American Academy of Underwater Sciences (AAUS)

EDITOR'S NOTE – January 2009

Welcome to the first issue of 2009. We thank you for your continued input and support and wish you all the best in the New Year. We hope to see many of you at the 2009 AAUS scientific symposium in March. Please note that the deadline for abstracts has been extended to January 15.

Our goal of keeping the scientific dive community informed and up to date cannot be accomplished without your input. We encourage you to submit relevant news, announcements, research reviews, underwater research images and new publications to aaus@disl.org for inclusion in the E-Slate. Current and past issues of the E-Slate are available at www.aaus.org.

NEWS/ANNOUNCEMENTS

DAN Research Internship

The Divers Alert Network (DAN) Research Internship program is designed to provide education and experiences that may motivate young people toward careers in diving-related fields and/or scientific endeavors while expanding DAN's research efforts in the field and laboratory. It is typically a 2-3 month program between June and August and is open to all college students who are at least 20 years old.

Additional requirements for eligibility are: a strong interest in science and research (students on a scientific track preferred), computer literacy, must demonstrate a strong background in diving, and ability to work well with the public.

The deadline for submitting applications for the 2009 program is January 15. Applications and additional information about the program can be downloaded from the DAN website at https://www.diversalertnetwork.org/research/projects/intern/participate.asp.

AAUS 2008 Proceedings Availability

The proceedings from the 2008 AAUS scientific symposium are complete and will be available for distribution this month.

AAUS/NOAA Training Materials

The organizational and individual versions of AAUS/NOAA training materials will be mailed on January 2, 2009 to all Organizational Members (OM). The Diving Safety Officer (DSO) will be the recipient of the two CDs. Please be sure all mailing information is correct in the OM profile to expedite the process.

CDFG Divers Survey Herring Habitat

California Department of Fish and Game (CDFG) divers recently conducted underwater surveys of pacific herring (*Clupea pallasii*) habitat in the San Francisco Bay for the Aquaculture and Bay Management Project. The purpose of the survey was to determine the vegetation density of *Zostera* and *Gracilaria* in preferred spawning areas of the bay. Divers collected vegetation samples from 0.25 m^2 quadrats randomly placed within a vegetation bed. The vegetation biomass samples will be used to develop spawning biomass estimates and can be used to assess the health of the spawning habitat. Three divers made a total of 13 dives, to a maximum depth of nine feet. Dives were conducted from the new CDFG research vessel *Smoothhound*.

CDFG diver with eelgrass and quadrat. R/V *Smoothhound* and department divers after surveys.
Photographer: Ryan Bartling

Dive Log Software for OMs

AAUS and EgoFactory are in the final stages of testing web-based software for logging individual dives and summarizing AAUS statistics. DSOs can expect an email in January with instructions on how to register their OM. For OMs that choose to use this system, a running total of all required AAUS statistics will be kept so at the end of the year, after review by the DSO, the stats can be submitted to AAUS. We hope that this software will make the DSO's life a little easier.

Diving for Science 2009 - AAUS Symposium

The 28th scientific AAUS symposium will be hosted by the Georgia Aquarium March 10-14 in Atlanta, GA. Hotel accommodations are reserved at the Crown Plaza Airport Atlanta (866-750-3365). The AAUS rate is $129 plus applicable tax and fees (available as space allows until February 16, 2009). Registration for the Symposium is now open. Go to: https://web.memberclicks.com/mc/quickForm/viewForm.do?orgId=aaus&formId=50293 to go directly to the registration form or visit www.aaus.org for more information.

Workshop offerings include surface-supply diving, tank inspection, diving first aid for professional divers, compressor

maintenance, and new Diving Safety Officer orientation. Diving opportunities include drysuit demonstration and whale shark experiences. Researchers, DSOs, Students and Technicians are invited to contribute and present their work involving the use of diving technologies or involving diving medicine, physiology, theory, techniques, training, standards, or developing technologies. Presentations from all areas of underwater science are welcome. As is the custom for AAUS, full papers are required for all presentations. These will be published in the ISBN-indexed proceedings of the meeting. It is expected that some papers will be brief (minimum 2000 words) and may focus on the diving methods of central interest to the Academy to avoid compromising the ability to publish research data in peer-reviewed journals.

The new and final deadline for abstract submission (150-250 words) is January 15, 2009 and can be submitted via email to aaus@disl.org. Notification of acceptance of abstract will be returned on or before January 22, 2009. Visit http://www.aaus.org/mc/page.do?sitePageId=73629&orgId=aaus or contact Neal Pollock (neal.pollock@duke.edu) for more information.

FUNDING/SCHOLARSHIPS

WDHOF Undergraduate Marine Biology Scholarship

The Women Divers Hall of Fame (WDHOF) will present a $2500 scholarship to a female undergraduate who is (or will be) participating in an internship program with a focus in marine biology. Students must have completed at least 60 credits or hold third year (junior) status prior to starting the internship. The deadline for applications is January 30, 2009. For more information visit: http://www.wdhof.org/scholarships/scholarships.shtml#undergraduate.

JOB POSTING

Diving Safety Officer Vacancy Announcement

The NOAA Diving Program has created a new Diving Safety Officer position. The person will be stationed at the NOAA Diving Center in Seattle, WA and will be responsible for monitoring and overseeing the safety aspect of the diving program. For more information or to apply visit http://jobsearch.usajobs.gov/getjob.asp?JobID=78159064&AVSDM=2008%2D12%2D17+00%3A03%3A02&Logo=0&q=NOAA+Dive+Safety+Officer&FedEmp=N&sort=rv&vw=d&brd=3876&ss=0&FedPub=Y&SUBMIT1.x=0&SUBMIT1.y=0&SUBMIT1=Search+for+Jobs. The search closes January 2, 2009.

NEW PUBLICATIONS

Gempp E, Blatteau JE, Stephant E, Pontier JM, Constantin P, Pény C. MRI findings and clinical outcome in 45 divers with spinal cord decompression sickness. Aviat Space Environ Med. 2008; 79(12): 1112-6.

BACKGROUND: Decompression sickness (DCS) affecting the spinal cord is the most dangerous form of diving-related injury with potential sequelae. This study was conducted to evaluate the relationship between spinal cord lesions on MRI and clinical findings in divers with spinal DCS. METHODS: We studied 45 cases of DCS that were referred to our hyperbaric facility with clinical evidence of spinal involvement during the period 2002-2007. The study included only patients who underwent MRI within 10 d of injury. The severity of spinal DCS for each patient was rated numerically for both the acute event and 1 mo later. The presence or absence of back pain was also noted. RESULTS: Spinal cord lesions were significantly more frequent in divers with severe DCS, and did not occur in any diver who experienced a favorable outcome (sensitivity = 67%, specificity = 100%, negative predictive value = 77%, positive predictive value = 100%). The presence of vertebral degenerative changes that impinged on the spinal cord was strongly associated with MRI abnormalities, but not with a negative outcome. Acute back pain was associated with hyperintense lesions and persistence of neurological sequelae [OR = 14 (95% CI, 3.1 to 63.5)]. CONCLUSION: The results show that MRI could be helpful in predicting clinical outcome in divers with spinal cord DCS. The presence of medullary compressive factors and vertebral back pain after surfacing indicate increased likelihood of severe myelopathy with incomplete recovery.

Hawes J, Massey EW.Neurologic injuries from scuba diving. Phys Med Rehabil Clin N Am. 2009; 20(1): 263-72.

Interest in scuba (self-contained underwater breathing apparatus) diving increased in the 1970s, and undersea diving continues to be a popular sport early in the 21st century, with approximately 3 million certified divers in the United States. The Divers Alert Network (DAN), an institution created in 1981 by the Commerce Department, National Oceanic and Atmospheric Administration, has collected diving injury data for US and Canadian divers since 1987 that can be studied to suggest the epidemiologic characteristics of diving. This article examines neurologic injuries resulting from scuba diving.

Pontier JM, Jimenez C, Blatteau JE. Blood platelet count and bubble formation after a dive to 30 msw for 30 min. Aviat Space Environ Med. 2008; 79(12): 1096-9.

INTRODUCTION: Previous human studies reported that platelet count (PC) is decreased following decompression. Platelet aggregation and adherence to the bubble surface has been demonstrated in severe decompression sickness

(DCS). The present study was designed to clarify the relationship between post-dive changes in blood PC and the level of bubble formation in divers. METHODS: There were 40 healthy experienced divers who were assigned to 1 experimental group (n = 30) with an open-sea air dive to 30 msw for 30 min in field conditions and 1 control group (n = 10) without hyperbaric exposure. Bubble grades were monitored with a pulsed Doppler according to the Spencer scale and Kissman integrated severity score (KISS). Blood samples for red blood cell counts (RBC), hematocrit (Hct), and PC were taken 1 h before and after exposure in two groups. RESULTS: None of the divers developed any signs of DCS. In two groups, the results showed significant increase in RBC count and Hct related with hemoconcentration and no change in PC. Divers with a high KISS score (39±5.8; mean ± SD) presented a significantly more pronounced percent fall in PC than divers with a lower KISS score. We found a significant correlation between the percent fall in PC after a dive and the bubble KISS score. DISCUSSION: The present study highlighted a relationship between the post-dive decrease in PC and the magnitude of bubble level after decompression. Our primary result is that the post-dive decrease in PC could be a predictor of decompression severity after diving.

Sammut MA, Cassar A, Felice H. Coronary artery air embolism causing pulmonary edema secondary to acute coronary syndrome in a diver. J Invasive Cardiol. 2008; 20(12): E331-3.

Air embolism in the coronary arteries is a known complication of coronary angiography. Diving is a non-iatrogenic cause of arterial air embolism, commonly presenting with neurological and musculoskeletal symptoms. This is the first known case of coronary air embolism confirmed on coronary angiography in a diver presenting with pulmonary edema secondary to acute coronary syndrome. The possible mechanisms of coronary air embolism during a dive are reviewed in this article.

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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