Environmental Protection Agency
National Dive Safety Program

2016 Annual Report

March 6, 2017

Executive Summary

The U.S. Environmental Protection Agency (EPA) conducts a wide range of diving activities for regional and national programs. Diving is conducted in rivers, lakes, harbors, and the open ocean to support monitoring, research, and emergency response efforts. The EPA administers diving activities under guidelines established through the EPA Diving Safety Management Program, and in compliance with the Occupational Safety and Health Administration (OSHA) regulations. This report has been developed in response to the requirements of EPA's Diving Safety Policy.

The EPA's National Diving Safety Program conducted 946 scientific, training and proficiency dives in FY2016, involving nine EPA dive units and 65 divers. This report describes how the program is administered nationally, and what activities each EPA dive unit undertakes.

Questions regarding this report or about the EPA Diving Safety Program should be directed to: Alan Humphrey, Chairman, USEPA Diving Safety Program, Humphrey.alan@epa.gov

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EPA Diving Safety Program

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Introduction

This report is provided to the Environmental Protection Agency's (EPA) Safety and Sustainability Division (formerly SHMED) in accordance with EPA's Dive Safety Policy. This policy and EPA's Diving Safety Manual (April, 2016 Version 1.3) can be viewed online at: https://www.epa.gov/sites/production/files/2016-04/documents/epa-diving-safety-manual-2016.pdf

This report is a summary of the EPA's National Diving Safety Program (NDSP) activities from October 1, 2015, through September 30, 2016. The annual reports from EPA Unit Dive Officers (UDOs) serve as the basis for the information contained in this report. Each UDO's Annual Report is available upon request.

Overview

The EPA's NDSP conducted 946 scientific, training and proficiency dives in FY 2016 (Figures 1 and 2), involving nine EPA dive units, and a total of 65 divers (Figure 3). These dives were conducted in a variety of water bodies that include lakes, rivers, harbors, and the open ocean. The population of qualified EPA divers fluctuates annually. Qualification is based on medical compliance, diving proficiency, and other regulatory requirements. No serious injuries or accidents were reported by the dive units for the FY2016 operational year.

EPA's NDSP represents nine regional dive units, each under the supervision of a UDO (Figure 3). The dive units are located in:

(1) Region 1- Headquarters Boston, MA, and the Narragansett, RI Lab (R1)
(2) Environmental Response Team - Edison, NJ (ERT)
(3) Region 3 Headquarters - Philadelphia, PA (R3)
(4) Region 4 - Headquarters, Atlanta, GA (ATL)
(5) Region 4 - Athens Lab, Athens, GA (ATH)
(6) Gulf Ecology Division - Gulf Breeze, FL. (GED)
(7) Region 6 – Headquarters Dallas, TX (R6)
(8) Region 10 Headquarters - Seattle, WA. (R10)
(9) Western Ecology Division, Newport, OR (WED)

Figure 1. Number of Dives by EPA Diving Unit for FY 2016

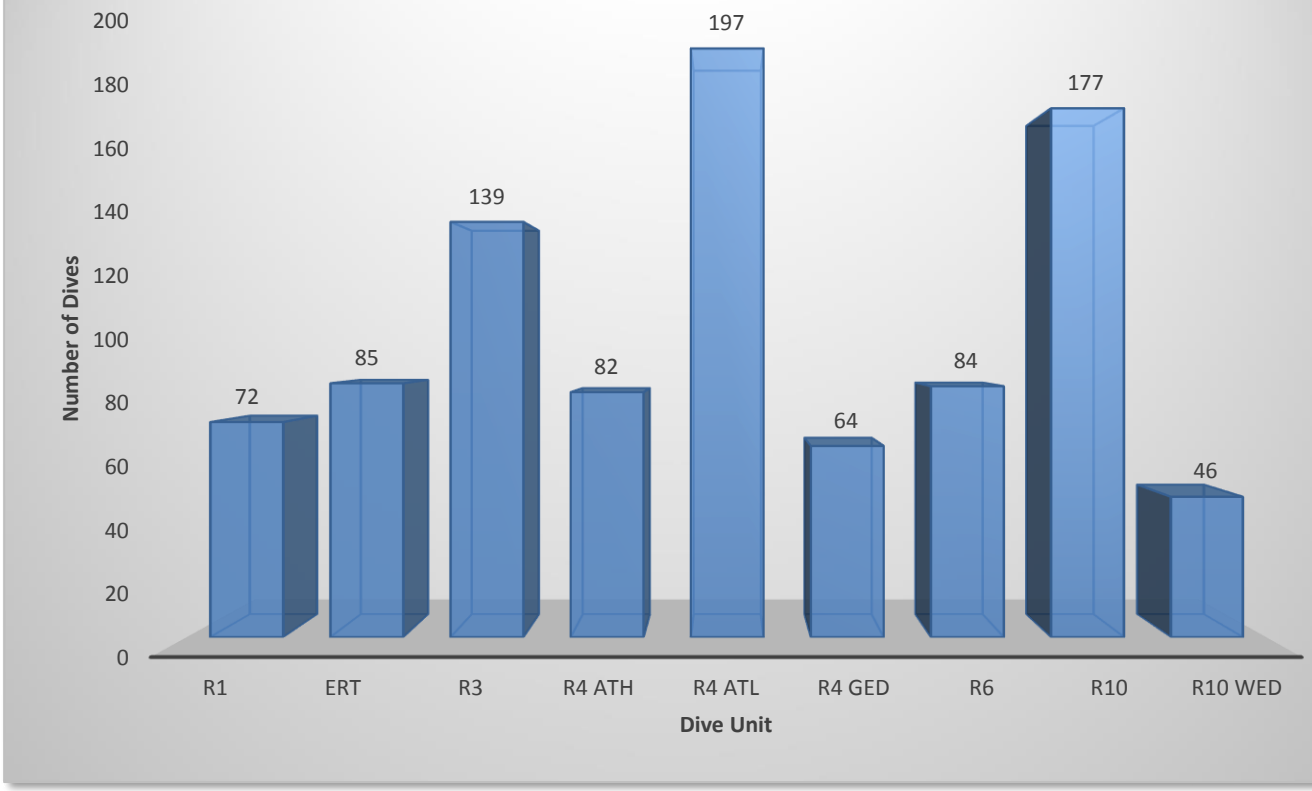
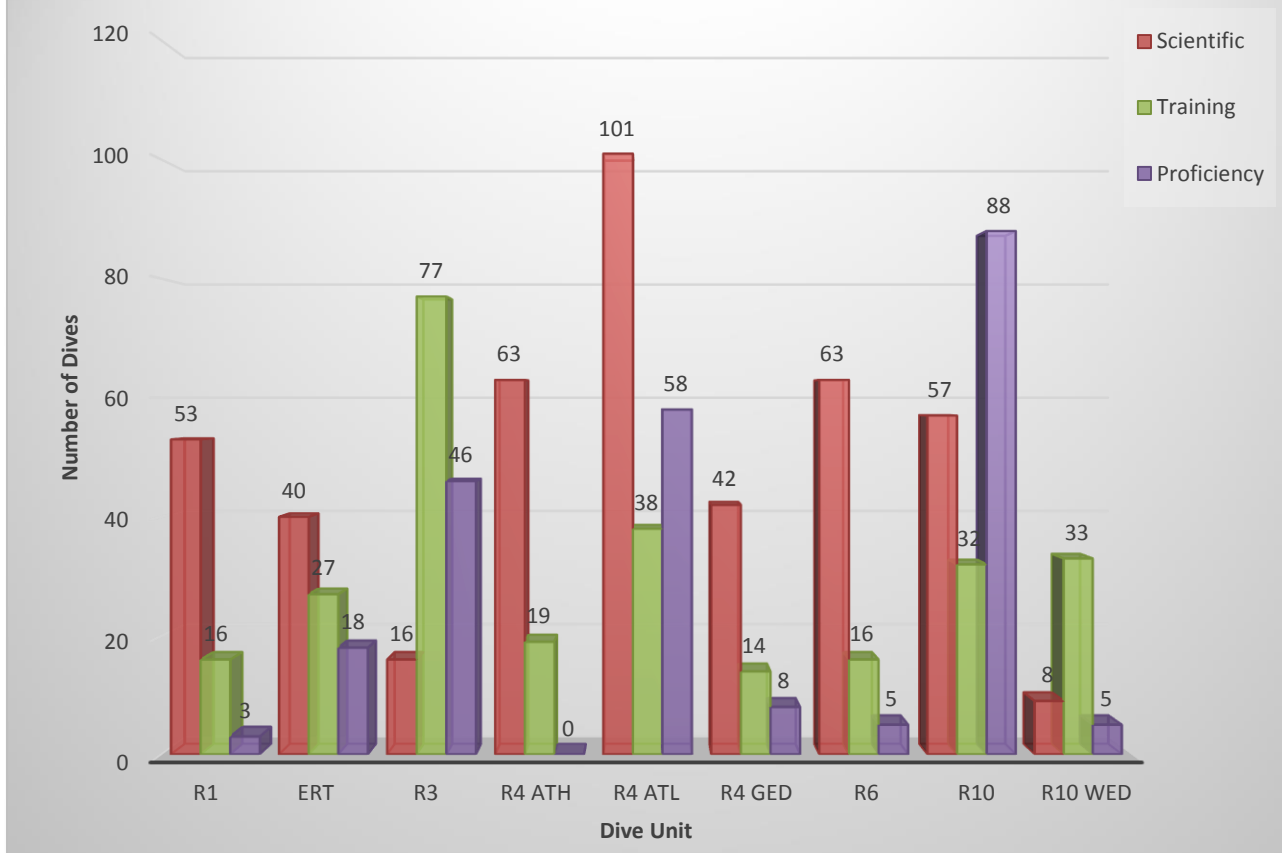


Figure 2. Type of Dives by EPA Diving Unit for FY 2016



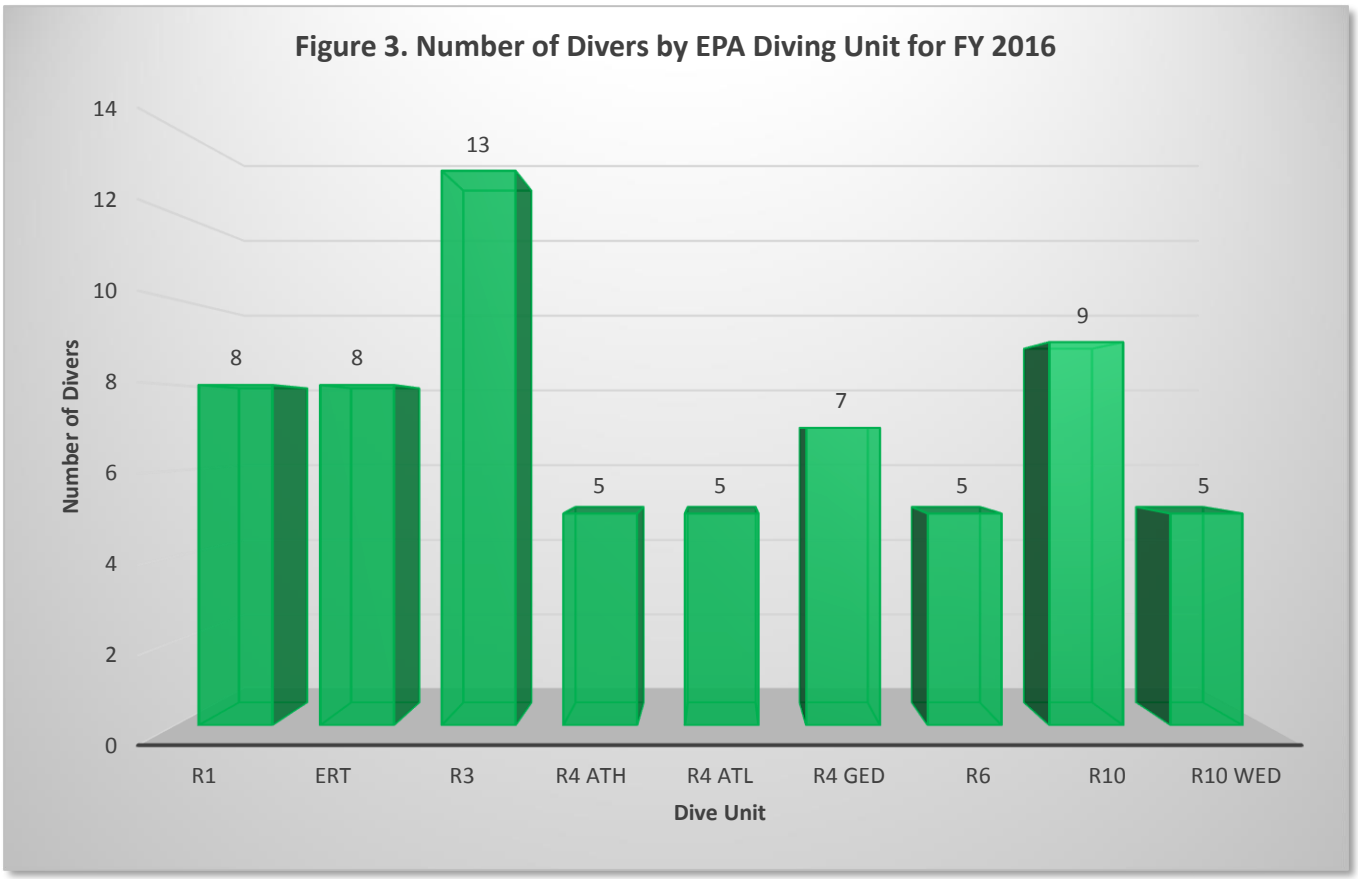


Figure 3. Number of Divers by EPA Diving Unit for FY 2016
Number of Divers
14
12
10
8
6
4
2
0
8
8
13
5
5
7
5
9
5
R1
ERT
R3
R4 ATH
R4 ATL
R4 GED
R6
R10
R10 WED
Dive Unit

New England Dive Unit

ANNUAL REPORT OF DIVE TRAINING AND OPERATIONS
October 1, 2015 - September 30, 2016 (FY-16)

The US EPA's New England Dive Unit is comprised of divers from the Atlantic Ecology Division (AED) Laboratory in Narragansett, RI, and the Region 1 Regional Office in Boston, MA. The following is a summary of dive operations and training in FY-16.

A: DIVING ACTIVITIES

1. Diving Operations and Locations

- **October 2015** – Recovered temperature monitor (Hobo) in Pirate's Cove, Nahant, MA in support of Blue Carbon Initiative. Pollutant exposure: none expected.
- **November 2015** – Conducted cold-water training in Plum Cove, Gloucester, MA. Pollutant exposure: none expected.
- **April 2016** – Assisted with Dive Training at Gulf Breeze
- **May 2016** - Conducted requalifying dives, diver fitness assessments, and dive accident scenario in Pirate's Cove, Nahant, MA following the suspension of diving activities during the months of December through April. Pollutant exposure: none expected.

- Deployed Hobos in Pirate's Cove, Nahant, MA. Data supports Blue Carbon RARE Grant study. Pollutant exposure: none expected.
- **June 2016** – Conducted unconscious diver recovery training in Gloucester Harbor, and deeper diving proficiency training off Manchester, MA
- **July 2016** – Deployed sediment traps and Hobos, and sampled eelgrass at study areas in Great Bay (NH), Buzzards Bay (MA), Ninigret Pond (RI), Cohasset Harbor (MA), Gloucester Harbor (MA), and Pirate's Cove (MA) in support of Blue Carbon RARE Grant study. Some of these dives were conducted jointly with MA Division of Marine Fisheries under EPA's existing reciprocity agreement. Pollutant exposure: none expected.
- **August 2016** - Collected sediment cores, and recovered sediment traps and Hobos at all study locations visited in July. Some of these dives were conducted jointly with MA Division of Marine Fisheries under EPA's existing reciprocity agreement. Pollutant exposure: none expected.

- **September 2016** – Located and recovered acoustic sensors in the Parker River, Essex, MA in support of striped bass monitoring being conducted by Woods Hole Oceanographic Institute. Pollutant exposure: none expected.

2. Diving Statistics

Number of Dives		Number of Exposure Days	
Work:	53	Work:	36
Training:	16	Training:	14
Proficiency/off duty:	3	Proficiency/off duty:	2
Total:	72		52

B. DIVING ACCIDENTS, INJURIES, OR INCIDENTS

None reported.

C. DIVE TRAINING

1. Training Received in FY16:	Region 1	AED
CPR/AED	0 divers	1 diver
First Aid	0 divers	1 diver
EPA Divemaster training	0 divers	0 divers
Advanced ops:	0 divers	0 divers
Emergency O2 Administration	0 divers	0 divers
Nitrox	0 diver	0 divers
2. Training Needed in FY17		
CPR/AED	5 divers	0 divers
First Aid	5 divers	0 divers
Advanced ops:	1 divers	0 divers
Emergency O2 Administration	5 divers	0 divers

Nitrox	0 divers	0 divers
Scientific Diver	?	

D. DIVE EQUIPMENT

1. Same as last year? No (Region 1) Yes (AED)
2. New: Two DUI dry suits
3. Equipment problems: Broken zipper on wet suit. Repaired under warranty
4. Equipment needed: 1 dry suit, 1 pair dry suit fins, 2 DUI weight harnesses, 1 buoyancy control vest, dive computers (2+)

E. REVIEW OF UNIT DIVING PERSONNEL

	Diver	**EPA Certification**
Region 1:	1. Dan Arsenault	Scientific Diver
	2. Jean Brochi	Divemaster
	3. Phil Colarusso	Alternate UDO, Divemaster
	4. Eric Nelson	Unit Dive Officer, Divemaster
	5. Chuck Protzmann	Scientific Diver*
AED:	1. Barbara Bergen**	Scientific Diver
	2. Marty Chintala**	Alternate UDO, Divemaster
	3. David Katz**	Scientific Diver

***** Chuck successfully completed EPA Divemaster training, and now (10/2016) has logged the needed EPA dives to meet Divemaster certification requirements.
****** AED divers are currently in inactive status

F. TIME SPENT ON THE NATIONAL DIVE PROGRAM

1. Time expenditures	Hours
Assistance with Diver Training Course	40
Review of documents	20
Performing action items	0
Preparation for and attendance at meetings	0
Technical assistance to other units	2
Annual meetings (twice this FY)	50
	112

2. Fiscal (monetary) Expenditures	
Equipment maintenance and repair	$1,178
New equipment	$5,079
Supplies (including fill cards)	$ 93
	$6,350

Cost of Travel Spent on National Program

Attend Diving Safety Board Meetings in Annapolis, MD (10/15) and Gulf Breeze, FL (4/16), and assist with EPA dive training in Gulf Breeze (5/16) $2,693

G. NOTEWORTHY ITEMS

The AED laboratory's dive team which is comprised of three divers has been placed in an inactive status due to a continued lack of dive-required work and no expressed needs in the foreseeable future.

Region 1 again renewed its diving reciprocity agreement with Massachusetts Division of Marine Fisheries. This agreement allowed for four days of joint operations in 2016. Region 1 expects additional coordination on projects of mutual interest to our agencies in 2017.

ANNUAL REPORT OF DIVE TRAINING AND OPERATIONS

Diving Unit: Environmental Response Dive Team
Office of Land and Emergency Management
Edison, New Jersey

October 1, 2015 – September 30, 2016 (FY16)

A. DIVING ACTIVITIES

The Environmental Response Dive Team (ERDT) conducted scientific dives at EPA projects around the country during the Fiscal Year 2016. For the year, the ERDT conducted 40 scientific dives, 27 training dives, and 18 proficiency dives, for a total of 85 dives and 45 exposure days.

Diving Operations

San Jacinto Waste Pits, TX - ERT Support of EPA Region 6 Scientific Dive Team

San Jacinto River Waste Pits- ERT provided mentoring and polluted water technical support to the Region 6 Unit at this NPL site east of Houston adjacent to the San Jacinto River. Wastes containing PCBs and dioxins are present at this site with 11 acres of former impoundments capped in 2011, with about 50 percent of the waste material/armored cap below river high tide. Last December EPA R6 divers discovered a 20-25 foot gap in the armored cap material in the northwestern portion of the site. EPA divers inspected most of the underwater portion of the cap using search techniques on transect lines.

During 5/16 and 7/16 R6 Scientific divers deployed and recovered solid phase micro-extraction (SPME) passive samplers in the armored cap to determine if waste contaminants are moving through cap materials into the river. Several pore water SPMEs also had a surface water SPME sampler attached to the top of the device. Despite heavy flooding and debris, EPA divers (R6 and ERT) were able to recover most of the 18 SPMEs installed in May. Based on diver observations, it appears that river flooding events, which cause erosion/deposition and shifting sediments, makes the northwest cap area of the site unsuitable for long term isolation of the waste pits. All dives were conducted using line tended procedures, a single diver on Comm rope, with diver wearing FFM, dry suit and dry gloves. Between dives divers were deconned on-board the dive vessel. Divers followed the EPA diver SOPs Appendix P and Q, for Tethered Diving and Diver Decontamination (DSM Version 1.3).

Environmental Security Technology Certification Program (ESTCP), Quantico, Virginia.

The ERT Scientific dive operations were for the purpose of demonstrating and promoting the Sediment Ecotoxicity Assessment (SEA) Ring, an in-situ ecological risk assessment approach for sediment characterization and remedy effectiveness. In early 2014 a thin layer cap (6-12 inches of sand/silt) was applied over a 10 acre area to minimize benthic exposure to site contaminants

(primarily DDT) and enhance the sediment habitat. The SEA Ring has 10 separate chambers containing two species of worms and clams; the diver pushes the chamber into the sediment, releases the organisms into the sediments and activates the air pump to enhance survival over the two week exposure period. Deployment and recovery was challenging on the uneven sand cap plus no anchoring was allowed to avoid damaging the sand cap. ERT used vector scanning sonar to precisely locate the Sea Rings and sediment traps. Additional work off the ERT pontoon vessel is diver collection of sediment cores for chemical/physical profiling, diver installation of passive samplers (SPMEs) to measure bioavailability of contaminants, measuring cap thickness and grain size using a friction sound probe, and using a sediment profiling camera to collect cross sectional vertical images of cap material/sediments.

Diving was conducted in less than 10 feet of water with low visibility, using contaminated water PPE (FFM, dry suit and dry gloves) and a hard wired tether for single diver safety and communications. This year, 2016, was the fifth and final year ERT is working with the U.S. Navy and the Space and Warfare (SPAWAR) Systems Command at this DOD DDT site in the Potomac River.

Scientific Diver Survey, Historic Area Remediation Site

In 1997, the Mud Dump Site (MDS) was designated as a dredged material disposal site, and the MDS and surrounding contaminated areas were designated the Historic Area Remediation Site (HARS). The HARS was designated for placement of dredged material determined to be suitable for use as Remediation Material to improve benthic conditions.

The HARS is a 15.7 nmi^2 area located in the New York Bight Apex, approximately 3.5 nautical miles (nmi) east of Highlands New Jersey and 7.7 nmi south of Rockaway, New York. Since the 1800s, this area has been used for disposal of dredged material and a variety of other waste products including municipal garbage, building materials, sewage sludge and industrial waste. The diver surveys were done on those areas capped with rock and glacial materials to help determine if the capped areas are supporting recovery of the epifaunal community.

This year ERT divers conducted photography at over 15 locations to document conditions on the capped areas. At five stations along a 25 meter transect scientific divers set out a 1 square meter quadrat and took a series of photos within the quadrat using a raw photo setting. About 360 photos will be analyzed to determine measurements of percent cover, with the general taxonomic category (e.g., sponges, barnacles, anemones).

Diving was conducted in buddy SCUBA mode, at depths of 55-85 feet, with visibility ranging from 2-10 feet.

McCormick and Baxter Site, Portland, OR

ERT supported R10 divers with installation and recovery of passive samplers as part of a five year review of the cap condition, installed as a remedy at this former wood treating site. See R10 annual report for more details.

B. DIVE STATISTICS

Dive	Total No. of dives	No of exposure days
Scientific dives	**40**	**18**
Training dives	**27**	**21**
Proficiency dives	**18**	**7**
Total	**85**	**46**

C. DIVING INJURIES

There were no diving injuries during FY2016.

D. DIVE TRAINING

After a hiatus of several months, ERT divers had a requalification dive in the local YMCA pool using SCUBA and full face mask, and also conducted an annual swim test. EPA diver training was held in Gulf Breeze in May, 2016. Scientific training was provided for trainee divers. ERT and other EPA UDOs participated with lectures, in-water exercises, decon exercise, and deployment and recovery of in-water training equipment.

Internal dive unit training sessions were held at the Dutch Springs Quarry, PA, Atlantic Beach Artificial Reef, and Gravel Pond, Littleton, CO. The primary hands-on training focused on the following: Dry Suit and Full Face Mask Training, Proficiency; Dive/Navigation/Compass Course; Zero visibility Search; Surface Supply and Tethered diving, and underwater photography.

E. DIVING EQUIPMENT

Current Equipment Inventory

Primary equipment are Scuba tanks (16), Pony bottles (11), Regulators (11), BCDs (11), Dry Suits (12), Dive Computers (12), Comm ropes with Box, KM Surface Supply Control box with 2 umbilicals, Superlight 17 Helmets (2), XLDS-RDC Portable Surface Supply System with 300 ft Umbilical, MS 1000 Vector Scanning Sonar, and Outland 1000 ROV.

During FY 2015, ERT did annual maintenance on dive equipment (regulators, BCs, dry suits, surface supplied, AGAs, computers), and the 41-foot Biglane dive/survey vessel. Primary purchases were Olympus Tough TG-4 Compact Camera with Olympus Housing, Seas and Sea YS-03 Strobe, iTorch UWL-04 Ultra Wide Lens and Accessories.

F. REVIEW OF DIVING PERSONNEL

Presently, the ERT Dive Team has eight full-time members, including six divemasters:

Dave Adams	Scientific Diver
Steve Blaze	Dive master
Chris Gallo	Scientific Diver
Scott Grossman	Dive master, Alternate UDO
Rich Henry	Dive master, US F&WS
Alan Humphrey	Dive master/UDO
Buddy LoBue	Dive master
Jon McBurney	Dive master

Several EPA divers, including Scott Faller (Scientific Diver, RERT), Pete Stevenson (Dive master, Region 8), Jeff McPherson (Scientific Diver, Region 8), and Daniel Rodriguez, (Scientific Diver, Region 2, Vieques) have conducted scientific or training dives with the ERT and other EPA dive units.

G. TIME SPENT ON THE NATIONAL DIVE PROGRAM AND RELATED COSTS

Assistance with EPA Diver Training Course	Ten days
Comments on EPA Diving Activities	Three days
Updates to EPA Diving Safety Manual	Five days
Dive Plan Review	Five Days
DSB Chairman Duties	Five Days

Cost of travel related to diving projects	$4000
Attendance at EPA Diver Training Course	$1500
Attendance at AAUS Diving Symposium	$2000
Attendance at the EPA Diving Safety Board Meeting	$1000

ERT attended the 2016 AAUS Conference in South Kingston, RI during Sept 19-24 and presented an Abstract with Sean Sheldrake titled “Overview of US EPA Scientific Diving Operations Using Equilibrium Passive Sampling Devices.”

ANNUAL REPORT OF DIVE OPERATIONS
US EPA MID-ATLANTIC REGION 3
SCIENTIFIC DIVE UNIT

Fiscal Year 2016 - October 2015 through September 2016
Prepared by: Steven J. Donohue, Unit Dive Officer (UDO)

A. DIVING ACTIVITIES

The US EPA Mid-Atlantic Region 3 Scientific Dive Unit (SDU) is a program within the Oceans & Dredged Disposal Team in the Environmental Assessment and Innovation Division's (EAID) Office of Monitoring and Assessment. This SDU Annual Report describes the activities and accomplishments for Fiscal Year 2016. SDU scientists and engineers include representatives from the Air Protection Division, EAID, Hazardous Site Cleanup Division, Land and Chemical Division, and Office of Environmental Compliance and Environmental Justice.

Below is a narrative summary with a brief description of each activity the SDU accomplished this fiscal year. Table 1 provides a summary of data for each dive operation including the location, purpose, depth, conditions, breathing gas, number of divers and exposure days. Additional detail on each SDU operation is available in specific Dive and Safety Plans, completed prior to each operation, and Post Operation Reports, completed following the operation. Figures 1 and 2 shows the number and percentage of Operation, Training and Personal Proficiency Dives and Hyperbaric Exposure Days.

EPA R3 SDU –FY-2016-01 - Responding to a request by the Partnership for the Delaware Estuary (PDE) and Academy of Natural Sciences, Region 3's Scientific Dive Unit attempted a

qualitative fresh water mussel survey and video transect of Little Tinicum Island in the Delaware River on October 15, 2015. EPA Divers were unable to obtain any video due to the poor visibility and were also not able to run a perpendicular transect away from the shore due to the strong and increasing current experienced as the dive progressed. After the first dive the Dive Master canceled the survey. PDE is a National Estuary Program partner that launched the Freshwater Mussel Recovery Program (FMRP) in 2007 to conserve and restore native freshwater mussels.

EPA R3 SDU –FY-2016-02 - Three trainee divers for the EPA Region 3 Scientific Dive Unit participated in an Equipment Fitting, Testing, and Re-Qualification Dive conducted in a pool on April 22, 2016. All planned objectives outlined in the Dive and Safety Plan were accomplished including; testing recently serviced SCUBA regulators, fitting and testing Aga masks, fitting and testing dry suits. On the first dive all recently serviced regulators were tested and confirmed to be operating correctly and dry suit fit was checked. On the second dive, divers switched over to and set up their positive pressure Aga masks to test their fit in the water. The Aga masks covers the eyes, nose and mouth and allow diver to diver, as well as diver to surface communication. A third dive was conducted to fine tune the fit of Aga masks on two of the three divers. Despite the 50 degree water the trainees logged more than an hour of bottom time getting accustomed to diving in dry suits and Aga masks.

EPA R3 SDU –FY-2016-WHEELING - Two EPA Region 3 Scientific Divers and one Trainee diver, based in Wheeling, WV conducted a proficiency and Equipment Fitting, Testing, and Re-Qualification Dive in a pool on April 26, 2016.

EPA NATIONAL DIVER TRAINING - Seventeen Scientific Divers, including four from Region 3, and Four Dive Masters successfully completed the EPA Scientific Diver Training Program conducted from May 2 through 6 at the Gulf Ecology Division Laboratory in Gulf Breeze Florida. The Region also supported the training by running the tethered diver black out mask training as well as other logistical support. The new Region 3 Scientific Divers home offices are EAID, APD, HSCD and APD, and they are the first Scientific Divers trained since 2012, and were selected through a region-wide open recruitment and selection process.

EPA R3 SDU –FY-2015-03 - The SDU conducted Equipment Testing and Requalification Dives on June 1, 2016 as required by the Agency's Diving Safety Manual. Six members of the SDU, including three recently certified Scientific Divers, participated in the operation. Two divers setup and completed their first dives in new hazmat capable dry suits. All planned objectives outlined in the Dive and Safety Plan were accomplished including; testing recently serviced SCUBA regulators and Aga masks, re-qualifying any diver who has not logged a dive in the last three to six months.

EPA R3 SDU –FY-2015-04 - Responding to a request by the Partnership for the Delaware Estuary (PDE) and Academy of Natural Sciences (ANSDU), Region 3's Scientific Dive Unit conducted a qualitative assessment of freshwater mussel populations at the Palmyra Cove Nature Park on June 22, 2016. Divers obtained video and samples of mussels on transects from the shoreline out to approximately 300 feet offshore at three locations. Over 100 individuals of three different species of freshwater mussel were found with the majority of the animals being *Anodonta implicate* (Alewife Floater). EPA Scientist/Divers also relayed real time observations

of the bottom substrate to topside representatives of ANSDU. After identification and measurement all collected specimens were returned to the bottom near where they were found.

EPA R3 SDU –FY-2015-05 - Working in collaboration with the Partnership for the Delaware Estuary (PDE) and Academy of Natural Sciences of Drexel University (ANSDU), Region 3's Scientific Dive Unit conducted a second qualitative assessment of freshwater mussel populations at the Palmyra Cove Nature Park on July 6, 2016. Divers obtained video and samples of mussels at four locations, from the shoreline out to approximately 100 meters offshore, along approximately 400 meters of river downstream of the area assessed on June 22. Overall fewer animals and more trash and debris were found in this stretch. After identification and measurement all collected specimens were returned to the bottom near where they were found.

EPA R3 SDU –FY-2015-06 - Region 3's Scientific Dive Unit conducted a qualitative assessment of freshwater mussel populations at the Florence Bend in the Delaware River on August 22, 2016. Divers obtained video and samples of mussels at two sites at each end of the bend to depths up to 18 feet from nearshore out to approximately 75 meters offshore. At each site approximately 200 meters of river was surveyed. Divers found very high quality habitat and large densities of freshwater mussels. Several hundred individuals were collected. After identification and measurement all collected specimens were returned to the bottom near where they were found.

EPA R3 SDU –FY-2015-07 - Nine members of the SDU, including three Scientific Divers certified in 2016, participated in this training operation. All planned objectives outlined in the Dive and Safety Plan were accomplished including; re-qualify four divers who had not logged a dive in the last three months, having new divers conduct two dives at depth accompanied by experienced divers, ensuring new divers had all required gear for Radford survey, allowing new divers to practice setting and using dive computer. Divers also practiced using sampling gear and ground gear for hooking and accessing structure on the bottom.

Summary

In FY2016 four new Trainee Divers were selected for the SDU through an open recruitment and selection process. All four successfully completed the EPA National Scientific Diver Training Program. These were the first new SDU divers trained since 2012. Three new divers were added to the Philadelphia office and one to the Wheeling Office. One diver resigned from the SDU in FY 2016. Matt Colip moved from the Philadelphia Office to Headquarters and re-signed from the SDU in August 2016.

The number of training dives conducted by the SDU increased this year primarily due to preparing for and participation of the new trainees in the EPA National Training. Training dives were also conducted for depth certification of new divers.

In early 2016 the SDU received ten Aqualung Enviro drysuits at a cost of almost $20,000. EAID's funding of the purchase of these suits was a significant investment in capability and readiness. The first training and operations dives were conducted in the new drysuits in FY2016. Briefings were conducted with our Superfund Program to inform them of the program including the new hazmat equipment.

Operational dives were completed at two locations on the Delaware River to conduct qualitative surveys of freshwater mussels. Our approach for these dives was to use a single tethered diver on hardline coms. The SDU borrowed equipment from the ERT for some of this work and will need to invest in new equipment to replace coms lines that are in excess of fifteen years old if we want to continue this approach in the future.

Scheduling and weather/sea state prevented the SDU from planning surveys of the EX USS Radford and EX FV Poole in FY2016.

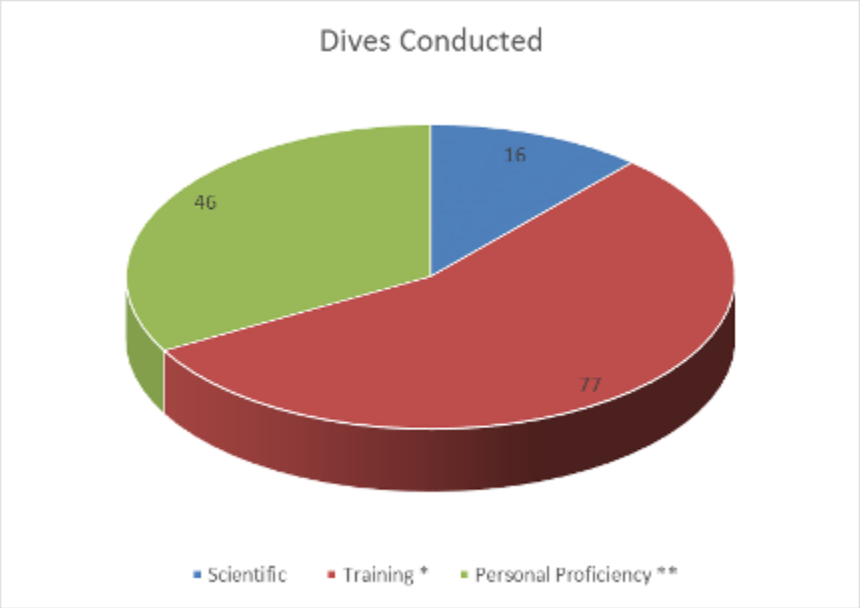
Two members of our SDU continue to volunteer on their own time with the Adventure Aquarium in Camden. Duties include participating in a public dive show and doing cleaning and maintenance diving. These dives are actually considered a commercial dive operation subject to OSHA requirements. There are multiple benefits to SDU participation as volunteers including, improved proficiency, regular repetitive dives, and familiarization with the requirements of diving in a commercial dive operation.

FY 2016 data shows most of the SDU divers are not conducting proficiency dives on their own and their only diving is through work sponsored training or operational dives. The SDU hopes to work with the Aquarium Dive Safety Officer and EPA Management with the goal of formalizing an agreement on SDU proficiency diving at the aquarium in FY2017.

Table 1 Data Summary for SDU Operations in FY 2016

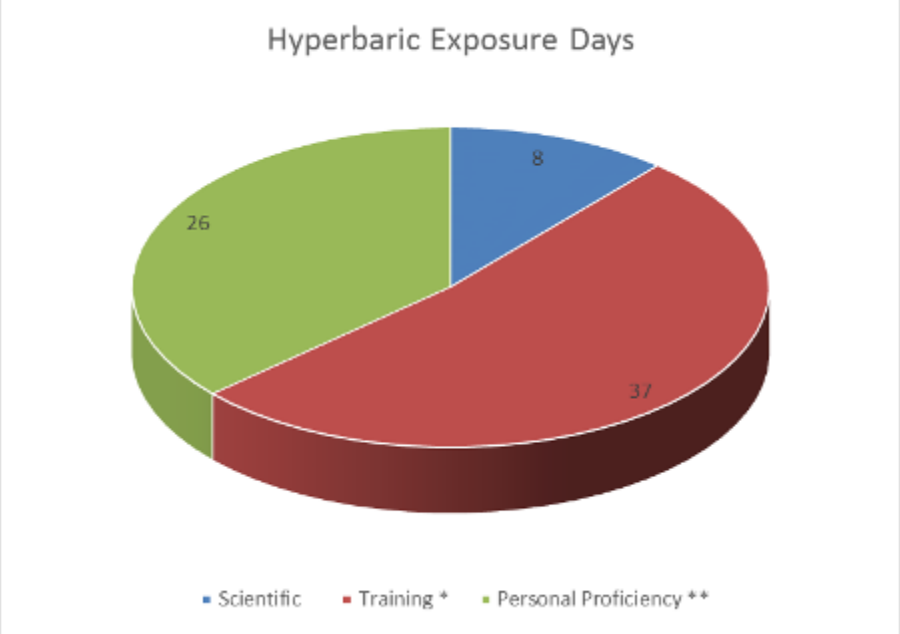
Location	Purpose	Date	Depth in Feet	Conditions	Gas	Names of Diver and (#) of dives	Total # of Dives	Total # Hyperbaric Exposure Days	Dive Master
Delaware River	Quantitative Sampling of Freshwater Mussel	10/15/2016	10	Freshwater tidal and current	air	Eric Newman (1), Steve Donohue (1)	2	2	Byro
Langhorne, PA	Training	4/22/2016	8	Freshwater	air	Jim Adamiec (3), Nathan Doyle (3), Mike Eller (3)	9	3	Donohue
Moundsville, WV	Training	4/26/2016	8	Freshwater	air	Frank Borsuk, Jen Fulton, Leah Ettema	3	3	Borsuk
Gulf Breeze	Training	4/28/16 to 5/5/16	8 to 125 feet	Bay and Open Ocean	Air, Nitrox and Rebreather	Donohue (6) Eller (10) Adamiec (10) Doyle (10) Ettema (10)	46	19	Humphrey
Dutch Springs Quarry, Allentown, Pennsylvania	Equipment Checkout, Re-qualification, Sample Training	6/1/2016	28 to 63 feet	Freshwater Lake	air and nitox	Jim Adamiec (2), John Armstead (2), Steven Donohue (2), Nathan Doyle (2)* Brad White (2)* * = nitrox	10	5	Donohue, DM John Forren and Mike Eller Tenders
Delaware River Palmyra, NJ	Qualitative Sampling of Freshwater Mussel	6/22/2016	10 feet	Open Water with tidal current	air	Jim Adamiec (2), Nathan Doyle (2)	4	2	Donohue
Delaware River Palmyra, NJ	Qualitative Sampling of Freshwater Mussel	7/6/2016	12 feet	Open Water with tidal current	air	Jim Adamiec (2), Steve Donohue (2)	4	2	White
Delaware River Florence, NJ	Qualitative Sampling of Freshwater Mussel	8/22/2016	18 feet	Open Water with tidal current	air	Eric Newman (2), Nathan Doyle (4)	6	2	White
Dutch Springs Quarry, Allentown, Pennsylvania	Depth Certification Sample Training	9/21/2016	74	Freshwater Lake	nitox	Jim Adamiec (2), John Armstead (1), Dave Byro (1), Nathan Doyle (2), Mike Eller (2), Eric Newman (2), Brad White (2)	12	7	Donohue
						Total	96	45	

Figure 1 Scientific, Training, and Proficiency Dives for SDU in FY 2016



Notes: Scientific Dives are performed for scientific, research, or educational purposes
*Training Dives done on government time and at government expense.
** Personal Proficiency Dives are done on personal time and at personal expense in order to enhance or maintain proficiency. Divers may have used government dive equipment.

Figure 2 Hyperbaric Exposure Days for SDU in FY 2016



Note: A hyperbaric exposure day is defined as any day a diver is exposed to greater than ambient pressure due to diving.

B. DIVING ACCIDENTS, INJURIES, OR INCIDENTS

Describe all accidents, injuries, and incidents: There was one incident experienced by a diver in the SDU in FY 2016.

Description of Incident

A diver donned his gear incorrectly on our fall 2016 training dive. He placed his primary regulator in his BCD pocket and commenced his dive using his alternate air supply i.e. a "pony" regulator supplied by a small 19 cubic foot tank. Seven minutes into his dive he ran out of air. The diver gave an out of air signal to another diver who immediately provided his own pony bottle regulator to the diver and brought him to the surface.

The rescue diver and the rescue diver's buddy assisted the diver who ran out of air to shore. The Dive Tender helped the diver out of his gear. The diver complained of shortness of breath and stated he ran out of air. He also said he ingested some water when he inhaled before clearing the pony regulator. The diver exhibited no other signs or symptoms of injury. The Dive Master and a Standby Diver provided oxygen as a precautionary measure and directed the diver to sit down in the shade, rest and stay on oxygen.

The Dive Master checked the diver's gear and confirmed his primary regulator was in his BCD pocket and his primary tank pressure was the same as it was at the start of his dive. The diver's pony tank pressure gauge was reading zero. The Dive Master checked the diver and rescue diver's dive computers to determine their depth and ascent rate. They both ascended from 58 feet to the surface in the final minute of their dives. The dive computer flashed a "slow" sign at least twice during the ascent indicating they exceeded an ascent rate of 1 foot per second. The rescue diver reported he was feeling fine. After resting the diver who had run out of air also reported he was feeling fine. The Dive Master recommended and both divers agreed to not complete a second dive.

Incident Next Steps and Conclusions

- The diver inadvertently switched his primary and alternate air supply regulators while setting up his equipment and failed to complete a pre-dive buddy prior to entering the water.

- The diver was diving a new BCD that did not have a "snorkel keeper" or other means of securing his alternate air supply 2nd stage in a ready to access position. His alternate air supply regulator (in this case his primary regulator) was tucked into a BCD pocket and not easy to access.

- The diver was part of a three person team. The other two divers completed a pre-dive buddy check with each other prior to entering the water. Special attention must be paid when diving three person teams to ensure all divers are checking each other.

Incident Corrective Actions

- SDU UDO will provide refresher training on proper donning and assembly of dive gear.

- SDU Dive Masters will brief divers and dive tenders to emphasize mandatory pre-dive buddy checks, without exception.

- SDU Dive Masters will ensure divers have ready access to their alternate air supply.

- SDU will purchase and begin using only yellow hoses and regulatory bodies on alternate air supply regulators.

C. DIVE TRAINING

1. Describe the type of training conducted/received, and list the name, office, and level of certification for each trainee. Four new scientific divers were added to the SDU in FY 2016. In January 2016 a region-wide email announcement was sent out that resulted in ten employees inquiring further information on the SDU. Eight employees submitted information and a dive resume for review by the UDO, AUDO and a management representative. Four were found to be fully qualified. With travel support from the trainee's home office, the decision was made for the SDU to support the training of all four divers. Three were selected from the regional office and one diver from our Wheeling field office. In late March the three regional office trainees participated in Biannual Physical fitness testing in a local pool. In April the Philadelphia trainees participated in training and equipment testing dives in a pool wearing drysuits and Aga masks. All four of the divers below successfully completed the nationwide Training in May.

Jim Adamiec	Scientific Diver	APD	Life Scientist
Nathan Doyle	Scientific Diver	HSCD	Physical Scientist
Mike Eller	Scientific Diver	OECEJ	Env. Scientist
Leah Ettema	Scientific Diver	EAID	Life Scientist

See the Narrative in Section A and the Summary Tables above for training dives.
See the Table in Section E below for a complete list of the names, offices, and certification level of each member the SDU.

The National EPA Diver Training was held in April 28 to May 5, 2016.

The SDU conducted physical fitness testing conducted in a local pool on March 30, 2016.

Wheeling based divers participated in USFWS training and fitness testing

Spring and fall training dives were conducted for the SDU at a local quarry.

2. List any training needed.

    a. The Region hopes to offer the First Aid for Professional Divers class in FY2017 to renew First Aid, CPR and AED training.
    b. Divers must complete the annual 8 hour refresher for their 40 hour HAZWOPER training or 8 hour field safety training in FY 2015.

D. DIVE EQUIPMENT

1. Same as last year?
2. Yes _____ No __X__

a. If no, list and note the equipment that is new or removed from service.

New items:

The SDU purchased ten Aqualung Enviro drysuits in late FY20115. The suits were received in early FY2016 and used in both training and operational dives.

The SDU also purchased four new braided hoses and swivels for our Aga masks.

Removed from Service:

Our hardline com lines, that are over fifteen years old, failed at the EPA National Training. They were repaired but had intermittent failures during an operation in FY2016 and were red tagged out of service.

One of our Suunto Cobra Air Integrated computers failed in FY 2016 and will need to be replaced.

2. New Equipment Needed

New Hardline com are needed.

Several of our divers have vision correcting diopters in their masks but currently they do not have them in their Aga masks. We need to explore and purchase these for our Aga masks.

Safe second breathable inflators for our BCDs may be added to provide an alternate air supply during all our dives.

The SDU will purchase yellow body alternate air supply regulators and hoses for all of our alternate air supply/pony bottle regulators.

New trainee divers were sharing some equipment in FY 2016 and new Mares Abyss Primary Regulator, pony regulators and Sunto Cobra Air Integrated computers will be needed to fully equip divers and replace gear that failed in FY2016.

E. REVIEW OF UNIT DIVING PERSONNEL

Table 2 below contains the names, division and current certification for Philadelphia and Wheeling based members of the SDU at the end of the Fiscal Year.

Table 2 SDU Personnel in FY 2016

#	Name	Certification	Division	Title
1	Jim Adamiec	Scientific Diver	APD	Life Scientist
2	John Armstead	Dive Master	LCD	Env. Scientist
3	Frank Borsuk	Dive Master	EAID	Biologist
4	Dave Byro	Dive Master	EAID	Env. Scientist
5	Kelley Chase	Dive Master	HSCD	Env. Scientist
6	Steve Donohue	Unit Dive Officer	EAID	Env. Scientist
7	Nathan Doyle	Scientific Diver	HSCD	Physical Scientist
8	Mike Eller	Scientific Diver	OECEJ	Env. Scientist
9	Leah Ettema	Scientific Diver	EAID	Life Scientist
10	John Forren	Scientific Diver	EAID	Env. Scientist
11	Jennifer Fulton	Scientific Diver	EAID	Aquatic Biologist
12	Eric Newman	Dive Master	HSCD	Env. Engineer
13	Brad White	Dive Master	HSCD	Env. Scientist

F. TIME SPENT ON THE NATIONAL PROGRAM

1. Time expenditures.

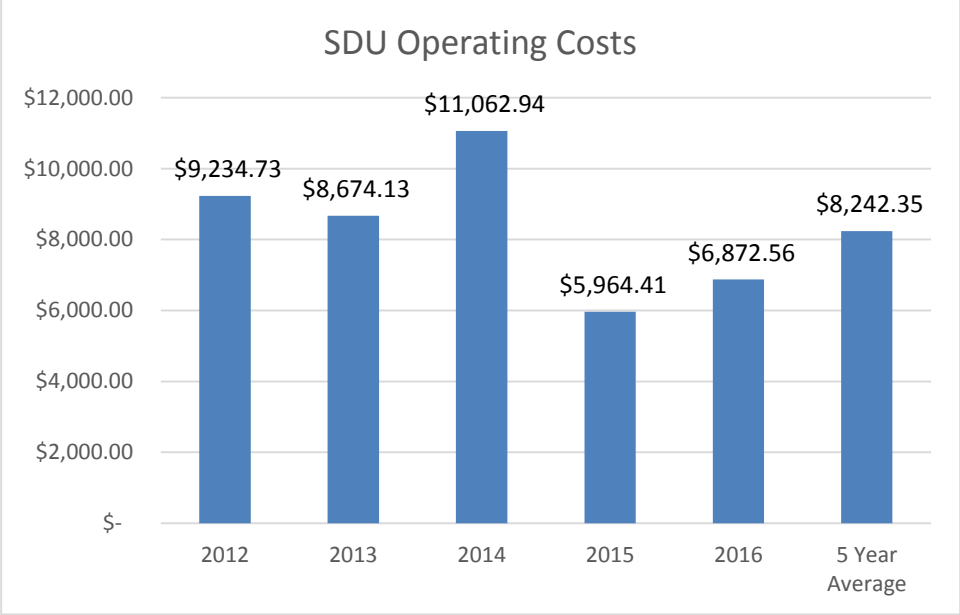
ACTIVITY (DESCRIPTION)	**TIME** (Hrs/Days)
Assistance with Diver Training Course	5 days
Review of Documents (revision to DSM, emails)	4 days
Performing Action Items (e.g., Prep for & Audit of Dive Opts)	0 days
Preparation for and Attendance at Meetings (Annual DSB Meeting)	5 days
Technical Assistance to Other Units	0 days
Other	

2. Fiscal (monetary) expenditures:

COST OF TRAVEL SPENT ON NATIONAL PROGRAM (list by trip)	
UDO Support of Annual Training and DSB Meeting	$ 1,673.67

G. FY 2016 BUDGET

Minor purchases as well as the cost to operate and maintain the SDU equipment in FY2016 was approximately $6000. This does not include EAID funding of a major capital equipment purchase of almost $20,000 in late FY2015 for new drysuits. Annual operating costs include the cost for all new equipment and supplies, required annual maintenance for regulators, and tanks for both the Philadelphia and Wheeling locations and entrance fees at the training venue (quarry). This also includes the cost of filling tanks with air/nitrox as well as miscellaneous supplies. This does not include any travel costs. The SDU had no operations that involved overnight travel in FY2016.



R4 ATHENS DIVE UNIT

ANNUAL REPORT OF UNIT DIVE TRAINING AND OPERATIONS 2016

Diving Unit: Region 4 Athens, GA Time Period: 10/8/15-10/03/16
Mel Parsons, UDO

A. DIVING ACTIVITIES

The EPA R4, Athens Dive Team logged 82 dives with 40 exposure days over the past year. Over half of the dives (54) were conducted on two separate habitat assessment surveys at the Fernandina Beach Ocean Dredged Material Disposal Site (ODMDS) off the NOAA Ship Nancy Foster in September. The projects were a joint R4 Atlanta/Athens project with NOAA's National Center for Coastal and Ocean Studies (NCCOS) out of Beaufort, NC. The purpose of the surveys was to compare diver collected fish and habitat data with multi/split beam acoustic data collected via transducers from the Nancy Foster. Of the 259 dives logged during the surveys, 54 were conducted by the R4 Athens Dive team.

The remainder of the R4 Athens dives were logged diving with the Gulf Ecology Division (GED) Laboratory on NOAA's National Coral Reef Monitoring Program (NCRMP) or conducting training dives with GED.

1. Description/type of diving operations

   a. Ocean Dredged Material Disposal Sites (ODMDS) – 54 Dives, 22 Exposure Days:

   Conducted fish and habitat assessments at the Fernandina Beach, FL ODMDS from the NOAA ship Nancy Foster as described above.

b. Sediment oxygen demand/nutrient studies – 2 Dives, 2 Exposure Days:

Sediment Oxygen Demand (SOD) studies were conducted the Big Black River, MS. Only a couple of dives were conducted on SOD studies this year.

c. Training Dives – 19 Dives, 13 Exposure Days:

Training dives were conducted with the GED dive team on multiple trips this past year and consisted of deeper offshore dives (100').

2. Location of diving operations/water body

Florida – Pensacola, Fernandina Beach and the Florida Keys
Mississippi –Vickburg – Big Black River
South Carolina – Lake Jocassee

3. Dive Statistics

Number of Dives		Number of Exposure Days	
Work:	63	Work:	27
Training:	19	Training:	13
Proficiency:	0	Proficiency:	0
	82		40

B. DIVING ACCIDENTS

No accidents this year.

C. DIVING SAFETY AUDIT

No findings on the self-assessment audit this year

D. DIVE TRAINING

John Ruiz attended the FY16 Diver Master Training.

E. DIVING EQUIPMENT

All dive equipment was serviced and passed inspection.

Tanks: 12 – 100 ft^3, 16 - 80 ft^3, 19 - 63 ft^3, 4 - 19 ft^3, 4 -13 ft^3, 4 - 6 ft^3
1 KM Superlight 27 w/tri valve exhaust w/wireless and hardwire/wireless comms
1 Amron two diver dive control console w/150' light umbilical
1 Amron two diver com box
Regulators: 6 ~~Poseidon Cyclon 5000s~~ – Taken out of service
2 Zeagle 50D/w ZX second
3 Zeagle Flathead 7
3 Genesis GS 2000
Computers: 2 Suunto Cobra
5 Suunto Gekos
AGAs: 7 /w silicone skirts – 4 with comms
OTS Wireless communications for 5 FFM and 1 surface unit
4 OTS Guardian FFM w/OTS Wireless Comms
Gates Dry Suits w/attached Superlight neck yoke: 1
Viking Dry Suit w/attached Superlight neck yoke: 1
Viking Dry Suits w/ latex hoods: 13
Whites HazMat Dry Suits: 2
Olympus TG-3 14 MP digital camera w/Olympus U/W housing and strobe
Olympus 8080, 8 MP digital camera w/Olympus U/W housing
GoPro Hero 4 Black w/UW strobes
2 Dacor dive scooters
Parker 25' and 28' Pilot House Boats for dive ops.

Took our Poseidon Regulators out of service this year, due to increasing difficulty in servicing and their higher intermediate pressure setting which causes standard intermediate pressure octopuses and Air IIs to free flow.

F. REVIEW OF DIVING PERSONNEL

There are a total of 5 divers on the EPA Region 4 Athens Dive Team of which 4 are active. The dive team currently has 3 divemasters.

NAME	AGE	SEX	CERTIFICATION LEVEL
Pete Kalla	61	M	Divemaster (Inactive)
Jon McMahan	34	M	Scientific Diver
Mel Parsons	58	M	UDO/Divemaster
John Ruiz	51	M	Scientific Diver
Greg White	30	M	Divemaster

Changes in personnel

Pete Kalla had knee and hip replacement surgery last year and has been inactive since.

John Ruiz went through Dive Master training May, 2016.

G. TIME SPENT OF THE NATIONAL DIVE PROGRAM

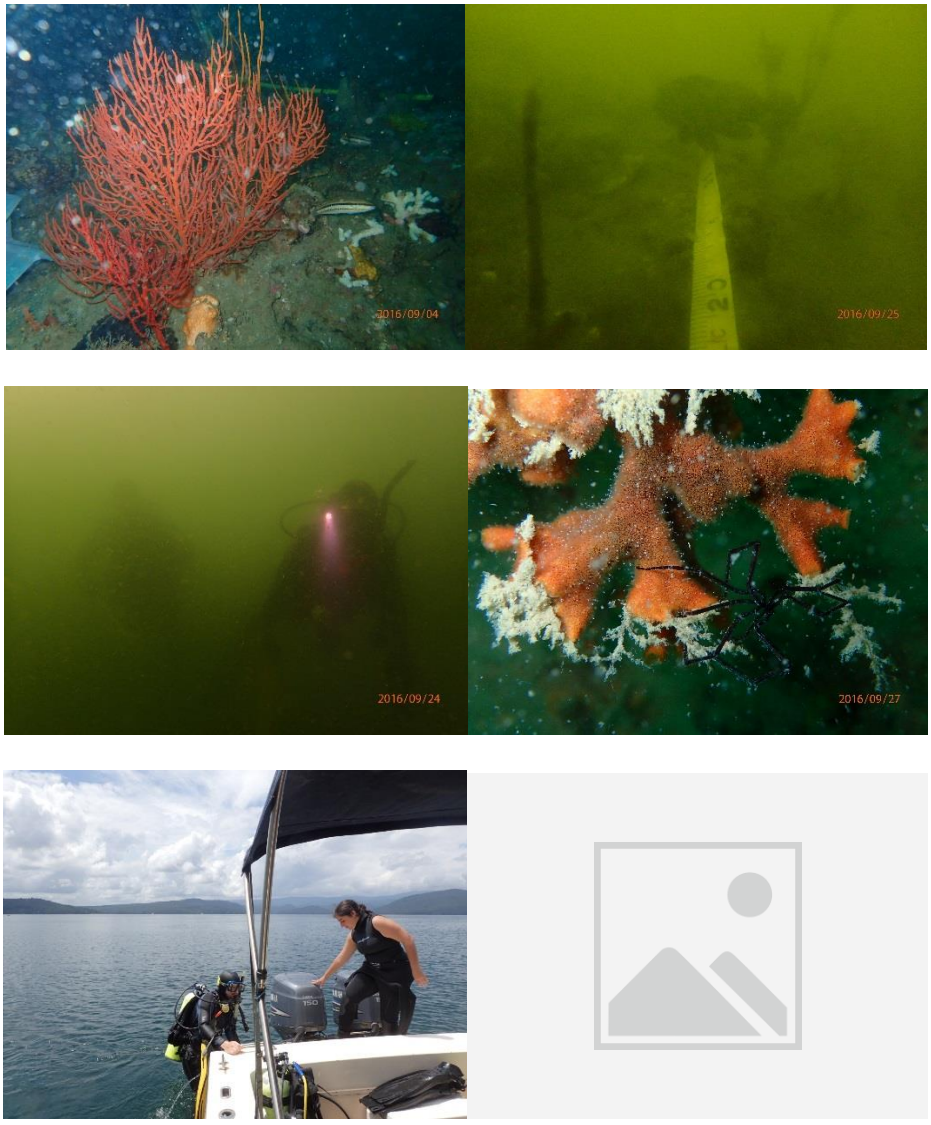
ACTIVITY (describe)	TIME
Assistance with Diver Training Course	10 days
Review of Documents (EPA Dive Manual v1.2)	2
Performing Action Items	1
Preparation for and Attendance of DSB Meeting	2
Technical Assistance to Other Units	0
Equipment Servicing	$4400.00
Equipment Purchases (MTV-100 Valves)	$2250.00
Other	0

COST OF TRAVEL SPENT ON NATIONAL PROGRAM
(list by trip)

Attend Diver Training/Diving Safety Board Meeting/GED Training	$ 3364.00

ANNUAL REPORT
OF
DIVE TRAINING AND OPERATIONS

U.S. EPA
Atlanta Region 4
Dive Unit



10/01/2015 through 09/30/2016

Submitted by

Tara Levine Houda, Unit Dive Officer

A. Diving Activities

1. *Scientific* – One two-leg project used dive operations this year; the overall operations were managed by NOAA. The project was related to habitat assessment associated with the Fernandina ODMDS, FL, conducted aboard the *NOAA Nancy Foster* (17 days). Data was collected to characterize seafloor habitats and fish biomass hotspots, including rugosity, line point intercept, invertebrate demographics, live bottom demographics, and fish counts. The low visibility severely limited fish counts on the second survey leg.

   Proficiency – Three divers are involved with the Georgia Aquarium and conducts a number of dives to help with aquarium maintenance on a monthly basis. Beyond that, training dives were held in part for proficiency, but also to ensure adequate skills were sharp prior to the Science operations aboard the *NOAA Nancy Foster.*

   Training – In April, a pool dive day and a lake dive day were held for diver training candidates. On these dates other members of the unit were able to conduct proficiency dives and complete diver fitness testing. Two new members of the unit (Weiss and Lehmann) attended EPA's Scientific Diver Training in May. Tara Houda received intro-to-rebreather training at GED in May 2016 during EPA diver training. The Unit also supported the training by assisting with surface supply training, as well as other logistical support. An August lake dive was held to train new unit members and for proficiency for an existing member. Tara Houda has completed the NAUI Divemaster prerequisite course for DAN Oxygen Administration Instructor Training. At least three members of the unit participated in HAZWOPER refresher courses.

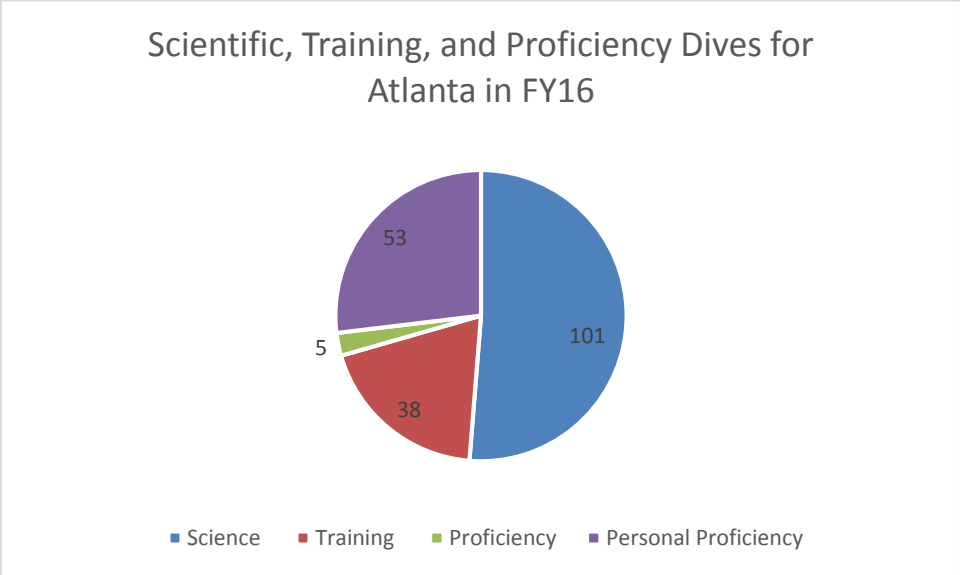
2. **Lake Jocassee, SC** – Divers from the Atlanta and Athens Units dove off of an SESD vessel for training/proficiency dives.
   Lake Hartwell, GA – USACE cove facility used for training/proficiency dives.
   Sabine Island, FL – GED diver training course
   Athens, GA – UGA pool facility used for checkout dives and training.
   Offshore Florida – Habitat Assessment worked jointly with the Athens Dive Unit and NOAA divers.

3. Dive Statistics:

Number of Dives		Number of Exposure Days	
Science:	101	Science:	49

Training:	38	Training:	19
Proficiency:	5	Proficiency:	3
Totals	144		71

Additionally, 53 personal proficiency (off-duty) dives were conducted.



B. Diving Accidents, Injuries, or Incidences

One incident report was completed due to a hose parting failure at the Scientific Diver Course. This was reported to the manufacturer, applicable SHEMs, and the DSB.

C. Dive Training

1. Three dive days were used this past year to re-qualify two divers, allowed one others to maintain proficiency, and provide training to five divers in support of an upcoming ocean project.

2. At this time, we have no new candidates. One individual has expressed interest in passing. Another individual from the RCRA Division has decided not seek supervisor approval. We have had quite a bit of interest in the concept of advanced dive ops training, but this is variable depending upon what the details of such training would be.

D. Dive Equipment

We made a couple of purchases of new equipment this past year. This gear was obtained to supply new divers and to re-equip current divers. Two dive computers (1 Oceanic Veo 200 and 1 Suunto Zoop) have failed this year and replacements will need to be purchased

in FY17. Purchases related to updating an O_2 kit from the *OSV Bold* will likely be needed in FY17. Several wetsuits are starting to wear out and will need replacing. The Unit is considering upgrading rubber hoses to braided hoses.

1) Small gear to equip 2 new scientific divers was purchased (ex: wet suits, vests, fins, masks, snorkels, gloves, hooded vests, dive lights, dive knives, gear bags, whistles, booties, weights, weight belts, watches, DIN adaptors)
2) Miscellaneous assorted gear has been purchased for existing divers (ex: dive light, dive knife, dry box)
3) One drysuit was altered to fit 3 of our divers. The neck seal was repaired and 2 holes patched. Previously 3 similarly sized divers had to rely on only one drysuit.

Regulators: **11** Atomic Z2 regulators (1st and 2nd stages) w/ Sea Elite octo.

*BC's***: 6** – Sea Elite Profile Hybrid; **1** - Mares Dragonfly; **1** – Sea Elite (no model available); **2** – Zeagle Ranger; **1** SeaQuest Black Diamond; **1** – Dacor Falcon.

Computers: **6** Suunto Gekko & **1** Suunto Zoop dive computers

Drysuit(s): **1** Viking modified to fit smaller female divers

*U/w video system***:** Sony TRV900 w/ Amphibico Navigator900 housing and light package. **May be surplussed.**

*U/w digital camera***:** Housing for Canon PowerShot A80 (camera damaged). GoPro Hero 4 Black Adventure Video Camera with GoBe700 dual Lights package. Olympus TG-3 U/W camera with PT-056 housing and Sea&Sea YS-03 U/W strobe.

*MiniOx I Oxygen Analyzer***:** updated sensors with backup sensor

2 OTS DRS-100B: diver recall system

Marine Trauma Kit (Practical Trauma)

AED

Oxygen Kit: not in use; possibly in need of service

E. Review of Unit Diving Personnel

We have had several changes in Dive Unit personnel, and presently have not had any inquiries from other personnel.

Diver Name	Age	Sex	Certification Level
Tara Houda	32	Female	Divemaster, AUDO
Chris McArthur	47	Male	Divemaster
Rosemary Hall	40	Female	Divemaster
Wade Lehmann	43	Male	Scientific Diver
Lena Weiss	25	Female	Scientific Diver

F. Time Spent on the National Dive Program

1. Time Expenditures

ACTIVITY	TIME
Assistance with Diver Training Course	50
Review of Documents	
Dive Plans	2
Dive Reports	6
Manual review/updating	2
Performing Action Items	
Action Item Follow-through	36
Preparation for and Attendance at Meetings (UDO)	
Annual Reports	8
Meeting participation	40
Technical Assistance to Other Units	0

2. Fiscal Expenditures

Cost of Travel Spent on National Program during FY16

Travel to Training Course	$2,175
Combined 2016 DSB Meeting and Course	$2,068
New Gear	$1,981
Gear Maintenance	$1,287
Total	$7,511

Atlanta Unit divers Rosemary Hall, Tara Houda, Chris McArthur, Lena Weiss and Wade Lehmann pictured on the *NOAA Nancy Foster* with 3 divers from the Athens Unit, 3 NOAA divers and 1 UNC - Wilmington diver.

ORD GULF ECOLOGY DIVISON DIVE UNIT

ANNUAL REPORT OF UNIT DIVE TRAINING AND OPERATIONS 2016

Diving Unit: ORD/GED, Gulf Breeze, FL Time Period: 10/8/15-11/03/16
Mel Parsons, Acting UDO

As everyone is aware, it has been a difficult year of transition at GED with the loss of our friend and GED UDO, Jed Campbell. GED management has expressed a strong interest in keeping the dive unit intact and functional. To this end, they have agreed to allow Cheryl Hankins to be trained to take over UDO activities at GED. Also management at GED has reactivated two divers that have previously attended the EPA Scientific Dive Course, but been inactive as divers.

A. DIVING ACTIVITIES

Due to the collapse in funding for the coral assessment technique development, the Gulf Ecology Division (GED) diving has dropped significantly from previous years. Diving activity at GED is similar to 2015. GED only had one field project this year – working with NOAA on the National Coral Reef Monitoring Program in the Florida Keys. The project generated 42 of GED's 64 total dives for the year. The remainder of GED's dives were deep offshore training dives and proficiency dives to maintain the lab's seawater intake screens.

GED hosted the National Diver Training Course in May, 2016. Those dives are listed in this report but treated separately from GED dives.

2. Description/type of diving operations

c. National Coral Reef Monitoring Program (NCRMP – 42 Dives, 15 Exposure Days:

Conducted fish counts and habitat assessments at selected locations in the middle to lower Keys, FL. The project consisted of assisting NOAA with their annual coral reef monitoring program. This was a NOAA planned and operated mission, therefore all diving was conducted off NOAA small boats and all diving was conducted under NOAA guidelines and overseen by a NOAA divemaster.

d. Offshore Training Dives – 14 Dives, 9 Exposure Days:

Due the lack of available opportunity to stay proficient in the offshore environment for the past couple of years, a series of offshore dives was planned for the purpose of keeping the dive team members proficient in the planning, managing and execution of safe offshore dives in deep water (Approx. 100'). All but one of the GED divers was able to participate. The dives were conducted in April and June, 2016.

Cheryl at the wheel

Peggy preparing for a dive

The GED Dive Team

e. National Diver Training Course – 156 Dives, 73 Exposure Days

The National EPA Diver Training Course was held May 2-5, 2016 at GED. Seventeen divers and four Dive Master Candidates attended the course and graduated as EPA Scientific Divers and Dive Masters. These dives are not included as GED dives.

2. Location of diving operations/water body

Florida – Pensacola offshore as well as Santa Rosa Sound and the Florida Keys.

3. Dive Statistics

Number of Dives		Number of Exposure Days	
Work:	42	Work:	15
Training:	14	Training:	9
Proficiency:	8	Proficiency:	8
	64		32

C. DIVING ACCIDENTS

No accidents this year.

C. DIVING SAFETY AUDIT

No findings on the self-assessment audit this year

D. DIVE TRAINING

Cheryl Hankins, Alternate UDO at GED, attended the FY16 EPA Diver Master Training and is training to move into the role as UDO.

E. DIVING EQUIPMENT

All dive equipment was serviced and passed inspection.

Tanks: 15 – 100 ft^3, 19 - 80 ft^3, 8 - 63 ft^3, 7 - 19 ft^3, 4 -13 ft^3, 7 - 3 ft^3
1 KM Superlight 27 w/tri valve exhaust w/wireless and hardwire comms
2 KM single diver dive control console w/150' umbilicals
Regulators: 9 Scuba Pro MK25/A700 Regulators
Computers: 6 Suunto Gekos
AGAs: 7 /w silicone skirts
OTS Buddy Phone Wireless communications
Viking Dry Suits w/ latex hoods: 13
Parker 23' and 25' Pilot House Boats for dive ops.

F. REVIEW OF DIVING PERSONNEL

There are a total of 7 divers on the EPA GED Dive Team. The dive team currently has 4 divemasters.

NAME	AGE	SEX	CERTIFICATION LEVEL
David Beddick	37	M	Scientific Diver
Bill Fisher	67	M	Scientific Diver
Cheryl Hankins	37	F	Alternate UDO
Peggy Harris	51	F	Divemaster
Janet Nestlerode	47	F	Scientific Diver
Mel Parsons	58	M	Acting UDO
Debbie Santavy	59	F	Divemaster
Sherry Wilkinson	55	F	Divemaster

Changes in personnel

Becky Hemmer retired from EPA in July of this year. Janet Nestlerode and David Beddick have been reactivated as divers by GED Management. Both have successfully completed the EPA Scientific Diver Training, but have been inactive on the dive team.

G. TIME SPENT ON THE NATIONAL DIVE PROGRAM

ACTIVITY (describe)	TIME
Assistance with Diver Training Course	10 days
Review of Documents (EPA Dive Manual v1.2)	2
Performing Action Items	1
Preparation for and Attendance of DSB Meeting	2
Technical Assistance to Other Units	0
Equipment Servicing	$4500.00
Equipment Purchases (Suunto Computers and compasses)	$3500.00
Other	0

COST OF TRAVEL SPENT ON NATIONAL PROGRAM
(list by trip)

Attend Diver Training/Diving Safety Board Meeting/GED Training	$0.00


PRO-LINE
2015/04/08

ANNUAL REPORT OF DIVE TRAINING AND OPERATIONS FOR FY16

Diving Unit: EPA Region 6 (Dallas Office and Houston Laboratory combined)

Brandi Todd – Unit Dive Officer

A. Diving Activities

Diving Operations and Locations

The Region 6 Dive Team continued to develop its capabilities to serve the region; especially in the area of contaminated water diving. The Region 6 Dive Team supported 1 experienced diver to complete Dive Master certification training in order to help ensure sustainability of the team.

Still developing expertise for contaminated water diving, Region 6 worked closely with Alan Humphrey, UDO of the ERT Dive Unit in New Jersey and Chair of the Dive Safety Board. Alan assisted in planning and execution of operations at the San Jacinto Waste Pits Superfund site. That investigation relied on directing divers in extremely low visibility to assess the physical integrity of an underwater cap over contaminated sediment and to install and subsequently retrieve passive sediment sampling devices to determine potential migration of dioxin.

The Region 6 Dive Team began preparations for the Lake Texoma regional emergency response exercise to be held October 25-28, 2017. This is the first time the team has participated in a regional exercise.

The Unit Dive Officer and dive team members continue to explore areas within regional programs where divers can enhance program effectiveness.

With the expectation of ongoing work, the Region 6 Science Dive team has been able to maintain management support and very modest funding levels for equipment purchases and maintenance.

FY 16 Region 6 Dive Team Activities		
10/19 – 10/23/15	Dive Safety Board Meeting	Annapolis, MD
12/8 – 12/10/15	San Jacinto Cap Inspection	Houston, TX
4/3 – 4/9/16	San Jacinto Cap Inspection	Houston, TX
4/27 – 4/30/16	Dive Safety Board Meeting	Gulf Breeze, FL
5/2 – 5/6/16	EPA Diver Training	Gulf Breeze, FL
5/10/16	Proficiency & Training	Carrollton, TX
5/15 – 5/19/16	San Jacinto Inspection & Sampler install	Houston, TX
7/18 – 7/23/16	San Jacinto Sampler retrieval	Houston, TX
9/13/16	Lake Texoma Exercise Recon	Eisenhower State Park, TX
FY 17 Anticipated		
10/25 – 10/28/16	Lake Texoma Exercise	Eisenhower State Park, TX

Dive Statistics

Dive Type	Number of Dives	Number of
Science	63	**56** (4 divers x 14 days)
Training	16	**15** (3 divers x 5 days)
Proficiency	5	**3** (3 divers x 1 day)
Total	**84**	**74 Diver Days**

EPA Divers at San Jacinto Waste Pits
Houston, TX

B. Diving Accidents, Injuries, or Incidents

No accidents, injuries or other incidents to report during FY15 from Region 6.

C. Dive Training

Three divers participated in EPA Science Diver training this year. Gannon attended Dive Master training. Todd attended the Dive Safety Board Meeting and assisted operations of the Science Diver Training. Howard attended Advanced Operations training, including an introduction to Dive Rite rebreathers, oxygen administration, and assistance with Science Diver Training operations.

D. Dive Equipment

All dive team regulators, depth gauges, tanks, BCs and masks underwent annual inspection and service.

The Region 4 UDO, Mel Parsons, loaned a Viking drysuit to the Region 6 team and the Region 10 UDO, Sean Sheldrake, provided the Region 6 team with a surface supplied air device.

At this point, the Region 6 Dive Team is equipped to perform either contaminated or uncontaminated water diving with respect to drysuits, full face masks (Guardians), Hollis or Aqua Lung BC's amenable to decontamination, and tethered diving on communication lines. The Region is currently investigating obtaining the additional equipment necessary to support operations using surface supplied air.

E. Review of Unit Diving Personnel

Brandi Todd (F) – Unit Diver Officer and Dive Master. Completed Divemaster training - 100 working dives mark reached. Nominated as Alternate Unit Dive Officer.

Nick Gannon – (M) Science Diver (located in Houston). Completed Divemaster training and 100 working dives mark reached. Will be nominated as Alternate Unit Dive Officer during FY 17.

Valmichael Leos (M) – Science Diver.

Ashley Howard (F) – Science Diver and certified Emergency Medical Technician. John

Penland (M) – Science Diver.

Currently Inactive Divers

Leonard Schilling (M) – Science Diver (has voluntarily suspended dive team membership due to increased obligations at work and home).

Retired Divers

Bill Luthans (M) – Former Unit Dive Officer and Dive Master.

F. Time Spent on the National Dive Program

Todd attended the Dive Safety Board meeting Oct 19-23 2015 in Annapolis and April 27-30 2016 on Sabine Island. Todd and Howard assisted full time with FY15 Science Diver Training on Sabine Island May 2-6 2016.

ANNUAL REPORT OF UNIT DIVE TRAINING AND OPERATIONS

Diving Unit: EPA Region 10 **Time Period:** FY 2016

DIVING ACTIVITIES

1. Describe each type of diving operation.

During FY16 the Region 10 unit had 7 scientific work diving events, some of which were full week operations. There were also 3 formal training events to practice critical rescue and scientific data collection techniques. Of the 7 work events 4 were deployments in support of Superfund. Three projects were related to natural resource, water, or habitat quality issues. Zero of these work projects this year involved use of free swimming SCUBA, 2 were via tethered SCUBA, and 6 were surface supplied. Training was conducted to maintain proficiency with all diving modes, rescue, sampling, and underwater photography. Region 10 had 57 work dives and 32 training dives. Overall, Region 10 had a total of 177 dives (including requalification and off-duty dives). During FY2016, Region 10 (R10) had the following work projects:

1. Duwamish Superfund Site Sampling. Divers supported the Superfund program by using their scientific sample collection expertise in deploying passive samplers on the river bottom in this estuarine area to evaluate bioavailabilty of PCBs in the area in a study led by principle investigators at MIT. EPA divers provided sediment core collection, as well as, invaluable QA/QC formulation for the project QAPP to ensure the data was of high quality in making cleanup decisions — two separate dive operations for deployment (June 2016) and retrieval (July 2016). Attempts were also made to support data collection that assists the Superfund program in a USGS gauge recovery. Unfortunately, the gauge could not be recovered due to extensive sediment overtop of it. Possible pollutant exposure: PCBs, PAHs managed by full diver encapsulation and potable water decon.

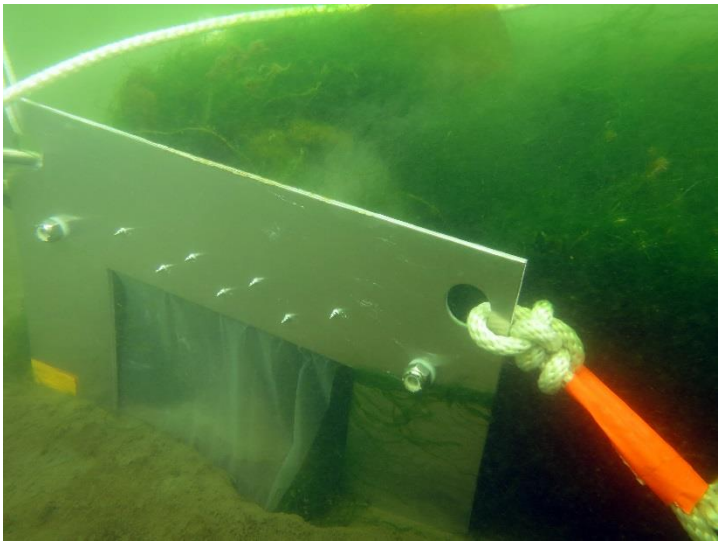


Photo: Passive sampler on the bottom of the Duwamish

2. McCormick and Baxter Superfund Site Five Year Review Sampling. Region 10 divers worked with the Environmental Response Team (Jon McBurney) on retrieval of passive samplers on a superfund site on the Willamette River in October of 2015. As with previous deployments, the passive samplers will give an accurate picture of whether the cleanup cap is working by directly measuring porewater concentrations of contaminants of interest. ERT and R10 expertise in this area continues to be in high demand in writing guidance and developing site specific quality assurance plans. Contaminant exposure might include PAHs.

Photo: A Region 10 diver crosses a shallow reef to collect a sample in deep water to evaluate the effectiveness of the Superfund cleanup at M&B.

3. Joint ORD/R10 deployments and retrieval of ocean acidification data. Region 10 divers assisted the Western Ecology Division in obtaining key data in studying ocean acidification in support of a RARE grant. More details: Interactions of physical, chemical, and biological processes in the coastal zone can result in a highly variable biogeochemical regime, complicating our understanding of ocean acidification in nearshore areas. Recently, the interactions between the processes of ocean acidification and eutrophication in the coastal zone have gained interested from multiples stakeholders, including policy makers, managers, local industries, Tribes, and citizens. At this point, scientific observations and understanding of how these processes interact to control the chemical environment experienced by nearshore organisms and habitats is lacking. Therefore, this study seeks to investigate the role of cultural eutrophication from fertilizer and wastewater nutrient sources in amplifying coastal acidification in shallow, subtidal seagrass beds of Puget Sound. We utilize state of the art instrumentation for continuous high-frequency monitoring of pH, pCO_2, NO_3, and O_2 in these habitats. Additionally, grab samples of nutrients (NO_3, NH_4) for isotopic analysis in order to discriminate between anthropogenic (e.g., agricultural, waste water) and natural (e.g., upwelled ocean waters) nutrient sources. Knowledge of sources of nutrients will be used in conjunction with the time series data in order to estimate the variability in pH and other carbonate

chemistry parameters (e.g., aragonite saturation state) that is attributable to natural and eutrophication-enhanced biological activity.
This also resulted in a joint video project with R3 on the topic.

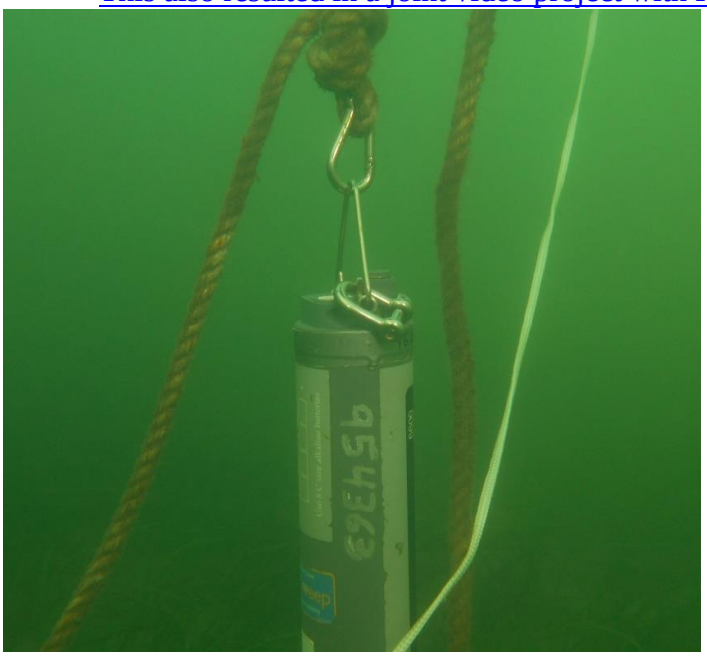


Figure: Hydrolab being placed on the seafloor in north Puget Sound.

4. Upper Columbia River Mussel Sampling

   Region 10 divers supported the collection of mussels from areas above the Grand Coulee dam to the Canadian border to support Superfund evaluation of contaminant impacts to the river from the smelter in Trail, BC. Altitude dive planning was required to execute the dives and return safety to hotels and over mountain passes for the return journey home. These dives also involved critical coordination with USFWS and two tribes to ensure proper data collection techniques for data integrity and to avoid disturbance of cultural resources.

Figure: the mussels staged in river water awaiting sample processing.

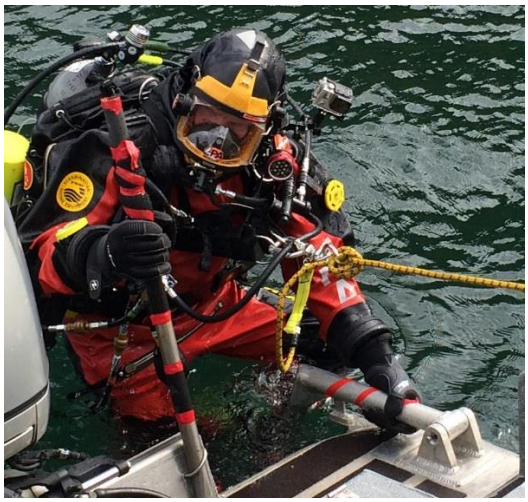


Figure: Alternate UDO and project divemaster Rob Pedersen returns to the vessel, on tethered scuba.

For more EPA scientific diving project information, see:
https://www.epa.gov/scientific-diving and
www.facebook.com/EPADivers

Training projects included (no pollutant exposure expected):

1. Region 10 will send one diver to the USC Wrigley campus for rescue training in October 2017 (Leefers) (2016 class was cancelled due to lack of attendees).
2. Rescue training at the Manchester Lab campus- December 2015
3. Rescue training at the Manchester Lab campus- February 2016
4. Rescue training at the Manchester Lab campus- March 2016 (all MEL on surface supply)
5. Rescue training and bi-annual conclusion of required diver fitness testing at the Underwater Sports Pool- May 2016

Also, a customized DAN advanced CPR and AED training was provided to the team by in house instructor Chad Schulze, saving cost and travel. Also, the whole unit participated in HAZWOPER refreshers due to the polluted water nature of the majority of R10 diving support.

Projects deferred to others or cancelled.

The dive unit remains in high demand to conduct scientific surveys and provide HASP review for contracted scientific diving operations. 2016 updates: Duwamish sampling oversight work of surface based Van Veen and vibracore sampling was deferred to the ROV group for safety reasons. Also, a habitat survey request from Joint Basis Lewis McCord (DOD) was deferred to others. A joint project with WDOE for estuary sampling was deferred to 2017. An Alaska OCE project was cancelled due to lack of sufficient contracted vessel funds to make it a safe operation. NPDES inspections on enhancement net pens was deferred to 2017. Elwha River habitat work was cancelled due to lack of staff time. An Ecology request to retrieve a data

gathering instrument (Van Veen) was deferred to ROV collection (see photo from ROV recovery).

Figure: State of Washington owned Van Veen recovered by ROV instead of divers.

2. Location of diving operations (list each state and type of water body).

Scientific work and training dives were conducted in inshore areas of Washington and Oregon including estuarine river systems such as the Duwamish and Willamette. Dive operations also occurred on the Upper Columbia River near the Canadian border.

3. Dive Statistics. .

Number of Dives	
Work	57
Training	32
Other (off-duty & proficiency)	88
Total	**177**

Number of Diving (exposure) Days	(=sum divers/days)
Work	42
Training	34
Other	1 (Non diving (hyperbaric exposure training in chambers/Tending Assist/Non diving DM/+ OD = Off Duty)
Total	**78**

DIVING ACCIDENTS, INJURIES, OR INCIDENTS

1. Description of all accidents, injuries, and incidents (use separate page if necessary and include copies of applicable forms, e.g., EPA Form 1440-9, CA-1, or CA-2).
No injuries reported. All Region 10 divers receive training during annual HAZWOPER refreshers which covers reporting processes, including form CA-1, or worker's compensation claims.

Two out of air incidents occurred this year due to: 1) shutoff of a surface supplied diver's breathing supply; and 2) a tethered diver ran out of air from what should have been the primary air supply (the dive shop incorrectly assembled the Kirby Morgan block hose connections during overhaul). In both incidents, the divers switched to their secondary air source as trained. Corrective actions were taken: 1) (lock out tagout) on surface supply control box to prevent this from happening in the future; and 2) Correcting the Emergency Gas Supply (EGS/K-M) manifold block hose connections on site and notifying the dive shop of the incident.

DIVE TRAINING

1. Describe the type of training conducted/received, and list the name, office and level of certification for each trainee (use separate page if necessary).

Approximately $7000 was spent on dive training with FY 16 funds from the dive budget and from OMP (general regional safety training-remote duty first aid).

Divers are current for basic first aid, CPR, AED, Oxygen Administration, neuro examinations, and the annual 8-hour Hazwoper refresher. Most training was sponsored by our Dive unit and field operations. ($300)

Two day remote duty first aid training will take place this fall for boat captains and divers

($3000)

Two trainees will be sent to NOAA dive training this fall or spring ($1300 of $2600 tuition paid at this time).

Full face mask technician training will be offered this fall to enhance safety of dive operations, and reduce costs of maintenance ($1000)

ERT and R10 both attended and presented at AAUS in 2016 (passive sampling at Superfund sites) to learn a great deal from interacting with DSOs at universities as well as government institutions. ($870 plus travel)

One diver will be sent to rescue training on Catalina Island. This diver will sponsor a local rescue training dive in December and February to transfer their knowledge to the rest of the unit, developing more efficient rescue techniques, including the "backboard slide." ($825 plus travel.)

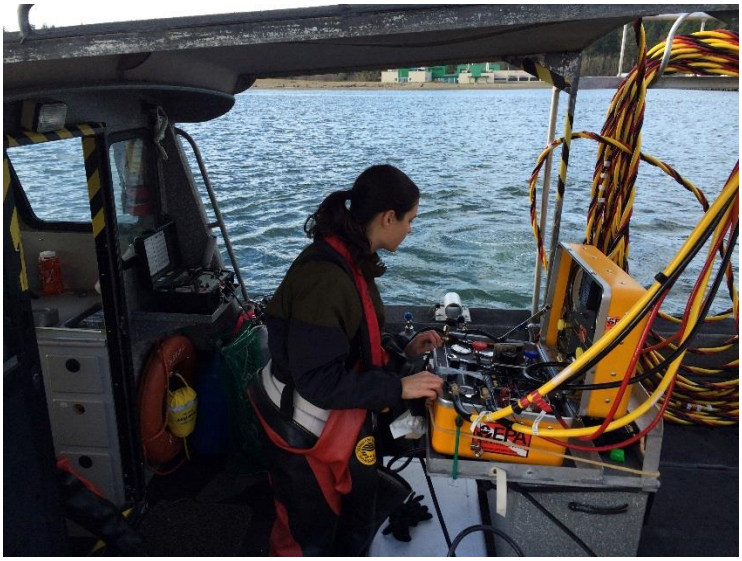


Photo: At December Manchester surface supplied dive training, critical operational procedures were reviewed, as well as surface diver rescue being practiced.

2. List any training needed.

In 2017, the usual refreshers for first aid, CPR/AED, oxygen administration/neuro examinations, and 8-hour health and safety are required annually (or biannually) for some first aid courses.

Hazwoper 40 hour training is planned for any new divers in 2017.

Region 10 will be renewing our 2 day wilderness first aid in November 2016 with NOLS and sending one diver to rescue training at USC Wrigley in October 2017.

In late 2016, R10 will sponsor a full face mask overhaul technician class at the regional office to save funds on overhaul and increase safety by allowing for divers to perform full tear down field repairs of the equipment as needed.

Region 10 will seek to continue its presence at AAUS conferences to benefit the dive community with EPA dive program knowledge, as well as learn from others in matters of both scientific method and safety.

For additional details on R10 Dive Training, see:
https://www.epa.gov/diving/diver-training

For additional details on R10 Dive Publications, see:
https://www.epa.gov/diving/diving-publications

DIVE EQUIPMENT

Region 10's budget remained constant in 2016 with a service budget of approximately $8,000 and $17,000 for equipment (plus two diver exposure suits purchased with field services funds). This year, capital equipment purchases were unfortunately unable to purchase any additional equipment improvements for safety and productivity. Major items are noted below:

1. All divers without spare Viking suits again had new suits purchased for them this year (other than trainees); 4 total were purchased. Due to the 3 months it is taking Viking to make new suits, a suit failure can take a diver out of the rotation for too long without a spare suit. Leakage is unacceptable for most R10 dive operations due to contamination, or cold stress. Due to the contamination and frequent use of R10 suits, many are only lasting five years before catastrophic failure (patch glue fails to adhere at this point). All suits are now being labeled with "EPA" for easy ID of gear as government owned/issued and for easy ID of divers in photos sent to various publications. In 2016, we began switching over to aqualung (formerly whites) hazmat suits due to the faster fabrication, custom fitting, lighter weight, greater flexibility, and ability to field swap out ripped wrist or neck seals (as demonstrated by ERT)*.
2. One additional still camera and lighting system was purchased. $800
3. 4 new Viking Superlite 17 mating suits were completely assembled to share with ERT. R10 will put on a training dive in Seattle and overhaul ERT S17's in FY17 to maintain a high state of preparedness for medium to high level contaminated water diving.
4. Continued customization of the Dive Operations Center (DOC) which opened in 2014 continues with minor fixes. A UPS truck driver destroyed the HVAC unit, which led to a discovery of missed shakedown issues and an extensive two week repair. Cabinet upgrades were made to allow shelves to stay open and avoid head

injuries.

*Many purchases above required a "brand justification" to allow the purchase of a specific brand to be compatible with polluted water, technician training already purchased, and/or spare parts already in inventory which R10 would be happy to share with any other dive unit to ease the contracting process for new equipment.

In service:

1. 2 suits per diver (current or pending manufacture).
2. 1 surface supplied diving control box, 2 200 foot umbilicals, 2 300 foot umbilicals; 70 cf faber steel EGS bottles in service, 2 50 CF EGS bottles (tagged out).
3. Tethered SCUBA (4 sets) plus 4 200 foot tethers, 4 300 foot tethers, 2 complete surface tending MK7 units
4. 5 still camera rigs (one assigned to Anne Christopher at OOO).
5. 4 gopro assemblies
6. 1 bluefin camera housing and lighting for canon HD video camera that allows narration underwater
7. 7 in service AGAs
8. 2 BCDs per diver (for contaminated water diving and off duty proficiency diving flexibility)
9. 4 S17k suits (shared with ERT); 1 S17k helmet (ERT) for upcoming training dive.
10. 2 complete first aid/AED/o2 kits (one in Seattle, one at the Manchester Lab); 2 E tanks aboard Monitor, 2 spare D tanks at DOC.
11. 2 backboards assigned to Monitor and Wooldive
12. 2 DRS 100B OTS diver recall units, one located in DOC; one Manchester Lab
13. 4 nitrox analyzers (1 in DOC, 1 in the dive van, 1 on Monitor, 1 at the Lab)
14. 40 steel 120 nitrox tanks; 2 AL 80 in service for testing(1) and rescue tank for a trapped diver (2); 6 AL 80s tagged out.
15. 2 reserve air supply systems for NOAA training
16. 1 carbon monoxide detector for air quality testing at remote locations
17. 2 13 CF, 2 19 CF, 4 30 CF EGS bottles
18. 4 OTS wireless units currently tagged out (they aren't sufficiently clear and would require swapping out AGA full face mask hotmikes, which are not backwardly compatible with these 2008 units).

REVIEW OF DIVING PERSONNEL

Name	Certification Level
Sean Sheldrake	Regional Diving Officer, Divemaster
Chad Schulze	Divemaster, UDO Alternate
Rob Pedersen	Divemaster, UDO Alternate
Lisa Macchio	Divemaster
Rob Rau	Divemaster

Adam Baron	Scientific Diver
Anne Christopher	Scientific Diver (Portland, OR based)
Brent Richmond	Scientific Diver (Lab/Kitsap Peninsula based)
Kristin Leefers	Scientific Diver
Ian Ainoa	Trainee
Anya Savrasov	Trainee

R10's operations are still somewhat limited by lack of available trainees (even though trainees from recent regional hiring are going through training now, it will take some time for them to be ready for working scientific dives, and several retirements could be imminent for more senior divers), though training, equipment, and service funding is available to support up to 12 divers. Requests continue for ERT dive unit support to ensure full support of R10 programs, especially for multi-week operations. Therefore, recruitment of new trainees should remain a high priority to maintain a regional dive unit capable of meeting the highest priority program needs.

For more information:
https://www.epa.gov/scientific-diving
https://archive.epa.gov/region10/diving/web/html/

TIME SPENT ON THE NATIONAL DIVE PROGRAM

ACTIVITY (identify and describe)	TIME (hours)
Assistance with the EPA Diver Training Course (1), including providing the lead instructor the divemaster class(lesson prep: 20, class time 40	60
Outreach on behalf of EPA dive program (Facebook, "It's all about Science" blogs, design of new OneEPA dive program web page, Flickr	75
Lead in production of National Dive Safety Manual, released in 2016	40
Performing Action Items (Meeting Minutes/review and comment on DSM revisions, equipment recalls	50
Technical assistance to other units, Regions, other state & federal agencies (e.g., NOAA CWD support, WADNR dive safety conference in March 2014)	30
Other activities:	
-Preparation for and dive team meetings	20

-All team members that participated in various public outreach, education events, including two earth day events for 350+ children. 20

-Preparation for training events 30

-Development of polluted water protocols & SOPs, sampling techniques 25

Figure: Screen shot of the EPA Divers Facebook page

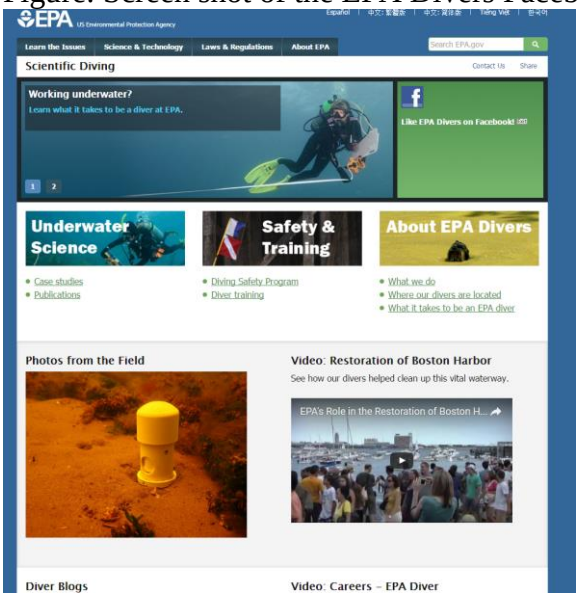


Figure: 2016 rollout of the new national dive program page, maintained by R10

COST OF TRAVEL FOR NATIONAL PROGRAM	COST
List by trip: 16) 1X for GED/ DSB & Dive training	$2000 (for trip in FY


OVER 45 YEARS
OF DIVING FOR SCIENCE


EPA
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ANNUAL REPORT OF DIVE TRAINING AND OPERATIONS

Diving Unit: **Western Ecology Division** Time Period: **Oct. 2015 – Sept. 2016**
ORD/NHEERL

A. DIVING ACTIVITIES

1. Dive activities during FY 2016 consisted of working, training and proficiency dives. Working dives included dock piling maintenance (cleaning), inspection of a multi-parameter water quality instrument deployment housing, and water quality instrument package retrieval.

   One diver is involved with the Oregon Coast Aquarium and conducts a number of dives to help with aquarium maintenance on a monthly basis.

   Due to additional work duties, one diver (Ted DeWitt) has stepped away from the WED dive program.

2. Location of work dive operations: GED, Sabine Island, FL; Yaquina Bay, Newport, OR; Hat Island, Puget Sound, WA.

3. WED divers continue to have difficulty maintaining proficiency by diving at bimonthly intervals, and overall the need to dive has lessened over the last few years due to a shift in projects. Management still supports diving operations at the division and divers are requalified as needed.

4. Dive Statistics:

Type of Dive	Number of Dives	Number of Exposure Days
Working	8	3
Proficiency	33	15
Training	5	2
Total	**46**	**20**

5. Dive Audit:

   Self-audit completed for FY16

   (External audit - completed in July 2011.)

B. DIVING ACCIDENTS, INJURIES, OR INCIDENTS

None

C. DIVE TRAINING

Mochon Collura received intro-to-rebreather training at GED in May 2016 during EPA diver training.

Several divers were 're-qualified' by Mochon Collura following extended absences from diving.

D. DIVE EQUIPMENT/MAINTENANCE

Date	Diver	Item	Cost
21-Jan-16	Team	Cylinder VIS (8)	$120.00
21-Jan-16	Team	Cylinder hydro (6)	$120.00
21-Jan-16	Team	Reg. and BC annual insp.	$180.00
19-Feb-16	Team	AED battery	$140.64
29-Apr-16	Reichman	Dry suit neck seal	$60.00
15-June-16	Team	AED pads	$86.59
		Total	$707.23

E. REVIEW OF DIVER PERSONNEL

Diver	Certification	Sex	Status
T Chris Mochon Collura	Divemaster, UDO	Male	Qualified
Mark Johnson	Divemaster, Alt. UDO	Male	Qualified
Chris Andersen	Divemaster	Male	Qualified
Jim Kaldy	Scientific Diver	Male	Qualified
Jay Reichman	Divemaster	Male	Qualified
Ted DeWitt	Divemaster	Male	No longer a WED diver

F. TIME SPENT ON NATIONAL DIVE PROGRAM

1. Time Expenditures: hrs.
   - Assistance with Diver Training 45
   - Dive Program Audit 2

Review of Documents	8
Performing Action Items	--
Preparation for and Attendance at Meetings	24
Technical Assistance to other Units	--

2. Fiscal (monetary) expenditures

DSB Meeting	$2500.00
Training at GED	$0.00
Diver Physicals	$484.00
New Gear	$0.00
Gear Maintenance	$647.23
Gear Repair	$60.00