E-SLATE

American Academy of Underwater Sciences (AAUS)

EDITORIAL BOARD NOTE – July 2010

Welcome to the July issue of the E-Slate. The deadline for the 2010 AAUS scholarship is June 30. Nominations for the 2010 AAUS Conrad Limbaugh Memorial Award will be accepted until August 01. This month's featured organizational member is Dauphin Island Sea Lab. Email a short bio and images to aaus@disl.org if you would like to have your institution featured. Finally, if you are a Facebook user, you can help the Rubicon Foundation win a funding competition based on community support.

The E-Slate is a newsletter from and for the scientific dive community. We welcome news, announcements, job postings, new publications, and images of underwater work. Please email submissions to aaus@disl.org. Current and past issues of the E-Slate are available at www.aaus.org.

NEWS/ANNOUNCEMENTS

Featured OM – Dauphin Island Sea Lab

Dauphin Island Sea Lab is Alabama's marine research and educational institution. Founded in 1972 by the Alabama legislature to maximize the marine research capabilities of several Alabama institutions of higher learning, DISL has grown to include 22 Alabama universities and colleges. DISL is located on 35 acres of the eastern end of Dauphin Island, a barrier island approximately 40 miles south of Mobile. DISL faculty are actively involved in both basic and applied research in the Mobile Bay watershed and nearshore waters of the Gulf of Mexico and Caribbean Sea. About 30 divers make over 1,000 dives each year in support of biogeochemistry, sea grass, coral reef and jellyfish ecology and oyster restoration. A public exhibit building, the Estuarium, featuring the local habitats of the Mobile Bay watershed and environs, including the Mobile River Delta, Mobile Bay, and the Gulf of Mexico, interprets research conducted at DISL through traditional aquaria, interactive exhibits and a boardwalk over a restored salt marsh. DISL divers also support the aquarium operations.

DISL Divers vacuuming invertebrates from Florida Keys Seagrass Meadows. Credit: J. Valentine

Smithsonian Symposium Recap

A symposium sponsored by the Smithsonian Institution, the National Science Foundation, and the Ocean Studies Board of the National Research Council turned out to be an informal reunion of current and past-presidents of AAUS. Christian MacDonald, Jeff Godfrey, Steve Sellers, Bill Dent, Ted Maney, John Heine and Michael Lang all attended 'Research and Discoveries: the Revolution of Science through Scuba' May 24-25 in Washington, DC. Symposium co-chairs were Michael Lang, Roberta Marinelli, Susan Roberts and Phillip Taylor. Webcasts of the nearly 50 papers on research findings from around the world on coral reefs, blue-water environments, under-ice polar habitats, temperate kelp forests and other sites of interest are available at http://www.si.edu/sds/webcast.htm.

AAUS past-presidents at the Smithsonian symposium social. Left to right: Steve Sellers, Ted Maney, Bill Dent, Jeff Godfrey.

Call for Nominations for 2010 AAUS Award

The AAUS Conrad Limbaugh Memorial Award is presented annually to an individual who has made a significant contribution in diving safety and diving leadership on behalf of the scientific diving community.

Conrad Limbaugh was an underwater naturalist and Chief Diving Officer for Scripps Institution of Oceanography, where he directed the diving program. He was killed in a scuba diving accident in the Mediterranean on March 20, 1960. Limbaugh graduated from Whittier College in 1948 and did graduate work at the University of California at Los Angeles before going to Scripps Institution in 1950. He was largely responsible for developing the diver-training program at Scripps, as well as many research techniques used by marine scientists.

Past recipients:

Douglas E. Kesling, BSN, M.A., DMT-A - 2009
Michael A. Lang, MS - 2008

John N. Heine, MS - 2007
Walter C. Jaap, MS - 2006
Robert (Bob) R. Given, PhD - 2005 (in memoriam)
Karl E. Huggins, BS, MS - 2004
Glen H. Egstrom, PhD - 2003
Lee H. Somers, PhD - 2002
Jimmy Stewart - 2001

Class of 2010 - current eligible nominees:

Richard Carey
Jack Engle
Mark Flahan
John Reed
Danny Gouge
Lloyd Austin
Dennis Divins
Diane Stellar
Henry Fastenau

Please provide complete information for each new nominee: name, address, phone number, e-mail address, JPEG photo (if available), candidate bio, nominator, award justification. Please submit nominations to aaus@disl.org by August 01.

AAUS Membership and Verification Card Drive

To encourage individual membership (IM) for divers trained by an organizational member (OM), AAUS is offering a one-year free IM with the purchase of a verification card ($25). Only divers not currently IMs are eligible for this special pricing. Go to www.aaus.org to apply ('membership/ application' in the blue banner to the left). In the payment section, select 'full voting member – with verification card - $0' or 'student member with a verification card - $0.' Once the membership application is complete, you will receive a confirmation page. Follow the links on this page to fill out your verification card form. Alternately, select 'verification card' from the blue banner when signed into your profile.

All full and student members (AAUS trained and active divers) of AAUS are eligible for a verification card. The card front will have the AAUS logo, the name and logo of the certifying OM, a picture of the diver, and the date of training. The back of the card will list all Volume Two specialty training for which the diver qualifies. Once the DSO has verified qualification, the applicant's name will be added to a national registry of scientific divers that have met the training requirements of AAUS. This card is not intended to be used in lieu of a Letter of Reciprocity and Training Verification when requesting reciprocity from or transferring authorization to another AAUS organizational member. Cards may be ordered by logging into your individual profile and selecting 'verification card' from the blue banner on the left of the page.

RUBICON FOUNDATION

Facebook Users Can Support Rubicon

The Rubicon Foundation is a valuable and free resource for all divers, preserving and improving accessibility to an incredible range of often difficult to find diving-related materials. Rubicon is now competing in the Chase Community Giving for Facebook challenge. The organization receiving the greatest number of community votes will be awarded $250,000 to continue its work. Each of the next ranking 200 organizations will receive $20,000. According to Gene Hobbs, Rubicon founder, as of June 28th, Rubicon was approximately 110 votes away from making the top 200 list. Polls are open until July 13th. To vote, visit:

http://apps.facebook.com/chasecommunitygiving/charities/300244558-rubicon-foundation-inc?src=charity-details-wall-post-self&ref=mf.

Please pass this on to any willing and able to offer support.

FUNDING/SCHOLARSHIPS

AAUS 2010 Student Scholarships

AAUS will award two $2,500 scholarships in 2010 to graduate students conducting research who are using scientific diving as their principal research tool or studying diving science. Contingent on funding and quality of proposals, two additional $1,500 scholarships may be awarded. The application deadline is June 30. Recipients will be announced Oct 01. For more information, contact the Scholarship Committee Chair at aaus@disl.org or visit: http://www.aaus.org/mc/page.do?sitePageId=64326&orgId=aaus.

EQUIPMENT RECALLS

Recall of OMS Buoyancy Compensators

Ocean Management Systems (OMS) has issued a voluntary recall of 20,000 buoyancy compensators (BCs) due to faulty seal rings. Seal rings have been found to crack under pressure, compromising bladder integrity and placing divers at increased risk of drowning. BCs impacted by the recall were made in America, sold between May 2006 and August 2008. A list of model numbers and pictures of the BCs affected by the recall may be found at the OMS website. Owners of defective BCs should contact OMS for information regarding how to receive a free repair. Visit: http://www.cdnn.info/recall/oms_100428/oms_100428.html

GULF STATE DIVING

DEMA Promotes Diving in Gulf States

The Diving Equipment & Marketing Association (DEMA) has launched a new website to compile first-hand information from Gulf State dive businesses to clarify the status of the dive industry in the region and promote local tourist opportunities. The site contains a dive center locator, background information on scuba diving and a forum discussing local news and dive operation activities. DEMA encourages industry partners to post notes, pictures and video about recent or upcoming dive trips, oil-free dive sites and other information to provide an accurate impression of the region's current prospects for diving. To view or contribute visit: www.gulfstatediving.com.

UPCOMING EVENTS

UW Spatial Ecology of Salish Sea Benthos Course

The University of Washington Friday Harbor Laboratories is offering a 15 credit course in Spatial Ecology of Salish Sea Benthos September 29 - December 10, 2010. The course will investigate the application of marine ecological and geophysical techniques, seabed sampling and underwater video and still photographic sampling in the characterization of marine benthic habitats. There will be opportunities for advanced scuba divers to take part in sampling and surveys. Enrollment is limited to 10 persons. Contact Dr. Kenneth Sebens (sebens@u.washington.edu) or visit: http://depts.washington.edu/fhl/studentAutumn2010.html#MBQ.

JOB OPPORTUNITIES

Maintenance Diver, Part-Time Georgia Aquarium

The Georgia Aquarium is seeking a part-time maintenance diver to work in their Atlanta, GA facility. Major duties are split into two categories: commercial and scientific diving work. Commercial duties include daily aquarium husbandry, inspection and preventative maintenance of aquarium exhibits and equipment ordering and inventory. Scientific duties include participation in and assistance with advanced dive personnel training, monitoring of aquarium species and sample collection, and implementation of dive safety measures. The diver may also serve as a liaison between the Georgia Aquarium and guests, media and the general public. Candidates must hold an Advanced Open Water (or higher) diving certification and have a minimum of two years experience in aquarium or scientific diving. Additional requirements relate to first aid certifications, equipment service/technician certifications and proficiency in Microsoft Office Products. For more information visit: http://partners.georgiaaquarium.org/all/Lists/Join%20Our%20Team/DispForm.aspx?ID=71.

Raytheon Polar Services - Antarctic Diver

Raytheon is seeking an individual to join their Antarctic dive teams at McMurdo and Palmer research stations. The contract begins October 2010 and would last either six or 12 months. The position entails assisting with Raytheon Polar Services (RPSC) diving projects and may include underwater construction and limited salvage work. Scientific studies may also require the diver to collect samples, document dive conditions and act as a tender for research divers. Candidates must possess a high school diploma or GED, a nationally recognized scuba certification, CPR/first aid certification, a minimum four years of commercial and/or scientific diving experience and American or New Zealand citizenship. View online: http://jobview.monster.com/Diver-10-11-Job-Centennial-CO-US-88776141.aspx or register with the Raytheon career website: http://www.rayjobs.com.

LACSD Senior Laboratory Technician

The Los Angeles District's Ocean Monitoring Research Group performs biological and environmental analysis and assessment as part the agency's marine monitoring and research program under regulatory and research requirements. This is a multi-disciplinary program conducted in response to District research and State of California NPDES permit requirements. LA County Sanitation Districts is seeking a Senior Laboratory Technician for the Ocean Monitoring Research Group at the Joint Water Pollution Plant in Carson, CA. The successful candidate conducts or participates in the collection and analysis for a variety of biological, chemical, and physical oceanographic samples as part of the District's Ocean Monitoring Program. Within the laboratory, maintains taxonomic documents and resources as directed; performs quality control checks of infaunal sample sorting; performs fish and invertebrate tissue resection for bioaccumulation studies; provides electronic dataset handling efforts; processes and analyses aquatic sediments for qualitative determinations and quantitative grain size analysis; provides preliminary taxonomic determinations of marine invertebrates and fish. At sea, the incumbent participates in a broad array of oceanographic and biological sampling and analysis: operates and navigates a 26 foot motor vessel in open coastal waters, assists in oceanographic sampling by means of a CTD water column profiling and light irradiance measuring packages, including calibration and troubleshooting; rigs and deploys oceanographic sampling gear such as otter trawls, sediment grabs, sample bottles, and uses shipboard winches and capstans or other specialized gear and equipment; utilizes scuba in collecting samples and conducting surveys. Visit: http://agency.governmentjobs.com/LACSD/default.cfm?action=viewclassspec&classSpecID=112732&agency=1616&viewOnly=yes.

Diving Safety Officer – WHOI

Woods Hole Oceanographic Institute is seeking a Diving Safety Officer. The DSO is responsible for initiating and supervising the diving program and training divers. Major duties include: operational authority for the diving program, implementing policy as established by the Diving Control Board, reviewing the latest diving technology and procedures, and recommending budgets for the Diving Program and compiling an annual report of diving activities for the DCB. Applicants should have a degree in marine science or a related field and must possess a current instructor certificate issued by a nationally recognized dive training agency, have at least four years of varied diving experience with a minimum of 100 hours underwater using scuba and surface-supplied equipment. Applicants must exhibit a thorough knowledge of diving theory, safety practices, operational procedures and diver training. Some sea duty may be required. Visit: http://www.whoi.edu/HR/page.do?pid=40036&tid=282&cid=33683.

NEW PUBLICATIONS

Chung SC, Seccombe LM, Jenkins CR, Frater CJ, Ridley LJ, Peters MJ. Glossopharyngeal insufflation causes lung injury in trained breath-hold divers. Respirology. 2010 Jun 9. [Epub ahead of print]

Background and objective: Glossopharyngeal insufflation (GI) is a technique practised by competitive breath-hold divers to enhance their performance. Using the oropharyngeal musculature, air is pumped into the lungs to increase the lung volume above physiological TLC. Experienced breath-hold divers can increase their lung volumes by up to 3 L. Although the potential for lung injury is evident, there is limited information available. The aim of this study was to examine whether there is any evidence of lung injury following GI, independent of diving. Methods: Six male, competitive breath-hold divers were studied. CT of the thorax was performed during breath-holding at supramaximal lung volumes following GI (CT(GI)), and subsequently at baseline TLC (CT(TLC)). CT scans were performed a minimum of three days apart. Images were analysed for evidence of pneumomediastinum or pneumothorax by investigators who were blinded to the procedure. Results: None of the subjects showed symptoms or signs of pneumomediastinum. However, in five of six subjects a pneumomediastinum was detected during the CT(GI). In three subjects a pneumomediastinum was detected on the CT(GI), but had resolved by the time of the CT(TLC). In two subjects a pneumomediastinum was seen on both the CT(GI) and the CT(TLC), and these were larger on the day that a maximal GI manoeuvre had been performed. The single subject, in whom a pneumomediastinum was not detected, was demonstrated separately to not be proficient at GI. Conclusions: Barotrauma was observed in breath-hold divers who increased their lung volumes by GI. The long-term effects of this barotrauma are uncertain and longitudinal studies are required to assess cumulative lung damage.

Gregalis KC, Johnson MW, Powers SP. Restored Oyster Reef Location and Design Affect Responses of Resident and Transient Fish, Crab, and Shellfish Species in Mobile Bay, Alabama. Transactions of the American Fisheries Society. 2009; 138: 314-27.

Recent efforts to restore oyster reefs have resulted in the creation of many reefs with the explicit objective of benefiting local shellfish and finfish fisheries. We evaluated the community responses of the fish (transient and resident), crab, and shellfish species that colonized or utilized a series of restored high- and low-relief oyster reefs at three different locations within Mobile Bay, Alabama. Sites were chosen to represent different combinations of sediment type, proximity to established oyster reefs, water quality, and water movement patterns. The results showed substantial differences in reef community among the three sites and, compared with unstructured bottoms, increased abundance of several species of small demersal fishes and sessile invertebrates. Common mud crabs *Panopeus herbstii* and flatback mud crabs *Eurypanopeus depressus* were the only species to exhibit any consistent patterns in habitat use that could be directly attributed to reef height. The species composition of transient fishes did vary among treatments, but the total abundance on low-relief reefs and unstructured control areas was similar and often greater than that on high-relief reefs. There were significant two-way interactions between season, reef location, and reef design for most species abundances. These results suggest that the responses by resident and transient species to reef restoration were highly variable and that our ability to predict the community responses of resident and transient fishes to oyster reef restoration may be limited because of the interactions among location-specific biophysical characteristics.

Kanary L, Locke A, Watmough J. Evaluating the effectiveness of scuba-based visual searches for an invasive tunicate, *Ciona intestinalis*, in a Prince Edward Island Estuary. Aquatic Invasions. 2010; 5: 41-7.

Visual searches are a common method of detecting invasive species in coastal waters, but the statistical properties of search methods have rarely been evaluated. Understanding the error rate (especially false negatives) and effective detection distance of searches can improve survey design, and quantify the uncertainty in risk assessments used to inform invasive species management efforts. An experiment using artificial tunicates ('decoys') was conducted in Hillsborough Bay, Prince Edward Island, to determine the effectiveness of scuba divers conducting underwater visual searches for the vase

tunicate, *Ciona intestinalis* (Linnaeus, 1767). Single decoys and clusters of three decoys, constructed from water-filled, ivory-coloured balloons 5-6 cm in length, were placed at a blue mussel, *Mytilus edulis* (Linnaeus, 1758), aquaculture site on buoys, lines and mussel socks. The probability of detecting tunicate decoys on a mussel sock in the experiment is 89.8% (±SD 7.1), known in this paper as a true positive. The probability of not detecting tunicate decoys actually placed on a mussel sock in the experiment is 10.2% (±SD 7.1), known in this paper as a false negative. Divers detected 79.2% (±SD 7.1) of single decoys and 94.0% (±11.4) of clusters. Divers were able to detect single decoys from a measured horizontal distance of 2.7 m (±0.8), and clusters from 2.8 m (±0.9). The typical detection distance for real *C. intestinalis* estimated by divers was, on average, 2.1 m (range 1-3 m), and tunicates of lengths ≥2.9 cm (range 1-4 cm) could be detected.

The mission of the American Academy of Underwater Sciences is to facilitate the development of safe and productive scientific divers through education, research, advocacy, and the advancement of standards for scientific diving practices, certifications, & operations.

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