



E-SLATE

American Academy of Underwater Sciences (AAUS)

EDITORIAL NOTE – September 2011

Welcome to the September issue of the *E-Slate*. If you are plan to attend the 2011 AAUS Symposium and have not yet made reservations for lodging, please do so now! There are several new job announcements this month as well as some great publications.

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

Lodging for the 2011 Symposium

Please be aware that lodging at both the Darling Marine Center and The Portland Regency is now very limited. If you have not yet done so, please make your reservations now! Pre-symposium meetings and workshops (October 10-12) will be held at Darling Marine Center (DMC). Driving time from Portland to the DMC is about 90 minutes. Most attendees will likely prefer housing for DMC-based events at DMC or surrounding Inns. Portland-based events begin October 13. The AAUS group rate at the Portland Regency is only available Wednesday-Sunday (October 12-16) (www.theregency.com).

Call for Papers – Maritime Archaeology

Papers are invited for the 23rd Annual Symposium on Maritime Archaeology and History of Hawaii and the Pacific to be held February 17-20, 2012 in Honolulu, HI. The symposium theme is "Diving into History: Technical and Sport Exploration of Shipwrecks." Presentations are not limited to this theme, but special consideration will be given to abstracts that incorporate this message. Abstracts should be no more than 300 words (excluding title and author[s]/affiliation[s]). All presenters must register for the conference. Submission deadline is November 01. Visit: http://www.mahhi.org/Call_for_Papers.html for details.

UPCOMING EVENTS

AAUS Symposium 2011

The 2011 AAUS Symposium will be held in Portland, ME October 10-15. The Portland Regency will serve as the symposium hotel and the University of Maine Darling Marine Center will host the preconference workshops,

annual DSO meeting and AAUS Business meeting. Workshops include:

- PSI - VCI certification and recertification courses
- PSI - Eddy Current Testing
- DAN Instructor Certification
- Diver-based suction sampling: a monitoring tool for newly settled lobsters
- Quantitative observation of the adult American lobster (*Homarus americanus*)
- New DSO Orientation
- DUI Demo Day

Make travel and lodging arrangements early to avoid missing out. Look for additional information and registration materials in an email invitation that will go out to all members or on our website (www.aaus.org). You can register directly at <http://guest.cvent.com/d/ydggkt/4W>. Contact Chris Rigaud at crigaud@maine.edu or the AAUS office at aaus@disl.org for more information.

DAN Diving and Hyperbaric Medicine Course

The 70th DAN Diving and Hyperbaric Medicine Course will be held October 22-29 at the Mayan Princess Beach Resort in Roatan, Honduras. This six-day course is designed primarily for physicians. Emergency medical personnel, paramedics, nurses and professionals with interest in diving medicine will also find the course valuable. The program is jointly sponsored by DAN and Wilderness Medical Society for continuing education credit. A special dive package supplements the course. Contact DAN Education at 919-684-2948, ext. 555 or 800-446-2671, ext. 555 or cme@dan.org. Visit: <http://www.diversalernetnetwork.org/Events/Event.aspx?EventID=880>.

DEMA 2011

The Diving Equipment and Marketing Association will hold its annual show in Orlando, FL November 2-5. For more information, visit: <http://www.demashow.com/>.

Tenerife Int'l Practical Anesthesiology Conference

The International Congress of Anesthesiology will meet November 07-10 at the Abama Golf & Spa Resort on Tenerife, Canary Islands. The topic of the conference is 'Hyperbaric medicine and its applications in daily practice.' The event is accredited by INAMI/RIZIV. Visit: www.tipactenerife.org for more information.

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 02-05, 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, as it tried to defend against the British march on Washington, DC. 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.

JOB OPPORTUNITIES

Senior Aquarist – Aquarium of the Pacific

The Aquarium of the Pacific seeks a Senior Aquarist. The position is full time and eligible for benefits. The Senior Aquarist is responsible for providing the highest possible quality of care to the animals in his/her care. The individual will maintain all exhibits and life support systems in the aquarist's area of responsibility in superior condition. The Senior Aquarist also assists with the acquisition of specimens, leads field collection trips when necessary, and assists with the planning and implementation of exhibit redesign projects. Qualifications: Bachelor degree in Marine Biology or related field, or equivalent experience, five years experience caring for animals in a public aquarium, paid or volunteer, scuba certification, valid driver's license, CPR certification, AAUS dive certification preferred. Visit: http://www.aquariumofpacific.org/employment/information/senior_aquarist.

DSO, Northeastern Univ. Marine Science Center

The Marine Science Center and the Three Seas Program of Northeastern University seek applicants for a program coordinator and Dive Safety Officer. Now entering its 28th year, the Three Seas Program offers in-depth training in marine biology at three field stations in three different marine ecosystems. Students spend a semester each at Northeastern University's Marine Science Center in Nahant, MA; the Smithsonian Tropical Research Institute's field station in Bocas del Toro, Panama; and the University of Washington's Friday Harbor Laboratories on San Juan Island. Students finish the program with solid academic and practical experience in marine biological concepts, theory, and research. The successful applicant will assist the program director with all aspects of the program, including coordinating program operation with university offices; the hiring and supervision of faculty, staff, and

teaching assistants; admissions; site logistics; recruitment of students; and management of the budget, curriculum, and program calendar. This person will serve as the Three Seas Program and Northeastern University Dive Safety Officer. A Bachelor of Science degree in marine biology, ecology, or the equivalent; experience with a field-oriented marine biology program; excellent verbal and written communication skills; and an internationally recognized scuba instructor certification are required. The successful applicant must be an active/current AAUS scientific diver. Knowledge of coastal U.S. and tropical marine ecosystems is preferred. Applications are available at:

<http://threes seasprogram.blogspot.com/2011/07/three-seas-marine-biology-program.html>.

This position is requisition number 114020. Please contact Dr. Salvatore Genovese (s.genovese@neu.edu), Three Seas Program Director, for more information. This search will continue until the position is filled.

Assistant DSO Aquarium of the Pacific

Part-time, 24 hours per week. The Assistant Diving Safety Officer of Exhibit Diving Operations (ADSOED) works closely with the DSO to oversee safe diving operations at the Aquarium of the Pacific. The ADSOED is largely responsible for oversight of routine daily dive operations and training inside the Aquarium. For details:

http://www.aquariumofpacific.org/employment/information/assistant_diving_safety_officer.

Ocean Observatory Technician MBARI

This position is responsible for the operation, integration, maintenance, and calibration of oceanographic equipment and instruments deployed on MBARI's moorings. Duties include, but are not limited to: perform maintenance of oceanographic instrumentation and ensure reliable operation prior to deployment, assist with the integration and testing of scientific sensors, assist with the development, deployment, and maintenance of MBARI's moorings. Scheduled sea duty may be required.

Minimum qualifications: associate degree or equivalent and five years related experience; experience with maintenance, operation, integration of standard oceanographic instrumentation, and basic electronic test equipment; working knowledge of PC-based computer applications and UNIX/Linux. Must be willing and able to go to sea, have excellent communication skills and be able to work with diverse groups of people. Desired qualifications: experience with deployment and recovery of oceanographic moorings; familiarity with C; scuba diving experience and scientific diver certification. Visit: www.mbari.org/oed/jobs/OOT.html.

NEW PUBLICATIONS

Aburto-Oropeza O, Erisman B, Galland GR, Mascareñas-Osorio I, Sala E, Ezcurra E. Large recovery of fish biomass in a no-take marine reserve. PLoS ONE 2011;6(8): e23601.

No-take marine reserves are effective management tools used to restore fish biomass and community structure in areas depleted by overfishing. Cabo Pulmo National Park (CPNP) was created in 1995 and is the only well enforced no-take area in the Gulf of California, Mexico, mostly because of widespread support from the local community. In 1999, four years after the establishment of the reserve, there were no significant differences in fish biomass between CPNP (0.75 t ha⁻¹ on average) and other marine protected areas or open access areas in the Gulf of California. By 2009, total fish biomass at CPNP had increased to 4.24 t ha⁻¹ (absolute biomass increase of 3.49 t ha⁻¹, or 463%), and the biomass of top predators and carnivores increased by 11 and 4 times, respectively. However, fish biomass did not change significantly in other marine protected areas or open access areas over the same time period. The absolute increase in fish biomass at CPNP within a decade is the largest measured in a marine reserve worldwide, and it is likely due to a combination of social (strong community leadership, social cohesion, effective enforcement) and ecological factors. The recovery of fish biomass inside CPNP has resulted in significant economic benefits, indicating that community-managed marine reserves are a viable solution to unsustainable coastal development and fisheries collapse in the Gulf of California and elsewhere.

Combosch DJ, Vollmer SV. Population genetics of an ecosystem-defining reef coral *Pocillopora damicornis* in the Tropical Eastern Pacific. PLoS ONE 2011;6(8): e21200.

Coral reefs in the Tropical Eastern Pacific (TEP) are amongst the most peripheral and geographically isolated in the world. This isolation has shaped the biology of TEP organisms and lead to the formation of numerous endemic species. For example, the coral *Pocillopora damicornis* is a minor reef-builder elsewhere in the Indo-West Pacific, but is the dominant reef-building coral in the TEP, where it forms large, mono-specific stands, covering many hectares of reef. Moreover, TEP *P. damicornis* reproduces by broadcast spawning, while it broods mostly parthenogenetic larvae throughout the rest of the Indo-West Pacific. Population genetic surveys for *P. damicornis* from across its Indo-Pacific range indicate that gene flow (i.e. larval dispersal) is generally limited over hundreds of kilometers or less. Little is known about the population genetic structure and the dispersal potential of *P. damicornis* in the TEP. Using multilocus microsatellite data, we analyzed the population structure

of TEP *P. damicornis* among and within nine reefs and test for significant genetic structure across three geographically and ecologically distinct regions in Panama. We detected significant levels of population genetic structure (global RST = 0.162), indicating restricted gene flow (i.e., larvae dispersal), both among the three regions (RRT = 0.081) as well as within regions (RSR = 0.089). Limited gene flow across a distinct environmental cline, like the regional upwelling gradient in Panama, indicates a significant potential for differential adaptation and population differentiation. Individual reefs were characterized by unexpectedly high genet diversity (avg. 94%), relatively high inbreeding coefficients (global FIS = 0.183), and localized spatial genetic structure among individuals (i.e. unique genets) over 10 m intervals. These findings suggest that gene flow is limited in TEP *P. damicornis* populations, particularly among regions, but even over meter scales within populations.

Levin LA, Gambi JP, Genin A, Thrush S. The Dayton legacy: baselines, benchmarks, climate, disturbance and proof. Mar Ecol. 2011;32(3):261-5.

In a world full of creative, thoughtful, sincere scientists, there are a rare few who stand out, sometimes for the remarkable leap in understanding that comes from their work, sometimes for their ability to transform the human love of nature into a greater good, and sometimes for their dedication to educating the next generation, be they students, regulators, politicians or the public. Professor Paul K. Dayton belongs to an even more select group, the scientist who combines all of the above and maintains both his humility and humanity. Over more than four decades he has researched, taught, philosophized and assisted others in the endeavor we call marine ecology, and he continues to do so. For most of us working in this field, such efforts might encompass a few ecosystems, taxa, or realms. For Dayton, there are many ecosystems, taxa and spheres of influence. His work has been truly international in terms of the range of habitats studied, collaboration, inspiration and respect. Paul Dayton's research has taken place in Antarctica, temperate kelp forests, rocky shores, and wetlands, marine protected areas, tropical reefs, the pelagic realm, continental shelves and even the deep sea. His study organisms range from kelps and vascular plants to meiofaunal, macrofaunal and megafaunal invertebrates, to fishes and whales. And his influence resonates from the towers of Academia to non-profits, local, state and federal government and international commissions.

Lippmann J, Walker D, Lawrence C, Fock A, Wodak T, Jamieson S. Provisional report on diving-related fatalities in Australian waters 2006. *Diving Hyperb Med.* 2011 Jun;41(2):70-84.

INTRODUCTION: An individual case review of diving-related deaths reported as occurring in Australia in 2006 was conducted as part of the Divers Alert Network Asia-Pacific (DAN AP) dive fatality reporting project.

METHOD: The case studies were compiled using reports from witnesses, the police and coroners. In each case, the particular circumstances of the accident and details from the post-mortem examination, where available, are provided. **RESULTS:** In total, there were 16 reported fatalities (eight fewer than 2005), all involving males. Ten deaths occurred while snorkelling and/or breath-hold diving and six while scuba diving, one of which involved the use of a closed-circuit rebreather. One death resulted from an encounter with a stingray and two involved scuba divers diving alone after an extended absence from diving. Cardiac-related issues were thought likely to have contributed to the deaths of six snorkel divers and one scuba diver.

CONCLUSIONS: Trauma from a marine creature, snorkelling or diving alone and pre-existing medical conditions once again featured in several deaths in this series.

Lirman D, Schopmeyer S, Manzello D, Gramer LJ, Precht WF, Muller-Karger F, Banks K, Barnes B, Bartels E, Bourque A, Byrne J, Donahue S, Duquesnel J, Fisher L, Gilliam D, Hendee J, Johnson M, Maxwell K, McDevitt E, Monty J, Rueda D, Ruzicka R, Thaner S. Severe 2010 cold-water event caused unprecedented mortality to corals of the Florida Reef Tract and reversed previous survivorship patterns. *PLoS ONE* 2011;6(8): e23047.

Coral reefs are facing increasing pressure from natural and anthropogenic stressors that have already caused significant worldwide declines. In January 2010, coral reefs of Florida, United States, were impacted by an extreme coldwater anomaly that exposed corals to temperatures well below their reported thresholds (16°C), causing rapid coral mortality unprecedented in spatial extent and severity. Reef surveys were conducted from Martin County to the Lower Florida Keys within weeks of the anomaly. The impacts recorded were catastrophic and exceeded those of any previous disturbances in the region. Coral mortality patterns were directly correlated to in-situ and satellite-derived cold-temperature metrics. These impacts rival, in spatial extent and intensity, the impacts of the well-publicized warm-water bleaching events around the globe. The mean percent coral mortality recorded for all species and subregions was 11.5% in the 2010 winter, compared to 0.5% recorded in the previous five summers, including years like 2005 where warm-water bleaching was

prevalent. Highest mean mortality (15%–39%) was documented for inshore habitats where temperatures were, 11°C for prolonged periods. Increases in mortality from previous years were significant for 21 of 25 coral species, and were 1–2 orders of magnitude higher for most species. The cold-water anomaly of January 2010 caused the worst coral mortality on record for the Florida Reef Tract, highlighting the potential catastrophic impacts that unusual but extreme climatic events can have on the persistence of coral reefs. Moreover, habitats and species most severely affected were those found in high-coral cover, inshore, shallow reef habitats previously considered the 'oases' of the region, having escaped declining patterns observed for more offshore habitats. Thus, the 2010 cold-water anomaly not only caused widespread coral mortality but also reversed prior resistance and resilience patterns that will take decades to recover.

Wagner D, Yannis P, Papastamatiou YP, Kosaki RK, Gleason KA, McFall GB, Boland RC, Pyle RL, Toonen RJ. New records of commercially valuable black corals (Cnidaria: Antipatharia) from the Northwestern Hawaiian Islands at mesophotic depths. *Pac Sci.* 2011;65(2):249-55.

Mesophotic coral reef ecosystems are notoriously undersurveyed worldwide and particularly in remote locations like the Northwestern Hawaiian Islands (NWHI). A total of 37 mixed-gas technical dives were performed to depths of 80 m across the NWHI to survey for the presence of the invasive octocoral *Carrijoa* sp., the invasive red alga *Acanthophora spicifera*, and conspicuous megabenthic fauna such as black corals. The two invasive species were not recorded from any of the surveys, but two commercially valuable black coral species, *Antipathes griggi* and *Myriopathes ulex*, were found, representing substantial range expansions for these species. *Antipathes griggi* was recorded from the islands of Necker and Laysan in 58–70 m, and *Myriopathes ulex* was recorded from Necker Island and Pearl and Hermes Atoll in 58–70 m. Despite over 30 y of research in the NWHI, these black coral species had remained undetected. The new records of these conspicuous marine species highlight the utility of deepdiving technologies in surveying the largest part of the depth range of coral reef ecosystems (40–150 m), which remains largely unexplored.

Waldie PA, Blomberg SP, Cheney KL, Goldizen AW, Grutter AS. Long-term effects of the cleaner fish *Labroides dimidiatus* on coral reef fish communities. *PLoS ONE* 2011;6(6): e21202.

Cleaning behaviour is deemed a mutualism, however the benefit of cleaning interactions to client individuals is unknown. Furthermore, mechanisms that may shift fish community structure in the presence of cleaning

organisms are unclear. Here we show that on patch reefs (61–285 m²) which had all cleaner wrasse *Labroides dimidiatus* (Labridae) experimentally removed (1–5 adults reef) and which were then maintained cleaner-fish free over 8.5 years, individuals of two site-attached (resident) client damselfishes (Pomacentridae) were smaller compared to those on control reefs. Furthermore, resident fishes were 37% less abundant and 23% less species rich per reef, compared to control reefs. Such changes in site attached fish may reflect lower fish growth rates and/or survivorship. Additionally, juveniles of visitors (fish likely to move between reefs) were 65% less abundant on removal reefs suggesting cleaners may also affect recruitment. This may, in part, explain the 23% lower abundance and 33% lower species richness of visitor fishes, and 66% lower abundance of visitor herbivores (Acanthuridae) on removal reefs that we also observed. This is the first study to demonstrate a benefit of cleaning behaviour to client individuals, in the form of increased size, and to elucidate potential mechanisms leading to community-wide effects on the fish population. Many of the fish groups affected may also indirectly affect other reef organisms, thus further impacting the reef community. The large-scale effect of the presence of the relatively small and uncommon fish, *Labroides dimidiatus*, on other fishes is unparalleled on coral reefs.

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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