

**ESTUARIES SECTION
NEWSLETTER
February 2007**



CONTENTS

Note from the Editor
Call for Nominations
President's Message
News from NOAA
From the Education Section
Minutes of 2006 Annual Business Meeting
New! Marine and Coastal Fisheries Journal
Feature— New Interest in Estuaries for Hydrokinetic Energy
Feature—Estuaries and Ecosystem Services

NOTE FROM THE EDITOR

It was a great disappointment when Justin Krebs stepped down after several years as editor of this newsletter. At our 2006 annual meeting in Lake Placid, I made the big mistake of volunteering to take over the job, without any idea of how to produce a good newsletter, or any newsletter for that matter.



Competence aside, the biggest challenge for our newsletter editor is getting the raw material—news, information, feature stories, photographs, commentary. The more the better. Our members surely have a lot of great information—don't be shy! Our goal is to produce at least two newsletters each year. Got a story? A joke—of a clean estuarial nature, of course? A research challenge? Let us know.

PRESIDENT'S MESSAGE

Lake Placid, New York was the site of the 2006 annual AFS meeting and this is where the Estuaries meeting, in conjunction with our friends from the Marine Fisheries Section. Once again we had a merry time after the close of the joint business meetings, sampling smoked salmon and cheeses along with our glasses of wine and beer.

Nestled along Mirror Lake, below the mighty peaks of the Adirondack Mountains, we spent the week meandering (or walking briskly) along the quaint main street making our way among the various venues where the plenary and parallel sessions were held. Even though it was early September, the weather was cold, treating us to a preview of winter, and to sightings of fall foliage on the flanks of the mountains. I had a good time visiting the Nature Center at Tupper Lake, climbing Mount Joe and taking the elevator to the top of Whiteface Mountain (one of the 5 highest peaks in the Adirondacks and accessible by wheelchair, thanks to the foresight of President Franklin D. Roosevelt).

The 2006 meetings were especially important for the Estuaries Section for several reasons. At the 2006 mid-year meeting held in March, the Governing Board (GB) had voted to amend the constitution to allow AFS sections with more than 50 members the right to be voting members of the Governing Board. This was affirmed by a vote of the general body in Lake Placid. The Estuaries Section is now able to vote on any issue at all meetings of the Governing Board.

Secondly, the Governing Board voted to move forward with the creation of an AFS Marine and Coastal Fisheries Journal and appropriated \$30,000 towards the development of this journal. Dr. Steve Jordan, past president of the Estuaries Section, has been appointed to serve on the AFS Publications Oversight Committee (POC). The POC will move forward with AFS publications staff and the joint Marine Fisheries-Estuaries Section committee to flesh out the details of the new publication and to select an Editorial Board and Editor. This should be great news to section members, providing a new outlet to publish research and helping to bring us "salts" into the mainstream of AFS.

President Kohler initiated an effort to understand how the AFS parent society can be of more service to all the AFS sections. Recommendations were collected in May and this was the focus of discussion at the GB Retreat in Tupper Lake preceding the commencement of the annual meeting. We're looking for some new initiatives to come out of this process that will give more services to sections and their members. One item on the horizon may get GB members partial reimbursement from the AFS parent society for travel to the mid-year meeting.

The Estuaries Section sponsored a most interesting symposium on Cumulative Impacts in Lake Placid. Steve Jordan and I moderated the two

sessions at which ten papers were presented. The talks were well attended. After a lively panel discussion capping the afternoon, the presenters adjourned to dinner at an Italian Restaurant across the street where we discussed plans to publish the papers as a special issue in a journal. Since then I've developed a prospectus and sent it to several journals. We're awaiting feedback as I write this.

I presented four Student Travel Awards this year on behalf of the Estuaries Section at our annual Business Meeting. Bernice Bediako of the University of Maryland, Eastern Shore, Bradly Trumbo of the University of Connecticut, Benjamin Ciotti of the University of Delaware, and William Smith of the University of North Carolina, Wilmington each received \$250 along with a plaque noting their achievement.

As always I welcome feedback and news from Section members. You can reach me by e-mail at saebbin@sbcglobal.net. Have a safe and productive year and I'll look forward to seeing you in San Francisco!

*Syma A. Ebbin, President,
AFS Estuaries Section*

CALL FOR NOMINATIONS!

The Estuaries Section is seeking nominations for President-Elect, Treasurer and Secretary. Elected individuals will take office at the September 2007 Annual Business Meeting of the Estuaries Section, to be held in San Francisco, CA in conjunction with the annual AFS Meeting. Our President-Elect, Fred Goetz, will be taking over the helm of the section at that meeting as well.

Nominations and self-nominations will be accepted through March 1. Please forward names and a brief biographical sketch to Estuaries Sec-

tion President, Syma Ebbin at
saebbin@sbcglobal.net.

NEW! AFS Open Access Electronic Journal *Ma-*
rine and Coastal Fisheries (working title)

Looking for an Editor

In September of 2006, the AFS Governing Board charged the Publications Oversight Committee (POC) with developing a new open access electronic journal devoted to the science and management of marine and coastal fish, fisheries, and fish habitat. This decision resulted from background work by a joint committee of the Estuaries and Marine Fisheries Sections. The POC is seeking expressions of interest from individuals who would like to serve as the Editor for this exciting new initiative. Candidates should have extensive editorial experience and be willing to embrace the concept of having an open access electronic journal. The Editor would work with the POC and AFS staff (as well as relevant sections) to help shape the scope, format, editorial policy, editorial board, etc. needed to implement this journal. The Editor must be a skilled moderator, because electronic journals provide the opportunity to engage in lively, current, and transparent debate regarding controversial topics. The Editor must be a team builder willing to work in a collaborative environment. In addition, the Editor should be well known within the marine and coastal fisheries community and should have broad interdisciplinary training and experience to enable him or her to be cognizant of emerging trends and capitalize on them to develop thematic issues. This is a volunteer position but would include a modest stipend as well as travel support to attend the AFS Annual Meeting. Interested parties should contact Steven Cooke (Chair of the POC) for further information prior to March 15 2007.

Steven J. Cooke, POC Chair

Tel. (Daytime) 613 520 2600 X 2143; Tel. (Eve-
nings) 613 719 7787

Email: Steven_Cooke@carleton.ca

NEWS FROM NOAA

*Chesapeake Bay Fisheries Ecosystem Planning Guide
Published*

AFS published "Fisheries Ecosystem Planning for Chesapeake Bay" in fall 2006. The NOAA National Chesapeake Bay Office coordinated the development of this collaborative, first-of-its-kind book with regional scientists and resource managers. This book describes the structure and function of the bay's ecosystem, including key habitats and species interactions. Recommendations to implement ecosystem-based approaches to fisheries management for bay resident and coastal species are included, as well as recommendations for research to enhance knowledge of the ecosystem and its fisheries. For ordering information, please visit [AFS Books](#).

Chesapeake Bay and Tidal Tributary Interpolator

The Chesapeake Bay and Tidal Tributary Interpolator computes water quality concentrations throughout the Chesapeake Bay and/or tributary rivers from water quality measured at point locations. Results of the Chesapeake Bay Interpolator have been used since 1988 to determine trends in water quality for the Chesapeake Bay Program. Interpolated monitoring data can be mapped to create pictures, as shown in the following example of dissolved oxygen in the Bay and tidal rivers, and by depth in the lower transect of the Bay.

Monitoring data are collected at over 50 stations in the Bay, and many more locations in the tidal rivers. Water samples are also measured at vari-

ous depths from the water surface to the bottom. The resulting values represent the whole water body--the more samples that are measured, the better they represent the wide range of water quality in the Bay. At fixed distances (one kilometer or less), the Interpolator calculates a three-dimensional average value, using four or more measured values. The calculated values can be further analyzed to determine trends in water quality through time. Such time series graphs can provide a better understanding of how the Bay responds to weather and climate patterns, and also to evaluate whether the Bay is improving because of the restoration program. For more information, please visit [NOAA Chesapeake Bay Office](#).

Chesapeake Bay Interpretive Buoy System

The NOAA Chesapeake Bay Office (NCBO) received \$500,000 to establish the Chesapeake Bay Interpretive Buoy System (CBIBS) in fiscal year 2006. CBIBS will combine on-the-water sensor platforms providing real-time data streams with multi-disciplinary educational tools that interpret portions of the proposed Captain John Smith Chesapeake National Historic Water Trail. These tools will provide users with the products and information they need to further protect, restore, and manage the Chesapeake Bay.

NCBO and its partners plan to deploy three buoys in Spring 2007 at Jamestown, Potomac Junction, and in the Northern Bay.

Real-time data from these buoys will be available via a new interactive web site. CBIBS will be an integral part of the Chesapeake Bay Observing System (CBOS) and a component of the U.S. Integrated Ocean Observing System. NCBO intends to deploy three additional buoys in 2007 at Stingray Point, Nanticoke and in the Potomac (upstream). NCBO is developing educational

and interpretive components to enhance the real-time and archived data provided by CBIBS. Curriculum will include basic estuary modules and sections specifically focused on the Chesapeake Bay and data collected by the buoys. For more information, please visit [NOAA Chesapeake Bay Office](#).

Lee Benaka, NOAA Fisheries

FROM THE EDUCATION SECTION

What is the largest bony fish?

If you are like me, you probably waited until the last minute to renew your AFS Membership for 2007. When you renew, please consider this invitation. The Education Section of the American Fisheries Society invites you to join our Section. Education Section activities, including preparation and revision of textbooks, support of student travel to meetings, and compilation of brochures on academic programs and fisheries career opportunities. One focus of the section is undergraduate and graduate education. However, the Education Section also supports life-long learning of all fisheries professionals. We encourage all fisheries professionals to expand their minds through the pursuit of new knowledge. To that end, we are sponsoring a "Largest Fish" contest.

What is the largest bony fish known to science? If you think you know the answer, email your response to slochmann@uaex.edu. We will provide a small incentive to some lucky individual, randomly chosen from among the respondents with the correct answer. Take some time, explore the possibilities, and see what there is to learn about really big fish.

You must be a member of the Education Section to be eligible for the "small incentive."

Steve Lochmann, AFS Education Section, Membership Committee

MINUTES

Edited minutes of the 2006 AFS Estuaries Section Annual Meeting, Lake Placid, NY, September 12, 2006

President Syma Ebbin called the meeting to order at 6:15 pm.

The minutes of the last business meeting (September 2005, Anchorage, AK) were accepted.

President's Report

The activity report will be put on the website; it is part of the Governing Board minutes. The *Death by 1000 Cuts Symposium* held at the 2006 AFS annual meeting, organized by Syma Ebbin and sponsored by the Estuaries Section, was co-sponsored by the Marine Fisheries and Economics Sections. Ten papers were presented and it is hoped that the papers will form the basis of a special issue of a journal. The Nancy Foster Award winner will be announced by Thomas Bigford. Anthony Overton has taken over maintenance of the Estuaries Section website. The AFS parent website has had problems, affecting the Section listserver which crashed in August 2006.

The AFS Governing Board met on September 8 and 9. A number of items were considered; 1) The Board voted to allow sections with more than 50 members to be voting members of the Board. Prior to this, only members representing sections with 200 or more members could vote; 2) This change permits the member (usually the Section President) representing the Estuaries

Section on the Board to vote. The section currently has approximately 160-190 members, meeting the new membership requirement. The Governing Board also has decided to create a new fisheries journal for Coastal and Marine Fisheries. There was a consensus to approve the journal. The Marine Fisheries and Estuaries Sections have members participating in an ad hoc committee formed to advance development and implementation of the journal. The Parent Society has allocated \$30,000 in 2007 to begin development of the journal.

The Estuaries Section provided four students with travel awards enabling them to attend the 2006 annual meeting.

Secretary's Report

The minutes of the 2005 business meeting of the Estuaries Section were distributed. Secretary Kurt Kline was unable to attend the meeting.

Treasurer's Report

Copies of the 2005-2006 financial statement of the Estuaries Section were distributed. Treasurer Lee Benaka was unable to attend the meeting.

New Business

President's Remarks

President Syma Ebbin issued a call for symposium proposals for the AFS 2007 Annual Meeting. Any member can propose a Symposium. The request should be distributed widely and should be done as soon as possible [Editor's note: the deadline for symposium proposals was January 12, 2007]. In 2006 the Section sponsored one symposium and co-sponsored several others organized by the Marine Fisheries Section.

Section members proposed a number of potential symposia topics. These included: Estuarine impacts of reverse osmosis water treatment; Restoration efforts in large estuaries such as the Co-

lumbia River estuary and Chesapeake Bay; and an Evaluation of the success of National Estuary Restoration Programs.

President Ebbin received a request from Ken Beal asking the Section for financial support for the International Symposium entitled, "Challenges for Diadromous Fishes in a Dynamic Global Environment," to be held in 2007 in Nova Scotia. This is the 20-year follow-up conference to the Diadromous Conference held in 1987. A motion was made and approved to provide \$200.00 to the conference.

Changes to Section dues structure There was a discussion about increasing dues. There was no support for any increases at this time. It is not clear what the last change to the dues, decreasing the section membership for students to \$2.00 and increasing it for regular members to \$7.00, had on section membership.

A motion was made to the Governing Board at the mid-year meeting in March 2006 regarding section memberships. The motion had several alternatives that would have allowed AFS members to have free or reduced membership in two sections of their choice, with the membership paid to sections by the AFS parent society. The issue was tabled so it was not addressed. AFS supports divisions and chapters but not sections. A motion was made, seconded and passed by consensus to resubmit the request to the AFS Governing Board. [Editor's note: The Estuaries Section Executive Committee is working on a revised motion to be offered at the mid-year AFS Governing Board meeting.]

There was a call for volunteers to produce the Estuaries newsletter. Steve Jordan volunteered to work on the newsletter. The last newsletter published was in December 2005.

There was discussion of whether to ask the parent society to manage section funds. There was no support for this suggestion.

Call for nominations

For Treasurer (to begin September 2007). Lee Benaka is stepping down. It was suggested that nominations for President-Elect (for a 2-year term to begin September 2007, followed by 2 years as Section President) be solicited through email. Syma will begin the call for nominations.

Business Meeting Adjourned

Award Presentations

Student Travel Awards were presented by President Ebbin. Award plaques and checks for \$250.00 were presented to Bernice Bediako, University of Maryland, Eastern Shore, Bradley Trumbo, University of Connecticut, Benjamin Ciotti, University of Delaware, and William Smith, University of North Carolina, Wilmington.

Tom Bigford announced that Elliott Norse was the recipient of the Nancy Foster Habitat Conservation Award. Unfortunately, Dr. Norse's schedule did not permit him to attend the awards ceremony. The Nancy Foster award has been given every year since 1996. Tom Bigford requested new nominations for the 2007 award.

A joint reception with the Marine Fisheries Section followed the awards.



Fred Goetz, President-Elect, AFS Estuaries Section

Estuary job links

<http://www.fisheries.org/jobs/>
<http://jobs.restorationmarketplace.com/>
<http://www.naml.org/careers/>
<http://www.erf.org/jobs/jobs.html>

Feature—New Interest in Estuaries for Hydrokinetic Energy

A recent convergence of factors is focusing attention on energy development in coastal and estuarine waters and raising concerns about potential impacts to fish populations, fish habitat, and commercial and recreational fisheries in those areas. In the past few years the economic, public opinion, regulatory, and technological stars have aligned to make hydrokinetic ocean energy—energy derived from tides, waves, and currents—a growing player in the use of coastal and ocean resources. Tidal energy technologies have progressed the fastest and are typically sited in estuarine areas where tidal forces are strongest.

The idea of extracting energy from tides is not a new one. Scientists have discussed this idea for years, but until recently oil and gas prices have been relatively cheap, making energy from other sources more expensive. In the past several years, as oil prices have increased and conflict in the Middle East has led to calls for energy security, more focus has been placed on the development of new, sustainable energy sources. Greater attention to energy prices and increased consideration of climate change has swayed public opinion to support and encourage a diverse national portfolio of energy sources. The public generally views hydrokinetic technologies positively because they produce minimal pollution. In 2005, Congress entered the debate when the new Energy Policy Act granted the Minerals Management Service (MMS) authority over Federal offshore renewable energy development. Finally, the technologies for extracting energy from ocean sources have advanced. For tidal energy, at least eight different turbine designs are currently being used or tested. The convergence of these factors has made alternative ocean energy development more popular and feasible.

This feasibility is illustrated by the boom in applications to the Federal Energy Regulatory Commission (FERC) for preliminary permits for tidal projects. Since 2002, 37 tidal projects have filed for preliminary permits; all but three applications were filed in 2006. FERC has issued three preliminary permits—San Francisco Bay, East River (NY), and Puget Sound. The bulk of the other applicants have filed for sites in Alaska, Maine, and Washington State with nine proposals in each state.



Research on potential impacts to ocean and coastal resources has not converged as neatly as the other factors. Many questions remain about the impacts of these new technologies to coastal and ocean resources. Prominent among several impacts of concern are fish passage and cumulative impacts. Most turbine designs consist of rotating blades that move through the water at varying speeds. Some project designs call for hundreds of turbines to be arrayed in the project site. While these turbines do not constitute a full blockage of a waterway like traditional hydrokinetic dams, projects with several hundred turbines could create obstacles for fish passage. Questions remain about the ability of fish to avoid single and multiple turbines, and how a large turbine field might affect hydrological patterns, sedimentation, and other river variables governed by flow.

As projects develop, most applicants propose to initially monitor potential impacts from a few turbines before scaling up to full project-level capacity. While data gathered from these studies will be helpful in addressing impacts, it may not address the cumulative impacts of placing hundreds of turbines in the water column. Will projects on the hundred-turbine scale measurably reduce the tidal forces in the water column? How will full-scale projects impact annual fish migrations? Will spinning turbines increase turbidity in the water column? How will full-scale projects impact the physical qualities of the water column? Most importantly, how will we be able to extrapolate monitoring data from a few turbines so it

applies to projects consisting of hundreds of turbines? The first few projects to move through the regulatory process will receive increased scrutiny as industry, regulatory agencies, and natural resource interests attempt to collectively answer these questions. An adaptive management framework could help answer questions while providing for resource protection. Phasing the implementation of projects from pilot level to full scale will help determine impacts from an increasing number of turbines in the water without requiring the costly removal of turbines that might be necessary as a result of a single full deployment. Certain project parameters may be tailored to reduce impacts. These include the number of turbines, turbine spacing, blade speed, and, potentially, screening mechanisms. As these technologies develop and as more are deployed in our coastal waters, it will be important for industry, regulators, and state and federal agencies to work together to ensure fisheries and habitat science inform decisions.

Jeff P. Smith
NOAA/Fisheries
Office of Habitat Conservation

FEATURE—ESTUARIES AND ECOSYSTEM SERVICES



In the last issue of the Estuaries Newsletter, Justin Krebs described NOAA Fisheries' efforts to quantify the value of estuarine habitats for

the Nation's fisheries. In EPA's Office of Research and Development, we are developing a similar line of research: quantifying the services ecosystems provide to society, and developing tools to predict how the values of these services might change under future scenarios. In the coastal arena, we are working with various estuary-specific, regional, and national programs to help prioritize efforts to protect and restore estuarine habitats.

One of the key issues is the difference in scales between the ways in which ecosystem services are affected by human activities and the ways in which the services are delivered to society. For example, many small actions that degrade ecosystem services in minor ways on local scales could translate into large effects at regional scales. For a much more comprehensive description of these issues, see the report from the [Millenium Ecosystem Assessment](#) (7 Mb pdf).

In our "Death by 1000 Cuts" symposium, I reported on some preliminary results of modeling the effects of habitat loss on the sustainability of the Gulf of Mexico blue crab fishery. The exercise suggested that modest local changes—incremental losses of submerged aquatic vegetation and fringing marshes—when multiplied over the vast estuary complex of the Gulf Coast, could have major long-term effects on the crab population.

The emphasis is on *suggested*—there are many uncertainties in the analysis and some are very large. An important element of this research, therefore, is reducing the uncertainties, quantifying them, and gaining better mutual understanding among ecologists, coastal managers, and policy-makers about how much uncertainty is tolerable in decision-making. We expect 95% or 99% confidence in decisions about the safety and efficacy of human medical treatments, but

in predicting effects on complex estuarine ecosystems, such levels of certainty likely are impossible. Is a 60% or 70% chance of a bad outcome – the crash of a major fishery or loss of a coral reef, for example, sufficient to drive difficult public decisions? And what if it's not, but it's the best we can do?

Steve Jordan



**AMERICAN FISHERIES SOCIETY
ESTUARIES SECTION**

Syma A. Ebbin, President 2006-2007
 Fred Goetz, President-Elect
 Anthony Overton, Secretary, Webmaster
 Lee Benaka, Treasurer

The Estuaries Section invites memberships from all AFS members interested in the science, management, and conservation of estuaries and coastal marine ecosystems.

Dues are \$7.00 per year for regular members, and \$2.00 per year for students.

Treasurer's Report, AFS Estuaries Section

Business Checking Account (Suntrust Bank, Bethesda, MD); Balance on Hand (8/8/06) **\$3,023.82**

Income

10/06 – Refund for AFS business meeting \$+26.54

Total income: +\$26.54

Expenses

8/06 – AFS plaques and certificates -\$100.00

9/06 – Travel award for Bernice Bediako -\$250.00

9/06 – Travel award for Bradley Trumbo -\$250.00

9/06 – Travel award for Benjamin Ciotti -\$250.00

9/06 – Travel award for William Smith -\$250.00

9/06 – AFS business meeting expenses -\$423.94

9/06 – Diadromous symposium support -\$200.00

Total expenses: -\$1,723.94

Balance on Hand (1/23/07) **\$1,326.42**

Lee Benaka, Treasurer, AFS Estuaries Section