

# National Shellfisheries Association

## QUARTERLY NEWSLETTER



FALL 1995

SOUTHAMPTON, NEW YORK

### The President is MIA

#### Bill Fisher swept away by a lady named Opal?

The EPA Laboratory in aptly named Gulf Breeze, Florida, apparently still stands following an encounter with Hurricane Opal. We're not so sure about the status of the Ft. Walton Beach Holiday Inn, supposed site of the '97 NSA annual meeting. Needless to say, President Bill Fisher is incommunicado and there is no President's Message. He'd probably remind you to submit your abstract and register for the '96 NSA meeting in Baltimore. Beyond that, we'll have to wait for word from our leader until the next newsletter. . . .

#### Joe McCraren 1936-1995

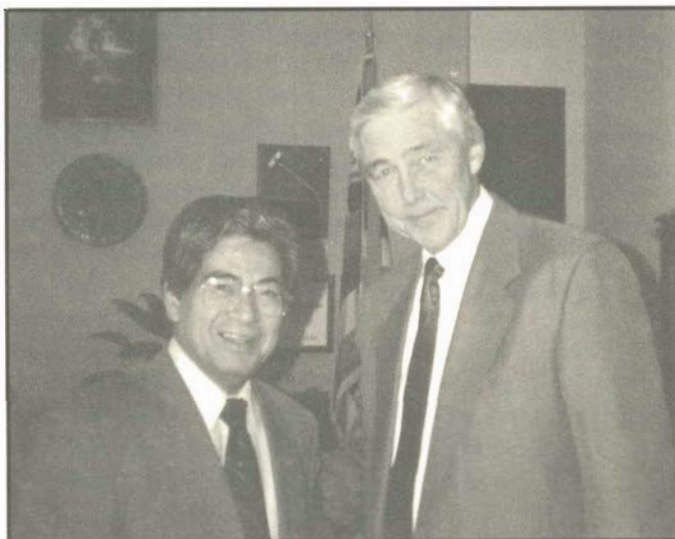
Joe McCraren was not a member of the NSA. He was, however, one of the country's greatest aquaculture advocates and one of our strongest supporters. As Executive Director of the National Aquaculture Association and the US Trout Farmers Association, Joe was relentless in his efforts to get national aquaculture legislation passed. Hank Parker summed it up recently when he said "Joe, more so than anyone, has long had the vision that the industry needed to come together. I really feel that he did everything in his power to make this a reality and think it may have been his greatest frustration. Certainly the strides he made in this effort were monumental. He made so much progress in this manner in many different ways, the forum (National Aquaculture Industry Forum) as an example. He was always pushing to get all the views of the industry and to bring everyone together. The JSA (Joint Subcommittee on Aquaculture) recognized Joe's efforts." Senator Daniel Akaka of Hawaii acknowledged that "the

legislative success we enjoyed during the 103rd and 104th Congresses were attributable in large part to Joe's hard work". Unfortunately, he wasn't finished.

Just as important as Joe's contributions to aquaculture were his contributions to mankind. Joe loved people and they loved him back. He met friend and foe alike with his sparkling blue eyes, broad grin, and an honest desire to give of himself, whatever the need. Some will remember his wit and penchant for a good time. Others will remember him as a good friend and ally, a mentor, always the gentleman.

An avid outdoorsman, Joe left us as we imagine he would have chosen -- in the woods and having just bagged his limit of doves. Joe McCraren was a unique human being, a man of wisdom, common sense and purpose. We have lost a real treasure.

Sandy Shumway



Joe McCraren (right) and Senator Daniel Akaka



**Nominations for  
Honored Life Member  
and  
David Wallace Award**

The Awards Committee is now accepting nominations for NSA Honored Life Member and for the David Wallace Award. Nominations should be 100-200 words, suitable for the basis of a testimonial to be read in the event of the nominee receiving the award, and as the basis of the NSA record that Susan Ford has been compiling. All nominations must be received by the Awards Committee (Chair Roger Mann, Susan Ford and Tom Soniat) by March 15, 1996.

**Awards Criteria**

**Honored Life Member Award**

The NSA Bylaws state "... members who by their exemplary service to the Association or to the profession, deserve recognition as Honored Life Members of the Association." An additional criterion that has been generally used is that the nominee should be a highly respected senior scientist who has made substantial scientific contributions to shellfisheries biology. Industry members who have made significant contributions to "the profession" should also be considered.

**David Wallace Award**

The NSA Bylaws state that nominees should be "individuals whose actions most demonstrate the principles and actions concerned with programs in shellfisheries, aquaculture, and conservation as exemplified by Mr. David Wallace during his lifetime in promoting understanding, knowledge, and cooperation among industry members, the academic community, and all levels of government (states, national, and international), and who has had outstanding success in bringing together shellfish scientists and industry officials for the benefit of shellfisheries. The award is not linked to NSA membership."

Nominations should preferably be emailed to Roger Mann at [rmann@vims.edu](mailto:rmann@vims.edu) or sent to him at

Virginia Institute of Marine Science  
Gloucester Point, VA 23062  
(804) 642-7360  
FAX (804) 642-7045



**Recruits Corner**

The 88th National Shellfisheries Association meeting is around the corner! If you haven't submitted your abstract yet, take care of it today! Abstracts are due November 17th. When you submit your abstract, take a few minutes to fill out the application for student endowments and awards. There is a helpful, detailed description of how to apply for this award on page 7 of the summer newsletter. Contact Maureen Krause (address on back page) if you didn't receive a newsletter and need an application. These awards can help defray registration or travel costs for recruits. You are strongly encouraged to apply.

The Baltimore meeting provides many opportunities for recruits to become more involved in NSA. There are several activities planned for which student help is needed! Recruits are needed to organize the annual student reception, contribute to the annual fun-filled auction, and to help out at the NSA sales booth. Remember, all proceeds from the NSA sales booth go to the Student Endowment Fund. Please contact James Anderson ([anderj1@mail.auburn.edu](mailto:anderj1@mail.auburn.edu)), Karin Tammi ([ktam1734@uriacc.uri.edu](mailto:ktam1734@uriacc.uri.edu)) or Margaret Dekshenieks ([deks@ccpo.odu.edu](mailto:deks@ccpo.odu.edu), 804 683-3234) if you are interested in contributing to the recruits organization!

Margaret Dekshenieks

**Metamorphoses**

Congratulations to Robert Bayer, Professor of Animal, Veterinary and Aquatic Sciences at the University of Maine, for his appointment as Executive Director of the Lobster Institute. The Institute supports research and education about the lobster industry.

Wedding bells rang for several of our members this summer. Sandra Blake married another former VIMS graduate student, Larry Boles, and they have relocated to Chapel Hill, N.C. Jay Parsons also tied the knot. Best wishes to both couples.

After spending several years establishing a bivalve aquaculture facility in Chile, Ed and Cathy Rhodes have moved to Kino Bay, Mexico. They will continue to work with SeaPerfect, Inc. at their new location.

Bob Stickney is the new Director for Texas State Sea Grant. Congratulations and best wishes for success!

Do you have an item for this column? Please send it to Jay Parsons at: Biological Station, St. Andrews, N.B. E0G 2X0, or email to [j\\_parsons@bionet.bio.dfo.ca](mailto:j_parsons@bionet.bio.dfo.ca)



## **Shell Museum Expanded**

The Bailey-Matthews Shell Museum on Sanibel Island, Florida offers visitors to the Florida Gulf Coast a learning museum devoted solely to shells. The museum, under the directorship of Dr. R. Tucker Abbott, provides laymen and scientists access to the largest science library on mollusks in southwest Florida and a 2,000,000 shell collection. Other offerings include exhibits, the distribution of school learning kits, publishing of popular shell books, and shell collection exchange with foreign museums. For more information, please write: Bailey-Matthews Shell Museum, P.O. Box 1580, Sanibel Island, FL 33957, phone: (941) 395-2233.

### **Aquaculture '98 Special Sessions Wanted**

Anyone who is interested in organizing a special session (half- or full-day) for Aquaculture '98 on any aspect of shellfish biology, aquaculture, or management should contact Sandy Shumway at the address listed on the back page.

### ***Christmas is coming . . .***

#### **Take care of your holiday shopping & Support the NSA Student Endowment Fund!**

NSA has a wonderful selection of baseball hats, cookbooks, and gold and pewter novelty pins that make perfect gifts for fellow shellfish lovers.

NSA Baseball Hats (great colors?)	\$10
NSA Cookbooks	\$12
Pewter novelty pins	\$5
Gold novelty pins	\$10
Mini pins	\$3

(complete list of pins available by request)

Remember, all sales benefit the student members of the NSA. Please send a list of items requested, your complete mailing address, and a check, money order, or VISA number payable to **National Shellfisheries Association** to Sandy Shumway, Natural Science Division, Southampton College, Southampton, N.Y. 11968

## **SYMPOSIUM**

### **The Blue Crab Fisheries of North America: Research, Conservation and Management April 18-19, 1996**

In association with the 88th Annual Meeting of the National Shellfisheries Association, April 14-18, 1996.

Holiday Inn (Inner Harbor)  
301 West Lombard Street  
Baltimore, Maryland 21202  
(410) 685-3500

This symposium, because of its integrated scheduling and association with the annual meeting of the National Shellfisheries Association (NSA), will allow those who recognize the vital ecological and socioeconomic linkages that exist between coastal molluscan and crustacean fisheries the opportunity to attend both meetings.

Experts on subjects that affect blue crab fisheries and their habitats will lead off the symposium on the morning of April 18.

The major part of the symposium on the afternoon of April 18 and the morning of April 19 will be devoted to presentation of individual State reports by renowned figures in the field of blue crab shellfisheries management.

As the final segment of the symposium, a panel of distinguished authorities will provide summary remarks and respond to questions about issues that focus on the future of the blue crab fisheries of North America.

There will be a \$20 per person early registration fee for attending the Blue Crab Fisheries Symposium. After December 31, 1995, the fee will be \$30.

If you would like a brochure providing additional information, contact: Blue Crab Fisheries Symposium Coordinator, Oxford Field Station of the Beaufort Laboratory, Southeast Fisheries Science Center, National Marine Fisheries Service, NOAA, 904 S. Morris Street, Oxford, MD 21654-9724, telephone: (410) 226-5193, FAX (410) 226-5925.

#### **Sponsored by:**

National Shellfisheries Association  
National Blue Crab Industry Association  
National Oceanic and Atmospheric Administration  
Maryland Department of Natural Resources  
Maryland Sea Grant College Program  
Virginia Sea Grant College Program  
Chesapeake Bay Foundation



# **1996 Annual Meeting**

## **Registration**

This newsletter contains the tentative agenda, registration form, and hotel reservation information for people wishing to attend the 88th Annual NSA Meeting in Baltimore, April 14-18, 1996. In order to get the lowest registration rates, your forms must be received by **March 15th, 1996**. In order to be assured of a room at the conference rate in the Holiday Inn, reservations must be made by **March 15th, 1996**. Information on discount airfares for meeting participants is also enclosed.

This meeting promises excitement and diversity with ten special invited paper sessions in addition to contributed paper sessions and posters. The organizers of these special sessions have excelled in enticing preeminent research scientists, both national and international, to give presentations. Indeed, many of these persons have not previously attended NSA meetings, so we can anticipate them broadening our understanding of current shellfish-related research. The tentative agenda is enclosed and the final agenda will be published in the Winter Newsletter. As usual, the full program will be published in the Spring 1996 issue of the NSA Quarterly Newsletter.

In the past, the National Shellfisheries Association held its annual meetings in conjunction with the Shellfisheries Institute of North America. This was mutually beneficial because it allowed industry to communicate directly with research scientists and allowed industry to benefit from the latest research. These joint meetings are being reestablished and this year the Molluscan Shellfish Institute (formerly SINA) will be sponsoring a workshop on Wednesday, April 17th. Their agenda will include presentations by the Interstate Shellfish Sanitation Commission, Federal Department of Agriculture and discussion of the new HACCP inspection program and other issues pertaining to shellfish microbiology. The National Blue Crab Association will also be meeting on Wednesday and State management officials will discuss stock and recruitment issues.

In addition to these trade group meetings, on Thursday, April 18th, there will be a follow-on special symposium titled "The Blue Crab Fisheries of North America: Biology, Stock Assessment, and Management." This symposium is described in further detail on page 3 of this newsletter.

Remember that the President's reception will be held on Sunday from 7:30 until 11:00 pm at the nearby National Aquarium at Baltimore, which has very generously provided access at nominal charge to all aquarium exhibits in the building. This reception will feature an extensive buffet dinner and open bar featuring beers from local microbreweries. The AGM and awards presentation will follow a Wednesday evening dinner at the hotel. Following these formal activities Sandy Shumway will be auctioning memorable memorabilia, and for the young at heart there will be dancing to live music provided by Carter Newell and other NSA members. In

addition to the scholarly delights of the meeting there are also many other attractions in Baltimore close to the inner city hotel where we will be meeting. We are about 3 blocks from the inner harbor and one block from Oriole Park at Camden Yards. For those who want more exercise than dancing the night away, the Holiday Inn has an indoor pool, sauna, and fitness center.

**There is still time to submit an abstract** for a poster or paper presentation in one of the General Sessions at the 1996 Annual Meeting. Please refer to the summer newsletter for complete details on how to submit an abstract, or contact Program Chair Roger Newell at the address on the back cover of this newsletter. Remember that student presenters are eligible for the Thurlow C. Nelson Award. Also, limited funds are available to help defray the costs of students attending the meeting. Abstracts must be mailed in order to arrive by **November 17th, 1995**. Fax transmittals will be accepted provided a follow-up copy is mailed and postmarked by November 17th.



## **Hotel Reservation Information**

We have reserved a block of rooms at the Inner Harbor Holiday Inn at the special conference rate of \$90 single, \$100 double and \$110 triple. These rates are valid until March 15th, 1996 but you should make your hotel reservation early. The hotel has reserved a block of 15 student rooms at a special rate of \$100 with two double beds and one roll-away bed included at no extra charge. Students wishing to avail themselves of these group rates should look for people to share a room. If you wish to share a room but cannot find other students, please contact Roger Newell (preferably by email at [newell@hpel.umd.edu](mailto:newell@hpel.umd.edu)) and he will put you in contact with others looking for roommates (but not soul mates!). All room costs are subject to an additional 12% charge for local and state taxes. Nonsmoking rooms are available. Hotel reservations are best made directly by telephoning Holiday Inn. Please be certain to indicate your attendance at the National Shellfisheries Meeting. If you are making reservations by mail or Fax, please verify the deposit amount required to guarantee your reservation.

The hotel is located adjacent to the convention center and about 3 blocks from the Inner Harbor in downtown Baltimore. Car parking is \$5 per night.

Holiday Inn - Inner Harbor  
301 West Lombard Street  
Baltimore, MD 21201, USA  
1-410-685-3500, Fax: 1-410-727-6169

Central reservations: 1-800-Holiday (USA and Canada).  
In Mexico, call 011-525-559-6790.



## Travel Arrangements

Group discount fares for travel to Baltimore are available through "Flights to Sites," which deals with ALL major carriers. These tickets are not subject to special restrictions and generally no penalties apply to cancellation or schedule changes. Savings are about 10 to 12% below the lowest published rates. To check rates and make reservations, call (800) 609-0439 Monday through Friday 9:00 to 17:30 EST and identify yourself as an attendee of the National Shellfisheries Meeting.

Baltimore is served by major airlines into Baltimore-Washington International airport, located about 11 miles from the hotel. Ground transportation to the hotel is available by BWI shuttle van express for \$10 each way or \$17 round trip. Taxicabs cost between \$12 and \$20 one way. The Baltimore Amtrak station is one mile from the hotel.

## Tentative Agenda

Program Chair Roger Newell has prepared the following tentative agenda for the Technical Sessions of the 1996 NSA Annual Meeting. The meeting is scheduled for April 14 - 18, 1996 at the Holiday Inn, Baltimore, Maryland. There will be a President's Reception and Dinner at Baltimore Aquarium on Sunday evening, and a Wednesday Business and Awards Dinner followed by the auction and dancing. The poster session will run throughout most of the meeting, and two concurrent Technical Sessions are scheduled every day. The Molluscan Shellfish Institute and National Blue Crab Association workshops will be held on Wednesday and the special symposium "Blue Crab Fisheries of North America: Biology, Stock Assessment, and Management" will commence on Thursday morning and conclude on Friday at noon. There will be a trade show open throughout the meeting.

### SUNDAY, April 14, 1996

- PM: Executive Committee Meeting (afternoon)  
PM: Evening Presidents Reception and Dinner at the Baltimore Aquarium (7:30 - 11:00)

### MONDAY, APRIL 15, 1996

- AM: Session A: Molluscan Nutrition  
Session B: General Session  
  
PM: Session A: Molluscan Field Studies  
Session B: General Session  
Poster Session starts

### TUESDAY, APRIL 16, 1996

- AM: Session A: Marine Genetics  
Session B: General Session/Oyster Pathology  
  
PM: Session A: General Session  
Session B: Oyster Pathology continued  
Poster Session continues

### WEDNESDAY, APRIL 17, 1996

- AM: Session A: Biotechnology  
Session B: Water Quality/Lobster Fisheries  
Molluscan Shellfish Institute Workshop  
  
PM: Session A: Clam Fisheries  
Session B: Crustacean Health  
Molluscan Shellfish Institute Workshop  
National Blue Crab Association Workshop  
Poster Session continues

### THURSDAY, APRIL 18, 1996

- AM: Session A: Shellfish Neoplasia  
Session B: General Session  
Blue Crab Symposium  
  
PM: Blue Crab Symposium

### FRIDAY, APRIL 19, 1996

- AM: Blue Crab Symposium

Note that posters will be available for continuous viewing from Monday through Wednesday. During the afternoon breaks on Monday, Tuesday, and Wednesday, presenters will be available to answer questions and discuss their research.

## IT'S AUCTION TIME AGAIN .....



Get a real jump on spring cleaning and send us your contributions for the annual auction. All shellfish-related "stuff" accepted, including but not limited to: publications (books, reprints, old journals, reports), shell art, stamps featuring shellfish, yard sale treasures, jewelry, T-shirts (any other clothing you deem appropriate), shells, wine, beer, etc., etc. Nothing is too tacky, so use your imagination and donate!

Your contributions are desperately needed. The auction has thus far added approximately \$5000 to the Student Endowment Fund. It can't function without your support.

Send donations to:

Sandy Shumway  
Natural Science Division  
Southampton College, LIU  
Southampton, NY 11968



## Industry Update

### Puget Sound Tribal Off-Reservation Shellfish Rights

In 1854 and 1855 Governor Isaac Stevens negotiated treaties for the United States with the Puget Sound Indian tribes. These treaties all contained a fishing clause that preserved the tribes' rights to fish off-reservation in common with citizens of the United States "provided however they shall not take shellfish from any beds staked or cultivated by the citizens".

In the 1970's the tribes filed suit in federal court to clarify their off-reservation fishing rights. The result was the famous Bolt Decision which awarded them 50% of the Puget Sound salmon. However, Judge Bolt opted not to clarify the shellfish rights in his ruling so in 1989, after a decade of trying unsuccessfully to resolve the issue out of court, the tribes filed a subpoena under the original U.S. vs. Washington case.

A number of Puget Sound commercial shellfish growers, concerned that the State would not adequately defend their interests banded together and intervened as a party in the suit. Significant to the growers' case was the fact that Washington, shortly after statehood, sold off a considerable portion of their tidelands to private ownership. This tideland ownership came with a clear title (no notification of tribal fishing rights) and encouragement to develop shellfish businesses. Also significant was that it had been established in state law since the early 1900's that the shellfish embedded in those tidelands were the property of the tideland owner.

The issue came to trial in the spring of 1994 before Federal District Court Judge Edward Rafeedie. Rafeedie issued his decision on December 20, 1994. The Order, much to the growers amazement, appeared to parallel Judge Bolt's ruling, awarding the tribes half of the shellfish in natural beds in the Puget Sound (regardless of ownership). Judge Rafeedie then gave the parties six weeks to try to agree on how the Order would be implemented. While there was some agreement on the State's deep water shellfish resources, there was considerable disagreement on how to implement the Order on privately owned tidelands.

The Court issued another decision in March, 1995, denying the tribes access to the tidelands across private uplands. They would have to come through public access or by boat. This March Order also called for an evidentiary hearing to begin on May 8th for the court to gather evidence to craft its own implementation plan.

During the May hearing it became clear to the court that if a grower cultivated natural beds on his private tidelands, the tribes felt they were entitled to half the crop. Simply put: If a grower had 6 manila clams per square foot on his beach and he put out gravel to enhance the substrate, excluded predators with netting and planted seed from his hatchery to increase production to 40 clams per square foot, the tribes testified they felt that they were entitled to 20 of those clams (the growers maintained they were entitled to 3).

The growers argued that the Court should consider the parties involved and assign fault and relief accordingly. They asserted that the United States was at fault for entering into the treaties then allowing the tidelands to be sold without notification of the treaty rights on them. Washington State similarly was at fault for selling the tidelands without notification of the treaty rights. The growers and private tideland owners were innocent purchasers. The burden of relief should fall on the United States and Washington State.

On August 28th, 1995, Judge Rafeedie issued his Implementation Order. In the Order he reassured the growers that the shellfish "proviso" was in the treaties to protect their beds. He did equity as the growers had requested, placing the blame "squarely" on the United States and Washington. He also placed blame on the tribes for waiting over a century to bring their claims. He subsequently wrote protection into the Order that basically excluded all commercially cultivated beds from tribal access, including public beaches cultivated by the State for recreational harvest.

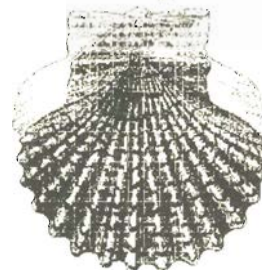
The tribes still have access to truly natural beds on growers' property, and any new beds created after August 28th will be subject to the treaty rights. The tribes were also granted access to private tidelands. For beach owners with 200' of frontage or less, the tribes have 5 days access per year (another day for each additional 50'). A detailed survey of the shellfish on the beach is required at the tribes expense prior to harvest.

While exercising treaty rights on the tidelands has been limited by the Court, the tribes have won a major victory on the subtidal shellfish resources (many of which were not fished to any degree at treaty time). Fifty percent of the dungeness crab, scallop, sea urchin, sea cucumber, shrimp and geoduck fisheries is worth an estimated \$14 million annually at the dock.

The issue remains far from resolved. The tribes have filed a motion to have the August Implementation Order amended or altered or for a new trial on five specific points. The Court's ruling on that motion will begin the 60-day clock for filing expected appeals. Many anticipate these proceedings will go through the 9th Circuit Court of Appeals to the Supreme Court.

The growers, weary from six years in court and anxious for renewed certainty in their businesses, continue to push for an out-of-court settlement that will resolve the dispute in the best interest of all parties.

Bill Dewey, Taylor United, Inc. and Spokesman for the Puget Sound Shellfish Growers





## **Book Reviews**

*Cold-Water Aquaculture in Atlantic Canada*, 2nd Edition, edited by Andrew D. Boghen, The Canadian Institute for Research on Regional Development. 1994. 672 pages. Price \$59 Canadian. Available from The Canadian Institute for Research on Regional Development, Université de Moncton, Moncton, New Brunswick, Canada E1A 3E9

The title of this book may lead casual viewers to think it has limited value to them because it may have a rather parochial outlook on aquaculture, namely aquaculture in Atlantic Canada. Certainly the book is a must acquisition for anyone seriously connected with aquaculture in Atlantic Canada, be they grower, researcher, entrepreneur, or administrator. However, I believe the book has a much broader scope than aquaculture in Atlantic Canada and is of great importance and benefit to anyone who is involved in temperate-water aquaculture. It is the second edition of a previous publication that presents expanded and updated material on aquaculture in eastern Canada, and is a virtual tome on the subject, 672 pages. It isn't for light reading, but is a reference book that should be on the library shelves of people involved in aquaculture in temperate waters.

The book is divided into two parts. The first part gives a detailed description of species that are either cultured or have potential for culture in eastern Canada; the second part is concerned with socio-economic factors and environmental considerations, which are so important when considering aquaculture operations anywhere in the world.

Chapters on individual species are written by experts in their fields and present detailed information on the present and future status of species that are cultured or considered for culture in eastern Canada: Atlantic salmon, arctic char, trout, American lobster, American oyster, Belon oyster, blue mussel, scallops and even Irish moss. Chapters are clearly written and the reader is given a comprehensive view of existing knowledge and state of culture operations for each species. Risks and problems that must be solved to improve operations are discussed and each chapter throughout the book has numerous references. Information is presented factually and there is no "over sell" for culture of any species in eastern Canada. Authors point out directions needed for continuing research to improve the efficiency of existing culture operations and to enable economically viable culture operations to develop for potential species. Individual chapters would be valuable to anyone working on the same or similar species anywhere in the temperate world.

As with any book of this nature, there are individual chapters that will appeal to the reader. In addition to those chapters describing culture of bivalves, I found the chapter on "New Candidate Species for Aquaculture" of particular interest. I was impressed that people (both industry and research-

ers) in this area are not resting on their laurels with past successes but have the boldness and vision to look for new species to culture. It is an attitude all of us involved in aquaculture should adopt. It is to be hoped that future editions of this book will have chapters describing the success of some of these ventures.

The second part of this book is concerned with "Socio-Economic Factors and Environmental Considerations," subjects that are becoming more and more important in aquaculture operations. Again, individual chapters are written by well-qualified people and they provide an in depth study of each subject. Many books on aquaculture only deal with the technical side of the subject and it is pleasing to find the socio-economic side of aquaculture dealt with in such detail.

Topics covered in individual chapters include: Application, Development and Transfer of Technology; Aquaculture and the Environment; Roles of Government; Aquaculture Rights, Economics of Aquaculture; Marketing, and Conflict Resolution. All these topics are of utmost importance in present-day aquaculture operations and are required reading for anyone involved with aquaculture or any person contemplating becoming involved in any phase of aquaculture in eastern Canada. Indeed, the chapters should be read by anyone connected with aquaculture in Canada and they would be of considerable interest to any person involved in aquaculture throughout the world.

As in Part 1, I found two chapters of particular interest: those on the Economics of Aquaculture and Conflict Resolution. Many aquaculture ventures in the past have failed because people did not pay sufficient attention to the economic side of aquaculture. Aquaculture, like any other venture, is a business, and if it is not profitable it will fail. The economics of aquaculture are most important. The chapter on Conflict Resolution is particularly apropos at the present time, not only to eastern Canada, but to the Pacific coast of Canada and, from what I gather, to many aquaculture situations throughout the world. When agriculture developed in North America it did so with great encouragement from governments and the general public. With aquaculture the situation is considerably different and there is a belief among some of the public that aquaculture is not desirable and must be stopped at all costs. This chapter reviews this problem and offers solutions to avoid such conflicts so that aquaculture can develop to its full potential.

In summary, although this book is directed to aquaculture in Atlantic Canada, much of the information is applicable to aquaculture throughout the world. It is an excellent book for any aquaculture library and I highly recommend purchasing it as a reference text.

Neil Bourne



## A New Book on the Systematics of Marine Molluscs of the Colombian Caribbean

*Molluscos del Caribe Colombiano. Un Catálogo Ilustrado*, by Juan Manuel Díaz Merlano and Monica Puyana Hegedüs. COLCIENCIAS, Fundación Natura, and INVEMAR, Santa Marta, Colombia, South America. 1994. 291 pp. + 74 plates and 1,070 figures. In Spanish. Price: U.S. \$40 (includes mailing and handling). Available through senior author, INVEMAR, Apartado Aéreo 1016, Santa Marta, Colombia, or from Fundación Natura Colombia, Avenida 13 No. 87-43, Santafé de Bogotá, Colombia.

This important, much needed, comprehensive contribution to the systematics of the Mollusca of the Caribbean, some 10 years in preparation, was truly an ambitious undertaking. The book is large size (21 by 29 cm), paperback, with an attractive durable waterproof cover, and includes 1,086 species of marine molluscs known in the Colombian Caribbean as of the date of publication. Almost all species are illustrated by photographs or line drawings.

According to the authors, the Caribbean basin is malacologically highly diverse, with an estimated total of 4,000 species. Of these a higher than usual number is endemic. There are thus more species to be discovered. The authors also note that the present work should be considered an indicator of the current state of knowledge of the Caribbean Mollusca, as well as a challenge to future investigators to fill existing voids in knowledge.

The volume consists of an informative introduction, a 4-page glossary with illustrations, 4 major chapters, 9 pages of bibliography, indices to families, subfamilies, and genera, and 74 plates.

Chapter 1 briefly covers the biology of the Mollusca, primarily anatomically oriented, and molluscan classification. Chapter 2 discusses molluscs as food, in collecting, in art and in architecture, in religion, as jewelry, and in history.

Chapter 3 includes the distribution and general ecology of molluscs in the Colombian Caribbean, in such habitats as sandy bottoms, turtle grass, mangroves, coral reefs, and rocky surfaces. Distribution of species is recorded by reference to seven numbered regions along the coast and continental shelf of Colombia, extending from (1) Gulf of Uraba on the west to (6) Cape Vela on the east, and out to the Colombian islands (7) off the coast of Middle America. Identification of the numbered regions is based on distinctive ecological differences.

Chapter 4, the catalog and principal part of the book, consists of 226 pages. The catalog presents in systematic order the known molluscan species of the Colombian Caribbean, each by its full scientific name (genus, species, authority, and year), accompanied by a brief description of the species, notes on habitat preference, and geographical distribution. Only species whose distribution in the Caribbean region has been fully confirmed are included. For practical reasons (and although recognizing that systematic phylogeny is undergoing something of a revolution), the authors employed the

classic order proposed by Thiele (1929-1935) and the usual grouping followed by Keen (1971), Götting (1974), and Abbott (1974). Common synonyms are included. Each species is identified by a number that refers the reader to the appropriate illustration in Plates I-LXXIV. After the scientific name of each species, the following information is entered:

- Distinctive features, based primarily on the shell morphology useful in identification;
- Habitat preferences;
- Distribution in Colombia, given by number of appropriate sector(s) (No. 1-7) of the coast and continental shelf;
- General distribution beyond the Colombian Caribbean;
- References to more detailed information on distribution and ecology.

The following is an example of the entries in the catalog:

85. *Aequipecten lineolaris* (Lamarck, 1891)

Ref: Warmke & Abbot (1961)

Sinónimo: *A. mayaguezensis* Dall & Simpson, 1901

• Concha semicircular (25 mm) con las aurículas iguales; ornamentada con 18 costillas radiales; valva inferior blanca; valva superior marrón rosado con finas líneas concéntricas onduladas y pequeñas motas de color más oscuro.

• Poco común, sobre fondos arenosos y coralinos entre los 15 y 60 m de profundidad.

• Sectores: 1, 2, 4, 5, 6.

• Sureste de la Florida y Mar Caribe.

In the overall, the book is an attractive, carefully researched and prepared, documented publication, invaluable in the study of any aspect of malacology or molluscan fisheries on the Colombian coast. Its value, undoubtedly, will also extend to the marine regions of northern South America, Central America, and the Caribbean islands.

Hopefully, as research on the systematic malacology of the Caribbean continues, a new edition of the book will be forthcoming. In this, some of the troublesome aspects of the present volume can be addressed. For example, the type tends to be overly crowded, so that it is not always easy to read; an extreme case is that of the "r" and "i" that run together forming what appears an "n". Of the 12 pages of color plates after the introductory section of the book, 7 are of molluscs with an excessively yellow cast (however, the habitat scenes on the following 5 pages are excellent). Although line drawings and many photographs of the 1,070 figures are sharp and clear, a few of the photographs are too dark, making identification difficult.

I hasten to add that these negative points are minor, and do not detract from the overall value and usefulness of the publication, especially to marine biologists and their students, shellfisheries investigators and managers, environmental groups, and lay collectors. It is a pleasure to highly recommend the volume, and to commend the authors for an important achievement.

Melbourne R. Carriker



***Strombus gigas: Queen Conch Biology, Fisheries and Mariculture***, Richard S. Appeldoorn and Bladimir Rodriguez, editors. Fundacion Cientifica Los Roques, Caracas, Venezuela. 1994. Price \$30 U.S. for delivery to American Continents and Caribbean, \$45 to other continents. To order, send prepayment to Bladimir Rodriguez Quintal at Distribuidora IOCUS, No. 9497 POBA International No. 100, P.O. Box 02-5255, Miami, FL 33102-5255, USA.

Among commercially-exploited shellfish, the queen conch, *Strombus gigas*, is unique for many reasons, not the least of which is the rapid expansion of our knowledge of the life history, fisheries and socio-economic importance to the Caribbean region. For the research community, *Strombus* truly came into its own during the 1980s and 90s, with major research programs throughout the Caribbean, South and Central America and in the United States. While there were several gatherings of the involved scientific community throughout this time, few were as comprehensive, or as rich with result and observation, as the workshop held in 1991 as part of the First Latinoamerican Malacological Congress, in Caracas, Venezuela. This book is a product of that workshop.

Appeldoorn and Rodriguez have done us all a great favor, for they have compiled the findings of these diverse research initiatives in their 356 page volume. This book is the Galtsoff's *American Oyster* for the conch community. It's hard to imagine, but fifteen years ago, such a book would not have been possible given the limited state of our knowledge of the species.

Both the content and structure of Appeldoorn's and Rodriguez' volume set high standards. The editors avoided the oft-made error of forcing the publication into a single language (usually English), opting instead to provide Spanish abstracts for English papers and vice versa. The breadth of coverage is another strength of this volume. There are twenty-six papers in "*Strombus*." The authors provide species and fisheries assessments for Venezuela, St. Luci, Martinique, the U.S. Virgin Islands, Turks and Caicos, Cuba, Florida, Mexico and Colombia. Strategies for stock assessment and management are discussed throughout the work and evaluated in detail in at least four chapters. Larval distribution, genetic studies and reproductive anatomy are the focus for three papers. As much as one-third of this volume is dedicated to the current state of affairs for larval biology, culture and juvenile growout. The volume closes with a 437 item bibliography and a fully cross-referenced index.

I found one of the most valuable chapters to be Appeldoorn's own summary of remarks on the status, needs and priorities for management and research. Rick Appeldoorn has dedicated a great deal of his professional life to the study of this "most important demersal resource in the Caribbean region." His perspective on management and research needs is an outline for another fifteen years of work on *Strombus*. I heartily recommend the book for anyone interested in the Caribbean, tropical fisheries or marine gastropods.

Scott Siddall

## Third International Abalone Symposium Biology, Culture and Fisheries

Sponsored by California Sea Grant  
October 5-11, 1997  
Monterey, California, USA  
First Announcement and Notice of Intent

### Suggested symposia topics:

- Aquaculture: hatchery, production and seawater systems
- Biotechnology: genetic engineering, molecular and biochemical studies
- Cultural and historical use of abalone
- Ecology - associations and abundance in the intertidal and subtidal ecosystem
- Fishery Management - refugia, ecosystem management, update of world fisheries
- Larval and postlarval biology
- Marketing and economics
- Morphometrics
- Nutrition - natural and artificial diets
- Pathology - diseases and parasites
- Phylogeny, life history, taxonomy and evolution
- Population biology

### Special Events:

Trade Show	Shell Display	Dive Trips
Video Session	Shell Trading	Field Trips

### Schedule:

Abstract due September, 1996  
Registration required by June, 1997  
Manuscripts due by symposium date

### Proceedings:

Proceedings will be published in a special issue of the *Journal of Shellfish Research*. All reviewed manuscripts will be due to the Planning Committee by December 30, 1997 for publication in March, 1998.

### Notice of Intent:

If you would like to receive further announcements, registration and other information about the Third International Abalone Symposium, mail, fax or email the following information to: Catherine Ashley, California Sea Grant College, 9500 Gilman Drive, La Jolla, CA 92093-0232; FAX 619 534-2231; email [cashley@ucsd.edu](mailto:cashley@ucsd.edu)

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## **Upcoming Meetings**

**Biochemistry in Marine Technology:** December 11-16, 1995, University of Havana, Cuba. Topics include: Purification and characterization of polypeptides from marine sources, Genetics of marine species, Hormones, Metabolism of marine animals and teaching Biochemistry. Language: Spanish and English. For information contact Dra Olimpia Carrillo Farnes, President Comité Organizador, Departamento de Bioquímica, Facultad de Biología, Universidad de la Habana, Calle 25e/Jel, Vedado, C. Habana, Cuba, FAX: 53-7-321321.

**Canadian Conference for Fisheries Research (CCFFR):** January 4-6, 1996, Monreal, Quebec. For further details, please contact Dr. Jim Grant, Department of Biology, Concordia University, 1455 de Maisonneuve Blvd. West, Montreal, Quebec H3G 1M8. Phone: (514)848-2431, FAX: (514)848-2882, email grant@vax2.concordia.ca

**World Aquaculture '96 and Bangkok Seafood Show:** January 30 - February 2, 1996, Queen Sirikit National Convention Center, Bangkok, Thailand. Annual meeting of the World Aquaculture Society. For information contact Sea Fare Expositions, Inc., 850 NW 45th St., Seattle, WA 98107. Phone: (206)547-6030, FAX: (206)548-9346.

**Aquaculture America '96:** February 14-17, 1996, Arlington, Texas. Joint conference of the National Aquaculture Association and the U.S. Chapter of the World Aquaculture Society, hosted by the Texas Aquaculture Association. For details contact Sea Fare Expositions, Inc., 850 NW 45th St., Seattle, WA 98107. Phone: (206)547-6030, FAX: (206)548-9346.

**4th Annual Smoked Seafood Conference:** March 4-5, 1996, Seattle-Tacoma International Airport. A unique and open forum to access new information and exchange ideas concerning technology, applied research, problem solving, market and business development, supplier information and government regulations. Prominent industry leaders, regulatory authorities, government and university researchers and advisors will speak on subjects essential to processing and the successful marketing of smoked products. For registration,

competition and exhibition information contact Smoked Seafood Conference - '96, 2743 56th Ave. SW, Seattle, WA 98116. Phone: (206)938-0676, FAX: (206)933-7937.

**International Institute of Fisheries Economics and Trade:** July 1-4, 1996, Marrakesh, Morocco. If you would like a copy of the conference brochure, please send a request including your postal address to Chris LeBoeuf at leboeufc@ccmail.orst.edu, or fax Dr. Mounir Lamine, Conference Coordinator at (212-2) 98 17 24. Deadline for submission of titles and abstracts is November 30, 1995.

**Second World Fisheries Congress:** July 28 - August 2, 1996, Brisbane, Australia. The theme of this conference is "Developing and Sustaining World Fisheries Resources: The State of Science and Management." The following questions will be addressed: Why do some fisheries survive while others collapse? What are the roles of science, economics, sociology and politics in fisheries management? How can fisheries resources be allocated? Who owns the fish? What is the scope for development of wild stock fisheries? What is needed to manage fisheries successfully? To add your name to the mailing list, please contact the congress secretariat: Second World Fisheries Congress, PO Box 1280, Milton QLD 4064 Australia. Phone: (07)3369-0477; FAX (07)3369-1512; email: im@cc.uq.oz.au

**International Astacology Association:** August 11-16, 1996, Lakehead University, Thunder Bay, Ontario, Canada. Paper and poster sessions will cover all aspects of crayfish science, including culture, physiology, management, taxonomy, zoogeography and ecology. For information contact Dr. Walter Momot, Dept. of Biology, Lakehead University, 955 Oliver Road, Thunder Bay, Ontario P7B 5E1 Canada. Phone: (807)343-8277; FAX: (807)343-8023; email: Walter.Momot@lakeheadu.ca

**World Aquaculture '97:** February 1997, Seattle, Washington, USA. For information, contact Sea Fare Expositions, Inc., 850 NW 45th St., Seattle, WA 98107. Phone: (206)547-6030, FAX: (206)548-9346.

**11th International Pectinid Workshop:** Tentatively April 10 - April 15, 1997, La Paz, Baja California Sur, Mexico. Plans are already underway for the next gathering of the world's scallop fondlers. Former IPW participants are asked to please send any address changes, corrections or names of other possible participants to: Esteban Fernando Félix-Pico, Dept. of Fisheries and Marine Biology, CICIMAR-IPN, Ap. Postal 592 and 476, 23000 La Paz, B.C.S., Mexico, Phone: 52-112-25344 (Ext. 2428), FAX: 52-112-25322, email: efelix@vmredipn.ipn.mx

**Aquaculture '98:** February 14-19, 1998, Las Vegas, Nevada. Triennial joint meeting of the World Aquaculture Society, the National Shellfisheries Association and the American Fisheries Society Fish Culture Section. Mark your calendar now!



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### Pearl Session World Aquaculture '96

The Pearl Session at the World Aquaculture Meeting in Bangkok promises to deliver a number of quality talks from researchers around the world. The following is a list of abstracts received for oral presentations as of late September.

C. Aldana and M. Monteforte (Mexico): Monitoring a generation of the pearl oyster *Pteria sterna*, from spat collection to mabe production in Bahia de La Paz, South Baja California, Mexico

M. Carino (Mexico): Historical approach to the scientific and technological development of pearl culture in the world, from V century to the present day

Chenmao Deng, Yang Lin, Tao Du, Shao Fu and Jie Juo (China): Experiment on pre-operation treatment of *Pinctada martensii* (Dunker)

M. Doroudi (Iran): Recent developments in pearl culture in Iran

F. Ehteshamei (Iran): Larval rearing of the black-lip pearl oyster *P. margaritifera* (Linnaeus) to the umbro stage

Dan Emery and C. Richard Fassler (USA): A comparison of pearl culture techniques: Takaroa, French Polynesia, and Manihiki, Cook Islands

C. Richard Fassler (USA): The American mussel crisis: effects on the world pearl industry

Daisy Ladra (Philippines): Economic feasibility of mabe and three-quarter pearl production

M. Monteforte, C. Aldana, H. Bervera, V. Prerez, J.M. Ramirez, P. Asucedo and H. Wright (Mexico): Effects of biofouling on growth and survival of pearl oysters *Pteria sterna* and *Pinctada mazatlanica* during nursery culture at station Merito, Bahia de la Paz, South Baja California, Mexico

M. Monteforte, C. Aldana, H. Bervera, V. Prerez, J.M. Ramirez, P. Asucedo and H. Wright (Mexico): Comparison of growth and survival of mabe implanted and non-implanted individuals of *Pteria sterna* and *Pinctada mazatlanica* in Bahia de la Paz, Baja California, Mexico

K. A. Narasimhan (India): Recent developments in pearl oyster research in India

Terii Seaman and Philippe Cabral (French Polynesia): On land maturation of the pearl oyster *Pinctada margaritifera*

Ajai Kumar Sonkar (India): Production of pearls in fresh water using indigenous nuclei

H. Wright and M. Monteforte (Mexico): Analysis of variations and effect of the macrofauna associated with pearl oyster spat collectors at Bahia de la Paz, South Baja California, Mexico

Hualing Wu (China) and Jaw Kai Wang (USA): Laboratory culture of pearl oyster *P. margaritifera* and its commercial land-based production potential in the U.S.A.

Guoling Xu, Linhong Zhang and Jun Chen (China): A study on raising the survival rate and the retained nucleus rate of operated pearl oysters



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