

undercurrent[®]

THE PRIVATE, EXCLUSIVE GUIDE FOR SERIOUS DIVERS

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Los Angeles And Santa Barbara, California

—Fine Boats, Fine Diving, Fine Prices

*All the leaves are brown....and the skies are grey....California dreamin'....
on a winter's day....*

The last time I dived in the waters off Los Angeles, the Mamas and the Papas were at the top of the charts. In those days, as I peered out onto the snow-covered streets of New York, all I could do was dream of California, of warm beaches, bikinis, swaying palms--and tepid, no wetsuit waters. It was only when I took my first backroll off the dive boat that I learned the surface temperature would be a "tepid" 64° and I would spend the rest of the day freezing my snorkel off. But the diving? Superb!

In those days, I dived off the coast at Huntington Beach or Malibu or Pacific Palisades, but today, the top-o'-the-line California diving is best found by hopping one of the many charter boats and heading out to the clusters of islands miles off the Los Angeles shore. Finding these boats is not always simple, but I was fortunate enough to stumble onto a Pasadena shop, Divers West, whose owners proved to be a veritable fountain of knowledge. Not only did they know where I could locate all the dive boats, but also they knew their schedules and how to help me arrange trips with a day or two notice.

California dive boats are independent operators and offer absolutely no underwater guidance, no gear--and that means no tanks. They are divers' taxis. The captain takes you to the dive sites, fills your tank and points to the ocean. What you do when the boat stops is up to you and your buddy, or to the group you've come with. A dozen or more boats operate between Los Angeles and Santa Barbara and during the last few months on several visits to Los Angeles, I took excursions on three different boats: the Charisma and the Scuba Queen (both of which operated out of the 22nd Street pier at San Pedro in the Los Angeles harbor) and the Conception (which operates from Santa Barbara, about two hours north, if you drive the coastal route).

The Charisma: My trip was a "no hassle" affair. Scheduling for a trip

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to San Clemente Island was handled by the Divers West dive shop. We would depart at night, 10p.m., I was told, so I drove my rented car into the parking area an hour early, just to be safe. There I found a couple of large push carts to help me transport my gear to the boat, where I signed in, displayed my C-card and logged in the number, stowed my dive gear in the aft-end of the boat and went below to select a bunk. Those who arrive first get dibs on one of the six private staterooms (for which there is no additional cost) while later arrivals pick single or double bunks in one of the two clean and comfortable bunk rooms. Bunks are equipped with clean pillows and blankets (no sheets) and divers slept in their clothes, skivvies or bathing suits. I saw no silk night shirts. Though the Charisma can accommodate 54, the trips are limited to 35 divers. The craft sports two heads, four hot fresh water showers, a large sundeck, a galley that seats at least 50 people at once, a color TV, circulating tanks to keep game alive, plenty of electrical outlets for charging batteries and meal and snack service. If you wish, you may bring your own food and drinks on board. Only one tank is necessary since on-board compressors provide quick fills.

On this bright and sunny day, the visibility underwater reached a stunning and uncommon 100 feet. On my first dive the bottom ranged from 30-50 feet deep, where large boulders are overgrown with beautiful kelp jungles. Sunlight streamed between the slowly swaying fronds. The bottom turned into a vertical wall, dropping to 140 feet or so. Garibaldi--bright, friendly orange damsel fish that grow to nearly a foot--were everywhere, begging to be photographed. I spotted well-camouflaged kelp fishes and sculpins, gobys, plate-sized seabass, sheepshead, olive-yellow treefish, morays, a large stingray, and scores of lobster, easily visible because their intuition let them know it was not the season for plucking. Of course, in these California waters, there are plenty of unique little creatures like limpits and snails and sea hares and tube worms and anemones. I had great photographic success because the fish didn't shy away from my lens, even though spearfishing divers visit these waters and, indeed, were among those on this tour. Our skipper took us to two other sites--each similar to this lovely spot--and divers made three or four dives, depending upon their stamina and their standing on the tables--which they must compute themselves. The divemaster did not enter the water, but logged entry and exit times and called roll between dives.

Diving from the Charisma is simple. The boarding platform rides about a foot below the surface, permitting an exhausted me to roll onto it. A crew member handles cameras and fins and the large diameter ladder rungs proved easy to negotiate. Once on board, tanks get a quick and complete fill (\$20 and after a snack, if desired, one can jump right back in. By 2 p.m. we pulled anchor and set course for San Pedro. Those who had speared fish could clean their game at the fish cleaning rack on the stern, while others slept, ate, watched color television, played cards, or swapped yarns. Shortly before the 6:30 p.m. arrival at San Pedro, we paid our bills: for this princely trip, it was but a pauper's sum of \$35.50 plus meals.

The Scuba Queen: Owner Pete Greenwood and his one guy and one gal crew create a friendly atmosphere on this 65-foot boat with a 16-foot beam. The Scuba Queen takes divers to Catalina, San Clemente, San Nicolas and all the Channel Islands.

I boarded at 6:30 a.m. for the 7 a.m. departure, signed in, and marked my tanks with masking tape for identification. I stowed my gear on the bow and fastened my tanks with others on the stern rails.

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Just before the boat pulled out the divemaster took roll (as he did after each dive) then a few divers immediately ordered breakfast in the tiny galley--there's only one table for 6 people, but alongside is a bench seat perfect for lap eating. The galley offers breakfast (eggs, bacon, ham, toast, coffee) lunch (sandwiches and hamburgers, soft drinks and beer), and on multi-day trips, dinners (steaks or seafood, baked potatoes, salads and dessert). A few divers opted for napping below in one of the double bunks (the Queen sleeps thirty), each with curtains, blankets and pillows.

Shortly after 9:30, as we anchored at the Isthmus of Catalina, we listened to a full briefing of the site and conditions. The first dive would be to 80 feet. The boat would move to the second at 40 feet and then a third at the same depth.

The underwater action and scenery was similar to my experience at San Clemente, only the visibility several weeks later was now 30 feet. The garibaldi, as friendly as ever, were somewhat larger. The kelp gardens were, as usual, stunning. I did spot a baby octopus on this dive, and huge keyhole limpets. Large starfish and bat stars intermingled with the big white as well as purple sea urchins. I enjoyed a number of varied and delicately colored nudibranchs and many extraordinary sea worms. Anemones were brilliant--red, green, and white, with lavender centers. And best of all, playful seals darted in and out of the swaying kelp. This, readers, was exhilarating diving indeed.

After three dives, I rinsed off on deck in my wetsuit and stripped to my bathing suit for a hot shower. The Scuba Queen pulled anchor and headed home. Just before docking I paid my \$28 single day charges, \$4 for two air fills, \$5 for lunch.

The Conception: Southern California's newest custom dive boat moors at the Sea Landing Sportfishing Dock on the east side of Santa Barbara harbor. Luxuries abound on this 75-foot designed-for-divers craft.

Los Angeles/Santa Barbara Dive Boats

The following charter boats operate year-round from Los Angeles (San Pedro) or from Santa Barbara. Reservations can be made by calling or writing the boats directly. Frequently the boats are chartered by dive shops or dive clubs and often the chartering organization has spaces to be filled. The charter boats will be able to inform you of the chartering organization if they are not running an open boat.

Blue Sea: Dave Melson, PO Box 1406, San Pedro, CA 90733, (213) 833-1577.

Charisma: Roger and Marilyn Hess, 26302 Senator Avenue, Harbor City, CA 90710, (213) 832-8304.

Conception: Roy Hauser, Sea Landing, Breakwater, Santa Barbara, CA 93109, (805) 965-7543 or Sea Landing Sport Fishing, (805) 962-1127.

Golden Doubloon: Eddie Tsukimura, 871 Basin Street, San Pedro, CA 90731, (213) 831-5148, (213) 547-3010.

Jeanne: Jim Herrin and Max Scuri, PO Box 337, Pt. Hueneme, CA 93041, (805) 488-4715.

Rio Rita: Roy Kaiser, PO Box 4372, San Pedro, CA 90731, (213) 548-1821, (213) 832-5084.

Scuba Queen: Pete Greenwood, Box 867, San Pedro, CA 90733, (213) 547-2236. (Strictly charter.)

Sea Bee: Art Burnett, 2650 Amy Place, Pt. Hueneme, CA 93041, (805) 487-6698.

Sea Ventures: Jake Sunderland, 2724 Wendy Place, Pt. Hueneme, CA 93041, (805) 486-0403, (805) 647-0167.

Truth: Roy Hauser, owner, and Mark Pittman, skipper, Sea Landing, Breakwater, Santa Barbara, CA 93109, (805) 962-1127.

Vaquero: Kent Cook, 934 Basin Street, San Pedro, CA 90731, (213) 831-8198, (213) 832-8304.

Westerly: Jim Ingram, 141 22nd Street, San Pedro, CA 90731, (213) 833-6048.

I boarded at 10 p.m. for a two-day trip, stowed my dive gear on a long bench on the stern, and set my tanks at the center platform surrounding two compressors whose hoses stretch to every tank in place. I finally sacked out at 1 a.m., three hours before the boat departed for Santa Cruz Island, a 4-hour journey. The Conception has sleeping quarters for 40, in the midsection, below the galley. Single bunks run down the middle and doubles run along the sides with a curtain for privacy, a bunk light and air vent and each with plenty of space for personal gear. There are three heads and four hot showers: two on deck where divers can rinse off wetsuits as well as two below, in dressing rooms complete with vanity and mirror, clothes hooks and 110 plugs for hair dryers and razors.

I woke at 6:30 to the delicious aroma of brewed coffee and bacon. Hurrying up to the galley, I was greeted with big smiles from the "galley girls," Amy and Mari, who had laid out coffee, tea and hot chocolate; platters of sliced melon and cinnamon rolls on enough table space for 40 divers. Then came breakfast! Voila! Omelettes filled with cheese, greenpeppers, onions, tomatoes, accompanied by freshly sliced fried potatoes and toast. And between each dive, the galley crew put out snacks--bowls of fresh fruit, cut up vegetables and dips and bowls of cookies. And for lunch, we were served cheeseburgers, potato salad and cole slaw.

The first dive at Santa Cruz Island was at 8:00 a.m. Conditions were not the best. The sun was bright, but the air was chilled and the water was cold and rough, with strong currents. At forty feet a strong surge forced me to hold the sea grass and kelp to move forward. Visibility was poor, from 30 feet down to even eight feet; the case in all three locations that day. Despite the murky water, I managed to spot several multi-colored Pacific nudibranchs, orange sponges, bat stars, and huge starfish, calico, sheepshead, stingrays (one, very large, hovered over my head for a while), lobsters, crabs and even more seals.

The Conception's stern platform hangs low in the water, making for easy boarding. Several divers were exhausted after long swings back through the current, so the crew threw them lines to pull them to the platform. My tank was lifted off, and stacked in place by the crew, and was immediately filled with air for the next dive. Because of the wind and currents night diving was scrubbed. But the stuffed chicken breasts, freshly baked Hawaiian bread, tossed salad and fresh vegetables, ice cream, pies and birthday cake dinner assuaged my disappointment.

The Conception also has a large 20-person capacity sun deck with pads for sunning or snoozing after diving. Roll call is taken by one of the five crew members, who quietly goes from person to person checking off names after each dive.

My cost for the all inclusive two-day trip was \$145. The only items one may wish to bring along are beer or wine since neither is sold aboard the Conception. Divers must show certification card numbers and pressure gauges and BCs are required. Multi-day trips should include your own extra towels, a warm jacket, and change of clothes. One-day trips are \$39.50 (excluding air and food).

Conclusion: Need I repeat it? These were three, first class dive boats, with fine crews, efficient operations, and comfortable quarters. And the price was, in my humble estimation, rock bottom. The quality of the diving was a function of the weather, not the skippers, and I have no doubt that on any good days these boats will get you to the best spots. And if they're filled or not running, then you might wish to contact any of the other boats listed in our chart. Diving at the Southern California off shore islands can be the experience

of a lifetime, especially if you're fortunate enough to find yourself deep in a stunning kelp garden, surrounded by graceful and playful seals, an experience I had on each of the three boats.

So, consider California for a dive vacation. You'll be surprised and delighted at the possibilities. I was.

Divers Compass: Diver's West, which helped me get aboard the boats I've written about (anonymously of course), can be found at 2695A E. Foothill Blvd., Pasadena, CA 91107 (213) 706-4287; I rented a wet suit, BC, tank, backpack weightbelt from them for \$16 on a day I couldn't bring my gear....When making arrangements to dive, ask for hotel recommendations near the pier if you need them; in some cases, especially if you dive with a shop or club, you might be able to catch a ride if you don't have a car....you will need a c-card, BC and submersible gauge to dive; if you are missing any of the three, you will spend the day watching everyone else go below....The list of dive shops in Skin Diver can be another source of information about boats and rental gear.

Reports From Our Readers' Travels—Part V

HAWAII: Oahu. A year ago we criticized the commercial dive operations in Hanauma Bay and received a flood of letters from Honolulu shop operators. The government now prohibits all commercial dive operations in Hanauma Bay because the commercial activities were threatening to take over what was established as a noncommercial marine sanctuary. Individual divers can still take tanks into the Bay, however. We received a few comments about other Oahu operations. H.W. Johnmeyer II (Rolla, MO) liked the safe and well organized boat trip with South Sea Aquatics. "The dive on a World War II Corsair in 90 feet was exciting, worth several trips. The reef dives are only passable."....Johnmeyer dived with Hawaiian Professional Dive Tours on Kauai and said there were "some nice caves, pinnacles, the reefs were O.K. (a few eels, turtles and occasional rays) and all dives were conducted in a safe, orderly manner and all rules observed. but diving here is nothing like most Caribbean spots."....The best diving in Hawaii is to be found either along the Kona Coast on the big island of Hawaii or on dive boats out of Lahaina, Maui, which head for Lanai, Molokai or Molokini. On Kona, Dive Makai, run by Tom Shockley and Lisa Choquette, still receives top reviews of all divers. Hank Cora (Richmond, VA) says they "truly made diving fun for all with lots and lots of personal attention for those who needed it. Orville and Wilbur, their two largest morays, are the friendliest and most photographic I've seen. Saw sharks, manta rays, turtles and lobster."....Top reviews continue for Central Pacific Divers in Lahaina, Maui. Richard Lucas (Woodland Hills, CA) says "there are more fish than the Caribbean but a duller bottom. Central Pacific is a better dive operation than most in the Caribbean." One diver who didn't include his name said, "Interesting cave dives, small, colorful, tropical fish abundant. CPD personnel were no-nonsense but loosened up when they saw the group was experienced. Their operation was smooth and friendly. I would highly recommend them."....W. Carlson dived with Hawaiian Pacific Divers out of Kehei (about 30 miles from Lahaina). "The only action here is a trip on a 60-foot catamaran with 6 scuba divers and 20-30 snorkelers. It's O.K. for novice scuba divers but at two tanks for \$70, it was far too expensive. The dive guide destroyed a coral head to capture a pregnant lobster to bring aboard to show the snorkelers. The only lobster seen by six divers on two dives."

HAITI: Pres Lester (Cotulla, TX) Found Baskin in the Sun at the Ibo Beach Hotel a "congenial and comtable operation. Allen Baskin is a delightful

person and excellent dive guide. Walls and reefs and wrecks were very interesting."

JAMAICA: For the most part, diving here is pretty average, although there's much to be enjoyed on Jamaica other than underwater splendor. Montego Bay is picked over, but Negril Beach has a few attractive spots. Steve Joos (Morton, IL) says that "Negril Beach Village has a surprisingly safe operation, even though the experienced divers are not herded like a pack of novices on deep dives; the Jamaican divemasters try to make the dives as interesting and varied as possible." The Beach Village is the Caribbean's hot spot for singles. As Frank Davies of Scuba Tours International in Tampa writes, "Disco goes all night and so do the guests. It makes Club Med look like a Sunday school picnic. Not for the prudish." Davies likes the Hilton at Ocho Rios: "Mike Drakulich has an excellent operation and will be sure to take you by the nude beach....Diving at St. Ann's Bay is fun too, with beautiful stands of pillar coral."

MALDIVES: Last year P. Faulconer (San Diego) dived with the German-sponsored Sub Aqua Reisen who runs tours to the Maldives, and found "the quantity and variety of fishes as good as the Barrier Reef and the water extremely clear and the diving was beautiful." But he had a number of problems with the tour and the tour leaders, and wrote that the dive masters "did not plan or discuss the day's dives, often anchored in current and made photography impossible." He wants to return, but "next time only with See and Sea or with the Swiss agencies."

MEXICO, San Carlos: This destination in the Sea of Cortez is visited frequently by Arizona divers who drive down for weekend diving. We occasionally receive bad reports that the air pumped locally contains oil and other contaminants, so we recommend caution for divers who fill their tanks in San Carlos. Fill your tanks in Phoenix or Tucson and get updated information from the shops about where to find decent air in Mexico.

The 1982 DEMA Show

—What's New For '82

What's new for 1982?

That's what the annual DEMA (Diving Equipment Manufacturers Association) show is supposed to answer for the industry and that's why I trekked to San Antonio, the site of the 1982 exhibit. When it was all over, I didn't have much of an answer. Oh, there were new products—a few anyhow—and new ideas, but overall my impression is that the diving industry is now firmly wedded to incremental and evolutionary change. The great leaps forward of the 1970s are now diving history. The last two DEMA shows have been basically variations on a theme and this was no exception.

If any single trend was obvious, it was no doubt the similarities between the diving industry and the skiing industry. It is important, diving manufacturers would have us believe, to be color-coordinated and to carry around a lot of frilly things that don't enhance diving or safety but at least keep us "looking good."

For skiers, fashion-conscious marketing makes practical sense. As soon as a skier makes his last run

for the day he can pop open his bindings, drop into the lodge for a hot brandy and keep right on moving through the night without a change of clothes. For divers, the whole idea of multi-colored coordination seems downright silly, for damn few of us boogie into the discos wearing our wetsuits. But that's what the manufacturers would have us believe. No doubt, they're having some success. Not long ago I stood in a dive shop near a young, blow-dried couple who were buying red and blue suits. They admitted, not without embarrassment, that their current suits were just fine. But, said Mr. Blowdry, the colors were "just too hot to pass up." Indeed, can *designer* dry-suits be far behind?

But I'm being bitchy. I was impressed with the stitching in the new wet and dry suits, the stronger and hopefully, more reliable zippers, and the attention to detail—essential at the big prices. Lycra is being used more than ever. It looks fine, but it's so similar to a polyester knit that I wonder just how easy it will be to snag.

Dry suits are "in". Every suit company offers them. Having had some rather unhappy experiences with my new dry suit five years ago, I hope that all dealers insist on at least one pool training session before the dry suit diver is turned loose in open water. (I solved my control problem by strapping a 3-pound ankle weight on the outside of the suit to improve my underwater agility and maneuverability.)

A prototype of a new high-pressure stainless steel cylinder from Cylinder Technology of Naples, Florida, caught my eye—and the eyes of many visitors. The manufacturer expects to produce a flat bottomed, 99-cubic foot, stainless-steel alloy cylinder, 6¼ inches in diameter, 22 inches long and rated for 4000 psi (with a burst pressure of 17,000 psi.) They claim it will be corrosion free and that the threads will be strip-proof—and, they say, built to last a lifetime. With a projected wholesale price of \$175, expect the tank to retail between \$300-\$350.

Mono Electronics offered a hand-held sonar device to help divers locate wrecks, schools of fish, the dive boat, or simply just check the depth before dropping anchor. The small, lowest-priced sonar unit which can be snapped on a weight belt retails for roughly \$170.

The Cyberdiver decompression meter consoles were pitched rather powerfully. The Cyberdiver II relies on the U.S. Navy dive tables for its data base, while the Cyberdiver III uses the four tissue (Kidd-Stubbs) tables used by the Canadian Navy.

Several models of underwater metal detectors were on display by White's, Garret and Raclar. The White's unit discriminates between coins and other debris such as bottlecaps, and can even indicate the depth of the coin in the mud.

Metal tank bands are disappearing as fast as did the dinosaurs. I only saw a few metal bands; all the rest were nylon or other synthetic materials which don't corrode.

Equipment is only part of the DEMA action. PADI and NAUI both presented brief descriptions of their experimental short scuba courses which were tested and conducted by 12 instructors in different U.S. locations. Compared to the traditional scuba courses, these shorter courses claim to have the following advantages:

- ★ Fewer drop-outs during and after training.
- ★ Fear and apprehension were reduced.
- ★ Scuba skills were learned easier and faster.
- ★ There was more enthusiasm among the students and instructors were more enthusiastic.
- ★ Students indicated greater than normal interest in taking more advanced courses.
- ★ Equipment sales increased.
- ★ The courses attracted more people, especially higher income professional people who don't have much spare time. It was more attractive to them because it did require less time.
- ★ The number of women enrolled increased by 50-60%.

Travel suppliers were out in force. Cayman Islands occupied almost a quarter of one entire row of exhibits. Howard Rosenstein of the Red Sea Divers explained the impact of the return of the Sinai to Egypt. He plans to run the dives from Eilat using four high-speed, former Israeli Navy boats. British Columbia, Canada, had a strong contingent, and their cause was boosted by Jack McKenney's breath-taking film about B.C. diving, "The Emerald Sea." And consider this unique diving operation: The Lost Paradise Motel is a 90 by 30 foot barge on which is built a two-story hotel with 12 double rooms; it operates off the cays of the south shore of Cuba. It has a restaurant, bar, television and large recreation area, not to mention \$1 margaritas. As you might expect, their dive master claimed "the best diving in the Caribbean."

San Antonio was a pleasant city for the show, though it does not provide the kind of night life or excitement provided by, say, Las Vegas, where the show was held last year. Attendance was down and, we suppose, that contributed to the decision to return to Las Vegas for next year's production. Some attendees complained that Vegas provides too many round-the-clock diversions and that hurts the business they can write, but the good-time-Charlies apparently prevailed. With the only innovations at these shows now reserved to the expanding spectrum of colors, perhaps the Las Vegas nightlife is the inducement necessary to persuade people to return next year to, no doubt, what will be a repeat performance of this year's gala extravaganza.

—Ben Davison

YOUR MOST IMPORTANT PIECE OF EQUIPMENT

You pride yourself on being a safe, serious diver. You'd never consider diving without first going through a thorough check of your equipment. But if you're not currently a subscriber to *Undercurrent*, you may be leaving behind your single most important piece of gear. Join the thousands of other serious divers already receiving the inside information that only *Undercurrent* can offer. Return the order form on the reverse today!

Which Strobe Is Best For You?

The Churches Compare 31 Models

You may be expecting a gut-twisting, best-to-worst ranking of all the submersible strobes, but we can't give you that. Why? Because value judgments as to "best" and "worst" depend on what you want any particular strobe to do for you. Let's see some examples of why we would recommend different strobes to different persons:

Assume that you're heading for an extended diving vacation to an area where electrical power is uncertain. You want to take wide-angle pictures, as well as close-ups. Given these conditions, we might recommend a Subsea Mark 100. It gives from 750 to 1500 flashes from a disposable 300V battery, has a 90 degree beam angle, and is still small enough for comfortable close-up work. But if you insisted on a built-in slave sensor and more power, we would shift the recommendation to the larger Mark 150. It would, however, be less handy for the close-ups.

Let's change circumstances. You live near the ocean and plan to use your strobe several times a month for wide-angle photography. Shazam! We immediately shift to one of the wide-beam strobes powered by a rechargeable ni-cad battery. The particular brand recommended would be determined by your other requirements—do you want a slave sensor, multiple power settings or automatic, etc.—and if you use a Nikonos or housed camera.

And for one last change, you decide to stay with close-up and extension tube work. If so, all of the above thinking about wide-beam strobes would be pushed aside. We would only consider smaller, normal-beam strobes.

At this point, you should see the problem: There is no one strobe that is "best" for everyone. Choosing a strobe will be a three-way compromise among the features you require, the negative features you will accept as a tradeoff to gain those features, and the price you are willing to pay.

THE KEY FEATURES

Let's get to the task of choosing a strobe. On a

separate sheet of paper, make a list from 1 to 31 (to represent the 31 strobes listed in this article). Each time the strobe **MUST HAVE** a particular feature; eliminate any strobe that doesn't have the feature by placing a tally mark by its number. The goal is to narrow the choice to those strobes that are best for you. However, it won't be easy—you may end up eliminating all the choices! If so, you must compromise and accept some feature of marginal or negative value to you. The basic features are listed below—which are important to you?

It Must Have a Wide Beam (90 degrees or more): If so, eliminate strobes # 1, 2, 3, 4, 5, 6, 11, 12, 13, 17, 18, 19, 20, 21, 22, 24, 25, 26, 27, 28, & 31. But keep in mind that wide-beam strobes are often more expensive, heavier, bulkier and harder to use for close-ups than smaller, normal-beam strobes. Note: Wide-angle diffusers are available for strobes # 3, 21, 22, 24, 25, 26, & 27, but diffusers reduce the power output. A tandem plate is available for the SR2000 strobes (#23, 24, 25 & 26) for using two strobes to cover a wider area.

I Prefer a Normal Beam (for 35 mm or 28mm lens): If so, eliminate strobes #7, 8, 9, 10, 14, 15, 16, 29 & 30. A small, normal-beam strobe will be easier to handle for close-up work, but can't handle wide-angle lenses (unless wide-angle diffusers are available).

I Want Multiple Power Settings: If so, eliminate strobes #1, 2, 3, 4, 5, 6, 7, 8, 9, 12, 13, 16, 18, 19, 20, 21, 22, 24, 25, 26, 27, 28 & 31. This is a highly desirable feature, especially with powerful strobes.

I Want The Most Powerful Strobes on the Market (in terms of U/W guide numbers): Eliminate every strobe other than # 3 and 17—the Sunpak Marine 32 and Nikon SB-101 Speedlight. Both of these also have low power settings. Note: Using too much power can often ruin your pictures. Backgrounds can be too dark, light areas can easily overexpose and backscatter from suspended particles will be more noticeable.

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4/82

Thirty-One Submersible Strobes*

AQUA-CRAFT (7992 Miramar Rd., San Diego, CA 92126)

- | | | |
|----------------|-------|---------------------------|
| 1. Novatek II | \$290 | Compact, for NII. |
| 2. Novatek III | \$290 | Compact, for NIII & IV-A. |

BERKEY MARKETING CO. (25-20 Queens Blvd., Woodside, NY 11377)

- | | | |
|---------------------|-------|--|
| 3. Sunpak Marine 32 | \$379 | Sync/slave, full/half, w-a diffusers, flood alarm light, test flash. |
|---------------------|-------|--|

ELMO MFG. CORP. (70 New Hyde Park Rd., New Hyde Park, NY 11040)

- | | | |
|------------------|-------|--------------------------|
| 4. Toshiba TM-11 | \$299 | manual/auto, test flash. |
|------------------|-------|--------------------------|

FARALLON/OCEANIC (14275 Catalina Ave., San Leandro, CA 94577)

- | | | |
|--------------|-------|---------------------------------|
| 5. OS-2000 | \$235 | Compact sync model. |
| 6. OS-2000 | \$235 | Compact, cordless slave. |
| 7. OS-2001 | \$575 | Wide-beam, sync model. |
| 8. OS-2000S | \$235 | Wide-beam, sync/slave. |
| 9. OS-2002** | \$765 | Wide-beam, manual/auto. |
| 10. OS-2003 | \$650 | Wide-beam, hi/lo power settings |

HELIX (325 W. Huron St., Chicago, IL 60610)

- | | | |
|-----------------|-------|---|
| 11. Aquafash 22 | \$399 | Full & 1/4, auto/manual, sync/slave, test flash, blinker alarm. |
|-----------------|-------|---|

IKELITE (3303 N. Illinois St., Indianapolis, IN 46208)

- | | | |
|--------------------|-------|---|
| 12. Substrobe M | \$169 | Compact, sync model. |
| 13. Substrobe MS** | \$169 | Compact, cordless slave. |
| 14. Substrobe 75L | \$349 | Wide-beam, 40/75ws, sync/slave, modeling light. |
| 15. Substrobe 150L | \$495 | Wide-beam, 40/75/150ws, sync/slave, modeling light. |

KRITTER LABS (P.O. Box 88, Hillsboro, OR 97123)

- | | | |
|--------------------|-------|---------------------------------|
| 16. Light Handle** | \$525 | Twin strobe "wide-beam" system. |
|--------------------|-------|---------------------------------|

NIKON (623 Stewart Ave., Garden City, NY 11530)

- | | | |
|-----------------------|-------|--------------------------|
| 17. SB-101 Speedlight | \$454 | Full & 1/4, manual/auto. |
|-----------------------|-------|--------------------------|

PELICAN PRODUCTS (23763 Madison Street, Torrance, CA 90505)

- | | | |
|------------------|-------|----------------------|
| 18. Cosina ST*** | \$297 | Compact, sync model. |
| 19. Cosina DX*** | \$270 | Compact, sync/slave. |

SEA & SEA (1334 SE 17th St., Ft. Lauderdale, FL 33316)

- | | | |
|----------------------|-------|---|
| 20. YS-20** | \$190 | Mini-strobe for 110 Pocket Marine. |
| 21. YS-50M (manual) | \$326 | Compact, sync/slave, w-a diffusers, test flash. |
| 22. YS-50A (auto)*** | \$442 | Manual/auto, test flash. |
| 23. YS-150 | \$588 | Wide-beam, half/full, sync/slave, test flash |

SONIC RESEARCH (5111 Santa Fe, Suite H, San Diego, CA 92109)

- | | | |
|-------------------|-------|--------------------------|
| 24. SR2000 (#200) | \$264 | Compact sync model. |
| 25. SR2000 (#210) | \$264 | Cordless slave. |
| 26. SR2000 (#202) | \$286 | Sync/slave. |
| 27. SR2000A**** | N.A. | Auto/manual, sync/slave. |

SUBSEA PRODUCTS (1006 W. 15th St., Riviera Beach, FL 33404)

- | | | |
|----------------|-------|--------------------------------------|
| 28. MARK 30 | \$300 | Compact, sync model. |
| 29. MARK 100 | \$474 | Wide beam, 50/100ws. |
| 30. MARK 150 | \$596 | Wide-beam, 50/100/150ws, sync/slave. |
| 31. MARK 30S** | \$250 | Compact, cordless slave. |

* Specifications may vary from past, present or future releases because of changes and are subject to errors.
** Authors have examined, but have not used this strobe.

*** Authors have not examined or used this strobe.

**** Sonic research has now decided not to market this strobe

I Want Automatic Exposure Control: If so, eliminate all strobes except #4, 9, 11, 17, 22, & 27. Automatic control, however, doesn't eliminate decision making. You still must often use an exposure meter to avoid overexposure in bright conditions when sunlight requires a higher-numbered aperture than the automatic. Not all automatics function at close-up distances, and automatics also limit your choice of apertures. The Sensor and remote cord can be removed from the SB-101 (#17) for strictly manual operation, but the sensors and sensor cords are permanently attached to the Aquafash 22 (#11),

OS-2002 (#9), YS-50A (#22) and Toshiba TM-11 (#4). The Aquafash 22 has an auto check indicator—turn the switch to the test flash position, the strobe flashes (without triggering the shutter), and the indicator light blinks if you are within the automatic range. The sensor for the SR2000A is still in development.

I Must Have Built-in Sync/Slave Modes: If so, eliminate strobes #1, 2, 4, 5, 6, 7, 9, 10, 12, 13, 16, 17, 18, 20, 22, 24, 25, 28 & 29. This adds to cost, but is a handy feature. Some slave strobes are harder to trigger than others. In our experience, the Subsea Mark 150 (#39) has been the easiest. A recent

demonstration by Sonic Research showed that their latest sensors are quite sensitive, but we haven't tested the latest model. Some of the first Ikelite Substrobes were difficult to trigger on slave, but Ikelite tells us they have switched to a more sensitive sensor. The hardest for us to trigger is the YS50M (#21) because the sensor is located on the top of the strobe body, where it sees the bright surface above. The second hardest for us to trigger is the Sunpak Marine 32 (#3) because the sensor is located at the side. Generally, we prefer to have the sensor located near the reflector port where it can see the light reflecting from the subject.

I Want a Cordless Slave. Eliminate every strobe except #6, 13, 16, 25 & 31. While convenient to use, you can't use it as a backup if your sync strobe fails. Note: The Light Handle (#16) is a twin-strobe system; one of the strobes is a detachable cordless slave.

It Must Be as Small as Possible (2.2 lbs. or less): Eliminate strobes #3, 4, 7, 8, 9, 10, 11, 14, 15, 16, 17, 23, 29 & 30. This weight doesn't include arms, brackets, etc.

It Can't Weigh More Than Five Pounds: Eliminate strobes #14, 15 & 29. But be careful—specified weights don't include the bars and brackets for most strobes, and we don't know which brackets, etc., you will want.

I Want a Built-in Ni-Cad Battery Pack: Eliminate strobes #1, 2, 3, 4, 5, 6, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 28, 29, 30 & 31. While built-in packs don't require maintenance, keep in mind that the entire strobe is out of commission during the recharging time.

The Ni-Cad Pack Must Be Removeable: Eliminate all strobes except #3, 15 & 23. Note: For individual, replaceable AA or C cells see no. 12, below.

I Want AA or C Alkaline Cell Power: If so, eliminate strobes #7, 8, 9, 10, 14, 15, 23, 24, 25, 26, 27, 29 & 30. Alkaline cells are convenient to use because they are available at many retail outlets, but be prepared for maintenance: Battery compartment springs can break or lose tension, and the contacts between cells and compartments must be kept clean. The greater the number of cells required, the higher the cost of using the unit. Rechargeable ni-cad cells can usually be used in place of the disposable alkalines, but give fewer shots per fresh battery and may give slightly reduced light output with some strobes.

I Want 300V or 510V Battery Power: Eliminate all but strobes #29 & 30. Their high-voltage batteries are great for extended trips to remote areas where charging would be a problem because they give hundreds of flashes before wearing out. However, they aren't rechargeable and are difficult to find at retail outlets.

I Must be Able To Make Basic Repairs: If you have repair ability, choose a strobe with accessible electronics. Eliminate strobes #3, 4, 7, 8, 9, 10, 11,

12, 13, 17, 24, 25, 26 & 27. Some of the strobes eliminated above can be opened, but more effort and tools are required. Warning: Don't work on electronics if you haven't had proper training—you could receive a severe electrical shock! Note: You can purchase a spare circuit board the sync cord for the Subsea Mark 150, and a spare sync cord for the Subsea Mark 100, and you can install all of these parts easily without soldering!

OTHER CONSIDERATIONS

After going through the fourteen requirements, also consider the following: how good is the company's repair record? Ask other photographers in your area. We've found that any given company can have a terrific record one month, and a poor record the next, often because they are awaiting parts. This may be more true if the parts must be imported, or if there have been model changes. Although any company can have a few dissatisfied customers, Ikelite appears to have one of the better repair records. We can't, however, base advice on our experiences because we suspect that some companies may give us favored treatment.

Before buying any strobe, ask the dealer what happens if something goes wrong. An aggressive dealer who stocks a particular line of strobes, has good sales and pays his accounts on time, may have the most clout with the manufacturer if you need repairs.

Because the state-of-the-art has advanced so quickly in the past ten years, today's strobes are much more reliable and have more features. The poorly-designed units have either been improved drastically or have been phased out. Thus, you are buying more for less money. However, these improvements can complicate repair—some of the electronic components of older strobes may be out of production.

There are several things you should consider when choosing an arm and bracket system: ● Can you attach and detach the strobe arm easily underwater for handholding? ● When handholding can you tell where the strobe is pointing just by the feel of the strobe arm in your hand? ● Can you attach a light

Nikonos SB-101

In the July 1981 issue of *Undercurrent*, we reported that the Nikonos SB101 strobe, while set on automatic, overexposes shots by roughly two f-stops. Nikonos has been working on that problem, but has yet to resolve it. Although top-side tests meet all specifications, as soon as the strobe is submersed the overexposure occurs.

The error can be corrected by closing the aperture two stops. Manual exposure guides are accurate.

meter to the system? (You will often need a light meter even with automatic strobes and the automatic Nikonos IV-A so that you can balance strobe and ambient light.) ● With a housed camera system can you adjust the arm with one hand to put the strobe in a variety of positions—especially for close-ups? ● Can you use a small arm, or can you use the strobe without the arm and bracket, for extreme close-ups with the Nikonos where protruding brackets reduce

maneuverability in tiny spaces? Can the arm system be packed in a normal size camera case?

If you have more than one camera—especially both a Nikonos and housed camera—make sure that you have a common, interchangeable connector system. Generally, the simpler the system the better the reliability.

The authors, Jim and Cathy Church, have written several best selling books on underwater photography.

Serendipity Of The Seas

Controlling Our Uncontrollable Urge To Collect

There's an ancient Persian fairy tale entitled, "The Three Princes of Serendip," so-named from the Arabic Sarandib, an earlier name for Ceylon, now known as Sri Lanka. The heroes of this tale possessed a gift for finding valuable things which they had not been seeking. I would like, in a similar manner, to draw together several gifts from the sea which we humans have so serendipitously discovered.

These include those aesthetic resources which serve to educate and enlighten us, but by their precious and desirable nature now find themselves in short supply. I include in this potpourri such collectibles as marine ivory products, seashells and corals, and more recently, marine fishes. And, as an extension from private collections, I include the public collections of living and preserved specimens in museums and aquariums. My concern with these matters is one of ethics, the answer for which must be based on biological grounds.

Man is, by his very nature, a collector, a trait which separates our species from most others. Each of us have at some time in our lives been collectors and most of us have a non-living or captive marine product displayed on a bookshelf or in a case, occasionally dangling around our neck or from a wrist, or living within an apartment aquarium. My own genesis as a biologist, I might add, was strongly influenced by a South Pacific sea shell given to me at a critical and early age. For better or worse, Uncle Earl captured my interest some 30 years ago with a Cuban conch shell. (Had he instead given me a Monopoly game, I suspect I'd be sporting a three-piece suit rather than a wet suit and fins.) Does this sound familiar to many of you?

Television and technology have irreversibly opened the aquatic world for the remainder of this century. Films by Cousteau and Giddings have an insatiable following. Scuba divers now exceed 2,000,000 in number and frequent formerly foreign outposts like Palancar Reef or Truk Lagoon by the jet load, each diver returning with some marine souvenir as a product of that urge to collect. Commercial collectors

annually remove more than 3,500,000 marine aquarium fishes from the Philippines. Tanzania ex-

"Commercial collectors annually remove more than 3,500,000 marine aquarium fishes from the Philippines. Tanzania exported nearly 300 tons of coral and shells."

ported nearly 300 tons of coral and shells. As supplies dwindle, new areas are assaulted.

As contemporary guardians of the fragile aquatic realm we must ask ourselves what has been the net effect of the removal of each mollusk or live fish from the ocean, only so we can enjoy it as a non-living or captive entity. If debated philosophically, agreement will occur at a rate comparable to the spreading of the sea floors and the drifting of continents. I prefer, however, to treat this as a biologist and underwater explorer and, on that basis, I can add a degree of predictability upon which we might all agree.

The solutions of this problem are multiple and complicated. In the case of marine ivory products, a ban or regulation on the taking of marine mammals is necessary to protect the herds of walrus or pods of toothed whales which cannot survive the pressure of modern fishing techniques. A ban has been slow in coming, but has nearly been accomplished worldwide. In America, the Marine Mammal Protection Act and the Endangered Species Act were devised toward that end.

The collection of invertebrates is another matter. Shell collecting in the tropical oceans is a growing industry, particularly in the Philippines and other southwest Pacific and Indian ocean islands. The prolific nature and reproductive strategy of marine gastropods is such that I doubt that any species will become extinct as a result of their removal—if the needs are understood and the process regulated. Biologically speaking, I consider them to be a renewable resource. True, large shallow-water gastropods such as the Triton Trumpet Shell have

become rare in localized areas due to overcollecting. But the gene pool has not been significantly reduced because of the vast expanses of uncollected and uncollectable areas within the tropics. Local collection, however, needs regulation. Protection of invertebrates in the California intertidal habitat became necessary due to the overzealous collecting of well-intentioned urban visitors and hordes of school groups. Tourism-dependent localities (such as Hanauma Bay, Hawaii, and areas along the Florida Keys) and resort operators with the foresight (such as those at Cabo San Lucas, Mexico) have banned all collecting, so that patrons with scuba and snorkel will find reason to return. Whether a marine creature is extinct only at a certain location or throughout the world's oceans makes no difference to the visitor deprived of that experience.

Crowbars and dynamite are commercially used to search for rare shells that inhabit the reef basement, thereby laying waste to vast expanses of shallow water coral reefs. Reef regeneration occurs on a time scale longer than our own and, for that reason, those ecologically reprehensible activities should be stopped and the offenders identified. Admittedly, it is difficult, if not impossible, to identify such ecological pirates in a foreign land, but a boycott by retail purchasers of all shells collected in that manner might force local collectors to police their brethren.

A similar and rapidly growing activity exists in the collection of marine tropical aquarium fishes. The improvements in equipment and airline transportation and the growing sophistication of the amateur aquarists have turned the collection of small and colorful reef fishes into a multimillion dollar annual operation, internationally involving hundreds of collectors and millions of specimens. Recent studies in Hawaii and Florida have concluded that because the species involved are short-lived, prolific breeders, and widespread, that most would not be threatened by the commercial or recreational aspects of the fishery.

Nevertheless, certain commercial collectors have shown absolute disregard for the environment through their use of chemicals such as cyanide or bleach to stun fishes and invertebrates. This activity is extremely destructive to the habitat of these animals. Again, I must remind you of the interconnectedness and fragility of the reef ecosystem and the many generations necessary for the wound to heal. It is my hope that the governments of these countries wherein such activities occur will increase their efforts to regulate commercial collecting activities so that these renewable resources won't be without a

habitat to reproduce in and return to.

Finally, I would like to comment on the role of aquariums, oceanariums and museums as educational centers about the marine environment. A small body of critics believe these institutions are detrimental to those living animals that are the captive subjects for our education and entertainment. On the contrary, I recognize the increasing role of reputable museums and aquariums in educating the public about the diversity of marine life, the effect of man-caused perturbations, and the fragile balance that exists. More than 180,000,000 Americans visited zoos, aquariums and oceanariums last year, and all, I am sure, thereby increased their knowledge of and appreciation for the world around them. The research activities of aquariums and zoos are unique in that their facilities allow behavioral studies under conditions which can best duplicate the animal's environment. As a result, the list of rare species bred in aquariums like in zoos, is rapidly increasing. Manatees, sea turtles, and a Beluga Whale have been successfully conceived and born in aquariums and will contribute to a dwindling gene pool once they have passed the critical early stages of their lives and are released to the environment.

What can be done about *Homo sapiens'* urge to collect? The solution, for the most part, lies in educating ourselves about the sustainable yield of these living resources. How many, of which sex, during which season, and at what size, may be taken so that enough will remain to populate the reef? Be they whales—none. Or the Chambered Nautilus, so that they might be bisected, polished, and made into bookends? Many, I suppose, but *how many* will require a careful investigation of their biology, reproductive potential, and the incidental detriment caused by the fishery.

To become an accredited scuba diver, a neophyte must take coursework in diving equipment, physiology, dangerous marine creatures, etc. I suggest that lessons in marine conservation be added to the curriculum so that along with his new tool for undersea exploration, the diver will have a sensitivity toward what is at stake.

In closing I must return to "The Three Princes of Serendip" and remind you that it was only a fairy tale—the living riches that abound in the sea are not endless and must be sensibly managed and protected if they are to endure.

Dr. John McCosker, the author of this article, is the Director of the Steinhart Aquarium in San Francisco. This article originally appeared in Naturalist Review, a publication of the Nature Company.

Undercurrent correspondents are located in the major diving areas of the world as well as on all coasts and major inland waters of the continental United States. The editors welcome comments, suggestions and manuscripts from the readers of Undercurrent.