



E-SLATE

American Academy of Underwater Sciences (AAUS)

EDITORIAL NOTE –April 2018

Welcome to the April E-Slate. In this edition, we have an update from the spring BOD meeting, call for abstracts for the 2018 symposium, begin a new initiative called Spotlight, continue the standards manual update review and announce several student summer opportunities and job openings. We also have added back the recent publications listing. Please send us any new publications related to science diving. We welcome news, announcements, job postings, and images of underwater work at aaus@disl.org. Current and past issues of the E-Slate are available at www.aaus.org.

President's Message

Marc Slattery

University of Mississippi

The Spring BOD meeting was held at the Georgia Aquarium on February 24th and 25th and was followed by a DSO Orientation Workshop. Each Committee Chair reported on accomplishments in 2017, and continuing work relative to Academy business (the 2017 Annual Report will be released in May). Below is a brief summary of some of the more exciting issues addressed:

1) The BOD voted to provide fulltime salary support for our Office Manager, Heather Albright. This has been a priority for AAUS for many years, and a critical concern listed in the Strategic Plan. While we are still some ways from paying Heather commensurate with her expertise and responsibilities, we are at least paying for (most of) the hours she puts into the job each week.

2) The BOD also discussed options for a new website and developed a plan for launching this resource within two years. All agreed the website must continue to meet the needs of the Academy relative to on-line business, and it must continue to serve as a functional data repository. There is also interest in using the website to highlight the direct and indirect accomplishments of the AAUS membership as an outreach resource for potential donors. To date, website designers have fallen into two camps: a) those who propose to fix the existing website, and b) those who propose to build a website from scratch. We hope to identify the right contractor by summer and expect to report on the timeline going forward at the Annual Symposium in Tahoe.

3) The AAUS Foundation continues to be active in the arena of scholarships and travel grants, as well as support for AAUS priority workshops; additional funding (e.g., support

for scientific meetings) will require new sources of funds. The Foundation reported on their new fund-raising plans and coordinated with the BOD on our efforts relative to annual operating expenses and investment strategies.

4) The AAUS has recently embraced social media as an outreach/fundraising resource. In an effort to highlight the important role that the Academy plays in facilitating research diving, Jessica Keller is collecting short features about the science supported by our Organizational Members. We encourage all members to submit interesting and/or time-sensitive research by AAUS members by either forwarding press releases and internal articles to aausocialmedia@gmail.com or by completing the Spotlight submission form (see the new feature at the end of the E-Slate) Please share what is happening at your organization and be sure to follow us on Facebook, Instagram and Twitter.

5) Finally, some emerging issues were addressed by the BOD. Specifically, as complementary agencies are formed by various countries worldwide, the AAUS will look at ways we can work in a cooperative and transparent manner going forward. Likewise, reciprocity and cooperation with partner agencies on the national front is also crucial, and the AAUS has reached out to schedule a face-to-face workshop to address some of the issues we have as a scientific diving community.

Note: many of the committees working on these and other projects welcome volunteers- please contact aaus@disl.org if you'd like to get involved.

NEWS/ANNOUNCEMENTS

AAUS Conrad Limbaugh Memorial Award

The AAUS Conrad Limbaugh Memorial Award is presented biannually to an individual who has made a significant contribution to diving safety and diving leadership on behalf of the scientific diving community. The 2018 nominees are Lloyd Austin, Mike Dardeau, Dave Pence and Neal Pollock. Biographies can be found at https://secure.aaus.org/2018_cl_award

Voting for this year's award will be open from April 01-30, 2018. Full members can cast your vote for this year's nominees by logging in with your PERSONAL profile information at www.aaus.org no later than 11:59 p.m. PST on April 30 for award selection consideration.

AAUS Statistics Due

Annual statistics are now past due! If your OM has not yet submitted them, please do so immediately. Annual stats may be submitted at <http://stats.diveaaus.org>. It is strongly recommended that you fill in the blank form by hand before attempting to submit your stats. Inputs are error checked and you may get a message that your totals do not agree. Please do not include any dives that do not meet AAUS standards, i.e. recreational dives accepted by the DCB as proficiency dives. AAUS statistics collection criteria and definitions are at http://stats.diveaaus.org/Reporting/Stats_definitions.asp.

2018 AAUS Diving for Science Symposium

The 2018 AAUS Diving for Science Symposium will be hosted by the University of California Berkeley and the University of California Davis in Tahoe City, CA from October 09-13, 2018. We welcome diving scientists, students, diving safety officers and anyone with an interest in diving science to participate in this event. www.aaus.org/annual_symposium



Rod Hanna, Tahoe South

The week will be filled with technical workshops ranging from AUP repair, PSI and DAN courses to diving workshops covering underwater archaeology, altitude diving and much more. Following opportunities for diving as well as social and networking events, we will wrap up the week with the national DSO meeting, a two-day science symposium, poster session, and annual awards banquet.

Our venue for this year handles groups a little differently than in past years and we want you to be informed before you register and book lodging. **All participants need to review the information on the website thoroughly and contact the AAUS office with any questions.** Once registration is open in late April, a schedule along with links to online registration and lodging reservations will be posted.

Call for Abstracts

The AAUS is now accepting abstract submissions for the 2018 AAUS Diving for Science Symposium. **This year, ALL who intend to submit an abstract or full manuscript**

should complete the intention form by June 15th. AAUS will accept short abstracts (maximum of 300 words), extended abstracts (800-1200 words) or full manuscripts. The deadline for ALL submissions (abstracts and full papers) to be submitted electronically to aaus@disl.org is **July 15, 2018**. Please put "2018 AAUS symposium" followed by the format (abstract/extended abstract/full paper) and your name in the message line to facilitate tracking. Notification on the disposition of submitted abstracts will be returned to the first author electronically by **August 08th**, with any suggested revisions due by **September 01st**. No presentation will be allowed unless the final abstract or manuscript has been cleared for publication in the Proceedings, and abstracts/manuscripts will only be published if the presentation will be given. **All submissions MUST use the templates**, which include detailed formatting instructions. Templates can be found at www.aaus.org/annual_symposium

Standards Manual Update 2018

The final draft Standards Manual is [here](#). Throughout 2017 an *ad hoc* committee worked on the most substantive changes to the AAUS Standards Manual in a decade. The goal was to consolidate material and standardize language, thereby streamlining the Manual and hopefully enhancing comprehension. Per AAUS Bylaws, the Board of Directors is releasing this current draft Manual to membership for a 60-day comment period. On May 1st the *ad hoc* committee will finalize this copy of the new Standards Manual, and the AAUS BOD will vote on this document during the late Spring conference call.

The linked draft Standards Manual includes color-coded highlighted text to point out changes. Specifically, text in green represent a change from the prior manual (often standardized language or minor word changes), whereas text in yellow indicate section headers/references that will be checked in the final document. You can compare this version to the prior manual for more specific information relative to these changes. As you read this document it is worth remembering that the AAUS Standards Manual represents minimal standards, each OM must meet these standards but they are welcome to exceed them relative to their own programmatic requirements.

Please submit comments on the AAUS website form found along with a link to the draft at http://secure.aaus.org/standards_update. If you don't have any specific comments, please indicate on the form that you have reviewed this document.

AAUS Branding & Style Guide

The AAUS has updated branding and style guidelines for the use of the AAUS name and logo. In 2016, the names "American Academy of Underwater Sciences", "AAUS", and the "AAUS Logo" were trademarked by the US Patent and Trademark Office. The use of the AAUS names and

logos are restricted to AAUS Organizational Members, the AAUS Board of Directors, and the AAUS Office. The AAUS requests that all AAUS OMs and IMs review this document and ensure the AAUS name and logo are being used appropriately in their respective documents, publications, websites, and other media. http://secure.aaus.org/uploads/protected/files/marketing_materials/collateral/aaus_branding_and_style_guide_2018_.pdf

STUDENT OPPORTUNITIES

AAUS Student Scholarships 2018

The AAUS Foundation awards scholarships to graduate students engaged in, or planning to begin, research projects in which diving is used as an important research tool or studying diving science. The Foundation awards \$3000 to each winning proposal from the Masters and Doctoral level submissions. Additionally, the AAUS may award \$1500 scholarships to the second ranked proposals in each category. The Foundation also grants the Kevin Flanagan Travel Award providing up to \$800 for undergraduate/graduate students to attend an AAUS scientific meeting. Please note that for 2018 there is not a gear award. Applications are submitted electronically and **all proposals are due June 30**. For more information and application instructions, visit www.aausfoundation.org, or send questions to the Scholarship Committee Chair at aaus@disl.org

USC AAUS Scientific Diving Course

This USC course includes mainland Los Angeles based classes and several days of spectacular research dive training on Catalina Island including:

- bluewater dive
- night dive
- mapping and navigation skills
- Reef Check CA Certification
- marine species identification

This course is open to both USC staff, students and the general public. Open-water SCUBA certification is required. Application deadline: May 01, 2018. For information, contact Eric Castillo, USC Diving Safety Officer (uscdo@usc.edu). <http://dornsife.usc.edu/wrigley/scientificdiving>

Subtidal Ecology and AAUS Science Diver Course

The University of Washington, Friday Harbor Laboratories is offering a Marine Subtidal Ecology course June 11- July 13, 2018. This course focuses on learning key ecological concepts, skills, and tools applied to the subtidal marine environment. Of primary importance, students will be trained to meet the training qualifications of AAUS scientific divers. Students will conduct group and independent research projects addressing a tractable question in temperate subtidal

ecology; the skills and principles of ecology will, however, be broadly applicable to underwater science. The training will include visits (and input!) from scientific diving instructors from around the NW, evening discussions of accident case studies, and extensive pool and in-water skills and rescue drills. More information is available at <https://fhl.uw.edu/courses/course-descriptions/course/marine-subtidal-ecology-2018> or email pema@uw.edu.

UPCOMING EVENTS

The Functional Roles of Mesophotic Coral Reefs in the Anthropocene

The Mesophotic Coral Reef Ecosystems Gordon Research Conference will be held June 18-22, 2018 at Bates College in Lewiston, ME. The number of scientists studying MCEs is growing rapidly and includes coral reef ecologists, molecular biologists, oceanographers, physiologists, biogeochemists, paleo-climatologists, fisheries biologists, microbiologists, chemical ecologists, population geneticists and managers interested in resource conservation. This GRC will attract experts from around the world, as well as students and post-doctoral researchers, to present new data and evaluate the evidence supporting the multiple factors controlling the structure and function of MCE communities worldwide. More information at <https://www.grc.org/mesophotic-coral-reef-ecosystems-conference/2018/>

JOB ANNOUNCEMENTS

Full information and application instructions for the following jobs can be found at www.aaus.org/job_board

California Academy of Sciences

Diving Safety Officer

Louisiana Universities Marine Consortium

Diving Safety Officer

Monterey Bay Aquarium

Dive Leaders

Smithsonian – Marine GEO Program

Marine Biological Technician

University of California Santa Cruz

Diving Field Technician

SPOTLIGHT

Welcome to a new initiative by the AAUS to spotlight organizational member projects and divers. Articles will not only be featured in the E-Slate but also on the website and AAUS social media. To join us in spotlighting our community, please complete the form at <https://secure.aaus.org/spotlight> or send your articles and photos to aaus@disl.org. Please be sure that all photos/articles have credits if required.

Doing Science at 500 Feet

*Reflections from the California Academy of Sciences
Palau 2016 Expedition*

By Tyler Phelps, University of Hawai'i at Hilo



*Angaur Island, Palau
Photo Credit: Tyler Phelps*

Fifteen minutes. That's all we have at 500 feet. Hours of preparation, years of training, for just a quarter of an hour. All other fundamentals like buoyancy, propulsion techniques, team awareness and the nuances of your equipment have to be habitual. Each dive costs hundreds of dollars. Wasted seconds are wasted money. In every breath you take, millions of inert gas molecules rush into your tissues. This is decompression diving. Going to the surface is not an option. For if you do, you will die. Why do it then? We are the first human beings to see these reefs and often the first to see new species. It is the most euphoric and intense fifteen minutes imaginable.

Long before this dive, there was a little boy that looked up at an aquarium exhibit and something inspired him to become a marine biologist. Do you believe in love at first sight? Growing up at the Aquarium of the Pacific in Long Beach, California, the boy was mesmerized by the "Tropical Pacific," a section of the aquarium that imitated Palau's coral reefs. Fast forward to this past September. A gracious email



*Conducting a biodiversity survey at 300 feet.
Photo Credit: Luiz Rocha*

invitation to attend an expedition with the California Academy of Sciences team to Palau. Missing this trip was not an option! The expedition was scheduled to begin December 6. The trip would occur well before finals. Meeting with farsighted and flexible professors, it was negotiated that exams would need to be taken early.

Palau is an incredible island country located 4,600 miles southwest of Honolulu. The mission for the expedition was to conduct biodiversity surveys and collect live specimens for the Steinhart Aquarium. This was a huge project consisting of three teams. Members of the "shallow" team (diving to 130 feet) were the invertebrate curators from Cal Academy based out of HQ, the Coral Reef Research Foundation. For us, the "deep" team, we occupied a significant portion of the facility at Sam's Dive Tours, the largest diving operation in Palau. Lastly, there was a team of aquarists who had the responsibility of caring for all the live specimens that were collected. This team operated out of Biota, a local and sustainable aquaculture facility. The glue holding all of us together was Project Manager, Cristina Castillo, who was back-and-forth between the facilities ensuring everything was going smoothly.

The expedition began with the unpacking all of the cylinders, safety equipment, compressed gas, and rebreather consumables that were sent two months earlier. After organizing the equipment, it was time to assemble the rebreathers and blend gas; lots of gas. Since preparing a rebreather to dive is similar to preparing a plane to fly, checklists are a must. One of the perks to the project was



*An assembled Hollis Prism 2
Rebreather with NERD computer
Photo Credit: Tyler Phelps*

getting to use very cool diving toys, I mean tools. One example was the \$2,000 "NERD" (Near Eye Retinal Display), a full trimix closed circuit rebreather computer conveniently located on your heads-up display! After an initial check out dive, it was time to get to work.

**Read the rest of this story at
<https://secure.aaus.org/spotlight>**

marginal decompression sickness cases as non-events. *Computers in Biology and Medicine*, 92: 110-117.

RECENT PUBLICATIONS

Bosco, G., Rizzato, A., Quartesan, S., Camporesi, E., Mangar, D., Paganini, M., Cenci, L., Malacrida, S., Mrakic-Sposta, S., Moretti, S., and Paoli, A. (2018). Effects of the Ketogenic diet in overweight divers breathing Enriched Air Nitrox. *Scientific Reports*, 8 (1): 2655.

Casadesus, J.M., Aguirre, F., Carrera, A., Boadas-Vaello, P., Serrando, M.T., Reina, F. (2018). Diagnosis of arterial gas embolism in SCUBA diving: modification suggestion of autopsy techniques and experience in eight cases. *Forensic Science Medicine and Pathology*, 14 (1): 18-25.

Castagna, O., Regnard, J., Gempp, E., Louge, P., Brocq, F. X., Schmid, B., Desruelle, A.V., Crunel, V., Maurin, A., Chopard, R., and MacIver, D.H. (2018). The key roles of negative pressure breathing and exercise in the development of interstitial pulmonary edema in professional male SCUBA divers. *Sports Medicine-Open*, 4 (1).

D'Angelo, G., Pilla, R., Dean, J.B., Rampone, S. (2018). Toward a soft computing-based correlation between oxygen toxicity seizures and hyperoxic hypernea. *Soft Computing*, 22 (7): 2421-2427.

de Souza, G.R.S., Gadig, O.B.F., Motta, F.D., de Moura, R.L., Francini, R.B., Garrone-Neto, D. (2018). Reef fishes of the Anchieta Island State Park, Southwestern Atlantic, Brazil. *Biota Neotropica*, 18 (1): 10.1590/1676-0611-BN-2017-0380 2018

Irigoyen, A.J., Rojo, I., Calo, A., Trobbiani, G., Sanchez-Carnero, N., Garcia-Charton, J.A. (2018). The "Tracked Roaming Transect" and distance sampling methods increase the efficiency of underwater visual censuses. *PLOS ONE*, 13 (1): e0190990.

Moran, A.L., Woods, H.A., Shishido, C.M., Lane, S.J., and Tobalske, B.W. (2018). Predatory behavior of giant Antarctic sea spiders (*Colossendeis*) in nearshore environments. *Invertebrate Biology*, x(x): 1-8. DOI: 10.1111/ivb.12210

Murphy, F.G., Hada, E.A., Doolette, D.J., Howle, L.E. (2018). Probabilistic pharmacokinetic models of decompression sickness in humans: Part 2, coupled perfusion-diffusion models. *Computers in Biology and Medicine*, 92: 90-97.

Murphy, F.G., Swingler, A.J., Gerth, W.A., Howle, L.E. (2018). Iso-risk air no decompression limits after scoring

Noh, Y., Posada-Quintero, H.F., Bai, Y., White, J., Florian, J.P., Brink, P.R., Chon, K.H. (2018). Effect of shallow and deep SCUBA dives on heart rate variability. *Frontiers in Physiology*, 9 (110): 1-12.

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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