

**Environmental Protection Agency  
National Dive Safety Program**

**2018 Annual Report**



## 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 Superfund site investigations. 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 1,203 scientific, training and proficiency dives in FY2018, involving nine EPA dive units and 66 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](mailto:Humphrey.alan@epa.gov)

After January 1, 2019, please direct all questions to the newly elected Chairman, Mel Parsons, at [Parsons.Mel@epa.gov](mailto:Parsons.Mel@epa.gov). Also, Sean Sheldrake at [Sheldrake.Sean@epa.gov](mailto:Sheldrake.Sean@epa.gov) is the incoming Training Director for the EPA Diving Safety Board and Scott Grossman at [Grossman.Scott@epa.gov](mailto:Grossman.Scott@epa.gov) is the incoming Technical Director.

## **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/diving/epas-diving-safety-program>.

This report is a summary of the EPA's National Diving Safety Program (NDSP) activities from October 1, 2017, through September 30, 2018. 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.

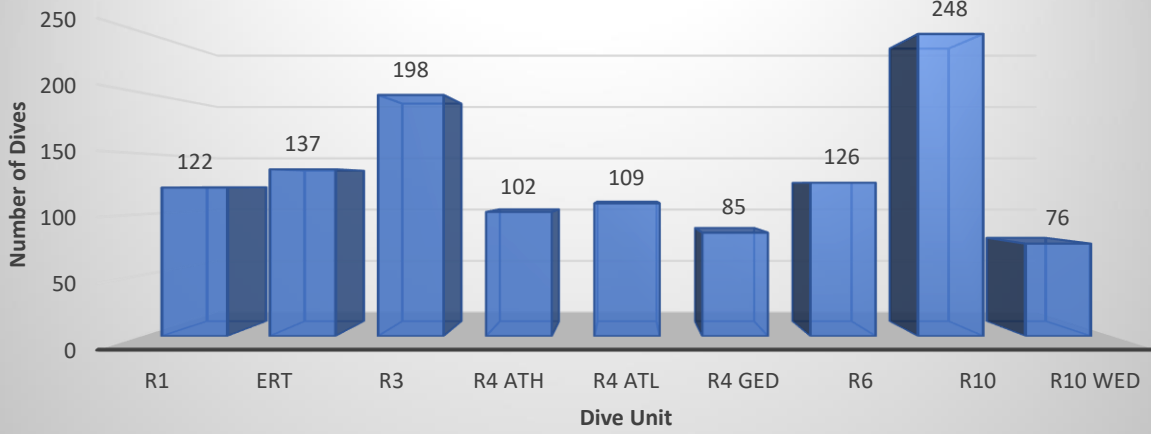
## **Overview**

The EPA's NDSP conducted 1,203 scientific, training and proficiency dives in FY 2018 (Figures 1 and 2), involving nine EPA dive units, and a total of 66 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 FY2018 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 and R2)
- (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 FY2018**



**Figure 2. Type of Dives by EPA Diving Unit for FY 2018**

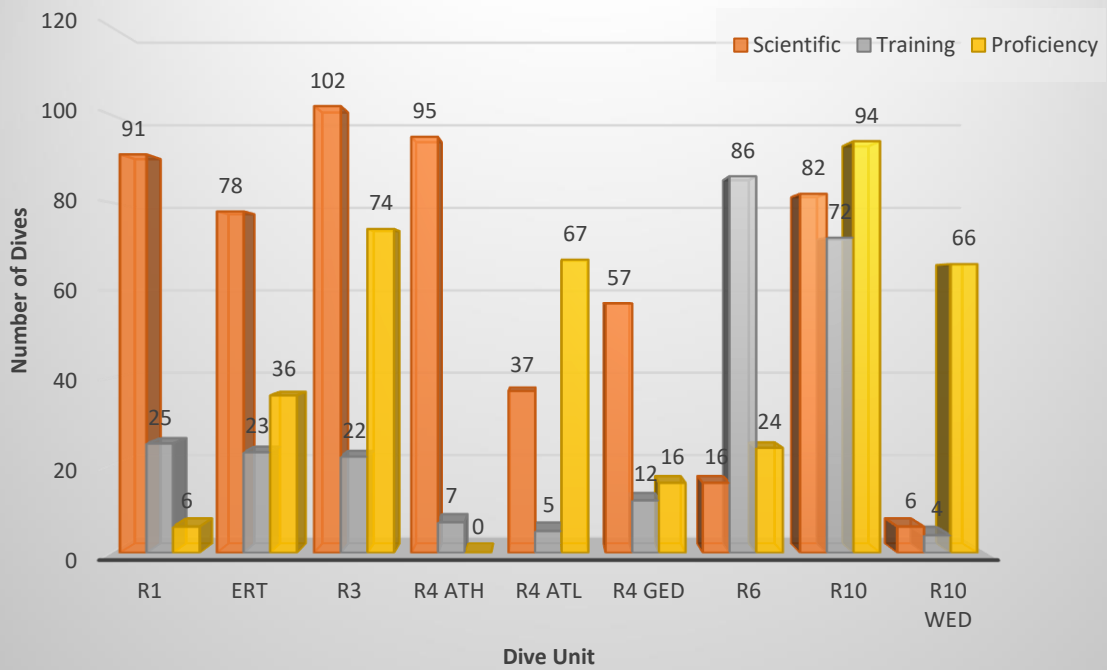
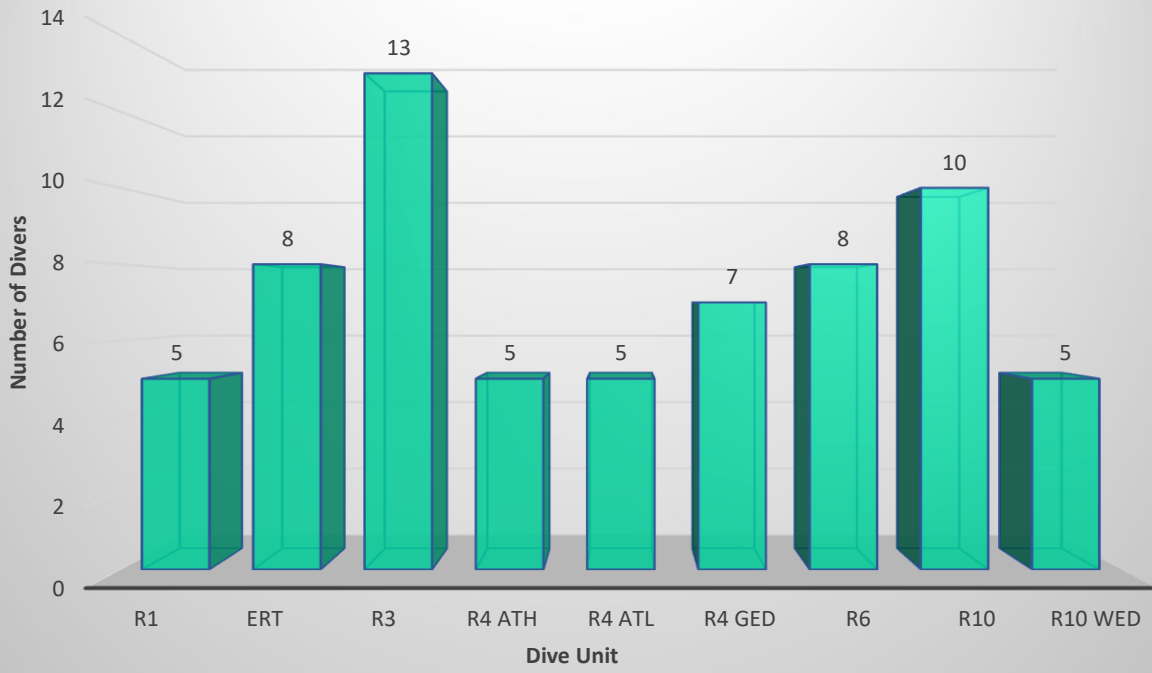
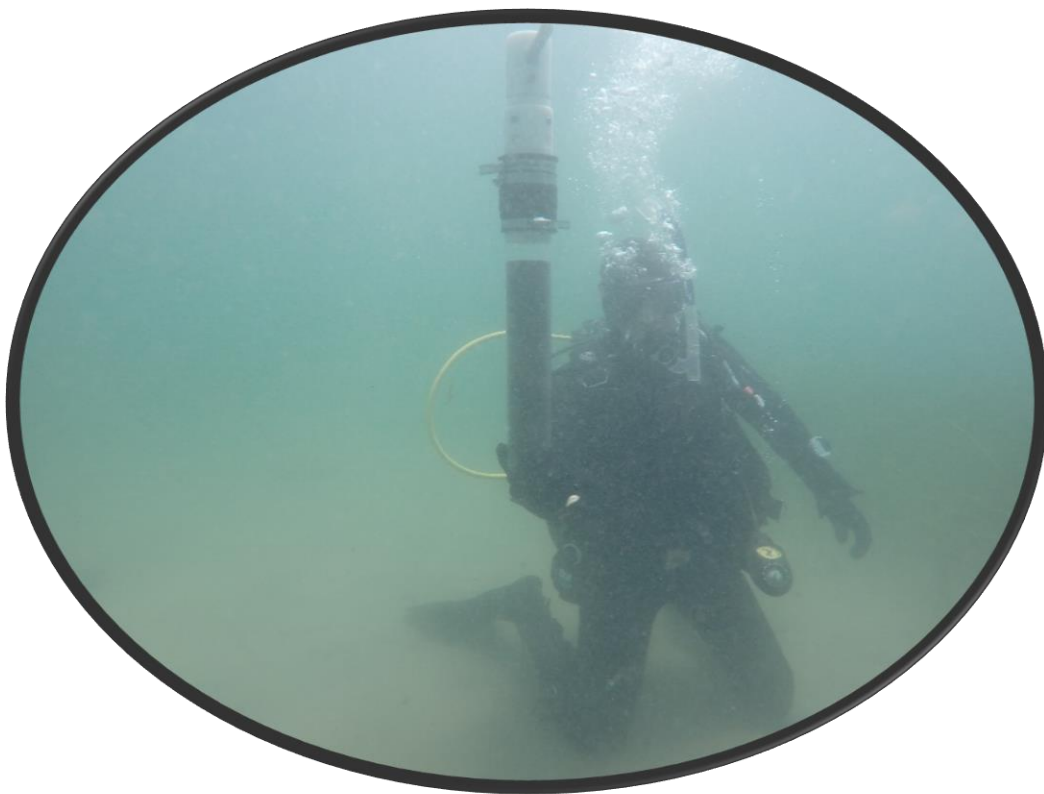


Figure 3. Number of Divers by Unit for FY2018



**US EPA  
New England Dive Unit**

**ANNUAL REPORT  
October 1, 2017 - September 30, 2018 (FY-18)**



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 Office in Boston, MA. The following is a summary of dive operations and training in FY-18.

## A: DIVING ACTIVITIES

In FY18, the New England Dive Unit continued to focus on supporting ongoing research related to quantifying and understanding seagrass ecology, and restoring seagrass habitat. The Unit collected plant samples and shoot density data to ground truth a new assessment technique designed to predict seagrass abundance, as measured by biomass and leaf area, using high resolution satellite images. Other work supported efforts to restore historic seagrass habitat, collected samples supporting a multi-state marine invasives Rapid Assessment Survey, and assessed the fish community in a freshwater quarry.

### 1. Diving Operations and Locations

For all dives listed, no pollution exposure was expected

- **October 2017** – Recovered temperature monitor (Hobo) in Nahant, MA in support of Blue Carbon Study, and conducted diving accident scenario.
- Conducted pilot study of sediment core sampling technique in Nahant, MA.
- **November 2017** - Assisted MA Division of Marine Fisheries (DMF) with eelgrass transplanting assessment in Salem Sound, MA.
- **May 2018** - Conducted requalifying dives, gear check, diver fitness assessments, and dive accident scenario in Nahant, MA following the suspension of diving

activities during the months of November through April.

- Supported EPA Scientific Diver course in Gulf Breeze (Nelson). New Diver (England) completed Scientific Diver course.

- **June 2018** – Conducted training with new full-face masks and completed boat-based diving accident scenario in Gloucester Harbor, MA.

- Supported Region 2 with one diver (Colarusso) on a study investigating the relationship between nutrients and the prevalence of invasive species in Lake Ontario, NY.



- **July 2018** – Completed eelgrass and sediment core sampling protocol training during dive unit safety audit with Headquarters.
- Collected scrape samples and photos as part of a Rapid Assessment Survey of marine invasive species conducted in Massachusetts (Buzzards Bay, Sandwich Harbor, Boston Harbor), Maine (Portland Harbor) and New Hampshire (Portsmouth Harbor.)
- Collected plants and shoot density measurements with MA DMF in West Falmouth, MA in support of RARE study that compared diver-collected data with high resolution satellite data.



**August 2018** – Collected plants and shoot density measurements in Nahant, MA in support of Blue Carbon study.

- Conducted a fish community assessment in a remote granite quarry at Halibut Point State Park, in Rockport, Massachusetts.

- **September 2018** - Harvested and transplanted over 10,000 eelgrass plants in

support of a Superfund mitigation effort with the US Navy in Newport, RI. Over 62 hours of bottom time recorded in this 4-day project.

## 2. Diving Statistics

	<u># Dives</u>	<u>Bottom Time (min)</u>	<u>Exposure Days</u>
Work:	91	6209	42
Training:	<u>25</u>	<u>701</u>	<u>18</u>
<b>Total:</b>	<b>116</b>	<b>6910</b>	<b>60</b>
Proficiency/off duty:	<u>6</u>	<u>290</u>	<u>4</u>
Total:	122	7200	64



## B. DIVING ACCIDENTS, INJURIES, OR INCIDENTS

None reported.



## C. DIVE TRAINING

<b>1. Training Received in FY18:</b>	<b>Region 1</b>	<b>AED</b>
CPR/AED*, Neuro*	0 divers	0 divers
First Aid*	0 divers	0 divers
Emergency O2 Administration*	0 divers	0 divers
Nitrox	0 divers	0 divers
EPA Divemaster training	0 divers	0 divers
Scientific Diver	1 diver	0 divers
Advanced Operations	0 divers	0 divers

<b>2. Training Needed in FY19</b>		
CPR/AED	5 divers	0 divers
First Aid	5 divers	0 divers
Emergency O2 Administration	5 divers	0 divers
Nitrox	0 divers	0 divers
Scientific Diver	0 diver	0 divers
Advanced Operations	1+ divers	0 divers

\* All covered in DAN's Diving First Aid for Professional Divers (DFA Pro) course.

## D. DIVE EQUIPMENT

1. **Same as last year?** No (Region 1) Yes (AED)
2. **New:** DUI dry suit ensemble with rock boots and undergarment (2 sets), fins (2 pairs), BP monitor (1 each), diver recall with Pelican case (1 each).
3. **Equipment problems:** 1 leaking hose, 1 Viking dry suit taken out of service.
4. **Equipment needed:** DUI dry suit (1 set). GPS unit (1 each)



## E. REVIEW OF UNIT DIVING PERSONNEL

	<b>Diver</b>	<b>EPA Certification</b>
<b>Region 1:</b>	1. Jean Brochi	Divemaster
	2. Phil Colarusso	Alternate UDO, Divemaster
	3. Brent England	Scientific Diver
	4. Eric Nelson	Unit Diving Officer
	5. Chuck Protzmann	Divemaster
<b>AED:</b>	1. Marty Chintala**	Alternate UDO, Divemaster
	2. David Katz**	Scientific Diver

Notes:

\*\* Both AED divers are currently in inactive status.



## F. RESOURCES SPENT ON THE NATIONAL DIVE PROGRAM

1. Time expenditures	Hours
Assistance with Diver Training Course	40
Review of documents	8
Performing action items	0
Preparation for and attendance at meetings	0
Technical assistance to other units	0
Annual meetings	<u>16</u>
	<b>64</b>
2. Fiscal (monetary) Expenditures	Costs
Equipment maintenance and repair	\$1,262
New equipment	\$7,142
Supplies	\$ 152
Travel for new diver training	\$1,900
Participation at the annual Diving Safety Board meeting and assist at EPA Diver Training	<u>\$2,770</u>
<b>Total</b>	<b>\$13,226</b>

## G. NOTEWORTHY ITEMS

The New England Dive Unit recruited a new diver to the Unit in FY18. Brent England successfully completed Scientific Diver Training in Gulf Breeze and was an active member of the team this field season, logging 1,576 minutes of bottom time!



EPA's Safety and Sustainability Division (SSD) conducted a three-day safety audit of the New England Dive Unit from July 10-12, 2018. Following the review, the audit team did not identify any findings, but did make a few minor recommendations. The audit report has not yet been finalized as of November 1, 2018. Once finalized, the New England Dive Unit will share the report with the other

units. Recommendations made by the audit team and included in the report should be reviewed and discussed by the Diving Safety Board for possible adoption.

The AED laboratory's dive team has been in inactive status since FY15 due to a lack of dive-required work and no expressed needs in the foreseeable future. The team, which was comprised of three divers in FY17, was reduced to two (Marty Chintala and David Katz) in FY18 after Barbara Bergen decided to leave the Unit. Although Barbara has not dived for work in recent years, she was a great asset to the AED Dive Team and the New England Unit when she was an active diver, and always a pleasure to work with.

Region 1 renewed its diving reciprocity agreement with Massachusetts Division of Marine Fisheries (MA DMF). This agreement allowed for two days (four dives) of joint operations in FY18. Region 1 expects additional diving opportunities with MA DMF on projects of mutual interest to our agencies in 2019.



## **ANNUAL REPORT OF DIVE OPERATIONS AND TRAINING**

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

**October 1, 2017 – September 30, 2018 (FY18)**

### **A. DIVING ACTIVITIES**

The Environmental Response Dive Team (ERDT) conducted scientific dives at EPA projects across the country during the Fiscal Year 2018. For the year, the ERDT conducted 78 scientific dives, 23 training dives, and 36 proficiency dives, for a total of 137 dives, 4626 minutes of bottom time, and 73 exposure days.

#### Scientific Diving Operations

#### **ERT Scientific Diving, Lake Ontario, NY**

ERT, at the request of Region 5 Great Lakes Program Office and Region 2 EPA, completed one week sampling events in June, July, and August at three locations on Lake Ontario during the 2018 Cooperative Science and Monitoring Initiative. Multiple Federal, State, and Academic parties are involved in this Biological Monitoring related to water quality, nutrient loading, and relationship between invasive species *Dreissena Polymorpha* (zebra mussels) and *Cladophora* (algae). This is part of a cross border activity in cooperation with Environment Canada, who is conducting similar Scientific dives on the Canadian side of the Great Lakes. Despite cold water (41 deg F) and occasional heavy seas (6-10 feet), the sampling was completed safely and on schedule. On 8/20/18 ERT hosted EPA R2 and a reporter for the Buffalo News on the ERT dive vessel. See attached link for the article.

Regions 1 and 3 Dive Teams assisted ERT with personnel to complete the four-man dive teams during this cooperative effort. The scientific methodology employed during the surveys was a valuable exercise for all divers involved. Techniques included sampling quadrats for mussels and algae, video collection of study areas, diver water sampling at depth, and recovery and deployment of scientific instrumentation.

<https://buffalonews.com/2018/08/23/diving-for-answers-to-lake-ontarios-deep-environmental-questions/>



## **ERT Scientific Diving, Grasse River/Alcoa Superfund Site, NY**

Led by Northeastern University, ERT divers assisted with methods used to determine the dissolved concentrations of PCBs in the water column and in porewater across the layered cap and within the sediment bed at the pilot armored cap installed at the Grasse River Superfund site (one- acre area). These data shall be used to evaluate the viability of this approach as an indicator (i.e., early warning system) of whether the cap is operating as designed in isolating PCBs in contaminated sediment from the water column. In addition, these concentration gradients shall be used along with mathematical mass-transport models to calculate the rate of advective and diffusive flux across the pilot armored cap.

ERT supported this field testing by installing Polyethylene (PE) film passive samplers into the pilot armored cap on the Grasse River during the week of July 8. The goal of the sampler deployment was to capture a continuous porewater concentration gradient from 15 inches (~40 cm) into the water column to sediments 36 inches (~91 cm) below the capping layers while minimally disturbing and preserving the capping layers. The aluminum frame for the PE film was of robust construction, but divers were unable to drive it through a compacted sand and gravel layer situated beneath the large cobbles. Some modifications were made to the frame design in the field and several samplers were installed in two areas of the cap, one with a sand/soil base layer and one without. Based on this field testing another sampling device was devised and tested during the September recovery of the rugged aluminum frames.



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

San Jacinto River Waste Pits- ERT provided technical and polluted water diving support to the Region 6 Dive Unit at this NPL site east of Houston adjacent to the San Jacinto River during cap inspection activities. 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. The armored cap consists of various rock sizes at 12-24 inches thickness. During December 2015, EPA R6 divers discovered a 20 to 25-foot gap in the armored cap material in the northwestern portion of the site. Post Harvey and in May 2018, EPA divers inspected the cap in the NW area of the site, primarily on the slope from cap to river bed. Divers identified thin or no armor cap in multiple locations in the NW area. During May 2018, EPA divers also drafted and implemented a diver sediment sampling plan. During both field events EPA divers also collected surficial sediment samples co-located with samples collected by contractor divers. In 2018 more than 50 percent of the sediment samples gathered at locations of concern contained dioxins well above cleanup target levels. Based on diver observations and sampling results, it appears that river flooding events make the armored cap unsuitable for isolation of the waste pits. Information generated by the Region 6 dive team helped to fast track the \$100 Million Record of Decision (October, 2017), which requires excavation and disposal of most of the waste material.

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).





## B. DIVE STATISTICS

Project	Date	Dive Type	Dives	Bottom Time (minutes)	Exposure Days
San Jacinto Waste Pits	May 2018	Scientific	2	115	2
Grasse River - Alcoa Site (July)	July 2018	Scientific	7	426	5
Grasse River - Alcoa Site (Sept)	September 2018	Scientific	3	173	3
Lake Ontario CSMI (June)	June 2018	Scientific	10	311	6
Lake Ontario CSMI (July)	July 2018	Scientific	32	678	11
Lake Ontario CSMI (August)	August 2018	Scientific	24	596	9
Denver Divers	May 2018	Training	4	160	4
GED Diver Training	May 2018	Training	5	105	2
Dutch Springs	June 2018	Training	4	126	4
Round Valley	July 2018	Training	4	130	2
Atlantic Beach Reef	August 2018	Training	6	212	4

<b><i>Subtotal Scientific Dives</i></b>	<b>78</b>	<b>2,299</b>	<b>36</b>
<b><i>Subtotal Proficiency Dives</i></b>	<b>36</b>	<b>1,594</b>	<b>21</b>
<b><i>Subtotal Training Dives</i></b>	<b>23</b>	<b>733</b>	<b>16</b>
<b>TOTAL DIVES</b>	<b>137</b>	<b>4,626</b>	<b>73</b>

## C. DIVING INJURIES

One diver incurred some blood on the ear upon surfacing, due to difficulty clearing during a training dive with dry suits and full face masks. This ear barotrauma was examined by a doctor and the diver was not allowed to dive for 4-6 weeks to allow it to heal. The diver has since resumed diving with no issues.

## D. DIVE TRAINING

After a hiatus of several months, ERT divers had a requalification dive in the pool using SCUBA and full-face mask. EPA diver training was held in Gulf Breeze in May 2017. Scientific training was provided for trainee divers. ERT and other EPA UDOs participated with lectures, in-water exercises, and deployment and recovery of in-water training equipment.

Internal dive unit training sessions were held at the Dutch Springs Quarry, PA, Round Valley Reservoir, NJ, Atlantic Beach Reef, NY, 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; and underwater photography.

## **E. DIVING EQUIPMENT**

### Current Equipment Inventory

Primary equipment are Scuba tanks (24), Pony bottles (8), Regulators (11), BCDs (11), Dry Suits (10), Full Face Masks (10), 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 2018, 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 8 Steel tanks (4 100 CF and 4 149 CF), one OTS FFM, and some Whites Dry Suit accessories (inflators, hoses, etc),

## **F. REVIEW OF DIVING PERSONNEL**

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

Dave Adams	Dive master (pending 100 Sci/training dives)
Steve Blaze	Dive master
Chris Gallo	Scientific Diver
Scott Grossman	Dive master, Incoming UDO
Rich Henry	Dive master, US F&WS
Alan Humphrey	Dive master/Outgoing UDO
Buddy LoBue	Dive master
Jon McBurney	Dive master

Several EPA divers, including Pete Stevenson (Dive master, Region 8), 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
Support for R6 Dive Team	Ten days
Cost of travel related to diving projects	\$4,000
Attendance at EPA Diver Training Course and the EPA Diving Safety Board Meeting	\$2,500

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

**Fiscal Year 2018 - October 2017 through September 2018**  
**Prepared by: Steven J. Donohue, Unit Diving Officer (UDO)**

## **A. BACKGROUND AND SUPPORT OF AGENCY GOALS**

The US EPA Mid-Atlantic Region 3 Scientific Dive Unit (SDU) is a program within the Coastal Science Team in the Environmental Assessment and Innovation Division's (EAID) Office of Monitoring and Assessment (OMA). This Annual Report of Dive Operation for the SDU (Report) describes the activities and accomplishments for Fiscal Year 2018. SDU scientists and engineers include representatives from the following offices and divisions; Air Protection Division, EAID, Hazardous Site Cleanup Division, Office of Environmental Compliance and Environmental Justice, and the Land and Chemical Division.



**Brad White Surfaces After Sampling the EX USS Radford Off the Coast of Delaware**

The SDU helped contribute to the EPA 2018 Strategic Plan goal of protecting America's waters and working toward a sustainable future by conducting underwater quantitative surveys for the EPA Region 3 Office of Monitoring and Assessment (OMA) RARE Study on submerged aquatic vegetation in the Delaware River. The SDU also supported the Delaware Department of Natural Resources and Environmental Control (DNREC), by sampling and assessment of the condition of the EX USS Radford and EX FV Poole artificial reefs (AR). The SDU helped contribute to the goal of Embracing EPA as a High Performing Agency through cross agency support provided to the Environmental Response Team with the Great Lakes study, and Office of Research and Development in deploying a flux tower in Ohio. In addition, the SDU supported the Region 3 Hazardous Site Cleanup Division with conducting a freshwater mussel bioassay at the Big John Salvage Superfund Site. Finally, the SDU completed training dives to maintain readiness, practice skills, maintain proficiency and satisfy program requirements.

## **B. DIVING ACTIVITIES**

Below is an overall summary of SDU activities in FY2018, followed by a paragraph describing each activity. Table 1 provides summary data for each dive including the location, purpose, depth, conditions, breathing gas, number of dives, hyperbaric exposure days, and total and average bottom time for dives conducted by the SDU. Additional detail on each SDU activity is available in the site-specific Dive and Safety Plan (completed prior to diving) and the Operation Report (completed following diving). Figures 1 and 2 shows the number and percentage of Scientific, Training and Personal Proficiency Dives and Hyperbaric Exposure Days.



**Sampling the EX USS Radford on 6/12/18**

### **Summary**

In FY2018 the SDU has completed 102 scientific dives and 22 training dives during ten separate operations for external and internal customers including the Office of Research and Development, the State of Delaware, the Superfund Program and the Office of Monitoring and Assessment. Scientific Divers spent over 49 hours underwater during our scientific and training dives in FY 2018 for an average of just under 24 minutes per dive. In addition, the SDU sent divers in June and August to assist Region 2 with an international project with Canada studying water quality and sampling benthic organisms in Lake Ontario. Tasks completed by scientific divers in FY2018 included: running transect lines and collecting and reporting observations and data to the surface, obtaining scrape samples of epibenthic organisms and algae, locating and servicing cameras and water quality monitors deployed underwater, deploying and retrieving cages filled with juvenile freshwater mussels for a bioassay, setting up a tower for monitoring gear and obtaining HD video. Dives were conducted in salt and fresh water environments ranging from open ocean and lakes, tidal river, controlled river, and quarry. The SDU completed action items and closed out a FY 2017 audit of the program by HQ Safety and Sustainability.

Approximately half (6 of 13) divers completed at least one proficiency dive on their own time. Three of our divers completed proficiency dives at the Adventure Aquarium in FY2018.

Aquarium diving is considered a commercial dive operation subject to OSHA requirements. Duties include participating in a public dive show and doing cleaning and maintenance diving.

There are multiple benefits to SDU participation as volunteer divers including improved proficiency, regular repetitive dives, and familiarization with the requirements of diving in a commercial dive operation. The SDU hopes to continue to explore with the Aquarium Dive Safety Officer an arrangement for more SDU divers to participate in proficiency diving at the aquarium.

Region 3 was not represented at the EPA National Scientific Diver Training Program in May of 2018. However, the SDU did participate in all Diving Safety Board meetings via conference call. There were no changes to SDU personnel in FY 2018, as no new divers were added and no current divers retired or separated from the SDU.



**Hydrilla and Vallisneria at KIA Site in the Delaware River on August 28, 2018**

**Table 1 Data Summary for SDU Operations in FY 2018**

Location	Purpose & Customer	Date	Depth in Feet	Conditions	Breathing Gas	Names of Diver and (#) of dives	Total # of Dives	Total # Hyperbaric Exposure Days	Total Bottom Time in Minutes	Dive Master
Dutch Springs Quarry	Re-qualification and Equipment Testing	5/23/2018	54-70	Freshwater Quarry	Nitrox 30%	Adamiec (2), Armstead (2), Borsuk (2), Doyle (2), Donohue (2), Eller (2), Light (2), Newman (2) and White (1)	18	9	449	White and Borsuk
Four Seasons Pool	Training	6/7/2018	10	Pool	Air	Borsuk (2) Light (2)	4	2	40	Borsuk
						<b>Training</b>	22	11		
Tidal Delaware River KIA and Red Bank Site	Submerged Aquatic Vegetation Quantitative Survey for EAID/ORD RARE	10/11/2017	< 10 feet	Freshwater Tidal River with Current	Air	John Armstead (3) and David Light (3)	6	2	86	Newman
Tidal Delaware River KIA Site	Submerged Aquatic Vegetation Quantitative Survey for EAID/ORD RARE	11/9/2017	< 10 feet	Freshwater Tidal River with Current	Air	Doyle (2) and Light (2)	4	2	79	Donohue
Lake Acton, Ohio	ORD EC Instrument Deployment	4/18 and 19, 2018	4	Freshwater lake	Air	Doyle (1), Ettema (1), Light (1) and White (1)	4	4	152	White and Borsuk
26 NM off Coast of Delaware	Epibenthic Sampling of EX USS Radford and EX FV Poole, Delaware Department of Natural Resources and Environmental Control	6/12 and 6/13 2018	130	Open Ocean	Nitrox 30%	Jim Adamiec, John Armstead, Frank Borsuk, Steve Donohue, Nathan Doyle, Mike Eller, David Light, Eric Newman, Brad White	18	17	422	White
Lake Ontario	Lockport, Olcot, Irondequoit and Stoney Island	6/19 to 22 2018	16 to 56	Open Water Lake	Air	Donohue (10)	10	4	259	Humphrey
Tidal Delaware River KIA Site	Submerged Aquatic Vegetation Quantitative Survey for EAID/ORD RARE	7/31/2018 and 8/1/2018	< 10 feet	Freshwater Tidal River with Current	Air	Jim Adamiec (3), Nate Doyle (2), Eic Newman (2), Brad White (1) and Steve Donohue (2)	10	7	472	White
Monongahela River Mussel Exposure Chamber Deployment	FW Mussel bioassay for Big John Salvage Superfund Site	8/16/2018	15	Freshwater River Impounded by Locks	Air	Light (5) and Borsuk (5)	10	2	252	Newman
Lake Ontario	Olcot, Irondequoit and Stoney Island	8/20 to 8/23/18	16 to 56	Open water Lake	Air	White (7)	7	3	182	Humphrey
Tidal Delaware River KIA Site	Submerged Aquatic Vegetation Quantitative Survey for EAID/ORD RARE	8/28/2018 and 8/29/2018	< 10 feet	Freshwater Tidal River with Current	Air	John Armstead (2) Nate Doyle (3), Brad White (1)	6	4	229	Newman and Armstead
Monongahela River Mussel Exposure Chamber Two Week Growth and Mortality Check	FW Mussel bioassay for Big John Salvage Superfund Site	8/30/2018	14	Freshwater River Impounded by Locks	Air	Newman (5), Doyle (3) and Light (9)	17	3	211	Donohue
Monongahela River Mussel Exposure Chamber Six Week Growth and Mortality Check	FW Mussel bioassay for Big John Salvage Superfund Site	9/25/2018	17	Freshwater River Impounded by Locks	Air	Borsuk (4) and White (6)	10	3	132	Donohue
						<b>Scientific</b>	102	51		
								<b>Minutes TBT</b>	2965	
								<b>Hours TBT</b>	49	
								<b>Average Dive in Minutes</b>	24	

## **Description of FY 2018 Dive Operations**

EPA R3 SDU –FY-2018-01 - On October 11, the SDU completed dive operations at two locations in the Delaware River to document the in-situ condition of Submerged Aquatic Vegetation (SAV) and obtain data on the percent cover and species present. The SDU repeated transects previously sampled on a site just downstream of the Walt Whitman Bridge on the Pennsylvania side of the river and conducted a dive on a site on the New Jersey side across the river from the Philadelphia Airport. The purpose of the surveys was to collect data on the temporal change within a season at sites to determine when fall senescence occurs in SAV in the Delaware River.

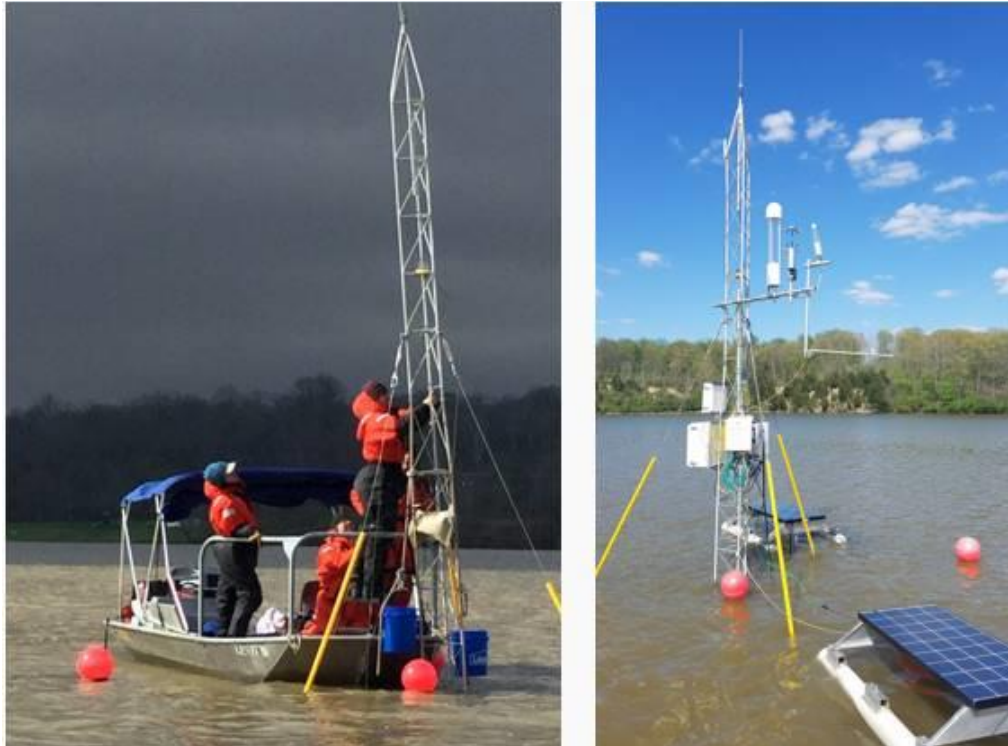
EPA R3 SDU –FY-2018-02 – On November 9, 2017, the SDU completed dive operations at a site located just downstream of the Walt Whitman Bridge on the Pennsylvania side of the Delaware River. The purpose of the diving was to document the in-situ condition of the submerged aquatic vegetation (SAV) and obtain data on the percent cover and species present as part of the RARE SAV survey of the Delaware Estuary. The SDU repeated transects previously sampled in September and October at the site to track fall senescence of SAV. On November 1, EPA scientists documented a mass of SAV that had washed up along the shoreline of the river, indicating the seasonal senescence of the tops of the SAV plants in the Delaware. On November 9, divers observed deteriorated and very little top growth on the SAV, except what was growing in very shallow, protected areas along the shore line.



**KIA Transect 6 in the Delaware River with Freshwater Mussel**

On February 27, 2018, as required by the EPA Diving Safety Manual, seven Philadelphia based divers completed biennial physical fitness testing at the Saint Joseph University. On March 20, 2018 the SDU divers based in Wheeling completed physical fitness testing in WV. The periodic evaluation is done to ensure the Scientific Divers maintained a baseline level of physical fitness that will allow them to safely complete tasks underwater. Testing included a distance swim, treading water, an underwater breath holding swim and surface tow of another diver. All divers successfully completed the evaluation.

EPA R3 SDU –FY-2018-03 - Scientific divers from Philadelphia and Wheeling mobilized to a lake in southwestern Ohio to help the EPA ORD Laboratory in Cincinnati with the installation of an aluminum tower. The tower provides a stable platform to hold monitoring equipment that measures methane emissions from the lake sediments. The sensors were previously deployed near the lake shoreline which compromised the data approximately 35% of the time. The new location has eliminated this interference. On April 18 and 19, SDU conducted dives and provided topside assistance including: screwing anchors into the bottom, connecting cable guy-wires to stabilize and make sure the tower was plumb and level, and inspecting the final assembly and bottom sediment conditions.



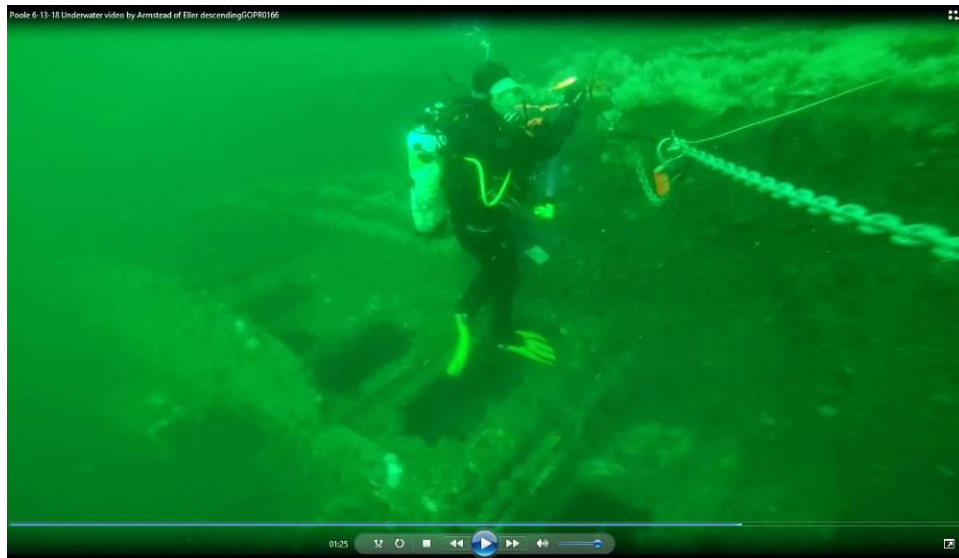
**ORD Eddy Covariance Systems Tower Installed in Lake Acton, Ohio**

EPA R3 SDU –FY-2018-04 – On May 23 Scientific Divers from the Philadelphia and Wheeling offices mobilized to Dutch Springs Quarry (Bethlehem, PA) for requalification and training dives. Requalification dives are a requirement of the EPA Diving Safety Manual. All divers performed two dives after they completed equipment setup and checks with their assigned dive buddy, and testing of their NITROX breathing gas for percent oxygen composition. All required SDU safety equipment (AED, first aid/trauma kits, backboard, oxygen kit, and diver recall) were deployed prior to diving. During diving operations, a diving medical emergency drill was conducted simulating an arterial gas embolism due to an uncontrolled ascent. An emergency response drill was conducted and included a diver rescue tow, removal of the diver from the water, an initial diver assessment, oxygen delivery, and simulated 911/Divers Alert Network notification.



EPA R3 SDU –FY-2018-WHEELING – On June 6, 2018, all Wheeling based members of the SDU completed a re-qualification dive, annual diver fitness evaluation and equipment check. The training dive was done with the US Fish and Wildlife Service.

EPA R3 SDU –FY-2018-05 - At the request of and in collaboration with the Delaware Department of Natural Resources and Environmental Control (DNREC), the SDU completed sampling and surveying of the EX USS Radford and EX FV Poole artificial reef (AR) on June 12 and 13, respectively. The Radford is a retired US Navy Destroyer over 550 feet long that was sunk on August 10, 2011 to provide additional artificial reef habitat. The Poole is a former minesweeper and menhaden fishing vessel that was sunk in December 2007. Both vessels are located approximately 26 nautical miles off the coast of Delaware in the Del-Jersey-Land Inshore Site, an AR location developed jointly by Delaware, New Jersey, and Maryland. SDU divers obtained scrape samples of the epifauna on surfaces of the AR as well as high definition video. The results of the survey showed the AR was covered with large mature blue mussels, hydroids, corals, and hundreds of black sea bass were observed. DNREC provided sampling supplies and the University of Delaware’s RV Joanne Daiber charter vessel for the sampling.



**Sampling the EX FV Gregory Poole on June 13, 2018 Off the Coast of Delaware**

Lake Ontario Cooperative Science Monitoring Initiative - On June 18 to 22, the SDU assisted Region II with the Lake Ontario Cooperative Science Monitoring Initiative, studying water quality and sampling benthic organisms near Olcott, Irondequoit, and Sackets Harbor, NY. Region III responded to a request for assistance on June 14 and mobilized a diver on June 18 as a last-minute replacement for a Region II diver. At each site, algae (Cladophora), water samples, and zebra mussels (Dreissenid) were collected. Videos of overall bottom conditions were also taken. Divers also serviced equipment deployed on the bottom by cleaning and swapping out water quality monitoring devices and cameras.

EPA R3 SDU –FY-2018-06 – On July 31 and August 1, the SDU conducted dive operations at a site located just downstream of the Walt Whitman Bridge on the Pennsylvania side of the Delaware River. The purpose of the diving was to document the in-situ condition of the submerged aquatic vegetation (SAV) as part of the RARE SAV survey of the Delaware Estuary. The SDU developed and tested a new survey method and completed 3 transects by collected data including; the species present, percent cover and width of the SAV bed at specific coordinates.

EPA R3 SDU –FY-2018-07 - At the request of the EPA BTAG (Biological Technical Advisory Group), and with support from the West Virginia Department of Natural Resources and the US Fish and Wildlife Service (USFWS), the SDU completed dives on August 16 at several locations on the mainstem of the Monongahela River to deploy caged juvenile freshwater mussels to evaluate the toxicity of the contaminated sediment in the Monongahela River adjacent to the Big John Salvage Superfund site. The USFWS provided the mussels that the SDU deployed in areas of known PAH-impacted sediment in addition to an upgradient background location. The study will function as a pre-dredging baseline and findings are expected to assist in the development of the post-dredging monitoring plan. The growth rate and mortality of the mussels will be checked at two-week intervals until they are removed in approximately eight weeks. Divers and equipment from the Wheeling and Philadelphia Office were mobilized to support the study.



**Preparing to Stake Mussel Cage in the Monongahela River on August 16, 2018**

EPA R3 SDU –FY-2018-08 – On August 28 and 29, the SDU conducted dive operations at a site located just downstream of the Walt Whitman Bridge on the Pennsylvania side of the Delaware River. The purpose of the diving was to complete transects to document the in-situ condition of the submerged aquatic vegetation (SAV) as part of the RARE SAV survey of the Delaware Estuary. The SDU refined a new survey method and completed 4 transects (at locations 4, 5, 6, and 7) by collected data including; the species present, percent cover and width of the SAV bed at specific coordinates.

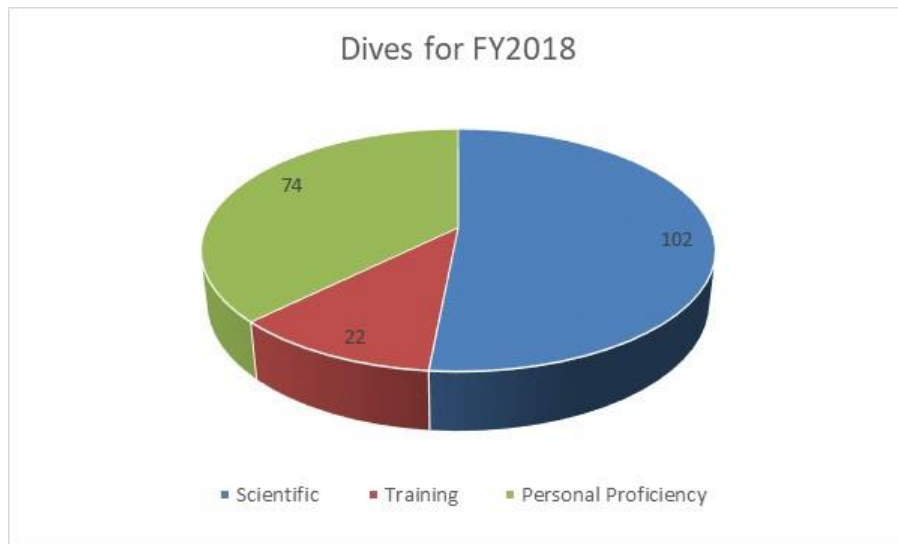
EPA R3 SDU –FY-2018-09 – On August 30, 2018 the SDU completed dives at four locations on the mainstem of the Monongahela River where caged juvenile freshwater mussels were deployed two weeks previously to evaluate the toxicity of the contaminated sediment in the Monongahela River adjacent to the Big John Salvage Superfund site. The growth rate and mortality of the mussels was checked since it had been two-weeks since the mussels were placed in the river. Conditions permitting, the mussels will be removed and photographed at two-week intervals until they will be removed after approximately eight weeks. Divers and equipment from the Wheeling and Philadelphia Office were mobilized to support the study.



**Diver Decontamination and Mussel Cages in the Monongahela River on August 30, 2018**

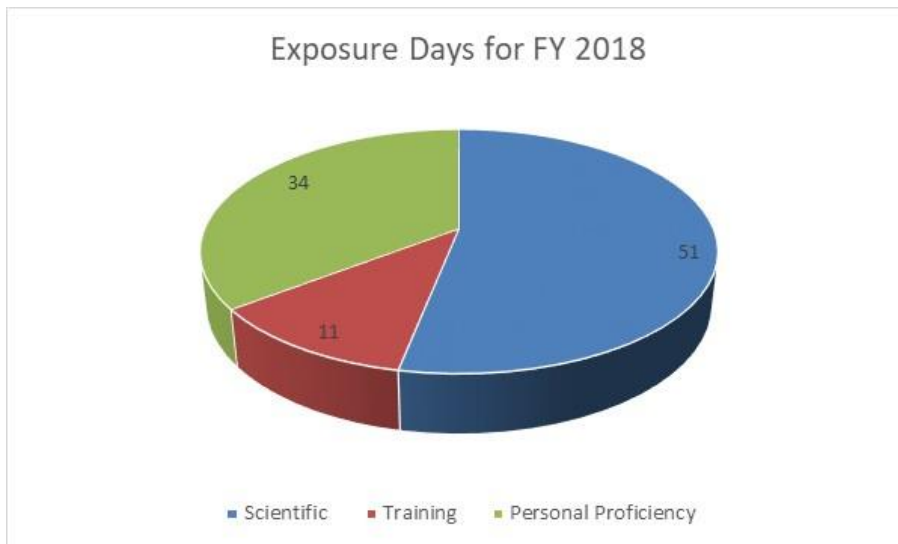
EPA R3 SDU –FY-2018-10 – On September 25, 2018, the SDU mobilized to retrieve caged juvenile mussels deployed six weeks ago at the Big John Salvage Site to check the growth rate and mortality.

**Figure 1 Scientific, Training, and Proficiency Dives for SDU in FY 2018**



Notes: Scientific Dives are performed for scientific, research, or educational purposes  
Training Dives are 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 2018**



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

### **C. DIVING ACCIDENTS, INJURIES, OR INCIDENTS**

Describe all accidents, injuries, and incidents: There were no diving accidents, injuries or incidents experienced by the SDU in FY 2018.

### **D. DIVE TRAINING**

1. Describe the type of training conducted/received, and list the name, office, and level of certification for each trainee.

No Region 3 Scientific Divers or Dive Masters attended the National EPA Diver Training that was held in May in Gulf Breeze, Florida.

The Philadelphia based SDU divers completed their physical fitness testing in a local pool on February 27, 2018. Wheeling based divers participated in USFWS training and fitness testing on March 20, 2018. Two Wheeling divers completed another day of pool dive training on June 6 just prior to the Radford Poole Survey and Sampling. See the narrative and description of operations in Section A for additional detail and Figures 1 and 2 for the number of training dives and hyperbaric exposure days.

On May 15, 2018, the SDU met with Matthew Kelly, MD Chief of Clinical Services, Hyperbaric Medicine, and toured the University of Pennsylvania Hyperbaric Chamber in the John Morgan Building on Penn's campus.



**University of Pennsylvania Hyperbaric Chamber Tour May 15, 2018**

Regional Office based divers completed spring training dives on May 23, 2018 at a local quarry prior to the Radford Poole Survey and Sampling.

2. List any training needed for FY2019.

- a. The Region hopes to offer the First Aid for Professional Divers class in FY2019 to renew First Aid, CPR and AED training.
- b. Divers must complete 8 hour field safety training in FY 2019.
- c. The three SDU Divers who have not completed the 40-hour Hazardous Site Worker training class will be encouraged to take this training.
- d. Two of our Scientific Divers have now reached approximately 50 dives. They will be encouraged to attend the Dive Master class in FY2019, if it is offered, for the continuity and operational flexibility of the SDU.

See the Table in Section E below for a complete list of the names, offices, and certification level of each member the SDU.

**E. DIVE EQUIPMENT**

Same as last year? Yes \_\_\_\_\_ No  X

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

New Items:

The SDU purchased several items to upgrade our Aga masks FY2018 including; braided hoses, swivels, ABV valves, additional rails, and brackets that can hold more powerful lights as well as our GoPro cameras.

The SDU also purchased Sherwood yellow body and hosed alternate air supply regulators and hoses for our alternate air supply/pony bottle regulators so they would all be from the same manufacturer like our primary regulators.

Several of our divers have vision correcting diopters in their masks and at the end of FY2017 we purchased diopters for three of our Aga masks.

Removed from Service:

Several of our old alternate air supply/pony bottle regulators were taken out of service. Prior to 2018 the SDU had multiple manufacturers for these regulators that would have necessitated taking these to different vendors for service. We now have uniformity in manufacture of our primary and pony regulators.

2. New Equipment Needed

Two of our Wheeling based divers who participate in ocean divers currently have a wireless air integrated primary dive computer but no backup air integrated dive computer. Based on available budget and in order to have uniformity of equipment

across all regional divers the SDU will assess whether to purchase additional computers for these two divers.

As a result of suggestions received during our recent dive audit we may explore purchasing additional gear including a new back board, hoisting sling, and new tank valves.

**F. 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 2018**

<b>Name</b>	<b>Certification</b>	<b>Division</b>	<b>Title</b>
Jim Adamiec	Scientific Diver	APD	Life Scientist
John Armstead	Dive Master	LCD	Env. Scientist
Frank Borsuk	Dive Master	EAID	Biologist
Kelley Chase	Dive Master	HSCD	Env. Scientist
Steve Donohue	Unit Dive Officer	EAID	Env. Scientist
Nathan Doyle	Scientific Diver	HSCD	Physical Scientist
Mike Eller	Scientific Diver	OECEJ	Env. Scientist
Leah Ettema	Scientific Diver	EAID	Life Scientist
John Forren	Scientific Diver	EAID	Env. Scientist
Jennifer Fulton	Scientific Diver	EAID	Aquatic Biologist
David Light	Scientific Diver	EAID	Physical Scientist
Eric Newman	Dive Master	HSCD	Env. Engineer
Brad White	Dive Master	HSCD	Env. Scientist

**G. TIME SPENT ON THE NATIONAL PROGRAM**

1. Time expenditures.

<u>ACTIVITY (DESCRIPTION)</u>	<u>TIME</u>
Assistance with Diver Training Course	0 days
Review of Documents (revision to DSM, emails)	5 days
Performing Action Items (e.g., Response to Dive Audit)	5 days
Preparation for and Attendance at Meetings (Annual DSB Meeting)	3 days
Technical Assistance to Other Units	10 days
Other	0 days

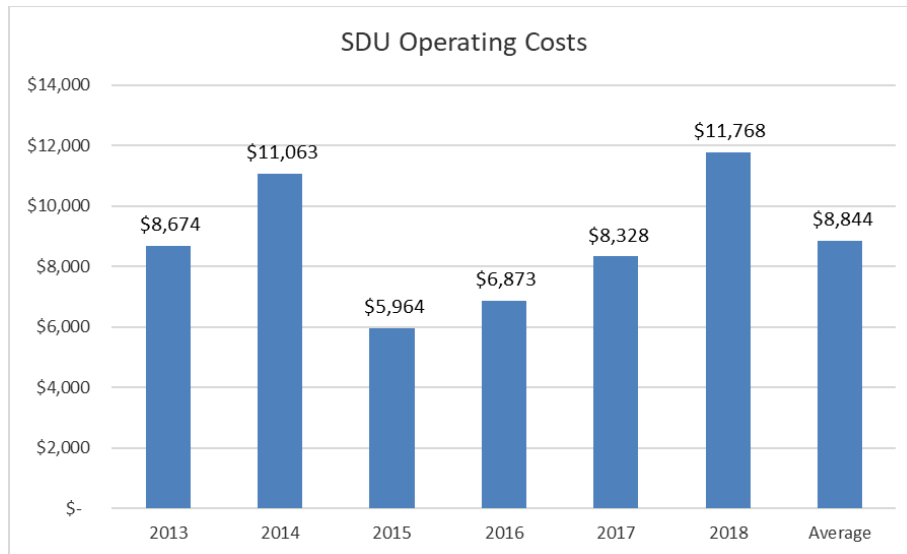
2. Fiscal (monetary) expenditures:

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

UDO participating in DSB Meeting/Call with ERT UDO \$ 40.00

**H. FY 2018 BUDGET**

Purchases of new equipment, the cost to operate and maintain the SDU tanks and equipment, and training costs in FY2018 were \$9,853. Annual operating costs include the cost for 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 and employees time. The SDU had one operation (EX USS Radford Sampling) that involved overnight travel in FY2018. The SDU also had travel cross funded by the Office of Research and Development (for the tower installation in Lake Acton) and by Region 2 (for support of the Lake Ontario Cooperative Science Monitoring Initiative). Finally, SDU travel for the Big John Salvage Freshwater Mussel Bioassay was charged to the Superfund Site.



**I. FY 2019 PLANS**

In FY 2019 the SDU plans to continue to foster strong partnerships internally, as well as with; other federal agencies, states and other organization, by conducting monitoring and assessment of our Mid-Atlantic rivers, estuaries, and coastal waters.





**Throwing Line to Diver in the Delaware River August 2018**

## R4 ATHENS DIVE UNIT

### ANNUAL REPORT OF UNIT DIVE TRAINING AND OPERATIONS 2018

Diving Unit: Region 4 Athens, GA  
Mel Parsons, UDO

Time Period: 11/01/17-11/13/18

#### A. DIVING ACTIVITIES

The EPA R4, Athens Dive Team logged 102 dives with 55 exposure days and a total bottom time of 2,441 minutes over the past year. Most dives were performed during Sediment Oxygen Demand (SOD) Studies.

1. Description/type of diving operations

a. Ocean Dredged Material Disposal Sites (ODMDS)

No dives were conducted at ODMDS sites this year.

b. Sediment oxygen demand/nutrient flux studies – 95 Dives, 49 Exposure Days  
2,291 minutes:

Sediment Oxygen Demand (SOD) studies were conducted the Reedy River, SC, Falls Lake, NC, St. John's River, FL and the Big Sunflower River, MS.



Nate Barlet's first EPA training dive



Prototype SOD Cores

c. Training Dives – 7 Dives, 6 Exposure Days 150 minutes:

Training dives were conducted at Lake Jocassee, SC and in the St. John’s River, FL.

2. Location of diving operations/water body

Florida – St. Johns River  
North Carolina – Falls Lake, NC  
South Carolina – Lake Jocassee and Reedy River  
Mississippi – Big Sunflower River

3. Dive Statistics

<b>R4 ATHENS 2018 DIVE STATISTICS</b>			
	<b>DIVES</b>	<b>EXPOSURE DAYS</b>	<b>MINUTES</b>
<b>WORK</b>	<b>95</b>	<b>49</b>	<b>2291</b>
<b>TRAINING</b>	<b>7</b>	<b>6</b>	<b>150</b>
<b>PROFICIENCY</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>TOTAL</b>	<b>102</b>	<b>55</b>	<b>2441</b>

**B. DIVING ACCIDENTS**

No accidents this year.

**C. DIVING SAFETY AUDIT**

No findings on the self-assessment audit this year

**D. DIVE TRAINING**

No R4 Athens divers attended Diver Training this year.

**E. DIVING EQUIPMENT**

All dive equipment was serviced and passed inspection.

Tanks: 12 – 100 ft<sup>3</sup>, 16 - 80 ft<sup>3</sup>, 19 - 63 ft<sup>3</sup>, 4 - 19 ft<sup>3</sup>, 4 -13 ft<sup>3</sup>, 4 - 6 ft<sup>3</sup>  
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: 2 Zeagle 50D/w ZX second  
 3 Zeagle Flathead 7  
 2 Zeagle Flathead 8  
 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  
 6 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.

**F. REVIEW OF DIVING PERSONNEL**

There are 5 divers on the EPA Region 4 Athens Dive. The dive team currently has 3 divemasters.

NAME	AGE	SEX	CERTIFICATION LEVEL
Nate Barlet	30	M	Dive Trainee
Jon McMahan	36	M	Scientific Diver
Mel Parsons	60	M	UDO/Divemaster
John Ruiz	53	M	Divemaster
Greg White	32	M	Divemaster

**Changes in personnel**

Pete Kalla has dropped off the team after being inactive for several years and a new diver, Nate Barlet has joined the team as a trainee.

**G. TIME SPENT OF THE NATIONAL DIVE PROGRAM**

<u>ACTIVITY</u> (describe)	<u>TIME</u>
Assistance with Diver Training Course	60 days
Review of Documents (EPA Dive Manual v1.2)	2 days
Performing Action Items	1 days
Preparation for and Attendance of DSB Meeting	2 days

Technical Assistance to Other Units	0 days
Equipment Servicing	\$ 4,400
Equipment Purchases	\$ 3,000
Other	\$0

COST OF TRAVEL SPENT ON NATIONAL PROGRAM

(list by trip)

Attend Diver Training/Diving Safety Board Meeting/GED Training	\$ 1,830
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**ANNUAL REPORT  
OF  
DIVE TRAINING AND OPERATIONS**

**U.S. EPA  
Atlanta Region 4  
Dive Unit**



10/01/2017 through 09/30/2018

Submitted by

Tara Levine Houda, Unit Dive Officer

The US EPA's Atlanta Dive Unit is comprised of divers from the Atlanta EPA office. Historically this Unit has been made up of divers from across the Divisions and has supported a variety of programs, including Ocean Dredge Material Disposal Sites (ODMDS), TMDLs, current meters, Sediment Oxygen Demand (SOD), criminal enforcement, emergency response, permitting, artificial reefs, Superfund, and civil enforcement. The Unit has also provided partnership support to the Florida artificial reef program, Florida Department of the Environmental Protection (FDEP), U.S. Army Corps of Engineers, National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS), Gray's Reef National Marine Sanctuary, Florida Keys National Marine Sanctuary, Georgia Tech, Georgia Southern University, Broward County, EPA ORD development of Rapid Bioassessment protocol, and other EPA Regions. The following is a summary of dive operations and training in FY18.

### **A. Diving Activities**

1. In FY16 the Atlanta Unit reported the greatest number of Science dives (101) and total dives (197) of any of the units that year. This year due to having fewer projects scheduled, 37 Science dives were conducted in FY18.

A Sediment Oxygen Demand (SOD) project in the Falls Lake, North Carolina was conducted with SESD in June 2018. One Atlanta diver assisted SESD divers.

A SOD project in the St. Johns River, Florida was conducted with SESD in September 2018. One Atlanta diver assisted SESD divers.

One diver conducted a seagrass assessment in collaboration with FDEP, Broward County, and NMFS.

One diver conducted sediment sampling and transects for sedimentation in collaboration with NOAA and a SESD diver.

At the EPA National Diver Training, one diver, Wade Lehmann, participated in a training dive as part of Divemaster Training. Wade was allowed to participate despite having not met all pre-requisites for divemaster. His certification was provisionally granted, and as is standard in these situations, is being held by the UDO until he satisfies all items in 4.4.5.c.ii.-vi. of the EPA Diving Safety Manual.

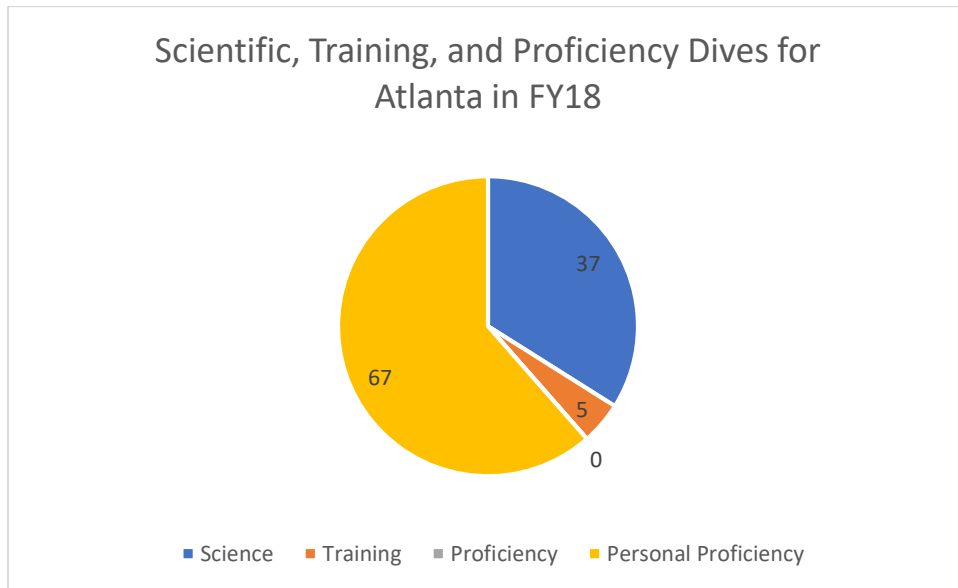
*Proficiency* – Three divers participated in training and proficiency dives at Lake Hartwell, Georgia in April 2018. Three divers are involved with the Georgia Aquarium and conducts several volunteer dives on their personal time to help with aquarium maintenance on a monthly basis. One diver is involved with the Coral Restoration Foundation and conducted several volunteer dives on their personal time to help with coral restoration. Due to medical status, two divers were unavailable for diving during various points in the year.

2. **North Carolina**, Falls Lake  
**Florida**, St. Johns River  
**Florida**, Broward County

**Offshore Florida, near Port Everglades**

3. Dive Statistics:

Number of Dives		Total Dive Time (min.)	Number of Exposure Days	
Science:	37	990	Science:	15
Training:	5	163	Training:	4
Proficiency*:	0	0	Proficiency <sup>+</sup> :	54
<b>Totals</b>	<b>16</b>	<b>1153</b>		<b>73</b>
* Additionally, 67 personal proficiency (off-duty) dives were conducted.				
<sup>+</sup> All proficiency, including off-duty exposure days.				



**B. Diving Accidents, Injuries, or Incidences**

None.

**C. Dive Training**

- Due to lack of travel funds, the Atlanta UDO did not participate in the 2018 Gulf Breeze EPA diver training course; normally all UDOs serve as instructors at every diver training course. One Scientific Diver attended the Divemaster course; the certification will be granted once all pre-requisites have been completed.



- In FY18, Tara Houda completed EPA HQ funded NAUI Oxygen Administration Instructor Training, Basic Life Support CPR and First Aid Instructor, Neurological Assessment Instructor and CPR Health-Care Provider with First Aid. The unit had planned to provide Oxygen Administration training internally (~\$120), however training was secured externally with hands-on practice.
- Several members of the unit participated in HAZWOPER refresher courses.
- In FY18 all divers completed their biennial physical fitness testing.

#### **D. Dive Equipment**

ODMDS purchased a new emergency oxygen kit this year (\$940), which eliminated the need for servicing the kit that was previously assigned to the OSV Bold. Inventory of the First Aid Kit was conducted, and a purchase request was submitted, but the items have not been ordered.

Exposure protection, consisting of several wetsuits, was purchased this year. The Unit is still considering upgrading rubber hoses to braided hoses.

- 1) Emergency Oxygen Kit
- 2) 3 Wetsuits and 2 fleece components

*Regulators:* **11** Atomic Z2 regulators (1<sup>st</sup> and 2<sup>nd</sup> 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; **1** – Sherwood Luna; **1** – ScubaPro X-Tek.

*Computers:* **6** Suunto Gekko, **1** Suunto Zoop, **2** Suunto Vyper dive computers

*Drysuit(s):* **1** Viking modified to fit smaller female divers, **2** custom fit drysuits (transferred from R10 Unit)

*U/w video system:* Sony TRV900 w/ Amphibico Navigator 900 housing and light package.

*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), expired items in need of replacement

*AED*

*Oxygen Kit:* OSV Bold single cylinder kit not in use and out of service. A new kit was purchased consisting of Dan O2 dual J Kit with MTV valve, 2 non-rebreather masks and 1 orinasal resuscitation mask (<https://www.diversalertnetwork.org/dive-store/?id=33>)

## E. Review of Unit Diving Personnel

One employee, Anya Savrasov, transferred to Region 4 from Region 10 in October 2018. She was a member of the Region 10 Dive Unit and plans to join the Region 4 Dive Unit.

<u>Diver Name</u>	<u>Age</u>	<u>Sex</u>	<u>Certification Level</u>
Tara Houda	34	Female	Divemaster, UDO
Chris McArthur	49	Male	Divemaster
Rosemary Hall	42	Female	Divemaster
Wade Lehmann	45	Male	Scientific Diver
Lena Weiss	27	Female	Scientific Diver

## F. Time Spent on the National Dive Program

### 1. Time Expenditures

<u>ACTIVITY</u>	<u>TIME</u>
Assistance with Diver Training Course	0
Review of Documents	
Dive Plans	3
Dive Reports	3
Manual review/updating	2
Performing Action Items	
Action Item Follow-through	24
Preparation for and Attendance at Meetings (UDO)	
Annual Reports	8
Meeting participation	24
Technical Assistance to Other Units	0

### 2. Fiscal Expenditures

#### Cost of Travel Spent on National Program during FY18

Travel to Training Course	\$962
2018 DSB Meeting	\$0
Emergency Oxygen Administration Training	\$440
New O <sub>2</sub> Kit	\$940
New Gear (replacement wetsuits)	\$880
Gear Maintenance	<u>\$1270</u>
Total	\$4492

## ORD GULF ECOLOGY DIVISON DIVE UNIT

### ANNUAL REPORT OF UNIT DIVE TRAINING AND OPERATIONS 2018

Diving Unit: ORD/GED, Gulf Breeze, FL  
Cheryl Hankins, UDO (June 2018-present)  
Mel Parsons, Acting UDO (Nov 2017-May 2018)

Time Period: 12/01/17-09/30/18

Cheryl reached her 100<sup>th</sup> dive during EPA Diver Training in May initiating the official role of UDO for GED. Guidance from Mel and others is still invaluable as I navigate my new role in the team and what better way to celebrate than with an audit (conducted in June). The results of audit are captured below. GED conducted a total of 85 dives with 40 exposure days during the past year.

#### A. DIVING ACTIVITIES

GED sent two divers to assist NOAA with the National Coral Reef Monitoring Program (NCRMP) this year in the Florida Keys. The GED divers conducted 47 dives with 7 exposure days during the NCRMP surveys. In preparation for NCRMP and to develop their skill at planning and executing offshore and deeper dives, GED conducted offshore training dives depths ranging from 60-97 feet deep. GED was also able to accommodate a deep dive with their NOAA partner for their deep depth proficiency.

GED hosted the National Diver Training Course in May, 2018. Dives conducted by diver candidates are NOT listed in this report, however, those dives conducted by GED divers who provided assistance during the Training Course ARE included in this report.

#### 2. Description/type of diving operations

##### c. National Coral Reef Monitoring Program (NCRMP – 57 Dives, 21 Exposure Days):

Conducted habitat assessments at selected locations around the Florida Keys. 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.



Peggy Harris performing LPI survey



Debbie Santavy performing coral demo survey

b. Region 2 RARE microplastic sampling – 8 dives, 6 exposure days

During the NOAA NCRMP monitoring, Cheryl Hankins was able to simultaneously collect coral samples for microplastic quantification and polymer identification. Dives were conducted separately from survey; exposure days are the same.



View from boat



Cheryl Hankins collecting coral sample

c. Offshore and Deep Training Dives – 1 Dive, 5 Exposure Days:

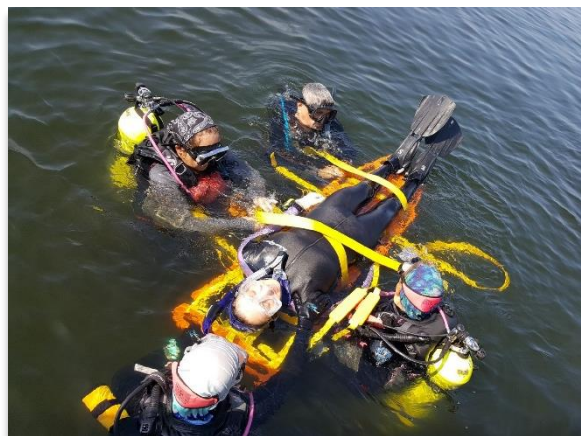
Offshore dives were planned for the purpose of keeping the dive team members proficient in the planning, managing and execution of safe offshore dives in deeper water (50-130'). Unfortunately, we were only able to complete one dive that day.



GED divers Nestlerode, Harris, Wilkinson, Santavy, and Hankins.  
NOAA diver Kimberly Edwards (far right).

d. Rescue Drills – 6 Dives, 28 Exposure Days

Rescue drills were performed on two separate days, once in April and another in July. Divers were appreciative of the added training and exercises that were not typically provided in past years. Not only were techniques acquired but rescue drills are great team-building exercises as well.



Debbie Santavy playing victim as unconscious diver

2. Location of diving operations/water body

Florida –Pensacola offshore and the Florida Keys

3. Dive Statistics

Type of Dive	Number of Dives	Total Min	Total Hr	Number of Exposure Days
Working	57	—	—	21
Proficiency	16	—	—	5
Training	12	—	—	28
<b>Total</b>	<b>85</b>	<b>3386</b>	<b>56.4</b>	<b>54</b>

**C. DIVING ACCIDENTS**

No accidents this year.

**C. DIVING SAFETY AUDIT**

June of this year, GED underwent a full health and safety audit. Included was the safety audit for the diving unit. Below are excerpts from the official report. Not all items are directly related to diving, however, they were found performing the dive audit.

*Priority B Findings*

*Occupational Safety and Health*

- *The 25-foot vessel RV Cap’n Jim lacks the Coast Guard-required throwable ring attached outside the cabin. A ring is present on the ship, but it is not readily accessible and would present a risk to life if needed in an emergency. Regulatory Citation: 33 CFR 175.19. (Finding Number 20) Action Taken: The GED has designated a location outside the cabin for mounting the ring when this vessel is operating. (FINDING CLOSED)*
- *The GED sea water intake pump is manually switched off onshore before an employee changes the filter at the underwater intake point in the bay. If the pump were to restart suddenly during a screen change, water would enter it at 900 feet per minute and pull the employee’s arm into the 6-inch barnacle-laden duct, potentially trapping the employee underwater and causing serious lacerations. The pump should be locked out in accordance with the Occupational Safety and Health Administration (OSHA) requirements to control hazardous energy (“Lockout/Tagout”) to reduce the risk of accidental restart. Regulatory Citation: 29 CFR 1910.147(a). (Finding Number 21)*

*Priority C Findings*

*Fire and Life Safety*

- *The RV Cap’n Jim flies a dive indicator flag during dives, but the flag is smaller than required by Florida statute. Regulatory Citation: 2018 Florida Statutes, Title XXIV, 327.331. (Finding Number 26) Action Taken: The undersized flag has been removed from service and new flags have been acquired for each vessel. (FINDING CLOSED)*

*Occupational Safety and Health*

- *The Hazard Communication Program is not fully implemented in non-laboratory spaces. Safety Data Sheets (SDSs) are not readily accessible to employees for hazardous maintenance products stored in*

*the Building 3 dive locker and the Building 47/49 field preparation area (Room 19) (see **Error! Reference source not found.** in **Error! Reference source not found.**). Although purchased from consumer stores, these materials fall under OSHA's Hazard Communication standard, which applies to EPA employees working in these spaces and in the field. The GED should maintain the materials in accordance with its Hazard Communication Plan. Regulatory Citation: 29 CFR 1910.1200(b)(4)(ii). (Finding Number 23)*

NOTE: This citation is in reference to commercial items located in the dive locker such as WD-40 and PB Blaster.

**D. DIVE TRAINING**

No new training.

**E. DIVING EQUIPMENT**

All dive equipment was serviced and passed inspection.

Four new steel tanks were purchased as well as three new Suunto wrist dive computers (identical to primary computers) to be used as backups for surveys.

**F. REVIEW OF DIVING PERSONNEL**

There are a total of 7 divers on the EPA GED Dive Team. The dive team currently has 5 divemasters.

NAME	CERTIFICATION LEVEL	POSITION
David Beddick	Scientific Diver	Biologist
Bill Fisher	Scientific Diver	Acting Assoc. Dir. for Ecology
Cheryl Hankins	UDO	Biologist
Peggy Harris	Divemaster, Alt UDO	Biologist
Janet Nestlerode	Scientific Diver	Acting Branch Chief, BPRB
Debbie Santavy	Divemaster	Research Ecologist
Sherry Wilkinson	Divemaster	Biologist

**Changes in personnel**

Beddick has moved from a technician position to Acting SHEM manager. Nestlerode has moved from a research ecologist position to Acting Branch Chief. Both are still maintaining proficiency and active team members.

## **G. TIME SPENT ON THE NATIONAL DIVE PROGRAM**

<u>ACTIVITY</u> (describe)	<u>TIME</u>
Assistance with Diver Training Course	15 days
Review of Documents (EPA Dive Manual v1.2)	2
Performing Action Items	1
Preparation for and Attendance of DSB Meeting	5
Technical Assistance to Other Units	0
Equipment Servicing	\$1601.00
Equipment Purchases	\$3254.33
Other	0
<u>COST OF TRAVEL SPENT ON NATIONAL PROGRAM</u> (list by trip)	
Attend Diver Training/Diving Safety Board Meeting/GED Training	\$0.00



## 2018 EPA DIVER TRAINING ANNUAL REPORT

The 2018 EPA scientific diver training course was conducted May 14-18 at the ORD Gulf Ecology Division (GED) Laboratory and EPA Dive Training Center. Nine scientific dive candidates and three divemaster candidates attended the course this year.



The scientific divers were:

Brent England – R1 EPA  
Laura Hunt – R6 EPA  
Selena Medrano – R6 EPA  
David Robertson – R6 EPA  
Andy Barlow – TN Dept. of Wildlife Resources (DWR)  
Bill Moulton – TN DWR  
Amy Brower – State of Florida  
Katie Davis – State of Florida  
Megan Lamb – State of Florida

The divemasters were:

Ashley Howard – R6 EPA  
Wade Lehmann – R4 Atlanta EPA  
Paolo Ghio – Escambia County Marine Resources

All course participants passed and did a great job.

Both Ashley Howard and Wade Lehmann were below the 100 EPA dive minimum for being an EPA divemaster and were given contingency divemaster certifications. They will automatically become officially recognized EPA divemasters by notifying the EPA Diving Safety Board Chairman and EPA Dive Training Director upon completion of their 100<sup>th</sup> EPA dive.

In attendance for instruction and assistance with the course were:

Alan Humphrey – EPA Diving Safety Board (DSB) Chairman and ERT/R2 UDO  
Mel Parsons – EPA DSB Dive Training Director and R4 Athens UDO  
Sean Sheldrake – EPA DSB Technical Director, Divemaster Trainer and R10 UDO  
Cheryl Hankins – GED Representative, GED UDO  
Eric Nelson – Director of Scenarios, R1 UDO  
Nick Gannon – R6 Acting UDO  
Scott Grossman – Blackout Mask Lead, ERT/R2 Alternate UDO  
Dan Marelli – Lead Scientific Diving Instructor, Scientific Diving International  
Lyle Becker – Surface Supply Diving Instructor, Scientific Diving International  
Van Kozak – Equipment manager, Scientific Diving International  
Dave Worley – Equipment manager, Scientific Diving International  
Allen Pyburn – TN DWR, Underwater project deployment, Equipment assistance  
Bobby Brown – TN DWR, Underwater project deployment, Equipment assistance  
Chris Villarreal – R6 Management Representative  
John Penland – R6 Diver and general assistance  
Valmichael Leos – R6 Diver and general assistance  
Dr. John Clark of the Navy Experimental Dive Unit (NEDU) presented a history of NEDU  
Logan Campbell participated in dock exercises on Thursday.

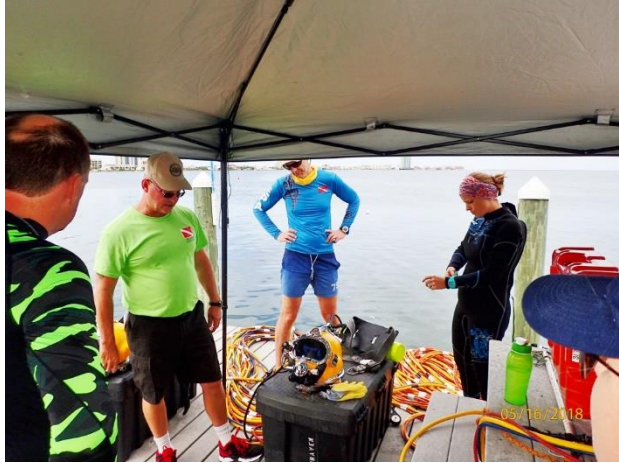
Below are statistics for this year’s course compared to 2017 and 2016. The differences in total dives and minutes are a reflection of the number of divers in each class – nine in 2018, eleven in 2017 and sixteen in 2016.

<b>Dive Course 2018 Stats</b>						
	Prep	Breakdown	Team Alpha	Team Bravo	Team Charlie	Total
No. of Dives	10	3	35	37	35	120
Dive Days	4	3	20	21	17	65
Dive Minutes	210	125	1119	969	629	3052

Dive Course 2017 Stats						
	Prep	Breakdown	Team Alpha	Team Bravo	Team Charlie	Total
No. of Dives	12		30	45	30	117
Dive Days	7		12	16	16	51
Dive Minutes	161		707	1317	963	3148

Dive Course 2016 Stats							
	Prep	Breakdown	Team Alpha	Team Bravo	Team Charlie	Team Delta	Total
No. of Dives	9	3	40	43	36	30	161
Dive Days	9	3	16	21	16	16	81
Dive Minutes	388	50	1211	1650	1460	1160	5919





## REGION 6 ANNUAL REPORT OF DIVE OPERATIONS AND TRAINING

**Region 6 Diving Unit: USEPA EPA Region 6 (Dallas office and Houston laboratory combined)**

**Reporting Period - FY18: October 1, 2017 – September 30, 2018**

### **A. DIVING ACTIVITIES**

The Region 6 Dive Team continued to develop its capabilities to serve Region 6 with scientific dive team support. One Divemaster and three new Scientific Divers completed the 2018 EPA Scientific Diving training class. Three existing team divers and one manager also attended and assisted in the annual training. A Region 6 / ERT-NJ mixed team performed dive operations, cap assessment, and sampling at the San Jacinto Waste Pits (SJWP) Superfund site. For FY 2018, the Region 6 Dive Team conducted 16 working dives, 86 training dives, and 24 proficiency dives for a total of 126 dives and 47 exposure days.

#### Diving Operations:

##### **San Jacinto Waste Pits Channelview, TX – R6 / ERT mixed team (June 2018)**

San Jacinto River Waste Pits (SJWP) - Region 6, with assistance from ERT, performed technical and contaminated water diving to survey and sample the National Priority List (NPL) site east of Houston and adjacent to the San Jacinto River.

Site activities included diving, shore/wading operations, and commercial divers (PRP) concurrent sampling.

EPA divers performed an inspection of the NW portion of the subsurface cover system and collected sediment samples in 22 areas where cap material appeared to be exposed or absent. Several of the sampled areas showed elevated dioxin concentrations as compared to the anticipated cleanup target levels. The responsible parties, under the direction of the site RPM, have performed repairs in these areas. In addition, the responsible parties will develop a plan to improve the design of the existing cover system to minimize future exposures.

<http://www.fox26houston.com/news/epa-says-protective-cap-missing-dioxin-exposed-in-san-jacinto-river>  
<https://www.epa.gov/newsreleases/epa-directs-additional-repairs-san-jacinto-river-waste-pits-superfund-site>.

All dives were conducted using line tended procedures which consists of a single diver utilizing a combined tether / communication rope connected to topside support staff. The diver wears a full-face mask, dry suit, and dry gloves. Between dives, divers were decontaminated on-board the dive vessel by support staff. Sampling operations were conducted in conjunction with PRP provided commercial divers. Dive staff also were involved in shore operations which included surveying, sampling, and mapping.

All dive operations followed the EPA Diver SOPs Appendix P and Q, for Tethered Diving and Diver Decontamination, DSM Version 1.3).



R6 diver returns to the dive vessel with ERT support at the SJWP site (June 2018).



R6 – ERT divers supporting survey and sampling operations at the SJWP site (June 2018).

**B. DIVE STATISTICS**

<b>Dive</b>	<b>Total Number of Dives</b>	<b>Total Dive Time (hrs. / min.)</b>	<b>Number Exposure Days</b>
Working dives	<b>16</b>	<b>6 hrs. 31 min.</b>	<b>7</b>
Training dives	<b>86</b>	<b>24 hrs. 31 min.</b>	<b>33</b>
Proficiency dives	<b>24</b>	<b>7 hrs. 55 min.</b>	<b>7</b>
<b>Total</b>	<b>126</b>	<b>38 hrs. 57 min.</b>	<b>47</b>

**C. DIVING INJURIES**

There were no diving injuries or incidents during FY2018.

**D. DIVE TRAINING and DIVER RECRUITMENT**

Per direction from R6 management, a recruitment effort was initiated to add members to the R6 Dive Team. All hands memos and Q&A sessions resulted in multiple candidate applications. Five dive candidates began preparation for the EPA Scientific Diver course with three completing the course along with one current team member who completed Dive Master training. One candidate withdrew and one candidate resides in trainee status until physically able to perform.

The EPA Scientific Diver training was held in Gulf Breeze in May 2018. Along with the four divers going through certification, three current team members attended and assisted during the training. One R6 SF manager also attended.

Internal dive unit training sessions were held at Scuba Toys Dive Shop (pool) in Dallas TX and Clear Springs Scuba Park (lake) in Terrell, TX. The training focused on the following: dry suit and full-face mask familiarity and proficiency, underwater navigation, water and soil sampling procedures, transect line deployment and retrieval, and sub-surface inspection procedures. Each training session concluded with an in-water H&S training exercise.



R6 divers perform a H&S exercise in preparation for the EPA Scientific Diver course (April 2018)



R6 Scientific Divers in the water at EPA dive training in Gulf Breeze, FL (May 2018).





R6 scientific divers and divemaster at EPA dive training in Gulf Breeze, FL (May 2018).



R6 divers gather for a transect line deployment during a team training exercise (July 2018)

## **E. DIVING EQUIPMENT**

Current Equipment Inventory - Primary dive team equipment includes: Scuba tanks (9), Pony bottles (2), Regulators (6), BCDs (6), Dry Suits (5), Full Face Masks (5), One 2-way communication system with OTS Aqua-Com control box and 300 ft. umbilical line. A dedicated AED unit was added to the H&S inventory this year. Equipment needs include female (small) dry suits and various hose lengths.

## **F. REVIEW OF DIVING PERSONNEL**

Presently, the Region 6 Dive Team has eight full-time members and two support members:

Nick Gannon (56M)	Divemaster
Ashley Howard (34F)	Divemaster (pending 100 scientific dives and DSB approval)
Valmichael Leos (39M)	Scientific Diver
John Penland (39M)	Scientific Diver
Laura Hunt (ZZF)	Scientific Diver
Selena Medrano (37F)	Scientific Diver
David Robertson (49M)	Scientific Diver
Angela Hays (ZZF)	Trainee Diver
Chris Villareal	R6 management liaison
Alan Humphrey	UDO (via ERT-NJ)

## **G. TIME SPENT ON THE REGION 6 DIVE PROGRAM AND RELATED COSTS**

Scientific Diving field activities	24 days
EPA Diver Training Course	40 days
Bi-annual DSB meetings and conference calls	6 days
Dive Plan(s) preparation	2 days
Equipment maintenance, cleaning and upkeep	4 days
Recordkeeping (dive logs, medical, training)	2 days
Reporting (site specific and annual reports)	5 days
Cost of travel related to diving projects	\$ 14,500
Cost of attendance at EPA Diver Training course	\$ 12,000
Equipment maintenance costs	\$ 1,220

## **H. FY 2019 TEAM OUTLOOK**

The Region 6 dive team continues to look for opportunities to support R6 Superfund, Water, and Enforcement divisional activities. Discussions have also been initiated with federal agency partners within the dive community for inter-agency participation under MOUs.

The ongoing SJWP SF site cleanup is expected to require additional underwater cap inspections and sampling events.

FY 2019 training may include sending divers to EPA Scientific Diver training or team participation in Advanced Dive Operations training, depending on the Dive Safety Board (DSB) program offerings.

# ANNUAL REPORT OF UNIT DIVE TRAINING AND OPERATIONS

Diving Unit: [EPA Region 10](#)

Time Period: FY 2018

## DIVING ACTIVITIES

### 1. Describe each type of diving operation.

During FY18 the Region 10 (R10) unit had six scientific work diving events, some of which were multi-week operations. There were also three formal training events to practice critical rescue and scientific data collection techniques. Of the six work events, three were in support of Superfund which is consistent with most years past. All projects were related to natural resource, water, or habitat quality issues. Five of these work projects this year involved use of free swimming SCUBA, zero were via tethered SCUBA, and one was surface supplied. Training was conducted to maintain proficiency with all the surface supplied diving mode, rescue, sampling, and underwater photography. Region 10 had **88** work dives (82 excluding ORD/WED divers utilized for Chetco work dives) and **70** training dives, as this was a significant training year with one dive school graduate (Annie Whitley). Overall, R10 had a total of **254** dives (including requalification and off-duty dives, 248 excluding WED joint dives). During FY2018, R10 had the following work projects:

1. Wyckoff Superfund Site cap inspection. Divers investigated three unknown objects, detected initially by LiDAR, to determine whether and to what extent they are damaging the cap installed to address creosote and other contamination at the Wyckoff/Eagle Harbor Superfund Site.

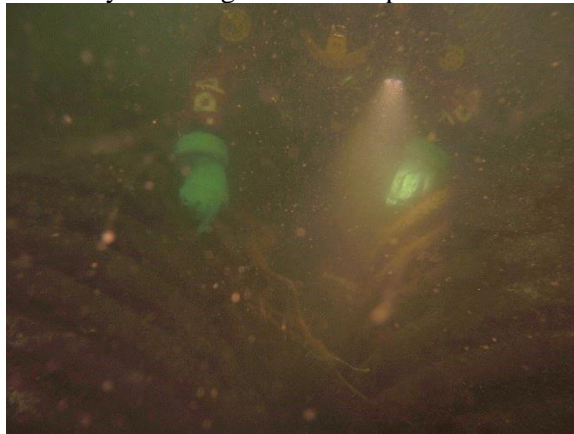


Figure: Divers reported the unknown item appeared to be two cement barrels/cylinders, chained together.

2. Pacific Sound Resources (PSR) Superfund Site five year review sampling (two full week events). Divers deployed and retrieved passive samplers and collected sediment samples to determine if the cap remains protective.



Figure: Diver placing passive sampler.



Figure: Diver taking surface sediment sample.

3. Agate Pass Net Enhancement Pen benthic survey for OCE. On November 1, 2015, EPA Region 10 issued NPDES general permit WAG132000 (GP) authorizing certain discharges from tribal marine net pen enhancement facilities in the State of Washington. The dive operation was performed in support of the Suquamish Tribe's coverage under the GP for their Agate Passage salmon net pen located 0.7 miles southwest of the SR 305 Agate Pass Bridge between Bainbridge Island and the Kitsap Peninsula, Washington (Figures 1-4). Specifically, information collected during this dive operation fulfills the monitoring requirements specified in Section IV of the GP, including: 1) sediment characterization; 2) visual assessment; and, 3) surface water monitoring.



Figure: Kris Leefers prepares to conduct an underwater transect beneath the pens on surface supplied gas.

4. Wyckoff cap and buoy inspections. Divers investigated the status of four anchors holding “No Anchor” buoys to determine whether anchors or lines need to be replaced to keep these marker buoys operational. Divers also investigated the state of the cap to help determine whether it remains protective.



Figure: Inspection of navigation aid Buoy #2.

5. Jackson Park Superfund Site passive sampler test deployment. The purpose of the April 2018 dive operation was to test the deployment and retrieval of 12 passive diffusion samplers in preparation for fall 2018 investigation. However, due to budget considerations, the fall 2018 dive operation has now been postponed to spring/summer 2019.



Figure: Lisa Macchio preparing to deploy.

6. Chetco Ocean Dredge Material Disposal Site benthic survey. The survey was intended to determine (in part) whether or not disposal of dredged material is causing an unacceptable adverse impact to marine resources at the Chetco ODMDS. The marine resources of interest are the high-relief rocky outcroppings within the ODMDS and the associated algae, fish and invertebrate communities.



Figure: Sand rose anemone at the Chetco ODMDS  
Proposed reference location #5.

For more EPA scientific diving project information, see:  
<https://www.epa.gov/scientific-diving> and  
[www.facebook.com/EPADivers](http://www.facebook.com/EPADivers)

Training projects included (no pollutant exposure expected):

1. Rescue training at the Manchester Lab campus- December 2017
2. NOAA dive training- one dive unit member received training at the NOAA Sandpoint campus to build critical team capacity: Annie Whitley (scientific diving)
3. AAUS dive safety training- October 2018 (planned) for Schulze, Sheldrake, and Leefers to learn and share invaluable dive safety officer information.

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. 2018 updates: PSR work at depth was performed by ROV, vs. divers, for health and safety reasons due to extreme depths required.

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

Scientific work and training dives were conducted in the Puget Sound and the Pacific Ocean.

3. Dive Statistics.

Number of Dives

Work	82 (less ORD diver dives)
Training	72
Other (off-duty/ proficiency)	94
<b>Total Dives</b>	<b>248</b>
<b>Total Dive time (minutes)</b>	<b>7,345</b>

Number of Diving (exposure) Days (=sum divers/days)

Work	48 (MINUS 4 Chetco/ORD)
Training	54
Other	1 (NOAA training)
<u>(Non diving (hyperbaric exposure training in chambers/Tending Assist/Non diving DM/+ OD = Off Duty)</u>	
<b>Total</b>	<b>103</b>

## **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.

None.

## **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 \$4400 was spent on dive training with FY 18 funds from the dive budget and from OMP.

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. Chad Schulze provided CPR/AED/first aid training to the unit in December 2017, saving travel and overall cost. (\$300)

Hazwoper 40-hour training is planned for Annie Whitley in 2017.

The Unit Diving Officer attended at AAUS in 2017 to learn a great deal from interacting with DSOs at universities as well as government institutions. (\$650 plus travel). The UDO and 2 deputies plan to attend the 2018 conference at the beginning of October and attend and provide a variety of safety classes.

2. List any training needed.

In 2018, the usual refreshers for first aid, CPR/AED and 8-hour health and safety are required annually (or biannually) for some first aid courses.

For oxygen and neuro examinations, a customized [Divers Alert Network \(DAN\) neurological examination and oxygen administration](#) training is planned for the team for 2019 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.

R10 will be renewing our 2-day wilderness first aid in October 2018 with NOLS.

R10 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.

A 2-day formal surface supply training course will be held in R10 in FY 19.

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

R10's budget in 2018 included a service budget of approximately \$7,200 (\$1,800 decrease from 2017) and \$13,200 for supplies (same as 2017). This year, capital equipment purchases were unfortunately unable to purchase any additional equipment improvements for safety and productivity.

### In service:

1. 2 suits per diver that have completed dive training (current or pending manufacture).
2. 1 surface supplied diving control box, 2 200 foot umbilicals (surplus to GED pending), 3 300 foot umbilicals; 70 cf faber steel EGS bottles in service, 2 50 cf EGS bottles (tagged out), 2 EGS regulators/manifold blocks.
3. Tethered SCUBA regulators (4 sets) plus 4 200 foot tethers, 4 300 foot tethers, 3 complete surface tending MK7 units
4. 5 still camera rigs (one assigned to Anne Christopher at OOO) – 1 sealife, 3 cannon still cameras (solas assigned to each cannon). One sealife was lost during the Wyckoff diving operation this year.
5. 2 verizon hotspots (one assigned to Schulze, one checkout)
6. 4 gopro assemblies with two assigned solas.
7. 4 solas with full face mask mounts; 3 solas set up for wrist attachment.
8. 1 bluefin camera housing and lighting for canon HD video camera that allows narration underwater- surplused in 2018.
9. 7 in service AGAs
10. 2 BCDs per diver (for contaminated water diving and off duty proficiency diving flexibility)
11. One non polluted water regulator per diver (12) -hose replacements should be considered if capital equipment cannot replace these soon.
12. 4 S17k suits (shared with ERT); 1 S17k helmet (ERT) for upcoming training dive.
13. 2 complete first aid/AED/o2 kits with 2 MTV valves per kit (one in Seattle, one at the Manchester Lab); 2 E tanks aboard Monitor, 2 spare D tanks at DOC.
14. 2 backboards assigned to Monitor and Wooldive, one in dive ops for non EPA vessel trips.
15. 2 DRS 100B OTS diver recall units, one located in DOC; one Manchester Lab
16. 4 nitrox analyzers (1 in DOC, 1 in the dive van, 1 on Monitor, 1 at the Lab)
17. 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.
18. 2 reserve air supply systems for NOAA training
19. 1 carbon monoxide detector for air quality testing at remote locations
20. 2 13 CF, 2 19 CF, 4 30 CF EGS bottles

## REVIEW OF DIVING PERSONNEL

<u>Name</u>	<u>Certification Level</u>
1. Sean Sheldrake	Regional Diving Officer, Divemaster
2. Chad Schulze	Divemaster, UDO Alternate
3. Lisa Macchio	Divemaster
4. Rob Rau	Divemaster, UDO Alternate

- |                     |  |
|---------------------|--|
| 5. Kristin Leefers  | Divemaster, UDO Alternate  |
| 6. Adam Baron       | Scientific Diver** ( <i>on management assignment, minimal diving in early 2019</i> ) |
| 7. Anne Christopher | Scientific Diver (Portland, OR based)  |
| 8. Brent Richmond   | Scientific Diver (Lab/Kitsap Peninsula based)  |
| 9. Ian Ainoa        | Scientific Diver   |
| 10. Annie Whitley   | Scientific Diver   |

R10's operations with collateral duty divers are very dependent on a sufficient number of personnel to maintain a regional dive unit capable of meeting the highest priority program needs. 10-12 divers is an ideal size for the nominal workload asked of the dive unit over the past decade, on average. Unfortunately we lost Anya Savrasov this year as she was reassigned to R4 in September. Rob Pedersen retired in 2018 which was a huge loss of experience for the unit. Effectively, we have 9 divers available at present time.

For more information:

<https://www.epa.gov/scientific-diving>

<https://archive.epa.gov/region10/diving/web/html/>

### **TIME SPENT ON THE NATIONAL DIVE PROGRAM**

<u>ACTIVITY (identify and describe)</u>	<u>TIME (hours)</u>
<u>Assistance with the EPA Diver Training Course (1), including providing the lead instructor the divemaster class(lesson prep: 20, class time 40)</u>	<u>60</u>
<u>Outreach on behalf of EPA dive program (<a href="#">Facebook</a>, “It’s all about Science” blogs, design of new OneEPA dive program web page, <a href="#">Flickr</a> ).</u>	<u>75</u>
<u>Performing Action Items</u>	
<u>(Meeting Minutes/review and comment on DSM revisions, equipment recall notices)</u>	<u>50</u>
<u>Technical assistance to other units, Regions, other state &amp; federal agencies</u>	<u>30</u>
<u>Other activities:</u>	
<u>-Preparation for and dive team meetings</u>	<u>20</u>
<u>-All team members that participated in various public outreach, education events, including two earth day events for 350+ children.</u>	<u>20</u>
<u>-Preparation for training events</u>	<u>30</u>
<u>-Development of polluted water protocols &amp; SOPs, sampling techniques</u>	<u>25</u>



Figure: Screen shot of the EPA Divers Facebook page

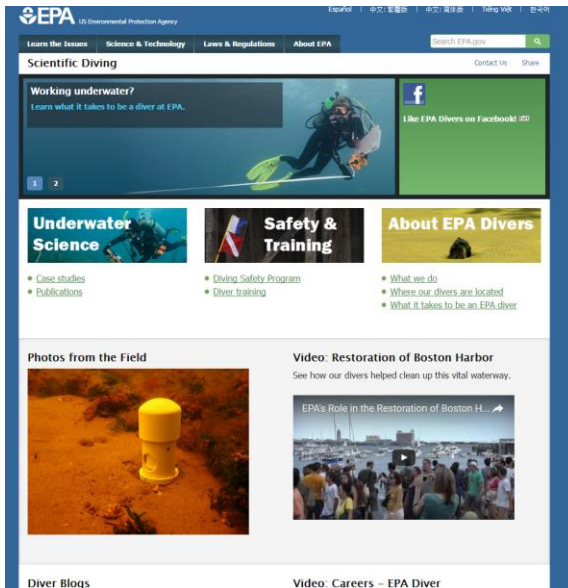


Figure: 2016 rollout of the new national dive program page, maintained by R10

COST OF TRAVEL FOR NATIONAL PROGRAM COST

List by trip: \$2000 (for trip in FY 16)  
1X for GED/ DSB & Dive training



# REPORT OF DIVE TRAINING AND OPERATIONS

Diving Unit: **Western Ecology Division**  
ORD/NHEERL

Time Period: **Oct. 2017 – Sept. 2018**

## A. DIVING ACTIVITIES

1. Dive activities during FY 2018 consisted of work, training and proficiency dives.

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

2. Location of work dive operations: Chetco River coastal ocean, Ocean Dredged Material Disposal Site survey. Dive op with R10.
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:

<b>Dive</b>	<b>Total Number of Dives</b>	<b>Total Dive Time (min.)</b>	<b>Number of Exposure Days</b>
Working dives	<b>6</b>	<b>201</b>	<b>4</b>
Training dives	<b>4</b>	<b>139</b>	<b>4</b>
Proficiency dives	<b>66</b>	<b>3339</b>	<b>32</b>
<b>Total</b>	<b>74</b>	<b>3679 min. (61.3 hrs.)</b>	<b>38</b>

5. Dive Audit:

Next audit scheduled for June 2020.

(Last external audit - completed in July 2011.)

## B. DIVING ACCIDENTS, INJURIES, OR INCIDENTS

None

### C. DIVE TRAINING

All divers, except Johnson, completed biennial swim skills testing in July 2018.

Andersen, Kaldy and Reichman were 're-qualified' by Mochon Collura following extended absences from diving.

(Diver FA/CPR, etc. re-training due in Feb. 2019.)

### D. DIVE EQUIPMENT/MAINTENANCE

Date	Diver	Item	Cost
14-March-18	Team	Cylinder VIS (8)	\$120.00
14-March-18	Team	Cylinder hydro (2)	\$50.00
14-March-18	Team	Reg. and BC annual insp.	\$125.00
14-March-18	Team	Reg. repair	\$90.00
14-March-18	Team	Air fills (8)	\$40.00
9-April-18	Team	O2 regulator inspection (2)	\$109.00
3-August-18	Team	Megaphone	\$128.19
3-August-18	Mochon Collura	Depth module	\$75.00
9-August-18	Johnson	Prescrip. mask	\$201.60
15-August-18	Team	AED pads	\$49.86
17-August-18	Andersen	Mask	\$110.00
4-September-18	Team	Twin Jet Split Fins (4 pair)	\$390.00
		Total	\$1488.65

### E. REVIEW OF DIVER PERSONNEL

Diver	Certification	Sex	Status
T Chris Mochon Collura	Divemaster, UDO	Male	Qualified
Mark Johnson	Divemaster, Alt. UDO	Male	Needs re-qual
Chris Andersen	Divemaster	Male	Qualified
Jim Kaldy	Scientific Diver	Male	Qualified
Jay Reichman	Divemaster	Male	Qualified

### F. TIME SPENT ON NATIONAL DIVE PROGRAM

1. Time Expenditures:	hrs.
Assistance with Diver Training	0
Dive Program Audit	0

Review of Documents	8
Performing Action Items	8
Preparation for and Attendance at Meetings	8
Technical Assistance to other Units	55

2. Fiscal (monetary) expenditures

DSB Meeting	\$0.00
Training at GED	\$0.00
Diver Physicals (biennial exams due May 2019)	\$0.00
New Gear	\$954.65
Gear Maintenance	\$444.00
Gear Repair	\$90.00