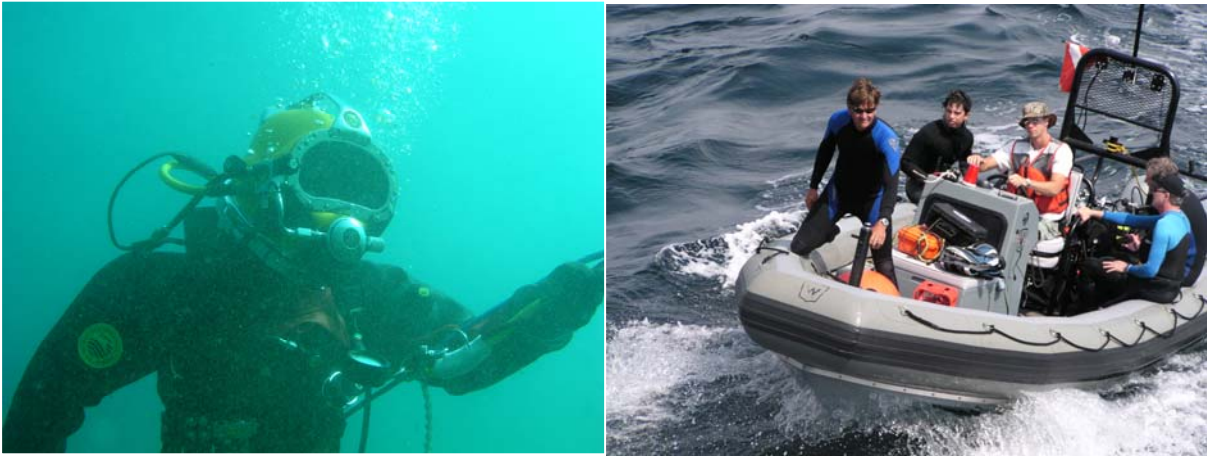


US EPA ARCHIVE DOCUMENT

**Environmental Protection Agency
National Dive Safety Program**

2008 Annual Report



US EPA ARCHIVE DOCUMENT

May 2008

Executive Summary

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

The EPA's National Diving Safety Program conducted 1,716 dives in 2008 involving nine EPA dive units and 68 divers. The 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:

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Environmental Protection Agency National Dive Safety Program

2008 Annual Report

Introduction

This report is provided to the Environmental Protection Agency's (EPA) Safety, Health, and Environmental Management Division (SHEMD), in accordance with EPA's Dive Safety Policy. This policy and EPA's Diving Safety Manual can be viewed on line at the SHEMD site: URL: <http://intranet.epa.gov/oaintran/shemd/divmanuals/index.htm>.

This report is a summary of the EPA's National Diving Safety Program (NDSP) activities, from October 1, 2007, through September 30, 2008. The annual reports from EPA Unit Dive Officer's (UDO) are the basis for the information contained in this report. Copies of each UDO's Annual Report are available upon request.

The EPA's NDSP conducted 1,716 dives in FY 2008 (Figure 1), involving nine EPA dive units, with 68 divers (Figure 2). These dives were conducted in a variety of water bodies that include lakes, rivers, harbors, and the open ocean. The population of EPA divers fluctuates annually, based on the number of divers that are currently qualified in the program. Qualification is based on medical compliance, diving proficiency, and other regulatory requirements. No serious injuries or accidents were reported by the dive units. Region 4 - Athens reported 1 injury that has been resolved.

Overview

EPA's NDSP is represented nationally by nine regional dive units, each under the supervision of a Unit Dive Officer. The dive units are located in (1) Region 1 (Boston Headquarters and the Narragansett Lab); (2) Emergency Response Team (ERT - Edison, NJ); (3) Region 3 Headquarters - Philadelphia, PA; (4) Region 4 - Atlanta Headquarters, Atlanta, GA; (5) Region 4 - Athens Lab, Athens, GA; (6) Gulf Ecology Division (GED) - Gulf Breeze, FL.; (7) Region 6 - Dallas, Texas; (8) Region 10 Headquarters - Seattle, WA.; and (9) the Western Ecology Division Lab (WED), in Corvallis, WA.

Highlights of activities from each dive unit are provided in Attachment 1.

Figure 1

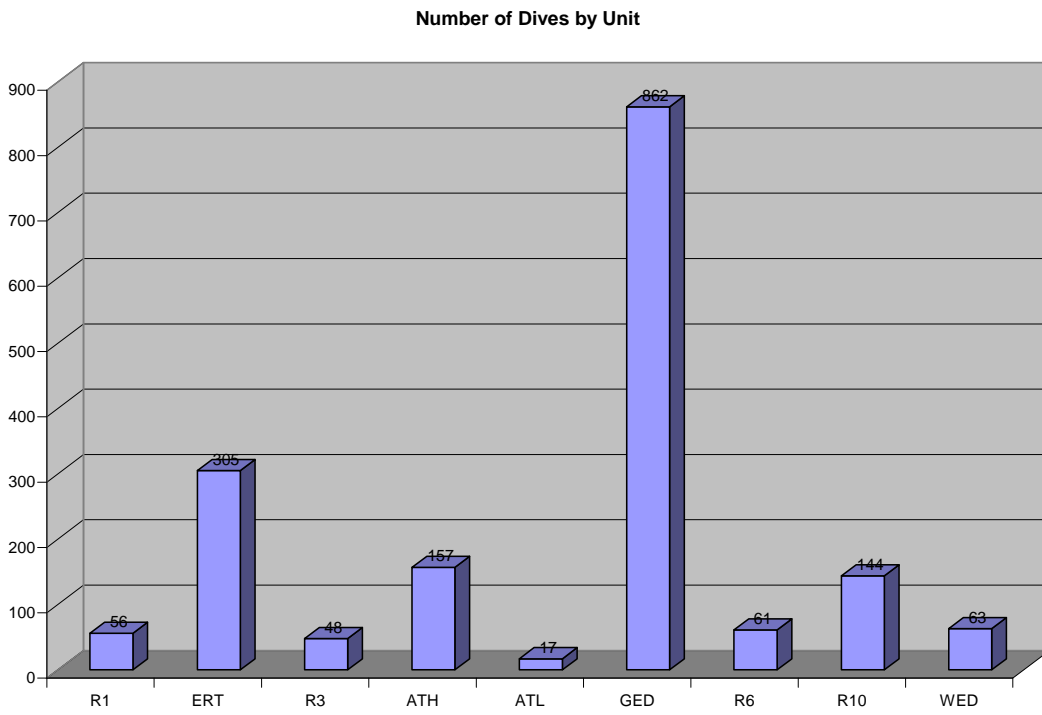
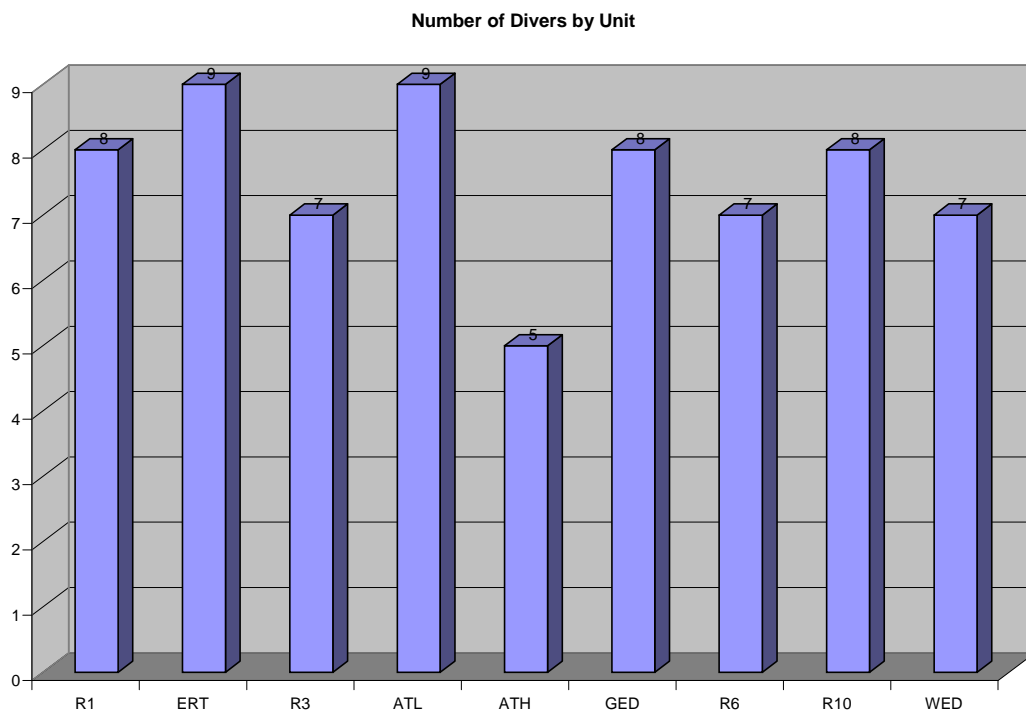


Figure 2



2008 EPA Diving Safety Board Meeting

The 2008 EPA Diving Safety Board meeting was held at the U.S. Fish and Wildlife Service National Conservation Training Center in Shepherdstown, WV, September 30 - October 2, 2008. All dive units were represented. Agenda items included:

- Review and discussion of NOAA diving accident and policy impacts to NOAA;
- Discussion of implementing new Navy dive tables;
- Discussion on “Scientific Exemption” clause as it applies to EPA;
- Review of requirements for Divemaster certification;
- Reassignment of Region 1 UDO responsibilities;
- Revisions to the EPA Diving Safety Manual;
- Need to update the EPA Dive Safety Manual; and
- Establishment of new Region 3 UDO.

Training

The Gulf Breeze Diver Training Center conducted its annual Diver Training Program on May 12-16, 2008. Forty-two EPA personnel were involved in training or instructing. Seventeen certifications were given for Scientific Diver. Four Divemasters were also certified. The program offered training in the use of dry suits, AGA masks, EXO-26 mask, Superlite-27 diver’s helmet, surface-supplied air and NITROX , surface communications, wireless communications, U/W sonar, lift bags, U/W metal detector, U/W search and recovery, use of U/W tools, Diving Accident Management, Divemaster certification, and oxygen enriched air certification. EPA divers gained experience by working as operational diver instructors during the water exercises. Some of the more experienced divers lectured on their areas of experience.

Reciprocity:

EPA participates in joint diving activities with a variety of outside organizations. These can include other Federal and State agencies, universities, and private sector organizations. To facilitate these operations and to ensure safety, formal Reciprocity Agreements are established with these entities, based upon approved standards. These agreements are maintained for the calendar year and can be renewed annually as needed. In 2008, EPA established Reciprocity Agreements with:

- U. S. Department of Commerce; National Oceanic and Atmospheric Administration
- U. S. Fish and Wildlife Service
- U. S. Geological Survey
- State of Alaska, Department of Fish and Game
- State of Florida, Department of Environmental Protection
- State of Florida, Fish and Wildlife Institute
- University of Georgia

- Georgia Aquarium
- NOVA Southeastern University
- Mote Marine Laboratory
- Harbor Branch Oceanographic Institute
- University of Puerto Rico
- Scientific Diving International
- Commonwealth of the Northern Mariana Islands

Attachment 1

Dive Unit Highlights

Regional Units

1. Region 1 – Region 1 Dive Unit Boston Headquarters and the Atlantic Ecology Division (AED-Narragansett Lab)

A: DIVING ACTIVITIES

Diving Operations:

- Proficiency Dives
- Benthic habitat assessment for proposed offshore wind turbines
- Video taping sea floor conditions
- Collection of Scallops
- Fish collection
- Assessment of anchor chain scour on eelgrass habitat
- Seagrass monitoring and transplanting
- Training
- Video documentation of illegal dredged material disposal

Locations:

- Nahant Bay, MA.
- Rhode Island Sound
- Gloucester Harbor, MA.
- Narragansett Bay, Fort Wetherill, RI.
- Lagoon Pond, Martha’s Vineyard, MA.
- Gulf Breeze, FL.
- Massachusetts Bay, Hull, MA.
- Little Harbor, NH.
- Beverly Harbor, MA.
- Plum Cove, Gloucester, MA.

**B. Dive Statistics - (AED= Atlantic Ecology Division, Narragansett Lab)
(R1= R1 Headquarters, Boston, MA.)**

Work:	49 (23AED & 26 R!)
Training:	3 (R1)
Proficiency:	4 (R1)
TOTAL	56

C. Diving Accidents, Injuries, or Incidents

None

D. Review of Unit Diving Personnel

8 EPA Divers on roster:

5 Divemasters (2 at AED, 3 at Region 1)

8 Working divers (4 at AED, 4 at Region 1)

2. Edison Emergency Response Team Dive Unit

The Environmental Response Dive Team (ERDT) conducted 305 dives in 2008. This total includes data from sponsored EPA divers in Regions II, VIII, and IX. The sponsored divers are divers who conduct work or training dives with ERDT, but do not have a dive team in their respective regions.

A. Diving Activities:

- Scallop Habitat Project, Martha’s Vineyard, MA - Survey of bay scallops, their habitat, and predator populations in Lagoon Pond.
- Beach Monitoring Project, Milwaukee, WI – Assisted in deployment of monitoring equipment as part of a nationwide monitoring project to identify swimmer bacterial illnesses caused by combined sewer overflows.
- Mussel Project, East Brady, PA – ERDT supported the Fish and Wildlife Service with diver verification of viable mussel habitat, video documentation along mussel transects, and a project to re-introduce mussels in the Alleghany River.
- Coral Survey, Puerto Rico – ERDT assisted EPA’s Gulf Ecology Division with a coral survey of near-shore reefs in La Parguera, Puerto Rico.
- Ashtabula River, Ashtabula, Ohio – ERDT provided environmental sampling diving support to EPA’s Office of Research and Development to monitor dredging operations on the Astabula River, Ohio.
- Manistique Harbor Site, Manistique, MI – ERDT placed and recovered artificial substrates used to simulate possible Polychlorinated Biphenyl uptake.

B. Dive Statistics

Working Dives	203
Training Dives	50
Proficiency	52
 TOTAL	 305

C. Diving Accidents, Injuries, or Incidents

None

D. Diving Personnel

The ERDT has 9 divers, including 6 divemasters.

3. Region 3 Dive Unit

A. Dive Activities

- Artificial Reef Subway Cars inspection off Rehoboth, DE – The survey of the submerged subway cars off Delaware had two primary objectives: 1) To reassure the public that there are no harmful or potentially harmful effects of their placement off the coast, and 2) To assess the usefulness of the units as artificial reefs.
- Dutch Springs Quarry - Proficiency and Training Dives - Dutch Springs Quarry, Allentown, PA. Dry suit and equipment checkout dives in up to 60 feet of fresh water. Visibility was 60 feet; water temperature was 46 degrees.
- EPA Dive Training at the Gulf Breeze Ecology Division in Florida - participated and assisted with training of working divers and dive masters.
- Hard Bottom Survey in Delaware Bay - The survey of the Delaware Bay hard bottom reefs was in support of a Regionally Applied Research Effort (RARE) grant for the Delaware Estuary Benthic Inventory (DEBI) project. This is the largest benthic inventory of the Delaware Bay and Estuary in 50 years. An unknown hard bottom habitat consisting of sponges and worm colonies was discovered during dive survey. Region 3 divers relayed observations in real time to scientists from the Partnership of the Delaware Estuary and the University of Delaware via wireless communications. Data collected will provide a wide range of chemical, physical, and biological knowledge of the Delaware Bay that may be used in a proposed planned deepening of the shipping channel.

B. Dive Statistics

Work dives	24
Training	16
Proficiency	8
 TOTAL	 48

C. Diving Accidents, Injuries, or Incidents

None

D. Diving Personnel

7 Members on team, including 5 Divmasters

4. Atlanta - Region 4 Dive Unit

A. Dive Activities

All diving was for training and proficiency purposes.

Training – Two separate dives were performed to check-out new diver candidates: EPA was granted use of indoor pool by Diver’s Supply of Marietta, GA; the pool was specifically designed for dive training and cylinders were provided at no cost.

Proficiency – One dive event held at Lake Hartwell, GA to allow both Atlanta and Athens divers to maintain proficiency.

Locations:

Marietta, GA - used indoor pool for training

Lake Hartwell, GA – USACE cove facility used for proficiency

B Dive Statistics:

Work:	0
Training:	7
Proficiency:	10
 TOTAL	 17

C. Diving Accidents, Injuries, or Incidents

None

D. Diving Personnel

Team has 9 members, including 2 Divemasters.

5. Athens – Region 4 Dive Unit

A. Dive Activities

- Sediment oxygen demand/nutrient studies: Sediment oxygen demand (SOD) rates are determined through the deployment of aluminum chambers over the bottom sediments. Four replicates and two blank chambers are deployed at each station. The replicate

chambers are sealed directly to the bottom, while the blank chambers are sealed as a unit and are not in contact with the bottom sediments. The blank chambers are filled with ambient water to measure the water column respiration. Nutrient exchange studies are conducted with the same chambers. This requires a long incubation period, generally all day or over night. Water samples are then pulled from the chambers by divers and analyzed for nutrients. SOD and nutrient exchange studies are both conducted in aerobic conditions. A similar study to nutrient exchange (but conducted in anaerobic conditions) is the anaerobic sediment gas exchange study. Samples from this study are analyzed for methane, ammonia and sulfides.

Pollutants: Wastewater treatment plants, paper mill discharges and other industrial discharges. Hazards: zero visibility, strong currents, marine sting-bites, alligators, snakes, limbs, stumps, fishing line, debris. Biggest hazard is potential for entanglement by lines and cables between chambers and the surface vessel.

- Ocean Dredged Material Disposal Sites: These surveys are to determine the sedimentological, water quality and benthic infaunal characteristics in areas within and adjacent to the influence of dredged material disposal. Divers are responsible for collecting sediment cores for laboratory analysis and benthic macroinvertebrate analysis, as well as taking bottom photographs and recording observations.
Pollutants: Generally not applicable Hazards: zero visibility, cold water, swift currents, marine stings-bites, and transfer of equipment between ship and small boats during high sea states.
- Deploy/retrieve instruments: Deployment and retrieval of current meters Ocean Dredged Material Disposal Sites (ODMDS). A lift bag was utilized for the deployment and retrieval process.
Pollutants: Offshore - Generally not applicable. Hazards: zero visibility, cold water, swift currents, marine stings-bites, and transfer of equipment between ship and small boats during high sea states.

Location of diving operations/water body:

Florida – Estuaries and offshore
 Georgia – Lakes
 North Carolina – Lakes
 South Carolina - Offshore

B. Dive Statistics:

Work:	105
Training:	41
Proficiency:	11
TOTAL	157

C. Diving Accidents, Injuries, or Incidents

One diver suffered a ruptured eardrum in 15 feet of water. Diver has resolved condition and was medically cleared to return to diving. The diver has been active on operations.

D. Diving Personnel

There have been changes in the R4 Athens Dive Program this year. Two divers have left the program: one in a change of positions to the Atlanta office, and the other diver dropped out of the program. We have recently hired four new personnel, all of which have expressed an interest in trying the dive program.

There are a total of 5 divers on the Athens Dive Team, including 2 divemasters.

6. **Gulf Ecology Division, Gulf Breeze Dive Unit (GED)**

A. Dive Activities

GED carried out several scientific diving operations. The multiple dive projects performed included submerged aquatic vegetation, sediment oxygen demand, coral surveys, acoustic doppler current profiler data download and service, and inspection and service of seawater intakes for the GED lab. Our National Diver Training Program had a total of 862 dives since the last reporting date. Many of these dives were in collaboration with other EPA units, and are included into the total number of dives.

Training Preparation:

Divers were required to make inspection dives around the GED West Dock to search and remove hazards prior to the Diver Training Course. Ladders were removed, cleaned, and reinstalled. Barnacles, oysters, and fishing gear were removed from the pilings. Dives were made to test equipment (Superlite- 27, wireless, hard wire, EXO-26, a multitude of Aga mask and regulators) prior to diver training. All 40 diving cylinders used, were visually inspected.

Coral Condition Survey:

The condition of coral reefs over the last three decades has been marked by increased levels of coral bleaching and disease, which is unprecedented in recorded history. Initially, there appeared to be little or no recovery of affected colonies, which may have led to a significant decrease of the overall living coral surface area. Processes that cause tissue loss of corals are not well understood, but degradation is most likely due to multiple environmental stresses. These stresses include global change, (such as elevated temperature and UV-light penetration), and also water contaminated by runoff from terrestrial sources.

EPA Divers collected data on coral condition and photographed corals in Miami, FL, St. Croix, U.S.V.I., and Puerto Rico. All of these operations were in collaboration with other units within EPA's Diving Program. Completion of the program increased EPA's ability to estimate biological conditions of coral populations, and to help understand associations between coral reefs, reef fish, soft corals, and other macrobiota. Estimates of conditions can be used to compare species and populations of coral across reef types, study areas, and geographic regions, and can be related to water quality, human influences and bleaching/disease status. Species identification, colony size and the proportion of live tissue on each colony was recorded in this and will be recorded in future surveys. These observations lead to unique assessment endpoints, which will assist resource managers in tracking changes in coral condition.

Divers completed the following:

- Located underwater stations
- Enumerated the number and species of coral colonies located within an 8-10 meter arc placed in random positions.
- Estimated class size for each colony within the arc.
- Photographed representative samples of each class size for computerized determination of surface area and living tissue.
- Collected sponges for enumeration of *Enterococcus* bacteria and accumulated concentrations of anthropogenic chemicals (pesticides and PAHs).
- Conducted disease and bleaching surveys.
- Assessed percent of living/dead, size class, imaging, disease frequency, bleaching and numbers of coral colonies, via radial belt transect surveys.
- Mapped and videotaped the sites.

B. Dive Statistics

Total number of dives reported: 862

C. Diving Accidents, Injuries, and Incidents

None

D. Diving personnel

There are 8 GED divers, including 6 Divemasters

7. Region 6 – Dallas, TX

A. Dive Activities

- The Oklahoma Water Resources Board (OWRB) has begun the creation of a vegetated wetland in the littoral zone of Lake Stanley Draper. Lake Stanley Draper is the largest municipal lake owned by Oklahoma City, and supplies much of the city’s potable water. The lake is listed on the Clean Water Act 303(d) list for turbidity; the city has invested considerable resources installing best management practices to improve water quality. The current project attempts to restore lacustrine wetlands by planting founder colonies of wetland species in key protected areas around the lake.
- OWRB personnel are actively involved in the restoration effort, supported in part by an EPA 104(b)(3) grant. A request was made to Region 6 for support by the EPA Dive Team to help establish founder wetland colonies in waters too deep for swimming and wading. Concerns over the potential negative impacts of water level fluctuations on the shallower lacustrine colonies drove this request.
- Diver activities include surveying the previously planted aquatic vegetation, as well as planting individual plants. Operations were conducted both from shore and from vessels. Divers also placed wire cages over the plantings, and marked individual cages both with buoys and GPS.

Pollutants/Hazards

Pollutants: No pollutants present. Lake Stanley Draper is a drinking water reservoir with excellent water quality

Hazards: Low visibility and boat traffic. Occasional minor entanglement hazards.

- Location of diving operations/water body

Oklahoma – Lakes

B. Dive Statistics

Work:	29
Training	32
TOTAL	61

C. Diving Accidents, Injuries, and Incidents

None

D. Diving Personnel

Region 6 has 7 members on the dive team, including 2 Divemasters.

Two of our divers have left the program this year: one left EPA for a position in another agency, the second was unable to maintain proficiency and dropped out of the program. Three divers in Dallas TX, maintained proficiency and remain active. One diver located in Houston has maintained proficiency and has participated in training activities. The remaining three divers in Houston have not maintained proficiency or participated in any regional dive activities this year. Their long-term status will be clarified within the next year.

8. Region 10 Dive Unit-Seattle, WA

A. Dive Activities:

During FY2008 R10 had 10 work diving “events” consisting of 13 separate diving mobilizations and three dive training activities. R10’s historical mainstay, support for Superfund remediation sites, consisted of three projects. Six projects were related to water or habitat quality issues in Puget Sound/Hood Canal; PS/HC will continue as a major initiative for the State and EPA. Eight events employed tether diving. During FY2008, Region 10 had the following work projects:

- Henderson Inlet, Puget Sound, WA – Oct. 2007 - Week-long project – Divers conducted bottom surveys in the Woodard Bay Conservation Area to assess shellfish/benthos habitat conditions: determined the general presence of wood debris on the bottom; noted other anthropogenic-source benthos; counted benthic life/bivalve siphons within a grid at periodic intervals. Photographed and georeferenced the survey data. The information gathered will assist in shellfish habitat restoration/improvement planning by the Washington State Department of Natural Resources.
- Hood Canal Eelgrass – Nov 2007. Joint dive project – R10 and Newport/EPA. Wet season version of similar work done in July 2007. Researchers at the Western Ecology Division (WED) have developed a mechanistic model to examine the sensitivity of seagrasses to nutrient stressors. The objective of this work is to apply the Zm-SRM (*Zostera marina* Stress Response Model) to data sets collected from Puget Sound using the Eelgrass Indicator Deployment System (EIDS) in areas identified as experiencing active eelgrass loss and attempt to determine the causal mechanism. With the guidance of Washington DNR, sites were selected in south Hood Canal. Instrumentation systems (EIDS) were deployed; eelgrass was collected for “installation” on racks associated with the EIDS (and for later lab work). Instruments and eelgrass were retrieved two weeks later.
- Willapa Bay, Washington Coast, for Washington Department of Ecology (WDOE) – Jan 2008. Conducted maintenance on one of four surface-floating moorings that have been installed in Willapa Bay to monitor temperature, salinity, and chlorophyll since August 1997. These packages slide on a track attached to a USCG piling with rising and falling tides. The instruments are housed in a stainless steel cage fixed to a sliding “car” with floats for buoyancy. Every four to six weeks, the instruments are recovered. These

data collection points directly support Washington State implementation of the Clean Water Act, which is delegated from EPA to WDOE.

- Ostrich Bay, Dyes Inlet – Puget Sound Jackson Park, WA – Jan 2008. Week-long project - conducted bottom surveys to assess shellfish/benthos habitat conditions (i.e., conduct a preliminary evaluation of habitat and marine resources; noted presence of discarded military munitions (DMM); obtained georeferenced documentation. DMM were previously lost or discarded in the bay. The bay is a commercial harvest area for geoducks and sea cucumbers, Cancer crab, other bivalve species, and seastars are also likely present.
- Squaxin Passage Acoustic Doppler Current Profiler Meter Retrieval for the Washington State Department of Ecology – Feb. 2008. Attempted to locate and retrieve the Acoustic Doppler Current Profiler (ADCP) meter lost in Squaxin Passage just NW of Hunter Point. The ADCP was approximately in 60 feet of water. The ADCP was not found after diver searching in the stipulated GPS area.
- Willapa Bay, Washington Coast, for the Washington Department of Ecology – Mar. 2008. Similar to the January work above. This time, one monitoring point track required replacement due to damage by fall storms. The track was removed however conditions prevented installation of a new track.
- East Waterway, Duwamish River/Elliott Bay, Seattle – Mar. 2008. Dive support was requested by the Superfund program (with WDNR) to evaluate the condition of deteriorating piers on the southern portion of the USCG station for the amount of debris on the bottom, broken pilings below the surface, and habitat potential. The Washington State Department of Natural Resources (DNR) is interested in the potential benthic habitat under the deteriorating USCG piers. Narrated underwater video was also obtained of the area.
- Willapa Bay, Washington Coast, for the Washington Department of Ecology – May 2008. Follow-up to January work. A new monitoring point track was replaced due to damage caused by fall storms.
- Duwamish River PCB/PAH Study for Texas A&M University – July, Aug. and Sept. 2008. ORD requested continued support to TAMU’s Superfund Basic Research Center work to study effects of PCBs and PAHs in the marine environment. Sediment, surface water, and ground water samples were collected from seven locations along anticipated contaminant gradients. One ground water sample was collected at each sampling location, using a diver-deployed minipiezometer. In-situ exposure was estimated from contaminant absorption into solid-phase microextraction (SPME) sampling devices (Which were removed after three different exposure periods).
- OSV BOLD Dive Support at Ocean Dredged Material Disposal Site’s, OR – Aug. 2008. Divers using video cameras characterized hard-bottom habitat identified during the June 2008 sidescan sonar surveys at the Coquille and Chetco Ocean Dredged Material Disposal Sites (ODMDS). Results indicated that most of the sites were absent of any

substantial natural or man-made resources. However, results indicated substantial amounts of hard bottom relief within and near the Coquille and Chetco ODMDSs. The dive videotapes and observational information will be used by to identify marine resources that are inconsistent with an ODMDS, potentially leading to exclusion of areas from the ODMDS. One dive was also attempted at the proposed Benson beach ODMDS to survey habitat. However, the dive was aborted due to low visibility.

Training projects included:

- Nov. 2008 at the NOAA training facility the team practiced standard dive skills such as buoyancy, wireless communication proficiency, compass use, safe ascent and descent, and other skills. The team also practiced deploying the “Safety Sausages,” aborting a dive using the diver recall, and tested new scooter batteries. Requalifications for three divers were also performed.
- April 2008 at the NOAA training facility the team practiced emergency ascents including emergency unconscious diver ascent (a buddy controlled ascent), emergency rescues (including in-water boarding and oxygen administration), wireless communications proficiency, videocamera proficiency, potable water decontamination, and AED usage.
- June 2008 – This was an off-duty training dive to document a diver’s second and third dive to at least 60 feet (Rob Rau, trained at GED and he did not have the deep dive checkouts). Rau demonstrated the necessary skills for dives deeper than 60 feet.
- July 2008 at the NOAA Dive Center (NDC). The team tested a new Viking suit, one repaired suit, new regulators, and equipment to be used on the TAMU Duwamish River project. NOAA prototype bailout bottle and regulator for OSHA scientific exemption diving was also tested, at the request of NDC.

Location of diving operations:

Work dives were conducted in Washington State (Puget Sound, Duwamish River and East Waterway, Willapa Bay, Lake Washington); and Oregon (Pacific Ocean off the Coquille and Chetco Rivers).

B. Dive Statistics

Work Dives	92
Training	29
Proficiency	23
 TOTAL	 144

C. Diving Accidents, Injuries, and Incidents

One diver stepped off a marina float in the dark, there were no injuries. The diver had a personnel floatation device on according to R10 protocol.

D. Diving Personnel

There are a total of 8 divers, including 5 Divemasters.

9. Western Ecology Division: Corvallis, WA

A. Dive Activities

- Dive activities during 2007-2008 consisted of proficiency, training (freshwater) and working dives to study eelgrass beds, collect samples, and test new equipment. Working dives included photographs of root minirhizotron windows to quantify root growth; collecting eelgrass samples for biomass and biochemical analysis; maintaining underwater data logging equipment; deploying Eelgrass Indicator Deployment System (EIDS), a new device to track eelgrass growth in different aquatic environments (with assistance from Region 10, see below). Proficiency dives were performed as needed. Four of our divers completed a NAUI Rescue Diver training course. One of our divers is involved with the Oregon Aquarium; he conducts dives to help with aquarium maintenance on a monthly basis.
- WED completed a new pilot project in late 2007 to identify causative mechanisms of eelgrass loss in Puget Sound, Washington. Region 10 assisted WED divers with this research effort. The objectives of the work were to 1) collect data sets using the Eelgrass Indicator Deployment System (EIDS) in areas identified as experiencing active eelgrass loss; and 2) to provide data for model validation. Deployment involved placing several metal frames in different parts of Puget Sound, and then recovering them after a specified period of time.

Locations of work dive operations:

- Yaquina Bay, Oregon;
- Hood Canal, Washington.

B. Dive Statistics:

Work Dives	26
Training	7
Proficiency	31
 TOTAL	 63

C. Diving Accidents, Injuries, and Incidents

None

E. Diving Personnel

The WED unit consists of 7 divers, including 5 Divemasters

- WED divers continue to have difficulty maintaining proficiency by diving at bimonthly intervals, the need to dive has lessened over the last year due to a shift in projects. The Rescue training course was conducted to keep divers proficient.
- Two WED divers are temporarily disqualified to dive. One suffered an athletic injury and was unable to dive for several months. Both divers postponed their annual physical and will complete it this fall. Both divers will undergo a requalification program before conducting future dives.
- One of our divers (unofficially) served as an invited Scientific Diver and Biological Guide for the Galatee Films production of *Oceans*, which will be an IMAX movie. He helped Galatee shoot a mass coral spawning event in the Flower Garden Banks National Marine Sanctuary, by ensuring that the camera crew was photographing the right coral species at the appropriate time. NOTE: These dives were not officially sanctioned by the EPA, and were done while the diver was on annual leave.