Environmental Protection Agency
National Dive Safety Program

2017 Annual Report

January 31, 2018

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 1,145 scientific, training and proficiency dives in FY2017, involving nine EPA dive units and 64 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

Alan Humphrey, Chairman
EPA Diving Safety Program

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Introduction

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

This report is a summary of the EPA's National Diving Safety Program (NDSP) activities from October 1, 2016, through September 30, 2017. 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 1,145 scientific, training and proficiency dives in FY 2016 (Figures 1 and 2), involving nine EPA dive units, and a total of 64 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 FY2017 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 FY 2017

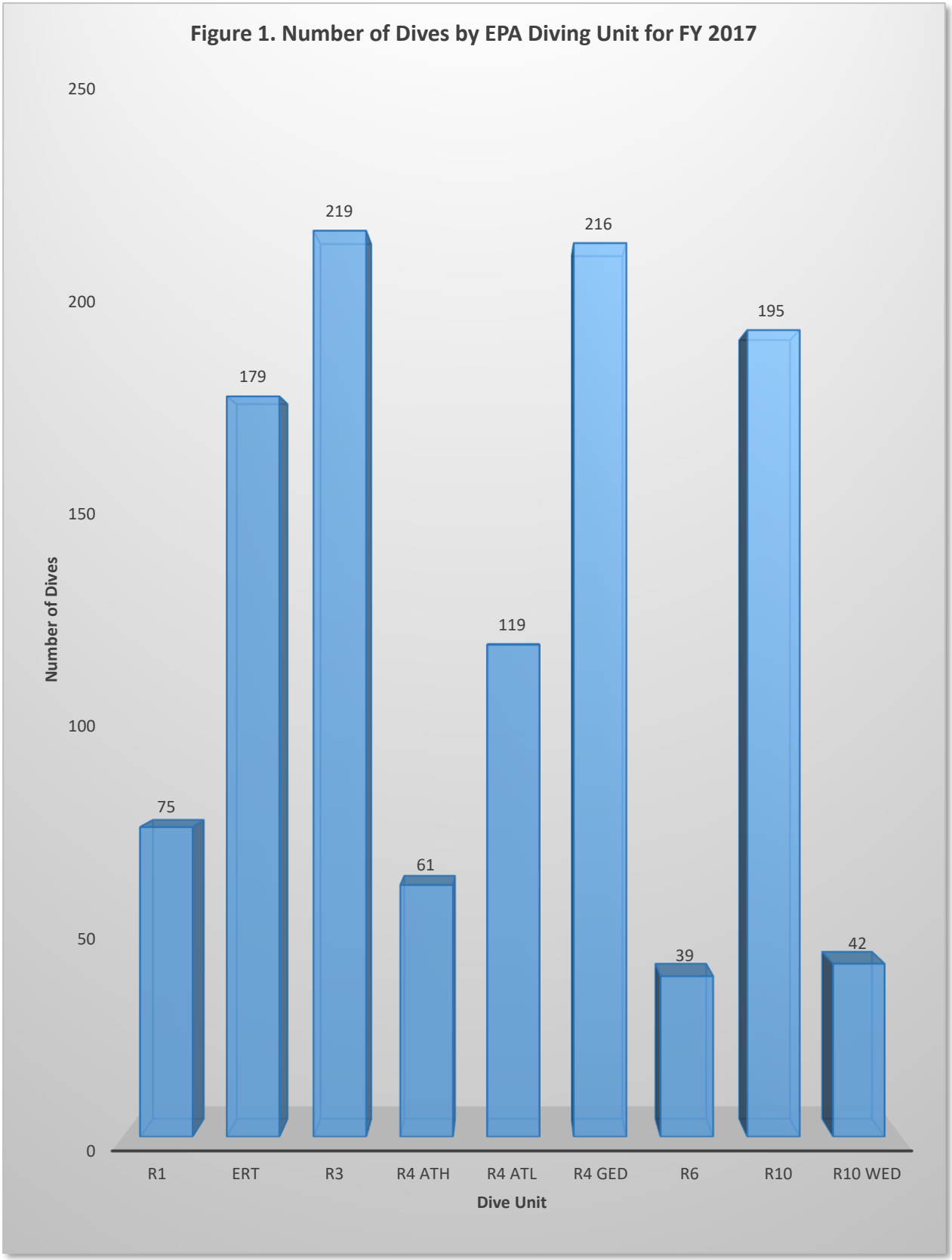
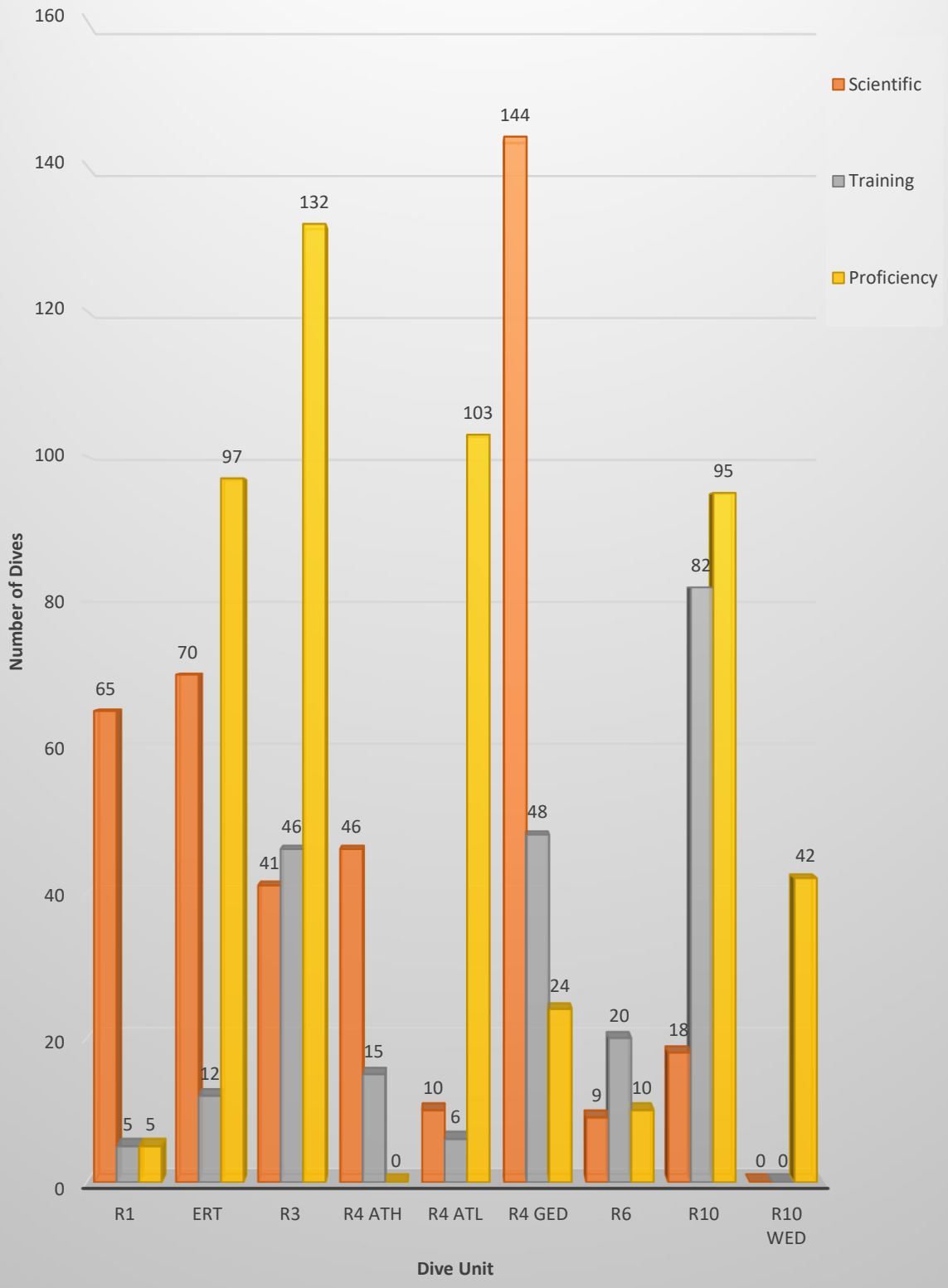


Figure 2. Type of Dives by EPA Diving Unit for FY 2017



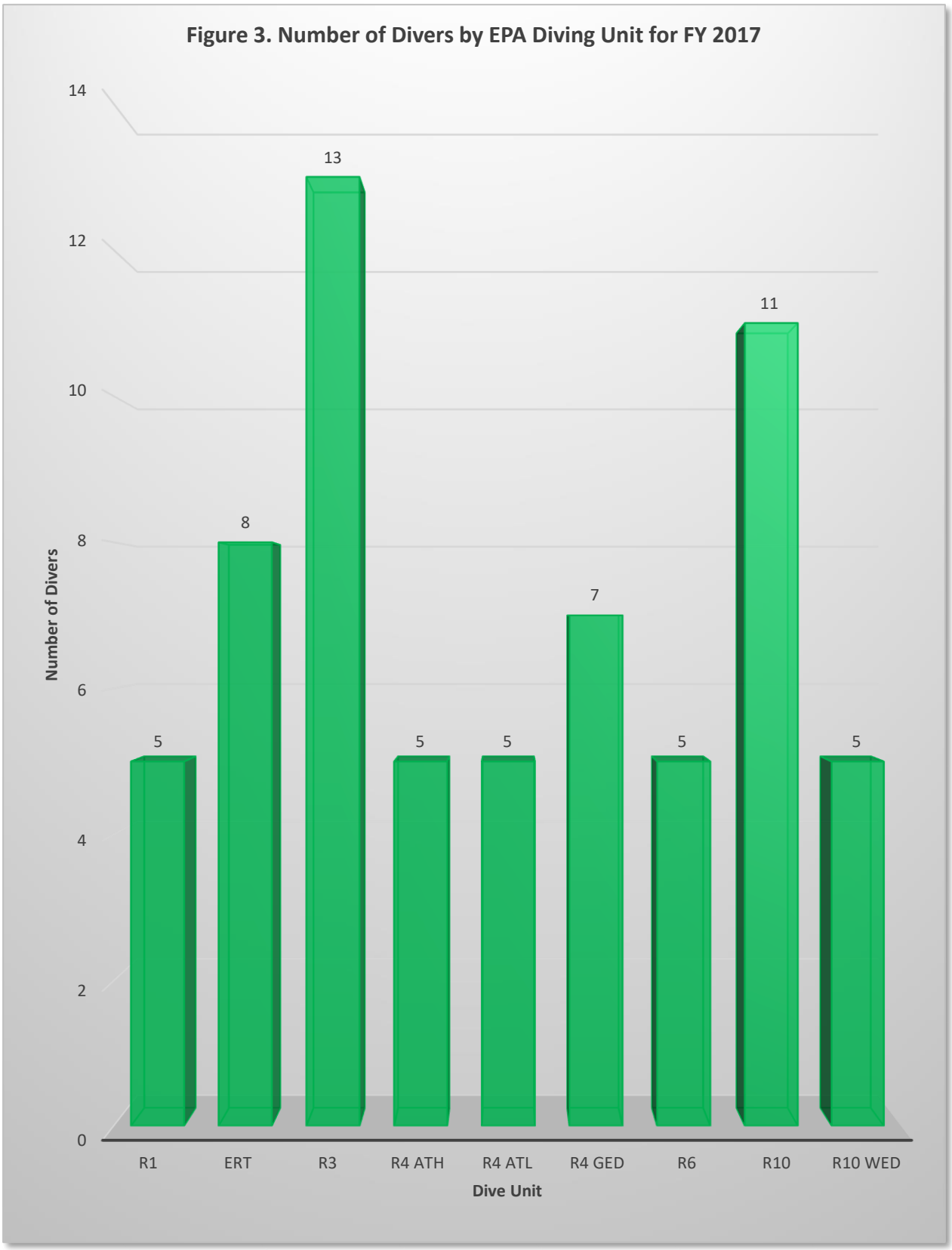


Figure 3. Number of Divers by EPA Diving Unit for FY 2017
Number of Divers
0
2
4
6
8
10
12
14
5
8
13
5
5
7
5
11
5
R1
ERT
R3
R4 ATH
R4 ATL
R4 GED
R6
R10
R10 WED
Dive Unit

US EPA
New England Dive Unit

ANNUAL REPORT
October 1, 2016 - September 30, 2017 (FY-17)

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-17.

A: DIVING ACTIVITIES

In FY17, the New England Dive Unit focused primarily on supporting ongoing research related to understanding and quantifying carbon sequestration in sediments within seagrass meadows. Other work supported efforts to establish new seagrass habitat or restore historic sites, study the efficacy of various transplanting methods, and to inspect seagrass habitat for impacts related to beach nourishment activities and low-impact mooring systems.

1. Diving Operations and Locations

- **October 2016** – Recovered temperature monitor (Hobo) in Nahant, MA in support of Blue Carbon Study. Pollutant exposure: none expected.
- Assisted MA Division of Marine Fisheries in collecting data in Beverly, MA for Seagrass Net. Dives were conducted jointly with MA Division of Marine Fisheries under EPA's existing reciprocity agreement. Pollutant exposure: none expected.
- **May 2017** - Conducted requalifying dives, diver fitness assessments, and dive accident scenario in Nahant, MA following the suspension of diving activities during the months of December through April. Pollutant exposure: none expected.
- Harvested 1,700 eelgrass plants from donor beds for a transplanting pilot project that is part of a Superfund mitigation effort with the US Navy, in Newport, RI. Pollutant exposure: none expected.

- **June 2017** – Deployed and recovered sediment traps and Hobos, collected sediment cores, eelgrass, and measured shoot density and growth data at study areas in Narragansett Bay (RI), Boston Harbor (MA) and Portland Harbor (ME) in support of a Blue Carbon RARE Grant study. Pollutant exposure: none expected.
- **July 2017 -** Deployed and recovered sediment traps and Hobos, and collected sediment cores, eelgrass, and shoot density and growth data at study areas in

Nahant (MA) in support of Blue Carbon RARE Grant study. Pollutant exposure: none expected.

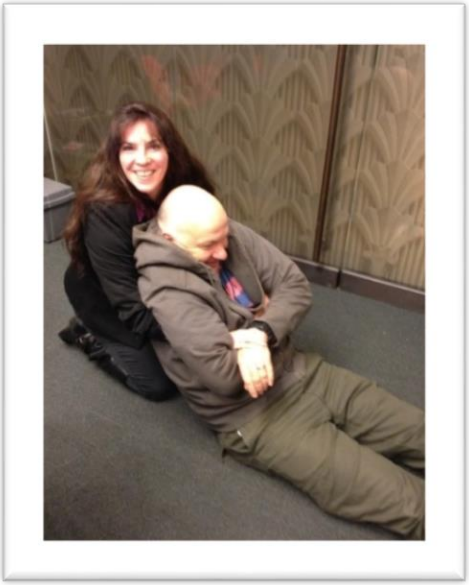
- Assisted MA Division of Marine Fisheries with assessment of habitat recovery associated with low-impact mooring installations in Boston Harbor, and searched for missing sediment traps off Logan Airport. Pollutant exposure: none expected.
- **August 2017** - Collected sediment cores, and recovered sediment traps and Hobos at all study locations visited in July. Pollutant exposure: none expected.
- **September 2017** – Assisted MA Division of Marine Fisheries with eelgrass transplanting experiments in Marblehead, Beverly and Gloucester Harbors (MA) under EPA's existing reciprocity agreement. Pollutant exposure: none expected.
- Conducted eelgrass bed delineation and impact assessment in Sandwich, MA (Cape Cod Bay). This bed is in close proximity to an ongoing beach nourishment project. Pollutant exposure: none expected.

2. Diving Statistics

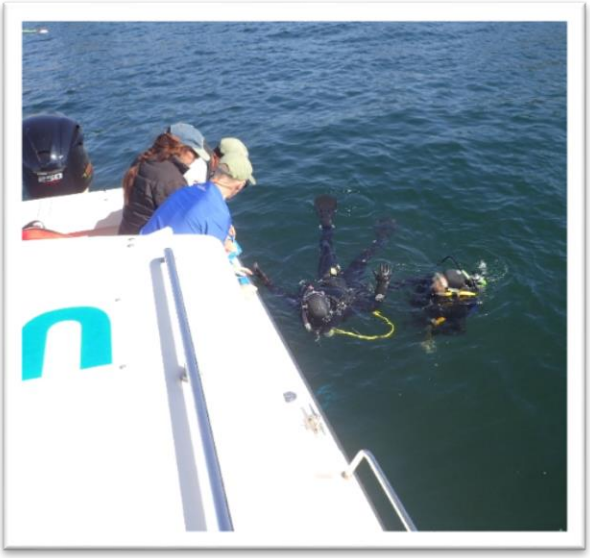
Number of Dives		Number of Exposure Days	
Work:	65	Work:	40
Training:	5	Training:	5
Proficiency/off duty:	5	Proficiency/off duty:	4
Total:	75		49

B. DIVING ACCIDENTS, INJURIES, OR INCIDENTS

None reported.



Unfortunately, this victim didn't make it..
……far.



Unconscious diver recovery scenario.

C. DIVE TRAINING

1. Training Received in FY17:	**Region 1**	**AED**
CPR/AED*, Neuro*	5 divers	0 divers
First Aid*	5 divers	0 divers
Emergency O2 Administration*	5 divers	0 divers
Nitrox	0 divers	0 divers
EPA Divemaster training	0 divers	0 divers
Advanced Operations	0 divers	0 divers

2. Training Needed in FY18		
CPR/AED	0 divers	0 divers
First Aid	0 divers	0 divers
Emergency O2 Administration	0 divers	0 divers
Nitrox	0 divers	0 divers
Scientific Diver	1 diver	0 divers
Advanced Operations	1 diver	0 divers

* All covered in DAN's Diving First Aid for Professional Divers (DFA Pro) course. Eric completed NAUI Divemaster training, and DAN instructor training for courses in First Aid, CPR, AED, Neuro, Emergency O2, and Marine Life Injuries, and was then able to teach Unit divers DAN's DFA Pro course. This saved the agency $1,250, which was the cost previously incurred for the same training through a commercial vendor.

D. DIVE EQUIPMENT

1. **Same as last year?** No (Region 1) Yes (AED)
2. New: Wet suits (2), weight harnesses (3), Suunto dive computers (5), fins (4 prs), Guardian full face masks (5), Scubapro regulator with gage console (1), steel tanks (2), Scubapro Glide BCV (1), boots (2 pr), knives (3), gloves (2 pr), hood (1), Jumbo D oxygen cylinder and response bag (1), and surface marker buoys (5).
3. Equipment problems: None
4. **Equipment needed**: Dry suit, rock boots, and undergarment (1 set).

E. REVIEW OF UNIT DIVING PERSONNEL

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

Notes:

***** Dan decided to discontinue serving as a diver in June 2017 based on advice from his physician regarding a newly discovered medical condition.

**Chuck completed his 100th operational EPA dive, fulfilling his final requirement for Divemaster certification.

******* All three AED divers are currently in inactive status

F. TIME SPENT ON THE NATIONAL DIVE PROGRAM

1. Time expenditures	**Hours**
Assistance with Diver Training Course	0
Review of documents	8
Performing action items	0
Preparation for and attendance at meetings	16
Technical assistance to other units	0
Annual meetings	6
	30

2. Fiscal (monetary) Expenditures	**Costs**
Equipment maintenance and repair	$ 925
New equipment	$9,158
Supplies (including project, training, first aid, O2 fill, and air fill cards)	$ 907
	$10,990

Cost of Travel Spent on National Program	
Did not travel in FY2017	$0

G. NOTEWORTHY ITEMS

We lost from our roster an extremely skilled and capable diver this year (Dan Arsenault) whose eagerness to dive under any and all conditions we will miss. In order to maintain our Region 1 Team roster at five divers, we have selected a new candidate to send to dive training in Gulf Breeze if it is held in 2018.

The AED laboratory's dive team, which is comprised of three divers, has been placed in an inactive status since FY15 due to a continued lack of dive-required work and no expressed needs in the foreseeable future.

Region 1 again renewed its diving reciprocity agreement with Massachusetts Division of Marine Fisheries (MA DMF). This agreement allowed for two days (five dives) of joint operations in 2017. Region 1 expects additional diving opportunities with MA DMF on projects of mutual interest to our agencies in 2018.

ANNUAL REPORT OF DIVE TRAINING AND OPERATIONS

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

October 1, 2016 – September 30, 2017 (FY17)

A. DIVING ACTIVITIES

The Environmental Response Dive Team (ERDT) conducted scientific dives at EPA projects across the country during the Fiscal Year 2017. For the year, the ERDT conducted 70 scientific dives, 12 training dives, and 97 proficiency dives, for a total of 179 dives and 81 exposure days.

Diving Operations

Scientific Diver Survey, Sandy Hook, NJ, Historic Area Remediation Site, October, 2016

In 1997, the Mud Dump Site (MDS) was designated as a dredged material disposal site, and the MDS and surrounding contaminated areas were designated the Historic Area Remediation Site (HARS). The HARS was designated for placement of dredged material determined to be suitable for use as Remediation Material to improve benthic conditions. The HARS, which is 15.7 nmi^2 in area is located in the New York Bight Apex, approximately 3.5 nautical miles (nmi) east of Highlands New Jersey and 7.7 nmi south of Rockaway, New York. Since the 1800s, this area has been used for disposal of dredged material and a variety of other waste products including municipal garbage, building materials, sewage sludge and industrial waste. The diver surveys were done on those areas capped with rock and glacial materials to help determine if the capped areas are supporting recovery of the epifaunal community.

This year (Sept-Oct 2016) ERT divers conducted photography at over 15 locations to document conditions on the capped areas. At five stations along a 25 meter transect scientific divers set out a 1 square meter quadrat and took a series of photos within the quadrat using a raw photo setting. About 360 photos were analyzed to determine measurements of percent cover, with the general taxonomic category (e.g., sponges, barnacles, anemones). Diving was conducted in buddy SCUBA mode, at depths of 55-85 feet, with visibility ranging from 2-10 feet.

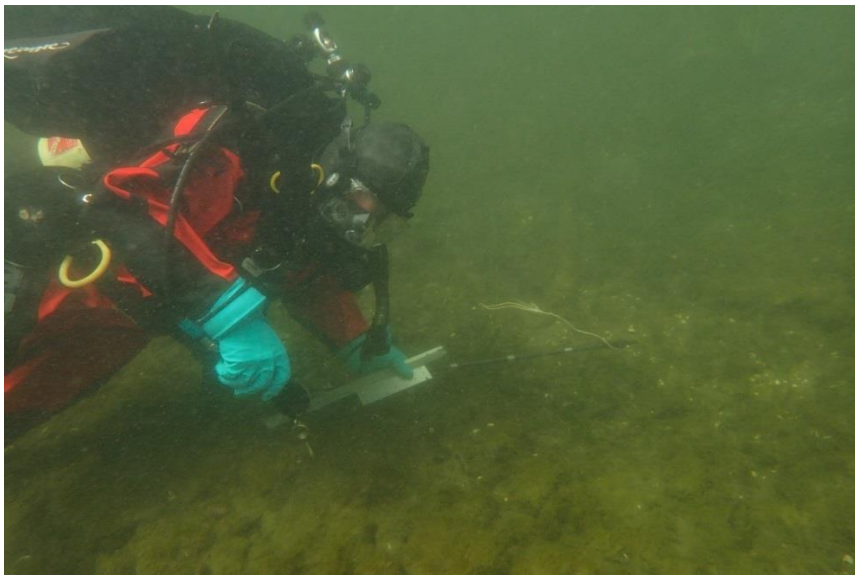
Racer Trust, Massena, NY, Superfund NPL, Cap Inspection and Biota Inspection, June and September, 2017

The former GM Massena Powertrain Plant, now known as Racer Trust, was an industrial and manufacturing site from the late 1950s until GM ended operations in May 2009. During its die casting process, GM used hydraulic fluids containing poly-chlorinated biphenyls (PCBs). After eight separate dredging attempts, the concentration of PCBs in an area referred to as Quadrant 3 and located directly north of facility outfall, remained an order of magnitude greater than the other dredged areas. In 1995, the cap, about 1.75 acres in size, or about 300 x 250 feet, was installed. The cap is 12-24 inches thick, with sand/carbon, gravel, and rock layers on top. The cap is situated on a shelf in the river bed adjacent to the St. Lawrence Seaway navigation channel and has a maximum depth of approximately 20-25 feet. In 2016, fish tissue samples collected in the vicinity of the cap and nearby cove yielded atypically high PCB concentrations. During June 19-23, ERT divers set up 13 N-S transects across the cap for diver

inspection. One diver on comm rope assessed cap condition looking for damage or anomalies in the cap. Diver observations regarding the cap surface, topography, and sediment type and thickness were communicated to topside personnel and recorded on log sheets. The diver also probed any sediment layers to determine thickness and whether the top layer of the cap armor stone was present beneath the sediment. A second buddy diver took video of all notable cap features, including any depressions or ridges on the cap surface, on every transect.

Based on elevated fish tissue results, ERT divers collected zebra mussels and round goby to be incorporated into the 2017 fish sampling event. Zebra mussels were harvested from 12 of the 14 sample locations by ERT scientific divers and round goby were collected from 13 of 14 sample locations, primarily using fish traps. Dive operations were conducted using a single diver on comm rope utilizing SCUBA, a full-face and a dry suit.

Historically high flows in the St. Lawrence produced less visibility (5-15 feet) than expected and unpredictable currents (est. .5-2.5 knots), making diving conditions more difficult. During both field events polluted water diving gear and diver decontamination techniques were employed, based on the potential for PCB contamination.



ERT Diver making observations on the cap at Racer Trust Site.

San Jacinto Waste Pits, TX - ERT Support of EPA Region 6 Scientific Dive Team, September 2017

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 post Hurricane Harvey NPL Response Actions. 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 20-25 foot gap in the armored cap material in the northwestern portion of the site. Post Harvey, EPA divers inspected the cap in the NW area of the site, based on the slope from cap to river bed and prior field events. Divers identified thin or no armor cap in multiple locations in the NW area. EPA divers also drafted and implemented a diver sediment sampling plan. One of the surficial sediment samples exceeded 70,000 ppt dioxin/furan equivalents, another indication that waste materials are exposed to the river. Based on diver observations and sampling results, it appears that river flooding events, which cause erosion/deposition and shifting sediments,

makes the northwest cap area of the site unsuitable for long term isolation of the waste pits. This information facilitated the Record of Decision for the site, which was issued within a month of the EPA diver findings (see link below).

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).

http://www.washingtonexaminer.com/pruitt-deploys-epas-elite-frogmen-in-post-hurricane-inspections/article/2634623

https://www.epa.gov/newsreleases/san-jacinto-waste-pits-superfund-site-cleanup-plan-approved

R6 Diver returns to Dive Vessel with ERT Diver support at SJWP Site.

Tappan Zee Bridge, Tarrytown, NY, Native Oyster Habitat Survey, August, 2017

On board the EPA Vessel Biglane, the ERT Dive Team conducted side-scan sonar to identify transect locations with oyster habitats placed by other parties for later retrieval. ERT dives were also conducted on bottom areas identified by sonar as possible natural oyster habitat. Dives were conducted in less than 30 feet of water using single diver on communications line.

B. DIVE STATISTICS

Dive	Total No. of dives	Number exposure days
Scientific dives	**70**	**37**
Training dives	**12**	**7**
Proficiency dives	**97**	**37**
Total	**179**	**81**

C. DIVING INJURIES

There were no diving injuries or incidents during FY2017.

D. DIVE TRAINING

After a hiatus of several months, ERT divers had a requalification dive in the local YMCA pool using SCUBA and full face mask, and also conducted an annual swim test. EPA diver training was held in Gulf Breeze in May, 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, 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

<u>Current Equipment Inventory</u>

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 2017, 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, Alternate UDO
Rich Henry	Dive master, US F&WS
Alan Humphrey	Dive master/UDO
Buddy LoBue	Dive master
Jon McBurney	Dive master

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

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

Assistance with EPA Diver Training Course	Ten days
Comments on EPA Diving Activities	Three days
Updates to EPA Diving Safety Manual	Five days
Dive Plan Review	Five days
DSB Chairman Duties	Five days
Support for R6 Dive Team	Three days
Cost of travel related to diving projects	$4,000
Attendance at EPA Diver Training Course and the EPA Diving Safety Board Meeting	$2500

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

Fiscal Year 2017 - October 2016 through September 2017
Prepared by: Steven J. Donohue, Unit Dive Officer (UDO)

A. BACKGROUND AND SUPPORT OF AGENCY GOAL

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 SDU Annual Report describes activities and accomplishments for Fiscal Year 2017. The SDU is comprised of scientists and engineers from the following offices and divisions; Air Protection Division, EAID, Hazardous Site Cleanup Division, Land and Chemical Division and Office of Environmental Compliance and Environmental Justice.

The SDU helped contribute to the EPA 2017 Strategic Plan goal of protecting America's waters and working toward a sustainable future by conducting a number of operations, including the underwater quantitative surveys for the EPA Region 3 Office of Monitoring and Assessment (OMA) RARE Study on submerged aquatic vegetation (SAV) 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 artificial reef (AR). The SDU helped contribute to the goal of Embracing EPA as a High Performing Agency through training, maintaining readiness to support emergency response events and participation in a third party audit of the Regional Dive Program.

B. DIVING ACTIVITIES

Below is a summary of SDU activities in FY2017, followed by a paragraph describing each activity. Table 1 provides a summary of data for each dive including location, purpose, depth, conditions, breathing gas, number of dives and hyperbaric exposure days. 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 show the number and percentage of Scientific, Training and Personal Proficiency Dives and Hyperbaric Exposure Days.

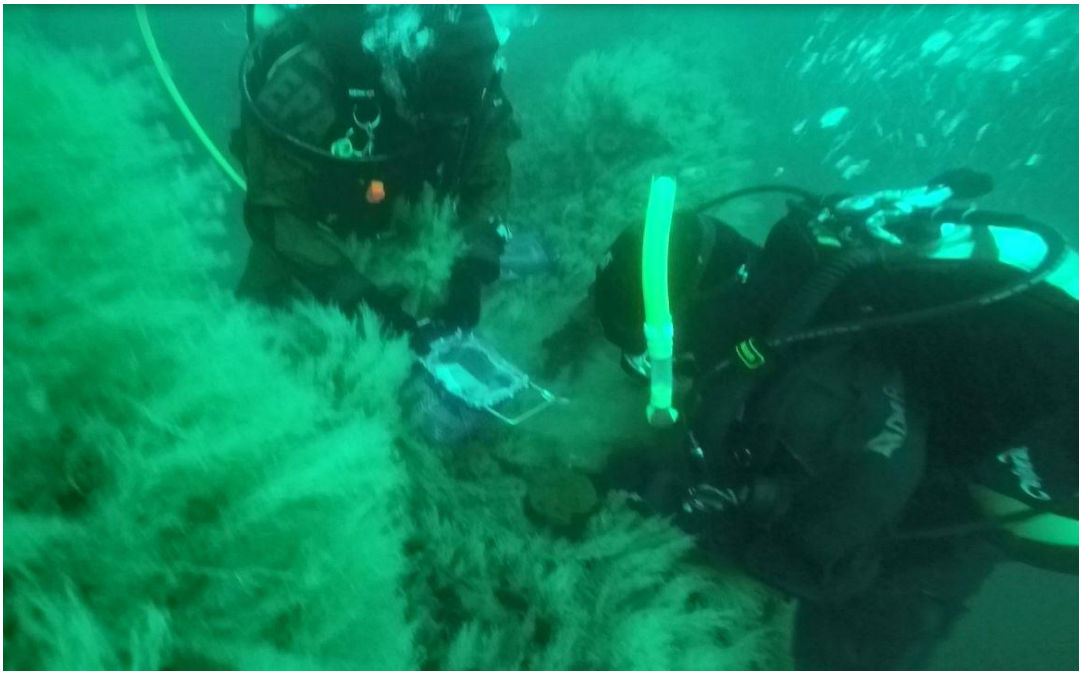
Summary

In FY2017, the SDU conducted training operations, supported the RARE SAV study, and sampled the EX USS Radford artificial reef.

A major focus of the SDU this year was to provide support for the Office of Research and Development Regional Applied Research Efforts (RARE) grant entitled “Baseline Hydroacoustic Survey of Submerged Aquatic Vegetation (SAV) in the Delaware Estuary”. Scientific dives were completed at nine locations along the main stem of the Delaware River from just south of Trenton approximately 30 nautical miles downstream to the Philadelphia Airport. Tasks completed in support of the RARE study included; video of the in-situ condition of submerged aquatic vegetation (SAV), and quantitative survey transects collecting data on percent cover, SAV species present and sediment type. Our approach for these dives was to use a single tethered diver on hardline coms. The SDU purchased two new 250-foot hardline com lines to replace coms lines that were in excess of fifteen years old. This allowed the SDU to efficiently complete this work while reducing dives and diver exposure.

Submerged Aquatic Vegetation near Burlington Island on the Delaware River

The SDU also successfully planned and implemented an epibenthic sampling and video survey of the EX USS Radford artificial reef 26 NM off the coast of Delaware in June of 2017. The Delaware Department of Natural Resources and Environmental Control’s Division of Fish and Wildlife requested collaboration with the SDU on this study. Weather/sea state prevented the SDU from a planned survey in FY2016 and sampling this year extended the temporal dataset on succession of organisms growing on the reef.



SDU Sampling the EX USS Radford June 2017

An approximately equal number of training dives and scientific dives were conducted by the SDU in FY 2017. This was due to a number of factors including; preparing for the participation of a new diver in the EPA National Training, conducting a fall dive audit training dive operation, requalifying divers in a spring training dive, and using hardline coms for all our scientific dives in the Delaware where only a single diver is deployed.

Two divers completed over half the SDU proficiency dives (81 out of 132) at Adventure Aquarium. 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. Just over half (7 of 13) divers did not complete any proficiency dives on their own time. Their only diving is through work sponsored training or scientific dives. 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.

A long-tenured Scientific Diver (1993) and Dive Master (2007) in the SDU, David Byro, retired in August 2017. However, EAID OMA was able to hire a new employee. David Light, a former Marine Corp Diver, successfully completed the EPA National Scientific Diver Training Program in May and participated in many of our operations this field season.

Description of FY 2017 Dive Operations

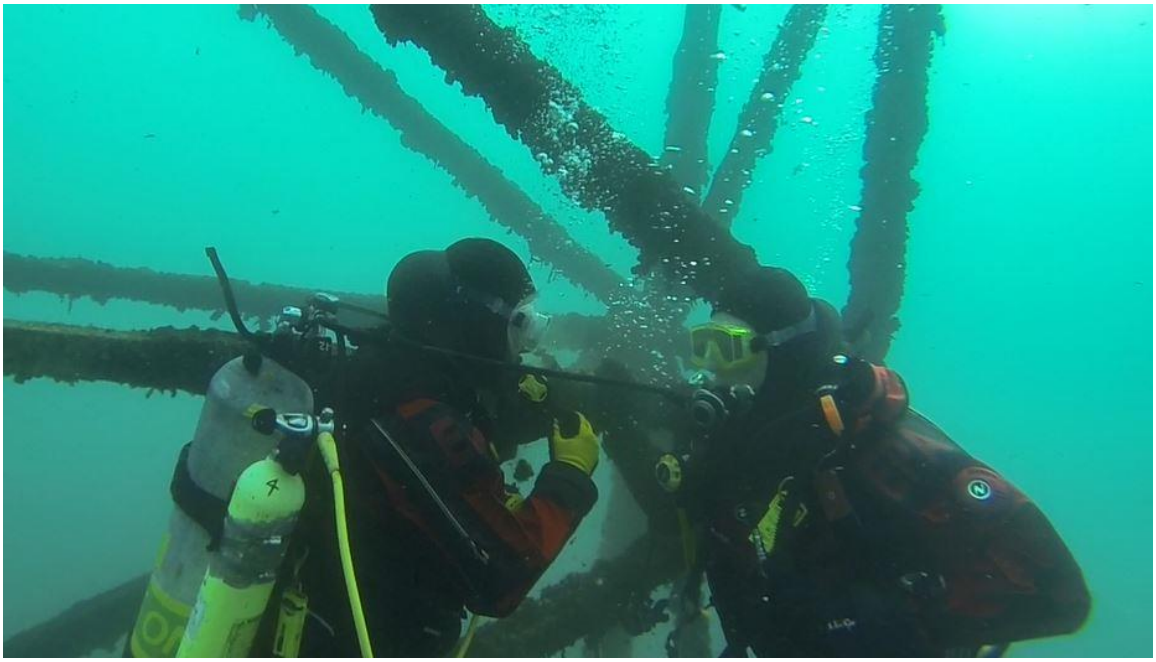
EPA R3 SDU –FY-2017-01 - On April 26, 2017, one trainee diver participated in an equipment fitting and testing dive conducted in a pool. All planned objectives outlined in the Dive and Safety Plan were accomplished including; testing recently serviced SCUBA regulators, fitting and testing Aga masks, fitting and testing two different drysuits. The trainee completed two dives to check fit and seal of a commercial and hazmat capable drysuit. Both dives were also completed in a positive pressure Aga masks to test the fit in water.

EPA NATIONAL DIVER TRAINING - One Region 3 trainee diver attended and successfully completed the EPA National Scientific Diver Training from May 15 to 19, 2017.

EPA R3 SDU –FY-2017-WHEELING – On May 24, 2017, all Wheeling based members of the SDU completed a re-qualification dive, annual diver fitness evaluation and equipment check. The training dive was done in conjunction with the US Fish and Wildlife Service who EPA collaborates with on fresh water mussel assessment and surveys.

EPA R3 SDU –FY-2017-02 – On May 31, 2017 ten members of the SDU, including one recently certified EPA Scientific Diver, participated in a training dive at a local quarry. All primary objectives from the Dive and Safety Plan were accomplished including; testing recently serviced SCUBA regulators, and re-qualifying any diver who had not logged a dive in the last three to six months. On the first dive, all recently serviced primary and secondary regulators were tested and confirmed to be operating correctly. For the second dive, buddy teams practiced lending breathing gas to their buddy using recently purchased equipment and sampling using fine meshed bags and a scrape knife.

EPA R3 SDU –FY-2017-03 - On June 15, 2017, at the request of, and in collaboration with, the Delaware Department of Natural Resources and Environmental Control (DNREC), the SDU conducted the fourth of five planned biological surveys of the EX USS Radford artificial reef (AR). The AR is a retired US Navy Destroyer over 550 feet long that was sunk 26 NM off the coast of Delaware on August 10, 2011 to provide additional artificial reef habitat. SDU divers obtained scrape samples of the epifauna on vertical and horizontal surfaces of the ship as well as high definition video. The survey showed the AR was covered with large mature blue mussels, hydroids, corals, and hundreds of black sea bass were observed. DNREC chartered the University of Delaware's RV Joanne Daiber for the SDU to use for the sampling.



Practicing Buddy Breathing with a Safe Second and Sharing the Diver's Primary Regulator

EPA R3 SDU –FY-2017-04 - On July 12 and 13, 2017 qualitative SAV confirmation dives were conducted at the upstream end of Petty Island and upstream and downstream of the Betsy Ross Bridge on the Delaware River. Video was shot with a mask mounted camera and observations were relayed topside through the hardline com rope. This was the first diving conducted to support the RARE SAV survey and was used to help develop methodology for future diving.

EPA R3 SDU –FY-2017-05 - On July 27, 2017 quantitative SAV transects were run perpendicular from the shore on the Delaware River from deeper water to shallow to quantify percent cover and the species present. Three transects were completed offshore of Neshaminy State Park and three transects were completed across the River on the New Jersey shoreline. Observations were made using a ¼ meter frame at 3 to 5 locations along each transect. Video was shot with a mask mounted camera and observations were relayed topside through the hardline com rope. The SDU continued to develop the methodology for conducting diving in support of the RARE SAV survey. However, the basic approach outlined in the Dive and Safety Plan was implemented with some minor changes.

EPA R3 SDU –FY-2017-06 – On August 23, 2017 quantitative SAV transects were run to obtain percent cover of SAV and species present at five sample locations along three transects at two sites on the Delaware River. The results provide a characterization from deep water to shallow of the distribution and density of SAV. Three transects were completed offshore of the downstream end of Burlington Island in the Delaware River. In addition, three transects were completed on the New Jersey shoreline just downstream of Roebling. Observations were made using a ¼ meter frame at 5 locations along each transect. The methodology for conducting diving in support of the RARE SAV survey is essentially unchanged since the last survey.

EPA R3 SDU –FY-2017-08 - On September 8, and 11, the SDU completed dive operations at two additional 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 September 8 site was just downstream of the Walt Whitman Bridge on the Pennsylvania side of the river. On September 11, a site on the New Jersey side across the river from the Philadelphia Airport was completed. Scientific divers were equipped with a drysuit and full-face mask, with a mask mounted camera and hardline communication rope to the surface. Divers completed transects and relayed topside data on the percent cover and SAV species present. Divers also characterized the bottom substrate and presence or absence of freshwater mussels. The results provide a characterization of the distribution, density, and species of SAV from deep to shallow water. To date, nine different Delaware River locations have been assessed in 2017.

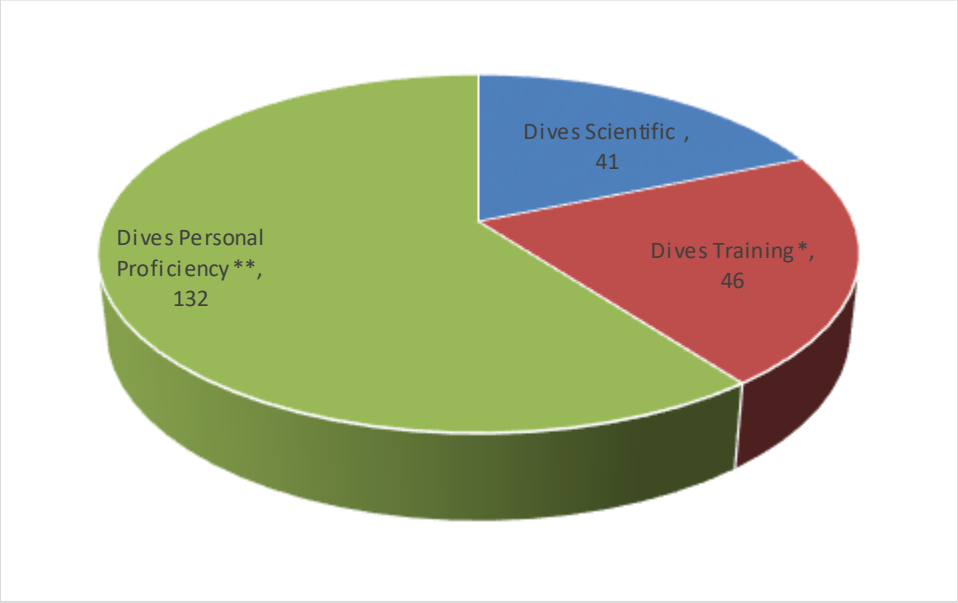
Hydrilla and Wild Celery Growing Near Redbank, NJ

EPA R3 SDU –FY-2017-09 – EPA's Safety and Sustainability (S&S) Division conducted an audit of the Region 3 SDU Program over three days in mid-September, 2017. The audit included an inspection of the SDU dive locker on September 18, observation of a dive operation at a local quarry on September 19, and a final file review and out-brief on September 20. In their close-out briefing, the auditors indicated they found no major or high priority findings; however they did have suggestions to improve the program. Some of these items related to the overall EPA Dive Program and were not specific to Region 3. The audit team consisted of a representative of S&S and a commercial diving consultant with over thirty years of experience in dive planning and auditing.

Table 1 Data Summary for SDU Operations in FY 2017

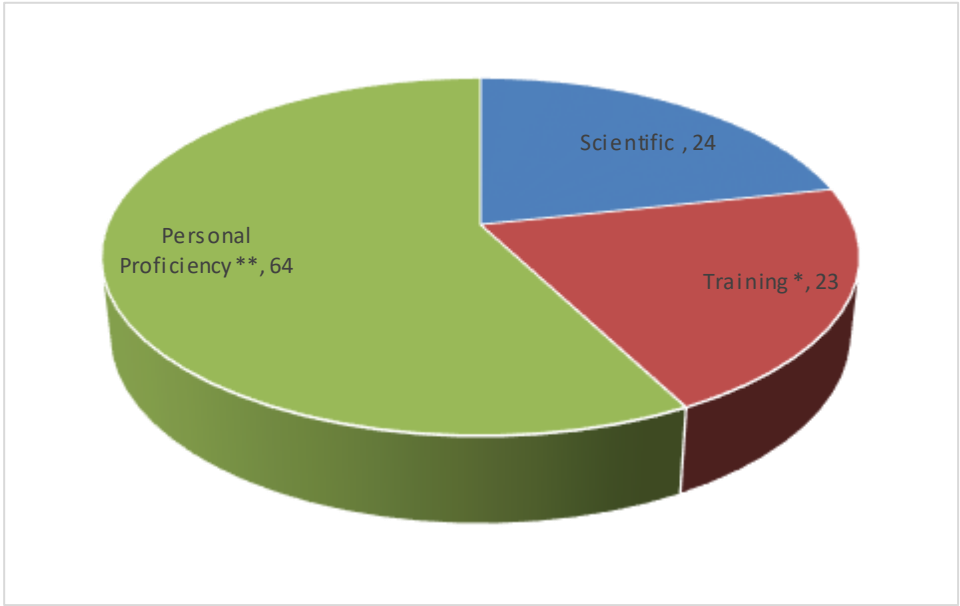
Training Dives in Fiscal Year 2017									
Location	**Purpose**	**Date**	**Depth in Feet**	**Conditions**	**Breathing Gas**	**Names of Diver and (#) of dives**	**Total # of Dives**	**Total # Hyperbaric Exposure Days**	**Dive Masters**
Langhorne, PA	Training	4/26/2017	8	Freshwater	air	David Light	2	1	Donohue
Gulf Breeze	Training	5/15 to 5/19/2017	8 to 125 feet	Bay and Open Ocean	Air, Nitrox and Rebreather	David Light	11	4	Humphrey
Dutch Springs Quarry, Allentown, Pennsylvania	Equipment Checkout, Re-qualification, Sample Training	5/31/2017	54 to 76 feet	Freshwater Lake	air and nitox	John Armstead, Jim Adamiec, Kelley Chase, Dave Byro, Steve Donohue, Nathan Doyle, Mike Eller, David Light, Eric Newman, Brad White	20	10	White and Newman
Dutch Springs Quarry, Allentown, Pennsylvania	Dive Audit	9/19/2017	80	Freshwater Lake	Nitox	Steve Donohue (2), Nathan Doyle (2), Mike Eller (2), Eric Newman (2), Brad White (2)	10	5	Donohue
Four Seasons Pool, Moundsv	Proficiency Swim Test an	5/24/2017	10	pool conditions	air	Frank Borsuk, Jen Fulton, Leah Ettema	3	3	Borsuk
							46	23	
Scientific Dives in Fiscal Year 2017									
26 NM off Coast of Delaware	Epibenthic Sampling of EX USS Radford	6/15/2017	112	Open Ocean	Air	John Armstead, Dave Byro, Steve Donohue, Nathan Doyle, ScottGrossman, Alan Humphrey, David Light, Eric Newman, Brad White	9	9	White and Newman
Tidal Delaware River Petty Island	Submerged Aquatic Vegetation Qualitative Survey	7/12/2017	>10 feet	Freshwater Tidal River with Current	Air	Steve Donohue (3), Jim Adamiec (3)	6	2	White
Tidal Delaware River Betsy Ross Bridge	Submerged Aquatic Vegetation Qualitative Survey	7/13/2017	>13 feet	Freshwater Tidal River with Current	Air	Brad White (1), Mike Eller (1) and Jim Adamiec (1)	3	3	White and Donohue
Tidal Delaware River Neshaminy Creek	Submerged Aquatic Vegetation Qualitative Survey	7/27/2017	>10 feet	Freshwater Tidal River with Current	Air	Leah Ettema (1), Kelly Chase (3)	4	2	White
Ohio River	USFWS Mussel Dive Ops	8/22/2017	12	low visabilty	air	Frank Borsuk, Jen Fulton	4	2	Morrison
Tidal Delaware River Burlington Island and Roebling	Submerged Aquatic Vegetation Qualitative Survey	8/23/2017	>10 feet	Freshwater Tidal River with Current	Air	Nate Doyle(3) and Mike Eller(2)	5	2	Newman
Tidal Delaware River KIA Site	Submerged Aquatic Vegetation Qualitative Survey	9/8/2017	>10 feet	Freshwater Tidal River with Current	Air	David Light (4) and Jim Adamiec (2)	6	2	White
Tidal Delaware River Red Bank Site	Submerged Aquatic Vegetation Qualitative Survey	9/11/2017	>10 feet	Freshwater Tidal River with Current	Air	David Light (2) and Nate Doyle (2)	4	2	Donohue
							41	24	

Figure 1 Scientific, Training, and Proficiency Dives for SDU in FY 2017



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

Figure 2 Hyperbaric Exposure Days for SDU in FY 2017



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 2017.

D. DIVE TRAINING

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

    a. In early March, our Safety Health and Environmental Manager sponsored a two day long DAN First Aid for Professional Divers class and all our current divers and a trainee participated.
    b. In April a trainee participated in training and equipment testing dives in a pool wearing drysuits and Aga masks.
    c. Nine SDU divers and one trainee completed our Regional Boat Operator and Assistant Operator Training in April/May of 2017.
    d. The National EPA Diver Training was held in May 15 to 19, 2017. He Region 3 trainee successfully completed the training and we added one new scientific diver to the SDU in FY 2017.
    e. Wheeling-based divers participated in USFWS training and fitness testing.
    f. Spring Requalification and Fall Audit Training Dives were conducted at a local quarry.

Dutch Springs Quarry Training Site

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.

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

2. List any training needed.

    a. Philadelphia SDU divers will need to complete biennial physical fitness testing in FY2018. Wheeling based divers completed physical fitness testing with the US FWS in FY 2017.
    b. Divers must complete the annual 8-hour refresher for their 40 hour HAZWOPER training or 8 hour field safety training in FY 2018.

E. DIVE EQUIPMENT

Same as last year? Yes __No __X__

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

New Items:

The SDU purchased two new 250-foot hardline com lines FY2017. These new com lines were used for all our Delaware River dives this year and provided robust and reliable communication to relay scientific observations and manage our dives/divers.

The SDU purchased 13 safe seconds in FY2017 and all SDU divers are now equipped with a breathable inflator for their BCD. This will provide a standardized alternate air supply during all our dives.

All SDU divers are now equipped with a yellow body and hosed alternate air supply regulators and hoses for all of our alternate air supply/pony bottle regulators.

A diver added to the SDU in FY2016, as well as our new diver added in FY2017, were fully equipped with a Mares Abyss Primary Regulator, pony regulator, gauges and computers.

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:

A Suunto Cobra Air Integrated computer and Viper computer failed during service in January and were red tagged out of service.

Com lines that were over fifteen years old and experiencing intermittent failure due to the deterioration of the inside wire were taken out of service.

2. New Equipment Needed

Our Wheeling SDU divers, who primarily do shallow river diving currently have a wireless air integrated primary dive computer but no backup 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 the three Wheeling divers.

As a result of suggestions received during our recent dive audit we may explore purchasing additional gear including a floatation back board, hoisting sling, and new tank valves. In addition, based on available budget, the SDU would like to have enough fully operational Aga mask to assign each diver his/her own mask, with ABV valve, mounting rail, and more powerful light.

Deploying diver from the University of Delaware RV Joanne Daiber

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 2017

Name	Certification	Division
Jim Adamiec	Scientific Diver	APD
John Armstead	Dive Master	LCD
Frank Borsuk	Dive Master	EAID
Kelley Chase	Dive Master	HSCD
Steve Donohue	Unit Dive Officer	EAID
Nathan Doyle	Scientific Diver	HSCD
Mike Eller	Scientific Diver	OECEJ
Leah Ettema	Scientific Diver	EAID
John Forren	Scientific Diver	EAID
Jennifer Fulton	Scientific Diver	EAID
David Light	Scientific Diver	EAID
Eric Newman	Dive Master	HSCD
Brad White	Dive Master	HSCD

G. TIME SPENT ON THE NATIONAL PROGRAM

1. Time expenditures.

ACTIVITY (DESCRIPTION)	**TIME** (Hrs/Days)
Assistance with Diver Training Course	0 days
Review of Documents (revision to DSM, emails) Editing of Biohazard Appendix to the DSM	7 days
Performing Action Items (e.g., Prep for & Audit of Dive Opts)	5 days
Preparation for and Attendance at Meetings (Annual DSB Meeting)	2 days
Technical Assistance to Other Units	0 days
Other	0 days

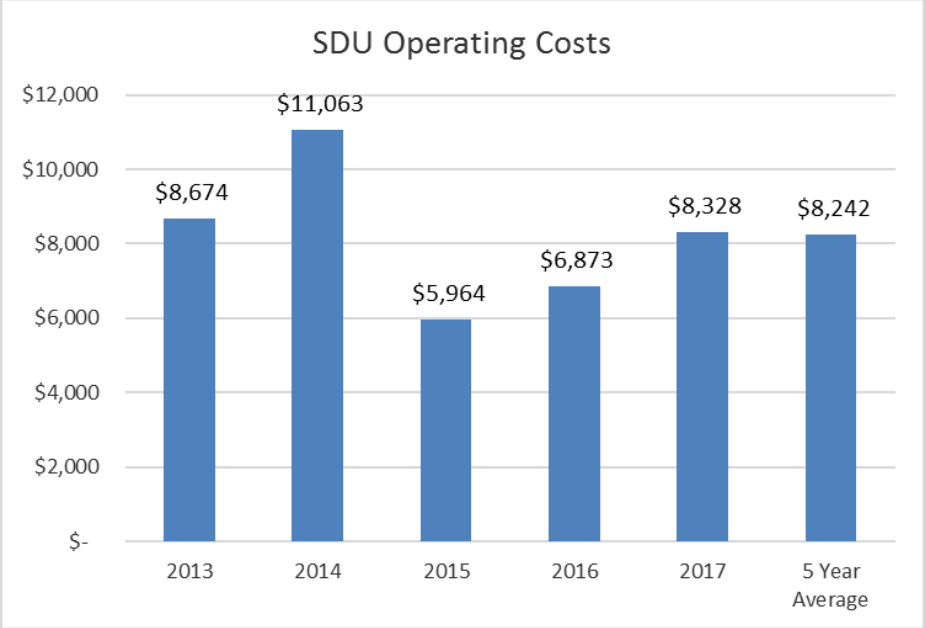
2. Fiscal (monetary) expenditures:

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

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

H. FY 2017 BUDGET

Funding for the SDU is borne principally by OMA's annual budget. Purchases of new equipment, the cost to operate and maintain the SDU tanks and equipment, and training costs in FY2017 were $8328. 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 FY2017.



I. FY 2018 PLANS

In FY 2018 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.

R4 ATHENS DIVE UNIT

ANNUAL REPORT OF UNIT DIVE TRAINING AND OPERATIONS 2017

Diving Unit: Region 4 Athens, GA Time Period: 11/01/16-11/24/17
Mel Parsons, UDO

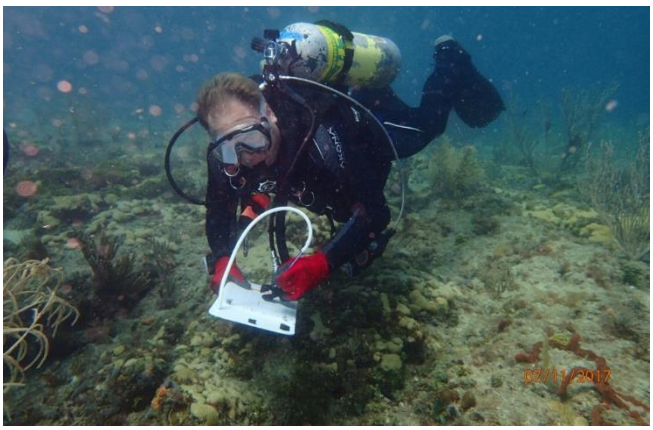
A. DIVING ACTIVITIES

The EPA R4, Athens Dive Team logged 61 dives with 45 exposure days over the past year. It was the slowest dive year on record for the Athens Dive Team – with next year not looking much better! Most dives were performed during Sediment Oxygen Demand (SOD) Studies and some habitat assessment in conjunction with the Port Everglades Deepening Project. The Port Everglades channel is proposed to be dredged ten feet deeper, extended two miles and widened 800 feet in order to accommodate the new larger Panamax ships. The entire area surrounding the channel contains large areas of corals, octocorals, and sponges. EPA R4 is working with the US-COE, NOAA NMFS, USFWS, FL DEP and Broward County, FL to insure that the habitat is assessed and documented prior to construction in order to insure adequate mitigation for the habitat destruction that will occur.

1. Description/type of diving operations

   a. <u>Ocean Dredged Material Disposal Sites (ODMDS) – 7 Dives, 3 Exposure Days:</u>

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



b. Sediment oxygen demand/nutrient studies – 37 Dives, 27 Exposure Days:

Sediment Oxygen Demand (SOD) studies were conducted the Cape Fear River, NC, The Reedy River near Greenville, SC and in some small tidal creeks near Sarasota, FL.

c. Training Dives – 15 Dives, 13 Exposure Days:

Training dives were conducted with the GED dive team on multiple trips this past year and consisted of deeper offshore dives (60-130').

2. Location of diving operations/water body

Florida – Pensacola, Port Everglades (Fort Lauderdale) and Sarasota Bay tidal creeks
North Carolina – Cape Fear River
South Carolina – Reedy River

3. Dive Statistics

Number of Dives		Number of Exposure Days	
Work:	46	Work:	32
Training:	15	Training:	13
Proficiency:	0	Proficiency:	0
	61		45

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 divers attended Diver Training this year.

E. DIVING EQUIPMENT

All dive equipment was serviced and passed inspection.

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

F. REVIEW OF DIVING PERSONNEL

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

NAME	AGE	SEX	CERTIFICATION LEVEL
Pete Kalla	62	M	Divemaster (Inactive)
Jon McMahan	35	M	Scientific Diver
Mel Parsons	59	M	UDO/Divemaster
John Ruiz	52	M	Scientific Diver
Greg White	31	M	Divemaster

Changes in personnel

No changes in personnel.

G. TIME SPENT OF THE NATIONAL DIVE PROGRAM

ACTIVITY (describe)	TIME
Assistance with Diver Training Course	20 days
Review of Documents (EPA Dive Manual v1.2)	2
Performing Action Items	1
Preparation for and Attendance of DSB Meeting	2
Technical Assistance to Other Units	0
Equipment Servicing	$4400.00
Equipment Purchases	$ 100.00
Other	0

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

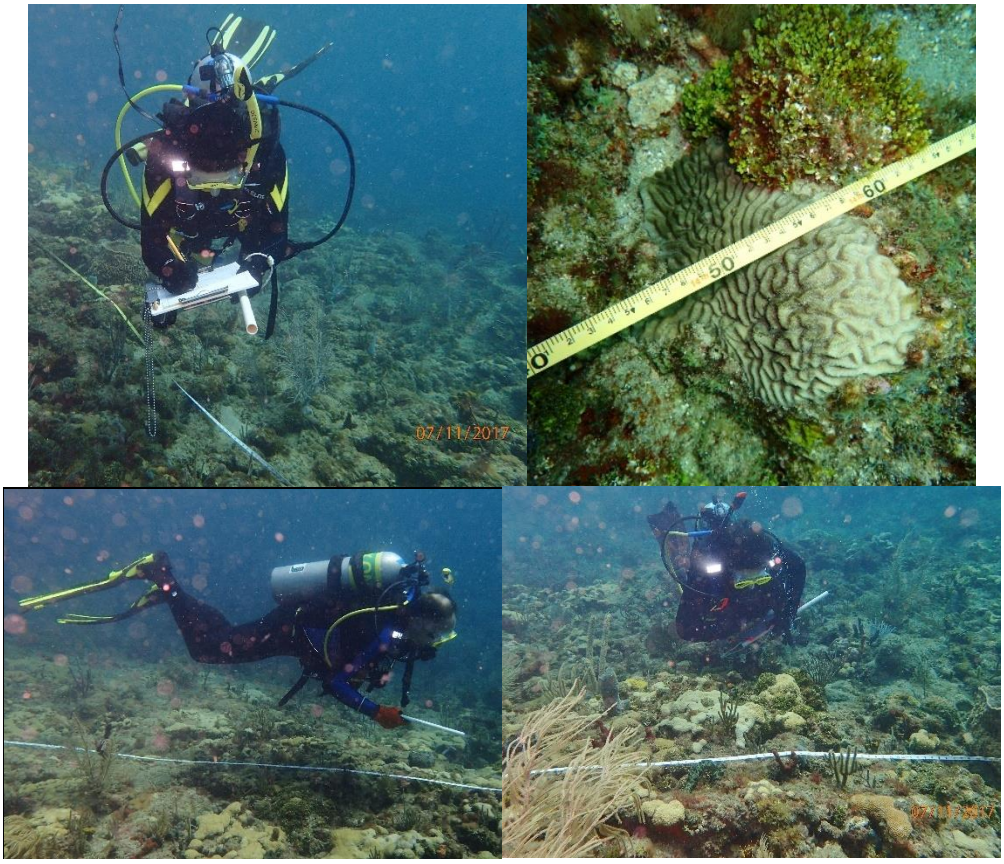
Attend Diver Training/Diving Safety Board Meeting/GED Training	$ 950.00

ANNUAL REPORT
OF
DIVE TRAINING AND OPERATIONS

U.S. EPA

Atlanta Region 4

Dive Unit



10/01/2016 through 09/30/2017

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, U.S. Army Corps of Engineers, NOAA Gray's Reef National Marine Sanctuary, Florida Keys National Marine Sanctuary, Georgia Tech, Georgia Southern University, EPA ORD development of Rapid Bioassessment protocol, and other EPA Regions. The following is a summary of dive operations and training in FY17.

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, only 10 Science dives were conducted in FY17.

   A Sediment Oxygen Demand (SOD) project in the Cape Fear, North Carolina was conducted with SESD in June 2017. One Atlanta diver assisted SESD divers.

   Contractor habitat assessment protocol for surveying related to an ODMDS was overseen in Port Everglades, Florida in July 2017. The assessment is to document existing coral, octocoral and sponge populations prior to proposed dredging to widen the channel. EPA R4 is working with the US-COE, NOAA NMFS, USFWS, FL DEP and Broward County, FL on this project.

   During an ocean survey of the Canaveral ODMDS and Miami ODMDS, reconnaissance and training on live bottom demographics and fish identification was conducted off of Fort Lauderdale by the Sea in July 2017. The project was related to habitat assessment associated with the ODMDS, FL, conducted aboard the *F.G. Walton Smith*. During the Port Everglades dives, divers practiced reef survey methods in preparation for an anticipated survey.

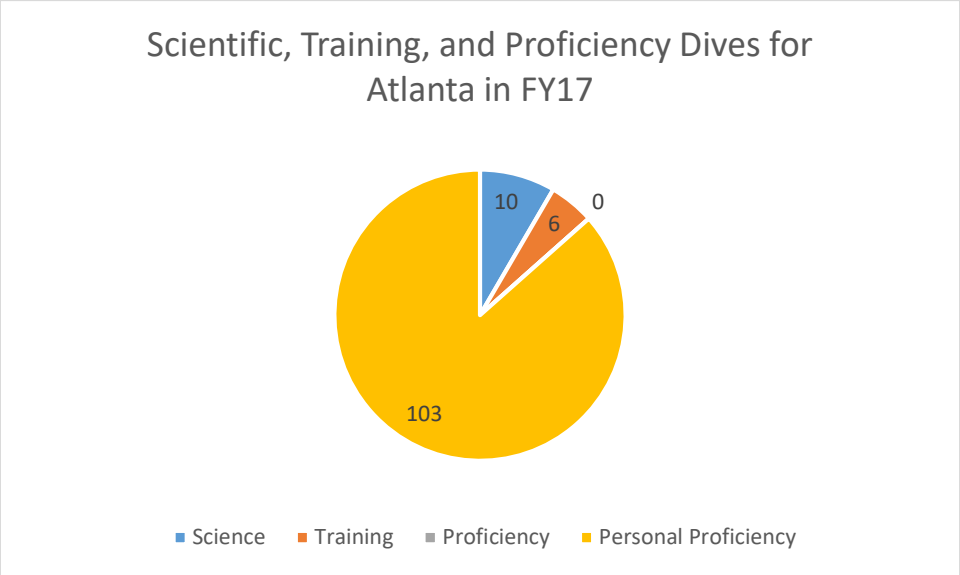
   Proficiency – Three divers are involved with the Georgia Aquarium and conducts a number of volunteer dives on their personal time to help with aquarium maintenance on a monthly basis. Only one diver had the need for a proficiency dive, but declined the opportunity for personal reasons.

2. **Offshore Florida**, near Port Everglades and Fort Lauderdale by the Sea
   North Carolina, Cape Fear River

3. Dive Statistics:

Number of Dives		Number of Exposure Days	
Science:	10	Science:	9
Training:	6	Training:	3

Proficiency:	103	Proficiency:	79
Totals	119		91



B. Diving Accidents, Injuries, or Incidences

None.

C. Dive Training

- Due to lack of management support for funding, no Atlanta divers participated in the 2017 Gulf Breeze EPA diver training course. Normally all UDOs serve as instructors at every diver training course.
- Tara Houda has been working towards completing course modules for the NAUI Oxygen Administration Instructor Training, Basic Life Support CPR and First Aid Instructor, Neurological Assessment Instructor and CPR Health-Care Provider with First Aid. In FY18 Emergency Oxygen (O_2) Administration training will be needed for several divers. This will be the first year that an O_2 Instructor will be on staff since Tara completed NAUI's Divemaster and Instructor training which the DSB funded. The unit plans to provide this training internally with hands-on practice. The last O_2 certification obtained by a diver was online and lacked the highly valuable hands-on component. The O_2 kit from the OSV Bold will be used as a training kit. Sourcing of dummies needs further evaluation. Versus obtaining this training at a local dive shop, providing it internally is expected to save the agency $500.
- At least three members of the unit participated in HAZWOPER refresher courses.

- In FY18 divers will need to complete biennial physical fitness testing.

D. Dive Equipment

The Unit made a couple of purchases of new equipment this past year. This gear was obtained to supply new divers and to re-equip current divers. Two dive computers failed in FY16 and replacement Sunntos Vypers were purchased in FY17 as planned. Additional end of year expiring funding ($1,123.60) was obtained for two replacement BCDs which were purchased for our two newest divers since their BCDs were previously assigned to other divers and were not a great fit. During annual maintenance a piston was replaced in an Atomic regulator.

Purchases related to updating an O_2 kit from the *OSV Bold* will likely be needed in FY18. In FY17 the unit was unable to obtain the funds to replace two wetsuits that are starting to wear out. These still need replacing. The Unit is still considering upgrading rubber hoses to braided hoses. Minor funds will likely be needed in FY18 to replace expired items in the First Aid Kit.

1) 2 Sunnto Vyper Dive computers
2) 2 Sherwood BCDs
3) Minor supplies (regulator dust caps, dry box, reel, clips)

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

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

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)

AED

Oxygen Kit: not in use; in need of service

E. Review of Unit Diving Personnel

One employee that transferred to Region 4 in early 2017 has expressed interest in joining the dive unit. The individual has a satisfactory dive resume, but has not chosen to complete the required medical clearance steps in order to become a trainee and conduct a pool dive or swim test.

Diver Name	Age	Sex	Certification Level
Tara Houda	33	Female	Divemaster, UDO
Chris McArthur	48	Male	Divemaster
Rosemary Hall	41	Female	Divemaster
Wade Lehmann	44	Male	Scientific Diver
Lena Weiss	26	Female	Scientific Diver

F. Time Spent on the National Dive Program

1. Time Expenditures

ACTIVITY	TIME
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 FY17

Travel to Training Course	$0
2017 DSB Meeting	$0
New Gear	$1,920
Gear Maintenance	$1,289
Total	$3,209

ORD GULF ECOLOGY DIVISON DIVE UNIT

ANNUAL REPORT OF UNIT DIVE TRAINING AND OPERATIONS 2017

Diving Unit: ORD/GED, Gulf Breeze, FL Time Period: 11/01/16-11/24/17
Mel Parsons, Acting UDO
Cheryl Hankins, UDO in Training

This has been a banner year for the Gulf Breeze Dive Team. Two new divers, (Janet Nestlerode and David Beddick), were brought onto the dive team in November, 2016, bringing the number of GED divers back up to seven. Cheryl has been working hard to get her number of dives up and the entire team is stepping up, with each dive master planning and executing monthly dives. GED conducted a total of 216 dives with 101 exposure days during the past year.

On another sad note though, GED lost another one of its own this year. George Craven passed away on September 24 after an extended illness. George began his career with EPA at GED in 1983 and was one of the original EPA divers certified during the first EPA dive training course, along with Jim Patrick and Don Lawhorn in 1984.

A. DIVING ACTIVITIES

GED was able to send four divers to assist NOAA with the National Coral Reef Monitoring Program (NCRMP) this year in St. John, VI. The GED divers conducted 119 dives with 37 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 multiple offshore training dives as well as a trip to Vortex Springs during the year with depths ranging from 60-130 feet deep. These deeper training dives generated 48 dives with 33 exposure days. Another 49 dives with 31exposure days were completed at the lab conducting proficiency dives as well as routine maintenance of water intake structures.

GED hosted the National Diver Training Course in May, 2017. Those dives are listed in this report but treated separately from GED dives.

2. Description/type of diving operations

c. <u>National Coral Reef Monitoring Program (NCRMP – 119 Dives, 37 Exposure Days:</u>

Conducted habitat assessments at selected locations around St. John, USVI. 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.

b. Region 2 RARE microplastic sampling – 12 dives, 7 exposure days

During the NOAA NCRMP monitoring, Cheryl Hankins was able to simultaneously collect coral samples for microplastic quantification and polymer identification.

c. Offshore and Deep Training Dives – 48 Dives, 33 Exposure Days:

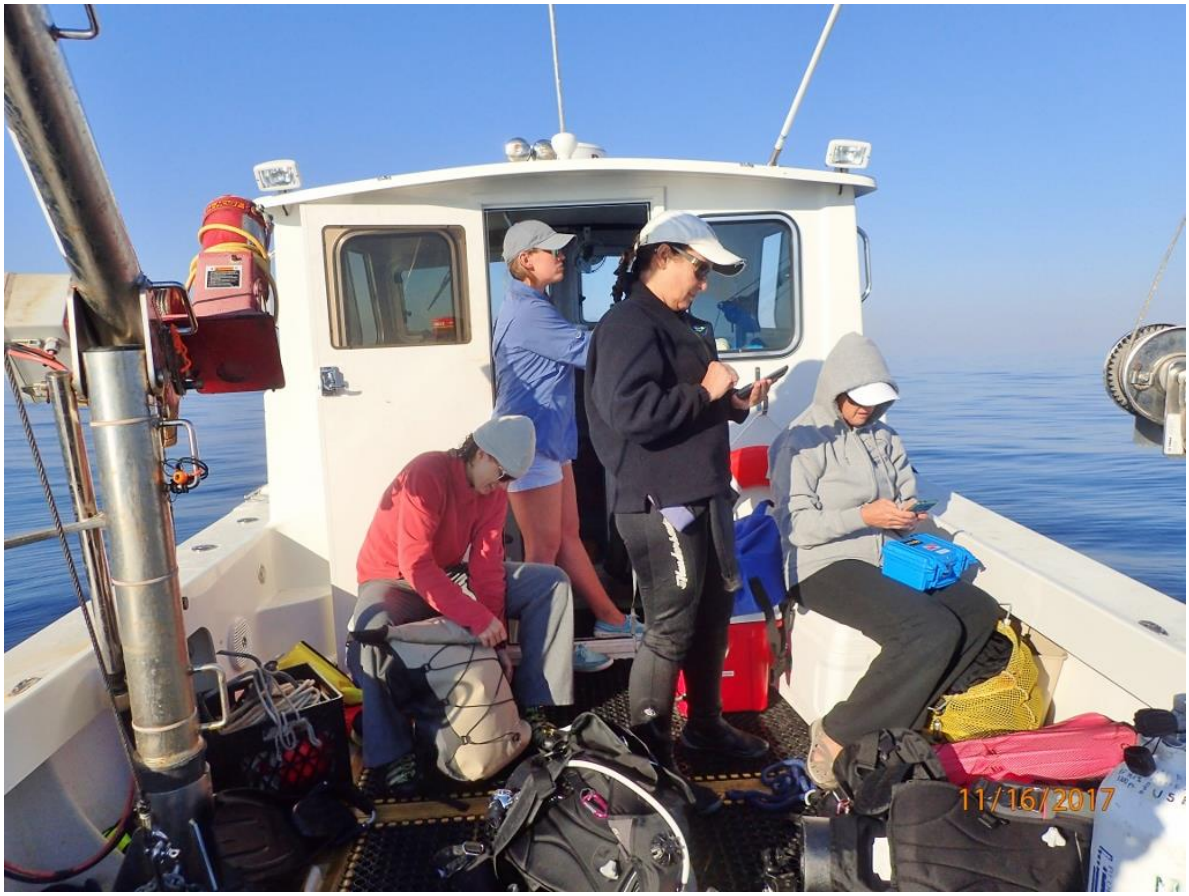
In order to stay proficient in the offshore environment, a series of offshore dives was planned for the purpose of keeping the dive team members proficient in the planning, managing and execution of safe offshore dives in deeper water (50-130').

David Beddick Janet Nestlerode

d. Coral Collection Dives – 6 Dives, 2 Exposure Days

Two GED divers collected coral from the Florida Keys National Marine

Sanctuary coral nurseries which are brought back to GED for use in experiments.



The GED Dive Team

d. <u>National Diver Training Course – 120 Dives, 51 Exposure Days</u>

The National EPA Diver Training Course was held May 15-19, 2017 at GED. Thirteen divers and three Dive Master Candidates attended the course and graduated as EPA Scientific Divers and Dive Masters. These dives are not included as GED dives.

2. Location of diving operations/water body

Florida – Vortex Springs, Pensacola offshore as well as Santa Rosa Sound, the Florida Keys and USVI.

3. Dive Statistics

Number of Dives		Number of Exposure Days	
Work:	144	Work:	52
Training:	48	Training:	33
Proficiency:	24	Proficiency:	16
	216		101

C. DIVING ACCIDENTS

No accidents this year.

C. DIVING SAFETY AUDIT

No findings on the self-assessment audit this year

D. DIVE TRAINING

Janet Nestlerode, who went through the EPA Dive Course in 2005 re-joined the team in November 2016 and successfully completed Dive Master Training during the 2017 course.

E. DIVING EQUIPMENT

All dive equipment was serviced and passed inspection.

Tanks: 4 – 117 ft^3, 13 – 100 ft^3, 19 - 80 ft^3, 2 – 72 ft^3, 8 - 63 ft^3, 7 - 19 ft^3, 4 -13 ft^3, 7 - 3 ft^3
1 KM Superlight 27 w/tri valve exhaust w/wireless and hardwire comms
2 KM single diver dive control console w/150’ umbilicals
Regulators: 9 Scuba Pro MK25/A700 Regulators
Computers: 6 Suunto Zoop Novo
AGAs: 7 /w silicone skirts
OTS Buddy Phone Wireless communications
Viking Dry Suits w/ latex hoods: 13
Parker 23’ and 25’ Pilot House Boats for dive ops.

F. REVIEW OF DIVING PERSONNEL

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

NAME	AGE	SEX	CERTIFICATION LEVEL
David Beddick	38	M	Scientific Diver
Bill Fisher	68	M	Scientific Diver
Cheryl Hankins	38	F	Alternate UDO
Peggy Harris	52	F	Divemaster
Janet Nestlerode	48	F	Scientific Diver
Mel Parsons	59	M	Acting UDO
Debbie Santavy	60	F	Divemaster
Sherry Wilkinson	56	F	Divemaster

Changes in personnel

No changes in personnel other than the already mentioned addition of two divers late last year.

G. TIME SPENT ON THE NATIONAL DIVE PROGRAM

ACTIVITY (describe)	TIME
Assistance with Diver Training Course	10 days
Review of Documents (EPA Dive Manual v1.2)	2
Performing Action Items	1
Preparation for and Attendance of DSB Meeting	2
Technical Assistance to Other Units	0
Equipment Servicing	$4500.00
Equipment Purchases cu ft cylinders)	$ 1200.00 (4 117
Other	0

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

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

George doing what he loved

ANNUAL REPORT OF DIVE TRAINING AND OPERATIONS FOR FY17

Diving Unit: EPA Region 6 (Dallas Office and Houston Laboratory combined)
Nick Gannon R6 Dive team POC

A. Diving Activities

Diving Operations and Locations

The Region 6 Dive Team continued to develop its capabilities to serve the Region; especially in the area of contaminated water diving. The FY16 UDO, Brandi Todd, left the Agency to work for NOAA starting Oct. 2, 2017. A. Humphrey, ERT-E, will serve as acting (R6) UDO until R6 management support increases.

Still developing expertise for contaminated water diving, Region 6 worked closely with A Humphrey and S. Grossman of ERT-E to continue to support Region 6. R6 – ERT mixed teams performed one site recon/evaluation at SF site Bayou Bonfouca in preparation for a SF site inspection. Another mixed team performed PRP oversight, dive ops, cap assessment, and sampling at the San Jacinto Waste Pits SF site. This was a 9-day operation following Hurricane Harvey and was attended by Hdqtr. and R6 senior management. National newswires identified the EPA divers as “Elite Frog(wo)men”.

The Region 6 Dive Team also participated in a federal-state NDOW emergency response exercise.

Dive team members continue to explore areas within Regional programs where divers can enhance program effectiveness. NEIC and Regional enforcement staff have inquired of dive team capabilities

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

FY 17 Region 6 Dive Team Activities		
10/27/16	Lake Texoma NDOW Exercise	Eisenhower State Park, TX
11/3/16	Dive Safety Board Meeting conference call	Various
2/22/17	Training exercise – Scuba Toys Pool	Dallas, TX
4/18-19/17	Bayou Bonfouca SF site visit	Slidell, LA
9/6-15/17	SJWP ops - oversite, assessment, sampling	Houston, TX
FY 18 Anticipated Activities		
5/18	EPA Diver Training	Gulf Breeze, FL

Dive Statistics

Dive Type	Number of Dives	Number of Exposure Days
Science	9	**6** (2 divers x 3 days)
Training	20	**3** (3 divers x 1 day)
Proficiency	10	**2** (2 divers x 1 day)
Total	**39**	**11 Diver Days**

Scientific dives were performed at the San Jacinto Waste Pits SF site, San Jacinto River, Houston TX Training dives were performed at Lake Texoma, Eisenhower State Park, TX. Proficiency and training dives were performed at Scuba Toys Pool, Dallas, TX.

R6 diver Ashley Howard collecting post Hurricane Harvey samples at the San Jacinto Waste Pits SF site. Sept. 15, 2017.

B. Diving Accidents, Injuries, or Incidents

No accidents, injuries or other incidents to report during FY17 from Region 6.

C. Dive Training

All R6 divers are current for FOH physicals, basic First Aid, CPR, AED, Oxygen Administration, neuro examinations, and the annual 8-hour HAZWOPER refresher. Due to lack of management support and family emergencies, no R6 divers participated in the 2017 Gulf Breeze diver training class.

2018 Training needs:

- Divemaster training for Ashley Howard (EPA or NOAA)
- Inclusion of incapacitated diver rescue/removal exercises into training dives

D. **Dive Equipment**

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

The R6 team still maintains a R4 loaner Viking drysuit and a R10 surface supplied air device.

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

DIVE TEAM 2017 ANNUAL INSPECTION COSTS

ITEM	NEED	WHEN	COST	EA.	TOTAL
Tank VIP	Critical	Oct-17	$12.00	9	$108.00
Tank Hydro + VIP	Critical	Oct-17	$44.95	0	$0.00
Regulator Inspection	Critical	Oct-17	$59.95	6	$359.70
Regulator Parts	Critical	Oct-17	$40.00	6	$240.00
OTS Mask Inspection	Critical	Oct-17	$50.95	3	$152.85
OTS Mask Parts	Critical	Oct-17	$79.95	3	$239.85
BC Inspection	Critical	Oct-17	$19.95	6	$119.70

Additional equipment costs: O2 regulator (2-year maintenance) plus a MTV-100 regulator. 4 spare wrist seals and 2 spare hoods made of polytex, if your wrist seals and hoods are replaceable.

E. Review of Unit Diving Active Personnel

Nick Gannon – (M) Science Diver (located in Houston). Completed Dive Master training and 100 working dives mark reached. R6 Dive Team POC.
Valmichael Leos (M) – Scientific Diver.
Ashley Howard (F) – Scientific Diver and certified Emergency Medical Technician.
John Penland (M) – Scientific Diver.

Currently Inactive Divers
Leonard Schilling (M) – Science Diver (has voluntarily suspended dive team membership due to increased outside obligations).
Retired/Former Divers
Bill Luthans (M) – Former Unit Dive Officer and Dive Master.
Brandi Todd (F) – Former Unit Diver Officer and Dive Master.
INACTIVE – to NOAA 10/17.

F. Time Spent on the National Dive Program

Todd and Gannon participated in the Dive Safety Board CC/meeting Nov 3, 2016.

ANNUAL REPORT OF UNIT DIVE TRAINING AND OPERATIONS

Diving Unit: EPA Region 10 **Time Period:** FY 2017

DIVING ACTIVITIES

1. Describe each type of diving operation.

During FY17 the Region 10 unit had three scientific work diving events, some of which were multi-week operations. There were also two formal training events to practice critical rescue and scientific data collection techniques. Of the three work events only one was in support of Superfund, which is a rarity for our regional program, where in most years past, the majority were in support of Superfund. Just at the end of FY 16 and at the very beginning of FY 18, it should be noted that significant Superfund work was/will be conducted on Upper Columbia River and Wyckoff superfund projects, respectively (part of the UCR project went into FY 17, and is part of this report). All projects were related to natural resource, water, or habitat quality issues. Zero of these work projects this year involved use of free swimming SCUBA, two were via tethered SCUBA, and two were surface supplied. Training was conducted to maintain proficiency with all the surface supplied diving mode, rescue, sampling, and underwater photography. Region 10 had 18 work dives and 78 training dives, as this was a significant training year with two dive school graduates (Ian Ainoa and Anya Savrasov). Overall, Region 10 had a total of 191 dives (including requalification and off-duty dives). During FY2017, Region 10 (R10) had the following work projects:

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

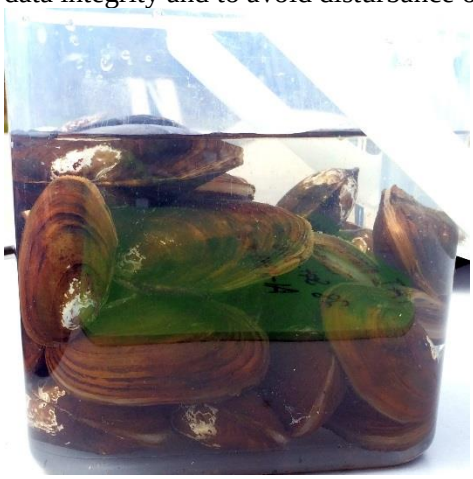


Figure: the mussels staged in river water awaiting sample processing.

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

2. Salmon Enhancement Pen dives (2 deployments, one baseline survey, one post survey). This project for the Office of Water included one deployment prior to salmon being placed into the net pen for a baseline survey, and a comparative post salmon habitation surveys to look for impacts visually and through sediment sampling.

Photo: diver collecting a surface sediment sample to evaluate benthic impact from the net pen aquaculture operation..

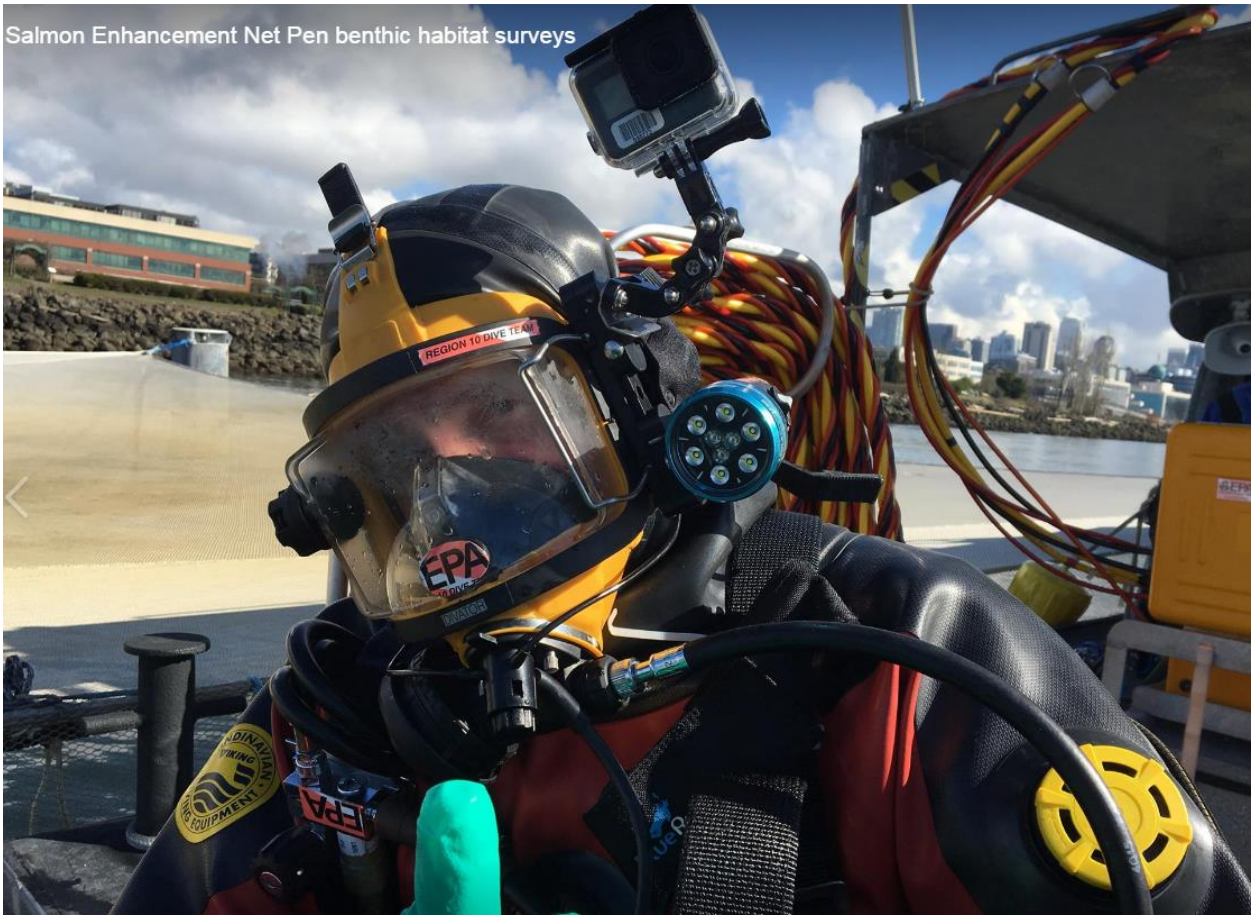


Photo: Chad Schulze gives a thumbs up that he's ready to dive. Dives were recorded on a gopro camera such that transects may be compared pre and post salmon habitation in the pen. This full face mask mount for the lights and camera allow the diver to dive hands free and focus on sediment sampling.

3. Willapa Bay Estuary Monitoring. Scientific divers deployed and retrieved scientific instruments vital to implementation of the Clean Water Act and updating of EPA's 303d list of impaired water bodies in July of 2017. EPA and State staff have worked jointly to obtain data for this estuary—a key area in supporting a variety of aquatic life since 2009. A variety of government entities have recognized the critical importance estuaries play in the overall ocean ecosystem, which EPA Region 10 has chosen to support via direct scientific data collection. Data collected will be utilized in a scientific report on the health of regional estuaries. Unfortunately, this was the last project on Willapa, as due to funding cuts Ecology is no longer deploying the station.

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

Training projects included (no pollutant exposure expected):

1. Region 10 unfortunately was unable to send a diver to the USC Wrigley campus for rescue training in October 2017 (Leefers) as the class was again cancelled due to an instructor medical issue.
2. Rescue training at the Manchester Lab campus- December 2016
3. Rescue training at the Manchester Lab campus- August 2017
4. NOAA dive training- three dive unit members received training at the NOAA sandpoint campus to build critical team capacity with upcoming diver Leefers (divemaster), Ainoa (scientific diver), and Savrasov (scientific diving)
5. AAUS dive safety training- September 2017

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. 2017 updates: Wyckoff cap repair work was overseen by ROV, vs. divers, for health and safety reasons during barge /cap dumping operations.

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

Scientific work and training dives were conducted in the Upper Columbia River, Willapa Bay, and Elliot Bay, Washington.

3. Dive Statistics. .

Number of Dives	
Work	18
Training	82
Other (off-duty/ proficiency)	95
Total	**195**

Number of Diving (exposure) Days	(=sum divers/days)
Work	18
Training	44
Other	2 (Non diving (hyperbaric exposure training in chambers/Tending Assist/Non diving DM/+ OD = Off Duty)
Total	**78**

DIVING ACCIDENTS, INJURIES, OR INCIDENTS

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

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 $3700 was spent on dive training with FY 16 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. ($300)

For oxygen and neuro examinations, a customized Divers Alert Network (DAN) neurological examination and oxygen administration training was provided to the team by in house instructor Chad Schulze, saving cost and travel. Also, the whole unit participated in HAZWOPER refreshers due to the polluted water nature of the majority of R10 diving support.

Region 10 hosted a full face mask technician course in December 2016 to allow our primary life support regulators to be maintained and adjusted in house, at lower cost.

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)

Photo: Instructor Chad Schulze works on "patient" Rob Rau to demonstrate appropriate oxygen administration for a non breathing victim of a diving accident as Annie Whitley looks on.

2. List any training needed.

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

Upcoming training includes NOAA training in May 2018 for Annie Whitley/OERA, dive trainee, as well as DAN CPR/AED training on December 6, 2017 for the entire dive unit.

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

Region 10 will be renewing our 2 day wilderness first aid in November 2018 with NOLS.

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

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

For additional details on R10 Dive Publications, see:

https://www.epa.gov/diving/diving-publications

DIVE EQUIPMENT

Region 10's budget in 2017 included a service budget of approximately $9,000 (increase from 2016) and $13,710 (decrease from 2016) for This year, capital equipment purchases were unfortunately unable to purchase any additional equipment improvements for safety and productivity. Suit purchases for new divers Ainoa, Savrasov, Whitley were a major focus, as well as backup suit replacements for Pedersen and Rau.

In service:

- 2 suits per diver that have completed dive training (current or pending manufacture).
- 1 surface supplied diving control box, 2 200 foot umbilicals, 2 300 foot umbilicals; 70 cf faber steel EGS bottles in service, 2 50 CF EGS bottles (tagged out), 2 EGS regulators/manifold blocks.
- Tethered SCUBA regulators (4 sets) plus 4 200 foot tethers, 4 300 foot tethers, 2 complete surface tending MK7 units
- 5 still camera rigs (one assigned to Anne Christopher at OOO) – 2 sealife, 3 cannon still cameras (solas assigned to each cannon).
- 2 verizon hotspots (Sheldrake's returned August 2017, Pedersen September 2017 as an austerity measure to reduce working capital fund expenditures.
- 4 gopro assemblies with two assigned solas.
- 4 solas with full face mask mounts; 3 solas set up for wrist attachment.
- 1 bluefin camera housing and lighting for canon HD video camera that allows narration underwater
- 7 in service AGAs
- 2 BCDs per diver (for contaminated water diving and off duty proficiency diving flexibility)
- One non polluted water regulator per diver (12) -hose replacements should be considered if capital equipment cannot replace these soon.
- 4 S17k suits (shared with ERT); 1 S17k helmet (ERT) for upcoming training dive.
- 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.
- 2 backboards assigned to Monitor and Wooldive, one in dive ops for non EPA vessel trips.
- 2 DRS 100B OTS diver recall units, one located in DOC; one Manchester Lab
- 4 nitrox analyzers (1 in DOC, 1 in the dive van, 1 on Monitor, 1 at the Lab)
- 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.
- 2 reserve air supply systems for NOAA training
- 1 carbon monoxide detector for air quality testing at remote locations
- 2 13 CF, 2 19 CF, 4 30 CF EGS bottles
- 4 OTS wireless units currently tagged out (they aren't sufficiently clear and would require swapping out AGA full face mask hotmikes, which are not backwardly compatible with these 2008 units).

REVIEW OF DIVING PERSONNEL

	Name	Certification Level
1.	Sean Sheldrake	Regional Diving Officer, Divemaster
2.	Chad Schulze	Divemaster, UDO Alternate
3.	Rob Pedersen	Divemaster, UDO Alternate
4.	Lisa Macchio	Divemaster
5.	Rob Rau	Divemaster
6.	Kristin Leefers	Divemaster
7.	Adam Baron	Scientific Diver
8.	Anne Christopher	Scientific Diver (Portland, OR based)
9.	Brent Richmond	Scientific Diver (Lab/Kitsap Peninsula based)
10.	Ian Ainoa	Scientific Diver
11.	Anya Savrasov	Scientific Diver
12.	Annie Whitley	Trainee

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.

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

TIME SPENT ON THE NATIONAL DIVE PROGRAM

ACTIVITY (identify and describe)	TIME (hours)
Assistance with the EPA Diver Training Course (1), including providing the lead instructor the divemaster class(lesson prep: 20, class time 40)	60
Outreach on behalf of EPA dive program (Facebook, "It's all about Science" blogs, design of new OneEPA dive program web page, Flickr).	75
Performing Action Items (Meeting Minutes/review and comment on DSM revisions, equipment recall notices)	50
Technical assistance to other units, Regions, other state & federal agencies	30

Other activities:

-Preparation for and dive team meetings 20

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

-Preparation for training events 30

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

Figure: Screen shot of the EPA Divers Facebook page

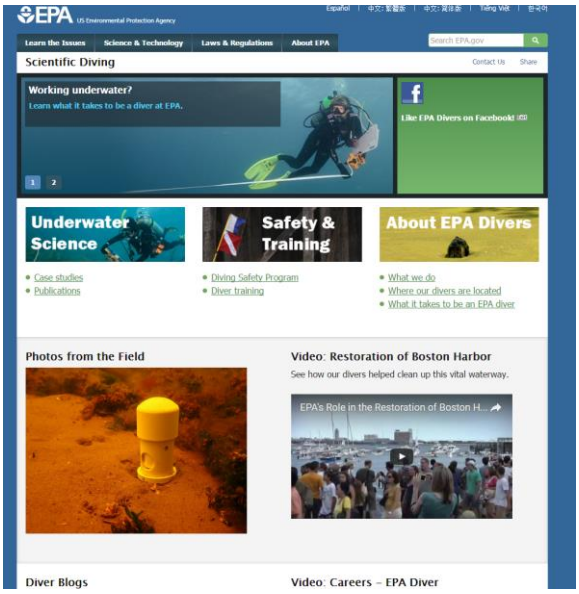


Figure: 2016 rollout of the new national dive program page, maintained by R10

COST OF TRAVEL FOR NATIONAL PROGRAM COST

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


OVER 45 YEARS
OF DIVING FOR SCIENCE


EPA
SCIENTIFIC DIVING
www.epa.gov/scientific-diving

ANNUAL REPORT OF DIVE TRAINING AND OPERATIONS

Diving Unit: **Western Ecology Division** Time Period: **Oct. 2016 – Sept. 2017**
ORD/NHEERL

A. DIVING ACTIVITIES

1. Dive activities during FY 2017 consisted of proficiency dives.

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

2. Location of work dive operations: None.

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

4. Dive Statistics:

Type of Dive	Number of Dives	Number of Exposure Days
Working	0	0
Proficiency	42	20
Training	0	0
Total	**42**	**20**

5. Dive Audit:

   Self-audit completed for FY17

   (Last external audit - completed in July 2011.)

B. DIVING ACCIDENTS, INJURIES, OR INCIDENTS

None

C. DIVE TRAINING

Divers received FA/CPR/O2 training in Feb. 2017. Instructors: Reichman and Mochon Collura.

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

D. DIVE EQUIPMENT/MAINTENANCE

Date	Diver	Item	Cost
14-Nov-16	Mochon Collura	BC Weight Pockets (2)	$47.90
16-Dec-16	Team	DAN FA/CPR instructor materials	$252.08
16-Feb-17	Team	Cylinder VIS (8)	$120.00
16-Feb-17	Team	Reg. and BC annual insp.	$225.00
9-Mar-17	Team	FA/CPR cert. cards	$50.86
22-Mar-17	Team	O2 cylinder refill (2)	$29.50
16-Feb-17	Team	O2 regulator inspection (2)	$162.00
		Total	$887.34

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	Needs re-qual
Jay Reichman	Divemaster	Male	Qualified

F. TIME SPENT ON NATIONAL DIVE PROGRAM

1. Time Expenditures: hrs.

Assistance with Diver Training	0
Dive Program Audit	2
Review of Documents	8
Performing Action Items	--
Preparation for and Attendance at Meetings	6
Technical Assistance to other Units	--

2. Fiscal (monetary) expenditures

DSB Meeting	$0.00
Training at GED	$0.00
Diver Physicals	$2710.00
New Gear	$350.84
Gear Maintenance	$536.50
Gear Repair	$0.00