

undercurrent®

THE PRIVATE EXCLUSIVE GUIDE FOR SERIOUS DIVERS

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DOUBLE HOLIDAY ISSUE

Micronesia, Part One:

Primitive, exotic diving, but for how long?

My initial curiosity about Micronesia as the ultimate area to dive is due to my own interest in the historic battle at Truk in which a powerful American air attack sent more than 80 Japanese vessels to the bottom. Wreck diving among the sunken ships and planes has held a great fascination for me, and I'm even more fascinated knowing that many of these ships have never been located, mainly because no one has looked for them.

The World War II wreckage sets the stage for the genesis of a new world, alive with magnificent South Pacific marine life which now obscures the once sharp lines of bows and pilot houses.

Yet, diving Micronesia means much more than wrecks. Its primitive unsettled islands provide the base for exciting underwater scenery, and extraordinary marine life. Fishing and spearfishing have not depleted the reefs. Tourists have not ripped off the coral and shells. It remains in most areas as it has been forever, unforgettable, because it is unspoiled.

But times, they are a changin'. Now, the Japanese are considering Palau as a base for its supertankers and perhaps as the site for a giant refinery to feed the energy needs of a hungry nation. I abhor politics but it may only be the politics of sanity that prevent the Japanese from ultimately destroying a tropical paradise that escaped destruction at their and our hands thirty years before. The more I read about Micronesia, the more I realized that I must go and I must go now. I denied myself more than one winter dive vacation to save for this trip, and I must report that the self denial, however painful, was indeed worth the weeks I spent in Micronesia.

Truk is but one tiny island in the whole of Micronesia which includes some 2200 odd islands and atolls, few of which are inhabited, and boasts a total population less than 150,000. Before I paid my airfare, there remained one question. On what islands could I find air? As I learned, the choices are sorely limited. Truk, Saipan, Guam, Palau and Majuro summed it up.

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Johnston Island and Kwajulain would likely make interesting diving, but both are off limits due to US Government restrictions on entry. Ponape and Yap are other possibilities, but there is no air on either island nor, as in the case of Yap, are outsiders particularly welcome.

Micronesia has either been ruled or administered by foreigners since the end of the century: the Germans, until the end of WW I, the Japanese until the end of WW II, and the United States since. The Department of Interior is responsible for Micronesia, and most government agencies seem represented. US visitors, as a result, represent not only the present government power, but a life style completely unavailable to Micronesians. Some animosity naturally exists, and it would be best for visitors to be aware of its causes and conduct themselves accordingly.

Most islanders seem addicted to Schlitz beer and betel nuts. I tried both and am addicted to the beer, but not the nuts. Yap produces the best betel nuts. At \$3.50 for a beer case full (they're several times that amount on other islands), they're accompanied by the green leaves of the pepper plant, an integral part of the betel nut chewing ritual. The nut is slit and the pulp removed (optional). It is sprinkled with a small amount of pulverized limestone and like salt (produced from fired, ground antler coral) and then wrapped in the pepper leaf. Into the mouth it goes and you chew until you're so full of bright red juice (Don't swallow!) you have to spit. The sensation was best described by a lady chewer who said the flushing and accompanying hot flashes were similar to menopause. Natives have used this from birth as a relaxant or pacifier. A bag of betel nuts (several to the bag) is a nice gift for your dive guide, maid or taxi driver. By the way, the drug is legal.

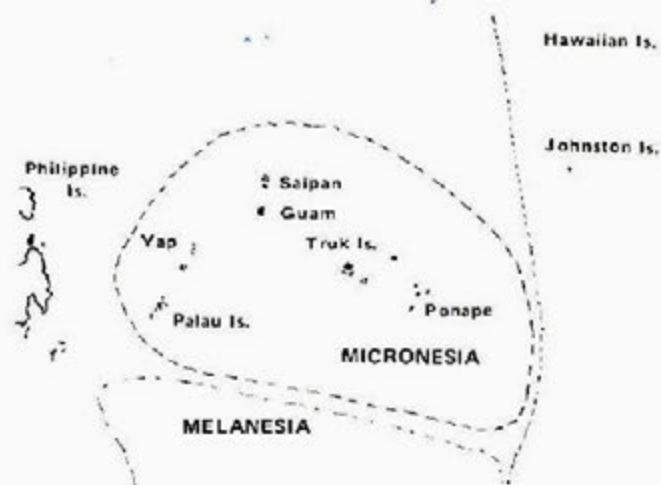
Beverage consumption licenses are required of everyone visiting bars. In Majuro a police officer was stationed at the door of the bar to check. Licenses can be obtained for \$2 - \$3 at the police station on each island or, if you're staying at the Continental Hotels, they're available at the desk. Each island requires its own license and they're good for 30 days.

But, I'm here to write about diving. So, let me begin.

MAJURO: Majuro is an atoll, the remaining rim of an extinct volcano that has sunk into the sea. Coral has built up most parts of the rim. With receding seas, portions now are above the water line and have developed soil. Its ellipsoid shape is mostly populated along the "long side", stretching 20 plus miles between the two largest villages. The airplane runway, which is fill, having been reclaimed from the sea, serves as a catch basin for fresh rain water which is then stored in tanks--the only source of fresh water. I did not know what to expect when I arrived, but I found the dark, robust natives to be quite reserved in front of strangers.

Although I had heard no one on the island ran a dive shop, I asked around and before my first day was over I discovered the Tropic Marine Export Company, run by O.K. Davis, an American in his thirties with the only accessible compressor on the island. After some gentle persuasion, he agreed to rent a tank to me and to two Canadians I had met on the airplane, but emphasized that he wasn't in the business and wanted to keep it that way. (On the other hand, he hasn't refused anyone either.) Through Davis, I hooked up with locals who dive every weekend: two Australian doctors, an American doctor and his son, the local weather technician, and a Marshallese girl.

I did a great deal of snorkeling on Majuro, but only a few tank dives with my new friends. Diving was often difficult. On one dive we struggled down a low cliff to the water, and then waded across a very wide and shallow coral reef to the surf line. Once we arrived Ray, our leader, decided that it was too dangerous to enter and we returned, loaded up, and drove to milestone #21. The problem was similar, yet we decided to tackle it. We dropped down a cut in the coral reef and swam past damsel fish, parrot fish, finally coming just within viewing range in this 90 foot-visibility water, of a white tip reef shark. For most of the group this was a regular undertaking and they quickly began collecting coral and shell specimens. For me, I was fascinated with the exaggerated relief of new and old coral growths. Small groupers and red squirrelfish peered from beneath ledges and dark recesses. A good variety of reef fish prevailed. The area was covered with small representatives of the giant Pacific clam, royal blue starfish, anemones and urchins.



This was my first dive in the unspoiled Pacific since I'd been in the South China Sea, off Vietnam, on the infamous Tiger Cage island of Con Son. Con Son revealed greater marine life than Majuro and, as my trip proceeded, I concluded that for the diver with limited time, Palau and Truk are indeed superior.

I learned here, on Majuro, that through Micronesia, there is no such thing as public land. Somebody owns it. Always ask if you can camp on their property. English is the common language and you shouldn't have any trouble gaining acceptance.

Food and Lodging: My first night in Majuro I stayed in the Ajidrik (\$14 single) and found it worth the tab. The other hotel, the Eastern Gateway, charged about the same, but I had gotten a report of theft from a traveler staying there, so I didn't take the chance. By the way, theft is a problem throughout the islands. Don't leave any items unattended.

There are two restaurants within a few hundred yards of the Ajidrik, Whitney Brothers and another in the Arco shops area. Bacon and eggs breakfast at the Brother's ran \$2, and typically I would have a moderate priced oriental dinner at the Arco. Islanders have gotten further and further away from providing all their own food and most is shipped in. Their former diet of fish, coconut, taro and fruits has been replaced by rice, canned meats and beer. Fish is still caught, but little or none for the market. Majuro is not geared for tourists, which obviously guarantees a primitive setting.

GUAM: From Majuro I flew on to Guam, the flight taking the better part of the day. The population of 50,000 is supplemented by 60,000 service connected personnel. Because I was in Guam on business other than diving I stayed some time and got to know many people well. There are three dive shops and I finally decided on the Coral Reef Marine Center, which is large and has the local reputation of being a somewhat impersonal business. It turned out to suit me fine. The International Divers Association has a reputation of more a "family" approach, while Marianas Divers, which has been there for over a decade, has become rather "unstylish" among younger divers. I took a photo course from one of the two instructors, Mitch Warner, and gave classroom assistance to the second instructor, Annette Donner, a real crackerjack instructor and guide.

I mixed my dives in Guam, between boat and beach dives, but remained on the south end of the island where the best diving is located. Gab-Gab Beach, near the naval station, is easily accessible. On the right end of the beach silt covered old coral growths, but closer inspection showed small marine life in profusion--tiny fish that seemed never to stray more than a few feet from their birth places, and a proliferation of cowries and cones that was nearly unmatched. Visibility ran about 60 feet, apparently average. At the other end there was some profusion of coral and a few fish worth spearing. A couple of hundred yards out, past the distant surf line, we found excellent unbroken coral and a great abundance of tropicals. It was worth the swim. We later dove Reso Beach and Park, and judge the areas roughly similar.

Numatec is the sight of a sunken Japanese Zero in 55 feet of water, but it affords a good cross section of both fish and coral life as well. Beneath the craft live four excellent specimens of scorpion fish, which I learned are always there, waiting for the camera. The plane is up right, almost entirely intact. I felt somewhat intruded upon, during this dive, by the several dozen Japanese tourist divers who joined our charter boat arranged for by the Coral Reef. As soon as we located the Zero, the Japanese hit the water like a bunch of lemmings and with just about as much organization. There were soon batteries of flash bulbs popping as pictures were taken of everything and nothing. Afterwards, the sea was filled with floating blue bulbs, as if a new species of Japanese Man 'O War.

Although Guam surely is worth diving if you happen to be there, it does not compare to the islands left on the itinerary. Guam is expensive, food particularly. Rates at the Hilton Continental start at about \$35/single, so I stayed at the perfectly acceptable Guamerica Inn for \$18.00, with pool. Hotel breakfast ran about \$2 to \$4. The best dinners in town are at the Japanese style restaurants in the hotel row, but these are expensive: \$12 - \$15 per person. You should try them at least once. Unfortunately, The Colonel and MacDonalds can be found here too, although for fast food I preferred the Ukatory JJ. National appears to have the best car rates with acceptable maintenance.

PAIAU: My next stop was Koror, Palau, in the Western Caroline Islands. The arrival by air is marked by the most spectacular combination of water and island colors to be seen in the entire Micronesian area. The so-called Rock Islands have a unique configuration that gives them the look of mushroom caps floating on the blue sea. Many are steep-sided with no beach or boat access. All are carved from ancient sea bottom limestone deposits. There are several hundred such islands within Palau's reef, but the two largest, Babelthuap, and the smaller, Koror (on which the capital and only city is located) are the two that support the majority of the 14,000 residents.

From the small, thatched roof hut airport buildings, it's a \$2.50 ride to the two major hotels in town, the Continental and the Royal Palauan. The former is \$32/day, the latter about half, but the difference is noticeable. The Continental has a boat ramp, whereas the Palauan has none and is located in the center of town. From the Continental, an inexpensive taxi ride will deliver you to Bena Sekuma's Micronesian Divers.

In Koror you're not limited to hotel living; renting an apartment or living with one of the local Palauan families may be very functional. If anything is available, Bena will be able to find out. Hotels, however, provide the only hot water in Koror and are free from limitations on water hours.

DIVING: Bena's shop is located near the new copra processing plant, directly across from the Palau Fishing Federation. Bena has a good stock of rental gear and a limited supply of new equipment. You're apt to meet Tony at the shop--he

does the bookwork--and Jacob (Jake) and Roman, boat drivers and guides. Although a tank and pack run \$3.50, the standard fee for a 16 foot runabout is \$70/day and the minimum charge, regardless of group size, is \$25, plus equipment rental. Needless to say, for less than three divers, the cost per diver is a bit high. The boats are equipped with 100 HP motors, so the 20 to 30 mile trips to various spots are fast.

For my first dive, I took advantage of a group rate that occurs when a group of tourists arrives and Bena must rent the local Public Works Department's 30 foot diesel. Since the tourists were not divers, I was assigned to Jake who was out to feed the sight-seers. Picnic Island describes the spot, but the Palauans call it Ngermeyaus. I fell from the boat into six feet of water and was met by a meadow of antler coral, untouched and unbroken. Jake, his sun-bleached lion mane of otherwise black hair billowing behind him, took off down a 30 degree slope to 90 feet, cocking his handmade Palauan spear gun as he went. At ninety feet the terrain flattened out, with stalks of sea rope rising from the grey silty flats. Rock outcroppings speckled the bottom offering habitat for the groupers and Sweetlip Porgies we sought. In five minutes Jake had half a dozen fish totalling 30 pounds. I noticed a white-tipped reef shark above us eyeing the catch, and nervously alerted Jake who never gave it more than a glance. Within seconds after this discovery, we were ensnared by a school of 3-4 foot barracuda, their unblinking eyes never moving from us. Jake charged the school, spearing one, which turned out to be the best tasting fish of the lot. Although we returned to this area several times, the less than 50 foot visibility created by strong tidal flows did not make it a good area for photography.

The next day Jake and I set off alone to a close-in spot ten minutes from the shops dock, marked by the wreck of a pre-WW II Japanese fishing boat in the middle of a "V" shaped channel at 85 feet. Again, we speared several 5-10 pound groupers, and Sweetlipped Porgies.

The largest sharks (8-10 feet) are generally seen outside the reef. Only one incident has been reported in several years, involving a non-fatal shark attack on a Palauan in shallow water after the shark had been aggravated. Locals believe the shark was female and about to give birth in the shallows. Some near misses have been recorded lately, but these involved photographers attempting to photograph sharks in a feeding frenzy by chumming the waters. If you are spearfishing, and Jake invariably does, you can expect nosy sharks. My experience is that you can trust well the judgement of Bena and Jake, although Roman seems less attuned. There are no reports on barracuda incidents.

With a group of American tourists, we visited the "blueholes" about 25 miles by water. Forty feet below the surface is a window opening into an enormous underwater cathedral, rising 20-30 feet above the window. There is a cave 90 feet into the side of the cathedral floor and chimneys leading to the surface. If one exits the bluehole in this manner, he finds himself in five feet of water sitting on the reef itself. An endless parade of all sorts of reef fish imaginable--I've seldom seen such a display of variety and color--inhabited the outside, but disappeared as we entered. A dim, bluish-green hue fingered down from the three holes above. Sea rope snaked down from the ceiling and with the severely limited light we were all on edge. Resident sharks were known to inhabit the place and we would be upon them before we could see them. I located a beautiful lionfish on which I used up 10 shots and, yes, I got my perfect photo. We stared back through the window and watched Jake shoot a 20 pound grouper outside the hole, and well below us. The visibility was easily that magical 150-200 feet I had heard about. A seven foot blacktip cruised about, and a dozen 6 foot barracuda shot by at breakneck speed.

For our second dive, shallower and down the reef, I got a true sense of a

"great wall", for here if you drop your camera it will tumble down some 2,000 feet before it settles on the bottom. It is a beautiful and stunning wall, with three to five foot sea fans, black coral bushes beginning at 70 feet and one mysterious magnificent spherical coral formation nearly ten feet in diameter and almost perfectly round. In the nooks and crannies were squirrel fish, red snappers, porgies, groupers, angel fish, butterfly fish, batfish and fish I had no idea existed. In one of several dives here I suddenly came across a scowling countenance protruding from behind a rock. We startled each other and a three foot sea turtle broke for the open. After we played "toss the turtle" for a while, he swam away undaunted. Of course the inevitable black and white tipped reef sharks nosed by, and on one dive we spotted a Tiger shark and on another a grey, but they paid little attention.

Chandellier Cave provided one of the most interesting and spooky dives I made on Palau. It's less than a ten minute boat ride from Bena's shop. The cave entrance is in 15 feet of water, a rough circle, 10 feet in diameter, which breaks into four chambers, each at succeeding lower depths. Each of us had one light and a "Cyalume" chemical light and connected ourselves by rope to the outside of the cave. At the top of each channel are trapped pockets of air several feet high. I found that my sealed-beam Ikelite did not penetrate the water as it had before, then discovered clear water turbidity due to variations in the temperature and salinity. Nothing lived in the cave other than us intruders. We surfaced in the first airpocket and I noticed an uneasiness on all divers faces (mine included). Stalactites hung from the ceiling of each cave. An incautious diver surfacing too quickly could find himself impaled by the tips which protrude below the surface. In the third chamber we climbed out to rest, tired from the nervous energy expended by us novice spelunkers. I was overcome by the mystery and excitement of this dive, one of my few legitimate cave dives; don't miss this one while on Palau.

For the fish lover and photographer, one need never venture below thirty feet on Palau to find unblemished gardens of antler coral or all other varieties swarming with every imaginable reef fish of the South Pacific. I had expected my dives to concentrate on the simple beauty, but found after spending time with the basics I sought the greater thrills. At a point just east of Babelthuap, where it is separated from Koror, we hit the water and immediately Jake chased a school of barracuda, spearing a three and a half footer. I moaned every time Jake did that because we would inevitably be visited by an inspecting shark. As quickly as the first school of barracuda had come and gone, a second of at least 150 completely engulfed me and my buddy, swirling around us like a passing dustdevil, then disappearing as fast as they had come. We traveled down a coral wall that turned into a barren landslide, then were suddenly hit by a downswell. We grabbed each other and fought the angle back to the protection of the slope. Surfacing through the current was a struggle for us, but not for the hundreds of passing fish. Then, the predator that Jake had inadvertently called arrived--a 7 foot black tip. He saw us, turned, bending his body in half at such an angle that his head was pointed 180 degrees from his tail. He circled around for what I thought might be an approach from the rear, but then ambled off. That bent body, in my mind's eye, the first step of attack, caused such a surge of fear, that I was exhausted for the rest of the day. In this dive I found more action than I sought.

Finally, I should mention that I have not described the numerous "standard" dives I took in Palau, filled with reef fish, 10, 20, and 30 pound game fish, and unspoiled coral. The possibilities are endless. But so is the excitement. On one dive off Picnic Beach, we rode the current for several hundred yards (at about 2 knots/hr) with the boat driver following our bubbles. Some fish scurried with us, while others swam against it waiting for passersby. On the boat ride back we soaked in the hot sun and marveled at the blues of sky and sea surrounding the lush green foliage of the islands. I wondered how it would be to live on beer and betel nuts for the rest of my life.

Food and Accomodations: I stayed at the Continental and found it pleasant. Food is expensive and gets boring after several days, a function of frozen food and menus prepared months in advance. There is little in the way of local food, but the Sunday night Palauan feasts--taro root, several Japanese dishes, local fruits, chicken, pork, sashimi (raw fish marinated in soy and green horseradish) and sushi for \$8.50 was outstanding. Plan to eat lunch on your dives with Bena and Jake--speared fish baked, raw clams, occasionally a lobster up to ten pounds and baked on an open fire under green leaves. In town, don't miss the yellow fin tuna sashimi at the "Carp".

Car rental is expensive--you're better off using cabs. Or hitchhike. Everyone does and drivers may even stop when you don't have your thumb out. They do not expect pay, either.

NEXT ISSUE:

In the next issue we'll describe diving at Truk and Saipan and discuss in detail how to make arrangements for your trip. For those with less than three weeks, we recommend Poseidon's package dive tour available through the Under-current Travel Club. There are too many possibilities for missed connections, dive boats out of operation, and other hangups to organize it any other way for a short duration. For those with more time, there are other alternatives. (J.L. 8/76)

Palm Beach, Florida:

A sure stop en route to the Keys.

It seems a bit surprising that with the number of divers from all parts of the country who head to the Florida Keys each year, that Palm Beach is not overrun with the overflow. But it's not. The reason perhaps has to do with the nature of the American culture: set your sights on the goal and proceed hell bent for it, ignoring whatever there is to see along the way. So divers speed down the highways of Florida, without thinking twice of the byways, and most don't even know about Palm Beach.

But, they know the Keys are there, even if they get bored with the sameness of diving, with the daily 30 foot dives in similar spots with similar scenery, sometimes better, sometimes worse, and then speed home, wishing for more, suspecting it's there, but not knowing where.

Boing! "Try Palm Beach", said the man, with the light bulb over his head, symbolizing a bright idea. It's about an hour and a half north of Miami. There are three dive shops (actually some of the shops are next door at Riviera Beach) with boats going every day possible, and, guess what, it is not like the Keys! Or, at least every dive is not like the Keys.

Why?

There are greater depths. There are bigger fish. Best of all, there are wrecks.

"And for all these years, Harry, we've been driving straight through. Now, I told you we should take our time and drive down the coast, but you're always the one to be in a hurry. See what we've been missing. It's your fault. Now, if you had only listened to me....."

So, listen to her next time Harry, for I'm going to tell you about Palm Beach, that indeed it is worth a stop on the way to the Keys. Probably not a special trip all the way from Dubuque, but certainly a stop on the way. And, if you're down from New York visiting your aging great grandmother or in from Lost Angeles on business, you might drive up here, rather than drive down there. Try it. You'll like it.

The forthcoming months of January and February seem to produce the most rain for the Palm Beach area, although the diving is still available during this period. Heavy seas may curtail diving for an afternoon or a day, but the boats get back in operation quickly.

Novice divers will be in safe hands at Palm Beach, but many dive sites are more suited for divers who have logged a few ocean dives before. Right off shore runs the Gulf Stream which means that many dives are taken in a 2 knot current -- sometimes greater. Most of the time divers have to descend on the anchor line to be kept from being pulled from the dive site, but once on the bottom the current subsides. The Gulf Stream has its advantages, one being that a few species of fish which are uncommon in other Florida areas may pass through.

You're best off with at least your wet suit top in Palm Beach, even though water temperature ranges between 68 and 83 degrees. Many divers even prefer the full suit for exploring wrecks. Most diving is done in depths between 40 and 80 feet, unlike the Keys where nearly all dives are in 30 feet of water and sometimes 35, if your depth gauge is dragging through the sand.

Visibility averages 50-80 feet, but 100 foot days are not uncommon. We heard stories from several divers who, when standing on the fo'c'sle of the Mizpah (one of three ships sunk in 1969 and 1970 for the purpose of creating an artificial reef) were able to see the sunken naval patrol craft resting at the stern of the Mizpah. That's 190 feet.

So, Palm Beach is generally a good stopover for diving, but the more significant question is who should you dive with. Good diving is as much a function of the boats and the guides as is the underwater terrain. As you will see, we have but one recommendation.

Franks Tackle and Dive Shop, 325 E. Blue Heron Blvd., Riviera Beach, Fla., 33404, 305/848-7632. I made two attempts to dive with this shop, one in the summer and one over Thanksgiving, and neither was successful. The first time their dive boat was out of the country. Over Thanksgiving was a different story.

Frank's operation is really for the meat hunters. Frank Jr. (son of owner Frank Hammett) responded to my inquiry that I was interested in diving, by opening an album of photos of speared groupers, sharks and anything else they could poke and proceeded to tell me about how great the spearfishing was and how great spearfisherfolk they were. Since I have absolutely no interest in spearfishing, I was not impressed and they were not making a sale. As the discussion proceeded it became apparent that the dive business was a sidelight. They spearfish from their boat, nearly daily, and peddle their catch to the local restaurants at 80/90¢ a pound. I got the clear impression that diving with Frank's operation is "everyone for himself", and that's not what I want in unknown waters. When it came time for the dive, high seas forced its cancellation. I was not disappointed.

Expect little attention to your own needs at Franks. His operation is only for armed divers. My hunch is that if you are not experienced and want

the attention of a guide, you may not find it here. I've seen the rapid demise of Florida reefs. I'm aware of how twenty years ago fish were not afraid of divers, while today they are often unapproachable. I consider spearfishing in Florida waters a contributor to what will eventually become a mummified reef. Frank made the point that its "the commercial boys" who are killing the reef. Sure, they have to accept some of the blame. But then, it's always easier to point the finger at the other guy without taking our share of the responsibility. Frank, himself, realizes this, but it's his business. Just as it's the business of the commercial fisherman. There must be a better way.

Colonnades Undersea Center, 2525

Lake Drive, Riviera Beach, Fla. 33404, 305/844-5291. The Colonnades keeps their two 25 foot Trojan inboards right in front of the shop, so there is no problem in getting equipment from the shop to the boat. They have their own compressor and full gear for 12 divers. Dives are scheduled at 10 am and 2 pm, but like all Florida shops call ahead for reservations and to verify that the boat will be running. With all of your own equipment the dive is \$10, \$14 if you need a tank and belt, and \$20 with all gear.

The two store managers present, Rich and Rudy, showed no interest in signing me up for diving, or telling me about their operation. They were more interested in the two attractive ladies who were hanging out, and didn't bother to ask for C cards or whether we were even certified. I was unimpressed and nearly didn't dive here.

But then the guide, Larry, rescued the operation. He would be a credit to any dive shop by whom he was employed. He was a courteous, communicative and an interested guide, well acquainted with the undersea sites and wanting to share his enthusiasm with his charges. Unfortunately, he left to become a fireman.

Larry took us to the breakers, an area of three reefs varying from 40 to 85 feet in depth. I was impressed with the great number of angelfish in this area, blue and queen being the most common, and occasionally gray and french wandering through. Most are about a foot in diameter, are not afraid of divers, and seem quite willing to pose for the camera. A number of nice parrotfish were munching about--blue, yellowtail and queen--and hogfish and reef butterfly fish. The highlight of the dive was a large scorpionfish which several divers got to say "cheese" before it moved away. All in all, a pleasing dive.

Even though Larry has left, we recommend The Colonnades as a back up to:

Norine Rouse Scuba, Inc., 142 Lake Drive, Palm Beach Shores, Fla. 33404, 305/844-2466. Just walk into this shop and you know you're among friends. Affordable men and women greet the visiting divers and make them feel entirely at ease and at home. You won't find better vibes anywhere.

Noreen Rouse (rhymes with "house") is a legend in the U.S. diving industry.

THE BUDDY

The Buddy, a travel newsletter for divers, has decided to call it quits after publishing several issues. *Buddy* subscribers are now receiving *Undercurrent*.

The travel reviews of *The Buddy* were candid and forthright. Similar to *Undercurrent*, *The Buddy* took no advertising or favors for its stories. If you have plans to visit any of the areas for which back issues are available, we suggest that you order the appropriate issues through *Undercurrent* (P.O. Box 1658, Sausalito, California 94965). They are priced at \$1.25 each and cover:

Negril, Jamaica
San Juan, Puerto Rico
Cancun, Mexico
St. Lucia, West Indies

As a writer, conservationist, instructor and guide, she has made a substantial contribution to sport diving. She is adamantly opposed to spearfishing; she has seen the reefs in her own back yard decline rapidly at the hands of other shops and divers. The shop wall is adorned with spearguns she has collected and if you turn in yours to Norine, she'll reward you with a free boat dive. That's action, not lip service.

Now, if you are about to say this is a candy-ass operation, forget it. Norine calls it a shop for "diver's divers, not resort divers", and she is right. Most of her trips are not for the faint hearted, for the novice, or for the lake diver making his first ocean venture. They are indeed safe -- she herself is a first rate guide, as is Barry Parker and others who work with her -- and handle novices exceptionally well. But the current. Well, it's a trip.

I have dived the wrecks more than once. The surface current nearly always runs about two knots, so descending by the anchor line is necessary. On those days when it reaches three or four knots, I find myself spread-eagle, hanging on to the line with all my strength, fluttering as if a flag on a pole. But once on the bottom the current ceases, and a tour in, around and through the sunken vessels is as good a wreck tour as you'll find (except that all the goodies were removed prior to sinking the vessels). There is a nice variety of fish around the ship: schools of porkfish and grunts, coney, hinds and groupers, and occasionally a moray tries unsuccessfully to intimidate intruders. It is not uncommon to spot a stingray, a loggerhead turtle or a nurse shark, and if you look toward the surface, amberjack, barracuda or jacks can be spotted. Divers sorting through the sand around the Mizpah, the naval patrol craft, or the nearby Greek ship Amaryllis, occasionally find sharks' teeth. By the way, the guides are well trained in current diving and by following their lead you can expect no trouble during the ascent or descent.

I took another dive with Norine at the "Double Ledges", a reef area in 80-90 feet of water. The reef is similar to Caribbean reefs though not as expansive. Noticeably absent are the tree corals, staghorn and elkhorn, but brain coral, carnation coral and soft corals are seen frequently. Sea-whips and fans grow on the reefs along with multi-colored sponges. When we were diving we saw lobsters everywhere, but it was out of season. As soon as the season begins, their intuition takes hold and they disappear.

Norine Rouse and guides try to run four charters a day on weekends (9 am, 11 am, 1 pm and 2:30 pm) and two Tuesday through Friday (in the morning at 10 am, but the afternoon dive is variable). Monday is dark. Of course, one should always call ahead to avoid a filled boat or a trip cancelled due to inclement weather. Night dives and deep dives (150 feet plus) may also be arranged. There is plenty of rental gear and a typical "resort course" in the pool to introduce one to diving is \$10. For \$21 an ocean dive will be included.

One can become a member of the Norine Rouse organization for \$40 a year (\$10 annually thereafter). That fee provides roughly a 1/3 discount on all rentals and dives. It's a bargain for locals. Of course a C card is required, but on one Thanksgiving visit divers were asked only if they were certified, not asked to produce cards. An oversight, we trust. Regardless, the shop gets an A+ rating.

There are many other spots to dive in the area, all at varying depths. The quality of Florida diving does not match many Caribbean spots, but then no one claims that it does. It's beauty is that it is accessible to many Ameri-

cans, that for those on a limited budget it provides an excellent substitute.

So, Harry, pull over on your next trip. There are plenty of Holiday Inns, Quality Inns, Sheratons, MacDonalds, Denny's and all the pleasures of home. Better yet, it is a change of pace from diving the Keys. You'll dig it.

Divers Compass: In keeping with the need to conserve Florida's undersea landscape, please reserve your collection of souvenirs to the non-living. . . There are a number of inexpensive car rental agencies which can be located in the Miami Yellow Pages; you can save at least one third. (KE/SM)

Readers' Wet Suit Survey:

The facts about wet suits from 1000 divers.

Is there a difference between wet suits? Are some warmer than others? More durable? More comfortable? Can one keep warm with an off-the-rack suit? Does nylon affect warmth? Should you get a Farmer John? Is a custom suit worth the added cost? What about zippers; do they really affect the warmth? When you're ready to purchase a suit, any shop will answer these questions for you.

But the shops get their information from three sources: their own experience, hearsay, and the manufacturers. Thanks to nearly one thousand *Undercurrent* readers, we've been able to go a step beyond.

Best Data Comes from Divers Themselves

The readers who responded to our survey provided a wealth of information which supports most of the conclusions each of us may have drawn. And as well, it supplies a few important twists. We believe that for assessing certain pieces of diving equipment—wet suits are a prime example—the best and perhaps the only valid form of data comes from divers themselves. We believe that the three most important variables to consider when purchasing a wet suit are warmth, durability, and comfort—three bits of information that only users can provide.

Information derived from the reports of 1000 divers who brave the icy lakes of Minnesota or Wisconsin, run rivers in Washington State, wreck dive off the coast of New Jersey, dive daily in the Keys, or scramble down cliffs in Northern California provide a pretty fair picture of how specific brands and specific wet suit features compare for warmth, durability, and comfort. To those divers who participated, we offer our thanks for making a substantial contribution to understanding how wet suits function.

We have decided to present specific information on six brands of wet suit for which there were a specific number of responses. They are:

- Parkway (139 users responding to the survey)
- Imperial (129)
- Bayley (113)
- U.S. Divers (112)
- Harvey (92)
- White Stag (68)

Our hunch is that these manufacturers represent up

to 75 per cent of the wet suit business. We will also comment on Delmar and Seasuit, but because of the low number of respondents using these suits, our conclusions can be only speculative.

We will then discuss wet suit characteristics—attached hoods compared to separate hoods, Farmer John-style versus high-waisted pants. For this information, we tabulated the data from all usable questionnaires that were returned, including those reporting on minor brands of suits. Some of this last group seem to be a "one only," manufactured by a dive shop that was in business for less than 30 days. Others have substantial local reputations. Just a few of the names showing up were Marvel, Body Glove, Diving Unlimited, Atlantic, the national mail-order concern Central Skin-divers (Honest Archie), Dino-Hide III, Merl and Bess, Santa Barbara Divers Den, Skin Diver, and Ocean Peril. Give yourself an "A" if you have heard of five or more.

The Major Suits

The typical suit in our survey is about three years old and has been through 100 dives. From the outset we recognized a problem which requires an explanation. Many of the manufacturers are continually changing their production means, usually to increase the quality of their product or to economize where possible. A company producing suits today generally manufactures them in a substantially different manner than it did three years ago. Not only may a company have changed the procedure for glueing and sewing seams, or altered the patterns for better fit, but the company may also have changed the rubber product it uses, either by switching manufacturers (of neoprene) or altering the grade of rubber it purchases.

The problem of neoprene differences is the stickiest. Wet suit manufacturers change from one company to another and may use neoprene from more than one supplier for different suits they produce. Furthermore, neoprene is supplied in varying grades. Although the best suits tend to be manufactured from top-of-the-line rubber, wet suit makers may either upgrade or downgrade the quality of rubber they purchase. The consumer is informed neither of the grade of rubber nor of changes in the grade. Of course, each neoprene

producer considers his product superior to the others; and, of course, so does each wet suit manufacturer, claiming the rubber he uses is superior to the rubber used by others.

One brand of neoprene takes a few more knocks than others—that being *Turbo*, which is produced by Sato Chemical Co. of Kobi, Japan. *Pacific Diver* (June, 1976) reports that most manufacturers believe Turbo to be inferior, primarily because its production process (it's "chemically blown," rather than "gas blown") is inferior.

However, Imperial has used Turbo for more than four years and, as we'll describe later, Imperial gets high marks for its product. Imperial national sales manager Nik Salmela says that Turbo has excellent consistency (a problem with some neoprene) and adheres to nylon better than others. Salmela adds that top-of-the-line Turbo is more expensive than other locally produced neoprene, but that the company will continue to use it. "Frankly, we're quite pleased," he said.

The anti-Turbo feeling may be more the result of a "Buy American" attitude than anything else. Salmela agreed with that theory, then pointed out that Imperial ships U.S.-produced chemicals to the Turbo manufacturer for the production of the neoprene. "All they do," he pointed out, "is put it together—with our chemicals."

Without hard data to support our hunch, we suspect that the neoprene used in top-of-the-line suits by each of the major companies is roughly comparable. Besides Turbo, other neoprene used in the major suits comes from Rubatex (used by White Stag; used in some of Harvey's suits; and used by Parkway, a subsidiary of Rubatex), Kirkhill (used by U.S. Divers and by Harvey in other suits), and St. Albans (used exclusively by Bayley because, as Bayley spokesman Carl Rector says, "it's of higher quality and is warmer due to lower water absorption.") Grady Fort, of U.S. Divers, would agree with the assumption of comparability. He told *Undercurrent* that "the average diver probably can't tell the difference between [brands of] rubber." A diver's sensitivities just aren't that finely tuned.

Do These Changes Affect the Results?

To shortstop criticism of the survey based upon frequent manufacturing changes, we should note that wet suit manufacturers don't indicate that the top-of-the-line suit is warmer or necessarily more durable than their cheaper suits. Or that this year's model is better than last year's. Nor, do they necessarily tell you about changes in neoprene between suits. Rather they tend to advertise the extras, implying that all of their suits are better than those of their competitors. It's up to the diver to ascertain the difference.

Our survey should help. It demonstrates the overall reputation of the products sold by the six companies over the past two to three years. Those that produce a consistently fine product will most likely get higher marks than the company that ends up with a batch of bad rubber on its hands, but still produces suits. That,

by the way, has happened.

The results suggest which companies and which suits are the best bets today, and most likely will remain the best bets a year from now. Laggards may improve, and leaders may fall behind. In the meantime, we'll show you where we're putting our money.

How Different Brands Rank

Let us now look at each of the individual suit makers, listed according to their rank in the survey.

1. **Bayley:** The typical Bayley suit in this questionnaire is 1/4" nylon II (nylon on both sides). The jacket has a detached hood, and only a front zipper. The pants are Farmer John-style, with no zippers. The seams are glued and sewn and are sealed with tape. Ninety per cent were custom made, and a majority had knee pads and spine pads. The suits are less than three years old and have been used between 50 and 100 times.

Bayley made an impressive showing, rating first in four of five categories on quality. Of the divers using a Bayley, 36 per cent indicated that they had no problems, while another 36 per cent (in our opinion, too many) said that the stitches unraveled. As diver Lucinda Somerville of Tucson, Arizona, commented: "The Bayley suit began falling apart after two dives!" Bayley ought to pay more attention to this problem.

Bayley is one of the more expensive suits on the market. With the addition of extras, a custom suit can run over \$300, although an off-the-rack model will cost roughly \$120. Martin Dunn, of Long Beach, New York, who responded to the survey, said "Bayley is far and away the Brooks Brothers of the wet suit fabricators." The rating received from users seems to support Dunn's opinion. Those who spend top dollar for their wet suit seem to believe that they get what they pay for.

Percentage of Bayley Users Experiencing Problems

Stitches unraveling	36%
Nylon tearing from sharp object	25%
Seams separating	14%
Zippers breaking or sticking	13%
Rubber tearing from sharp object	12%
No problems	36%

2. **Imperial:** The typical Imperial was a 1/4" nylon II with glued and sewn seams, but not sealed with tape. The jacket has a detached hood with zippers on the front and on the arms. The pants are Farmer John-type with zippers on the legs only. More than 90 per cent were custom-made, with spine pads and knee pads. Most suits are less than three years old and have been used fewer than 100 times.

Imperial finished a strong second behind Bayley. It was second in three of six categories, and led in warmth—perhaps most important. Its most significant problem is the same as Bayley's; 35 per cent of the divers reported unraveling of the stitches which, according to L. Campbell, of Marina del Ray, California, "has been a source of constant problems since the

purchase." On the other hand, 37 per cent of Imperial users experienced no problems, and generally Imperial scored well. In fact, Richard Curtis of Sand Point, Ohio, typifies most of these users by saying: "The top-of-the-line Imperial has given me super service—I've got at least 250 wearings and it's just starting to go."

Percentage of Imperial Users Experiencing Problems

Stitches unraveling	36%
Nylon tearing from sharp object	16%
Zippers breaking or sticking	16%
Seams separating	14%
Rubber tearing from sharp object	14%
Rubber tearing while dressing	11%
No problems	37%

3. White Stag: White Stag suits are typically ¾" nylon II. The jacket has a detached hood with front zipper and arm zippers. The pants are Farmer John-type with leg zippers only. The seams are glued and sewn then sealed with tape. About half were custom made and the other half were purchased off the rack. Most have no pads, are less than two years old, and have been used about 50 times.

An important variable influences White Stag's position: those reporting on custom-made suits rated their suits higher than those rating off-the-rack suits (as would be expected) and, in fact, the custom-made suits rated very close to Imperial and Bayley. Typical of the responses was Michigan diver David Gasset's comment: "The suit is holding up very well. The nylon II doesn't snag easily and is showing little wear. This is one of the best off-the-rack suits I have seen."

A second variable which affects White Stag's rating is that it is a relative newcomer in popularity. Thus, the suits in the survey had been used much less than others. That fact may account for the brand's finishing first with the fewest problems (41 per cent of the users experienced no problems, a figure similar to Harvey). Our hunch, however, is that the White Stag custom nylon II can be judged roughly equivalent to the Bayley and the Imperial.

Percentage of White Stag Users Experiencing Problems

Stitches unraveling	21%
Rubber tearing from sharp object	15%
Zippers breaking or sticking	13%
Nylon tearing from sharp object	13%
Seams separating	12%
No problems	41%

4. Harvey: The typical Harvey in our survey is ¾", with an equivalent number of nylon I and nylon II. The jacket has a detached hood with a single front zipper. The pants are Farmer John-style, with no zippers. The seams are glued and sewn, but not sealed. Most often the suit is custom made (80%) with knee pads. The suit usually is less than three years old and has been used between 50 and 100 times.

Harvey finished fourth, and in no individual category

of quality did it finish higher than third. However, it tied with White Stag, at 41 per cent, for the greatest percentage of users experiencing no problems. One reason, of course, is that nylon I just doesn't have the strength of nylon II. This fact was pointed out by Kurt Sanderson of Kalamazoo, Michigan, who said: "The rubber on the outside rips too easily, but the two-sided nylon is excellent." Regardless, a review of the nylon II questionnaires alone indicates that the Harvey custom suit would still fall into fourth place, but the difference between Harvey and Bayley would be much narrower.

Percentage of Harvey Users Experiencing Problems

Seams separating	21%
Rubber tearing from sharp object	18%
Stitches unraveling	17%
Nylon tearing from sharp object	13%
Nylon separating	12%
Wearing out from back pack (tank pack)	11%
No problems	41%

5. Parkway: Parkway suits are ¾" nylon I. The jacket has a detached hood and zippers in the front and on each arm. Pants are high-waisted with leg zippers. The seams are glued and sewn, but not sealed with tape. The suit typically is purchased off the rack (about 80%) and is without pads. The suits tend to be less than three years old and to have been used for between 50 and 100 dives.

Parkway rated fifth in all but one category. Because most of the suits were nylon I, unlike those produced by the four manufacturers rated ahead of Parkway, a comparison can be misleading. It should be noted that a Parkway nylon II suit would rate higher; yet it would remain in fifth place.

Apparently, Parkway no longer makes custom suits. Its off-the-rack model appears to be roughly equivalent to the Harvey off-the-rack, according to the users. David Wilms of North Palm Beach, Florida, echoed a frequent comment when he said: "The leg and arm zipper flaps were not sewn to the suit—just glued—and they fell out!" And, Bill Sterbens from Chicago commented: "It's a good value for beginners."

Percentage of Parkway Users Experiencing Problems

Rubber tearing from sharp object	25%
Zippers breaking or sticking	24%
Stitches unraveling	19%
Seams separating	15%
Wearing out from back pack (tank pack)	15%
No problems	33%

6. U.S. Divers: U.S. Divers suits typically are nylon I, with seams glued and sewn but not sealed. The jacket has a detached hood and zippers in the front and on each arm. The pants are high-waisted, with zippers on the legs. Nearly all suits were purchased off the rack and have no pads. The majority of the suits are three years old and have been used for 50 to 100 dives.

U.S. Divers suits finished last in each of the cate-

WET SUIT EVALUATION BY OWNERS

Respondents rated their reaction to their own suit on a scale of Excellent, Good, Fair and Poor. "Excellent" responses were multiplied by four, "Good" by three, "Fair" by two and "Poor" by one, and then divided by the number of responses, giving a "mean." Bayley, White Stag, Imperial and Harvey are primarily custom-made suits, a factor which contributes to their higher overall rating. However, comparisons of custom-made only and off-the-rack suits only suggest that the ranking would remain nearly identical, although the range between suits might be reduced.

I. WARMTH

Imperial	3.47
Bayley	3.44
White Stag	3.34
Harvey	3.33
Parkway	3.32
U.S. Divers	3.04

III. COMFORT

Bayley	3.40
White Stag	3.40
Imperial	3.38
Harvey	3.24
Parkway	3.12
U.S. Divers	2.83

V. WORKMANSHIP

Bayley	3.42
Imperial	3.33
Harvey	3.28
Parkway	3.26
White Stag	3.18
U.S. Divers	3.08

II. DURABILITY

Bayley	3.45
Imperial	3.26
Harvey	3.21
White Stag	3.18
Parkway	3.17
U.S. Divers	2.96

IV. FIT

Bayley	3.52
Imperial	3.40
White Stag	3.19
Harvey	3.15
Parkway	3.06
U.S. Divers	2.79

VI. WOULD RECOMMEND

White Stag	90%
Harvey	88%
Parkway	88%
Bayley	86%
Imperial	86%
U.S. Divers	78%

gories, partly because they are sold off the rack and are made of nylon I. Only 31 per cent of the users had experienced no problems. It should be noted, though, that U.S. Divers had a greater percentage of suits sold more than three years ago than did any other manufacturer, so the increase in problems would be expected. Forty-four per cent experienced the rubber tearing from a sharp object, while that was 25 per cent with the Parkway suit. This difference tends to support the notion that the Parkway texture may be more resistant to tears. A high 22 per cent would not recommend their U.S. Divers suit to friends. Although the U.S. Divers nylon I suit is roughly comparable to the Parkway, Parkway users are more satisfied. A typical comment about the U.S. Divers suits comes from Bruce Johnson, of Ely, Minnesota. "The rubber rips easily, it deteriorates quickly, and is cheaply made."

Percentage of U.S. Divers Users Experiencing Problems

Rubber tearing from sharp object	44%
Rubber tearing while dressing	21%
Nylon tearing from sharp object	14%
Nylon separating	14%
Seams separating	13%
Zippers breaking or sticking	11%
No problems	31%

Delmar and Seasuits: In addition to the major brands, Delmar and Seasuits each had an insufficient number of users respond from which to draw supportable conclusions. Yet the users do provide a clue to the characteristics of each suit.

Owners of both brands experienced the typical problems. Although a relatively high percentage of users experienced no problems (56% of the Seasuits users and 44% of the Delmar users), this in large part can be attributed to the relative youth of the suits reported upon—they were less than two years old and had been used on about 50 dives.

The Seasuits scored 3.33 on both warmth and durability, while Delmar scored 3.28 in the same categories. All of the Delmar users said they would recommend their suit to a friend, while 84 per cent of the Seasuit users indicated they would recommend theirs.

It's fair to conclude that the suits are acceptable "middle range suits" and would meet the standards of most average divers.

Conclusion: Which is the brand to buy? Perhaps the most impressive result of the survey is that no manufacturer clearly outscored the others. For statistics buffs, there was no significant difference between 1 and 2, 2 and 3, 3 and 4, etc. In fact, statistical significance was demonstrated only in a few categories between comparable models of Bayley (number 1), and Harvey (number 4).

It seems that a diver is getting close to equal value in purchasing comparable models of Bayley, Imperial, or White Stag. Although Harvey fell a bit behind, it is probably not far enough to matter to most divers. Bayley's being placed consistently first was impressive, yet the margin was so slight that it is nearly meaningless. Of course, the price asked for these suits varies considerably, so the diver wanting to economize will not go wrong by comparison shopping among the leaders.

Our belief is that it's less important which brand

among the three leaders you select than it is to select the right styling and accessories. Here's what the divers say about their accessories.

Suit Characteristics and Accessories

Thickness: Nearly all suits reported on were $\frac{1}{4}$ ", with some $\frac{1}{8}$ " in warmer areas, and $\frac{3}{8}$ " for colder water. We won't belabor the obvious: the thicker the suit, the warmer the suit; the thicker the suit, the more restrictive it is. Before you decide on a $\frac{3}{8}$ " suit, try on both thicknesses, compare your mobility, then make your choice.

Custom-Made vs. Off-the-Rack:

The custom-made suit substantially outscored its off-the-rack counterpart in every category. There's not a doubt that divers using the custom-made suit, regardless of the brand, believe that the additional investment is worth every penny. It is significantly warmer, more durable, and comfortable. For example, 51 per cent of the custom suit owners rated the warmth of their suit as "excellent;" only 24 per cent of the off-the-rack users had the same rating for their suit. For comfort, the ratio was 61 per cent to 23 per cent, and for durability the ratio was 42 to 26 per cent.

We're led to conclude that for nearly all divers a custom-made suit with no accessories is far superior to an off-the-rack suit loaded with extras.

Custom-Made vs. Off-the-Rack					
	Mean Score	% Divers Rating Their Suit:			
		Excellent	Good	Fair	Poor
COMFORT					
Custom	3.55	61	34	5	0
Off rack	3.11	23	58	18	17
FIT					
Custom	3.54	65	23	11	1
Off rack	2.98	18	62	18	4
WARMTH					
Custom	3.42	51	39	10	0
Off rack	2.92	24	60	16	0
DURABILITY					
Custom	3.29	42	48	7	3
Off rack	2.75	26	45	24	5
WORKMANSHIP					
Custom	3.41	50	52	7	1
Off rack	3.10	31	48	21	0

Nylon I vs. Nylon II:

As might be expected, divers who use nylon II find it significantly more durable than those using nylon I. It may surprise some, however, to learn that the users of nylon II find it significantly warmer than the users of nylon I. Fifty-one per cent of the nylon II users rate the warmth as "excellent", while only 22 per cent of the nylon I users feel the same about their suit. One reason is that a greater number of the nylon II suits are custom made, which obviously adds to the warmth. However, cuts and holes in the outer layer of rubber on a nylon I surely make the suit colder. A spot check of nylon I and nylon II users of off-the-rack suits still

suggests that the nylon II is warmer than the I.

Fifty-one per cent of the divers responding use nylon II, 37 per cent nylon I, six per cent nylon on the outside only and one per cent full rubber.

Nylon I vs. Nylon II					
	Mean Score	% Divers Rating Their Suit:			
		Excellent	Good	Fair	Poor
COMFORT					
Nylon I	2.82	24	56	18	2
Nylon II	3.47	54	39	7	0
WARMTH					
Nylon I	3.00	22	28	22	0
Nylon II	3.45	51	42	7	0
DURABILITY					
Nylon I	2.88	22	44	24	10
Nylon II	3.36	47	42	11	0

Jackets: Farmer John-style vs. High Waist

Fifty-four per cent of the Farmer John-style wearers rated their suit warmth as excellent, while only half of that percentage—27 per cent—rated the warmth of their high-waisted suits as "excellent." A Farmer John style covers a greater share of one's body, and that surely contributes to the rating.

Farmer John-style vs. High Waist					
	Mean Score	% Divers Rating their Suit:			
		Excellent	Good	Fair	Poor
COMFORT					
F/J	3.39	50	40	8	2
H/W	3.14	30	54	16	0
WARMTH					
F/J	3.43	54	35	11	0
H/W	3.13	27	58	15	0

Jackets: One Zipper vs. Multiple Zippers:

Divers with zippers on the arms of their jackets found their suits *not* quite so warm as divers *without* any zippers, but the difference is so slight as to make us wonder whether the zipper question is significant. Forty-four per cent of the divers without zippers on the arms of their suits rated their suits "excellent" for warmth, while 34 per cent of those with suits that have arm zippers rated theirs excellent. Generally,

Jackets: One Zipper vs. Multiple Zippers					
	Mean Score	% Divers Rating Their Suit:			
		Excellent	Good	Fair	Poor
COMFORT					
One	3.36	42	49	9	0
Multiple	3.24	40	45	13	2
FIT					
One	3.42	54	36	7	3
Multiple	3.09	32	49	20	1
WARMTH					
One	3.30	44	42	16	0
Multiple	3.22	34	54	12	0
DURABILITY					
One	3.23	36	52	11	1
Multiple	3.04	36	39	19	5

however, divers *without* zippers rated their suits higher than those with zippers. According to the survey, about half the divers have suits with arm zippers and half do not.

Pants: One or More Zippers vs. No Zippers:

One of the more interesting results of the study suggests that entry or leg zippers in the pants may have *no* significant impact on warmth. In fact, divers with one or more zippers on their pants (85% of those with zippers had leg zippers only) rated their pants *slightly warmer* than the zipperless pants. A number of other variables can affect the conclusion, including the fact that a substantial percentage of the suits with leg zippers were custom. Even so, conventional wisdom among divers is that the addition of leg zippers would seriously reduce the warmth. Apparently that's not necessarily so.

Pants with leg zippers are more comfortable, primarily because of the ease of getting in and out of them. Betty Pohl of Schenectady, New York, airs the complaint heard frequently on winter dives: "There's only one complaint with my Harvey—I didn't order enough zippers on my custom-made suit; it takes me almost a half hour to put the suit on."

The data suggests that divers may *not* be giving up warmth for the convenience of pants zippers. The reasons may be simple. First, front or hip zippers in the pants are most likely covered by the diver's wet suit top, providing two layers of neoprene. Second, ankle zippers are covered, at least in part, by the diver's boots. Furthermore, they are far, far away from the diver's trunk, the body area which suffers most from the cold and transmits those signals to shiver to the brain. In essence, the addition of ankle zippers (and even a front or hip zipper) may be a helpful addition to many divers. They will reduce pre-dive chill by reducing the time your body is exposed to the winter air while you struggle with your suit. The zippers reduce pre-dive exertion in the hot sun while you struggle to pull on your suit. To those of us who have struggled

† A non-diving term coined by Erica Jong.

Pants: One or More Zippers vs. No Zippers

	Mean Score	% Divers Rating Excellent	Good	Fair	Poor
COMFORT					
One +	3.35	48	40	12	0
None	3.22	33	51	8	2
FIT					
One +	3.26	44	38	18	0
None	3.29	45	45	4	6
WARMTH					
One +	3.27	40	48	12	0
None	3.26	40	46	14	0
DURABILITY					
One +	3.14	36	45	17	2
None	3.20	36	50	12	2
WORKMANSHIP					
One +	3.40	42	40	17	1
None	3.25	33	59	8	0

endlessly while we give the knowing smile to those "candy" divers with all the zippers, it appears to be they who have the last laugh.

Attached vs. Separate Hood:

Sixty-one per cent of the divers using an attached hood rated their suit excellent for warmth, while only 38 per cent of those using a separate hood gave their suit the same rating. One continuing criticism of attached hoods is that they are uncomfortable. However, the data indicated that 66 per cent of the attached-hood users rated their suits excellent for comfort, while only 38 per cent of the separate-hood users gave their suit a similar rating. Nearly 16 per cent of the divers responding to the survey had suits with attached hoods.

Attached vs. Separate Hood

	Mean Score	% Divers Rating Excellent	Good	Fair	Poor
COMFORT					
Attached	3.67	66	34	0	0
Separate	3.12	38	47	14	1
WARMTH					
Attached	3.47	61	26	13	0
Separate	3.25	38	50	12	0

Pads: Knee and elbow pads obviously increase the durability of a suit, and the data supports that belief. The spine pad also increases the warmth of the suit. Fifty-seven per cent of the people with spine pads felt the warmth of their suit was excellent.

Conclusion: The results of the survey validate the belief of most divers that a custom-made suit is clearly superior to an off-the-rack suit on all counts, including warmth, comfort, fit and durability. Unless an off-the-rack suit fits like a glove, the diver with a limited budget would be better off putting his money into custom tailoring than into a classy brand name.

Unless you plan to make only a dozen or two dives a year, it's important to select a nylon II model. A Brockport, New York diver, Andris Simpson, explains why: "I have found my Parkway satisfactory, but next time I will invest in the same suit with nylon on both sides. It's a savings in the long run because of the prevention of wear and tear on the suit from both the nylon webbing on the tank back pack and the diving environment itself." We agree.

The Farmer John-style is warmer than high-waisted pants. An attached hood is warmer and you may not find it uncomfortable. Zippers on the arms may be of little consequence, but zippers on the ankles and an entry zipper on the pants may well add to your ease in getting dressed, and may not have an effect on the warmth. Knee and elbow pads increase durability, and a spine pad increases warmth.

To look at the economics of your investment, consider how many dives you'll be making in the next five years. Two a month? Two a weekend? A vacation with 15 or 20 dives? Total up the number and divide it into the cost of the suit you can *afford*, compared to the *best* you can buy. Then ask yourself whether it's worth

the extra money per dive. The average nylon I, if carefully maintained, seems to have a lifespan of at least 100 or more dives. The average nylon II will last for at least 200 or more. Some divers can use one forever. What suits you?

Random Pointers on Wet Suits

Dive shops recognize the enormous expense of wet suits and often will give you a discount to make the sale. It's not uncommon to get 10 per cent off, so why not ask? Also, watch for sales. Although most sales are on off-the-rack suits, you might be able to extend that sale to your own custom model with a little gentle negotiation. But, recognize that dive shops have to make a buck, so don't be hard-nosed.

Maintain your suit by washing it off with clear water and hanging it to dry. Doubling the suit over a hanger will prevent any mild stretching, but avoid leaving your suit folded or crumpled up. Creases and wrinkles reduce the durability. If your suit has not been washed off regularly and begins to smell, washing it in warm water with a mild detergent may bring it back to a tolerable level.

Unraveling stitches can be easily repaired. Cut off

any dangling thread (but don't cut stitches and certainly don't pull the thread), and put a drop of fast-drying cement or clear nail polish on a stitch or two. There'll be no more unraveling at that spot. A slow drying glue or excess on the nylon may cause a small bit of separation between the nylon and the neoprene, but there are no other side effects.

The more zippers on your suit, the greater the maintenance problem, but maintenance is not difficult. Nearly all dive shops sell one or more inexpensive products with a wax base to keep your zippers sliding. Parafin can also be used. It's wise to pack along a pair of pliers, because if you ever lose the puller, it's impossible to fasten your zippers on a cold day. Or, carry a foot or two of rawhide and tie on a small length as a substitute.

Should you buy a dry suit? There are insufficient responses to the questionnaire to help us with our conclusion, but in a forthcoming issue, we'll provide some ideas to help you decide.

But, if you're buying a wet suit, consider our comments carefully. They are not the ideas of a few. Rather, they represent the experiences of nearly 1000 divers. Who should know better?

Magazines for Divers:

Subscription possibilities for your home library.

Skin Diver Magazine is the only U.S. magazine devoted entirely to divers and *Undercurrent* is the only independent newsletter for divers. Each, of course, has its own areas of interest and provides important information for divers. But, many divers devour every ocean-related periodical they can and cry for more—but they don't know where to look. We've rounded up several publications which the learned diver might care to have coming to his home monthly. These are our recommendations:

Oceans: A slick, well written and beautiful magazine, this is the publication of the Oceanic Society, an association dedicated to conserving our ocean resources. Among features such as "Wind and Currents," or "Nuclear Pollution," will be articles on "The Reef: Yesterday, Today and Tomorrow," or "In a Cold Current," a photographic essay on undersea life in the cold Pacific. It's a magnificent magazine written for literate people. Subscriptions are \$12/year, a price which includes membership in the Oceanic Society. Write the organization at Fort Mason, San Francisco, CA 94123.

Underwater Naturalist: The American Littoral Society is essentially an East Coast organization devoted to conservation of the Atlantic shores. *The Underwater Naturalist* is the group's bimonthly journal. One need not reside on the Eastern Seaboard, however, to enjoy the magazine's articles. Stories on such topics as "Eggs of Cartilagenous Fishes," "Shark Tagging in Delaware Bay," and "Offshore Oil: Some Legal Considerations" won't appeal to all divers, but to the sophis-

ticated reader the Littoral Society transmits a great deal of information from its pages. Several short book reviews are usually included. Subscriptions, at \$10, may be obtained from the American Littoral Society, Sandy Hook Highlands, NJ 07732. By the way, "littoral" means "pertaining to the shore of a lake, sea or ocean."

Oceanus: This is a highly technical journal produced by Woods Hole Oceanographic Institution, and is of interest mainly to the serious student of the ocean. Each quarterly issue is devoted to a single topic. For example, "Energy and the Sea," "Marine Pollution" and "Deep Sea Photography" have been recent topics. Subscriptions at an \$8 annual tab may be obtained by writing Oceanus, 2401 Revere Beach Parkway, Everett, MS 02149.

Sea Frontiers: More appropriate for the lay person is this well written publication from the International Oceanographic Foundation. Typical titles in the bimonthly publication, liberally sprinkled with photographs or drawings, are "The Indus River Dolphins," "Submarine Canyons of the Pacific," "A Small Snail that Eats Stars," "Filming the Whaler Shark," and "Living Undersea." As a bonus, one gets a bimonthly pamphlet, "Sea Secrets," which is an informative question-and-answer forum for readers. Membership in the foundation is \$15/year. Write to 3979 Rickenbacker Causeway, Virginia Key, Miami, FL 33149.

The Marine Aquarist: Aimed at people with aquariums, this is a suitable publication for the fish enthusiast. The publication features articles on the behavior

of tropical fish, which will help the diver understand far better what he sees below. Occasional articles on collecting will aid those who collect their own and will turn off those who oppose collection. Write to 16 Edith Road, Hudson, ME 01749. Ten issues per year cost \$10.50.

Dive Canada is produced for the Canadian Diver by the Ontario Underwater Council. Although a good share of the information is of interest primarily to Canadian divers (club news, conventions, etc.), features, information about cold water diving, and descriptions of Canadian dive areas make it worth the low subscription price to many non-Canadians. It's \$3 a year for six issues from *Dive Canada*, 559 Jarvis Street, Toronto, Ontario M4Y 2J1.

The Undersea Journal: This is PADI's magazine for its instructors, but subscriptions are available to anyone with \$12 to spend. Much of the text is devoted to training and safety, making the publication valuable for anyone as well as an instructor or group leader. Write PADI at 2064 North Bush Street, Santa Ana, CA 92706.

Pacific Diver: This youthful bimonthly publication is devoted to diving in the Province of British

Columbia and the State of Washington. It's as slick as *Skin Diver* and is an excellent publication for people interested in those cold waters. An annual subscription for six issues costs \$5.75. This is the best regional publication we've ever seen. Write to Pacific Diver, 1132 Hamilton Street, Vancouver, BC V6B 2S2.

Underwater Photographer: We've mentioned this one before. Suffice it to say that for the underwater photographer, it's a must. Four quarterly issues cost \$4. Get them from Roberts Publications, Box 608, Dana Point, CA 92629.

Undersea Biomedical Research: Only for the person with a strong scientific background, this is the journal of the Undersea Medical Society. To understand what we mean, try wading your way through articles such as "Intentional Tremor on a Helium-oxygen Chamber Dive to 49.5 ATA," or "Coral Algal Association: Capacity for Providing and Sustaining Elevated Oxygen Tensions in Situ" or "Respiratory Gas Exchange and Lung Perfusion in Man During and After Head-out Water Immersion." For four issues it'll cost you \$28 a year from UMS, 9650 Rockville Pike, Bethesda, MD 20014.

Happy reading!

NAUI's IQ 8 at San Diego:

An evaluation for the average diver.

Congratulate NAUI for the success of the eighth International Conference on Underwater Education—IQ 8. With attendance in the neighborhood of 2000, the conference continues to establish itself as the premier diving event for American scuba nuts. And, it establishes NAUI leadership as a training organization out to serve all members of the diving community.

IQ 8, as did its recent predecessors, had four basic components for any visitor. The exhibitors were the most apparent. Poseidon Systems attracted attention with an automatically inflating and deflating Unisuit, a somewhat bizarre scene reminiscent of diver embolizing, then being deflated, embolizing, then being deflated, embolizing, then being . . . well, you get the picture. George Green gave informative and informal instruction about the use of his Green Things, glass things that magnify the marine world for a Nikonos. The Underwater Society of America, God bless 'em, demonstrated a score or more pamphlets that appeared to have been printed on Gutenberg's press, and seem to have been gathering dust ever since. The image they create for themselves does not do justice to their accomplishments. U.S. Divers displayed its curious new BC (see Free Flow), while Dacor displayed its curious hardshell BC, which may become an antique if it takes any longer to reach the dive shop counter. The superboat folks were drumming up business, pleased to tell passersby that they have repaired the La Paz hurricane damage and the boat will be ready for winter in Hawaii.

Just as conspicuous in their absence were NASDS

and Scubapro, both of whom deny any relationship with each other, and both of whom opted for absence. PADI, however, was there, undaunted by the aura of NAUI's sponsorship, pleased to tell all of their exploits.

Perhaps most conspicuous was the general impression one gets of the size of our industry. The exhibits, none of which were elaborate, costly or creative, would fit snugly on a professional basketball court. Although to us divers the world seems to revolve around snorkels and seavues, if our industry were to be inadvertently left out of the gross national product portfolio, no economist or computer would notice. A score of Safeway food stores has a greater gross income than all of the American diving industry.

A second component of IQ 8 was the presentation of papers by professors, training agency staff, instructors and even plain old divers. As at most conferences at which papers are presented, one is generally better off reading the papers than listening to the author's monotone restatement of what he has written. Yet, many speakers drew hundreds to hear their pronouncements, and occasionally audience questions raised issues that would otherwise have been avoided.

For sure, it's satisfying to attach faces to the names we've been reading: e.g., Charlie Brown (a peach of a guy), or Glen Egstrom (*the expert*). Still, for the true student of diving, careful perusal of the papers is a more substantial way to absorb the information. For \$15, NAUI will send you the proceedings: P.O. Box 1630, Colton, California 92324.

Third, there's entertainment. Movies, drinking and story telling, luncheons and dinners with anecdotes, presentations and whatever. What can be more impressive than to tell your dive club buddies: "Well, last week when I was having a drink with Paul Tzinoulis . . ."

Finally, there's business. People come to sell equipment and buy equipment. To sell travel and arrange trips. To get jobs or to offer jobs. Even to steal secrets. Or gain prestige. Or, to complain about some people while praising others. And generally to engage in the gossip that glues the diving community into an interesting and exciting industry. For those who come to engage themselves, there is no better place. IQ 8 is for the industry. That's its purpose. That's its value.

Is it for sport divers? For those who live in the immediate area, it's indeed worth walking through the exhibits, attending a few lectures and taking a trip to the films. Unless you're an incurable enthusiast, it may not be worth an airplane flight or an all-night drive, but if you take advantage of some of the diving offered in conjunction with the conference, then you might consider the trip. For the instructor, there's a great deal to be gained—20 of the 56 papers presented were directly related to instruction, and there is a possibility you can find a new job.

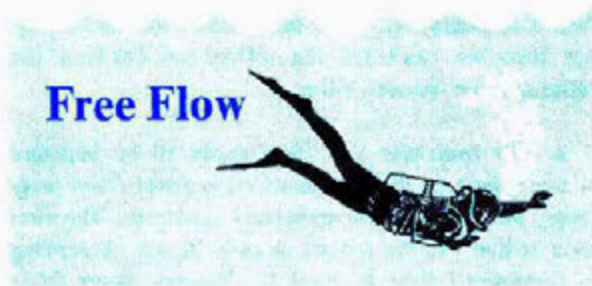
There is room for improvement. IQ 8 suffers from standard convention planning. It was not particularly innovative—mainly a problem of the exhibitors. A large pool in which equipment could be exhibited would be

major, yet costly improvement.

More important, yet expected, the information being imparted was safe and generally non-controversial. The unassuming diver, after going through three days of exhibit walking, lecture listening and movie going, would go home believing there are no issues left to resolve in our sport, no problems, no questions. That's how IQ falls short. How about, for example, a panel of experts and critics discussing, with no holds barred, any of a hundred controversial topics which touch on manufacturers' pocket books or touch training agencies' and instructors' egos?

Some possibilities: Diving with your head vs. diving with gadgetry. BC's vs. Backpacks. A critique of specific manufacturers' new BC designs. Mandatory recertification of sport divers. Cayman ten years ago vs. Cayman today. Teaching buddy breathing and free ascent. Do diving "systems" exist, or is advertising bragadoccio? Prohibiting the killing of sharks or other creatures for the purpose of movie making. Or even prohibiting spearfishing.

Could we all not learn from a panel of experts with diverse ideas tackling subjects that have otherwise been steered clear from? It's time for self analysis and self criticism. Only NAUI has the vehicle to probe ourselves publicly and we urge them to take the leadership. To be a self-regulated sport requires careful open examination of topics previously kept in the back room. There's no better place to open the door than at IQ 9.



The San Salvador/Riding Rock diver operation has solved its personnel problems. Chris McGloughlin, the expert and attentive guide, remains while Chris Smith has departed. We apologize to McGloughlin for some confusion in our article on San Salvador and now inform our readers that they're sure to be in good hands at San Salvador. The diver operation, by the way, is owned by Bill McGehee, who runs "The Dive Shop" in Falls Church, Virginia.

Is it the discovery of the decade? Hawaiian fishermen brought up from moderately deep water an amazing new creature that appears to be an entirely new breed of shark! But, get this. The 14-foot creature had luminescent organs around the mouth, small teeth, and a flabby body—all signs leading to speculation that it is a deep water plankton feeder. The flabby fellow with glowing gums has raised extraordinary curiosity in the

scientific community. The carcass is under ice in Hawaii. In the next few months it will be preserved in formalin, then shipped to San Francisco's Steinhart Aquarium for dissection under the expert eye of Director John McCosker. The first target will be the stomach contents. If it is filled with plankton, that would further explain why it has not been discovered. The sizable shark would have no interest in a fisherman's bait and would not be affected by the small scientific nets trolled at great depths.

Wet suit addendum. Bayley's new "plush" material is purported to be warmer than regular nylon I or II and easier to slip into and out of. Problem is that the outside nylon snags easily—far too easily, as divers buying first off-the-assembly-line found out. Apparently Bayley will solve the nylon II plush snagging problem simply by dropping the line and coming out only with a nylon I in 1976. . . Wet suit pastels look snazzy for the first wearings, but when they become a bit soiled and stained, you begin to feel a bit like Charlie Brown's buddy, Pigpen. . .

And, we felt a little like Linus when Dr. Charlie Brown, one of the foremost experts on diving medicine, wrote to tell us that "Undercurrent erred by stating that four body tissues are affected by decompression sickness." Quoth the Doctor: "Actually, the number is

unknown and possibly infinite. Each dive table maker plucks from the continuum a number of half time tissues that he thinks are the best compromise between accuracy and practicality."

Want a snorkeling business? Contact Alex Censor at 155 Seventh Street, Del Mar, California 92104, for details of his Virgin Islands tourist shop snorkeling operation, now on the block.

Hooray for Hillary Hauser! Her new book for the *Women in Sports* series called "Scuba Diving" is well suited for the young lady wrestling with career choices consistent with her own image. By biographing five attractive and feminine professional divers who have made major contributions to their profession, Hauser offers great encouragement for the undecided. It's a must for the diving teenager, and light yet informative reading for the scuba bibliophile. Valerie Taylor, Eugenie Clark, Katie Garner, Zale Parry and Sylvia Earle are each featured, and if you don't know why, then it's a must for you, too. The cost is \$6, hard-bound, from La Mer Bleu Publications, 1655 Fernald Point Lane, Santa Barbara, California 93108. The only omission is that Ms. Hauser, out of unnecessary modesty, failed to include herself.

In the September issue of *Undercurrent* we reported the Brawley/NASDS law suit and said that informed sources indicated PADI was "sweating this out." This sentence should have followed: "A PADI spokesman scoffed at that, saying there's no relationship between their material and the facts which developed in the Brawley case."

U.S. Divers has developed a new BC which appears to the observer as two separate chambers, each beginning below the armpit and running over the shoulders and down the back. According to a U.S. Divers spokesman, the BC is designed to float a diver in a fully vertical position upon full inflation. Its unique design might scare a few customers away, but if it performs as expected, without negative side effects, it just might make a significant contribution to the safety of an injured or unconscious diver. . . . Apparently Scubapro has a new BC on the drawing board, and one source who's seen it says its design is similar to the vest of a man's suit. The diver slips the arms into it. Scubapro won't verify it, "We have several items on the drawing board," they say, "none of which we care to disclose at this time."

If you plan to take any medication prior to a dive, check its effect on you in the safety of your living room. Dr. Takashi Hattori of the Pacific Grove, California, Rescue Patrol reports that one diver took Sudafed to unblock his sinuses and Dramamine to prevent seasickness. The two, in combination, nearly caused a blackout under water. It's unlikely that you'll experience the same reaction, but don't take the chance. Test every medication at home.

There's another big diving boat under construction. This time it's "Fantastic Diver," over 100 feet long and 26 feet wide. There will be nine private staterooms, each with shower and toilet facilities, and plenty of built-in luxury. The owners presently expect to concentrate on diving the Great Barrier Reef from Belize south to the Gulf of Honduras. The expected tariff will be something over \$600 per person for a week. The only extra will be the bar tab.

Do you know three ways to clear your regulator? The first two are blowing through the mouthpiece and pushing the purge button. But then, there's number three: vigorously shaking your head from side to side. Try it.

Paul Nordin, president of the Greater Los Angeles Council of Divers, asked us to remind our readers that the bottom timer does not measure bottom time as defined by the U.S. Navy Dive Tables. The reading on the Bottom Timer includes ascent time, which the tables do not. Nordin says that "if the Bottom Timer times are used 'as is' in computations with the U.S. Navy Dive Tables, it will result in conservative [longer] bottom times and, therefore, provide less chance for a bends hit on repetitive dives."

At last, the mystery which has been haunting the experts has been solved. *Science News* reports that the reason the spiny lobster queues up British style they march, one on top the other, in lines as far as you can see—is that the technique lessens the drag on each lobster and therefore conserves their energy during their long migration. We've never seen a lobster in drag, but then we can't tell the differences between the males and the females, either.

A new magazine not quite ready to be included in our article on dive publications is *Sport Diver* magazine, scheduled to be published quarterly. The first issue is due off the presses in early March. According to Publisher/Editor Richard H. Stewart, *Sport Diver* will use "color photographs on all pages of the feature story, similar to *Oceans* magazine. We will also emphasize local dive spots. In the first issue we'll feature stories on Florida diving, California's Channel Islands and Puget Sound in Washington State." Aspiring writers may send their stories about local dive spots, but Stewart emphasizes they should be accompanied by high-quality color photographs. Subscriptions will be \$6.95 for four quarterly issues. *Sport Diver* magazine, 103 Century 21 Drive, Suite 106, Jacksonville, Florida 33216.

Correspondents located strategically 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*.