



# TOPSIDE



NOAA Diving Program News - June 2008

## Training Classes

**Due to lack of funding, NDC will not be holding Working Diver and Divemaster training classes in January 2009.** Due to weather restrictions and pool unavailability, NDC will only hold two Working Diver and Divemaster classes in 2009. A Working Diver class will be held **September 8-26, 2008** and Divemaster will be held **September 22-26, 2008**. These will not be offered again until May 2009. There will be high demand and limited space. NDC highly encourages all units to identify candidates and reserve slots as soon as possible.

To register for a class, please fill out NDC's Training Request form and send it to Laurie Barber at [laurie.barber@noaa.gov](mailto:laurie.barber@noaa.gov). For more information, contact her at 206-526-6695.

The NOAA Diving Safety Board unanimously agreed to make it a requirement that all diver candidates' training-packets be submitted 30 days prior to the start of a NOAA training class. This will provide NDC staff with time to review physicals, order additional tests if needed and procure the proper equipment for the students.

The **DEADLINES** for Working Diver and Divemaster are August 8 and August 22, respectively. There will be **NO EXCEPTIONS**. Send in the forms listed below 30 days prior to start of class or your candidate's name will go on a waiting list for the following class.

Tethered Diving Class— NDC still plans to offer a class in conducting tethered diving operations using voice communications. The course will be held the week of July 21. NDC will provide more details once the



## New Equipment Testing

NDC is in the process of developing an independent air supply system for use by NOAA divers. These systems will meet OSHA commercial diving regulations. Various sizes and configurations have been tested in the pool, in NDC's training basin and under the NOAA Ship OKEANOS EXPLORER. Local divers are in the process of experimenting with a prototype unit under various scenarios. NOAA divers will learn more about this project in the near future. Once the systems are approved, it is NDC's intent to purchase a unit for every NOAA diver.



Alaska Fisheries Science Center UDS Rod Towell demonstrates how the pony bottle is worn under the right arm. Towell and other local divers are assisting NDC with testing the new gear.



## What happened on the NOAAS OSCAR ELTON SETTE

NOAA Ship OSCAR ELTON SETTE experienced an out-of-air incident on April 17, 2008 during dive operations to calibrate an EK60 transducer. A diver ran out of air at 35 fsw during ascent from 85 fsw and was assisted to the surface by buddy breathing. There was no injury. In his report, the Commanding Officer of the ship describes the setting: "the purpose of the dive was to assist the efforts of the field party to calibrate the EK60 transducer prior to planned acoustic surveys. The calibration exercise was conducted in Kealakekua Bay, a normally protected bay along the west coast of the island of Hawaii. The ship was on a two-point anchor in 23 fathoms of water." Environmental conditions were atypical for the bay; wind waves were 1-2 feet and swells were 1-2 feet. The ship has three divers, two whom had limited diving experience, and a third whom is the ship's dive-master. All were new to the ship and the dive operation; all were deployed on the dive. The incident occurred on a repetitive dive on a revised dive plan. Fundamentally, the cause of the incident was that the out-of-air diver neglected to observe his pressure gauge. However, it was found that a long list of contributing factors led to this occurrence. The findings and lessons learned are described here for everyone's benefit.

Changes in scientific operational plans resulted in a revised dive plan that was impromptu and unclear. By all accounts, the plan should not have been approved. Reasons include dive complement inexperience; deteriorating environmental conditions (current, low visibility); fatigue from previous ship events; no Command review; no designated person-in-charge topside; and no approval from the fleet diving supervisors at NDC (as the water depth was 138ft., this dive required submission of the NDP Special Operations Planning Sheet). Control of the dive was lost. The dive was also not well executed. Divers conducted the dive with low starting air pressures, vertically separated more than 30 ft. from each other and did not effectively communicate underwater. Topside communication and direction was also poor, resulting in divers spending 45 minutes on the surface waiting for directions.

### Lessons Learned and Recommendations:

The following are recommendations suggested by the NOAA Ship OSCAR ELTON SETTE for general consideration. In addition, ship [Dive Officers](#) are encouraged to review these recommendations with their Operations Officers and Commands.

#### Command

1. The Commanding Officer needs to be up and about, alert and focused solely on dive operations as they occur.
2. The Commanding Officer needs to thoroughly review dive plans with the divemaster, dive team, dive support personnel and medical officer prior to the commencement of dive operations.
3. The Commanding Officer needs to be the final authority as to whether or not dive operations commence based on diver fitness, operational requirement and environmental conditions.

#### Divemaster

1. The Divemaster needs to conduct site familiarization in new locations.
2. The Divemaster needs to determine whether near shore dives qualify as a blue water dive.
3. The Divemaster needs to call off dive operations in the face of a changing dive plan.

#### Divers

1. Divers need to frequently check air pressure gauge.
2. Divers need to begin each in water sequence with a full tank of air ~3000 psi.
3. Divers need to stay in close proximity to their buddy and at the same depth.
4. Divers need to realize when planned dive operations exceed the number of available divers and the capabilities of those divers.

#### Changes to Standard Operating Protocols

1. Require Cruise Instructions which include dive operations to be submitted 90 days prior to the cruise to allow a full review of proposed dive activities by the NOAA Dive Center.
2. Require Cruise Instructions which include dive operations provide a detailed dive plan for dive activities.
3. Standardize transducer calibrations throughout the fleet.
4. Conduct transducer calibrations in depths of 60 feet or less.
5. Provide low pressure alarms on air pressure gauges to NOAA divers.

**\*NOTE: NDC is currently investigating low pressure alarm systems.**



## What happened on the NOAA OSCAR ELTON SETTE (cont.)

This ship has a minimum dive complement of limited experience. The team consists of one divemaster and two beginner divers. Although new NOAA Working Divers obtain certification to dive to 130ft., they are entry-level divers and must continue to train and develop their skills in the field, preferably by working with more experienced divers and gradually working at greater depths. The NOAA Dive Center recommends ship Commands and Dive Officers plan long-term to meet diving operational requirements. This includes not only scientific mission support but ship husbandry; i.e., replacing transducers, and repair tasks such as clearing a fouled propeller. The team would ideally include permanent crew members with experience conducting working dives on the vessel, more experienced diving NOAA Corps Officers, additional divemasters and Command (per MOCDOCS OPS 19, Section 4.8 and for training/mentoring). It is recommended that each unit develop a culture of training junior divers and establish an experienced dive team. The experience and skill levels of dive unit members must be carefully considered when dive planning.

The immediate follow-up actions taken by the ship were appropriate and included the following. The Commanding Officer of the Marine Operations Center - Pacific and the OMAO Unit Diving Supervisor at NDC were contacted and the Diving Incident Report was submitted to NDC. A post-dive safety debriefing was conducted. Supplementary documentation included a written narrative of events and a timeline from the ship's Commanding Officer as well as written testimony from the ship's three divers. At NDC, the UDS counseled the CO and directed the ship to stand down from further diving, studied the documentation, and submitted a report to the Fleet Diving Officer. A phone interview was then conducted to obtain verbal statements of what happened. Subsequently, recommendations were made to the Director, NDC who then obtained counsel from the NOAA Diving Safety Board. Concurrently, the Director, Office of Marine and Aviation Operations, received a preliminary report that coincidentally was received at the same time as the draft report from the team investigating the March fatality. The findings in these reports led to the second safety stand-down last month. Ultimately, the NOAA Diving Safety Board unanimously agreed on a need for the following disciplinary actions pertaining to the SETTE incident. The divers involved have had their Working Diver status temporarily suspended in accordance with NOAA Diving Regulations. They have been designated Trainee divers and will be conducting a series of five checkout dives with more experienced divers to be designated by the Fleet Diving Officer. The Divemaster's certification was also temporarily suspended pending completion of another Divemaster training course. NOAA divers and divemasters must be held individually accountable to the NOAA Diving Program for their actions at their respective level of responsibility. By all accounts, the incident should never have occurred but much can be learned from it. Dive smart and dive safe.



Testing the independent air systems at NDC: NOAA divers Bill Gordon; Nick Tolimieri (UDS); CDR Doug Schleiger; LTJG Josh Slater; Mark Bailey (UDS); Rolin Meyer; Steve Hudziak; and Steve Urick.

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## Diving Into The Dry Tortugas

A team of 38 research divers from NOAA Fisheries, the University of Miami (UM) Rosenstiel School of Marine and Atmospheric Science, the Florida Fish and Wildlife Conservation Commission, the Florida Keys National Marine Sanctuary, the National Park Service, the National Undersea Research Center, and the NOAA Diving Program conducted a biennial census to measure how the protected status of the Tortugas Ecological Reserve is helping the Florida Keys ecosystem rebound from decades of overfishing and environmental changes. The team worked from a new high tech, high resolution LIDAR (LASER based) topographic map to assess the reserve's effectiveness.

"This ongoing research is critical to establishing a baseline for the state of reef fish stocks and coral reef habitats in Florida's dynamic marine ecosystem, and is an excellent example of the positive results that can be attained when a scientific partnership is forged between academia and government organizations," said Jerry Ault, Ph.D., professor of marine biology and fisheries at UM's Rosenstiel School. "In addition to determining the effectiveness of the 'no-take' marine protected areas in the region, the data helps guide important management decisions to address the issues of biodiversity protection, restoration of ecological integrity, and fishery management which are critical to this area."

Ault spearheads the biennial fish abundance surveys of the more than 300 species that comprise the Tortugas' reef fish community in the Florida Keys. This year, the team documented changes in fish abundance and habitat quality in a region that was hit by six major hurricanes since 2004. By statistically comparing this year's findings to previous survey information collected in 1999, scientists can determine what effects two years of intense hurricane activity have had on the marine environment. Collecting scientific data on a regular basis is imperative to understanding the dynamics of the ecosystem and to providing sustainable fisheries management recommendations. The Dry Tortugas region plays a critical role in the health of the overall Florida Keys coral reef ecosystem, thus making this study critical to understanding the overall functioning of tropical marine habitats.

The Dry Tortugas, a remote area about 70 miles to the west of Key West, Fla., is known for its extensive coral reefs, fish, sharks, lobsters and other marine life. In 2001, after an extensive designation process the Florida Keys National Marine Sanctuary implemented the Tortugas Ecological Reserve, consisting of 151 square nautical miles of protected marine habitat. In November 2007, the Florida governor and legislature unanimously approved the implementation of a management plan for a 'no take' marine reserve in the Dry Tortugas National Park. The Florida Fish and Wildlife Conservation Commission concurred in early February 2006 with the proposed National Park Service regulations related to marine fishing in the part. The park's marine reserve, coupled with that in the Florida Keys National Marine Sanctuary, is designed to protect precious coral reefs, fisheries and cultural resources, and to ensure sustainability of intensely exploited regional reef fisheries resources – benefiting the Tortugas, the Florida Keys and beyond.

~ a UM/RSMAS Press Release, edited with permission



NOAA chartered the M/V Spree for this 20 - day project. 38 divers from multiple organizations participated; 11 were NOAA divers. During 1,703 dives extensive reef fish, macroinvertebrate and coral reef habitat data were collected.

SEFSC diver Jack Javech conducts a survey of reef fish abundance and size using the Bohnsack-Bannerot method.

