Captain's Corner

Dear SCMEA Members;

I am delighted to be able to serve as your president for the year 1997. I would like to take this opportunity to especially thank Leslie Sautter, our Past President, for all of her diligent work for the organization. Her leadership has taken SCMEA to another level. Phil Astwood is a gem! He rarely gets to hear any of the presentations at SCMEA and diligently registers everyone for the conference. He brings extra T-shirts to SC, stays with the SCMEA exhibit and never complains. We all need to recognize his many years of devoted service. Your board is full of so many capable members. It is tremendous to hear all the accolades that are given at the national level to the past leadership of this organization. A special welcome to your new SCMEA board members! Elaine McClure, Al Segars and Carmelina Livingston.

I can't tell you how excited everyone is to come to Charleston for the NMEA conference in 1999. We need a lot of people to help us in planning this event. I hope you will volunteer for the multitude of jobs required. Rhet Wilson is the program chair this year (1997). Paula Keener-Chavis will take her place for 1998 and Wendy Allen will chair during 1999, the conference year. There is not another organization in the state that has better leadership than can be provided by these three persons.

All of the board members hope you will take the opportunity to indicate to any of us which way you would like to see SCMEA move in the future. We are here to serve you, the marine educator community, and teachers in general. If you have any suggestions, complaints, compliments (especially welcomed) please give these to us. Sarah Mitchell, the President-Elect, is planning our marine conference for next fall (mark your calendars for October 10-12!) and would like to have everyone's input concerning accommodations, meals, programs, or whatever!

On behalf of the board I would like to take this opportunity to solicit articles for inclusion in the SCMEA newsletter. We have been privileged to hear many of you speak and present at the conferences and know how much you have to share. Send a copy of your great ideas or activities to share with other members. We hope you will want to save your copies of the SCMEA newsletter because of the valuable information that you can use in your classroom. Elizabeth King (and before her Paula Keener-Chavis and Wendy Allen) have been such excellent editors. I've just learned that Elizabeth will no longer be able to serve as the newsletter editor. This means that the need for your articles is even more critical; so that her successor(s) will have plenty of material with which to work. Please consider contributing to our newest section (to have its first appearance in the next issue): Classroom Currents. Robin, Carmelina, and Elaine have offered to co-edit this valuable addition to the newsletter!

Thanks to all of you for making Fripp Island a great conference!

Fred
A Letter from the Editor

Dear SCMEA Members,

You might notice that this issue of SeaScripts is a joint effort. Leslie Sautter and Arla Jessen have made the completion of the Winter 1997 issue possible. Thank you both!

Those of you who know me are aware that I began a full-time graduate program in environmental studies this past fall at the College of Charleston and MUSC. I had hoped that I would be able to continue my role as newsletter editor of SeaScripts throughout the school year. However, much to my dismay, time has taken on new meaning as I juggle a full course load, research assistantship and thesis research.

I am disappointed and reluctant to say that I am not going to be able to continue as editor of SeaScripts. It has been a fun and rewarding task these past few years. I appreciate all the support and input from many members.

SCMEA will be on the lookout for a new editor. If you are interested in any part of the production, contact a board member at the address listed in the SCMEA Board list. I encourage you to get involved!

Elizabeth King,
Past-SeaScripts Editor

SCMEA Bulletin Board

Reminder!
The deadline for the next issue of SeaScripts is March 30. This is YOUR newsletter and you can help make it great! Please send all newsletter contributions to Arla Jessen (jessen@cofc.edu), except for contributions to CLASSROOM CURRENTS (see the article on page 5).

HELP WANTED!!
Sarah Mitchell is always looking for volunteers to assist with the next conference. Please contact her if you can lend some time (see her address at left). Not sure how to help? We ALWAYS have a need for scroungers to convince people and businesses to donate items for the fund-raising auction! What better way to help SCMEA?

SCMEA.List
Add your e-mail address to the ever-expanding SCMEA.List. Exchange ideas and info with other members, receive the latest on board meeting times and places, get updates on the fall conference news...the possibilities are endless! Send your address to Leslie Sautter at sautter@cofc.edu and you’ll soon be on-line.

Conference Date Set
The Fall 1997 SCMEA Conference will be held on Skidaway Island, Georgia October 10 - 12. See the article on page 8 for more information.
Burn's Elementary Summer Acceleration Program
by Mary Barcs, Burn's Elementary, North Charleston

This past summer, as a culminating activity for the
Burn's Elementary Summer Acceleration Program, my
fellow teaching associate, Mrs. Mackiniem and I took 30
of our students for a full day excursion to the Cape
Romain Federal Wildlife Refuge located in part on Bull
Island, South Carolina. This field outing was sure to be
quite an adventure, for most of our students had never
even seen the beauty of our coastline.

After weeks of detailed study and hands-on learning
about the ocean and its surroundings, I felt our young
group was finally ready for the field trip. After
somewhat of an unexpected delay due to transportation
problems, we boarded the bus and left the school parking
lot around 9:00 a.m. Mrs. Mackiniem, our fearless
principal Mr. Davis, Ms. Lockwood our assistant, the
students and myself rode the school bus for a short, but
entertaining 35 minute jaunt in to the country.

We arrived at Cape Romain around 9:30 where we were
greeted wholeheartedly by the captain of the ferry and
his seaside naturalist counterpart, Chris. The students
were very enthusiastic about boarding the ferry. This
was obviously a new and very exciting experience for
most of them. Once on board, Chris actively sustained
our interest by sharing with us all the beautiful and unique
things we would witness while on our brief, but
educational 20 minute ride to the island. We observed
several different species of birds on our ride. We were
fortunate enough to see a long-legged Heron, who had
posed just long enough in the shallow marsh waters to
catch a glimpse. Minutes later, several aggressive Black
Skimmers darted in and out of view. And the ever
popular pelicans and seagulls even made their presence
be known to us. Then we had a rare opportunity to see a
Loggerhead turtle swimming in the water. The kids
really went nuts over this! I'm sure it will be something
they remember for a while.

Once we arrived on the island, the students were
immediately overwhelmed by the tremendous amounts
of shells lying on the sand. Most of the collection bags
were full only after a few short steps. Our knowledgeable
newfound friend Chris sat the group down on some old
tree trunks, so that he would have a nice forum in which
to inform the students of what they may be lucky
enough to find. He discussed the differences between
bivalve and univalve shells. He also showed them several
different kinds of whelks.

After experiencing "Boneyard Beach" we proceeded
back towards where the ferry had docked. With 30 tired
and hungry children, this portion of our trip seemed like
an eternity. Once back near the ferry every student had
an opportunity to share what they had discovered while
on the beach. Their collection of items ranged from
sand dollars to crab claws. After our sharing time, we
had a quick snack and we were on the ferry for our
journey back to shore.

On the way, Chris shared what we had caught in the crab
pot! He showed the children the Jimmy crab and the
she-crab. The children were fascinated by this! Chris
walked around with a crab so the children could see the
crab up close and gave them a chance to hold it if they
wanted.

Our day had come to an end. The children were
exhausted from all the excitement of the day, but they
appeared so happy. We thanked the captain of the ferry
and our naturalist, Chris, for such a wonderful
experience. Then as quickly as we had arrived, we
boarded the bus and headed back towards school. It may
just have been my imagination, but the bus ride back felt
a little smoother. It may have been from the weight of
the shells, but more likely all those good memories!
Marine Resources:

Video Examines Pollution from Runoff
The greatest threat to America’s drinking water supplies — non-point source pollution — is documented in a half-hour education video recently released by the Oregon State University Extension Service. “We All Live Downstream” examines urban and rural runoff and the problems it creates for surface and groundwater.

Non-point source pollution is carried by rain, snow melt and irrigation that moves across the landscape. It flows from a variety of sources including farms, forests, city streets, construction sites, mines and septic systems. Experts say America’s growing population has made urban and rural runoff the most serious threat to our nation’s drinking water supplies.

“We All Live Downstream” was videotaped primarily in Oregon’s Tualatin River Basin, but Ron Miner, OSU Extension Water Quality Specialist, says the program has implications for most every watershed in the country.

“The video’s message is easy to understand and should interest anyone who is concerned about healthy watersheds and clean water supplies,” said Miner.

“We All Live Downstream” (VTP 021) costs $30 (including shipping) and may be ordered by mail from: Publications Orders, Extension and Experiment Station Communications, Oregon State University, 422 Kerr Administrative Services Building, Corvallis, OR 97331-2119.

Bahamas Trip
Would you like to swim with the humpback whales and porpoises in the Bahamas the first week in April, 1997? One week on a 90 foot motorized catamaran. All inclusive from Charleston $1945. Contact: Julie Cliff at (803)849-8367 for more information. A Galapagos trip is also being planned by Julie. Only 4 spaces left!

Environmental Media Corporation
They design, produce and distribute (from Beaufort, SC) environmental education media for children and adults. The catalog offers over 350 various environmental resources for all ages.
Contact: Gwen Gerber
1-800-368-3382 or enveduc@aol.com

Book of interest to Internet users:
“Net Learning: Why Teachers Use the Internet” by Ferdi Serim and Melissa Koch. Book includes a Global Network Navigator CD-ROM. Good introduction to why teachers use the Internet, available opportunities, and how to hook up.

News from the South Carolina Aquarium
Thanks to a new $100,000 grant from the Ittleson Foundation in New York, the Aquarium will be ready to deliver high quality educational programs from the first day we open our doors. The Ittleson grant will fund work on our Education Master Plan and on the Aquarium’s school-related curriculum. Educators from all across South Carolina will actively participate in developing this effort.

The Ittleson Foundation provides seed money for innovative, model programs of national significance. According to the Association of Zoos and Aquariums, with the funds from this grant, the South Carolina Aquarium will become the first aquarium or zoo in the nation to develop a strategic education plan before opening to the public.

The Education Master Plan will be the blueprint that coordinates the Aquarium’s many educational programs and materials. These will include structured programs for visiting school groups, professional development programs for teachers, curriculum materials, programs for general visitors, volunteer programs, interpretive exhibit programs and a host of other offerings — all building on the Aquarium’s wonderful collection of habitats, animals and plants.

For more information, please contact: Rhet Wilson, SC Aquarium, 57 Hasell Street, Charleston, SC 29401. FAX 803-720-3861 Phone: 803-720-1990.

Leave Only Bubbles, Inc.
This catalog is an excellent resource for anyone teaching (or enjoying) marine science. From posters and videos to T-shirts and puzzles, they have it! Contact: Leave Only Bubbles, Inc.
1-800-890-0134 or lob@mindspring.com

Barrier Island Experience
5 days and 4 nights on pristine Prichard’s Island. Work with the Loggerhead Sea Turtle Conservation Project and various other environmental activities and lectures $400 per adult.
Contact: Lynn Corliss (803) 521-4148 or lcorliss@vm.sc.edu.

Sewee Visitor & Environmental Education Center Opening
The Sewee Visitor & Environmental Education Center opened its doors this past December 1996. This premiere Lowcountry facility is located in Awendaw, 20 miles north of Charleston, along US Highway 17. It is a 9,000 square foot center; a joint project of the US Fish and Wildlife Service and the US Forest Service. It provides interpretation, education and recreation information about the Francis Marion National Forest and the Cape Romain National Wildlife Refuge. It features an ecosystem exhibit hall, an 80-seat auditorium, a book sales outlet, a computerized recreation guide, two environmental education classrooms, and live animal education areas. The South Carolina Center for Birds of Prey will have a bird of prey education area adjacent to the center for displaying live raptors such as eagles, owls and hawks.
The bird of prey education area will open in the Spring of 1997. There is also a red wolf education area featuring a pair of wolves and information about them. Call for a schedule of events. You can support the center by becoming a member of the non-profit cooperating SEWEE Association. The center is open from 9:00 am to 5:00 pm Tuesday through Sunday (closed Mondays). There is no admission fee. For further information contact: Seewee Visitor & Environmental Education Center, 5821 Highway 17 North, Awendaw, SC 29429. (803) 928-3368.

Coral Reef Courses
USC is offering 2 graduate courses in marine science on Old Providence Island in the Caribbean. Contact Dr. Zingmark at (803) 777-4873 for more information.

Earth Science Information on the Internet
US Geological Survey
http://www.usgs.gov/
Information on USGS's divisions (geology, mapping, and water), and other sites of earth science interest.
WeatherNet
http://cirrus.sprl.umich.edu.wxnet/
Weather information and multiple links to space science/engineering centers.

Coming Soon, Here in SeaScripts...
CLASSROOM CURRENTS!
An inside look at what is going on in our classrooms around South Carolina. CLASSROOM CURRENTS welcomes all teachers in grades K - 12 to share innovative ideas, original activities, lesson plans, events, and students' published works. Here is your opportunity to showcase the wonderful things going on in your classroom. We will be looking forward to reading about YOU!! Please send (or e-mail) your submitted work to Robin Stine or Carmelina Livingston (your newest board member) at one of the addresses below. We need to collect as many as possible by March 30, the deadline of the next SeaScripts!

Robin Stine
9 Wespanee Drive
Charleston, SC, 29407
Email: rstine@charleston.k12.sc.us

Carmelina Livingston
1275 Cornwallis Road
Charleston, SC, 29412
Email: clivin@awod.com

SPECIES SPOTLIGHT:
Highlighting marine organisms and their environment
by Beth Kostka, Gray's Reef National Marine Sanctuary

Have you ever been walking along the beach following the wet boundary of receding waves and come across a mucus-like blob barring your path? No, it was not a remnant of some overheated jogger running by nor someone who forgot their hanky, but what people have historically called a jelly fish.

These organisms in fact are not fish with fins, backbones, and gills, but rather gelatinous organisms made up of 95% water.

Sea jellies are a specific type of gelatinous organism which is umbrella or bell shaped. These transparent animals have adapted specialized stinging cells for predation avoidance and the capture of microscopic, floating food particles. These stinging cells, called nematocysts, are usually found within tentacles that surround the animal's mouth. Together the stinging cells and tentacles enable the animal to capture food and bring it to its mouth while moving with the water current. Locomotion in sea jellies is primarily passive meaning that it is a "drifter", but the animal can actively move its body by pumping water out of its "bell" through muscle contractions. Similar to the sea jellies are the comb jellies. Comb jellies also have a gelatinous, transparent bell shaped body, but are iridescent in color and contain no stinging cells. The body of the comb jelly is divided into eight rows of paddle like ctenes (pronounced "teen-ay") or comb plates. Each comb plate has fused rows of cilia, forming eight rows down the axis of the body. As the cilia beat, water currents are formed which provide the comb jelly with a degree of mobility.

For more information concerning sea jellies and other marine organisms see future issues of SeaScripts.
One of the most interesting birds found in the Galapagos Islands is the frigate bird. The name "frigate" is derived from the French word "fregate" and is used in reference to the light swift warships bearing the same name. Frigate birds are found in tropical environments around the world and therefore said to be circumtropical. The birds appear to be very abundant wherever there are flying fish. Two species of frigate birds make their home in the Galapagos: Fregata minor - the great frigate bird and Fregate magnificum - the magnificent frigate bird. Male great frigates can be recognized by a heart-shaped gular or throat pouch. Females of this species bear a distinctive red ring around the eye. I remember this by looking at the word "great". The letter "r" reminds me of red while the letters "r-e-a-t" make up most of the word "heart"! On the other hand, male magnificent frigate birds have a round gular pouch and females lack the red eye ring.

Weighing in at about 2 pounds with a wing span up to 7 feet, frigate birds have the highest wing ratio to body weight found in the bird world. A magnificent flyer, a frigate bird's feathers weigh more than its bones! Enormous black wings bent at an angle, long hooked bill, and forked tail make it easy to recognize a soaring frigate by its flight silhouette. The rudder-like forked tail affords the frigate bird great agility in its movements.

This agility is critical when it comes to feeding. Frigates are primarily fish-eaters but have the disadvantage of not producing enough oil to coat the wings during preening. Should a frigate dive into the water he would sink like a rock. I have seen the birds pluck fish from the water's surface. They also fill the scavenging niche of our gulls by following boats when food is thrown to them. These birds get the majority of their food by "robbing" other birds. Some researchers are convinced that a frigate bird can detect a bird with a full stomach by the sound it makes. Frigates will attack full birds and cause them to "throw-up" their food. The frigate bird swoops down to catch the "yummy" morsels before they hit the ground or water. The swallow tail gull, common in the islands, is the only gull in the world that fishes for food at night. Many scientists believe that this adaptation allows the swallow tail gull to escape "pirating" by the frigate birds. Frigate birds will also eat both the eggs and young of other birds, even members of their own species. Not only a robber of food, the frigate steals nesting material as well. One of my students held up a twig and a frigate bird swooped down and stole it for his nesting material.

Males are easily recognized by red gular pouches. During courtship the pouches may be inflated to resemble giant red balloons, a process which usually takes about 20 minutes. I have taken close-up photos that reveal a maze of blood vessels in the pouch. If frightened, the startled male will fly off with the big red balloon hanging down from his throat. It takes several minutes to completely deflate. Since some species have a heart-shaped pouches, I had often thought about writing an article on the "Valentine Bird". Wouldn't you know that this past year an article was published using this very title! The females can be distinguished from the males by her large white throat pouch.

Frigate birds' courtship behavior is very interesting. Males are not very territorial and several may share the same bush (often a salt bush). When a female flies over one or more male birds stretch out their wings, shake their heads violently back and forth and make a guttural sound. Occasionally the female will swoop down to investigate in which case the male really starts frantically waving his head. The female, as is always true in the bird world, chooses the male of her dreams to father her offspring. I have a slide of one male who got so tired of waving at the females that he fell asleep on his big red balloon!

Typically nesting material, made up of sticks, feathers, and the occasional bone, is collected by the male while the female builds the nest. One single white egg incubates for about 55 days before hatching. The male and female alternate sitting on the nest and foraging for food to feed the chick. Parents can lose as much as 1/5 of their body weight while caring for their offspring. The juvenile will continue to beg food from the parents for 2-6 months. Meanwhile he also joins other members of his species in daily hunts for food. In 4-5 months the juvenile is fully feathered and can be easily discerned from adults by its white head.
**SC² Grant Awarded to Cindy Renkas**

SCMEA member Cindy Renkas was awarded a $1,000 SC² grant in June to build two "habitats" in her elementary science classroom. Over the summer, Cindy built an 8' x 8' x 9' tall terrarium and an 80 gallon saltwater touch tank aquarium with the grant money.

The walk-in terrarium, entered through a screen door, is screened all around and fill with 18" of compost. Potted native vegetation, including wax myrtle, yaupon holly, dog fennel, yellow jessamine, and ferns is let with full-spectrum "grow lights," operated on a timer, and halogen lights. A small, heated and aerated five-gallon freshwater "pond" provides a home for tadpoles, minnows, and crayfish, as well as water for the habitat's free-roaming "education animals," including a 5' pine snake, a 3' corn snake, a box turtle, an iguana, Carolina anole lizards, toads, tree frogs, crickets, redworms, mealworms, an Argiope spider, and more!

The salt water touch tank consists of a large plastic "kiddie" wading pool sitting atop a specially built stand. Fluvial canister filters provide filtration and aeration for the variety of native marine creatures caught (and later released) in local waters.

You may call Cindy at Mason Preparatory School (located across Lockwood Blvd. from the City Marina in downtown Charleston) at 723-0664 to make arrangements to visit and begin planning how you can incorporate "habitat teaching" in your own curriculum.

---

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

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!

<table>
<thead>
<tr>
<th>Name:</th>
<th>Place of Employment:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address:</td>
<td>Street or PO Box</td>
</tr>
<tr>
<td>Home Telephone Number</td>
<td>Work Telephone Number</td>
</tr>
</tbody>
</table>

One year - $10  
Three years - $25  
Five years - $40  

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

---

**Join the National Marine Educators Association**

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!

<table>
<thead>
<tr>
<th>Name:</th>
<th>Occupation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address:</td>
<td>Street or PO Box</td>
</tr>
</tbody>
</table>

**Individual Memberships**

*Active membership: Any person who supports the goals of NMEA.*

- Active, 1 yr - $40
- Active, 2 yrs - $78
- Active, 3 yrs - $118

*Chapter Affiliate: Any person who belongs to a regional chapter (i.e., SCMEA).*

- Affiliate, 1 yr - $35
- Affiliate, 2 yrs - $68
- Affiliate, 3 yrs - $103

Please make check payable to NMEA and mail to: National Marine Educators Association  
PO Box 51215, Pacific Grove, CA 93950  
SCMEA Winter '97
1997 SCMEA Conference
"Coastal Connections"
Savannah, Georgia, October 10-12, 1997

The theme of this year's conference "Coastal Connections," is designed to acquaint you with new associations and resources. It will provide an opportunity to discover untapped assets for you and your students including field trip sites, educational opportunities, speakers, the latest in marine related materials and a chance to connect with our next door neighbor group of marine educators in Georgia. This year we will be connecting with the Georgia Association of Marine Educators (GAME) in hosting a joint conference that will be inspiring and enlightening.

We are proud and excited to announce that Dr. Eugene Odum, "the father of modern ecology," will be the keynote speaker. Dr. Odum conducted his legendary studies on Sapelo Island, Georgia and was the first person to quantify the ecological significance of salt marshes. A guided foray across Sapelo Island is one of the exciting field trips that will be offered during the conference.

SCMEA favorites, Mr. and Mrs. Fish will be joining us and will offer their very popular puppet making workshop. Be sure to send in your presentation proposal. A presentation proposal form is in this newsletter and it may be copied. In addition to comfortable classroom-style presentation spaces, working wet labs are available for your wildest presentation ideas.

"Coastal Connections" conference will be held at the Georgia Marine Extension Service's excellent facility on Skidaway Island, located just across the Savannah River in historic Savannah. Hotel accommodations as well as limited dorm space will be available, so register early.

Sarah Mitchell
Education and Outreach Coordinator
Gray's Reef National Marine Sanctuary

SCMEA
C/O Center for Science Education
University of South Carolina
Columbia, SC 29208

---

Membe... on, SC 2940.

Return completed form to: Margaret Olsen 2841 Jodeco Drive Jonesboro, Ga. 30236

Deadline to submit proposals: May 5, 1997

Intended Audience: ___ General Public ___ Elementary ___ Middle ___ Secondary ___ College ___ Suitable for all grade levels

Format: ___ Workshop ___ Lecture ___ Demonstration ___ Panel

Length of Program: ___ 50 minutes ___ 80 minutes ___ Other

Room Set-up: ___ Chairs only ___ Lab ___ Tables and Chairs

Audio Visual Requirements: (Please be informed that GAME may not be able to provide)

Name:

Home Address: ___________________________ Work Address: ___________________________

______________________________ ___________________________

______________________________  __________________________________________

Home Phone: ( ) Work Phone: ( )

List any additional presenters: ____________________________

Title of Presentation: ____________________________

Presentation Description (25 words or less): ____________________________

Presider: ____________________________

Address: ____________________________

City: ____________________________ St. _______ Zip: ____________

email address: ____________________________