

COUNTY of LOS ANGELES • DEPARTMENT of PARKS & RECREATION

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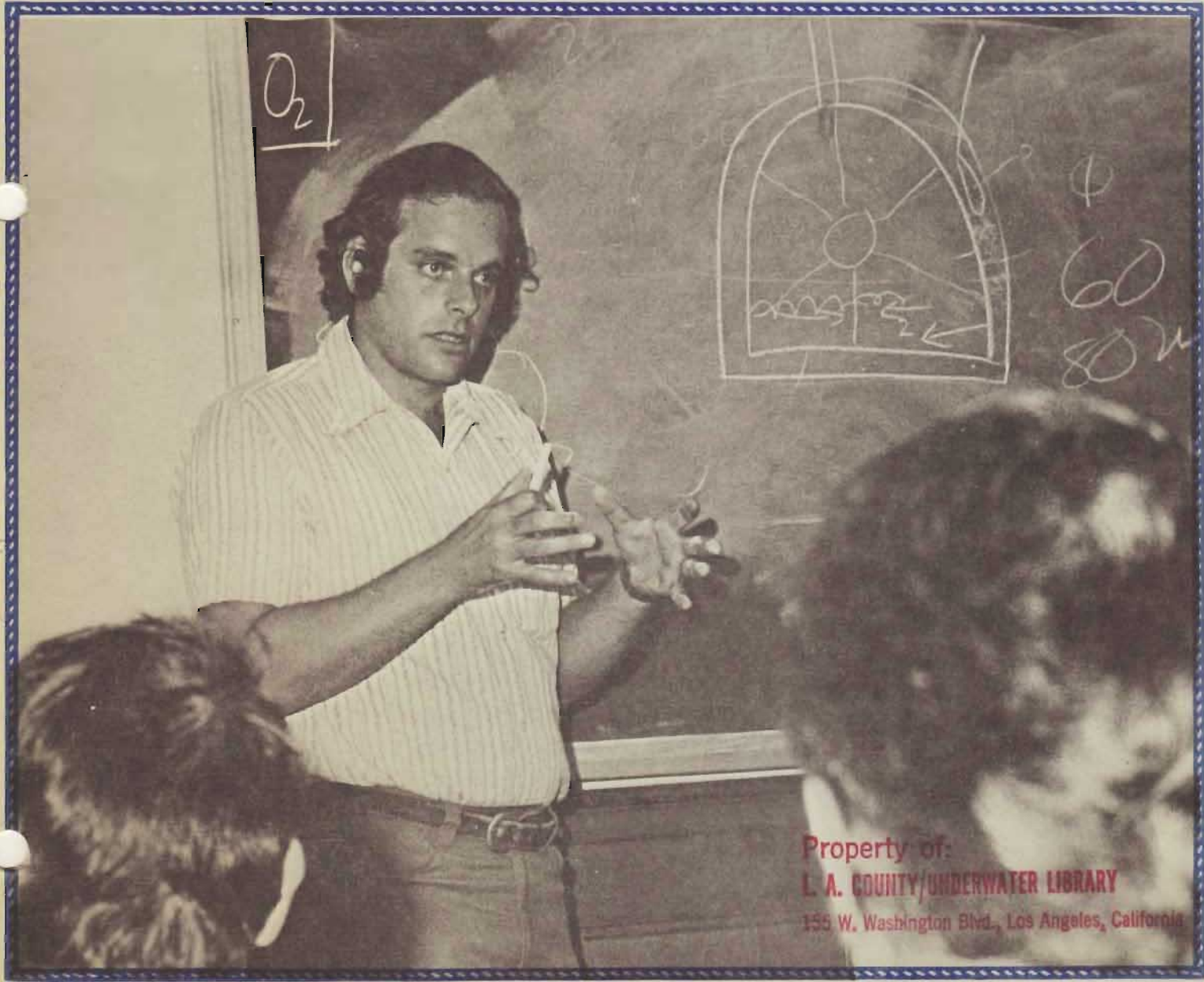
# UNDERWATER NEWS



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TABLE OF CONTENTS

FEATURE ARTICLES

SCUBA For Scientific Research	1
A Case For More and Better Training	12

FROM THE SEA

Sea Secrets and Sea Winds	4
Undersea Conservation	7
Sea Wasp a Killer No More?	8

INTEREST ITEMS

SMPTE Symposium on Underwater Photographic Applications	10
County Conch Whisperings	9
Quickie Orientation to Commercial Diving	13

PROGRAM INFORMATION

Junior Frogman and Adult Skindiving Program Combine	11
Public SCUBA Program Postponement	3

UNDERWATER INSTRUCTORS SECTION

CDC Offers Diving-Physiology Course	5
Diving Accident Report	14

CALENDAR OF EVENTS 15

COVER PHOTO STORY

Photo by: Gary Jackson

Commercial Diving Center Director Jim Joiner is happy to announce the addition of Dr. John Alexander, M.D. who will be in charge of diving emergency treatments and diving medical seminars.

## SCUBA FOR SCIENTIFIC RESEARCH

By: Nick Anderson  
LAC Placerita Nature Center

The study of plant and animal life in sublittoral waters has been enhanced in recent years by the use of SCUBA. Aqualung equipment developed by Jacques Cousteau was first acquired by the Scripps Institute of Oceanography in 1949. Pioneers in the use of diving equipment for scientific exploration of shallow water communities have adapted it to numerous purposes since that time. Some examples are kelp transplanting efforts, investigation of effects of sewage outfalls, artificial habitat installation and the study of ecological communities. Six projects, involving five teams of scientists are summarized in the following examples. A detailed account of each may be obtained from the scientific literature which is referenced.

### Community sampling-Pequegnat

"For years biologists have investigated the life of tide pools or, aboard ships, have scraped and chewed at the ocean bottom with dredges, trawls, and grabs." Dredge and grab sampling was never satisfactory in rocky areas. SCUBA has enabled a thorough investigation of a narrow, but productive, strip of ocean bottom from just below the intertidal to a depth of approximately 50 meters. Pequegnat (1961) found that many species previously considered rare on the basis of dredging or tide pool studies, were quite abundant in the SCUBA zone.

For his analysis of two parallel reefs lying 200 and 500 meters offshore from Newport Beach, Pequegnat used metal rings (of 0.1 m<sup>2</sup> area) to define small quadrats. All organisms were removed by chiseling of the siltstone reef, placed in canvas bags, and returned to the labora-

tory for identification.

### Community sampling-Turner, Ebert and Given

Turner, Ebert and Given (1964-65) conducted surveys along the sea floor in two areas of San Diego County to make observations-- prior to the installation of submarine sewage outfalls.

The first, conducted in May and June of 1962 near Batiquitos Lagoon, consisted of swimming along four transects extending approximately one mile from shore, observing, collecting samples and listing plants and animals.

At each 20 feet depth interval, a quantitative survey of a 400 square foot quadrat was made. A less quantitative method was used along the transects, where a representative index of organisms was compiled. All data were recorded on plastic slates and later transcribed into permanent logbooks.

The authors reported no difficulties with technique. Visibility was severely impaired in the first fifteen feet of water during one of the four diving days, due to red tide organisms. Over 100 species of plants and animals were reported observed.

In March and April of 1964, these workers surveyed an area near San Elijo Lagoon. The survey included:

- Taking core samples in sand bottom areas
- Recording water temperature
- Visibility
- General bottom description
- Enumeration of plants and animals
- Quantitative sampling of a quarter meter quadrat
- Photographs.

The purpose, as in 1962, was to compile information which would be useful in evaluating environmental changes after installation of a planned outfall.

Three transects, perpendicular to shore and extending seaward for approximately one mile, were run. The sea floor slope was such that the maximum depth at the transect terminus was 80 feet, easily within SCUBA range. Dives at 20 foot depth intervals were made by 2 or 3 man teams from the State Fish and Game 20 foot cabin cruiser DOLPHIN, to conduct the operations listed above.

With the exception of an instance of moderate surge and one of water clarity being reduced to zero by a heavy plankton bloom, no difficulties were reported. Physical data of interest was successfully obtained and a total of 239 species of plants and animals were recorded. The ocean outfall was described as a potential threat to the lush biological assemblage unless strict water quality criteria for discharged effluent were imposed.

#### Community Sampling-Neushul, Clarke and Brown

Neushul, Clarke and Brown (1967) established a 700 meter transect extending southward from Anacapa Island from the intertidal zone to a depth of 38 meters. The bottom flora and fauna were studied for a two year period to:

1. map in detail a transect of the sea floor from intertidal to lower limits of vegetation
2. provide a basis for resurveying to determine seasonal and other time changes
3. devise and perfect techniques for collecting ecological information, sampling underwater communities
4. compare island with mainland which is subject to more of the influence of man's activ-

ities in the marine environment.

Tape recorders were used by these workers to greatly improve data gathering capacity of the diver. Also, movies were taken by a diver-held 16mm camera.

The occurrence of 4 plants and 6 animals along the transect were recorded. Plant data were based on the presence or absence per 2.5 meter segments if plants actually touched the survey line; animals were sampled within an area extending 1 meter outward on each side of the survey line. Physical data also were gathered, including rock samples, core samples, core samples, depth and temperature measurements, and current measurements.

Clarke and Neushul (1967) reported subtidal zonation of flora and fauna, similar to the more familiar littoral zonation. A close similarity in community structure to the mainland coast at La Jolla, sufficient to enable recognition of the island as the same biogeographic region, was reported. On the other hand, considerable difference between the insular communities and those of the more northern mainland, Ventura and Santa Barbara counties, were noted. This was attributed to the change in Macrocystis species to M. angustifolia rather than M. pyrifera of La Jolla and the islands. Physical aspects differ also, with more fine grained sedimentary bottoms and more turbid waters typifying the northern mainland waters.

#### Artificial Habitat-Carlisle, Turner and Ebert

The preference of greater numbers and kinds of fish for habitat composed of rocky coasts and reefs, as compared to smooth sandy bottoms is well known. State and private agencies combined to support a project in which artificial reefs were constructed of old automobiles in areas

generally barren of fish.

Areas selected as potential reef sites were surveyed by biologists divers of the California State Fish and Game Department. An estimate of the fish fauna was obtained for comparison after reef installation.

A reef made of 20 old car bodies was placed in 50 feet of water at Paradise Cove on May 26, 1958. The site was about 0.5 miles beyond the pier where the bottom is sandy.

Twenty-nine dives were made during the next 2½ years to observe and record fish populations, which built up rapidly. Similarly, invertebrate fauna, though not of particular interest to the project, were attracted to the reef. A listing of approximately 150 species of 10 phyla were reported.

#### Kelp Transplanting - Arthur, Meister and Nordin

The Thompson Ramo Woolridge Sea Divers Club (Arthur, Meister and Nordin, 1971) in consultation with Dr. Wheeler North of California Institute of Technology, prepared an artificial habitat at Pt. Vicente, Palos Verdes and transplanted four adult kelp plants from Paradise Cove to the area. Previously the area had luxurious stands of kelp, but water turbidity and grazing

pressure had contributed to its virtual disappearance (North, et. al. 1964). The writer participated with members of the club on September 26, 1971 in maintenance of the habitat; boulders were collected and transplanted to the base of the introduced kelp plants. The objective was to enhance the substratum for kelp reproduction, by providing attachment surfaces for gametophytes. I learned later (Meister, personal communication) that the plants did not survive the excessive grazing of fish.

#### Freshwater Community Sampling-Wood

SCUBA has also been used in the scientific investigation of freshwater communities. Wood (1963) made a study of Larkins Pond in Rhode Island after developing some special techniques. The extremely silt-laden bottom required divers to approach and work by drifting in and out by controlled breathing. Any swimming activity would rile up the silt and impair visibility to the point of prohibiting any useful work. A comparison of data obtained by diving crews and crews using grapnel equipment from the surface revealed a substantial advantage for analysis by SCUBA, with respect to site selection and sample retrieval.

#### PUBLIC SCUBA PROGRAM POSTPONEMENT

This office was just informed that its budget request to proceed with operating the County's Public SCUBA Program has been temporarily denied...thus, as a result, no SCUBA lessons will be conducted in public swimming pools this year! More than several thousand inquiries were received by interested would-be divers who responded to the popular TV-filmclip often aired over local channels. All will now be referred to the various

local instruction sources and to Los Angeles County underwater instructors.

It's yet too early to speculate on all the causative factors that brought our efforts to this halt...and it would be premature to announce our next steps. So much controversy and confusion have erupted in the course of the past six months... it's sad. Reader advice would be welcomed!

## SEA SECRETS AND SEA WINDS

Selections are reprinted monthly with permission from the International Oceanographic Foundation, 10 Rickenbacker Causeway, Virginia Key, Florida 33149.

QUESTION: For many years, I have heard the statement that if a lobster is allowed to die slowly it will "poison" its flesh and be unfit to eat. Is this true and, if so, what is the cause?

ANSWER: No, the statement is not true. It is true, however, that a lobster left whole will spoil faster from seepage of intestinal fluids into the meat and bacterial action than a lobster that has been de-tailed. Proper refrigeration is also necessary, of course, to prevent bacterial spoilage.

### RADIO PACKS ON PORPOISES BANNED

A new regulation, effective April 2, 1973, to prohibit the placing of radio transmitters on the backs of porpoises to assist them in locating tuna. Porpoises tend to swim above tuna schools and, when the transmitting antenna is above the ocean surface, a beeping radio signal is broadcast which helps fishermen maintain contact for up to 15 miles.

NOAA also reports that the tuna industry had taken steps to conform immediately with the ruling when this problem was brought to their attention, even before the new regulation had become effective.

QUESTION: I have heard that if a shark is picked up by the tail and shaken violently, it will die in a few days because it has no bones. Is this true?

ANSWER: If a shark did die under the circumstances you describe, it would probably be due to tearing of the membranes that hold its internal organs suspended and in place in the body cavity. Humans have these mem-

branes too, but also have bones that help in the support process, whereas sharks have cartilaginous skeletal structures.

The mesenteric membranes feed the internal organs (heart, stomach, intestine, gonads, etc.) with blood through small capillaries, as well as support them in place. If the membranes are torn, a shark's vital organs are not only displaced, but internal bleeding results. Although such a shark could live perhaps a few days after such an accident, its demise thereafter is a certainty. Sharks that have been secured by their tail for as long as two days and then dropped to the deck have been known to snap at and tear anything in their path, however.

### SCIENTISTS TAKE AN ELEVATOR TO THE SEA

A panoramic undersea viewing elevator has been constructed at the Naval Undersea Center's oceanographic tower, located a mile out in the ocean off Mission Beach, San Diego. The acrylic sphere, which descends 60 feet to the ocean bottom, makes it possible for even nonswimmer and nondiver researchers to conduct experiments in the near-shore ocean, view the results, and record their observations while seated in a dry comfortable atmosphere.

The elevator was the idea of NUC's William McLean. It is tethered to the oceanographic tower by a lift cable and hoist assembly, and operates under the deck of the tower. An attached umbilical provides life support and communications between the surface and the pilot and his passenger who are seated inside

the sphere.

If an emergency arises while the sphere is at depth, it can be brought to the surface by dropping a ballast weight. There is no decompression problem. The passengers enter the sphere from the tower's second level and are sealed in the elevator in the same atmosphere.

**QUESTION:** Can the sea cucumbers that are found in the Florida Keys be eaten, as are the ones in the Far East? How would one prepare such animals?

**ANSWER:** As far as we know, the large sea cucumbers in the tropical Atlantic could be used to make beche-de-mer, which is the dried body-wall of these animals that is used as an ingredient in soups, particularly in China.

In the Pacific, the sea cucumber or teatfish, *Actinopyga nobilis*, is boiled in water for one hour until it is firm and rubberlike. Then, the ventral surface of the

animal is slit lengthwise and the viscera are removed. The practice has been to smoke the cooked and cleaned sea cucumbers over green sticks, or simply dry them in the sun to remove moisture. In 1972, however, researchers from the Food and Agricultural Organization of the United Nations visited Truck Island and demonstrated to the Truckese a technique using a dryer with mangrove wood as fuel. The animals are put in the dryer for two days at 80 to 85°C; then they are packaged in plastic bags and air-shipped to markets in Singapore and Hong Kong. Premium-grade shipments have been sold for as much as \$2 per pound.

Although many sea cucumbers are poisonous to other marine animals, when they are prepared as described above they are not poisonous to man. These animals are relatives of the starfishes and sea urchins, but are rather ugly in comparison (see "Ugly Duckling of the Sea," *Sea Frontiers*, Vol. 8, No. 2, May, 1962).

#### CDC OFFERS DIVING-PHYSIOLOGY COURSE

A unique course in "Applied Diving Physiology" has been announced by Commercial Diving Center...intended primarily for physicians, paramedical personnel, lifeguards, commercial and sports diving personnel who are engaged in teaching and supervising as well as the handling of diving accidents. The course will be an "in-depth" study of the most up-to-date information available on the physiological aspects of man in the water and those injuries and diseases to which he is subject.

Schedule of topics will be as follows:

Wednesday, July 11, 7:30pm

- \*A primer in normal physiology ...to include:
- Control of respiration
  - Gas exchange in the lungs
  - Basic lung mechanics

d. Circulation.

Wednesday, July 18, 7:30pm

- \*Breath-hold diving and oxygen toxicity...to include:
- Physiology of shallow water blackout
  - Barotrauma
  - Training effects on the control of respiration
  - Pulmonary and CNS oxygen toxicity
  - Methods of increasing tolerance
  - New ideas on the etiology of oxygen toxicity.

Wednesday, July 25, 7:30pm

- \*Signs and symptoms of air embolism and decompression sickness and physics of bubble formation ...to include:
- Clinical syndromes
  - Some aspects on the more recent pathophysiology of

- decompression sickness
- c. Bubble physics and detection
  - d. Factors governing elimination of "inert" gas.

Wednesday, August 1, 7:30 p.m.

- \*Decompression Tables...to include:
- a. Haldane's theory and its present day application
  - b. Other methods--British, Brian Hill's work
  - c. Use of mixed gases.

Wednesday, August 8, 7:30 p.m.

- \*Treatment of our embolism and decompression sickness...to include:
- a. Discussion of tables 1-4
  - b. Rationale for the new oxygen tables
  - c. What to do when tables 1-6 fail--should you go deeper?
  - d. Other measures besides recompression.

Wednesday, August 15, 7:30 p.m.

- \*Saturation diving, nitrogen narcosis, "compression sickness ...to include:
- a. Saturation decompression
  - b. Treatment of saturation decompression sickness
  - c. Compression arthralgias
  - d. Narcotic effects of "inert gases".

The instructor in this course will be Dr. John Alexander... Medical Advisor of the Los Angeles County Underwater Instructors Association. Dr. Alexander served as Chief Resident at the UCLA School of Medicine from 1971 to 1972, and continued on as a Pulmonary Disease Fellow, Division of Pulmonary Medicine, Department of Medicine from 1972 to 1973. He was commissioned in the U.S. Navy Medical Corps in 1968 after completion of training as

a Submarine Medical Officer. His naval assignments included the Deep Sea Diving School and Experimental Diving Unit at Washington D.C., and served on the staff at the U.S. Naval Medical Research Laboratory in New London, Connecticut. He was Medical Officer on the MKI Deep Diving System and a qualified medical officer on the Deep Diving System.

Dr. Alexander is the author of several scientific papers on saturation diving on helium-oxygen mixtures to 600 feet; initial evaluation of revised helium-oxygen decompression tables; 100% oxygen exposures at depths; effect of cold gas inhalation; and respiratory heat loss and function during exposure to cold helium-oxygen breathing mixtures; the very distinguished recognition in his participation on a 1000-foot saturation dive; etc. He has lectured to our Advanced Diver classes and Underwater Instructors on numerous occasions over the past several years.

Anyone interested in taking this course is advised to possess familiarity with modern diving practice or the fundamentals of human physiology. This knowledge may have been acquired academically or through extensive professional experience--basic diving practice and physiology will not be covered. A certificate will be given those attending the full course.

The tuition for the course is \$75.00...payable to Commercial Diving Center (272 South Fries Avenue, Wilmington, California 90744). For any further information, call CDC at (213) 834-2501.

## UNDERSEA CONSERVATION

By: Paul Meister (17UICC)  
President, Greater Los Angeles  
Council of Divers

Divers live on the edge of a vast uncharted undersea wilderness. And, for some divers, diving is no more a recreation than camping was for Daniel Boone. Thousands of hours have been spent, without pay, by "recreational" divers to build undersea structures and reefs; to the dire need for more understanding of that vital 70% of this planet.

### THE PALOS VERDES UNDERWATER RESTORATION PROJECT (PURP)

The Palos Verdes Underwater Restoration Project is a joint effort sponsored by the following organizations:

- Los Angeles County Fish and Game Commission; they fund PURP
- Los Angeles County Department of Parks and Recreation; they provide the planning and administrative efforts
- California Institute of Technology; they provide the scientific guidance.
- Greater Los Angeles Council of Divers; they conduct the diving operations.

The ultimate goal of PURP is best described by a quotation from N. S. Johnson, former Director of the Department of Parks and Recreation: "Eventually, when we have current problems licked, we hope to move into the most exciting aspect of underwater activity--underwater parks...if we can accomplish this within Los Angeles County, (establish places) where wonders of the sea can be preserved and studied--perhaps with nearby interpretive centers--then we will be truly fulfilling our role in recreation and ecology."

PURP began in 1970, and until this year the project has focused on clearing sea urchins from a specific area at White Point. Ac-

ording to Dr. Wheeler North (Cal Tech.), the overpopulation of urchins must be thinned before vegetation and other marine life can be restored to the area. Over the years, the urchin population was thinned by PURP divers and a marked increase in marine life was noted in the White Point area. So, to this date, PURP is a success.

The next step is to expand PURP in both scope and concept. To quote Dr. Wheeler North: "We're interested in studying the impact of man on a marine environment and in trying to correct any resultant problems where possible."

This year studies and urchin control operations are to be expanded to other Palos Verdes areas and operations involving transplant and/or "seeding" of specific kelp plants (*Macrocystis*) are to be planned. To implement this expanded PURP operation, divers must become trained in various aspects of Marine Biology and the Undersea Cartography of our near-shore environment. This training has begun.

PURP expansion will occur to another area at White Point and to specific areas at Point Vicente and Malaga Cove. Expansion in the Point Vicente and Malaga Cove areas will involve coordination with two GLACD clubs who have been running restoration projects of their own at these locations, independent of PURP.

### THE MALAGA COVE OPERATION

In 1970, the South Bay Chapter of the International Diving Society (IDS) initiated their own urchin control operation at Malaga Cove. The IDS operation is a success. This club set out to prove, "that people, especially SCUBA divers,

could by their voluntary efforts, rescue one area...independent of local, state, and federal aid." The project began with two surveys (polar and cartesian) of the selected site. A bottom map was made and 200,000 sea urchins were estimated for the selected 100,000 square yard area. It was also detected that the sea urchins settled in patterns throughout the sea. These patterns were similar to belts weaving their way throughout the surveyed area. To date, the urchin population has been thinned considerably and a marked return of other marine life to the area has been noted.

PURP expansion at Malaga Cove will be coordinated with IDS.

#### THE POINT VICENTE OPERATION

In 1968 the TRW Sea Divers initiated a "kelp project" which resulted in the design and construction of a 7-ton, moulded concrete kelp nursery in 30 feet of water at Point Vicente. This spectacular feat was accomplished

without support from TRW systems, whose name the club bears. The TRW Sea Divers' Kelp Project represents a silvicultural approach toward growing kelp in the ocean. Essentially, this approach seeks an understanding of nature's successful practices by the growth of a successful forest type. The project does not involve killing sea urchins, but rather the tagging of urchins in the hope of gaining some behavioral knowledge of these critters. Project details were accepted and published in the 1971 I.E.E.E. Conference on Engineering in the Ocean Environment.

PURP expansion at Point Vicente will be coordinated with the TRW Sea Divers.

The IDS and TRW Sea Divers' projects stand as undeniable testimony to the "recreational" divers ability in the ocean and now, with the combined effort of these clubs and other recreational divers and clubs, PURP expands.

#### SEA WASP A KILLER NO MORE?

Melbourne, Australia--Scientists are testing a vaccine which they believe will combat the biggest killer in Australian waters--the box-jellyfish.

Better known as the sea wasp, it causes an average of two deaths a year. Victims die in agony. Shock from the intense pain can account for fatalities. Survivors say the pain is like being lashed with needle-encrusted, white-hot poker.

Unlike the shark, the sea wasps are not easily spotted, nor can they be frightened away or even fought off.

The stings trail in hundreds from four main tentacles which flow up to 30 feet behind a cube-shaped body 4 to 12 inches long.

As the invisible stings touch an object they fire tiny searing darts. The normal reaction of rubbing a wound releases toxin into the victim's bloodstream.

The battle against the sea wasp started three years ago at the government-sponsored Commonwealth Serum Laboratories Director Dr. William Lane says, "We decided a small group should work full-time on the problem. Their achievement was to produce an antivenene in less than a year."

This was distributed to towns along the North Queensland coast where sea wasps invest bays and inlets during the summer. But the antivenene has rarely been used since a badly stung swimmer dies within three minutes.

## COUNTY CONCH WHISPERINGS

\*The County Conch...by now you know all about this gossiping seashell. Each month we raise it to our ear and it whispers us the latest secrets pertaining to the local diving scene. Last month, unfortunately, it missed a column...seems that the recent harbor sewage-spill catastrophe gave an illness to the conch and it was unable to emit any whisper at all. All's well again...and here's what it whispered to our Underwater News staff this time...

...More shuffles of well known diving personalities have again occurred: Dennis and Cindy Graham (20UICC & 21UICC) suddenly left our area unexpectedly to take up new job-oriented residence in Ohio. They had just bought a sleek 38-foot Chris Craft and are desperate to sell it...know anyone who wants a yacht? Sudden new travelers are Otto Gasser (16UICC) and Ray Daugherty (18UICC) of the Cal Poly staff. Seems they have set up a neat student diving-tour service and both have skipped around Cozumel and Hawaii recently in search of diving spots and setting up arrangements. Sherna Hough of the Skin Diver Magazine staff has just enrolled in our Advanced Diver Program...welcome aboard! Don Williamson (14UICC) just wrote to us from a small tropical island in New Zealand. Seems he suddenly uprooted and migrated to Australia...from there to the remote reaches...and finally to a tiny village, Torbay, in New Zealand. He lives there in an architect's house nestled in the trees, not 400 yards from a superb beach, with absolutely clear and abundant virgin-water year round. We're jealous, Don! Remember Glenn Miller, skipper of the famous Santa Barbara charterboat, EMERALD? Well, it seems Glenn has busily been building a new boat, a 75-foot steel diving vessel designed for 7000-mile cruising range...solely for diving and oceanographic work. The name of the new vessel will be CORAL SEA, and Glenn hopes to use it to accommodate scientific research expeditions as well as pleasure diving groups. Watch for it...

it'll be finished this summer!

...more Instructor Associations appear to be creeping into the general picture. Have you ever heard of a National Association of Saltwater Instructors (NASI) ...a membership of 16 instructors in Massachusetts who teach a course of only 16-20 hours, bypassing pool training entirely, and insisting upon strictly two-hose regulators (single hoses are termed by them as cheap and dangerous)? Or, how about another new group we saw advertised in Skin Diver Magazine last month...the International Divers Association (IDA)? The ad solicits \$10 and promises patches, card, newsletter and "international status." Gad...let's hope all this new enthusiasm doesn't bring with it more confusing C-cards!

...the recent Editorial in the July issue of Skin Diver Magazine brought a blush of pride to all divemasters and past-graduates alike associated with our Advanced Diver Programs. In discussing the necessity for continued underwater-training, Publisher Paul Tzimoulis stated in his third column: "I've seen people graduate from L.A. County's ADP course as better divers than some 'instructors' I know." Thanks, Paul, ...and we agree!

...valuable new SCUBA-instructor literature is finally emerging onto the scene. The National YMCA Scuba Committee's "YMCA SCUBA Leadership Manual" is now available for \$8 (\$6.50

for YMCA Instructors)...request your copy directly from YMCA SCUBA HQ, 1611 Candler Bldg., Atlanta, Georgia 30303. The Professional Association of Diving Instructors just completed its "PADI Training Manual" with sub-sections including "Standards and Procedures" and "Basic SCUBA Course." The organization does not make this manual available to other than its own instructors, however...at \$8.00, from PADI HQ, Box 177, Costa Mesa, California 92627. The National Association of Skin Diving Schools also again launched its new "NASDS Red Book" revised for the fourth time. This manual too is limited exclusively to NASDS instructors who are employed by member stores...and its cost is \$25 from NASDS HQ, 1757 Long Beach, California 90813. The National Association of Underwater Instructors has always annually revised its "NAUI Instructor Handbook" and the 1973 edition features 114 new pages of information along with a new binder. It's available to anyone who requests it for \$8.00 (\$6.00 for NAUI Instructors) from NAUI HQ, 22809 Barton Road, Colton, CA.

...a quick peek into the internal affairs of the County reveals that Randall Bacon has been appointed to function as the Acting Department Director following Norm Johnson's recent retirement. Civil Service is still interviewing applicants from around the county and a final appointment has not yet been made. A few of the newly proposed goals in the Department's 1973-74 statement of objectives include: a. Develop a comprehensive proposal that would provide the necessary background material and supporting data for two department-operated Underwater Marine Museums with corresponding Marine Preserves; b. Develop and implement strategies that would unite all the diving interests including manufacturers, retailers and diving associations into supporting and endorsing a Public Basic SCUBA Program dedicated to diving safety and standards; c. Continue to develop the necessary logistics that will finalize our new and revised film, "Anyone For Diving," and our "Underwater Recreation" manual. A busy outlook for the County's Underwater Unit!

#### SMPTE SYMPOSIUM ON UNDERWATER PHOTOGRAPHIC APPLICATIONS

Attention underwater photographers...a practical review and discussion of the current technology in underwater applications of motion-picture photography and television will be offered on July 27 and 28-th at the Hotel Del Coronado in Coronado, California. Total package-fee is \$50 and it includes registration and two luncheons. "SMPTE," incidentally, stands for: Society of Motion Picture & Television Engineers".

Here are but a few of the papers that will be presented:

- \*The Characteristics of a Color Film for Water-Penetration Photography (Eastern Kodak Co.)
- \*Light in the Sea (Nova Univ.

Oceanographic Lab., Fort Lauderdale, Florida)

- \*An Experimental Black-and-White Film Designed for Underwater Photography (Eastman Kodak Co.)
- \*DEM g-1, 16mm Underwater Motion-Picture Camera (Teledyne Camera Systems)
- \*Red Sea Underwater Life (lecturer from Israel)
- \*Underwater Colorama (documentary film from Eastman Kodak Co.)
- \*Practical Applications of Corrected Optics (Domes), Optical Viewfinders and Underwater Lighting in Underwater Photography (Flip Schulke)
- \*Design of Lens Systems for Underwater use; Uses and Effects of Filters for Underwater Photography
- \*Use of Underwater Photography for

Scientific Purposes (Ron Brown, Seacor, Inc.)

\*Underwater Imaging System Techniques (Westinghouse Oceanic Div.)

\*Aquacolor (Odyssey Underwater Films).

Other papers will be given by the California Institute of Technology and a number of other institutions and individuals concerned with oceanography and underwater photography.

There will also be two luncheons...following the morning

sessions both days of the Symposium, each with a guest speaker. The speakers are well known to most divers everywhere... Lloyd Bridges for Friday's luncheon and Scott Carpenter for Saturday's luncheon.

For registration information either contact the Del Coronado Hotel or direct payment to: SMPTE Symposium on Underwater Photographic Applications Registration, 862 Scarsdale Avenue, Scarsdale, New York 10583.

### JUNIOR FROGMAN AND ADULT SKINDIVING PROGRAM COMBINE

By: Paul Meister (17UICC)  
Coordinator, L.A. County Skindiving Program

In the early days of recreational SCUBA (I am told), most SCUBA students had previous skindiving experience, and the learning of SCUBA was a natural extension of an already existing talent. Today, with an increased focus on underwater recreation and easy access to good SCUBA diving instruction, skindiving experience is bypassed and skindiving instruction is given as an introduction to SCUBA. The consequence of this skindiving gap in recreational SCUBA is subject to argument, but the gap does exist, and it may be the cause of present-day surface accidents with SCUBA.

This skindiving gap has an even more pronounced effect on youth. A 12-year old boy who gets turned on by a Jacques Cousteau "Special" cannot simply go out and learn to dive as he would learn to ride a bike. He's too young for SCUBA, even if he could afford it, and good skindiving instruction is hard to come by. Consequently, the door is closed, and we all lose; the boy--because there is a time for learning which, once passed, can never be regained; youth--because the opportunity to become engaged in a worthwhile activity is

denied; and diving--because the artery is pinched to constrict the flow of new life blood. To figuratively open the door a little wider this year for youngsters and to fill the skindiving gap for SCUBA divers, the Junior Frogman Program and Adult Skindiving Program have combined into one Los Angeles County Skindiving Program.

This new program recognizes four skill levels:

Level 1 (Explorer): One who has the skill potential for calm water buddy diving in areas where emergencies are not likely to arise.

Level 2 (Ranger): One who has the skill potential required for diving in those areas and under those conditions that are considered safe for the average recreational diver.

Level 3 (Instructor's Aide): One who has the skill potential for leadership in diving activities.

Level 4 (Skindiving Instructor): One who is authorized to run classes in accordance with the L.A. County Skindiving Program standards.

Within the overall framework of this new skindiving program exist all the aspects of the former Junior Frogman and Adult

Skindiving Programs. In addition, several new program innovations are to be piloted this year. Some of these innovations are listed as follows:

- Setup of procedures whereby Underwater Instructors can conduct Skindiving Instructor Certification sessions.
- Definition of specific course types, such as skindiving programs for youngsters, adult

skindiving programs, family programs.  
-Definition of specific skindiving standards and skindiving safety procedures, since many of the currently accepted standards and procedures are only applicable for SCUBA.

More information on the Adult Skindiving Program in the next issue...

#### A CASE FOR MORE AND BETTER TRAINING

By: Leonard W. Moore (21UICC)

There is an advantage to extended and extensive training programs that may not come to the surface during the immediate period of training, but rather hold itself to be brought out at a much later date.

On June 7, 1973 I was contacted by a Mr. Gary Daly of Food Machinery Corporation, a San Jose, California based firm. Mr. Daly is a testing engineer for the firm's ordinance division; he is currently involved in testing the U.S. Army's "Scout", a semi-amphibious tank. Mr. Daly was interested in having me evaluate his limited skill proficiency in the use of scuba gear, an agreement was reached and evaluation took place at a private pool four days later.

During the course of the evaluation I had the "student" perform limited visibility exercises, including kitch and recover; much the same as I had encountered as an L.A. County candidate during ADP'71 at Puddingstone Reservoir. Those conditions were duplicated as best as possible in the pool, the reason being that the "student" had informed me on the environment in which the tank would be tested, which seemed to duplicate the actual conditions of Puddingstone.

The following day I was a guest

of the firm to render a judgement on the best method and routes of escape including rescue of a trapped driver/diver in the event the vehicle did sink. During the 2½ hours at the firm's testing pond with the vehicle, actual plans were developed and back-up system's worked out for all conceivable possibilities.

Later during the week I was contracted to act as a safety diver for the firm during the actual in-the-water test of the vehicle to take place during the morning hours of June 16. I accepted the position and arrived Saturday a.m. armed with two escape scuba tanks and two back-up tanks.

The driver/diver is sealed within the vehicle, and therefore the most difficult to remove. Further, his route of escape is hindered by numerous pieces of equipment throughout the vehicle. It was estimated that under ideal conditions it would take approximately 45 seconds for him to escape from the vehicle. It was further determined that in the event of the vehicle sinking it would take from four to five times as long.

Prior to the vehicle entering the water the driver/diver was equipped with a single hose two stage regulator turned on and attached to an 18 cu/ft 1800 psi

air cylinder, this unit was attached to the operator. The operator's route of escape was so directed that he would have to pass the fire support officer's chair, in this chair was placed a similar regulator attached to a single '72 air cylinder, turned on and line charged.

Matches were sealed, the driver/diver in place, two test operations officers were seated on the hatches of the vehicle in communication with the operator by headset; I was equipped and ready in a 12' aluminum out-board powered chase boat...and the actual test began.

It sank. After nearly one hour in the water (approximately 12' deep) the vehicle lost power, the engine compartment flooded and the vehicle sank in less than 3 seconds.

The two external engineers were tossed free of the vehicle, they ignited their CO<sub>2</sub> buoyancy vests and swam toward shore. The operator was still inside. I entered the water and reached the vehicle within 10 seconds of its sinking and determined by

feel that the operator escape hatch was open (visibility was absolute zero) I felt rather large air bubbles strike me, I listened for the sound of regulator breathing, determined I heard it and felt the exhaust bubbles. I then returned to the surface to visually pinpoint the position of their origin and I observed the driver/diver on the surface with vest inflated and tank and regulator attached and working as pre-planned.

During the de-briefing, after we had recovered the vehicle, it was determined that limited visibility training was the key to the successful escape of the operator.

We did not "Plan this dive" but we did plan for a tragedy in case such took place.

Limited visibility training in theory and actual work practice brought about the extremely high standards of the Los Angeles County Underwater Training Programs have again proven that nothing less than the best can work.

#### QUICKIE-ORIENTATION TO COMMERCIAL DIVING

Orientation to Commercial Diving is a program started by Commercial Diving Center designed to introduce sport divers to commercial diving. The program consists of the following:

1. 165 foot dive in a double lock decompression chamber.
2. Dive 4 of the current light-weight commercial diving systems in the water. (Kirby-Morgan Band Mask) (Aquadyne Helmet) (Swindell Helmet) (Rat Hat)
3. Dive "Hard-Hat" gear in the water.

CDC started this program to introduce sport divers to commercial diving. The program is the

only one of its type anywhere in the world and has been an outstanding success. The only other program similar to this is the NAUI Industrial Orientation Course for Instructors, which is only held once a year.

The program costs less than a boat dive to Catalina, and is of short enough duration so that out of town instructors can take advantage of the Orientation. SCUBA instructors have found that it greatly enhances their Advanced Diving Program and also provides a good transition point from the Basic class to the Advanced classes. Dive clubs have found that it is a rewarding

and educational change from club sponsored boat dives. Dive shops have found it helpful in keeping their customers active and interested.

Equipment and requirements that all participants must furnish themselves includes:

1. Full wetsuit (pants, jacket, and booties).
2. Current physical (last 6 months). SCUBA physical is acceptable (arrangements can be made through CDC at \$5.00 per person).
3. Basic SCUBA certification.
4. CDC Waiver (signed at CDC). Participants under 18 must have

written parents' or guardian's consent.

The cost per such an "Orientation to Commercial Diving" session is \$10.00 per participant. Sessions consist of four hours...conducted on week-evenings from 6:30 to 10:30 p.m. or on Saturdays and Sundays from 9 till 1:00 p.m. or 1:30 till 5:30 p.m. There are also special cost-saving incentives offered to instructors, clubs, dive shops, etc., who organize their own groups and schedule for a special session with CDC. For further information, call CDC at (213) 834-2501.

### DIVING ACCIDENT REPORT

5/25/73; Lisa Holmes (15)

Our records show the victim had been certified six months ago in Nevada . . . she was diving with her father from the family's private vessel at Blue Caverns, Catalina Island. The pair were near the bottom at 90-feet when the victim suddenly grabbed her father by the arm and pointed to a shark nearby. The father signaled to the victim that it would be safer to remain on the bottom than to surface. Then the victim grabbed her father's arm again and signaled to him that she was out of air . . . apparently the father didn't understand the signal. The victim grabbed her

father's mouthpiece and put it in her mouth to get air. The father began to gag and realized what was happening . . . inflated his vest and surfaced. The victim was not with him, so he dove back down and found the victim laying on the bottom without her mask & snorkel. Nearly out of air himself, the father brought the victim to the surface and began resuscitative efforts. The victim was still alive on route to the hospital . . . died two hours later. Weightbelts had not been dropped and an unsuccessful buddy breathing attempt had occurred. The coroner listed drowning as the cause.

## CALENDAR OF EVENTS

July 6 (7:30 pm) Friday  
Board of Supervisors  
Auditorium  
500 W. Temple, L.A.  
(across from the Music Center)  
FREE--PUBLIC INVITED

ADP SEMINAR . . . "Underwater Training & Behavior"; "Diving Oceanography." Full lecture presentations by Dr. Glen Egstrom of UCLA and Dr. Otto Gasser of Cal Poly. A fascinating evening of diving education!

July 11 (7:30 pm) Wednesday  
Commercial Diving Center  
272 South Fries Ave.  
Wilmington, Calif.  
TUITION: \$75

CDC PHYSIOLOGY SEMINAR . . . advanced underwater physiology lecture by Dr. John Alexander, laying the fundamental groundwork for later Wednesday evening lectures to follow (See story on pg.

July 18 (7:30 pm) Wednesday  
Commercial Diving Center  
272 South Fries Ave.  
Wilmington, Calif.  
TUITION: \$75

CDC PHYSIOLOGY SEMINAR . . . continuation of Underwater Physiology Seminar of Dr. John Alexander. Subjects deal with "Breath-hold diving and oxygen toxicity.

July 20 (7:30 pm) Friday  
Board of Supervisors  
Auditorium  
500 W. Temple, L.A.  
(Across from the Music Center)  
FREE--PUBLIC INVITED

ADP SEMINAR . . . "Diving Equipment: Function, Care & Operation," presented by Nick Icorn, PADI National Director. This particular lecture is a highlight every year!

July 25 (7:30 pm) Wednesday  
Commercial Diving Center  
272 South Fries Ave.  
Wilmington, Calif.

CDC PHYSIOLOGY SEMINAR . . . continuation of Underwater Physiology Seminar by Dr. John Alexander. Subject will deal with "Signs and Symptoms of air embolism, decompression sickness, and physics of bubble formation."

TUITION: \$75

August 1 (7:30 pm) Wednesday  
U/W Unit Auditorium  
13th Floor  
155 W. Washington Blvd.  
Los Angeles

GLACD INTERCLUB MEETING . . . All clubs in the Southern California region are invited to attend this open meeting. A widespread inter-club communication system has been developed and representation is hoped for from all clubs.

\$ FREE ADMISSION