

undercurrent

The Private, Exclusive Guide for Serious Divers

January 2008

Vol. 23, No. 1

REEF Field Survey, Kona, Hawaii

IN THIS ISSUE:

REEF Field Survey, Kona ...	1
Cozumel Car Rental Scam ...	2
Survey Fish Year-Round.....	3
The Brief on REEF	4
Book Review: 2008 Diving Almanac & Yearbook	5
<i>Sea Dragon</i> , Bahamas	6
When Needlefish Attack	7
Out of Air? Try Your BCD	9
Regulator Recall	10
How to Emergency Breathe from a BCD	11
Testing Quirky Fins	12
Female vs. Male Divers.....	13
Shark Shields and Repellants	14
Got a Good Diving Tip?....	15
Diving, The Rich Man's Sport	15
Flotsam & Jetsam.....	16

www.undercurrent.org

Editorial Office:

Ben Davison
Publisher and Editor
Undercurrent
3020 Bridgeway, Suite 102
Sausalito, CA 94965
BenDavison@undercurrent.org

tax-deductible "immersion training"

Dear Fellow Diver:

Regardless of what those 19-year-old dive instructors say, you can teach an old diver new tricks. Though I have 400-plus dives, I wanted to improve my fish ID skills, so I put myself in the hands of the Reef Environmental Education Foundation (REEF) and their instructors for a week with Jack's Diving Locker on the big island of Hawaii. My goal: to be able to identify fish I've previously passed off as "little red critters." Call it "immersion training."

The not-for-profit REEF is more than a teaching organization. It holds week-long field surveys, or fish counts, in U.S and Caribbean waters throughout the year. All the data REEF collects is housed in a public database on its Web site and used by various marine agencies and researchers to monitor reef health and fish abundance.

Fish ID training began before I left home. Christy Pattengill-Semmens, one of REEF's two PhD-level trip leaders, directed me to good books and online references. Once in Kona, I was given an underwater fish identification card and a pre-printed log with the names of more than 125 fish to check off if I encountered them. So I would be accurate, my dive days included at least two hours of class training at Jack's shop.

Kona is a great place to do a fish count. Of the Hawaiian Islands' several hundred fish species, 23 percent are endemic to the Big Island. I started seeing the marine wonders before jumping off the dive boat. The sleek, gray backs of false killer whales broke the surface while motoring to our first dive. They typically inhabit deep ocean and are rarely seen, yet here were nine, bumping the boat and playing chicken with divers entering the water. As we left for the second dive, the pod danced in our boat's wake. Unfortunately, the first dive site -- Touch of Gray -- was heart-pounding in an unpleasant way. Danny, the captain, put a drop line in at the stern and a tag line to the bow and instructed me and another diver

REEF Field Survey, Hawaii

Diving (<i>experienced</i>)	★★★★
Diving (<i>beginners</i>)	★★★
REEF Training	★★★
Accommodations	★★★★
Food	★★★★
REEF's Service and Attitude	★★★★
Jack's Service and Attitude	★★★
REEF Trip Money's Worth	★★★★

★ = poor ★★★★★ = excellent

Worldwide Scale

to take it to the anchor line. We hit a blast of surface current so strong and exhausting that we quickly aborted the entire dive. Embarrassing, but a good decision. Other divers used half their air getting to the dive site and thought they were going to be swept past the drop line on return. Not a good orientation dive. For subsequent ones, crew found sites with less current and depths between 45 and 60 feet.

Using REEF's "roving diver" survey technique, I free-swam my own profile and used the preprinted underwater forms to record all the fish I could identify without guessing, and to estimate their abundance: single, few (2-10), many (11-100) and abundant (more than 100). This technique made it possible for even novice surveyors like me

to collect valid data. Back at my condo, I sat down to hand-transcribe the data onto computer-readable "bubble" forms for REEF to process. Rather than pass out in a hammock, I actually accomplished something worthwhile during my down time.

When not diving, training time was spent in the classroom. As trip leader, Christy used slides and videos to talk about key features of the fish we would most likely see, differences between similar-looking fish, depths at which they lived, behaviors and other details. Every day, we reviewed fish spotted the day before and added new ones to look for. If I couldn't identify a fish, I'd ask and we'd figure it out. While REEF uses Paul Humann's books (Paul was one of the REEF founders), he doesn't have a Hawaii-specific volume so we used the excellent Shore Fishes of Hawaii by John Randall.

While underwater would be the most effective place to learn, there were too many divers, not enough staff, and not the best of teaching skills. Either Christy or her husband Brice was in the water on each dive but with six teams spread out, I only saw them twice during dives. Each time, however, they did point out a fish I didn't know, which highlighted the need for more teacher/student time. However, 10 of the other 12 divers had worked with REEF before, so they helped me spot and ID fish. (Their ages ranged from 30 to 70, all were American and one woman had completed more than 700 surveys.) Krista, a Jack's divemaster and professional photographer with a good eye, pointed out creatures like a shy reef octopus waving his siphon like a miniature circus elephant, and a spawning sea cucumber holding itself erotically

Diver Car-Rental Scam in Cozumel

In our October issue, we shared a reader's report about suspicious charges at Budget Car Rental in Bonaire, and stressed the importance of buying collision-damage insurance when renting a car abroad. Now another shady car scam has surfaced in Cozumel, says *Undercurrent* subscriber Rick Feig (Baton Rouge, LA).

"I rented a small Chevy from the Sol y Mar rental company located directly in front of the El Cid - La Ceiba beach hotel. Upon returning the car, I discovered a small hole on the left tail light, obviously made by a small nail and a hammer, or a 1/8-inch drill bit, that destroyed the

entire lens. The car had been parked overnight at the hotel's parking lot, about 20 yards from Sol y Mar.

"Having just read the October issue of *Undercurrent*, I had purchased insurance at the time of rental, but I wasn't surprised when Roger, the counter clerk, said the hole in the tail light was not covered, and I would have to pay him U.S. \$60 in cash for the damage. I told him to just put it on the bill and I would take it up with the rental car company, but Roger said he couldn't do that as all 'small' damages had to be paid in cash. After a heated discussion, I finally gave him \$40 just to close the problem."

erect to discharge a smoky red stream of gametes into the water column.

By the third day, I was comfortable with the survey techniques, less dependent on the ID chart and other divers, and delighted in what I was finding underwater. However, the survey materials were awkward to carry and precluded much recreational photography. At Pipe Dream, I took notes, eager not to miss any species I could identify and count. Yellow tangs were sun drops against the gray reef. Blackfin chromis flitted about like mosquitoes. Chocolate dip damselfish, not to be confused with the white tail chromis found at 100 feet with the tinker butterfly fish, looked like they were held by their tails and slathered with chocolate. I hurriedly tabulated the two dozen common species so I could scout for the more unusual ones, especially the Moorish idol. The Hawaiian parrotfish -- bullet head, palenose and redlip -- are less abundant than their Caribbean counterparts, but surgeon fish and butterflies are more abundant. Fourspot, ornate, multiband and raccoon butterfly fish swirled in clouds around me, while two pennant fish cruised toward the blue. A bird wrasse, easily distinguishable by its beaky profile, flitted by like a hummingbird on a mission. I stared hard at what I hoped was a long-nose butterfly but it turned out to be its cousin, the forcepsfish, a fish I would have never recognized without the training.

My one-bedroom corner unit at Hale Kona Kai condo ("House by the Sea" in Hawaiian) was small but clean and comfortable. The kitchen was fully equipped, and the Florida Keys décor wasn't objectionable. The wraparound lanai hung above the shoreline, and sunsets were spectacular. Spinner dolphins put on a show a few yards offshore, and yellow tangs, pink tail durgons and green sea turtles frequented the tidal basin just below my room. It was a short walk to Jack's main shop. Its new, smaller shop is on the harbor, where we boarded the boat. Jack's has 63-, 67-, 72- and 80-cf. aluminum tanks. All five boats, ranging from a six-pack to the 50-passenger Kea Nui, were outfitted with emergency gear, working heads and warm, freshwater showers -- and lots of employees. With the exception of Krista, the crew changed daily. They gave lengthy orientations about gear, tank and boat procedures, but those procedures changed every day. Jack's took over an hour to get divers, tanks and gear to the harbor and onto the boats, and there were several gear switching and malfunction problems, which led to some serious grumbling.

When I initially checked in, I put my gear into two assigned gear bags and hung them on a numbered hook in the locker room. Mornings, I made sure my bags were not there when the van left for the harbor. At day's end, I reclaimed gear from the heap on the boat and put it back in the bags. Otherwise, Jack's handled my gear, including rinses. Crew brought my tank and BC to me before I took a giant stride off

Survey Fish Year Round

You don't have to take a REEF dive trip to participate in its fish counts. The nonprofit encourages divers to do it whenever and wherever they go diving in waters from Canada down to the Galapagos, with the same materials and methods used on their trips.

For beginning divers, REEF has just adapted its classroom course into a home-study DVD package. "Reef Fish Identification - A Beginning Course," which teaches the fishwatching basics, includes identification of 50 commonly sighted species found in the Caribbean, Bahamas and Florida. The DVD costs \$55 and includes a waterproof fish ID booklet, underwater survey slate and REEF survey materials. Order either online at www.reef.org, or call REEF at 305-852-0030.

Volunteers use the same Roving Diver Technique our writer describes in the Kona story. The only materials needed are a slate and pencil, one of REEF's free scantron forms available at its online web store, and a good fish ID book. The goal is to find as many species as possible, so divers are encouraged to look under ledges and up in the water column. Divers in California and Pacific Northwest waters can also take part in monitoring programs for algae and invertebrates such as anemones, starfish, and sponges.

Forms can be mailed to REEF or submitted on their online data entry site. All the data is housed in a publicly accessible database on REEF's Web site and is used by multiple marine agencies and researchers. Besides helping U.S. and Caribbean environmental protection agencies get good data to rely on, you'll have better dive experiences while you realize who are the usual suspects and which species is a fantastic find.

The Brief on REEF

The 17-year-old REEF, based in Key Largo, was founded to connect the diving community with scientists, resource managers and conservationists and help each other protect marine life. That's done primarily through the year-round fish-monitoring program, and REEF has nearly 60 field stations in the U.S., Canada and the Caribbean that distribute survey forms, teach fish identification courses and organize local survey dives.

REEF is expanding the number of field trips volunteers can participate in. There are eight surveys scheduled for this year, ranging from observing Nassau groupers' spawning behavior in Little Cayman to studying cryptic species in St. Vincent with Paul Humann and Ned and Anna DeLoach. Other trips go to Turks & Caicos, Key Largo, the Sea of Cortez, Cozumel and Akumal, Mexico. Prices range from \$544 for a week in Cozumel to \$2,595 at Little Cayman's Southern Cross Club.

Even if you're not into carrying paperwork during a dive, you can still help REEF by donating to its marine conservation programs. Before you send a check, you must join REEF (free membership). Donate online, or print out the donation sheet on its Web site and mail or fax it back. Donors giving \$250 or more receive a limited-edition eagle ray print signed by Paul Humann.

the back platform, but I had to climb up one of two sturdy ladders with my gear on. Onboard were two rinse tanks, first used for camera tanks, then mask and fins, and finally BCs and neoprene. There was little dry space and no camera table. Good deli sandwiches and cookies were served between dives.

Jack's and Hale Kona Kai are just off Alii Drive, Kona's main drag. The narrow, coastal street is crowded with shops, restaurants and bars, reminiscent of Key West. Eating establishments varied from storefronts like Splashers (excellent burgers and fries) to upscale restaurants like Kona Inn (delicious steak and fish). Java on the Rocks served wraps and omelets in the morning and converted to Huggo's on the Rocks after sundown with fresh seafood and live music. I was a 10-minute walk from "everything," but my rental car was useful for schlepping gear to and from Jack's, shore diving and touring the island. It was a quick drive to the grocery store, and fresh mangoes and lychee for break-

fast came from the nearby farmers' market.

On my day off from training, REEF arranged a group shore dive at the Pu'uhonua o Honaunau (Place of Refuge) National Historical Park, an ancient sanctuary where green sea turtles go to sunbathe. I drove to Hawaiian Volcanoes National Park, two hours southeast of Kona. The Kilauea volcano had been inactive for 24 years until last summer, when it erupted again, a month before my trip. Throughout the two-hour Crater Rim Drive, I stopped to walk up to the caldera or through steaming fissures to view (and smell) sulfur fumes rising from the lava.

Hawaii's dive sites are a continuation of the rugged volcanic topology, sloping rubble that drops down into steep walls. I swam through arches and small lava tubes as dark and barren as the ones at the volcano. I could dive my own profiles and stay in the water until my tank was dry, usually 75 to 80 minutes. Visibility varied from 25 feet to 75 feet, depending on how much spawning was going on. The water averaged 78 degrees, cold for my 3-mil wetsuit and hood. Local divers wore 5-mil. I warmed up between dives with the warm-water showers and a fleece jacket.

Boat rides varied from 10 minutes for north side sites to an hour-plus for the more desirable south side sites. Hawaii has 80 sites in all, but most of our dives were on the north side, which allowed longer bottom times plus time to get back for evening training sessions and the manta ray dive on the 38-foot Na Pali Kai at sunset.

While the only manta ray I saw during the week was one floating motionless on the surface between dives, the manta ray night dive - no mantas! - at Eel Cove was still unusual. I sat in the circle of divers around a milk crate with floodlights pointed upwards. Above us, snorkelers floated with their lights shining down. The plankton got thicker and fish came in droves, shimmering in the floodlights. Suddenly, an undulated eel slithered into the crate and rose vertically, stretching his body full length, only his tail touching the crate. He continued his mesmerizing dance for several minutes, then swam directly toward me. When I flashed my light in his eyes he went toward the diver on my right and bumped his nose against the man's

light. He moved on to the next diver, coiled atop his head, then draped his muscular body around the diver's shoulders. The diver remained immobile, and I suspect he forgot the admonition, "never hold your breath underwater." The eel continued his pagan dance for seemingly an eternity, released his human dance floor, swam serenely back to the lights and again rose vertically for a grand finale.

For divers who want to increase their underwater IQ, REEF programs are just the ticket. My knowledge had advanced from jotting down "a little red shrimp" in my log-book to recognizing quarter-inch-long wire coral shrimp, and my counts helped advance the monitoring of Hawaii's fish population. By trip's end, I could accurately identify more than 120 of Hawaii's species. Overall, my group documented 213 species. Compared to most Caribbean and South Pacific sites, Hawaii's dives were colder and had more current. There were fewer species of vertebrates and invertebrates, and no soft coral. The survey kept me from using my camera and, at times, things were pretty chaotic both on and off the boat. Regardless, I saw multiple fish species found nowhere else. And wherever I take my next dive, I will study up and learn more. With the skills I learned, the sea has become more friendly, familiar and compelling. And writing off trip expenses as tax-deductible -- yes they are -- only added to the pleasure.

-- C.M.D.



Diver's Compass: REEF offered various packages with and without lodging; the former package was \$1,720 and included a \$300 program fee, five days of two-tank dives, training and lunch, but booking my condo directly saved me \$426 . . . The Hale Kona Kai condo was \$184 per night, including tax . . . Out-of-pocket expenses included breakfast, dinner, \$15 Nitrox fills and a rental car . . . To write off trip expenses, I had to keep accurate records of my volunteer time and out-of-pocket expenses, and also keep my cancelled check or REEF trip receipt; REEF doesn't give tax information but suggested talking to a tax advisor . . . Wintertime flights to Kona recently ranged from \$440 (West Coast) to \$678 (East Coast) . . . The nearest decompression chamber is in Honolulu . . . REEF's Web site: www.REEF.org; Jack's Diving Locker Web site: www.jacksdivinglocker.com; and Hale Kona Kai's Web site: www.halekonakaicondos.com

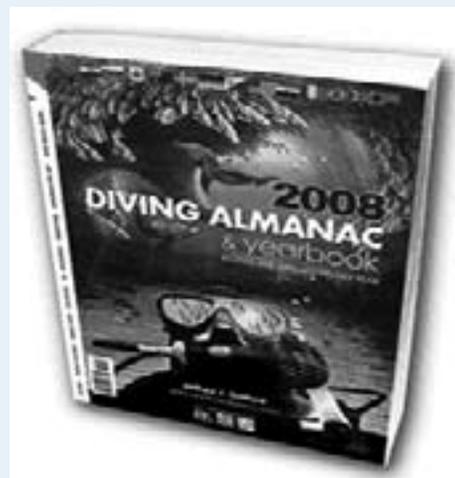
2008 Diving Almanac & Yearbook

This great reference book is actually more like an encyclopedia. At more than 600 pages, the 2008 edition is fatter and filled with more facts and fascinating stuff about everything diving-related. It starts with a 100-page long Diving Chronicle, marking the past year's underwater news from Steve Irwin's death by sting ray to the recovery of the lost submarine *USS Grunion* in Alaska. An extra 100 pages lists 150 new diving notables and 100 new records. Data come from reputable sources like Divers Alert Network, SDI/TDI International and the Historical Diving Society.

A notable new section is the Blue Pages with dive information by country from Argentina to Yemen, followed by a worldwide directory of dive resorts, liveaboards, charters and dive operators. There is also "Underwater Artists," a full-color section on painters, sculptures and other artists celebrating the deep (we like Pascal Lecoq's humorous twist of the "American Gothic" couple as divers).

All the 'at a glance' data from dive media and medicine

to equipment and trade shows earns the almanac a place on your shelf of dive books. 8 x 5.5 inches, paperback, 680 pages, \$28, plus \$12 shipping and handling. Order at www.undercurrent.org and profits will go directly to save coral reefs.



Sea Dragon, Exuma Cays, Bahamas

a good-value charter for dog-loving divers

Dear Fellow Diver:

Do you find it odd that I spent more time with the Sea Dragon crew's dogs than I did with other guests? Well, I had little choice. The four Australian shepherds go everywhere on and off the boat, constantly climbing the ladders onto the dive platform to return Frisbees and balls tossed into the water. If you cringe at the thought of being slobbered on when you return from a dive, you won't be a happy diver here. But these dogs are as welcoming as any liveboard's crew. They, their owners, Sea Dragon co-owners Dan Doyle and Sue Ford, and excellent divemaster Linda, have turned this eight-passenger boat into a floating home.

Despite the dog hair and the basic conditions -- the heavy, industrial-looking boat lacks the sleek, modern feel of Peter Hughes or Aggressor fleets -- the 10- to 12-day Sea Dragon trips are the same price many liveboards charge for one week. The boat visits Bahamas sites that only a few sailing yachts and conch fisherman reach, where abundant reefs and deep drop-offs make for good Caribbean diving. The 10-day itinerary runs from Nassau through the Exuma Cays; the 12-day trip, which I took in September, travels from Great Exuma Island to Long Island, Conception Island, Rum Key and San Salvador. The distant islands, the limited guest list, delicious food, temperatures in the 80s, experienced owners who've been sailing here for 36 years and, of course, the dogs made it a unique adventure.

Three hours after leaving the hubbub of Georgetown's harbor, we reached Long Island. Dan stopped for us to dive coral heads that sit close to the continental shelf and the nutrient-rich Atlantic current. After a giant stride off the dive platform into 82-degree water, I was among hundreds of schooling yellow striped snapper, grunts and jacks. The rocks hosted colorful fans, gorgonians, and several clusters of juvenile drum fish. At the sandy bottom at 60 feet were garden eels, jaw fish sprouting from holes, goat fish and hog fish. A pair of curious barracuda hung under the boat.

Linda, the boat's long-time divemaster and a Michigan gal in her thirties, dives with a magnifying glass to peer at the smallest critters, and uses mirrors to lure combative creatures from their lairs. She is also a pelagic magnet. If I hear her rattle, I rush over and usually see something big, like a hammerhead or a southern stingray. Dan and Sue, in their late fifties and also Michiganders, keep the Sea Dragon a family affair -- the two other crew were young relatives of Sue and Linda who were good at helping me out of the water, picking up gear and serving as buddies if needed. The dogs were always there to greet me when I climbed up one of the two ladders on the platform after a dive.. They are kept extremely clean but if you think dogs should stick to dog chow, you may find their literal spoon-feeding at lunch difficult to accept. They are well-behaved but more pampered than the guests.



We spent six days at uninhabited Conception Island. The leeward side had a bay with a pristine white-sand beach, the only one on this trip without no-see-ums. Only a few other boats anchored here, albeit one with a helicopter. To the south of the bay was a wall with several excellent dive sites; it had a sandy slope, good for muck diving, and shallow coral heads closer

When Needlefish Attack

Needlefish are common in all waters divers visit. Their habitat is commonly just inches below the surface, and though they've never been considered as dangerous, two recent incidents are chilling.

Last September, a 16-year-old boy died after being stabbed through the heart by a needlefish as he was diving for sea cucumber in northern Vietnam's Halong Bay. Duong Trong Anh was six feet below the surface when the three-foot needlefish stuck its bill into his chest then pulled it out. Anh died shortly after. Investigators believe the fish might have been startled by Anh and tried to swim away but accidentally stabbed him.

Closer to the U.S., a foot-long needlefish speared Deborah Berry, 50, in the neck, while she was treading

water in Hawaii's Wailea Bay on Thanksgiving Day. At first she thought a snorkeler had bumped her, but her husband Greg saw the fish "skipping" across the water for 10 feet, hit Berry in the neck, pull back and swim away, leaving a gush of blood.

"Turns out he went in one side and penetrated all the way through, out the other side with his snout," Berry wrote in an e-mail. "Couldn't squeeze his body through, so wiggled back out the entry side. Just missed the carotid artery and trachea. Now I look like someone tried to slit my throat."

Especially use caution when diving or swimming at night. While night swimming in Oahu's Kahana Bay, Tonga Loumoli, 19, got hit in the stomach by a 4-foot crocodile needlefish, identified by a tooth the fish left behind. He had 45 stitches and spent a week in the hospital.

to shore. To the north was South Hampton reef, an extensive barrier system with nearly 150 wrecks. Linda drew great maps, gave excellent briefings and pointed out plenty of interesting critters. Wall dives went down to 130 feet, reef dives were 30 to 60 feet.

I first dove South Hampton reef in 2001; the maze of tall coral columns, sitting at 50 feet and touching the surface, were completely dead and covered in green algae due to sea urchins dying off and lack of fish. On this trip, sea urchins were back, algae was retreating and sections of the columns were covered with hard encrusting coral. Closer to the surface where the columns split into fingers, I peered into cracks to see various worms, anemones, nudibranchs, crabs and little golden tail eels. Aside from the occasional shark, there weren't many schooling fish but the wreck of the South Hampton was a draw. The twelve-foot bronze cannons and giant anchor were guarded by some mean damsel fish. I used my compass to return to the boat through the maze of reef.

Conception had some excellent snorkeling and a great ride. Dan took me in the dingy up a salty creek that flows through the island's interior. As the tide went out, I could ride a fast mile to the ocean, past sea turtles and a pair of nurse sharks getting romantic. At a beach at the south end, schools of snappers and grunts nestled among the rocks in the shallows.

The dingy ferried divers to various sites, but the Sea Dragon was usually anchored over something worth diving for those wanting to squeeze in a fifth or sixth dive. Visibility ranged from 80 to 120 feet. I could dive as much as I wanted, with no restrictions on time or depth. If I chose to go solo, it was up to me to monitor depth, time and surface interval. I used an aluminum 80, though smaller tanks were available; they were stored on the back of a bench for easy donning and removal. I had a section to hang gear and store in a box, and I was responsible for rinsing and packing it. The boat doesn't rent gear but Dan offers some gear and makes simple repairs. With no dedicated area for cameras, photographers fiddled with cameras on the dining table.

At the wall on Conception's southern end, sites featured swim troughs, tunnels, overhangs, and sheer walls encrusted with gorgonians, whips, fans, wire corals and Volkswagen-sized sponges. On the first dive at Chain Wall, I swam down 70 feet to the top of the wall where a five-inch chain, encrusted with various soft corals, led to an anchor at 200 feet. At 150 feet, the chain spanned two ledges where fan coral, swinging on the chain, fed in the current. I peered under a ledge to see a lobster fanning her eggs, but heard Linda's rattle and hurried over to see a pair of hammerheads 40 feet below.

Sea Dragon, Bahamas

Diving (<i>experienced</i>)	★★★★
Diving (<i>beginners</i>)	★★★★★
Snorkeling	★★★★
Accommodations	★★★★
Food	★★★★★
Service and Attitude	★★★★★
Money's Worth	★★★★★

★ = poor ★★★★★ = excellent
Caribbean Scale

When the dives or the dogs tired me out, I slipped away for a nap. Each of the boat's four small cabins had two bunks and air-conditioning, and were tucked away from the boat's machinery. There was adequate storage with hooks, two shelves and an 18-inch closet pole. Two heads, one with a shower on the same level as the cabins, were kept clean.

In the morning, while deckhands hosed down the dogs, Sue served breakfast -- pancakes or French toast, homemade muffins, fruit, hot or cold cereal, and eggs with bacon, sausage or ham. Lunch was a sandwich buffet with several breads, cold cuts and cheeses, fresh tomatoes and lettuce, and a soup. Dinner was heaps of lasagna, steaks, pizza, barbecued ribs,

hamburgers and fish, while side dishes included fresh green salad, mashed potatoes, rice and steamed veggies. Every trip offered a Thanksgiving-style turkey dinner with all the trimmings, and leftovers for later meals (a common occurrence on the 12-day charters). I had to save room for desserts like cherry cobbler with vanilla ice cream and Linda's key lime pie. The food was irresistible, and I gained nearly 10 pounds by trip's end, proof that easy diving does not burn calories.

Meals were served in the main salon, dominated by the 10-seat dining table. The extensive reference library on Bahamian fish, flora, fauna and birds was stored on shelves underneath. One deck up were lounge chairs, clotheslines, and stored kayaks the crew took down upon request. There was also an underwater scooter to inspect wrecks but it scared the fish. A cooler was stocked with free beer (the only liquor served) and soft drinks, and water was served both hot and cold. In the evenings, when not stargazing, I curled up with a dog to watch a movie or marine documentary. Fellow divers were a group of retired civil servants and college professors who had been on the boat every year for at least a decade, some for more than 20.

Our final anchorage was at Rum Cay -- long ago the home of a first-rate dedicated dive resort, but no longer -- where I saw nearly every type of blenny in Paul Humann's ID book. Drum Fish Gulch was filled with drum fish but instead of coral heads or walls, the sea floor resembled rolling hills of exposed rock. The shallowest spot was 30 feet, with the hills gradually falling into the abyss. Gorgonians and fans grew sparsely at evenly spaced intervals. Sharp cuts up to 70 feet deep, and rocky, jutting overhangs were everywhere. One stony arch spanned a 20-foot chasm and made a great swimthrough. Visibility was at least 120 feet. Cuts were inhabited by small schools of jacks, snappers and grunts, with an occasional eel poking up between rocks. At 30 feet, the overhangs were home to dancing juvenile drum fish with threadlike fins. This was one of the few sites I saw no Pacific lionfish, which have proliferated in these waters since they were inadvertently introduced 15 years ago.

On every trip with the Sea Dragon. I've always spotted something I've never seen before, so trying to stump Linda and Sue was my goal. On one dive, I saw white tubular objects that looked like vacuum-cleaner hoses attached to coral branches. What the heck? The two women immediately knew -- containers for a type of snail egg. Between dives, I swam and played fetch with the pups, or sometimes just rode with them in the dingy to shore for the guided nature walk or to slip in a snorkel before meals. The dogs got long walks in early morning and late afternoon, which gave me lots of opportunities for birdwatching, flora identifying and beachcombing. It was good exercise for all of us.

The Sea Dragon has a short season, typically between May and September, although Dan says he may extend it through October this year. Because it's usually chartered and only takes eight divers, it fills up fast. Call Dan during off-season to book the boat, and he will put solos or small groups in touch with dive clubs needing to fill their list. The diving is less dramatic than the Caymans, but the Sea Dragon's northern Nassau route features lots of sharks and turtles. I preferred the southern route with its longer itineraries and sandy beaches, and hammerheads are a common sight. This is a good pick for divers who appreciate bird-watching and hiking and don't require private bathrooms. But you must love dogs.

-- S.V.M.



Diver's Compass: Sea Dragon's full-boat charter rates are for a group of eight and range from \$11,000 (\$1,375 per person) for five days diving to \$14,800 for seven days (\$1,850 per person); additional time is \$1,600 per day . . . As a single diver, I paid \$1,800 for my share of an 10-day dive charter . . . No Nitrox available . . . Fly to Nassau for a northern-itinerary trip, and Georgetown for the southern itinerary; March flights recently averaged \$350 for Nassau, and \$700 for Georgetown . . . Give Dan your itinerary and he will send a taxi, costing \$20-\$25 . . . The nearest recompression chamber is in Nassau . . . Sea Dragon's Web site: www.seadragonbahamas.com, e-mail is seadragonbahamas@hotmail.com, and phone is (954) 522-0161.

Out of Air? Try Your BCD

what the agencies won't tell you about secondary air sources

No diver should ever run out of air, but it still happens with alarming frequency. Panicky ascents can lead to embolisms, blackouts and other primary causes of diver deaths. But there is a technique that can provide a few additional breaths – just enough to locate a buddy or start a controlled swimming ascent. It involves breathing air directly from your BCD. It's tricky to master, but when all else fails, it might save your life – or your buddy's.

Even if you suck your tank bone dry at depth, you can still breathe the residual air in your BCD

Say you're 100 feet down with two buddies and both come to you out of air. If you're experienced and alert, you could pass your primary second stage to one buddy and give your octopus to the second. But what about you? Begin a slow ascent. Valve fresh air into your buoyancy compensator with your BCD's inflator hose and breathe through your oral inflator mouthpiece. Instead

of free-ascending with no air, you'll have a few breaths of air from your BCD as you rise, allowing you to make a slower and safer ascent.

You may have never heard of BCD breathing. You see, no commercial training agency teaches this technique at any level. In fact, since we first reported on it several years back, the industry seems to have closed ranks against it, even though it's been successfully tested in various predicaments.

We're hardly advocating breathing the air remaining in a BCD as standard practice. It's only as a last resort. Even if you suck your tank dry at depth, you can get some air through your regulator as you ascend and the air in your tank expands. But once your tank is bone dry, you'll still have residual air in your BCD, or at least in your inflator hose. If you added air with your power inflator, it will be pure and contain 21 percent oxygen. If you orally inflated your BCD, it will still contain at least 16 percent oxygen.

Breathing Cycles

Bear in mind that air in your BCD will also expand as you rise. If you put your BCD mouthpiece in your mouth and keep trying to inhale and exhale while you rise, your

Regulator Recall from Oceanic and Aeris

The two dive gear manufacturers are recalling more than 6,000 regulator first stages manufactured in the U.S. and in Taiwan, due to reports of uncontrolled air flow to the second stage. Oceanic is recalling FDX-10 and CDX-5 first stages and Aeris is recalling its AT400-type first stages.

Fault lies with a specific batch of high pressure seats, an internal component that mechanically seals air between the first-stage and the intermediate-pressure second-stage. They were made with material that can deteriorate and fail to seal, causing an uncontrollable freeflow.

Two separate divers had malfunctioning regulators either before or during dives, but lived to report the problem. Simultaneously, six dealers found the problem when testing the regulators' pressure before selling to customers. Ron Landon, customer service manager for Oceanic and Aeris, said all the reports came in within just two weeks this past November. The recall was issued in December.

The faulty regulators were on sale between May 1 and November 15, 2006. But Oceanic's other DX series First Stages (CDX, DXi, DX3, DX4 and TDX5) and Aeris's other diaphragm-type first stages that were serviced between May 1, 2006 and October 22, 2007 may also be affected. To see whether your regulator is one of them, go to status pages set up by Oceanic (www.oceanicworldwide.com/dxretrofit/oceanic) and Aeris (www.oceanicworldwide.com/dxretrofit/aeris) and enter the regulator's serial number. You can also call each company's recall helpline – Oceanic is (888) 636-9390 and Aeris is (888) 854-4960.

air volume will soon increase enough to provide a breath.

Studies conducted by the late Al Pierce of the YMCA concluded that you can exhale into your BCD and keep rebreathing the same air 13 times or more without becoming overly hungry for fresh air. (After all, exhaled air is good enough for artificial respiration.) TDI/SDI founder Bret Gilliam told *Undercurrent* of a commercial diver whose hand got trapped under a pipe. To conserve air, he orally inflated his early edition flotation vest and began breathing from it until the carbon dioxide rose to an uncomfortable level. Then he switched back to his regulator, caught his breath with clean air from the tank, vented the vest and started the cycle again. After an hour in 50 feet of water, his tank was down to 100 psi and he was

ready to amputate his fingers to free himself when another member of his dive team came by and started buddy breathing with him.

Why Don't Agencies Teach This?

It's partly due to the industry's resistance to change. Years ago, when early BCDs could be inflated with carbon-dioxide cartridges, there was a concern about breathing residual carbon dioxide. A more current objection is the possibility of respiratory infection from bacteria inside the BCD. Dennis Pulley, director of training at Scuba Schools International, cited this as the primary reason why SSI doesn't teach BCD breathing at any level.

However, BCDs used for training can be disinfected with solutions readily available in dive shops. Or you can use benzalkonium chloride, available at drug stores under the brand name Zephiran chloride. Besides, antibiotics cure respiratory infections. Drowning is forever.

Nevertheless, the industry remains set in its ways. For instance, today's Aqua Lung BCD owner's manuals still carry the warning, "DO NOT inhale from your oral inflator. The BC may contain harmful contaminants or gases, which could cause suffocation or injury." When we discussed this with Tom Phillipp, Aqua Lung's product manager for BCDs, he conceded that it probably needs to be updated.

The biggest objection is that divers will need to master new skills and perhaps relearn some old ones. For instance, you must be able to clear the ounce or so of water from your inflator hose mouthpiece without choking. Joel Silverstein, chief operating officer of Scuba Training and Technology Inc., points out that breathing in and out of a BCD creates a closed circuit that can cause carbon-dioxide buildup and lead to shallow water blackout. Also, your BCD will become more buoyant as you rise, leading to a possible uncontrolled ascent. Both dangers can be averted by exhaling through your nose, but this creates other challenges. First, unless your mask has a purge valve, it might leak. Second, by exhaling you're emptying your air supply and decreasing your buoyancy – perhaps to the point of being overweighted.

Gilliam, who now advises the industry on training procedures, told *Undercurrent* he considers BCD breathing "a viable independent self-rescue technique." Yet, he says, "There is no such drill in any entry level course worldwide." As an instructor, he's noticed that in emergency situations, many divers adopt a "rigid flight posture," visibly stiffening in the water column, which prevents them from handling such tasks.

Silverstein calls the concept of BCD breathing a "radical technique" that is not part of any formal training curriculum. His concern is that most divers just don't have what it takes to perform this skill without panicking. "The average diver makes fewer than 10 dives a year." He's convinced

that divers who don't practice the skill continuously "won't know how to do it and will kill themselves."

These are valid considerations, but does it make sense for certified divers to not even be exposed to this proven technique for handling out-of-air situations or equipment malfunctions?

PADI has recommended options for low/out of air situations, in order of priority. 1) Make a normal ascent if your tank isn't completely empty. 2) Ascend using an alternate air source (redundant supply or buddy's octopus). 3) Execute a controlled emergency swimming ascent.

4) Buddy-breathe with a single regulator supplied by another diver. 5) Make a buoyant emergency ascent.

However, isn't a controlled emergency ascent or a buoyant emergency ascent safer if you have a few breaths of air from your BCD? Knowing you've got at least one more ace up your sleeve might help keep you cool as you weigh your options. Hopefully, you'll get things under control before you ever need to use your BCD as an alternate air source. But it's there if you need it.

- Larry Clinton, Jr.

How to Emergency Breathe From a BCD

To gain confidence in your ability to act in an emergency, practice this and all other BCD breathing skills with your gear in shallow, calm water. Be sure to disinfect your BCD first.

Clear your mouthpiece. Tom Phillipp, Aqua Lung's product manager for BCDs, points out that many oral inflators have holes behind the deflator button to prevent water from being blown back into the bag while purging, so the best method is to first blow a little air in so the water runs out the holes. Then hold the deflator valve down as you continue blowing. Your exhaled breath will now go into the BCD, and the holes will be sealed so no water can re-enter.

Bret Gilliam prefers to raise the inflator overhead, then put the mouthpiece in while rolling to the right to let as much water as possible slide down the hose before inhaling. He notes that even after the diver purges the mouthpiece, it's still likely that he'll get 10 to 20 milliliters of water with his first breath. This problem would be less severe if the diver used his shoulder or back-mounted dump valve to vent; water would still enter the BCD but not the hose, and would settle to the lowest part of the flotation bladder.

Once you've begun getting air from your BCD, don't release your tight hold or water will leak in through the holes. With older models, bend the mouthpiece up, seal your mouth, look down and, as before, blow air in as you push the valve. The water will flow from the mouthpiece and become trapped in the hose, but air will be able to get past it.

Take your first breath cautiously. Inhale slowly and carefully, as you would with a wet snorkel, trying to catch the moisture on your tongue. Then try to swallow the water. If you do cough or gag on a few droplets, don't remove the mouthpiece, just cough into the BCD.

Control your ascent. Exhale normally and watch your ascent rate. You still face the danger of an embolism if you retain air breathed at ambient pressure. Don't let go of the valve or remove the mouthpiece from your mouth as you ascend. If you are rising faster than your bubbles, exhale through your nose. Flaring out horizontally will also help slow your ascent.

Use air from your tank. As long as your power inflator is working, you can add more fresh air to your BCD as you rise, and you can continue to breathe it at ambient pressure. Keep the mouthpiece valve closed tightly while putting air into your BCD so none escapes. Press your power inflator intermittently, take a breath and exhale it through your nose to insure a continuous supply of fresh air. You can also breathe from your BCD while a buddy is breathing from your tank. Since your power inflator bypasses your regulator's second stage, you can inhale from the BCD at any time without over-breathing. If your buddy is in danger of over-breathing the second stage you've shared with him, wait to feed air into the BCD until you see his bubbles. Keep feeding air intermittently between your buddy's inhalations.

When no air is available from your tank. Air in your BCD will expand as you rise just as air in your tank does, allowing additional breaths as ambient pressure decreases. Start up immediately, keep trying to inhale and exhale, and air will become available. If you have a BCD-mounted safe second such as the Air 2, you can access the air in your BCD by pressing the deflate button when inhaling. In one study, basic scuba students were able to rebreathe this way for a full minute with no problems. Stay relaxed because rising CO2 levels will cause you to breathe faster and faster, which could lead to a sudden blackout.

Sound complicated? The industry obviously thinks so. Still, although no one's making you learn these new skills, one day you might be glad you or your buddy did.

Testing Quirky and Not-So-Quirky Fins

which are worth putting your feet into?

After looking at a number of oddly designed fins at the October show of the Diving Equipment and Marketing Association (DEMA), I sat down with John Bantin, who has tested dive equipment for the British magazine Diver for many years. I've been taken by John's honest and forthright opinion and because he is a contract writer, magazine advertisers and advertising income have never influenced his point of view. John and I were discussing quirky fin designs; he had tested some and was off in November to test more. I asked if he would share his test review with Undercurrent readers. Here is his report.

- Ben Davison

It's almost every inventor's dream to build a better mousetrap. It seems that those not concerned with the demise of rodents put their efforts into building a better set of fins for divers. Every year a new batch of "revolutionary" fins hits the stores and most sink later without a trace. Some survive.

Divers who feel they are getting nowhere underwater fall easy prey to the salesman with a more expensive set of fins to offer. Few dive-store owners would countenance their staff making the recommendation to customers to get in better physical condition! Of course, some fins do work better than others, and sometimes it's hard to differentiate between the good and the not so good. However, some have an obvious unique selling proposition.

Omega Amphibian Fins

I always put my fins on before everyone else, but the disadvantage is that everyone else stands on top of them. There's no way I can move without their acquiescence. These amphibian fins promise to solve that problem.

These fins fold up against your shins so that you are essentially walking around in rubber slippers. When the time comes to deploy them as fins, you can simply push down the blade with an opposing heel and they snap-lock into place with a loud click. On the deck of a dive boat, however, I found that walking on any shiny surface, such as pool-side tiles, made me feel as insecure and as likely to slip over as when wearing conventional fins.



Omega Amphibian Fins

The promise is that after the dive, when you climb onto the lower rung of the boat ladder, it's a simple matter to stand on the release with the opposing heel and let the blade fold up, powered by its built-in spring. Alas, the dream of folding the fins before climbing the ladder was never fulfilled because the current caused by the vessel swinging on its mooring made it impossible to get the opposite heel on the clip release. However, if you can fold them up, they protect your shins from the ladder rungs.

After a week's intensive diving I did notice wear on my feet adjacent to the foot-pocket where the fins hinged. The fins were certainly not as effective in the water as the Italian-made industry standard Mares Quattros, but nevertheless they worked a lot better than some others. They do make shore diving easier. No more stumbling about trying to get your fins off afterwards. The manufacturer has confidence in them since it gives the fins a lifetime warranty. (Suggested retail price is \$229; www.omegaaquatics.com)

Aileron Fins

These fins have their blades cantilevered away from the line of the foot-pocket by a couple of integrated struts. The idea is that you can walk while wearing them. Secondly, because the blade is away from the turbulence caused by the leg and fin, they perform better than conventional fins. They are available with a slipper-style foot-pocket or an open-heel design with a strap. Both had a foot-pocket reminiscent of a rubber clog.

The question for me was would they provide a boost in performance that would be worth the ridicule I was sure to suffer if I turned up on a liveaboard sporting a pair? The blades seemed similar to those of conventional paddle fins. There were no soft rubber inserts to give lateral flex and provide a scooping effect, and no split to emulate a fast-swimming fish. My expectation was that they would be as inefficient as an old-fashioned pair of flippers but I decided to give them a try, armed with an underwater speedometer and a pair of industry-standard Mares Plana Avanti Quattros for comparison.

I made several runs, swimming my heart out with the speedo held in front of me. Each time, I noted the highest speed I could muster, and the Ailerons failed to keep their promise. The best I could manage was a heart-busting 2.4 mph, and that was the best of many runs (always waiting until I was fully rested before giving it another go). In contrast, I achieved an almost effortless 2.85 mph with the Quattros on a single run. Not only that, while finning at



Aileron Fins

the surface with the Ailerons, I splashed more than usual because the fins tended to break the surface.

The only perceived benefit seems to be the ability to walk around easily while wearing them. However, I always say that a diver in the water without fins is endangered – as is the diver out of the water who wears fins. So why walk about anyhow? (Foot-pocket fins retail at \$80, open-heel fins are \$170; www.innovativescuba.co.uk)

Scubapro Twin Jet Max Fins

These fins are a variant of the “Nature’s Wing” split-fin design. Because I was going to be doing some high-speed snorkeling in Tanzanian waters to photograph whale sharks, I was dependent upon my fins to do the business for me. I chose to take the Twin Jet Max with me.

My hunch that they would be good proved right. They seemed to be almost identical to the Atomic split fin I had previously tested, and they matched the results got with both the classic Mares Avanti Quattros and the heavy-duty Apollo Biofin Pro XT all-rubber split fin. They looked like they should be really effective. Like both Apollo and Atomic fins, they have heavyweight side rails to keep the massive blade rigid at the sides, while the split allows the blades to bend inwards as you apply the pressure. Unlike those worthy rivals, these fins are vented between blade and foot-pocket just like the original heavy-duty Jet fins.

The foot-pocket encompasses my foot right up to and including the heel, so all my effort comes from my thighs. There were no calf or shin cramps during long high-speed chases. There is plenty of room in the foot-pockets for my drysuit boots, too. The heel straps are nothing



Scubapro Twin Jet Max Fins

Women Divers May Be Better Than Men

NASCAR drivers, predominantly male, love the racetrack because of the thrill and the danger, plus there’s no need to stop and ask for directions. Seems like it’s the same for male divers – and that’s bad for the reefs. Research from the University of Hull in England says that men are more to blame than women for diver-caused environmental damage, and women divers are much more aware of their surroundings. Mandy Shackleton, a divemaster and masters student at the University’s Centre for Environmental and Marine Sciences, spent three years in Kenya observing 500 divers of all nationalities and measuring different types of damage to coral reefs caused by male and female divers.

She says men are prone to showing off. “When men go diving, they experience ‘sensation seeking.’ This triggers a chain reaction of hormones. First comes the stress hormone cortisol, then testosterone, the hormone linked with aggression, followed up by adrenalin. The combination of these three results in erratic, dangerous diving.”

Her study showed that men’s “spatially unaware” behavior causes them to swim too close and break pieces off with their fins. Too much flipper action churns up seabed sediment, which suffocates and kills the coral.

By contrast, “Female divers have better orientation underwater,” Shackleton says. “They have a greater awareness of what is going on around them, they are more conscious of safety and therefore dive with greater care.”

Nigel Forman, a professor of psychology at England’s Middlesex University, says that above water, men are usually cited as having better spatial awareness than women. “However, women tend to use local cues and signposts in their immediate vicinity to navigate, and it’s possible this is more effective underwater, where visibility in even the clearest waters is not as good as it is on land.”

auspicious so I substituted stainless-steel spring straps. Scubapro now offers them as an option.

Checking with an underwater speedometer in the pool, I found I could easily achieve 3 m.p.h., which is pretty good for me. I get slightly less with Mares Plana Avanti Quattros. In fact, I was beating 3 m.p.h. while gently finning up to

the start line. When I have compared many fins in the past, that speed was all that could be achieved with some other fins! What does all this prove? These fins actually do work with less effort than some others. My verdict is that these are a serious set of fins for those who are serious about finning. (Suggested retail price is \$220; www.scubapro.com)

Mares Raptor Fins

The Italian company Mares has always been at the forefront of fin design but it has eschewed the split-fin idea for years. Working with the boffins at Genova University, with their famous motorized underwater test bench, Mares has come up with some designs that have been so good, notably the Mares Plana Avanti Quattro, that they have dominated the market worldwide – except America, that is. American divers want split fins, so Mares has introduced the Raptor.

It has a slim-looking fin with a blade that has the characteristic split, but the blade is prevented from bending too much at the outer edges by exceedingly strong side bars. Panels of softer compound allow some flex in the center part of the blade that curves dramatically away from the foot-pocket in a fixed downward arc. The foot-pocket itself is incorporated into a sleek, single-piece unit together with the blade so that there are no edges to disrupt the water flow. A single piece of hard plastic goes from the heel to the blade tip and the foot-pocket has inserts of a softer compound to give some grip when standing in the fins.

These use the latest version of the Mares Advanced Buckle System that cantilevers out to allow you to put your foot easily into the foot-pocket and then clams shut to pull the strap tight. You can do these conveniently with the opposing foot, and that means you don't have to stoop while wearing your tank to do it.



Mares Raptor Fins

Unfortunately, when it came do undoing the buckles after a dive, I was out of luck. You have to squeeze two opposing little releases together. I was totally unable to free up the buckles, nor could the deckhand who tried to help.

I first used them on a dive around a 350-foot-long wreck in the Red Sea. The *Rosalie Moller* is 170 feet deep. I sprinted down the line to the stern, then to the bow and back to the line. It took only a few minutes. The two divers I had passed on my way said they saw me go by “like a bullet.” I then gave them to fellow diver, Irishman Damien Joyce, to try on the following dive. He came back beaming. “My goodness, these things are mighty! They go like the clappers when you want to accelerate.”

He summed them up well. Just as it did with the Plana Avanti Quattro, Mares has again come up with a winning design for a fin, this time with a split blade. I would not be surprised to see these adopted for common use by dive guides throughout the world, just as its worthy predecessors from the Genovese manufacturer already have. (Suggested retail price is \$140; www.mares.com)

Batin will review Force Fins in the next issue.

Shields and Repellants to Keep the Sharks Away

Few sharks are going to have a Jaws-like hissy fit near divers. Still, manufacturers are coming up with products to keep them at bay.

Shark Shield, introduced three years ago, is now available in a second version called Freedom7, one-third the size of the original and attaching to the ankle instead of the tank. It generates an electrical field, or a “shark-safe zone,” 26 feet in diameter around the diver. Electrodes generate a pulsing sensation detected by the shark through its sensory receptors, and create muscular spasms that cause the shark to immediately flee. However, say Shark Shield's Australian makers, there is no lasting effect to the shark once it's left. And the transmitter only repels transmitter sharks. The Shark Field Freedom7 retails for \$596 and comes with a charger and

seven-hour battery. More details about Freedom7 are at www.sharkshield.com.

How about shark repellent you can just slather on your skin? A team of marine scientists at the University of Miami believes it has created just that, the first shark-repelling sunblock. The lotion, now in its final testing stage, operates on pheromones and “just one application will protect swimmers in the surf,” says lead researcher Patrick Rice. But divers won't be quite as protected – the sunblock/shark repellent only works for 30 minutes before it needs to be reapplied. Teeka Tan, the company that will market it, says it's still working on liability issues around the sunblock (in case someone wearing it still gets bitten) but plans to have it on shelves in 2008.

Have A Good Diving Tip? Tell Us About It

Undercurrent readers are experienced divers with lots of good information. So why not share the knowledge?

Reader Gino Dubay (Pigeon Forge, TN) offers two tips of his own. "To make it actually easy to don a wetsuit, place a ziplock-bag on each foot and hand before you slide them into the sleeve or leg. They will then slide through like s*** through a goose."

To prevent the inside of your underwater housing lens from fogging up, Dubay recommends saving the small absorbent packs that come shipped with most electronic gadgets and put one or two in the housing before a dive.

Kimberly Forbragd (Beaverton, OR) separately offered her own gear tip: Carefully inspect each piece of gear after flying. Bags are often inspected by the TSA who can often handle gear too roughly or in the wrong way. "I recently flooded two expensive rechargeable flashlight batteries on the first dive after flying. The lights were tightly sealed when I packed them, yet they were very loose before I tightened them underwater but by then it was too late."

So what's your tip? Send them to us via e-mail at editor@undercurrent.org and we'll share them with other readers in upcoming issues.

Diving, The Rich Person's Sport

a stroll through the DEMA convention

Walking the floor of the Diving Equipment and Marketing Association's annual show, held last November in Orlando, I was struck by an interesting contradiction. On one hand, there seems to be increasing growth in the things that cost divers the most money: technical diving, photography and travel. On the other hand, the number of new divers entering the sport, at least in this country, has been declining for years.

As one walked the corridors, technical diving leaped out: rebreathers, yokes for doubles, new wrecks being sunk, advanced training, BCDs that look like military gear. This is not cheap stuff.

Then comes an array of photography, video housing, lights, not to mention digital cameras, that would baffle Jacques Cousteau.

And of course there's dive travel. Where not so long ago the booths were dominated by Caribbean venues, it seems today that every island in Indonesia is hosting a luxury lodge. But the prices in that part of the world, once a great bargain, reflect the slide of the dollar and the belief that divers can pay far more than honeymooners. To get there, you give up half a week traveling in both directions, not something the average Joe can readily do.

It seems we've reached the age of the \$1,000 regulator, the near \$1,000 BC, and \$300 fins, masks and drysuits. No wonder the young prefer mountain bikes and extreme sports that don't cost much. Years ago, DEMA and the agencies decided to stop pushing diving as extreme, so it became a safe, family sport. Now it's an expensive sport, beyond the pocketbooks of many.

DEMA tries to put a positive spin on the decline in certifications, announcing that entry-level scuba certifications in the U.S. remained "stable" from 2005 to 2006. According to its census figures, the 2006 number of 162,605 declined by just 124 "certs" from 162,729 in 2005. The so-called stable numbers are a small consolation, considering the significant decline of entry-level certification since 2000. Totals peaked at 198,241 in 2001, dropped to 183,934 the next year, declined further to 173,225 and are obviously continuing the downward trend. With fewer young people getting certified, the diving population is aging. But of course. They're the only people with the time and money to go diving.

As we reported in our "How Many Divers Are There?" articles, published in the May and June 2007 issues, DEMA's census numbers may not be accurate. The training agencies are suspicious of each other and secretive about their membership numbers. NAUI, which supplied data for every census until the current one, apparently bailed out for political reasons. And the agencies themselves question the numbers and how they're calculated.

If you're employed in the industry, this lack of growth may seem troubling. However, if you're just a sport diver out for the best dives, you might not mind having fewer divers hovering over the reef next time you get wet.

But let's think about China. PADI has 18 training centers there. Compared to the population in the U.S., China could eventually support about 5,000. Good for business, bad for the reefs. Go see the critters while you can.

- Ben Davison

Flotsam & Jetsam

Diagnosing DCS Before Symptoms

Appear. An instrument that can diagnose DCS in just seconds is being developed by Kirill Larin, assistant professor of biomedical engineering at the University of Houston. His optical device can locate and map nitrogen in blood and tissues, using lasers that bounce back when they encounter microbubbles. The laser is being developed with a \$400,000 grant from the U.S. Navy, which would like to use it on its divers as soon as they surface and get anyone affected to a decompression chamber before damage occurs.

Wife-Killing Diver Nabbed By Feds.

David Swain, the Rhode Island dive shop owner found guilty by a civil court for murdering his wife Susan Tyne while diving in Tortola, was arrested by federal authorities in November. Attorneys said circumstantial evidence, including his behavior after her death, apparent financial motivation, and Tyne's gear showing signs of a violent struggle, was "overwhelming." The civil court ruling last year ordered Swain to pay Tyne's parents millions in damages. Now, eight

years after the incident, he is facing extradition to the British Virgin Islands for a murder trial. (For the full story, read our April 2006 issue.)

Dive Shop Fined For Student Death.

Jurassic Diving Center in Exmouth, England has been fined thousands of pounds after pleading guilty to poor gear maintenance that killed a student. Tom Young, 24, was on a dive trip five miles off the Devon coast when he had difficulties with his air supply and sank 90 feet to the sea floor. After investigators found Jurassic's regulators were assembled incorrectly, the shop was fined the equivalent of US\$24,360.

Free Online Access and Updates.

As a print subscriber, you can get free online access by registering your subscriber number (found above your name on the mailing label below) and your e-mail address at www.undercurrent.org. Click on "Free Online Membership" listed under "Print Subscribers" on the right-hand side. If you're not getting our monthly e-mails with the latest diving news, that means we don't have your e-mail address, so make sure to enter it when you sign up for free online membership.

undercurrent

The Private, Exclusive Guide for Serious Divers
3020 Bridgeway, Suite 102
Sausalito, CA 94965

Periodicals
Postage PAID
Sausalito, CA
and Additional
Mailing Offices

Undercurrent is the consumer newsletter for sport divers that reviews scuba destinations and equipment. We accept no advertising. Subscriptions in the U.S. and Canada are \$99 a year (addresses in Mexico, add \$20; all other foreign addresses, add \$35).

Undercurrent (ISSN 1095-1555, USPS 001-198) is published monthly by Undercurrent, 3020 Bridgeway, Suite 102, Sausalito, CA 94965, with the November/December issue being the annual book-sized *Travelin' Diver's Chapbook*. Periodicals rates paid at Sausalito, CA, and additional mailing offices.

POSTMASTER:
Send address changes to
3020 Bridgeway, Suite 102
Sausalito, CA 94965

Letters to the Editor/ Submissions

Undercurrent
3020 Bridgeway, Suite 102
Sausalito, CA 94965
Fax 415-289-0137
undercurrenteditor@undercurrent.org

Subscriptions/Address Changes

To subscribe, renew, change address, or order back issues, call 800-326-1896 or 415-289-0501, Mon.-Fri., 9-5 Pacific Time
E-mail: pete@undercurrent.org
or write:

Undercurrent
3020 Bridgeway, Suite 102
Sausalito, CA 94965

Editorial Office
Ben Davison, Publisher and Editor

E-mail:
BenDavison@undercurrent.org

www.undercurrent.org

Printed on recycled paper 

undercurrent

January 2008 Vol. 23, No. 1