



E-SLATE

American Academy of Underwater Sciences (AAUS)

EDITORIAL BOARD NOTE – June 2010

Welcome to the June E-Slate. Check out the new reader commentary section - the Soapbox. Be sure to submit your organizational member's diving statistics by June 30. The E-Slate is a newsletter from and for the scientific dive community. Please submit news, announcements, job postings, new publications, and images of underwater work to aaus@disl.org. Current and past issues of the E-Slate are available at www.aaus.org.

NEWS/ANNOUNCEMENTS

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, MA, 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 - 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:

E-mail:

JPEG Picture (if available):

Candidate Bio:

Nominator:

Award Justification:

Please submit nominations to Heather Fletcher at aaus@disl.org by August 1, 2010.

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) beginning June 1, 2010. Only divers not currently IMs are eligible for this offer. 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". You will see a confirmation notice after completing the application. Follow the links on the confirmation page to complete your verification card form. Alternately, select "verification card" from the blue banner once you are signed into your profile.

All full and student members of AAUS are eligible for a verification card. The front will display the AAUS logo, diver photo, issue date and certifying OM name and logo. The back will list all Volume Two specialty training for which the diver qualifies. After DSO verification of qualification, the applicant's name will be added to a national registry of AAUS scientific divers. This card is not a substitute for letters of reciprocity or training verification when transferring authorization to another AAUS OM. Cards may be ordered by logging into your individual profile and selecting 'verification card' from the blue banner.

AAUS Member Statistics Submission

It is time for submission of your Organizational Member's (OM) 2009 scientific diving statistics to the AAUS database. The final deadline for submission is June 30, 2010. Though most AAUS web functions now reside on the MemberClicks website, the statistics database resides on an Ego Factory server. This site is linked from the current AAUS homepage (www.aaus.org) or can be accessed directly at <http://aauscf.egofactory.com/omservices1.cfm>. It should look identical to the previous statistics submission portal. Please review the "AAUS Statistics Collection Criteria and Definitions" information available on the

Statistics Collection page or contact Dr. Phil Lobel (plobel@bu.edu) or Mike Dardeau (mdardeau@disl.org) with questions. If you have problems submitting your data, please perform some basic error checking to ensure that all your numbers mesh appropriately.

AAUS Welcomes New OM

AAUS welcomes the Marine Science Group, Department of Evolution and Experimental Biology at the University of Bologna as our newest organization member (OM).

Scientific Boating Safety Association

Henry Fastenau and Steve Clabuesch, Diving and Boating Safety Officers, University of Davis and University of Santa Cruz

In March 2000 a professor at the University of California Davis, a post doc in his lab and three others died in a preventable boating accident on the Sea of Cortez. After the accident UC Davis and other research institutions began looking more closely at their own boating programs, and at ways to prevent additional loss of life or injury. When examined, some of these institutions found that their programs were informal, occasionally with no clear responsibility for vessel maintenance and operator training. Many operators only received on-the-job training from somebody who also had no formal training. Documentation of vessel underway time, maintenance, and operator training/experience was poorly kept. And there were funding and support issues. In response, the Scientific Boating Safety Association (SBSA) was formed in 2005. The purpose of the SBSA is to bring together those responsible for research boating programs and teaching small boat courses to share ideas and methods. The SBSA has developed a consensus set of policy guidelines. A standardized training program allows reciprocity between institutions and provides support for those institutions that do not yet have a formal boating safety program. The effort of developing standards and self-policing capability is important if the issue of licensing small research boat operators comes up again. This commitment could reduce the likelihood of external standards being imposed. SBSA members believe that scientific boating should have oversight by a committee of knowledgeable persons. Daily operations should be carried out by a "Boating Safety Officer" or equivalent. Guidelines for training requirements, operator qualifications, vessel maintenance, safety procedures/equipment should be available to all boaters, and operators should receive formal training. Training, operator experience water time and vessel maintenance should all be documented. We also believe that reciprocity between institutions with comparable programs should be simplified and, where appropriate, resources pooled.

The SBSA is a non-profit organization dedicated to facilitating safe boating practices and to minimize accidental injury among those using boats for research and training. To meet this mission, SBSA members provide or make available initial training and refresher courses, share expertise, advice and recommendations, formulate

guidelines and procedures, and publish a safety manual with appendices for local areas. Our goal is to ensure that scientific boating is conducted in a safe and effective manner.

The SBSA Motorboat Operator Training Course (MOTC) is entry-level training recommended for persons who will be acting as small vessel operators or crew for SBSA member institutions or other organizations. The MOTC provides fundamental training in boating knowledge and skills. The training, through demonstration and actual use, provides the participant with the knowledge and practical skills to safely perform as operator or crew while on board a motorboat. The SBSA MOTC is equivalent to the Department of Interior's Motorboat Operators Certification Course (MOCC) and as such MOTC trained boaters may operate federal vessels. For more information on becoming a member, please contact the Scientific Boating Safety Association at www.scientificboating.org.

FROM THE PRESIDENT

I offer my sincere thanks to Dave Pence and Kevin Flanagan (University of Hawaii) and to Alma Wagner and Heather Fletcher (AAUS) for working so hard to coordinate our very successful recent meeting in Honolulu, HI. Though there were concerns expressed as to ability to attend a symposium in such a distant location such, especially in this challenging economic climate, we were privileged to have record participation in all aspects of the meeting.

After much discussion, the Board of Directors has decided to transition our Annual Diving Officers meeting and Diving for Science symposium back to a Fall timeframe. We ultimately agreed that the pool of host venues was larger and the flow and conduct of AAUS business had greater potential in the October/November timeframe.

I am pleased to announce that the next AAUS symposium and associated meetings will be hosted by Chris Riguard and the University of Maine at Portland October 13-15, 2011. Details will be forthcoming. Looking even further ahead, AAUS will partner with the Monterey Bay Aquarium in Monterey, CA for the 2012 symposium and with the Florida Aquarium in Tampa, FL for the 2013 symposium.

Your input is welcome as we develop these events.

Christian McDonald
President, AAUS
Diving Safety Officer, Scripps Institution of Oceanography

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. 1. 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>.

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-November 10, 2010. The course will address marine ecological and geophysical techniques, seabed sampling, underwater video and still photographic sampling. Advanced scuba divers may 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>.

AAUS Symposium 2011

The next AAUS Symposium will be held in Portland, Maine. Hosted by the University of Maine, the meeting will be held October 13-15, 2011. Pre-symposium workshops and meetings (TBA) will be held in mid-coast Maine at the Darling Marine Center.

Fall is a great time to visit Maine - the water is warm, the lobsters are in, and the leaves are changing. Nestled on the shores of Casco Bay, Portland is Maine's largest city and the center of cultural, social, and economic activity. Attractions include natural beauty, a working waterfront, the Old Port historical district, and thriving restaurant and arts community.

The Darling Marine Center, marine laboratory for the University of Maine, sits on 170 acres of forested land on the shores of the Damarsicotta River in Walpole, approximately 75 minutes from Portland. The mid-coast is quintessential Maine, where forested hills blend into a rugged coastline dotted with lighthouses, fishing communities, lakes, and coastal villages. The private campus is a great setting for workshops and meetings and an ideal site from which to explore Maine.

Look for additional information in future editions of the E-Slate or contact Chris Rigaud at crigaud@maine.edu. We look forward to seeing you in 2011.

JOB OPPORTUNITIES

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's research and State of California NPDES permit requirements. Los Angeles 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: the incumbent 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 as a member of the Ocean Monitoring Group's dive team. Visit: <http://agency.governmentjobs.com/LACSD/default.cfm?action=viewclassspec&classSpecID=112732&agency=1616&viewOnly=yes>

Diving Safety Officer – WHOI

Woods Hole Oceanographic Institute (WHOI) 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's certificate issued by a nationally recognized agency, have at least four years of varied diving experience plus 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/services/HR/jobdescp/administrative/dive_off.htm.

Equipment Specialist Announcement

National Oceanic and Atmospheric Administration (NOAA) is seeking to hire a person for repair, maintenance and testing of diving equipment, dive and chamber supervision in support of training and field operations, in water and classroom instruction, assisting with the NOAA Diving Unit Safety Assessment (DUSA) program, and other activities in support of NDC and the NOAA Diving Program. The job announcement number is OMAO-NDP-2010-0021, closing June 19, 2010. Contact Curt Angell (206-526-6050; curtis.angell@noaa.gov) for more information.

SOAPBOX

On Safety, Dogma, and Objectivity

Jim Washburn, Diving Officer, Oregon State University

Having attended many symposia/conferences over the course of 35+ years (in fact pre-dating AAUS), there have been certain recurring themes which become apparent, as well as a tad perplexing. One theme in particular, seems to commonly re-occur, during discussions on safety, when using diving as a tool for research.

To wit: The never-ending rationale for adding additional dive equipment, by applying the greatest sales pitch of all: SAFETY. The supposition that one is safer with a pony bottle, and/or two knives, redundant timers, a second regulator, a light (or two), wet and dry suit pockets and attachments, etc., while also disregarding their cumulative effects, needs to be directly challenged by someone, and that someone should be AAUS. We should be in the business of not merely safety, but also facilitating research. We have allowed ourselves to be driven, to a large extent, by the marketing aspects of the diving industry, and thus, have become more than a tad dogmatic.

For the moment at least, let's play in the scientific ball park. Forty years ago, a conventional diver (even in academia) had about 160 total parts of dive equipment. These parts were literally the individual itemized components, e.g., mask (with a strap and buckles), snorkel (including a keeper), fins (including straps and buckles), regulator (with 74 parts), etc. I am sure you get the idea. By the 80s (my last count), the somewhat typical diver was then packing around 74% more parts than a 60s diver. Since the 80s it is reasonable to assume the collection of items, parts, and components has gone far beyond the 282 parts on an 80s diver. The result is an important and largely unaddressed issue for the diver: specifically drag. It is worthy of comment that adding mass to a diver is not a freebee. Mass is, well... mass. Thus, it's subject to all the laws of physics, including inertia.

Which leads us to a discussion of drag coefficients (or better yet, power and energy output). Let us say you have a clone with your identical water skills. Assume you have a moderate additional amount of dive gear, relative to your clone, resulting in 10% less speed (an accurate experimental value), while moving through the water. You say to

yourself: "Self": Do I care about the drag, which lessens my speed by 10%? Answer: You will certainly care if and when speed, and more importantly the ensuing output of energy, is critical.

But wait a minute. It is not the additional force which you need to apply to regain your loss in speed that matters. It's really the additional energy (work/time) you must apply to re-gain your 10% loss in speed. And that additional energy is indeed costly. The force required, for example, to push your fins, would be proportional to V^2 ; BUT THE ENERGY YOU EXPEND IS PROPORTIONAL TO V^3 . This means to regain 10% in speed, you need to apply 33% more energy, i.e., $(1.10)^3$. You may not care if you happen to be elevator diving in Cozumel. But when diving in waves, currents, offshore, and bad visibility, the resulting additional energy requirement can become a far more compelling issue. By the way, I am reasonably certain that the drag on today's diver can become considerably greater than the above example, when adding dry suits, integrated weights, etc. Experimental data is greatly needed. There is no doubt that when your energy output is critical, much of the so-called equipment that you are wearing to allegedly increase safety, is in fact, detrimental to your safety.

I do not have a problem with any diver making his/her choice to inundate themselves with equipment. However, the issue of equipment choice(s) and their use, which in truth are quite subjective, has become dogma. This does not speak well of the academic diving community. We have an opportunity to influence the dive equipment marketing and manufacturing industry, (not to mention AAUS rank and file), by doing what science and objectivity does best, and that is, have a strong, direct commitment to the fundamental issues, as opposed to the more mundane issues, encountered by divers.

NEW PUBLICATIONS

Anthony TG, Wright NA, Evans MA. Review of diver noise exposure. *Underwater Tech.* 2010; 29: 21-39.

Divers are exposed to high noise levels from a variety of sources both above and below water. The noise exposure should comply with 'The Control of Noise at Work Regulations 2005' (CoNaWR05, 2005). A detailed review of diver noise exposure is presented, encompassing diver hearing, noise sources, exposure levels and control measures. Divers are routinely exposed to a range of noise sources of sufficiently high intensity to cause auditory damage, and audiometric studies indicate that diver hearing is impaired by exposure to factors associated with diving. Human hearing underwater, in cases where the diver's ear is wet, is less sensitive than in air and should be assessed using an underwater weighting scale.

Manufacturers of diving equipment and employers of divers have a joint responsibility to ensure compliance with the exposure values in the CoNaWR05, although noise is only one hazard to a diver, and a balanced risk assessment must be applied to the whole diving operation.

A diver noise reduction strategy is proposed, and a health surveillance programme involving audiometric tests for divers should be established.

Sayer MDJ, Brown CJ. The influence of block shape, water depth and analysis technique on the measured profiles of artificial reefs. Underwater Tech. 2010; 29: 4-47.

Artificial reefs are constructed for many reasons around the world but they usually have to comply with some form of regulation which may require demonstration of accurate deployment through some form of post-construction measurement. Reefs related to fisheries are often subjected to scientific census to assess whether production and/or residence is related to reef size and cost. Once deployed underwater, there is the obvious problem of obtaining an accurate assessment of the size and shape of reefs. This study examined two methods for estimating reef size that were employed on a large-scale matrix of 30 separate artificial reefs constructed off the west coast of Scotland: 1) measurements made by scuba divers and 2) estimates based on raster graphic image analysis of images created from multibeam echosounder (MBES) xyz datasets. The degree of agreement ranged between the two methodologies with no obvious trends; it was assumed that the MBES data would be more accurate because of the lower numbers of assumptions. More simple-shaped blocks produced more shallow and scattered profiles than the blocks containing voids. More reef scatter (as measured by footprint area) was recorded at greater water depths.

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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