

Navy military underwater construction

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Seabees of the Naval Construction Forces (NCF) became involved in construction diving during World War II in conjunction with the building of numerous advanced bases throughout the Pacific theater. Early projects included underwater demolition of reef obstructions, and in-shore construction necessary for development of channels, harbors, and mooring facilities for the fleet.

Most of the work was performed by specially trained Seabees qualified as divers assigned to the Naval Mobile Construction Battalions (NMCBs). During the same period, several small, semi-independent units were being formed to perform combat underwater demolition, limited salvage, and underwater construction.

These units were the predecessors of the Underwater Demolition Teams (UDTs), which originally included diver-trained Seabees and were led by Civil Engineer Corps officers.

The mid-1960s saw renewed interest in Navy ocean facilities engineering within the Naval Facilities Engineering Command (NAVFAC), the Navy's construction agent for fixed facilities. From this interest, the "Plan for Definition of NAVFAC and Naval Construction Force (Seabee) Role in Ocean Engineering" (Naval Facilities Engineering Command Summary Report 68-1), published in September 1968, identified the necessity for a military underwater construction capability.

The report recommended that one Seabee Underwater Construction Team (UCT) be located at each of the two Construction Battalion Centers, and one unit be located at the Navy Civil Engineering Laboratory, Port Hueneme, Calif. A UCT was subsequently established under the 21st Naval Construction Regiment (NCR) at the Seabee Center, Davisville, Rhode Island, in 1969 under the leadership of Lt.(j.g.) Scott Stevenson; while at the 31st NCR, Port Hueneme, Calif., Lt.(j.g.) Geoffrey Cullison was assigned as the staff diving officer. The 31st NCR began organizing an enlisted Seabee diver staff in 1971.

In December 1968 the Ocean Engineering Program Office (PC-2) was formally created within NAVFAC Headquarters to serve as the focal point for the development of an integrated NAVFAC ocean engineering program. Cdr. Walt Eager, previously of the Navy Deep Submergence Systems Project office, was appointed as the director and officer in charge of construction for this new office providing the initial guiding force for the infant Ocean Facilities Program. Dr. Michael Yachnis, today the chief engineer at NAVFAC Headquarters, served as the engineer in charge, while LCdr. Osborn was assigned as assistant to Cdr. Eager.

In late 1969, the Ocean Facilities and Construction

Project Office, Chesapeake Division FPO-1, was established as recommended by the NAVFAC Summary Report 68-1. Cdr. Larry Donovan served as the first director of this office providing state-of-the-art engineering, project planning, and execution in support of the UCTs and other underwater construction projects.

Three ocean facilities projects undertaken by NAVFAC and the NCF in the late 1960s served to establish the capabilities of the Ocean Facilities Program. In February 1969, a team of approximately 20 Seabee divers was assembled from the 21st NCR and individuals serving with the NMCBs to provide underwater construction support for the TEKTITE I undersea habitat launched in the Caribbean Sea near St. John, U.S. Virgin Islands, in 52 feet of seawater (fsw).

The Seabee diving team was operationally attached to Amphibious Construction Battalion TWO (ACB-2). The ACB additionally provided a causeway construction team and camp support personnel. Installation of the 160-ton TEKTITE I undersea habitat was accomplished without the use of a floating crane using an "underwater elevator" lifting system assembled from a locally available Ammi pontoon section.

Second, construction operations on the test array installation of the Azores fixed acoustic range (AFAR) commenced in March 1970 at the Atlantic Undersea Test and Evaluation Center, Andros, Bahamas, in 1,300 fsw. This was an international project, involving the efforts of Germany, France, the United Kingdom, Italy, Portugal, Canada, and the United States. This was the first project accomplished by the newly formed unit at the 21st Naval Construction Regiment; it was then being called UCT-1 but deployed as 21st NCR Detachment Yankee.

This project included landing of emplacement of a fixed deep ocean acoustic antenna array, and power and signal cables to a control van ashore. Then, during the summer of 1970, the UCT-1 divers installed four large, double-armored power and signal cables at Santa Maria island, Azores, for the evaluation phase of the AFAR project.

The AFAR project required underwater explosive demolition producing a trench through the precipitous basalt submarine island shelf, and installation of 1,500 feet of split pipe to each of the armored cables. The Seabee divers devised an innovative procedure for application of the split pipe, weighing 60 pounds per three-foot section, by under-running the cable with a causeway section and applying the split pipe on deck.

The industry practice of applying the split pipe with cable in place on the ocean bottom would have increased the project time for split pipe installation by a factor of 15.

Installation and cable stabilization techniques learned during these projects set a standard for many future cable projects successfully completed by the UCTs in the years to follow. Other projects accomplished by the Underwater Construction Units included pier reconstruction at McMurdo Station, Antarctica, and cable installation and stabilization in Iceland.

During the Vietnam war, diving Seabees served with the NMCBs deployed to Southeast Asia. Their primary tasks included repair of war-damaged waterfront facilities, and construction of new bridges, piers, and POL (petroleum, oils, and lubricants) facilities. Often the only diving personnel available, they also performed small boat salvage operations and security inspection swims on bridges, piers, and underwater fuel lines.

Commencing in 1971, underwater construction divers were assisting with the building of the naval installation at Diego Garcia, British Indian Ocean Territory.

Seabee divers, then attached to NMCB-74, performed a variety of harbor maintenance and construction services including mooring and underwater connection of fuel and cement transfer lines ashore, inspection and repair of the underwater pipelines, recovery of equipment dropped overboard during supply ship cargo transfer operations, inspection and repair of all channel marker and fleet mooring buoys, and repair of the offshore sewage outfalls.

Seabee divers at Diego Garcia also performed all subsurface maintenance on the desalination barge which required blasting a new trench for barge mooring at the industrial "I" site.

In 1970, the Chief of Naval Operations authorized the consolidation of the Seabee diving resources from the NMCBs into two units attached to the NCRs. The mission of the new underwater construction detachments was formally defined by OPNAVINST 5450.198 in 1970. This mission vested within the Naval Construction Force detachments the responsibility for Navy ocean facilities engineering, construction, and repair of underwater facilities.

Later, recognizing the need for a permanent capability for harbor, waterfront, and ocean construction, the CNO formally established UCT-1 and UCT-2 on November 1, 1973, under the 21st and 31st NCRs, respectively.

The two teams were then geographically located at the Naval Construction Battalion Centers, Davisville, R.I. (UCT-1) and Port Hueneme, Calif. (UCT-2) under the command of an officer in charge. With the disestablishment of the 21st NCR in 1973, UCT-1 was relocated to the Naval Amphibious Base at Little Creek, Norfolk, Va.

The early teams were composed of 12 to 15 Seabee divers with additional divers and support personnel assigned for temporary duty from the NMCBs as project needs required. With the growing workload and complexity of projects, the team manning grew to approximately 28 enlisted (four on the shore component) and two officers. A manpower initiative for 1983 increased the sea component by 68 percent to 41 enlisted.

Additionally, this initiative increased the officer complement to three upgrading the operations officer billet to the grade of warrant officer, proportionate with the

increased workload. Diving statistics reflected the increasing workload during the early years.

Underwater Construction Team ONE logged 404 dives in 1971; in 1977 they logged 623. Underwater Construction Team TWO's 265 dives in 1971 increased to 1,319 in 1977. The maximum dive depths and bottom times were typically less than 70 fsw and 60 minutes; however, both teams have since developed full deep-sea-air diving capability to 190 fsw, and now regularly employ advanced deep diving techniques such as surface decompression using oxygen.

In 1979, the two small teams were performing 3 percent of all Navy working dives, according to Naval Safety Center statistics. The two teams continue to perform an extraordinary share of all Navy working dives.

On October 1, 1985, the command status of the Underwater Construction Teams was upgraded to commanding officer consistent with expanded mission requirements assumed during the brief history of the teams. The current UCT mission statement established by OPNAVINST 5450.198A including the requirement to be capable of fielding three vice two air detachments per team, the first within 48 hours of notification.

Few in number, UCTs have performed in many isolated areas.

The stated mission of the UCTs is to: (a) accomplish project planning, construction engineering, site surveys, develop material requirements, and conduct diving operations for construction, repair, and inspection of ocean and waterfront facilities; (b) serve as the construction agent for the installation, inspection, maintenance, and repair of undersea range facilities, and inshore cables for undersea surveillance facilities; (c) support other NCF units including Amphibious Construction Battalions on projects that include construction, inspection, or repair to waterfront and strategic sealift facilities; and (d) assist in the test and evaluation of new underwater construction equipment and ocean facility structures and components.

Teams are divided into a sea and a shore component and are presently manned by three officers and 52 enlisted men. Although few in number, the UCTs have performed numerous projects in many geographically isolated areas, from the Arctic Ocean to the Antarctic, to the Caribbean and Mediterranean Sea; from the Indian Ocean to the Pacific and North Atlantic Oceans.

They have accomplished diverse tasks, from major fleet and specialized mooring installations such as refurbishment of the 21 mooring legs on the *USS Los Alamos* at Holy Loch, Scotland, to new pier construction at the Naval Facility at Argentia, Newfoundland, and repair of over 400 deteriorated concrete pier pilings at Naval Station Guantanamo Bay, Cuba.

UCT-1 has used controlled precision underwater blasting techniques to remove damaged reinforced concrete pier decking at Naval Station Rota, Spain, and most recently assisted with the installation of 18 hydrophone arrays and over 300 miles of signal cable in over 15,000 fsw at the Atlantic Fleet Weapons Training Facility, St. Croix, U.S. Virgin Islands.

UCT-2, the Pacific team, has successfully accom-

plished fleet mooring renovations at NAVBASE Subic Bay, Republic of the Philippines, and Deperming range inspections and repairs at submarine base Bremerton, Wash., using the Mk 12 Surface Supplied Diving System in 150 fsw. UCT-2 is presently the primary construction agent for installation of the Southern California Acoustic Range (SOAR) at San Clemente Island, California.

Both teams perform significant underwater cable and pipe installations and repairs. Each team annually invests over 20 percent of the available deployment season to underwater cable and sensor installation and repair in support of the various underwater acoustic ranges such as AUTEK, Barking Sands, Kauai, and the Atlantic Fleet Weapons Training Facility.

Today's UCTs have accumulated numerous unit proficiency awards and consistently receive letters of adulation from project customers for the quality and efficiency of their work. UCT-1 has earned three Meritorious Unit Commendations and one Navy Unit Commendation between August 1979 and June 1983, while UCT-2 has earned four Meritorious Unit Commendations and one Navy Unit Commendation between August 1971 and November 1980.

Diving Seabees receive initial training, following thorough physical and performance screening, at one of the second class dive schools. Successful completion of diver training qualifies the new candidate for attendance of Underwater Construction Technician basic training at the UCT School, delta company, at the Naval Construction Training Center (NCTC), Port Hueneme, California, for a period of nine weeks.

A member of the UCT family can expect career development in various underwater construction billets at one of the Navy Underwater Construction Teams or at

The author wishes to acknowledge the extensive editorial support and historical background provided by Cdr. Scott Stevenson, presently assigned as Commanding Officer, Naval Amphibious Construction Battalion TWO. Contributions by Lt. Rob Westberg, Senior Chief Builder Phillip Pronia, and Senior Chief Builder Joel Hierholzer (Master Diver) were also greatly appreciated.

the Naval Civil Engineering Laboratory (NCEL) diving locker. After a few years' experience with one of the UCTs, the Seabee diver is screened for first class dive school and attendance of the advanced UCT course at NCTC Port Hueneme for a period of eight weeks.

The ultimate accomplishment for the most motivated and qualified individuals is attainment of Master Diver and service with one of the teams or the NCEL diving locker as the diving master and senior underwater construction technician.

The Navy Underwater Construction Teams are highly mobile units staffed by exceptionally professional construction divers capable of executing highly complex ocean construction projects under the most adverse conditions. With research and development support from the NCTC Port Hueneme, California, providing trained underwater construction technicians, and project engineering provided by the Chesapeake Division Ocean Engineering and Construction Project Office, the Underwater Construction Teams are ready to meet the challenges of ocean construction supporting the U.S. Navy and Fleet Marine Force. □

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