Captain's Corner

Summer is finally here, and I hope everyone is enjoying some time off and a change of pace. By the time you receive this newsletter, you will probably be preparing for a new school year. This gives all of us the opportunity to add something new to our approach to marine science education. Whether you are a classroom teacher or work in marine education in another capacity, this fall is a great time to do something new and different to spark your students' interests.

Organize a field trip, volunteer your class to participate in Beach Sweep/River Sweep 1992, invite a special speaker to visit your class, or challenge your class to design a marine science project as a group or individually. SCMEA is here to help! SCMEA is a network of educators, scientists, and others working to improve and expand marine education opportunities in South Carolina. Use our organization to benefit yourself and your students.

The SCMEA 1992 Annual Conference, planned for Friday, October 9 through Sunday, October 11, is a great event to provide you with some new ideas. Phil Astwood and the conference committee have planned an exciting weekend full of fun, food, and fantastic new information. The conference will be held at the Penn Center on St. Helena Island, just east of Beaufort, South Carolina, and will focus on exploring our coastal roots. SCMEA has invited GAME (Georgia Association of Marine Educators) members to make presentations at and/or attend our conference. This will provide SCMEA and GAME members with a great opportunity to network among ourselves. Welcome to our Southern counterparts.

More specific information about the conference is included elsewhere in this newsletter and in the enclosed conference brochure. It is shaping up to be a great time. I hope to see many of you there joining in the fun and increasing your knowledge of our marine environment. Register early, space is limited!

SCMEA Committees and Board members have been making progress on a number of projects since the last newsletter.

- Stan Rachelson has been working hard to attract new members via a membership drive and to keep our members current in their duties. His new system will help us keep everyone's status up-to-date.

- Kim Mathis Purcell received the Marine Education Scholarship to attend the NMEA Conference in Oregon. Congratulations, Kim! We will be looking forward to hearing about your trip.

- The Scholarship Review Committee was making a decision on the recipient of the Marine Education Grants as this was being written.

- The Publications and Promotions Committee is working hard to complete both a SCMEA display and brochure in time to debut them at the fall conference. These products will be used to promote SCMEA at other conferences and appropriate gatherings. Keep an eye out for them in October.

- Sarah Wilson is judging the T-Shirt design contest. Send your design to Sarah, address on page 2. T-shirts and sweatshirts with the new design will be available in October.

- Bruce Lampright is investigating the possibility of SCMEA re-printing a popular slogan "NO Wetlands - NO Seafood" on bumper stickers. These bumper stickers will be on sale at the fall conference as a SCMEA fund raiser.

- SCMEA will co-sponsor an environmental education "sharathon" with the Environmental Education Association of South Carolina at the South Carolina Science Council Conference in November. SCMEA and EEASC members will share environmental activities and demonstrations with conference participants. Contact Wendy Allen if you would like to participate. Look for us there.

- The NMEA Conference, being held in Portland and Newport, Oregon in August, will provide an excellent opportunity for attendees to broaden their marine horizons. I hope everyone who goes to the NMEA Conference will share what they gained with the rest of us in October.

This is the last newsletter where I will be writing the Captain's Corner. I have enjoyed being the President of SCMEA during the past year and think SCMEA has made some great changes and improvements. I'm sure Phil Astwood will make an excellent president. Thank you to the membership, Board of Directors, and officers for your support of the South Carolina Marine Educators Association. See you in October!

Beth Day
SCMEA President
SCMEA's 1992 Conference:

"Exploring our Coastal Roots"

SCMEA's 1992 Annual Conference will be held this fall on St. Helena Island at the Historic Penn Center. Beginning on Friday afternoon, October 9, the conference will extend through Sunday, October 11. In keeping with our special setting, this conference will focus on the inhabitants of South Carolina's coast. Field trips beginning on Friday afternoon will provide an opportunity to visit some of the coastal businesses, examine coastal life, and learn what is being done to protect sea turtles. Our conference will officially begin with a keynote address by Emory Campbell, Director of the Penn Center, who will help us understand some of the problems local farmers have when an area begins to become popular.

Saturday will be a full day of concurrent sessions with a business meeting at lunch time. In the evening, we will have an oyster roast and, our new traditional, auction. Ron and Natalie Daise, local folk singers, will entertain and inform us during the roast.

A new feature this year will be a swap session on Saturday evening before dinner entitled "Marine Meringue." This is basically an open market at which you can swap anything you brought with you for anything someone else brought. It's up to you to make the best deals you can. So bring your extra goodies like shells, fossils, sand, and other "biofacts" plus posters, books and activity packets to beg borrow and swap with you colleagues, and come away with new treasures. For further information about the "Marine Meringue" swap session, contact Bruce Lampright, (803) 521-1807.

Sunday will be a day for field trips, including an opportunity for would-be divers to try out some scuba gear. Overall, this promises to be a unique conference in a very beautiful and historically significant place. We hope you will be able to join us. A brochure describing the conference is included with this newsletter for members. Since registration and housing accommodations are limited, it is imperative that interested persons register early. In other words, don't let the brochure get buried on your desk! Fill it out and send it back soon! Any questions, contact the conference chair, Phil Astwood, (803) 777-6920.

Auction Items Needed
The SCMEA Auction has become an entertaining fund raiser during our Annual Conference. Proceeds have been used to support the Marine Education Scholarship and Grant Programs for members. The success of this event depends on members bringing items such as tee shirts, books, and other marine-related novelty items to the Conference to be auctioned off. Your donations will be greatly appreciated! Auction items will be collected during the on-site registration. Also, be prepared to join in the bidding frenzy and take home some great stuff!

Funding Sources to Attend Conference
Teachers, don't forget to look into the possibility of obtaining Critical Teaching Needs (CTN) funds or DDEMSEA monies (who knows what this one stands for?) to attend the SCMEA Annual Conference. Contact you district science or staff development coordinator and request financial assistance to attend the SCMEA Conference.

Quotable Quotes
Paula Keener-Chavis conducted a fish anatomy and dissection class recently for a group of enthusiastic youngsters. One participant, while closely examining the external features of the shark in front of him, asked with great curiosity, "Do sharks have boogers?" What would your answer be?
Program Feature:
USC-Beaufort Coastal Zone Education Center

The USC Coastal Zone Education Center is located on Victoria Bluff about eight miles west of Hilton Head Island. The Center operates under the auspices of the University of South Carolina-Beaufort. The CZEC offers experiential instruction in marine sciences and coastal ecology for groups and individuals of all ages. Programs are tailored to specific classroom needs, curricular requirements, and educational levels from preschool and elementary to postgraduate. All programs emphasize sensory and hands-on experiences.

Field Study Programs are offered during the spring and fall, while Outreach Programs are brought into the classroom in the winter.

The Salt Marsh Field Study gives students the opportunity to explore the rich and diverse life of the salt marsh - one of nature's most prolific and fertile environments - where millions of organisms can inhabit a single square meter of pluff mud and Spartina grass. Activities include interpretive marsh walks, field sampling techniques, scavenger hunts, and collection of marsh plants and animals.

South Carolina beaches are dynamic and hostile environments for plants and animals living there. During the Beach Exploration students can discover the ecology of our beaches through the interrelationship of physical and biological features. This fascinating habitat is revealed through guided interpretive walks, shell collecting and taxonomy, island modeling, and environmental games.

Laboratory Exercises are available for grade 5 and up. They are usually held in conjunction with a Salt Marsh or Beach Field Study program. Options at this time include examining the Fouling Community or microscopic marine organisms and Fish Dissection. The Lab Exercises give students the opportunity to work with dissecting microscopes and other scientific tools.

Outreach Programs, which are conducted during the months when weather makes it difficult to bring students into the field, consist of hour long interactive presentations in the classroom. Topics include, Dolphins, Sharks, Marine Invertebrates, Dead Give Away - The Story Behind Skulls, South Carolina Snakes, and Sea Turtles. Programs are individually adapted for various grade levels and involve live specimens where possible.

The Coastal Zone Education Center also provides local Community Awareness Programs which are open to the public. These include shell hunting, interpretive salt marsh and beach walks, birding programs, and a resident sea turtle conservation project on Pritchard's Island.

Reservations for the 1992-93 school year for Field Study and Outreach Programs will be taken on a first come, first served basis, beginning on August 24, 1992. Spaces fill quickly. Teachers are sent pre and post-trip packages in order to aid in preparing the students for each program. The Environmental Educators are flexible and can tailor programs to suit the needs of the class. Teachers who wish to be placed on a mailing list for detailed information on creating a field study program for their class should write or call the Center at the address listed below:

USC-Beaufort Coastal Zone Education Center
P.O. Box 22524
Hilton Head Island, SC 29925
(803) 837-4848

SCMEA Marine Education Grant Award
A Report by 1991 Grant Recipient, Sharon K. Gray

Children are curious. Animals are fascinating. Combining these two factors formed the basis for a unit of study on Marine Biology for the academically gifted students at Fairfield Primary School. Our study proved to be a great vehicle through which their curiosity was stimulated, they were able to see organisms as alike and different, and they began to truly think about how we affect our environment as well as how it affects us.

The SCMEA Marine Education Grant that I received this year really added not only to that unit of study, but also to our total science program at Fairfield Primary School. The funds were used to purchase a thirty gallon aquarium and the necessary equipment to set up a saltwater tank. The aquarium is located in the main lobby of our building and is accessible to all students from kindergarten to third grade. Our saltwater environment has been the home to several sea anemones, a sea urchin, several hermit crabs, a snowflake moray eel, and three beautiful damsel.
Spineless Wonders: The World of Plankton - Part II

by Fred James

Zooplankton is the animal plankton and is usually microscopic. Larger organisms such as the Portuguese Man-Of-War and other jellyfish are also planktonic organisms because they are weak swimmers and primarily depend upon the winds and currents to move about. There are two major categories of zooplankton. Species that spend their entire life in the plankton are called holoplankton (Gr. whole wandering) and over 5,000 species have been described. Some examples are the unicellular types (tintinnids and other protists), arrow worms, copepods, comb jellies, and by-the-wind-sailor. Species that spend only part of their life in the plankton are called meroplankton (Gr. part wandering). Approximately 75% of all marine benthic organisms spend part of their life in the plankton. Such meroplankton includes the larvae of starfish, sea urchins, crabs, sea squirts, polychaetes, fishes, and a multitude of other forms.

The holoplankton forms have a number of interesting examples. One of my favorites is the arrow worm (Phylum Chaetognatha - "Bristle Jaws.") These small beasts, typically ranging in length from 2-3 cm with some up to 10 cm, are the sharks of the plankton world. Their transparency helps conceal them from their prey as they float through the water. They sense their prey by means of ciliary receptors distributed along their body. When a copepod, larval fish, or even another arrow worm swims by, the chaetognaths dart forward and grasp their prey with the large spines on their heads. These animals are sensitive to temperature and salinity differences and are thus good indicators of water quality and fishing conditions. They have also been used by hydrographers (scientists who measure, describe, and chart the seas) to trace and identify water masses.

The comb jellies (Phylum - Ctenophora - "Combs to Bear") are also transparent members of the plankton and are voracious predators. They are known to eat tremendous quantities of fish fry and many larval mollusk species, both of which are commercially very important to man! While snorkeling in the Virgin Islands I became surrounded by thousands of Ctenophores. When I swam underneath these organisms the sunlight from above would refract off of the comb rows with a beautiful rainbow of iridescence. I would touch these shimmering jewels with my finger and they would bend as if I had hit them in their stomachs. At night these organisms are bioluminescent along their eight longitudinal rows of comb (see Summer 1991 issue of Seascrits).

The siphonophores (colonial members of the Cnidarian Phylum) secrete gas filled floats called pneumatophores ("air to bear."). These floats serve as sails which capture the wind and transport them over long distances. During storms some siphonophores can drop below the rough seas by letting gas out of their floats through a small pore opened and closed by a sphincter muscle, and then resurface when conditions are more favorable! Velella, (variously called by-the-wind-sailor) and Physalia, (Portuguese-man-of-war, see Spring 1992 Seascrits) are two common siphonophores.

Gas is also used for buoyancy by some small planktonic snails. Glauca, a nudibranch or "shell-less snail," produces gas in its intestines which make them buoyant. They feed on Forpita, the blue button, or Physalia. These nudibranches store the stinging nematocysts of their prey in specialized extensions of their mantle called cerata. How they do this without discharging the nematocysts and then use them in their own defense has puzzled scientists for decades! Some planktonic snails such as Janthina, the purple sail, have shells. These snails keep themselves from sinking to the bottom by producing bubbles near the surface to which they cling while feeding on their major prey, Velella.

Crustaceans make up the largest component of the holoplankton with such forms as copepods, ostracods, and euphausids or krill, the largest of the planktonic crustaceans, reaching a length of 6 cm. Copepods, only a few millimeters in length, are the most abundant member of the zooplankton and typically compose 70% or more of most plankton communities. While the number of copepod species is only about 7,500, they are considered the most abundant group of animals in the world. That would be a good jeopardy question!

Euphausids or "krill" are shrimp-like organisms which prefer cold oceanic waters. They serve as food for whales, fishes, seabirds, humans, and domestic animals, and are also used as fertilizer. Since krill is so important as food for baleen whales and other arctic and antarctic animals, there is a hesitancy to over fish them for human consumption. Most taste experts seem to be of the opinion that krill doesn't taste that good anyway! The word krill comes from the Norwegian word "krill" which means whale food. The blue whale, the largest animal in the world, lives on krill and more than 4,000 tons of krill (usually Euphausia superba) have been found in its stomach.

Ostracods, "seed shrimp," have bivalved shells and look like small clams but their jointed appendages quickly give them away as crustaceans. One species is famous for having the largest sperm in the animal kingdom (see "Sex in the Sea," Spring 1991 Seascrits). One genus of ostracods, Cypridina, produce a brilliant bright cloud of luminescence from glands in the head. Dried cypridinids will keep indefinitely and when moistened will emit a greenish light. The Japanese used the cypridinid powder during World War II to read maps on the beach and go undetected by American submarines!

The fascinating world of plankton will be concluded with a discussion of meroplankton in the next issue of Seascrits.

Dr. Fred James is a professor of Biology at Presbyterian College, Clinton, SC 29325. Suggestions for future "Spineless Wonders" columns can be made by writing Fred at the address above or by calling him at (803) 833-8402.
WHAT'S UP WITH THE NATIONAL MARINE EDUCATORS ASSOCIATION?
A MID-YEAR NMEA BOARD MEETING SUMMARY

by Rhet Wilson, Director, NMEA Board of Directors

On March 25, 1992, the National Marine Educators Association Board held its annual mid-year meeting in association with the National Science Teachers Association conference in Boston. NMEA members also presented a day of sessions in conjunction with the NSTA meeting. The NMEA Board meeting was hosted by the Massachusetts Marine Educators who also invited special invitations for Board members to preview Roger Payne’s new work for the Discovery Channel, “In the Company of Whales,” at the New England Aquarium.

The chapter representatives from around the country gave updates of their activities and discussion of national projects followed. There is some very exciting work going on in marine and aquatic education and NMEA members and chapter members in our fifteen national chapters are right at the forefront. In fact, there are 4500 chapter and national members in the NMEA network getting grants, starting programs, helping educators and people all over the country learn more about our world.

Some Gulf of Maine chapter members (GOMMEA) are working on the GAIA crossroads project, an Apple Computer funded project for innovative use of satellite imagery in seven Maine school districts; other teachers are developing new resource materials and workshops with EPA grants acquired through proposals submitted by a network or organizations including GOMMEA. National Science Foundation funded Global Environmental Change efforts are going on in Mississippi, Alabama and Texas. In New York, marine educators hosted a special marine education field trip conference for disabled students; an idea that the SC Aquarium is working with for South Carolina. (Let me know if you’re interested!) Texas has members going to Woods Hole, Harvard, and Florida for marine science institutes. In the Northwest, aquatic and marine educators are working hard on the 1992 NMEA conference in Portland and some have received teacher fellowships from EPA for their academic work. Massachusetts Marine Educators have received state Department of Education grants for mentors and to publish marine education curriculum in their newsletter. They are also working with local governments and non-profits to promote science and marine education, a slow but rewarding process, they say. Florida Marine Science Education Association members are very involved in the creation of the "New World Aquarium" and worked on two regional workshops; Florida is facing a difficult time with teacher lay-offs in many districts. In the Mid-Atlantic chapter and in the Northwest, the "Teacher at Sea" program is an effort to put teachers on NOAA research vessels for a month of hands-on research. Like South Carolina, several chapters are providing teacher grants for programs, workshops and materials.

Nationwide, NMEA is confirming and making new links with organizations such as the Marine Technological Society, American Water Resource Association, the Coastal Society, and the North American Environmental Education Association. The latter is an academically based organization viewed by EPA as being one of the more important educational outreach groups, but it lacks an aquatic/marine component that NMEA’s increased participation will provide. The Office of the Oceanographer of the Navy is being requested to donate funds for minority participation work in marine education. Teacher workshops in conjunction with chapter conferences were suggested as a way to involve more minority participation. Congress is being asked via Sea Grant and NMEA to fund a new nationwide Marine Education Support System program which would provide access on computer to national marine education materials and is an update of an older system. Other sources of funding marine education programs were discussed in workshop sessions.

Marine, aquatic, and environmental education topics are in the headlines these days from Rio to each of our communities. It’s a great time to be involved in this field and with foresight, we can all set up programs that will have a positive force on the public’s understanding of our natural world. NMEA is participating in some great events, locally and nationwide. In South Carolina, I think we can all be proud that our NMEA chapter is right up there with the best that’s possible.

Editor’s Note: We are fortunate to have both Rhet Wilson and Phil Astwood serving on the NMEA Board of Directors. They will keep us informed of marine education happenings on the National level.
Resource News

A series of marine based nature stories for children has been produced by Suzanne Tate. The environmental messages of the 12 books include the works of wildlife officers and environmentally conscious volunteer assistants working to help manatees, sea turtles and other marine life and habitats. The paperback books currently sell for $5.95 each and are available at the Mt. Pleasant Seafood store in Charleston. For order information, call Ms. Tate in Nags Head, NC: 919-441-7480.

Supplemental Curriculum Activities for Use with Holling Clancy Holling's Paddle to the Sea, designed for grades 3-6, is a 152 page supplement to the story about a canoe carved by an Indian boy who makes a journey to the sea from Lake Superior. It is available from Ohio Sea Grant for $10. Write: Ohio Sea Grant Office, 283 Arts Hall, 1945 N. High St., Columbus, OH 43210.

The SC Sea Grant Consortium still has copies of its educational, "South Carolina Watersheds" poster targeted for middle school-aged children. To order the free poster, write Leigh Handal, SC Sea Grant Consortium, 287 Meeting St., Charleston, SC 29401.

Continuing Education Opportunities

Coastweeks, a national celebration of our coast, is planned for Sept. 19-20, Oct. 12 in South Carolina this year. A variety of programs are planned by agencies, organizations and civic groups. For a full listing of scheduled activities, contact the SC Coastal Council, acting as the state coordinator, at: 4130 Faber Place - Suite 300, Charleston, SC 29405, (803) 744-5838.

Beach Sweep/River Sweep - Sept. 19, 9:00am-12:00pm - is designed to clean up our state's beaches and waterways while heightening public awareness and participation in efforts to reduce litter. Volunteers are needed to assist in this event. A perfect project for school classes! For more information about Beach Sweep, contact the SC Sea Grant Consortium, 727-2078. River Sweep covered inland rivers and lakes and the contact agency is the SC Water Resources Commission, 737-0800.

Bayfest - Oct. 17 - This annual celebration of Georgetown County's coastal heritage includes free narrated boat tours of Winyah Bay and the port of Georgetown, arts and crafts, live music and lots of fun activities for the entire family. For more information contact the Georgetown County Parks and Recreation Dept. at: (803) 546-2481.

South Carolina Science Council's Annual Conference - Nov. 4-6 - SCMEA and the Environmental Education Association of South Carolina will cosponsor an environmental education symposium during the conference. Lots ideas and activities that you can use to help people learn about our natural world will be shared.

Editor's Note: If you know of any resources and educational opportunities that should be featured in upcoming issues of Seascrolls, please send them to me. Thanks!
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. The Association provides a communication network for members to share information and ideas through newsletters and an annual statewide conference. Membership dues are $5.00 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!

Date: ____________________________

Name ____________________________

Occupation _______________________

Home Address ______________________

Place of Employment ______________________

Home Phone Number ______________________

Work Address ______________________

Work Phone Number ______________________

Are you currently a member of the National Marine Educators Association (NMEA)? ______ yes ______ no

Please send completed form with the $5.00 membership fee (make checks payable to SCMEA) to:

Stan Rachelson, Secretary-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'll ever attend!

Name: ____________________________

Occupation or Title: ____________________________

Address: ____________________________

(Street or PO Box) ____________________________

(City) ____________________________

(State) ____________________________

(Zip) ____________________________

Individual Memberships

___ Student - $15
___ Active, 1 year - $25
___ Active, 2 years - $48
___ Active, 3 years - $68
___ Associate - $40
___ Sustaining - $100 or more
___ Life - $300 or more
___ Patron - $500 or more

Institutional Memberships

___ Affiliate (includes libraries) - $35
___ Corporate - $250 or more

Are you currently a member of a regional chapter? ______ yes ______ no. If yes, which one? ____________________________

Please make check payable to NMEA and mail to: National Marine Educators Association,
PO Box 51215, Pacific Grove, CA 93950

SCMEA Summer '92