



E-SLATE

American Academy of Underwater Sciences (AAUS)

EDITORIAL BOARD NOTE – December 2011

Welcome to the December issue of the *E-Slate*. The *E-Slate* comes to you, as always, through the combined efforts of volunteers who contribute, review or prepare pieces. Critical to keeping the production on track is the person who pulls the pieces together, lays out the drafts, solicits appropriate reviews, integrates draft changes, and keeps all of this on schedule to meet the release date every month. Roxanne Robertson took on the role of editor of the *E-Slate* at its inception. The creation of the new publication was developed as part of her internship with AAUS in 2007. The initial expectation was for her to support the initial effort that could be handed off at the completion of her three month internship. We were pleased when she agreed to stay on as editor upon the completion of her internship, and even more pleased when she continued year after year. The time has come for Roxanne, though, after five years of serving as editor to move on to new challenges. The December 2011 marks the last under her ministrations. Starting with January 2012, the layout and administrative responsibilities will shift to the central office, Heather Fletcher, who will continue to work closely with the editorial board to have the E-Slate out to you every month. At this time, we offer our heartfelt thanks to five years of volunteer effort by Roxanne Robertson, and wish her all the best in her future endeavors.

Please continue to submit news, announcements, job postings, and images of underwater work to aaus@disl.org. Current and past issues are available at www.aaus.org.

NEWS/ANNOUNCEMENTS

UMaine Scientific Diving Scholarship Established

The University of Maine Scientific Diving Program has received a \$5000 donation from JF White Contracting. The gift was provided in memory of Dr. John Dearborn and received by Rhian Waller, PhD at the 2011 AAUS Awards Banquet held in Portland, ME on Saturday evening October 15th. Mr. Jim Clark of JF White noted that, "Dr. John Dearborn was a respected scientist, beloved teacher and perhaps more importantly a man who confronted every adversity with determination and wry humor!" The gift will be used to establish the John Dearborn Scientific Diving Scholarship Fund and be directed towards UMaine marine science students enrolled in the scientific diving training program.

Manned and Unmanned Marine Research Study

The ability to collect data in-situ is vital to marine research. While many scientists recognize the symbiotic nature of manned (diving and submersible) and unmanned (remote and autonomous) techniques for marine data collection, the value of investment in a balanced suite of methods can be lost in times of technological advances and tight budgets. Karen Kohanowich is conducting doctoral research at George Mason University, VA, to address the requirement for this balanced investment. Her effort will include a review of available information and a survey of scientific divers designed to expand understanding. If you are aware of published/unpublished studies that compare manned and unmanned marine science data collection techniques, contact Karen (kkohanow@gmu.edu). Updates on the survey development will appear in the E-Slate.

UPCOMING EVENTS

41st Annual Benthic Ecology Meeting

The 41st Annual Benthic Ecology Meeting (BEM) will be held March 21-24, 2012 in Norfolk, Virginia at the Norfolk Marriott Waterside Hotel. The meeting will be hosted by Old Dominion University, an AAUS OM. Visit: <http://dl.dropbox.com/u/13470552/BEM%202012%20First%20Flyer.pdf>.

International Marine Forensics Symposium

The Marine Forensics Committee (MFC) of the Society of Naval Architects and Marine Engineers (SNAME) is holding the International Marine Forensics Symposium at the Gaylord National Hotel, Washington, DC, April 2-5, 2012. The symposium will honor the 100th anniversary of the sinking of RMS Titanic (April 12, 1912); the 150th anniversary of the sinking of USS Monitor (December 31, 1862); and approximately the 200th anniversary of the destruction of Commodore Joshua Barneys Flagship, the USS Scorpion during the War of 1812. The event is co-sponsored by: Marine Technology Society (MTS), Royal Institute of Naval Architecture (RINA), American Society of Naval Engineers (ASNE), and Institute of Marine Engineers, Science and Technology (IMARest). Visit: <http://www.rina.org.uk/marineforensics> for details.

Rebreather Forum 3.0

Rebreather Forum 3.0 (www.RF30.org) will be convened May 18-20, 2012 at the Caribe Royale Hotel in Orlando, FL. The meeting is co-sponsored by AAUS, DAN and PADI. This program will be of particular interest to the

scientific diving community as there are now evolving rebreather concepts and technologies that are simplified from the technical diving approach with more potential of becoming mainstream scientific diving methodology.

JOB OPPORTUNITIES

Marshall Islands Coastal Environmental Advisor

The Marshall Islands Environmental Protection Authority is seeking a Coastal Environmental Advisor to serve with the RMI EPA for a minimum of two years. The successful candidate will be experienced in environmental management in coastal areas, be a certified scuba diver, have an MS or PhD, and a scientific understanding of tropical marine ecosystems. Contact Deborah Barker-Manase for more information at manase@gmail.com or 692-625-3035/5203.

NEW PUBLICATIONS

Heine JN. Scientific Diving Techniques: A Practical Guide for the Research Diver, Second Edition, 2011.

This newly updated and revised second edition of John Heine's Scientific Diving Techniques covers the details of research methods underwater. Included are general scientific diving guidelines, an overview of aquatic habits and ecosystems, specialized diving equipment and procedures, locating and marking study sites, archaeology, measuring physical and biological factors, underwater experimentation and underwater photography and videography for the scientist. There are over 500 references to original scientific techniques. Also included are training exercises to aid Diving Safety Officers in training scientific divers.

John Heine was the Diving Safety Officer at the Moss Landing Marine Laboratories at California State University for many years. John is the past President of the American Academy of Underwater Sciences, and was a member of the Diving Control Board for the National Science Foundation, Office of Polar Programs. He is also the author of Cold Water Diving: A Guide to Ice Diving, other books and many scientific papers. Hardcover (D1227-H) ISBN 978-1-930536-67-8 (\$34.95) Paperback (D1227-S) ISBN 978-1-930536-68-5 (\$29.95) To order, visit www.bestpub.com, call 561-776-6066, or email customerservice@bestpub.com.

Blatteau JE, Hugon J, Gempp E, Castagna O, Pény C, Vallée N. Oxygen breathing or recompression during decompression from nitrox dives with a rebreather: effects on intravascular bubble burden and ramifications for decompression profiles. Eur J Appl Physiol. 2011 Oct 14. [Epub ahead of print].

Preventive measures to reduce the risk of decompression sickness can involve several procedures such as oxygen breathing during in-water decompression. Theoretical predictions also suggest that brief periods of recompression during the course of decompression could be a method for controlling bubble formation. The aim of this study was to get clearer information about the effects of different experimental ascent profiles (EAPs) on bubble reduction, using pure oxygen or recompression during decompression for nitrox diving. Four EAPs were evaluated using bubble monitoring in a group of six military divers using nitrox 40% O₂ breathing with a rebreather. For EAP 1 and 2, 100% O₂ was used for the end stage of decompression, with a 30% reduction of decompression time in EAP 1 and 50% in EAP 2, compared to the French navy standard schedule. For EAP 3 and 4, nitrox 40% O₂ was maintained throughout the decompression stage. EAP 3 is based on an air standard decompression schedule, whereas EAP 4 involved a brief period of recompression at the end of the stop. We found that EAP 1 significantly reduced bubble formation, whereas high bubble grades occurred with other EAPs. No statistical differences were observed in bubbles scores between EAP 3 and 4. One diver developed mild neurological symptoms after EAP 3. These results tend to demonstrate that the 'oxygen window' plays a key role in the reduction of bubble production and that breathing pure oxygen during decompression stops is an optimal strategy to prevent decompression sickness for nitrox diving.

Crabbe MJC. Coral resilience on the reefs of Jamaica. Underwater Tech. 2011; 30: 65-70.

Awareness of important factors for coral reef growth helps reveal how reef ecosystems react following major anthropogenic and environmental disturbances. Physical measurements by scuba divers, together with an underwater remotely operated vehicle (ROV), have been used to study environmental and climate effects on corals on fringing reefs in Jamaica. The period of this study, from 2002 to 2008, covers the major Caribbean-wide bleaching event of 2005. For 624 non-branching corals at Rio Bueno and Dairy Bull reef near Discovery Bay on the north coast of Jamaica, skewness values for coral populations at the two sites showed generally positive values, indicating that small colonies predominated over large colonies. Measurement of coral sizes together with growth rates allowed the estimation of recruitment dates. This was done for 235 non-branching corals near Kingston Harbour, on the south

coast of Jamaica. The aim of this study was to use coral size and population dynamics as a metric for coral resilience, and to assist marine park managers of coral reefs with regard to coral recruitment and growth. The data show that while recruitment of small corals was returning after the major bleaching event of 2005, larger corals were not necessarily resilient. Therefore there is a need for careful management if the reefs are to survive such major extreme events.

Ljubkovic M, Zanchi J, Breskovic T, Marinovic J, Lojpur M, Dujic Z. Determinants of arterial gas embolism after scuba diving. J Appl Physiol. 2011 Oct 13. [Epub ahead of print].

Scuba diving is associated with breathing gas at increased pressure, which often leads to tissue gas supersaturation during ascent, and formation of venous gas emboli (VGE). VGE crossover to systemic arteries (arterialization), mostly through the patent foramen ovale (PFO), has been implicated in various diving-related pathologies. Since recent research has shown that arterializations frequently occur in absence of cardiac septal defects, our aim was to investigate the mechanisms responsible for these events. Divers whom tested negative for PFO were subjected to laboratory testing where agitated saline contrast bubbles were injected in cubital vein at rest and exercise. Individual propensity for transpulmonary bubble passage was evaluated echocardiographically. Same subjects performed a standard air dive followed by echosonographic assessment of VGE generation (graded on scale 0-5) and distribution. Twenty-three of 34 subjects allowed the transpulmonary passage of saline contrast bubbles in the laboratory at rest or after a mild/moderate exercise, and 9 of them arterialized after a field dive. All subjects with postdive arterialization had bubble loads reaching or exceeding grade 4B in the right heart. In individuals without transpulmonary passage of saline contrast bubbles, injected either at rest or after exercise bout, no postdive arterialization was detected. Therefore, postdive VGE arterialization occurs in subjects that meet two criteria: 1) transpulmonary shunting of contrast bubbles at rest or at mild/moderate exercise and 2) VGE generation following a dive reaches the threshold grade. These findings may represent a novel concept in approach to diving, where diving routines will be tailored individually.

Lobel SP. A review of the Caribbean hamlets (Serranidae, *Hypoplectrus*) with description of two new species. Zootaxa 3096: 1–17.

Thirteen species of the Western Atlantic genus *Hypoplectrus* (Serranidae) are currently recognized, two of which are described as new. *Hypoplectrus maya* n. sp. (Maya hamlet) is restricted to the coastal lagoon of the Meso-American Barrier Reef system in Belize. It

is a solid iridescent blue, lacks nose spots and lacks black margins on fins. *Hypoplectrus randallorum* n. sp. (Tan hamlet) is found widely in the central and western Caribbean. Its color varies from light brown to tan and it has spots on the nose, at the base of the pectoral fin and occasionally on the upper part of the caudal peduncle. All identified species of *Hypoplectrus* are illustrated in live coloration along with examples of color variations in *H. nigricans* and *H. unicolor*. A historical review of *Hypoplectrus* is included with a discussion of issues concerning their taxonomy.

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.

American Academy of Underwater Sciences
101 Bienville Boulevard, Dauphin Island, AL 36528
Tel 251 591 3775 Fax 251-861-7540
aaus@disl.org www.aaus.org

Editor: Roxanne Robertson - aaus@disl.org
Editorial Board: Neal Pollock, Michael Dardeau, Heather Fletcher, Christian McDonald, Michael Lang

AAUS BOARD OF DIRECTORS

Christian McDonald	President
Michael Lang	President-Elect
George Peterson	Secretary
Mike Dardeau	Treasurer
Kevin Flanagan	Director-at-Large, Standards Chair
Pema Kitaeff	Director-at-Large (DAL)
Neal Pollock	DAL, Meetings & Publications Chair
Marc Slattery	Appointed Director (AD), Standards
Jenn Caselle	AD, Scholarship Chair
Amy Moran	AD, Statistics Chair
Chris Rigaud	AD, Membership Chair