Captain's Corner

Our Fourth Annual SCMEA Conference, "Marine Educators, Scientists, and Managers Making a Difference Together," held in Myrtle Beach October 11-13, was quite a success. One hundred ten people registered for the conference and 38 people presented workshops or field trips. The conference focused on making marine education more pertinent to modern situations by integrating science and policy into our education efforts. Dr. John Mark Dean, a professor at the University of South Carolina, gave an excellent keynote address. He has been active as a policy maker, scientist, and educator throughout his years at USC. Dr. Dean encouraged all of us to include as much current information on marine related issues and public policy in our teaching as possible.

The concurrent sessions on Saturday provided everyone with a wide variety of opportunities to do just that. There were several new speakers who presented topics new to SCMEA conferences. Professors from USC Coastal Carolina College gave talks or field trips. Field trips offered some new and some repeat experiences. Even without a boat excursion, there was something for everyone.

A Saturday evening "Surf and Turf Buffet" was followed by our annual business meeting and fund-raising auction. During the business meeting, outgoing President, Paula Keener-Chavis, summarized SCMEA's accomplishments over the past year. New officers and board members were elected and, Morgan McClure, with the Charleston Soil and Water Conservation District, presented Julie Cliff (an active SCMEA member and past board member) with the Conservation Teacher of the Year Award for the Charleston District.

The auction was fantastic. John Carpenter and Fred James were wonderful auctioneers. In just under two hours, SCMEA raised over $1,000 to support our scholarship and grant programs for teachers. Many thanks to the conference planning committee, supporting agencies, organizations and institutions, participants, presenters, contributors to the auction, and the Sand's Ocean Club for a great weekend of learning, networking, and fun!

SCMEA has made a concerted effort during the past year to develop new ways to benefit our members. Presentations for the 1991 conference were solicited from scientists so participants could become more familiar and comfortable with technical information. The success of our first auction during the 1990 Conference enabled us to begin two programs designed to help teachers become better marine educators: the Scholarship Program and the Marine Education Grant Program. Each year, $500 will be awarded to a SCMEA member to support their travel to and attendance at the National Marine Educators Association's (NMEA) Annual Conference. Two marine education grants of $250 each are also available each year for teachers to develop marine education projects. I hope many of you will take advantage of these grant and scholarship opportunities, described in more detail elsewhere in the newsletter.

SCMEA needs and wants your input. Please contact an officer or board member with any suggestions or comments you may have on what you want from this organization. Our names, addresses, and telephone numbers are listed on page two of this newsletter. We also need help on our committees. If you can, why not become a committee member? Committee purposes and their chairpeople can also be found on page 2 of this newsletter. Committee meetings will be held one hour before each board meeting. The next board meeting will be on March 12, 1992 in Charleston. Let us know if you want to get involved.

Our dedication to teaching about the marine environment is the common denominator of all SCMEA members. Our organization is growing and the members represent a wide variety of professions interested in marine education. I, like Paula Keener-Chavis, made a career change this year. My new position as coordinator of the University of South Carolina at Beaufort Coastal Zone Education Center allows me to have more contact with teachers and students through the field trips and in-school programs we offer. I am excited about my new opportunities at CZEC and with SCMEA. I am sure this will be another great year for SCMEA and our members.

Beth
SCMEA President
SCMEA Committees Need Your Input!

Your ideas, abilities and time are needed to help our organization grow. The following committees have been formed to serve the SCMEA membership over the next year. Please contact the appropriate committee chair if you would like to serve on a particular committee.

1992 Conference Planning Committee - Purpose: To plan and coordinate the 1992 Annual Conference. This includes working out the logistics for a meeting place, meals, sessions, auction, and volunteers to assist during the conference. Chair: Phil Astwood, 777-6920.

1992 Nominating Committee - Purpose: To review potential candidates and make recommendations for each available position on the Board for consideration by the membership during the Annual Conference. Chair: Paula Keener-Chavis, 556-8171.

Scholarship Review Committee - Purpose: To solicit and review applications for the Marine Education Scholarship and Grant Programs. Chair: Rhett Wilson, 724-3784.

Publications and Promotions Committee - Purpose: To oversee the development of printed materials, including the newsletter, and displays that enhance the goals of SCMEA. Chair: Wendy Allen, 546-6219.

Funding Alert!

Marine Education Grant Program:
The Marine Education Grant Program provides support for projects that will further marine education in South Carolina. Two grants of $250 each will be awarded to active SCMEA members during the 1992-1993 school year and can be used to purchase any special materials, equipment and resources, or to defray costs of a marine field study for a group of students. The project possibilities are limitless. Last year's grant recipients were awarded funds to develop a school aquarium and to continue a dune restoration project. Grant recipients will be required to submit a summary article about their project for publication in the SCMEA newsletter. To apply: Contact the Scholarship Committee Chair, Rhett Wilson, address below, to obtain an application. Completed applications must be received by June 15, 1992 to be considered for the 92-93 school year. Grant recipients will be notified by August 15, 1992.

Marine Education Scholarship Program:
The National Marine Educators Association's Annual Conference is one of the best opportunities in the country to keep current on marine education developments. You can apply for a scholarship to offset conference expenses. The Marine Education Scholarship Program has been established to encourage and enable SCMEA members to attend NMEA conferences for the purpose of furthering their interests and knowledge of marine education. During 1992, one scholarship in the amount of $500 will be awarded based on demonstrated interest and is to be applied to the NMEA conference being held August 2-8 in Portland, Oregon. All current SCMEA members are eligible to apply. The scholarship funds will be given to the award recipient after he or she submits a copy of the registration receipt for the NMEA conference and a brief summary article for inclusion in the SCMEA newsletter. To apply: Contact the Scholarship Committee Chair, Rhett Wilson, address below, to obtain an application. Applications must be completed and returned by May 1. Notification of the scholarship winner will be made by June 1, 1992.

SCMEA Scholarship Committee
Attn: Rhett Wilson
SC Aquarium
116 Meeting St.
Charleston, SC 29401
(803) 724-3784
J.A.W.S.
(Just Amazingly Wonderful Sharks!)

by

Paula Keener-Chavis and Keevin Chavis

Twas a very dark night at the bottom of the sea
Few creatures were stirring,
Certainly not you or me!

The seahorses clung to the seaweed with care
In hopes that morning
Would soon be there.

The octopus was all nestled
And snug in her den
While lots of brightly colored crabs
Dozed in their exoskeletons!!!

The snail coiled into his shell
And the clam closed with a clap
As they began to settle down
For a nice evening nap.

Suddenly the quiet broke into clatter
And the octopus slowly crept out of her den
To see what was the matter.

When what to her wonderfully-advanced eyes should appear
But a beautiful and awesome shark
That was approaching real near!

She swam with such wonderful
grace and such speed.
What, oh what, could she possibly need?

She had lots of fins,
They all had names.
Dorsal! Pectoral! Pelvic! Anal! and Caudal!
But they don’t all function the same!

Some are for steering, balance and control.
And sometimes a quick whip of her caudal
Will help save her soul!

Her five gill slits
Looked quite odd.
And as she swam by she gave me a nod!

Her skin was quite rough,
Like sandpaper, you see.
I felt it, I promise!
As she brushed right next to me!

She never stopped swimming,
For fear she would sink.
And would disappear into the abyss
Just as my eyes would blink!

She had many teeth in lots of rows
You may wonder why,
But I certainly know!

As she eats her tough food
She looses many teeth.
So she must replace them quickly
To continue to eat!

"Afraid was I?" You might ask
Of course not!
Since watching this shark was such a fun and exciting task!

As she swam out of sight
I had to remark
"Oh, my! That was Just An Amazingly Wonderful Shark!!!"

Editor's note: By some coincidence, both Paula Keener-Chavis and Fred James, quite independently, were inspired to submit poems to this issue of Seascripts. This poem, written by Paula and her husband, Keevin, is particularly appropriate for the holiday season which I hope is a happy one for all.
Spineless Wonders: The Coquina, *Donax variabilis*

by Fred James

The coquina, *Donax variabilis*, is a bivalved mollusk with various colored shells, as its name implies. It is found in the intertidal zones of high energy (outer) beaches. It is a favorite food of many shorebirds and people who make coquina soup or chowder. Euell Gibbons in his delightful book, *Stalking the Blue Eyed Scallop*, gives many different types of recipes for coquina and for a variety of other sea worthy delectables.

Coquinas migrate up and down the beach with the tideline in the spring and early summer. In late summer and winter, they stop migrating and often wander off shore. Mating occurs in the winter and the new harvest of young will invade the ebb and flow of the tide in the late winter.

Coquinas have several unusual features which make them well adapted to live in the fast moving sandy environment. The shell is pointed in the front (anterior) and the umbo is "pushed" to the back (posterior). The umbo is the raised area above the hinge and is where the shell starts its growth. Thus, the umbo represents the oldest part of the shell. The position of the umbo is used by most biology teachers to show the anterior end of a bivalve mollusk. The coquina is a good example of an organism with its umbo "posterior". This adaptation allows the structure of the organism to compliment its function ("get into the sand quickly.") Coquinas must move into the sand rapidly or become prey for birds, crabs or fish. The foot, which protrudes from the anterior of the shell, is also pointed. As the foot probes into the sand, blood rushes into the sinus spaces of the foot and is not allowed to leave because "keber's" valve in the returning vessels is closed off, which serves to anchor the foot in the sand. The foot has anterior and posterior retractor muscles which are alternately contracted in a "seesaw" fashion, resulting in a jerky, quick movement into the sand. As one observes coquinas, one is also struck by the rapid closing of their shells and the explosive discharge of fluids out both of their siphons which propels them into the sand. For every action there is an equal and opposite reaction. Thus, as coquinas "blow water" out of their siphons, they are propelled into the sand.

Living in a sandy environment and being a filter feeder can have the added problem of clogging up your incurrent siphon. Frilled finger like projections in the coquinas incurrent siphons prevent this clogging. The projections act like a sieve, letting in water containing plankton while keeping out large sand grains.

In my walks along the beach I have been amazed by the symbiotic relationships I have observed with the coquina. It is quite common along Huntington Beach State Park to find what appears to be small tufts of hair attached to the posterior end of the coquina. This is, in reality, a tuft of hydroids belonging to the species, *Lovenella gracilis* (plant like cnidarians). What a perfect place for a sessile animal to attach. Not only does *Lovenella* have a free taxi to move it about, but, it is also situated near the incurrent siphon of the coquina which provides the hydroid with food. Another interesting symbiotic association was seen on Pawleys Island. While walking on the beach, I noticed strands of the green alga, *Ulva*, attached in the sand like it was planted. I decided to see how it was attached and, to my surprise, on the other end of the sea lettuce was a coquina. Evidently the free swimming spore stage of the alga life cycle settled on the coquina. Every place I picked up the streaming strand of *Ulva*, there was a coquina attached to it. I never researched the literature to see if this was a common association, but, that day on Pawleys Island, the relationship was very common.

I thought I would conclude this discussion on coquinas with a condensed version of a poem by Euell Gibbons about another mollusk, the snail. This poem has great meaning for me and hopefully for you.

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**Coquina (Donax variabilis)**

![Coquina Diagram](image)

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.

*Illustrations by Lee Nisbet*
Are We As Smart as Snails
by Euell Gibbons (condensed by Fred James)

Come listen to this little tale
About the lowly, humble snail.
He doesn’t think, as he labors,
That he is better than his neighbors.
Nor that he is a little god
He knows he’s just a gastropod.
Though he is host to liver flukes
He doesn’t merit our rebukes.
He doesn’t do as humans do
And brag of blood that’s really blue.
He mentions not his family tree
And does not care for pedigree—
Admits his kin are slugs and whelks
And doesn’t try to join the Elks.
He does not weep nor curse his fate
For being born an invertebrate.
He does not mind his spineless lot
Nor want to be what he is not.
Instead of bones he has a shell
And thinks its serves him very well.
He does not know how he’s abhorred
Because he has no spinal cord.
False pride is never his asylum.
He knows Mollusca is his phylum.
And though his gait is very slow,
He really has no place to go.
With ventral nerve without a spine
He still thinks life is pretty fine.
All arguments are sure to fail,
He is satisfied to be a snail.
I look about me, see our land
With junk cars piled on every hand.
Billboards obstructing every view
A parking lot where trees once grew.
Polluted air, polluted streams—
Eroded soil and broken dreams—
A rising crime rate—crowded jails.
Are humans really smart as snails?

Beach Sweep/River Sweep ’91 Results
Final results for Beach Sweep/River Sweep ’91 are in and
once again, South Carolinians across the state have broken all
previous records for participation and collection. The one day
event involved 7,176 volunteers who collected approximately 60
tons of debris from our state’s beaches and waterways. This
almost doubled last year’s effort both in terms of volunteers and
debris collected. Many of the communities involved also
recycled items collected.

The annual event serves three primary functions. It
temporarily cleans our waterways of unsightly debris but, more
importantly, it serves as an educational tool to make people aware of the heavy toll marine debris takes on our economy and
environment. Marine debris poses an economic threat to
industries such as tourism and recreation, a safety and health
treat to swimmers and boaters, and an environmental threat to
fish, birds, marine mammals, and our natural resources. A third
benefit of the clean up effort is that of information gathering.
The volunteers log their findings on data cards and this
information is put into a national data bank on marine debris
maintained by the Center for Marine Conservation. The Center
makes this information available to researchers and policy-
makers working on coastal issues.

Comments made by volunteers this year indicated that
cigarette butts were once again the most common items found,
with some volunteers reporting up to as many as 800 butts from
a single location. These filters are not made of paper, as
commonly believed, but of cellulose acetate, a plastic which may
take centuries to degrade. Other commonly noted debris included
tires, appliances, lumber, and paper and plastic items.

For more information about past and future Sweeps, contact
Leigh Handal at the SC Sea Grant Consortium, 287 Meeting
St., Charleston, SC 29401, (803) 727-2078.

Marine Education Scholarship Recipient
Sarah Wilson Reports on NMEA Conference
All that needs to be said is "Travel" and I say "When and
where?" So, when I was informed that SCMEA had established
a scholarship program to send someone to the National Marine
Educators Association’s Annual Conference, I said, "What do I
do?" I applied and was awarded $500 to offset the expenses of
traveling to Rutgers University in New Brunswick, NJ, where
the 1991 NMEA Conference was held.

The first hurdle was convincing myself that my plane
wouldn’t crash (I don’t like to fly), I wouldn’t be mugged in the
“big city,” or get too lost just getting there. All went well
though, and I arrived safely in New Jersey, just in time for the
seafood banquet and welcoming speaker. The sessions lasted for
two days, with topics ranging from ocean mammals, Hawaiian
ecology, environmental education, and the South Carolina
Aquarium. The presenters came from across the United States,
and I met some really great people and made some great friends.
A dinner cruise in New York Harbor that circled the Statue of
Liberty was held one evening, and, of course, the annual NMEA
Auction was quite an experience. The highlight of my trip,
though, was getting to see the Statue of Liberty.

The last day of the conference was reserved for field trips. It
was a tough decision, choosing between canoeing the pine
barrens, birding at Cape May, sailing on the sloop, Clearwater,
or visiting environmental centers and seeing the Statue of
Liberty. I chose the last trip. This was the only rainy day of the
conference, so as far as dryness goes, I picked the best trip. We
visited the Meadowlands Environmental Center, Liberty State
Park, and rode the boat out to Ellis Island and the Statue. We
stayed out in the rain to get the best view of the lady and it was
worth every second! What a wonderful sight!

Needless to say, I had a great time. The Statue was even
there the next day, as my flight left Newark Airport, saying
good-bye to me.
Resource News

Watershed Posters - As part of the ongoing educational aspect of Beach Sweep/River Sweep, a watershed dynamics poster, targeted to 6th, 7th and 8th graders, has been developed. Copies of the four-color poster can be obtained by writing or calling Leigh Handal at the SC Sea Grant Consortium, 287 Meeting St., Charleston, SC 29401, (803) 727-2078.

Xeriscape: Landscape Water Conservation in the Southeast by John Kelly, Mary Haque, Debra Shuping and Jeff Zahner is available from the SC Sea Grant Consortium, address above.

$$$ Resources - Grant and Scholarship Programs for Teachers:
EIA $2,000 Teacher Grants - One year grants are awarded to individual teachers to create and implement innovative programs or projects that have been successful elsewhere. Deadlines for proposals are in the early spring for the project year which begins in the fall. Marine education projects would certainly qualify as innovative within the context of traditional science curricula and textbooks. Write or call Lynn Altman or Peggy Cain, SC Dept. of Education, Rutledge Office Building, Columbia, SC 29201, 734-8389 for details about this program and to receive proposal guidelines.

EIA NDN School Grants - Grants of up to $5,000 per school are awarded to implement specific programs approved by the National Diffusion Network (NDN). Funds are available for teacher training and the purchase of NDN materials. Project For SEA, a marine education curriculum, is an approved NDN program and several schools in SC have received grants to implement this program. To receive a copy of the approved list of NDN programs and the proposal guidelines, contact Peter Smolski at the SC State Dept. of Education, address above, 734-8116.

SCMEA Marine Education Grants - Two $250 grants are available for teachers to implement marine education projects. See page 2 of this newsletter for details.

SCMEA Scholarship Program - $500 is available for a SCMEA member to attend the National Marine Educators Association's Annual Conference. See page 2 for details.

EEASC Scholarship Program - The Environmental Education Association of South Carolina (EEASC) has a scholarship program to assist teachers wishing to attend college credit workshops or courses in environmental education, marine science included. The program provides tuition reimbursement to teachers upon successful completion of an approved college credit workshop or course offered by a college or university in SC. Interested teachers should contact Dr. Richard Houk, Dept. of Biology, Winthrop College, Rock Hill, SC 29733, 323-2111.

Continuing Education Opportunities

EEASC Annual Conference - "The Environmental Diversity of Our State for All to Share," March 13 & 14, 1992, Lancaster, SC. Exciting workshops and field trips to Landsford Canal, Ridgeway Gold Mine, and 40-Acre Rock are planned. For more information, contact the program chair, Gale Soltish, 320 S. Belkline Ave.-11E, Columbia, SC 29205.

NMEA Annual Conference - Aug. 2-8, Portland, OR. An exciting variety of marine education workshops and fresh and saltwater field experiences are planned. NMEA members will receive details in their newsletters. Nonmembers may want to join now so you don't miss out on this unique opportunity to explore Oregon and network with marine educators from around the world. See NMEA membership form elsewhere in this newsletter.

Tugaloo Environmental Education Center - This new center in Oconee Co., SC opens for student programs in April 1992. One to five day studies of freshwater and forested systems can be scheduled. For more information, contact TEEC Coordinator, Marine Resources Development Foundation, PO Box 787, Key Largo, FL 33073, (305) 451-1139.

Marine Ecology Workshop in the Florida Keys - One and two week courses on subtropical systems will be offered in July and August. Topics of study include: ecology of coral reefs, mangrove wetlands, seagrass beds, and the everglades. Snorkeling training and aquanaut training for SCUBA certified participants will also be provided. Scholarships are available for teachers. Several SCMEA members have participated in this program in recent years and speak very highly of it. To apply or obtain more information, contact the Marine Resources Development Foundation, address above.

Educational Boat Cruises - Captain Dick's Marina is sponsoring educational cruises of the Murrells Inlet estuary. Groups of up to 50 people can charter the boat and learn about salt marsh ecology by sampling the bottom and plankton communities with nets and crab traps. Students also sample the fish population with rods and reels furnished by the boat. All catches are interpreted by an on board naturalist and released unharmed. For more information, contact: Capt. Dick's Marina, PO Box 306, Murrells Inlet, SC 29576, (803) 651-3676.

Educational cruises are also offered for grades 9 and up by the SC Wildlife and Marine Resources Dept. in Charleston. The Department also provides teacher training in marsh and beach ecology upon request. Write or call Joy Smith at the Education Division, SC Wildlife and Marine Resources Dept., PO Box 12559, Charleston, SC 29412, (803) 762-2103 for more information on these programs.
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

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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 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

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SCMEA Fall 91
NMEA Membership Competitions for Chapters

Which chapter will be the proud owner of the NMEA ship's wheel for 1992? Which chapter will earn the most Pike Points?

The beautiful NMEA ship's wheel will be presented during the 1992 Annual Conference to the chapter that shows the greatest percentage increase of NMEA members over the year. The winning chapter's name will be engraved in brass and permanently decorate one of the wheel spokes. FMSEA won the wheel in 1990 with a dramatic 92% increase of NMEA members in their chapter! OCEANIA won in 1991 with an outstanding increase of 144%! Will SCMEA be next? Let's try!

In addition to the percentage-based membership competition, chapters can also compete for "Pike Points" - points that can be applied to the purchase of the infamous and valuable stuffed pike that has travelled thousands of miles between chapters, was pike-napped before the Miami conference, was the highlight of the NMEA auction in Hawaii, and made the rounds at Atlantic City during the New Jersey conference. One pike point will be awarded for each new NMEA member a chapter enlists and one pike point translates into one dollar during auction time. For example, FMSEA gained 29 new NMEA members over the year and applied their 29 pike points to their winning bid for the pike, decorated in dice, saltwater taffy and Taj Mahal silver dollars during the 1991 auction.

The chapter competitions begin September 1991 and will conclude June 30, 1992. A competition update will be given in the NMEA newsletter and final results will be presented at the 1992 conference in Oregon. And, don't let the excitement of the contests make you forget the real benefits of joining NMEA: great conferences, informative newsletters, a fantastic journal, and an opportunity to network with some of the most talented, dynamic and friendly people you'll ever meet! A NMEA membership form is located elsewhere in the newsletter. Don't delay, become a member of NMEA and get others to join today! For more information about the contests or NMEA, contact our NMEA chapter representative: Phil Astwood, Center for Science Education, University of South Carolina, Columbia, SC 29208, 777-6920.

Are your dues current?

Check the one digit number above your zipcode on the label. It's not a 2 (standing for 1992) it's past time to renew! Send your renewal check of $5.00 to SCMEA Secretary-Treasurer, Stan Rachelson, Center for Science Education, USC, Columbia, SC 29208.

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

Happy Holidays!