Evolution of SCUBA Diving & Rescue Equipment
50 years of scuba
For more than 6,000 years, man has been fascinated by the sea and attempts to unlock its secrets have been as bold and varied as man’s imagination itself. Military action, the quest for food, advancing knowledge and science, natural curiosity and commercial gain have always fueled our desire to explore the underwater world. In 1943, before the first note of the Normandy invasion of occupied Europe rang throughout a world at war, consider the state of diving affairs: Military divers had access only to oxygen rebreathers, unreliable devices using pure oxygen and safe to use only to depths of about 30 feet. Commercial divers had cumbersome canvas suits, brass helmets and long air hoses that tied them to boats and air compressors. Prior to World War II, in the “30s and early “40s, “skin diving” in the U.S. and “goggle diving” in Europe had become very popular activities. Originally diving only with mask or set of goggles and then with crude fins and garden hose snorkels, these skin divers explored to depths of 60 feet or so. They designed the earliest spears and spearguns—fashioned from any materials at hand—and brought back bounty from the sea.

These skin divers, along with military and commercial divers, all learned for a device that would set them free to leisurely explore the sea. Early in 1943, an accomplished “goggle diver” and French naval officer named Jacques-Yves Cousteau tested such a device in the Marne River. It featured a demand regulator designed by industrial engineer Emile Gagnan. Cousteau and Gagnan met and quickly fitted the regulator to a tank of compressed air. The initial dive was only a partial success but the French winter easily provided them with time to perfect their device. The summer of 1943 saw Cousteau and his team make more than 500 dives with the new device, called the Aqua-Lung. A Self-Contained Underwater Breathing Apparatus, SCUBA; was finally a reality.

The Aqua-Lung, however, was hardly an overnight success. In 1950, only 10 Aqua-Lungs had been shipped to the U.S. Captain Cousteau can still remember the response of his U.S. distributor when asked how many additional Aqua-Lungs he would like to order. The answer was “none.” The now famous reason? “The market is saturated.”

Meanwhile, the era of the skin diver continued to flourish, with spearfishing the main topic of conversation. But it was also the era of the “lung” diver, the popular name of those early divers lucky enough to buy or make their own scuba.

The ‘50s saw the humble beginnings of the early dive stores and scuba began to grow. All diving and social activities centered around local sites and clubs such as The Bottom Scratchers, Lung Busters, Diving Dugongs, Puget Sound Mud Sharks, Mermen of Kentucky and Neptune’s Devil Dogs.

Instructors sprang up almost as soon as the first Aqua-Lungs did. “Don’t hold your breath, let’s give it a try,” was the earliest instruction but formalized education arrived in the ‘50s under the auspices of regional diving “councils.” Made up of representatives of the different clubs, the
In 1943, Jacques Cousteau and Emil Gagnon invented demand regulator.
Illinois Council of Skin and Scuba Divers, The Greater Los Angeles Council of Diving Clubs and the Northeast Council of Skin Diving Clubs were pioneers in diver education but regional differences in training persisted.

From the start, although women were a minority, they participated in both spearfishing, skin diving and lung diving and became known as "girl skin divers." The '50s also saw a fair amount of dive travel, although it might have been more properly called "Have speargun, will travel." The Caribbean, Sea of Cortez and even Red Sea all saw visiting divers from the U.S., armed with spearguns and, occasionally, a movie or still U/W camera.

In 1958, the first segment of a TV show called Sea Hunt aired, propelling both Lloyd Bridges and scuba into national prominence. With this type of national publicity, the era of the lung diver vanished and the promotion of scuba diving began in earnest.

The '60s began and continued with the reckless, devil may care attitude that had come to be associated with diving. Records, whether for spearfishing or depth, began to push divers beyond safe limits. Accident rates began to climb and recreational scuba seemed to be inviting, and receiving, criticism questioning its safety. Restrictive legislation was on the horizon and there was even talk of an

Here's what scuba equipment looked like in the '40s, '50s and '60s.
• In 1957, the Navy Dive Tables were Published
• In 1959, the First Dive Computer was available
The early days of resort diving on Bonaire (top) and Cozumel (above). Spearfishing was encouraged.

Dive travel was in its infancy in the '60s; 95 percent of all diving was done close to home, in local waters.

The '60s also saw dive operations springing up in the Caribbean. Pioneers in the Bahamas, Bay Islands, Cayman, Bonaire, Cozumel, the Virgin Islands and Haiti began to cater to many people who wanted to scuba dive on their vacations. While spearfishing was still a draw in most of these areas as the decade drew to a close, the subtle forces of industry change were underway.

With general agreement across diving that self regulation was in the industry's best interest, the '70s saw an industry united in making diver safety and enjoyment the number one priority. With unanimous agreement that all divers should be certified and CCards shown...
• 1963
  • DCAR was introduced
  • Decompression Meter was introduced
  • Introduce the Downstream Second Stage Regulator

• 1965
  • The Jet Fin was introduced

• 1966
  • Introduction of the Mark V regulator

• 1968
  • Introduction of the Three Windows Mask

• 1969
  • Pneumatic Yoke First Stage Regulator
In the 70s, 80 percent of diving (with the emphasis remaining on game collecting) was still done locally.

Those who traveled to warm water destinations, however, took up photography in order to "capture" the experience.

Live-aboard boats appeared in this decade. Many were ex-shrimpers—most of the shrimp removed!

Horsecollar BCs, which became popular in the early 70s, were about to be replaced by wraparounds.

Local diving skills did not always transfer well to tropical destinations. Divers used to contact with cold water sea bottom treated coral reefs the same way. Boat owners had to learn that anchoring had to be done carefully.

Before every tank was filled, diving safety, and diving, prospered.

Gone were the J-valve reserve systems, replaced with the submersible pressure gauge which had been introduced in the 50s but never caught on) and diving was on the move. Dive shops became full-time businesses and began to prosper. Safer diving, it turned out, turned more people onto diving!

Fundamental changes in travel occurred during this time as well. Resort operators began to realize there was a lucrative business in just taking people diving and the era of warm water spearfishing entered its twilight years.

Underwater photography and photo classes became the best way to "capture" the diving experience. With the number of warm water divers continuing to grow, the first live-aboard dive boats appeared on the scene. Old and often with a peculiar smell, they got divers to unexplored areas: their sole claim to fame. In the late 1970s we began to say goodbye to the venerable horsecollar BCs, replacing them gradually with the jacket-style BCs still popular today.

There was only one negative note that interrupted the high growth 70s. Cold water divers, still 80 percent of the market, brought their cold water dive equipment and practices to warm water destinations. Coral, like the granite back home, was something to stand, kneel or sit on to steady yourself to take a picture. Or, to grab onto if you wanted to pose for a photo. Black Coral, Brain Coral and seafars made lovely mementos to bring
- 1971
  - Mark VII Audio First Stage Regulator
- 1972
  - Quick Disconnected Inflator
- 1975
  - Silicone Masks
- 1978
  - Introduced Buoyancy Control Pack
- 1979
  - Shotgun Snorkel
  - A.I.R.II Combo Inflator
Live-aboard diving exploded in the 80s. The new dive boats were fast, sleek and very comfortable “cruisers.”

In the beginning, some resorts offered some diving. In the 80s, dedicated resorts, catering exclusively to divers, became the standard for dive travel.

Instruction flourished. Continuing education—in the form of specialty courses—was finally accepted.

Although we fought over which dive flag should be used (the blue/white Alpha vs. traditional red/white) the first electronic computers would be the lasting technological contribution of the 80s.

Everyonoe else in diving chipped in and jumped on the bandwagon. With 45 percent of traveling divers women, color and fashion came into the spotlight. The manufacturers responded with an avalanche of gear in pink, neon and every color under the sun. Warm water only dive suits, first in Lyrica, then in other space age fabrics, hit the market and were one of diving’s instant successes.

And, the 80s saw significant technological gains as well. The most resounding was the introduction of dive computers, which rank right up there with the Aqua-Lung and BC as changing, fundamentally, the way we dive. It seemed as if it was only overnight before computers were a permanent piece of every serious diver’s gear.

With computers and warm water travel, the “greening” of the diving world took place all through the 80s. Capri, Don was joined by the overwhelming majority of divers. State of the art mooring buoys to eliminate anchor damage appeared, spearfishing was banned in all diving destinations, there was a ban on coral collection and...
• 1980
  • Son-of-the-Gun Snorkel
• 1981
  • Super Sinch Tank Band
• 1982
  • Silicone Snorkel
Water Rescue Equipment
Cold Water Can Kill

FACE FLAP (foul weather)

2" RESCUE BELT

STAINLESS STEEL D'RING (center back)

CYALUME LIGHT (for night use)

BRIGHT YELLOW (high visibility)

ATTACHED GLOVES

LEG CINCHES (allows easy running and added buoyancy for victim)

ONE-SIZE FITS ALL
60-SECOND ENTRY TIME
ALL SEAMS SEWN AND TRIPLE-GLUED.

HARD SOLE BOOTS (resists abrasions)

COMES COMPLETE WITH
1. storage and carrying bag
2. training manual
3. rescue belt
4. cyalume lightstick

STROBE POCKETS (head)

WATER-TIGHT FACE SEAL

HIGH REFLECTIVE TAPE (center shoulders)

SIGNAL WHISTLE

HIGH REFLECTIVE TAPE (wrist)

WATER-TIGHT ZIPPER

3/16" FOAM NEOPRENE RUBBER NYLON 2 SIDES

30" INSEAM (to fit persons of most heights)

ELIMINATION OF FOOT VENTS

RESCUE SUITS Save Lives

U.S. PATENT # 4253198
WHY A RESCUE SUIT?

Human activity is intertwined with aquatic environments. Rivers, lakes, and oceans serve as highways for trade, as sources for food, and as environments for recreation. Aquatic environments are demanding on the human body. Water absorbs body heat 25 times faster than air. Immersion in water that is less than 68°F (20°C) can lead to exposure - HYPOTHERMIA - and death. Thermal protection is essential to anyone who enters all but the warmest, tropical waters. Numerous styles of exposure suits are manufactured to fit the specific needs of those people who work or play in water.

Not all people voluntarily enter the water environment. Floods, transportation accidents, and recreation accidents endanger thousands of lives annually. Rescue work has created the need for a new style of exposure suit - the RESCUE SUIT. Rescue work demands specific features in a suit: warmth; durability; speed at donning; mobility; and contact with land-based personnel. The RESCUE SUIT incorporates these features and more.

RESCUE SUIT FEATURES

Material: Closed cell foam neoprene with nylon inside and outside has proven to be warm and durable under Arctic conditions.

Zipper: A body-length, watertight zipper allows donning in one minute.

Leg Cinches: The rescuer and suit move as a unit providing greater mobility and agility.

Hard Soles: Hard soles prevent damage to neoprene and allow for running on most surfaces.

Rescue Belt: A 2" D-ring is stitched into this nylon belt to maintain contact with land-based rescue personnel.

Carry Bag: Vinyl bag protects the RESCUE SUIT.

Standard Features: Adjustable face seal, reflective tape, whistle, carry bag, and cyalume cold-light stick.

Accessories: Strobe light, stuff bag with line and brass snap.

The RESCUE SUIT is designed for rescue work. It can help save lives and make your job safer and more comfortable. Call or write for a demonstration.
PRODUCT SPECIFICATION

I. PURPOSE
   A. To establish minimum standards for this type of suit.

II. TYPE
   A. Light-weight, surface, rescue suit.
   B. Donning time-1 minute, fully clothed

III. WEIGHT
   A. 14 lbs. in carry-bag.

IV. STORAGE
   A. 14" x 28"

V. MATERIAL
   A. 7mm closed-cell, foam neoprene/externally and internally laminated with nylon.

VI. THERMAL CHARACTERISTICS
   A. 12 hours immersion in 35°F water.

VII. BUOYANCY CHARACTERISTICS
   A. 22 pounds positive buoyancy
   B. Maintains positive buoyancy, even if accidently filled with water.

VIII. SIZE
   A. Fits 5'6"--6'4" up to 240 pounds.
   B. In-seam of 30".

IX. SEAMS - All Stress Seams are Reinforced with, 1" seam tape.

WATER RESCUE SYSTEMS (division of united divers)
59 WASHINGTON STREET, SOMERVILLE MASS. 02143 (617) 776-6060
RESCUE BELT
EMERGENCY LINE SYSTEM

The Emergency Line System (ELS) is a simple, inexpensive way to keep 600' of 5/16 polypropylene line ready at a moment's notice for use in any water emergency using rescue suits, survival suits, any lightweight boats, or throwing rings.

The entire 600' can be totally paid out in 60 seconds. This is done without the use of reels or coils, neither of which work effectively for rapid evacuation.

The ELS weighs less than 12 lbs and takes no more room than an AIR PAK UNIT.

The unique design of the bag, along with an extra-large brass snap, coupled with 600' of line, make up the Emergency Line System.

WATER RESCUE SYSTEMS (division of united divers)
59 WASHINGTON STREET, SOMERVILLE MASS. 02143
PRODUCT
SPECIFICATION

PRODUCT:
EMERGENCY LINE SYSTEM

DATE:
FOR:

I. PURPOSE
   A. Rapid Evacuation Line System

II. MATERIAL
   A. Floating Polypro Line
   B. Nylon Bag
   C. XL Brass Snap

III. SIZE
   A. 5/16 inch Line
   B. 31 X 15 Bag

IV. LENGTH
   A. 600 Feet

V. CHARACTERISTICS
   A. Pay Out in 60 Seconds
   B. Tensile Strength - 1710 Lbs.
   C. Working Load - 171 Lbs.

VI. WEIGHT
   A. 12 Pounds
STUFF 'n THROW BAG

QUICK ACTION CAN STABILIZE AN EMERGENCY. THE STUFF 'n THROW BAG HAS MANY APPLICATIONS. THE BAG AND LINE FLOAT AND CAN BE THROWN IN PLACE OF A RING BUOY. IT CAN BE USED AS A MARKER BUOY OR AS AN UNDERWATER SEARCH LINE. ADD A SNAP AND IT WILL ATTACH TO AN INFLATABLE BOAT OR RESCUE SUIT AND SERVE AS A TETHER LINE.

THE STUFF 'n THROW BAG CONTAINS 150' OF 1/4" POLYPROPYLENE LINE. THE UNIQUE BAG DESIGN AND POLYPROPYLENE LINE ALLOW THE LINE TO PAY OUT QUICKLY WITHOUT KNOTS OR KINKS. THE STUFF 'n THROW BAG IS LIGHT-WEIGHT (LESS THAN 2 LBS.) AND COMPACT. MAINTENANCE IS A BREEZE. THE SELF-DRAINING BAG PERMITS MOISTURE TO DRAIN OUT AND AIR TO CIRCULATE.

WATER RESCUE SYSTEMS (division of united divers)
59 WASHINGTON STREET, SOMERVILLE MASS. 02143
Girl Fights for Life

Mon Drowns During Res

BOYnton Beach, Fla. (AP) – A man a

Boy, 10, who fell through ice dies

2 little brothers drown

Divers yesterday recovered the walking bodies of two Biddeford, Maine, brothers who fell through the ice on the nearby Saco River.

Boy aids in icy water rescues

A 10-year-old boy who fell through the ice on Martha’s Vineyard while chasing his dog has been rescued after two hours in the water.

Boater missing

NEWBURYPORT

Four men were swept away by high water at the Merrimack River.

Student killed in canoeing


RESCUE SUITS Save Lives

WATER RESCUE SYSTEMS
50 Washington Street
Somerville, MA 02143
617-776-5600
800-228-2881
1. THE SUIT

Accidents happen. The news articles on the front cover are actual clippings. The RESCUE SUIT has saved lives. The RESCUE SUIT differs from "survival" style suits. The U.S. Government issued a patent #4,253,198 to the RESCUE SUIT because it has unique features designed specifically for water rescue.

The FACE FLAP protects your face from water and wind. Breathing holes permit easy breathing. The flap has more stretch and shaped to fit your face. It adds up to more comfort.

The RESCUE BELT is your "buddy". A RESCUE LINE attaches to the belt to provide contact with rescuers on-shore. It reduces the workload on you. Once you contact the victim, your tender tows you and the victim back to shore. You concentrate on the victim.

The LEG CINCHES provide 2 important benefits: The suit is secured to your legs to permit you to run on land and ice. Air (flotation) is captured in the legs to buoy the victim.

The RESCUE SUIT will take the wear and tear of rescues and training. It has "hidden" features like a tough, 4-way stretch nylon laminated to top quality neoprene rubber. The crotch gasket is specially designed to reduce seam stress. Seams are glued and stitched to ensure durability.

2. THE COMPANY — WATER RESCUE SYSTEMS (WRS)

GUARANTEE WRS owns the patent; designs the specifications; and oversees the manufacturing. We guarantee the RESCUE SUIT. We'll repair or replace any suit that does not withstand normal usage in rescues or training for 1 year after date of purchase.

TRAINING WRS does not just put you in RESCUE SUIT. We can train you in the use of the RESCUE SUIT. In the past 8 years, WRS staff has conducted numerous workshops, training sessions, and lectures. We've trained hundreds of fire-fighters, police officers, EMTs and civilian volunteers in the safe techniques of surface and subsurface water rescue. Our staff has traveled to train rescue personnel like yours with the water problems that are yours.

EXPERIENCE WRS knows what a rescue entails. Members of our staff are professional firefighters, EMT's, and SCUBA instructors. Collectively we make up a volunteer rescue team. We have been cited for our rescue work by local city officials on several occasions.

REPAIR WRS performs repairs in-house to ensure that your RESCUE SUIT is repaired promptly and meets our standards. If your RESCUE SUIT ever needs repair, return it to WRS. We will ship you a 'looser' at NO CHARGE. Our reputation for repair is so good that dozens of rescue teams have sent us "survival suits" to repair and modify. We try to make a "survival suit" work like a RESCUE SUIT, but there's only one - THE RESCUE SUIT from Water Rescue Systems!
3. OUR CUSTOMERS

Don't take our word. Here's a partial list of our customers. Many purchased a RESCUE SUIT after they used a "survival" style suit.

Why not contact one of them. They may have other reasons to buy a RESCUE SUIT.

MASSACHUSETTS
Cambridge Fire Department
Lawrence Fire Department
Rockland Fire Department
Framingham Fire Department
Halifax Fire Department
Hudson Fire Department
Hyannis Fire Department
MDC Police Department
Medford Fire Department
Pittsfield Fire Department
Worcester Fire Department
YFFRA Rescue (Yarmouth)

NEW HAMPSHIRE
Antrim Fire Department
Bedford Fire Department
Derry Fire Department
Kingston Medical Center
NH Fire Training Commission
Peterborough Fire Dept
Somersworth Fire Dept
Stoddard Fire Department
US ARMY Cold Region Research
US NAVY Portsmouth NH

CONNECTICUT
Belmont Electric Co (Stamford)
Darien Fire Department
Long Ridge Fire Department
New Fairfield Fire Department
Turn of the River Fire Dept

MAINE
Auburn Fire Department
Brunswick Fire Department
Millinocket Fire Department
Sanford Fire Department

OUTSIDE NEW ENGLAND
Potomac Heights VFD (Maryland)
Rochester Training Academy (NY)
Hampton Bays Fire Department (NY)
Oakwood EMS (Ohio)

RHODE ISLAND
Ashway Fire Department
Greenfield Fire Department
Hope Valley Fire Department
Kingston Fire Department
N. Smithfield Fire Department
Providence Fire Department
Smithfield Fire Department
Westerly Ambulance Service
Rescue suit patent number
#4,253,198