Objectively*, a collection of marine science activities for the classroom; and COASTeams, a teacher training network for marine science education. *Contact:* Bob Bacon, 287 Meeting Street, Charleston, SC 29401.

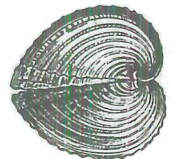


**Coastal Expeditions, Inc.:** Interpretive and instructional aquatic tours that encourage enthusiasm in the natural sciences. Will tailor to schedule for teachers. *Contact:* Anne Goold, 1132 Two Rivers Court, Mt. Pleasant, SC 29464. (803)884-7684.

**SC Department of Natural Resources:** With the consolidation of several agencies, DNR offers a wide variety of environmental education programming. An Educators Guide is available. *Contact:*

Don Winslow, SC DNR, PO Box 167, Columbia, SC 29202.

**SC State Ports Authority:** The SPA offers fact books, directories, and videos as well as programs for schools and the public that focus on the importance of ports and the transportation industry. Activities include: Port Week Celebration, held in October each year, with activities for grades 1-5. The High School Leadership Program targets Grades 9-12. College and Association Tours are available. Reservations required. *Contact:* Public Relations Div., SC State Ports Authority, PO Box 817, Charleston, SC 29402.



**South Carolina Aquarium:** The "South Carolina Aquarium News" is a free periodic newsletter what will keep you updated on the development of South Carolina's major public aquarium. *Contact:* Rhet Wilson, Program Manager, South Carolina Aquarium, 57 Hasell St., Charleston, SC 29401. (803)720-1990.

**Marine Biology Course for Teachers:** Designed for teachers of all grades. July 17 - 20 class will meet from 8:30 to 4:30. July 21 drive to Miami and sail to the Berry Islands in the Bahamas for 7 days. Course instructed by Dr. Fred James, professor of biology at Presbyterian College and Melany Nussbaumer, Director for the Upper Savannah Science and Math Hub Center at Lander College. Cost is \$300 for 3 semester hours of credit and \$450 for the boat trip. *Contact:* Dr. Fred James, Biology Department, Presbyterian College, Clinton, SC 29325. 1-800-833-4078.

**Electronic Resources:** We'd like to start listing useful network access for environmental educators - if you have a resource that works, please send the name and access information to: Rhet Wilson, SC Aquarium, 57 Hasell St., Charleston, SC 29401 for future listing here.



Compiled with assistance from the Staff of the South Carolina Aquarium. Apologies to anyone left out!



# Spineless Wonders: Plants that Eat Animals - Part 2

by Fred James  
Presbyterian College

Carnivorous plants have several amazing methods of trapping "prey". Some plants use active traps in which parts of the leaf move to engulf the organism while other plants implement passive traps. Passive traps are those in which rapid movement of the plant is not necessary in trapping "prey". There are three types of passive traps represented in South Carolina. One of the passive traps is the "pitfall type" which are represented in South Carolina by four species of pitcher plants belonging to the genus *Sarracenia* (named for Dr. Michel Sarrazin, 1659- 1734, physician at the Court of Quebec, who sent our northern species to Europe for identification). These plants are mostly found in sphagnum bogs (peat moss), wet ditches and wet savannas in the coastal plain.

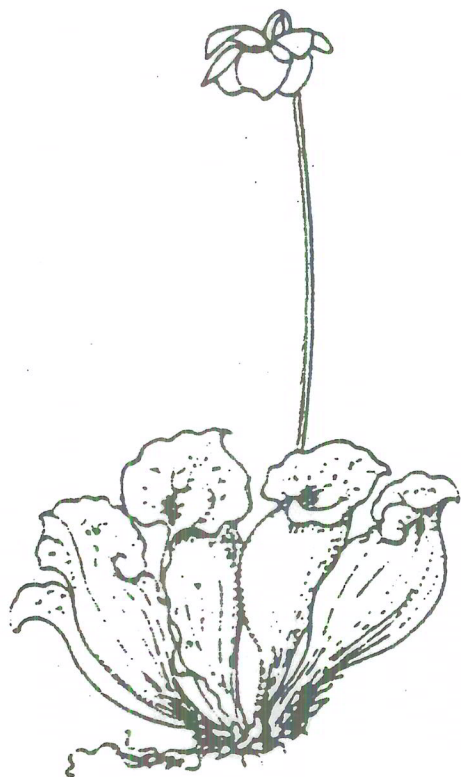
The leaves of the pitcher plant are tubular. Located at the top is a lid or hood. The hood is usually reflected (drooped) over the opening to the tubular leaf except for one species where the hood is erect (*S. purpurea*). The tube holds a mixture of water and digestive enzymes inside the base of the leaf. Production of digestive enzymes seems to be stimulated by partially digested prey. The lower portion of the pitcher is capable of absorbing digestive products. Prey includes ants, insects, and spiders. Even skeletons of frogs have been found in this watery grave. If one opens the "pitcher" leaf, the non-digestible remains of its victims will be found! Much work still needs to be done on the mechanisms of digesting the prey by the pitcher plant. In some instances (*S. purpurea*) the lid allows a dilution of enzymes by outside rainwater. The trapped organisms seem to drown and be digested by microorganisms living in this bucket of water.



*Sarracenia purpurea*

Several adaptations lure victims into a pitfall trap. The pitcher is often streaked with reddish veins the color of which attracts some animals. A sweet smelling nectar, also enticing to certain animals, is produced along the margin of the opening and on the "face" of the hood. Once an organism has been lured into the tube other adaptations insure that the prey cannot escape. The lid and insides of the tubular leaf grow stiff downward pointing hairs that hinder the escape of prey. The surfaces of the lid, margin of the opening and inner portion of the tubular leaf are extremely slippery. Under a scanning electron microscope tissue layers look like overlapping smooth shingles covered with a waxy secretion. Animals lose their grasp on the slippery surface and plunge into the watery abyss below.

An amazing array of symbiotic organisms is associated with the pitcher plant. Not only are the symbionts resistant to the digestive enzymes but some even breed in the tubular leaf! This group of organisms comprises a little ecosystem of various fungi, algae, protozoans and a number of resistant insect larva. Insects range from *Wyeomyia smithii* (the pitcher plant mosquito) and the larva of the fly *Sarcophaga* ("flesh eater"), which are harmless to the plant, to others that play havoc with the plant's tissues. A grass cutting wasp (*Isodontia* that means "equal teeth") produces an incubator condominium composed of alternating layers of grass and paralyzed crickets for the wasp larva to eat. The greatest insect threat to the pitcher plant may be a small yellow and black moth of the genus *Exyra*. The adult moth has no difficulty walking on the slippery surface of the pitcher plant. The female lays one egg per plant. The larva spins a web across the opening of the pitcher and feeds on the plant's tissues. The feeding often causes the top of the pitcher to collapse. Just before pupation, the larva cuts two holes in the leaf, one just above the other. The lower hole acts as a drain for any water that accumulates in the pitcher. The top hole allows the adult moth to escape without drowning, through a hole that it could not make itself since adults lack cutting mouth parts! Alas, nature may be coming to the aid of the beleaguered pitcher plant since some birds have learned that the holes mean a tidy meal of moth larva or pupa. Slash marks on the leaves indicate that these parasitic moths often do not live to maturity.



*Sarracenia purpurea*





# DO YOU KNOW A TERRIFIC TEACHER ... OR AN EXCELLENT EDUCATOR ... OR AN INNOVATIVE INSTRUCTOR?

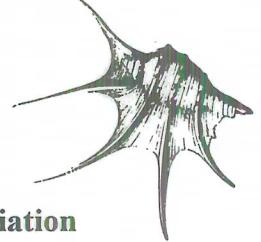
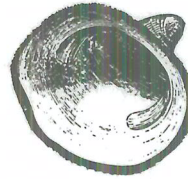
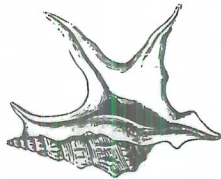
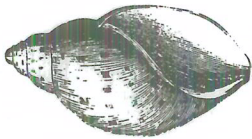
If you do, then nominate that person for SCMEA's Educator of the Year Award! We are looking for educators who are doing exciting things in the field of marine/aquatic education. Any educator working with pre-schoolers through university level students is eligible. Teachers in traditional school settings, as well as "informal educators" working in museums, nature centers and other educational settings may be nominated. Nominees for this award need not be marine science, or even full time science, teachers. Anyone who teaches about marine or aquatic environments at some point during the year is eligible. (Current SCMEA Board members are ineligible for this award. Current Board members are listed on page 2 of this newsletter.)

at our annual conference business meeting. A plaque will be presented by SCMEA's past-president at the South Carolina Science Council annual convention, to be held in Myrtle Beach November 15 -17.

The recipient of the Educator of the Year award will be required to write an article for our Spring newsletter introducing himself/herself to our membership and telling us something about his or her winning teaching style!

This is a great opportunity to recognize that educator whose energy, innovativeness and dedication have been directed toward increasing awareness and understanding of marine and aquatic environments. A nomination form is included in this issue. Fill it out for your favorite deserving educator! All nomination forms must be postmarked by September 15, 1995. Send all nominations to "Marine Educator of the Year", c/o SC Aquarium, 57 Hasell Street, Charleston, SC 29401.

The dynamic person chosen as our 1995-96 Educator of the Year will be given a \$250 cash award, to be spent at the discretion of the recipient, and a five-year membership to SCMEA. The winner's name will be announced on October 21



## Become a Member of the South Carolina Marine Educators Association

and join a group of dedicated teachers, naturalists, scientists and others interested in studying and teaching about the world of water, both fresh and salt. SCMEA provides a communication network for members to share information and ideas through newsletters and an annual statewide conference. Membership dues are \$10.00 a year and include three newsletters, a discount on the registration fee for the annual conference, and an opportunity to interact with some of the most dynamic educators in the state!

Name: \_\_\_\_\_ Place of Employment: \_\_\_\_\_  
Address: \_\_\_\_\_  
Street or PO Box City State Zip

Home Telephone Number Work Telephone Number

Please send completed form with the \$10.00 membership fee (make checks payable to SCMEA) to:  
Phil Astwood, Treasurer, SCMEA, Center for Science Education, University of South Carolina, Columbia, SC 29208.

## Join NMEA

and begin to network with educators around the country sharing a common love and concern for our water world. Membership benefits include a subscription to *Current: The Journal of Marine Education*, the newsletter, *NMEA News*; and registration discounts for some of the best annual conferences you will ever attend!

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Southwest Marine / Aquatic Educators Association  
is proud to announce the

*1995 National Marine Educators Association  
Annual Conference*

**"OCEANS WITHOUT BORDERS"**

University of California, San Diego



July 31- August 5, 1995



With Opening Night Reception at the Stephen Birch Aquarium-Museum,  
Stegner Concert featuring the Banana Slug String Band, old favorites such as Sea Faire/Sea Swap,  
the NMEA Auction featuring "the pike", as well as Field Trips, Symposia, and Concurrent Sessions,  
this conference is not to be missed!

*Deadline for registration is June 15, 1995!*

For more conference information call Joy Wolf at (619)226-3640.

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**SCMEA**  
c/o Center for Science Education  
University of South Carolina  
Columbia, SC 29208

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