undercurrent®
THE PRIVATE, EXCLUSIVE GUIDE FOR SERIOUS DIVERS

P.O. Box 1658, Sausalito, California 94965
Cable Address: Gooddiving

Vol. 8, No. 6 June 1983

Long Island, New York: Part II

Safer Than The Caribbean

Diving the wrecks off Long Island and Block Island is seldom dull, below or above the surface. Not long ago I was just about to enter the water, when a shout from the captain stopped me. A super-tanker was heading straight for us. We signaled that we were tied to the wreck, but the tanker continued to bear down. The captain called the tanker on the frequencies she was supposed to monitor, but there was no response. Assuming she would soon run us over, we hurriedly tied a large, bright float to the anchor line, cast off, and high-tailed it out of the way. The tanker plowed right over the float.

Thankfully, that was a one-time experience. I prefer my thrills below. Indeed, wreck diving is thrilling. And safe as well, as long as one follows the precautions I outlined in the last issue. When diving these New York wrecks, one is left to the skill and experience of himself and his buddy. No guides accompany. No one is there to tell you how deep you have gone, how long you've been down, or whether to stop to burn off a little nitrogen. But once one has mastered the basics of wreck diving it is not difficult, especially in fair weather. Let me describe a typical dive I took on the San Diego with my favorite skipper, Gary Dow, who pilots the Dolphin.

The sea was calm with no white caps. Only gentle swells. The clear sky and brilliant sunlight meant that the visibility would be good. Dow, using his depth finder and his LORAN-C (an electronic device which directs the craft to location after the skipper punches in the locator numbers), quickly located the wreck, then dragged his anchor to snag it. Once the boat was stable, the divers on board methodically suited up. My buddy and I carefully checked each other over, set our dive watches, and with a long stride I was in the water.

INSIDE UNDERCURRENT

As I descended down the anchor line, I could see seventy feet or more. But once I got to a depth of forty feet I entered a plankton cloud. At sixty feet I could see no more than ten feet. Below I could begin to make out the dim outline of the ship. At seventy feet, I could identify the stern and spot the long shafts which once held the giant screws. One had been removed by divers from Long Island.

Reportedly, the U.S. Government has claimed it. The other, rumor has it, was removed by U.S. Navy divers and buried in the sand for safe keeping.

My buddy and I had decided on a general sightseeing dive, so we began at ninety feet by swimming along the starboard side. Halfway down on the hull I found the small ammunition room open, the hatch missing. The room was filled with 30.06 rifle clips, five rounds to a clip, and hundreds of loose, individual shells. As I flashed my light around I noted heavy brass shells with no projectiles, resting in cylindrical holes drilled in large wooden blocks. Perhaps they were once primers for large caliber shells. I continued on. Along the sides of the hull I saw the first of several large four-and six-inch guns. After 65 years in the deep, they were thick with anemones, spongy marine growths and mollusks. As I dropped deeper, to one hundred feet, the visibility improved to forty feet, aided by what was left of the sunlight reflecting off the sandy bottom. There I could see the 8-inch guns extending past the edge of the hull, evidently trained to the starboard when the ship sank.

Rising back to ninety feet, my buddy and I continued toward the bow. A large opening in the slowly collapsing hull allowed us to safely penetrate the ship. The thick armor is impressive. Whatever sank this ship--a torpedo from a German U-Boat or a powerful mine laid by the Germans--must have struck below the armor. Inside the hull, I discovered several small compartments with lots of tubing and pipes. Just aft of the opening I entered a larger compartment, finding several such objects of six and eight inches in diameter. Even covered with silt they looked dangerous, so I dared not touch. Plenty of conger eels and scorpion fish have also gathered here and throughout the hull. We left the hole and continued to the bow, past four and six-inch guns. At the bow, I spied the huge anchor and the remains of what must have been the superstructure, blown up with U.S. Navy depth charges.

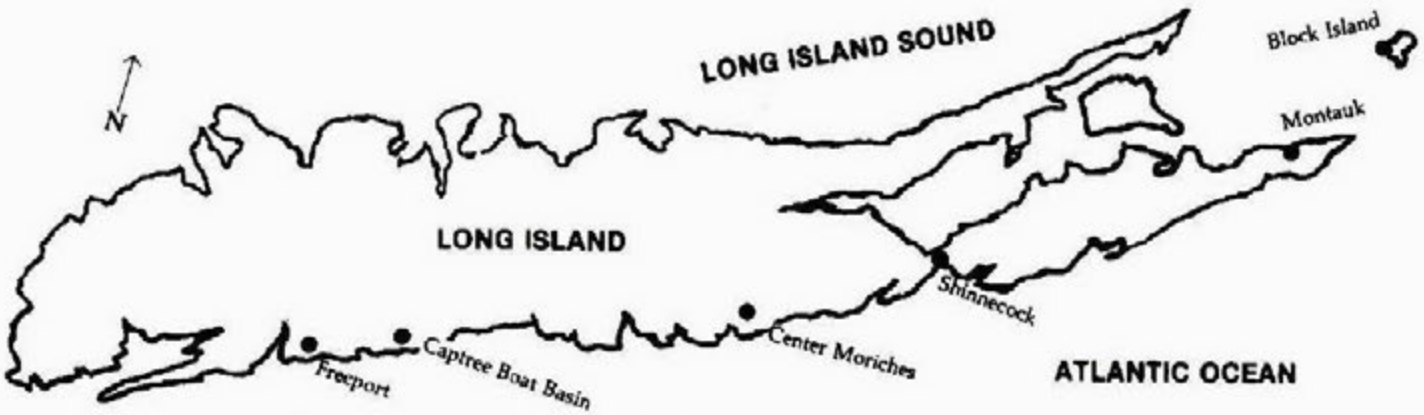
Time had moved quickly. We had to swim with purpose down the port side to get back to the anchor line before our 25-minute bottom time passed. As soon as the screw shafts became visible, we ascended and crossed over to the starboard side. The anchor line, always a welcome sight, was easy to find, though we had swum nearly 500 feet away from it. Had the visibility been poor, I would have hooked my 100-foot line to the ship, which would have limited me to that radius.

After leaving the bottom, I ascended again through the plankton cloud. I could feel the water temperature rise with my ascent. At 100 feet the temperature had been a cold 44°F. By the time I reached ten feet the temperature was 66°F. At ten feet I stopped for five minutes, as I do religiously. I had not seen many fish today--I usually see black fish or weakfish, or blue fish in season--though the wreck had been filled with cutters as usual. Once we left the water it would be lunch, a long surface interval, and back for the second dive of the day.

Though the weather is not always as good as it was this day, nor the sea always as calm, this was surely not an atypical two-tank day. And every summer has plenty more like it. Boats depart from many Long Island ports: Freeport, Center Moriches, Montauk, Captree Boat Basin, and Shinnecock. Prices run from $35 to $45 the day, with no amenities. Unfortunately, we New York divers are not as fortunate as our California counterparts, where boats have bunks and even galleys. We must bring our own filled tanks (boats have no compressors), our own gear (including weight belts), our own food and refreshments, and our own comprehensive knowledge about time, depth and tables. Sometimes space can be tight, so a plastic garbage can can make an excellent gear container. Boats have no showers and little room to stretch out. The one-to

three-hour trip (time will depend upon the port of departure, the selected wreck, and the speed of the craft) will be uncomfortable and boring for some. Morning departure time is usually between 6am and 7am; the boats return between 4pm and 6pm. The slowest moving of the boats is probably the Sailfish, but she is also the most sturdy.

Trips can be arranged through dive shops, either in Manhattan or on Long Island The shops charter the boats for the season, and many fill up early. Nevertheless, if you have a few days notice, you should be able to track down an empty space or two if you make enough calls. To find accommodations near your boat's moorage, ask your dive shop for recommendations or give the name of the town to your travel agent. As to what shop to turn to, here is my own evaluation of shops that offer gear, a boat to dive on, and companions for the trip.



Atlantis II, Manhattan (212/924-7556). Very good shop. Competent, helpful staff. Plenty of equipment and accessories. Open year-round with good hours. Highly recommended for visiting divers. Charters available.

Central Skin Divers, Bellmore (516/826-8888). Big mail-order service. Not very customer-oriented as far as service. Limited winter hours. Visiting divers should use some other shop.

Danny's Dive Shop, Baldwin, (516/223-8989). Excellent staff, good equipment, good rental equipment and rates, good repair service. Scuba course enjoys excellent reputation. Charter service. Highly recommended for visiting divers.

The Dive Shop, Bayshore (516/665-2526). Sport diving and equipment not given enough attention because they also run a commercial diving school. The commercial diving school does not enjoy the best reputation. They do offer scuba classes, though emphasis remains on commercial. I don't recommend this one for visiting sport divers. Charter arrangements available.

Diver's Way, Bayshore (516/665-7990). Very poor operating hours--not convenient at all. Some complaints on their rental equipment. They do not furnish power inflators on rental B.C.s. High volume warehouse-type shop. Some attractive prices. Not real good customer service, but acceptable. Scuba instruction available. Charters OK for visiting divers, but there are better.

Port Diver, Port Jefferson Station (516/331-9609). My favorite. Excellent service, very friendly and cooperative staff. Excellent equipment servicing and repair capabilities. Instruction, scuba classes, U/W photography course; windsurfers and instruction; racing shells and instruction; charters. Highly recommended for visiting divers.

Richard's Aqua-Lung, Manhattan (212/947-5018). Very good shop with very knowledgeable, helpful staff. Well stocked. Open all year with good hours. Highly recommended for visiting divers. Charter arrangements available.

7 Z's, Hampton Bays Divers, Inc., Riverhead (516/727-2642). Good shop, well staffed, well stocked, good prices, some repair service. Scuba instruction in pool on premises. Shop enjoys very good reputation. Charters offered. Recommended for visiting divers.

Suffolk Diving Center, Northport, (516/261-4388). Has SSI (Scuba Schools International) certification--not a well known certification. More expensive than most dive shops. Sells all Scubapro equipment. Offers instruction, but training pool is 40 miles from the shop. Staff and service OK. Some charters. OK for visiting divers.

Swimking Dive Shop, Rocky Pt., (516/744-7707). NASDS Certification. Very expensive with NASDA method of high-pressure salesmanship applied to students. Scuba instruction course offered for $99, but turns out to be closer to $275 to $325 because of charges for open water dive certification. Travel expense to dive boat area plus dive boat charge comes to about $60 per dive. They require 3 open water dives for certification. Offer U/W photography course, vacation dive trips, charters. Acceptable for visiting divers.

Beach diving: Boat diving is not the only diving available in New York. Any dive shop can direct you to a myriad of sites where lobsters, clams and scallops may be collected for the dinner table. A typical dive might be the one I just took in Long Island Sound off Mt. Sinai Beach, on a moonlit March nite, in a dry suit. It was a calm, yet chilly night, and my dry suit provided comfort that I never achieved in my wet suit days. I bent my Cyalume light stick to produce a chemical glow to light my way, stepped into the water, and with my buddy snorkeled off. Near the surface my light illuminated tiny pink shrimp swimming frantically. Once we reached a depth of six feet, we submerged to head for the rock jetty where we began our search for lobsters. Our noncommercial lobster permits allowed each of us to take six bugs, with 3¼" minimum distance from the eye socket to the carapace, the start of the tail. At the jetty, among several large boulders completely encrusted with mussels, several starfish were feeding. Deeper down, now at 20 feet, I swam above slowly waving long-leafed green seaweed sprouting from the rocks and sandy bottom. Visibility was as low as three to five feet. Along the way soft orange sponges adorned many rocks; white sea anemones were open and feeding; several large balls of starfish were wrapped around clusters of clams to force them open to get at the flesh. Crabs froze in my light, but backed away as soon as I moved the beam. Two large eels peered from the rocks, watching my every move. At last, a lobster. My buddy reached into a crevice and grabbed both claws, but he was a keeper. We continued out, finally ending up with nine lobsters, having returned several adolescents to their nurseries. All in all an easy dive, no deeper than 25 feet, no worry about bottom time, and not a bad night's work.

I can conclude by saying that although the water is colder, the visibility lower, and the wrecks more formidable than in tropical diving, I suppose I feel safer here than just about anywhere. The Coast Guard provides excellent rescue service; they can be reached quickly by dive boats and dispatch helicopters and fixed-wing aircraft when required. The Air National Guard operates a search and rescue activity from Suffolk County Airport, about midway out on Long Island. And there are four hyperbaric chambers whithin evacuation distance. Though

(Continued on page 7)

DRY SUIT OWNERS

We need your help. Since dry suits are only a small segment of the exposure suit market, we need your help in ensuring enough responses to our questionnaire to get the information we need. *Not only do we need you to complete the accompanying questionnaire, but also we need you to provide copies to your diving buddies with dry suits so that we may get their opinions as well.* Feel free to make copies of the questionnaire for distribution to your friends, or write us for additional copies. Send your completed questionnaire to:

Ben Davison, Undercurrent Editorial
P.O. Box 1658, Sausalito, CA 94965

Undercurrent Reader Survey

Please return within 10 days.

Response requested

Please circle the appropriate number for each answer. If you have additional comments or wish to elaborate on any answers please attach an additional sheet. If you are a two-suit family, either copy this questionnaire or write and we'll send copies.

1. What brand of exposure suit do you presently own:

Aquala 1
Bayley 2
Blue Water 3
Dacor 4
Dancart 5
Del Mar 6
Diving Unlimited International 7
Fathom 8
FitzWright 9
Hawaiian 10
Harvey 11
Henderson 12
Imperial 13
Isoteq International Fashions 14
Ocean Apparel 15
O'Neil 16
Parkway 17
Rowand Industries 18
Scubapro 19
Sea Suits 20
Skin Diver 21
Sub Aquatic Systems 22
U.S. Divers 23
Viking 24
Wardell AquaComfort 25
White's Water Wear 26
White Stag 27
Don't Know 28

2. What is the full name of your suit? (e.g., Poseidon UniSuit, U.S. Divers Aqualung Suit):

_____

_____

3. Is it a:

Wet Suit 1
Dry Suit 2

4. What is the thickness?

1/8" 1
1/4" 2
3/8" 3

5. Is the exterior:

Rubber only 1
Nylon 2
Lycra 3
Spandex 4
Don't Know 5

6. Is the interior:

Rubber only 1
Nylon 2
Nylon plush velour 3
Lycra 4
Spandex 5
Don't Know 6

7. Is the hood:

Attached 1
Separate 2
Don't use hood 3

8. Are the pants:

Farmer John 1
High waist 2
One-piece suit 3
Don't use pants 4

9. Do the pants have: (CIRCLE ALL THAT APPLY)

Front or hip zipper 1
Ankle zippers 2
No zippers 3

10. Does the jacket have: (CIRCLE ALL THAT APPLY)

Front zipper 1
Wrist zippers 2
Back or shoulder zipper 3
No zippers 4

11. Are the seams: (CIRCLE ALL THAT APPLY)

Glued 1
Sewn 2
Taped 3

12. Does the suit have: (CIRCLE ALL THAT APPLY)

Spine pad 1
Knee pad 2
Elbow pad 3
Attached boots 4

13. Was the suit:

Custom made 1
Off the rack 2

14. How old is the suit:

Less than a year 1
1 year old 2
1-2 years old 3
2-3 years old 4
3-4 years old 5
4-5 years old 6
5-6 years old 7
6 or more years old 8

15. Approximately how many dives have you made in the suit:

1-49 1
50-99 2
100-199 3
200-299 4
300-399 5
400-499 6
500-599 7
600 plus 8

16. Have you experienced any of the following problems with your suit: (CIRCLE ALL THAT APPLY)

Fabric tearing while dressing 1
Fabric tearing when striking sharp object 2
Neoprene tearing while dressing 3

(continued, over)

Neoprene tearing when striking sharp object 4
Rubber tearing while dressing 5
Fabric separating from neoprene 6
Stretched neoprene, bagginess 7
Zipper breaking 8
Seams separating 9
Stitches unraveling 10
Wearing out from back pack 11

DRY SUIT OWNERS ONLY

17. Have you experienced any of the following: (CIRCLE ALL THAT APPLY)

Zippers leaking 1
Zippers breaking 2
Leaking at the neck 3
Leaking at the wrists 4
Leaking at the ankles 5
Leaking at the seams 6
Neck seal tearing 7
Wrist seal tearing 8
Ankle seal tearing 9

18. Do you wear a B.C with your dry suit?

Yes 1
No 2

18a. If "Yes" what type of B.C. do you use:

Horse collar 1
Buck unit 2
Wrap around (vest) 3
Other (WRITE IN) _____

19. What problems have you experienced with your dry suit, if any, other than those mentioned in Question #16?

_____

20. Have you done anything to modify your DRY SUIT:

Wear ankle weights 1
Add rubber rings above knee 2
Use something to prevent fins from popping off 3
Other (WRITE IN) _____

21. When you bought your DRY SUIT, did the seller offer any training in its use?

Yes 1
No 2

21a. If "Yes" did you take the training?

Yes 1
No 2

21b. Did this training include emergency procedures for:

Flooding 1
Unintentional inflation 2
Exhaust valve failure 3

22. When you began using your DRY SUIT, were you:

Totally at ease with it 1
A little apprehensive 2
Very apprehensive 3

23. How much extra weight did you have to add, over what you used with a wet suit:

None 1
1 lbs 2
2 lbs 3
3 lbs 4
4 lbs 5
5 lbs 6
6 or more lbs 7

24. What type of weight belt do you use with your DRY SUIT? (DESCRIBE FULLY)

_____

25. Do you find the pre-dive preparations of zippers, ankle wrist or neck seals a problem?

Yes 1
No 2

25a. If "Yes" which cause problems:

Zipper 1
Wrist seal 2
Neck seal 3
Ankle seal 4

25b. What problems do you have? (WRITE IN) _____

_____

EVERYONE ANSWER

26. How would you rate your suit for:

	Excellent	Good	Fair	Poor
Comfort	1	2	3	4
Warmth	1	2	3	4
Durability	1	2	3	4
Workmanship	1	2	3	4

27. How would you rate your own maintenance of the suit:

Excellent 1
Good 2
Fair 3
Poor 4

28. Would you recommend this suit to a friend?

Yes 1
No 2

28a. If "No" why not? _____

_____

OPTIONAL INFORMATION:

Sex: Male.....1 Female.....2

Name: _____

Address: _____

City: _____

State & Zip Code: _____

Return to: Ben Davison
Undercurrent Editorial
Post Office Box 1658
Sausalito, California 94966

(Continued from page 4)
it's surely no place to fool around, there is comfort in knowing that the evacuation and medical services one might require are ready and available.

So, if the budget gets tight, consider diving New York this summer. The water is not warm, but the sun is. Motel accommodations can be less expensive--beach-side accommodations can be more expensive and more swank--than many Caribbean counterparts. And your nondiving spouse will never have to worry about what to do next. Diving the wrecks of New York is seldom dull, and a week on the beach on Long Island or on the streets of Manhattan can offer just as much excitement.

A Definitive Look At The U.S. Navy Tables

And The Risks We Take By Observing Them

No topic of discussion among sport divers gets more attention than the tables, the incidence of bends, and the application of the tables to sport divers. And when sport divers sit around and chew the fat, no topic is served up with less fact and more misguided personal experience than just what those tables mean. It's about time somebody sets the record straight, and this article by Dr. Bruce Bassett does just that.

Dr. Bassett, who did much of his research while in the U.S. Air Force and is now President of Human Underwater Biology, Inc., delivered his paper at the 1982 Scientific Conference of the South Pacific Underwater Medicine Society. We have edited the version which appeared in the *SPUMS Journal* and take all responsibility for any changes in the original text or in Dr. Bassett's intent.

* * *

The United States Navy (USN) standard air tables were produced in 1955. How good are these tables?

They have been used by many, many people around the world for all these years. For a long time the USN did not have any idea of how good the tables were. One person would say that they had 5% bends on a particular project; another would say that they had 10%; another would say that they did not have any. But until 1970, the USN had no recording system for the number of dives made, so the overall incidence of bends could not be determined.

In 1970, the USN adopted a recording system, into which they would log all dives made under their auspices. In the first year, 30,039 dives were made. There were 30 accidents, 25 were decompression sickness (DCS). Over half the accidents occurred in 4,004 heliox, nitrox, saturation or experimental dives. Included in the remaining 26,035 dives were deep sea dives, the USN standard dress dives, fairly deep diving and hard working diving. Probably a good percentage, if not all of these, were decompression dives. Three decompression accidents gave .081% bends, a very respectable incidence record. Lightweight air dives using full face mask or a band mask involving moderate work at moderate depths, with probably a mixture of decompression and no-decompression dives, produced a slightly lower incidence of bends.

Open circuit scuba, the biggest category of all in that year's reporting, had an incidence of .035%. All in all, one accident out of every 2,173 dives is a pretty good safety record. It is also a good reason for you to log your dives -- so you can quit at 2,172.

I have used this information for years to promote the use of the USN tables among sport divers. However, there are some fallacies. A big question: "How does the USN *use* open circuit scuba?" There were 17,266 dives on scuba. If scuba is used primarily to scrub the sides of ships, the diver is never deeper than 30 feet -- probably a lot shallower than that --and never anywhere near the no-decompression limits. So this denominator, inflated by nearly no-

risk dives in shallow depths, will influence the statistics and lower the incidences of bends. Still, this may equate to sport divers who dive conservatively. But the question that really comes up for the sport divers is "If I dive to the limits of no-decompression, what happens?"

A more recent USN report confirms my impression about that inflated denominator. This analysis looked at the standard air tables and took only dives made to schedules, that is, times and depths actually printed in the USN standard air tables. For example, at 60 feet the first entry is 60 minutes right at the no-decompression limit. There is no entry for dives less than 60 minutes. Then it goes to 70 minutes, to 80 minutes, and so on. As a result there was a difference in the overall numbers.

In the seven-year span covered by the report, the total number of dives reported to be on a schedule found in the USN tables was only 16,167. (See table I). Compare that to the one year's report of 17,266 open circuit scuba dives, and it's clear that 17,000 of those dives were probably nowhere near the no-decompression limits. If one eliminates those dives, then, the incidences of bends goes up. For 202 cases of decompression sickness, the incidence is 1.25%.

Of all dives reported, 6,712 were between 40 to 140 feet, the depth range of interest to sport divers. 86% of these USN dives were decompression dives, 14% were no-decompression dives. There were 98 cases of decompression sickness, an incidence of 1.5%.

In the deeper dives down to 300 feet, the incidence actually dropped a bit. Remember that 86% of the dives were decompression dives, and 14% were no-decompression dives; 86% of the cases of decompression sickness were from decompression dives and 14% were from no-decompression dives. That says that the risk of decompression sickness in the USN diving does not differ in no-decompression or decompression diving. 5,547 dives, 34.5% of the total, were between 150 feet and 190 feet. There were 49 cases of DCS (24.3% of the total), an incidence of 0.9%, a slightly less chance of getting bent than with the shallower dives! 99% of those dives were decompression dives. Between 200 feet and 300 feet the incidence went back up to about 1.4%. Obviously all of those were decompression dives.

Many sport divers, when they learn to dive and learn about decompression tables, are told not to undertake decompression dives. They are told they are unsafe. I agree with that for sport diving. But I do not agree that decompression dives make for a greater chance of getting bent. That appears not to be true. One does not stand a greater chance of getting bent, unless one does not perform the dive correctly. Sport divers cannot handle decompression dives correctly if they do not plan them properly and provide for the same standard of surface control as the USN. But if one performs the decompression dive properly -- as do USN divers -- then the chances of bends are no better nor worse than in no-decompression diving.

Nevertheless, I do not promote deep diving among sport divers.

Do These Figures Apply To Sport Divers?

We have to consider the question "Can one expect that kind of incidence as a sport diver?" The answer is "yes," "maybe," and "no."

The answer is "yes" if one dives the same way the USN dives and one is in that segment of the population curve that describes the divers from whom these statistics were derived. Then one might expect the same statistics. But there are other variables.

Fitness

A lot has been made about the USN tables being made for USN divers. They are supermen. They are in top physical condition and all that. Actually the usual bell-shaped curve describes the USN diver population. Some are superfit and some are not so fit. Extremes are what makes the difference between the sport diver and a USN diver.

Age

There are extremes in age. By the time they get into military training, they are over 18. At the other end of the scale, there are not very many active USN divers beyond the age of 35. There are plenty of sport divers older than 35 and younger than 18.

Sex

None of those statistics apply to women divers. The USN has only recently started accepting women divers.

General Health

Obviously, if you are not healthy enough to pass the physical for the USN, you are not in that population.

Obesity

Chronic obesity is frowned upon in the military; anyone frankly obese will be taken off diving service. But I have measured body fat in military subjects and there is a range of fatness.

Diving Patterns

Many sport divers are in their 20's so they are like the USN divers. But it's unknown if they dive the same way as the USN divers. The USN tables say one can go to 60 feet for 60 minutes and come straight to the surface. But if the USN diver never reaches 60 feet but does stay for 60 minutes, the Navy does not tell us about it. Most likely, they are diving differently from sport divers. For example, if a USN diver makes a dive to 100 feet for 25 minutes and records it as having been made to schedule, it gets logged as 100 feet for 25 minutes. But what he may have done was to dive from a 91 or 92, or anywhere on up to 100-foot dive, and his time may have ranged from 21 to 25 minutes.

Then there are other considerations, like the USN "2 foot and 2 minute rule" which is not in the diving manual, nor is it mentioned on any of the USN tables or sport diver tables. The rule is if a USN diver is within two minutes or two feet of a schedule, he goes to the next level on the schedule. The USN follows this rule. So in reality, it is not a 60 feet for 60 minute schedule. At 58 feet you go to the 70 feet schedule; at 58 minutes you go to a 70-minute bottom time.

That makes one wonder if sport divers do dive the same way as does the USN. As another example, how much repetitive diving shows up in the USN? There's no information in the report. Yet sport diving is a sport of repetitive diving. It may be only once a year that one does this kind of diving, but when we do it we dive a lot on a sport diving vacation. So there are some differences to worry about.

So, what happens when one really makes dives to no-decompression limits? Some of the USN statistics may make us wonder a little bit about the no-decompression limits. First, how close do the USN divers go to the limits? I suspect not very often, both by probability and by Navy diving supervisor's unwritten laws, in addition to the two foot and two minute rule. When I went through the USN diving school medical program in 1964, the Master USN divers were saying "Always cheat the government, never cheat the diver. Time and air are cheaper than bone and brains." Any logged as 60 feet for 60 minutes (and with the 2 + 2 rule that means 58 feet or 58 minutes) would be decompressed for 70 feet for 70 minutes -- and that also means a 14 minute stop at 10 feet.

Let us take some individual schedules from the USN and look at laboratory studies as well. (See Table 2). For a 60-foot, 60-minute dive, the USN reports a 1.1% incidence of bends. If a sport diver slips past 60 minutes and does a 60 foot for 70 minute dive, but with proper decompression, is that a better dive form? In the Navy's experiences, no, although the test numbers are pretty small: three out of 62, or a 4.8% incidence. Nevertheless, it does look like a diver does increase his risk of the bends.

In Seattle, Dr. Spencer has done a lot of work in the laboratory with no-decompression limits using the Doppler ultrasonic, precordial bubble detector. He recorded one bend in 13 exposures to 60 feet for 60 minutes: a 7.6% incidence.

My own contribution is an equivalent flying-after-diving schedule. Before I retired from the U.S. Air Force, my three-year project was to validate some schedules for flying after diving. We made a dive in a hyperbaric chamber to a bottom time calculated so that when we ascended to the surface and continued on up to a 10,000 foot altitude, we would produce the same surfacing ratio as the USN no-decompression limits surfacing at sea level. In my schedule, I did a 60-foot dive for 20 minutes. But when the "diver" surfaced and continued up to 10,000 feet it was the same as coming to the surface after a 60-foot dive for 60 minutes. I was equivalent by design. The statistics back up the equivalency because I had about 5.6% bends and about 30% intravascular bubbles, much

TABLE 1

USN DIVES MADE TO DIVING MANUAL SCHEDULES 1971-1978

DEPTH IN FEET	DECOMPRESSION DIVES	DCS	INCIDENCE	NO-STOP DIVES	DCS	INCIDENCE	TOTAL	DCS	INCIDENCE
40-140	5,782	85	1.5%	930	13(13.3%)	1.4%	6,712	98	1.5%
150-190	5,512	49	0.9%	35	0	—	5,547	49	0.9%
200-300	3,908	55	1.4%	0	—	—	3,908	55	1.4%
ALL DEPTHS	15,202	189		965	13		16,167	202	1.25%

TABLE 2

COMPARISON OF USN, SPENCER AND BASSETT SCHEDULES AND DECOMPRESSION SICKNESS (DCS)

SOURCE	DEPTH/TIME	DCS/DIVES	DCS
USN	60/60	2/183	1.1%
USN	60/70	3/62	4.8%
SPENCER	60/60	1/13	7.6%
BASSETT	60/60 (E)	1/18	5.6%
USN	80/40	0/40	0
USN	80/50	2/34	5.9%
BASSETT	80/40 (E)	1/16	6.3%

(E) Equivalent Flying After Diving Schedule

the same as Spencer found on his 60-foot dives for 60 minutes.

At 80 feet for 40 minutes the USN had no bends. But at 80 feet for 50 minutes they had a 6% incidence, which is the same as the dive to 80 feet in my equivalent dives: 6.3% was 100 feet for 25 minutes.

The worst for the USN. It gave 4 cases in only 43 exposures, a 9.3% incidence. Remember, probably only one out of 50 dives is actually made to that limit. My 100 feet for 25 minutes equivalent dive, as with all my equivalent dives, had a 6% incidence of bends. It is interesting (and this will come to light when I finally give you my recommendations for sport divers) that when you go deeper the bends rate decreases. There is a reason for this in the design of the tables. I was totally clean on the 130 foot for 10 minute equivalent dive, and the USN was almost clean at 130 feet for 10 minutes.

When we actually dive to the no-decompression limits in the laboratory, we find a 5% to 8% incidence of the bends. Depth is controlled. Time is controlled. In Spencer's laboratories and in my laboratories all of our work is performed according to the USN tables.

What can you do to prevent that 6% bends incidence? I will cover that in the next issue.

What To Do When The Dive Boat's Down

—*Try Body Surfing!*

On a diving trip, getting wet is the sole purpose. How deep the disappointment runs when the dive boat isn't operating, when the visibility is minus five, or when you can't get air for your tank. The choice for most people is to lay back on the beach, serve up a sixpack, and bitch about it.

I suggest another option. If you have a little surf, try body surfing. It may not compare with diving down under, but if you develop a few skills it can provide plenty of thrills.

Body surfing is such a natural activity. You seldom need equipment. If you can swim you can do it. The waves will give you a ride that the dolphins will envy. But even dolphins are limited in which waves they can bodysurf, and we are too.

The skill of the bodysurfer includes the ability to assess a beach for proper waves, and then the choice of a suitable wave from among those coming to shore, so that he or she can become part of that wave. This joining of person and wave should occur when the wave has peaked. The two companions will finish their journey with one of them exuberant, the other exhausted.

However, one should always choose a traveling companion carefully. *Plunging* waves are callous fellows who have little regard for individuals. They will part company with the bodysurfer who lacks discretion and leave their former mate with more than dignity hurt -- and think nothing of it.

Spilling waves are of a different sort and to be more highly regarded. They do not part company abruptly and they show a decent concern for one's well being. Like a drink that goes down well, you want another after the spilling wave.

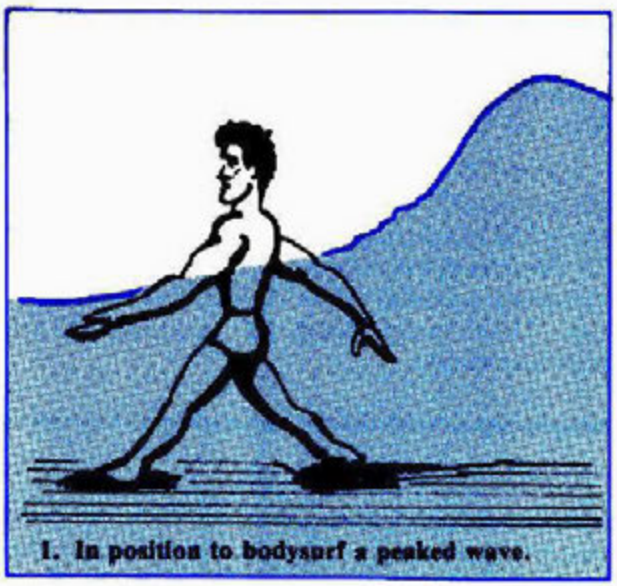
It can go to your head. Wave after wave and ride after ride. Just you and the feel of the water, the feel of the ride. You laugh or even shout as the foam bubbles forth from the wave. The sun warms you and quickly begins to dry you as you momentarily come to you feet. Such joy you never felt coming off the freeway in Los Angeles.

Beginner's Moves

How do you begin? The waves should be at least a foot high, preferably closer to two feet high, and if

you are not an experienced ocean swimmer, not much over three feet high. Generally, these waves will either break near the beach face or offshore on a sandbar.

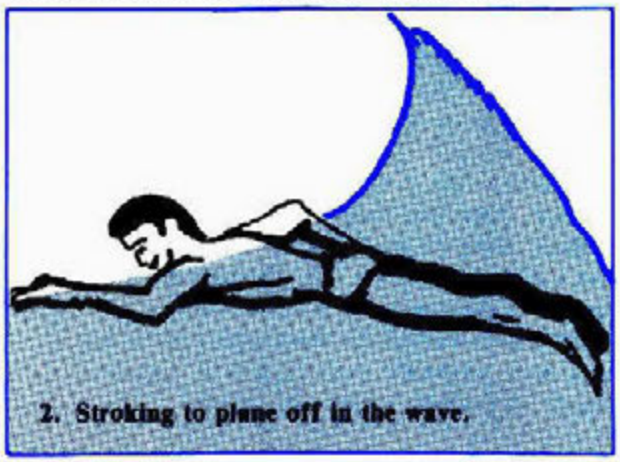
If this is your first attempt at body surfing, begin with the last phase of a complete ride by positioning yourself in front of where the waves break. As the broken wave reaches you, leave your feet and move forward with the wave in a prone glide position with hands extended in front. Only do this with a fully broken wave. The glide will let you feel your body move with the water.



1. In position to bodysurf a peaked wave.

The next step is to position yourself in front of the area where the waves are beginning to peak. The peak of the wave should be breaking soon after it reaches you. Just before the wave can physically hit you, lean into the water toward shore. Keep your head out of the water, stroke and kick briefly.

A couple of strokes should be sufficient to plane your body into the wave. After your brief strokes, quickly bring your arms back under your body with palms pressing up, hands stopping about a foot away from your hips, and with shoulders hunched. If the wave has enough energy to make body surfing possible, you should be "locked in" to the wave.



2. Stroking to plane off in the wave.

Most beginners make the mistake of not bringing the arms back and under the body. The prone glide posture with arms forward is okay for riding in the white water of a broken wave. But you cannot lock into the curl of a wave with arms forward, because your body weight is disproportionately forward and will make you drop.

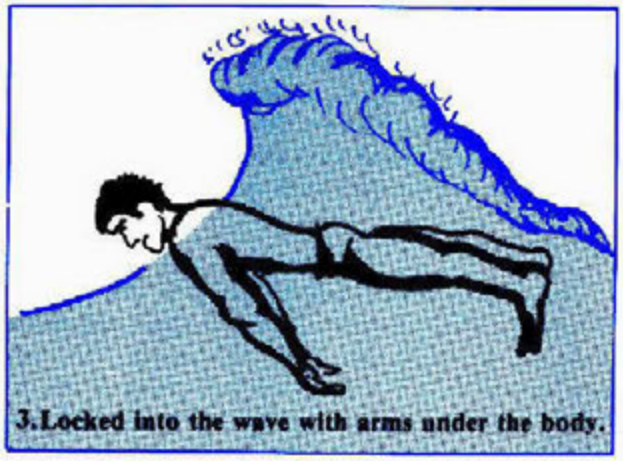
You can slide down the face of a large wave, once you lock in, even if only briefly, by putting one arm forward with the hand skidding on the water surface and with a body lean toward the extended arm.

Beginners often can be seen swimming strenuously after waves because they either do not properly evaluate whether the waves are rideable or because they do not position themselves properly in front of them. After finally catching a wave, the beginner often keeps swimming throughout the ride or goes into a prone glide position before the wave has fully broken. Continuous swimming is unnecessary and ruins the ride, and the prone glide position in a wave not fully broken makes the person a good candidate for a shoulder dislocation or a broken arm if the wave plunges.

There are ways to get out of the ride. If you don't like the way the wave seems to be shaping and you suspect that you will be dumped hard when it completely breaks, then drop your feet, turn your palms down, push your arms forward and drop out of the wave. Alternatively, you can develop a style of somersaulting out of the wave. After you roll, you should be facing seaward so you can swim back out.

Locking In

Once you learn how to lock into a wave, all the possibilities of the joy of body surfing open up. You now have become a good judge of waves that are moving fast enough, are large enough, or peak and shape well enough to be bodysurfed. You don't try fruitlessly to catch every little whitecap that comes by. You can begin to experiment by sliding right or left on the good waves. You don't take unnecessary risks.



3. Locked into the wave with arms under the body.

Large waves that break in deep water are not likely to bounce you off the bottom. They offer great rides,

but can present other problems. The bodysurfer usually needs fins to maneuver well for position and to plane off quickly to catch the big waves. Waves that are four feet or higher will usually break in water over your head. These waves can create a lot of foam, which is aerated water and not very supportive. Consequently, you may have to hold your breath for a few seconds under water if a big wave breaks on you.

If you are in the area of a lot of wave foam, never inhale it. It will probably induce coughing. If you do have a coughing fit, put your chin down and cough, even with your face in the water. When you turn or raise your face to breathe, make sure your mouth is clear of both the water and the foam.

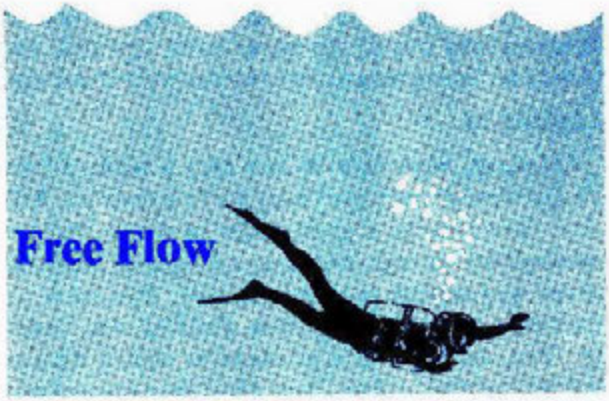
Precautions

Since body surfing can be dangerous, especially in powerful surf, supervision of the area by a lifeguard staff that provides professional services is desirable. If lifeguard supervision is absent, don't take chances. Have at least one companion who is competent to assist in an accident. Agree before you go swimming that in case one of you is in trouble, you will try to float on your back and put one arm up in the air as a signal for help needed. But if you agree to do that, also agree not to swim offshore and wave at the folks on the beach just to be sociable. And keep in mind that alcohol or drugs slow down reaction time and impair judgment for bodysurfers, as well as for divers.

Surfboarding has been called a sport for kings, and body surfing is a sport for the commoner.

There is no status or prestige in bodysurfing because you don't have to buy anything to do it. The purveyors of conspicuous consumption come begging to bodysurfers. The activity is pure pleasure. Nevertheless, if you wish, you may still sit on the beach with your sixpack and moan about the missed dives. As for me, I'll head for the nearest wave.

Richard D. Baker, the author, is a professional lifeguard and the author of Lifeguarding Made Simple, *which was published in 1980 by A.S. Barnes and Co. He lives in Chincoteague, Virginia. A version of this article appeared originally in* Clothed With The Sun. Undercurrent *takes all responsibility for editorial changes.*



Two divers claimed they were attacked by enormous loggerhead turtles off the Florida Coast. L.M. Boyd, the so-called "Answer Man," whose column appears in hundreds of papers coast-to-coast, says "hogwash." Experts have decided that those male turtles, nearsighted as they are, "mistook the divers for female turtles and tried to smother them with love."

At a recent wine tasting party in the United Kingdom, wine connoisseur Noel Cossart sampled a Madeira wine, vintage 1790. His report: "A fine Madeira with a full deep tawny colour, a 'nose' which is still firm, and a good degree of fruit and richness on the palate." A companion bottle recently sold for $360. Certainly a 200-year-old Madeira is noteworthy, but of even greater interest is that the wine spent more than 130 years hidden aboard the British barque *Able,* deep in the waters off Savannah, Georgia. Divers discovered the barque and the Madeira and presented one to Cossart, whose long-lived London firm Cossart, Gordon, and Company originally shipped the wine to America in 1840.

Ever wonder where the Jewfish got its name? We've heard at least two stories. According to *Sea Secrets* it's because the giant fish meets the restrictions of Jewish dietary laws by possessing both fins and scales. The law, from Leviticus XI: 9-12 in the Old Testament, reads: "Everything in the waters that has not fins and scales is an abomination to you." Although in the Caribbean the giant grouper gets the distinction of being called Jewfish, in other parts of the world other fish meeting the fins and scale criteria get so labeled! The Pacific giant sea bass, the Australian mulloway, the Indo-Pacific longtooth salmon, and the warsaw grouper. . . William P. Braker, Director of the John G. Shedd Aquarium, has a different answer: "The Spanish name for many species of large groupers is *guasa.* Early settlers in the Florida keys learned the word from Cuban fishermen and they gradually corrupted it to guasafish and finally to jewfish." Any other ideas?