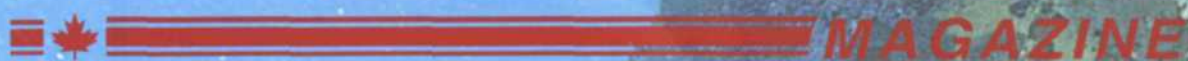


DIVER



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Nova Scotia and Newfoundland

Six Gill Getaway



Cayman Brac with kids



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Top: Loading tanks at the Brac Reef Hotel's Reef Dwellers boat.
Above: Divers' sign post at Brac Reef Hotel.

Both Divi Tiara Dive and Brac Reef Hotel's Reef Dwellers take the worry out of diving. They have modern, well maintained boats and dive equipment. Reef Dwellers run three boats, *Twin Sister*, *Little Sister* and *Marlin*. The two Sisters are powered by twin Caterpillar 300 hp diesel engines and are 42 feet long and 16 feet wide with a cruising speed of 25 mph. They feature over 500

square feet of floor and deck space, dual ladders, stand up showers and a padded camera table. The *Marlin* is a Super Pro 42 dive boat powered by Caterpillar 300 hp diesel engines, coupled to a propeller-less water jet drive. It is 42 feet long and 12 feet wide with a cruising speed of 16 mph. The Divi has a fleet of five modern boats capable of reaching nearby Little Cayman in comfort.

Divers at both shops are pre-screened for their dive history and C-cards are mandatory. Divers must dive in pairs and bottom times and computer profiles are monitored. Nitrox is now available on the island and both operations run a full photo shop service.

There are more than 50 moored dive sites around the Brac. The remote location of the island means that reefs have been spared the perils of pollution, with the result that the visibility is superb most of the year. And, there is no large fishery on Brac so the fish are plentiful and BIG.

Diving on the north side of Brac, there is a never ending wall to explore. At depths approaching 100 feet, divers will cruise atop a sunken cliff of living coral. Wall sites vie with each other for uniqueness, but, dive guides agree that Wilderness Wall is the liveliest spot for pelagic sightings.

Wherever the dive boats stop along the northern wall divers will encounter sand chutes that have cut through the coral. It is at Tarpon Reef that divers will encounter these shy shiny fish (tarpon) as they hide in grottoes and coral caves that line the chute.

The south side of Cayman Brac—where the beach and hotels are—offers completely different diving. Provided the seas are not too rough, dive boats like to anchor close to the barrier reef and allow divers to explore a bottom that is covered in rolling coral hills and living sponge lined canyons.

The newest attraction for divers is the wreck of the 330 ft. M/V *Captain Keith Tibbetts*, a Russian destroyer which was sunk off the island's northwest coast in September 1996. It is already the home for a variety of marine life. Although reachable

from the shore, because of the boat traffic, the *Tibbetts* is best visited off a dive boat.

Make sure you see it soon. The Brac dive shops are learning first hand how flimsily the Soviets built their ships. When toured by DIVER Magazine, many of the interior deckways are now impassable because the corrugated metal used as wall material has collapsed. The metal fatigue coupled with an apparent shifting of the ship's location, may have the island looking for more abandoned Russian warships in the near future. There are two other known wrecks off the island's south shore.

The boats depart each day at 8:30 a.m. and again at 2:00 p.m. Night dives and shore dives are available. Water temperature ranges from 78° in the winter to 86° in the summer.

When the weather is good, hotel dive shops and the independent Brac Aquatics will take divers to Little Cayman for a day long visit to the most stunning drop-offs in the Caribbean.

Little Cayman features a total of nearly 30 moored dive sites, ranging from medium depths to the sheer plunging wall of Bloody Bay and the more rugged Jackson Bay area. The Super Bowl of diving begins and ends on the walls of Little Cayman.

Depending on the age of your children and the location where the dive boat is headed, snorkellers are welcomed. But, if you are going to take your family all the way to Cayman Brac, consider getting them certified. Both Dive Tiara and Reef Divers offer instruction to children over the age of twelve.

Hotels:

Divi Tiara Beach Resort, P.O. Box 238,
Cayman Brac
(345) 948-7553 (800) 367-3484
Fax (607) 277-3624 e-mail: stevo@candw.ky

Brac Caribbean Beach Village,
P.O. Box 4, Stake Bay,
Cayman Brac, Cayman Islands, BWI
800-791-7911 / 345-948-2265
Fax: 345-948-2206
info@brac-caribbean.com

Brac Reef Beach Resort,
c/o Reef Fanta-Seas,
4127 5th Avenue North
St. Petersburg, Florida 33713
813-323-8727 Canada: 800-327-3835
Fax: 813-323-8827
E-mail: bestdiving@aol.com

Local Dive Shop Phone Numbers
Brac Aquatics (345) 948-1429,
(727) 323-8727, (800) 327-3835
Brac Reef Diving (345) 948-1323
Divi (345) 948-1553
Little Cayman Diver II
(800) 544-2722 (in U.S.)

Brac

By
*Sue and Jack
Drafahl*

Cayman

When we started diving more than 20 years ago, we didn't really care about exotic dive locations. So long as we could get wet and use our new dive gear, we were happy. We dove in just about every condition, from zero visibility to 20 foot ground swells. You know, the kind of diving where you often find the bottom facemask first. As the years have passed, we have become older and wiser in our choices of dive locations.

One area we have heard rave reviews about for years has been the Cayman Islands—rumored to be the best of the Caribbean. We decided that we were long overdue for a change of pace and quickly packed our bags.

The Cayman Island chain consists of Grand Cayman, noted for its excitement above and below the waterline, and the smaller "sister islands" of Little Cayman Island, the closest thing to your own private island retreat, and Cayman Brac, the island that offers the best of both worlds.

When we plan a dive vacation, our main interest is to go diving. We are interested in the best underwater locations for animal life, prime photographic opportunities, yet relaxed, hassle-free diving. We decided that Cayman Brac was just what the doctor ordered.

The Brac is located 89 miles northeast of the bright lights of Grand Cayman and just 5 miles from the tip of Little Cayman. This rugged island is only 12 miles long and two miles wide and is home to approximately 1400 to 1500 Brackers.

The Cayman Islands

Little Cayman

Cayman Brac

Grand Cayman

We made our great escape through Miami on Cayman Airways, with a brief stop on Grand Cayman, before heading to the Brac. Cayman Brac offers a modern jet airport with at least one flight a day from Grand Cayman. Flight schedules fluctuate due to seasons and should be checked thoroughly before booking a flight.

Moments from the airport we found ourselves at the two beach front resorts that cater to divers. The Divi Tiara Beach Resort offers 72 comfortable air-conditioned guestrooms while the Brac Reef Resort offers 40 oceanview rooms. Both resorts offer freshwater swimming pools, lighted tennis courts and elegant buffet dining.

But, remember that we went on this trip to dive, so let's tell you about the diving. We spent most of our dives with the crew from Tiara Beach, so we'll tell you about their operation first. On our first trip to the dive shop, we were given a briefing on diving procedures and diving safety at the resort. We were each given weights, a weight belt and a numbered mesh bag for storing our gear at the shop, just a few feet away from the dive boat.

On our first day of diving we were asked to set up our dive gear the way we liked it, and from that point on the divemaster set it up for us. At the end of each dive trip we had the opportunity of dunking the gear bag in a fresh water tank, so that it was fresh for the next day. Diving Tiara offers several 40' custom boats providing morning, afternoon and evening dives to the favorite dive sites that the Brac has to offer as well as trips to Little Cayman's Bloody Bay Wall. Dives in the Cayman Islands are restricted to a depth of 100 feet, but we found all we needed well above that level.



Top: Cayman Brac, paradise in or out of the water. Above: Well equipped dive boats carry divers and their gear efficiently.

Just a few feet from the Tiara Beach dive shop, is the Underwater Photo Center. The shop offers a complete selection of rental Nikonos cameras, lenses, flashes, accessories and E-6 film processing. A repair center and photo classrooms round out this full-service photo center. The center is so well equipped that it is home to Nikon's famous underwater photo classes and "shootouts" competitions.

The diving program at Brac Reef Beach Resort is offered through Brac Aquatics, Ltd. Divers check into the dive shop located next to the dock and pick-up any necessary gear that they did not bring with them. Divers are assigned lockers, which are adjacent to the dive shop, so your gear does not have to be transported to and from your room. Brac Aquatics offer 4 boats with two tank morning dives, and one tank afternoon shore diving to the varied locations that put the Brac on the map. They also offer one night shore dive and one boat trip for a two tank dive at Little Cayman.

We thought the island's flora and fauna were marvelous, but the dive spots off Cayman Brac were sites to behold! Fish and animal life scurried about in the pristine blue waters that were almost warm enough to be bath water. The sponges and corals of all shapes and colors were abundant and flourishing. We found bristle worms, tube worms, brittle stars, nudibranchs, small fish, and a wide variety of weird shaped sponge that were just the size of our macro framers.

The dives sites off Cayman Brac are just a few minutes boat ride from the two hotels. Cayman Brac is designed for the wide angle

photographer offering vertical wall dives that begin in as little as 60 feet as well as densely populated sandy shallows. The water is so clear that photographer's number one gremlin, back scatter, never made it's appearance during our stay.

One of the most unusual animals we encountered on the trip was the strawberry sponge. We were told that the sponge was bright red, so we looked around on our first dives, but only found pure black sponges.

We knew that light fell off underwater, but felt that this couldn't be the sponge because it was so black. But, when we took our first flash photo, the black sponge blobs became brilliant red!

The Cayman government felt that their

underwater paradise was worth protecting, so they constructed anchor buoys for the dive boats to tie up to. Accurate buoyancy control is highly encouraged by both diving operations and it is obviously working because most reefs show little diver evidence.

Another feature of Cayman Brac is its proximity to Little Cayman. The shoreline of this tiny island is home to Bloody Bay Wall. This spectacular vertical wall begins in as little as 20 feet of water and plunges downward. The diving on Bloody Bay Wall is definitely one of those "gotta do" ultimate dives. The beauty of the sponge formations and lush corals is sure to take your breath away.

Little Cayman features this fine diving at your doorstep, but it offers a more remote type of diving vacation. Here you find an unspoiled tropical island for divers who seek sand and sea and peace and quiet. This is not

"Little Cayman features fine diving at an unspoiled tropical island for divers who seek sand and sea and peace and quiet."



Left: Examining a large colourful sponge.
Below: Tranquility of a tropical paradise—and boats
safely anchored in a sheltered lagoon.



for the diver who seeks room service or nights on the town, because this island doesn't even have a town!

Little Cayman offers three dive resorts with their own boats and diving operations. The Southern Cross Club opened its doors to the diving public in the '70's and offers 10 rooms with ceiling fans and a private bath. Pirates Point Resort offers eight oceanfront rooms with ceiling fans and private showers. The third lodge, owned and operated by the Sam McCoy family, offers 10 rooms with private baths and the added luxury of air conditioning. Another 32 room hotel, called the Little Cayman Beach Resort, is under construction and should be open soon.

After a full day's diving we found it easy to settle into the slow motion lifestyle on Cayman Brac. We could swing in a hammock, relax and read a good book, sit beneath the huge sea grape trees with a cool drink or enjoy the warmth of the sun's rays beside the freshwater pool. This Brac tranquility disease was definitely contagious.

We decided to take an afternoon off from diving and tour the island. On the eastern tip of the Brac, we came to the 140 foot Bluffs where the limestone crevices formed deep caverns that we were able to explore, bats and all. As we continued our tour of the island, the friendly waves from the natives made us feel more like neighbors than visitors. Further down the road, we came to the Cayman Brac Museum, that housed artifacts showing us what life on the Brac was like in days gone by.

We planned an overnight layover in Grand Cayman on our return leg. We took advantage of the time to dive with the stingrays, listen to the island tunes of "Barefoot Man", visit the turtle farm and send the folks

at home a postcard from Hell. One day of the Grand hustle and bustle quickly put us back in tune with the reality that we were headed home.

Well, you better start packing your dive bags, because Cayman's little "Sister Islands" are beckoning you. Better yet, we'll pack our bags and meet you at the bar and enjoy the sunset afterglow together. ■

"We could swing in a hammock, relax and read a good book, sit beneath the huge sea grape trees with a cool drink or enjoy the warmth of the sun's rays beside the freshwater pool."

DIVER

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- **Slides from prints**

Alternate photo processing

- **Bahamas**

500 years since Columbus

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ON THE COVER:

Photo of a sealion in tropical waters taken by Jack Drafahl on print film, converted to slide. See article in this issue page 34.

Don't be so Negative about Colour Negatives

By Jack and Sue Drafahl

Times have changed with the advent of higher quality negative film—students who switched as an experiment had a 50 percent increase in good, usable images.



All photos in this spread are reproductions from colour negatives. Above is a squirrelfish taken at Riding Rock, San Salvador.

We're looking to appeal to open-minded underwater photographers who shoot slide film. If you are patient enough to listen to our story, you may be able to create an ocean of pictures for your viewing enjoyment.

Amateur Film?

We know that colour negative films have been labelled "amateur films", but are they really? Recently, we were asked to complete a series of colour negative film tests for Petersen's PhotoGraphic Magazine. We were mainly slide shooters, but were so impressed with the results we achieved with colour negative films on land, that we decided to take them underwater.

Our first positive experience with colour negative films underwater was on a wreck dive near Seattle, Washington. We noticed a one hour photo lab just a few blocks from the dive site. The plan was to shoot colour negative film for the

first two dives, run the rolls in to be processed, look at the results, and then use slide film for the rest of dive trip. After getting the colour prints from the 1 hour photo lab, we were amazed that over 95% of the shots were good exposures.

Confident that we could get the shots we needed, we switched to slide film and continued photographing the wreck.

After returning to home base, we discov-

ered the slides from the remaining four dives were acceptable, but the highest percentage of good photos came from those first two dives shooting colour negative film.

We decided that if colour negative film worked this well in dark, cold, difficult diving conditions, it should excel in warm tropical waters. After three trips to the Bahamas, our underwater negative files surpassed more than a dozen trips to the same locations using slide films. We were convinced that colour negative films should be moved up a notch from their "amateur" standings.

If colour negative films perform so well underwater, then why are most underwater photographers shooting slide film? Most new underwater photographers admit that they are turned to slides by photo instructors, underwater photo manuals, and underwater film test reports. Don't get us wrong, we still shoot slides and avidly preach about the quality of the various slide films, but to overlook these high quality colour negative films would be like round filing your best work.

Let's explore just when and why you would select one type of film over another. The basic difference between slide film and negative film of course is the final product. Slides end up as a positive image mounted in a slide mount ready for projection in a darkened room. You can view these slides on a light box and immediately see your results. Colour negatives on the other hand, are an orange strip of film that tells the photographer very little until a colour print is made. And even then, most photographers assume that if their prints are bad, so are the negatives. Most labs print just "landlubber snapshots", and have no idea how great the underwater world looks. Underwater wide angle photos tend to have more exposure in the centre, so the lab generally prints these



Rock beauty. These photographs show the quality that can result from print film and slides from the negatives.



Even the intricate details of a school of fish show up clearly in colour negative reproduction.
 Following page: Slender file fish.

too light. Working with the lab personnel can help you achieve the true colours you originally recorded.

The real difference comes when using these films underwater. With slide film, exposure is very critical. Your exposures must be ± 1 stop in order to obtain a correct exposure. Anything more or less ends up in the round file, so it is necessary to bracket your exposures to guarantee quality results. Bracketing obviously requires more film but it also shortens the potential of your dive experience. There is nothing more frustrating than to come upon the scene of a lifetime only to discover you have used your last frame of film.

No Bracketing

A colour negative on the other hand, has the ability to capture images that are as much as +4 stops to -3 stops exposure. What this means to the diving photographer, is the ability to photograph a larger variety of quality pictures, because exposure bracketing is unnecessary. This allows the diver to concentrate more about the aesthetics of the photo and less about basic exposure techniques.

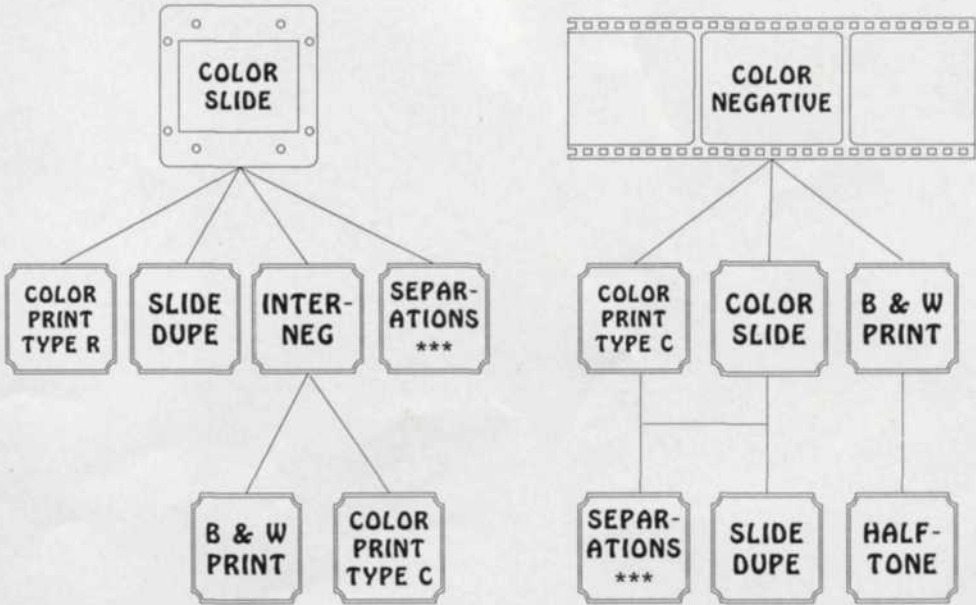
Colour negative film also has the ability to cut through the blue cast that often plagues slide films when shooting distant underwater subjects. Colour negative films come in a wide range of film speeds from ISO 25 to

3200 with colour saturation that compares with the best of the slide film and exposure latitude to boot!

Confused yet? In order to answer which film you should use is to ask yourself just exactly what you plan to do with your underwater photos. If your primary use is for slide shows, then by all means continue shooting slides, but if you plan to make a scrapbook of

your trip or decorate the walls of your home or office, then reconsider colour negative film.

The highest quality reproduction comes from keeping your film closest to the end product. This comparison chart shows the various uses of both slides and negatives. As you can see, you can make prints directly from both films. Type R prints from slides



*** SEPARATIONS ARE USED TO PUBLISH
 COLOR PHOTOS IN BOOKS AND MAGAZINES



are generally more contrasty and lose shadow detail, while Cibachrome prints last virtually forever, but you have to consider their exorbitant cost.

Type C prints are generally less expensive and can be made in most photo labs. You can make an internegative from your slides and then have them C printed, but remember you lose some quality every extra step you make to get an end product.

Slides from Negatives

Another important fact many photographers may not have known, is that you can have slides made directly from colour negatives. This is great for the photographer who wants to decorate his home with prints, but needs to make an occasional slide presentation to the local dive club. Simply sort through your prints and design your slide show. Kodak can then turn the colour negatives you have selected into slides for as little as \$.84! Most local custom photo labs can also provide this service, but the cost is about triple.

Of all the reasons we hear advocating shooting slides instead of negatives, the one we hear most is "Magazines do not accept negatives and/or prints for publication."

"A colour negative has the ability to capture images that are as much as +4 stops to -3 stops exposure."

What they are really saying is that years ago, colour print quality was not very good, and colour separations from prints were very poor. Times have changed with the advent of higher quality colour negative films and the hi-tech advances in colour separation scanners. As with any new concept though, it takes time to be totally accepted. We would like the word to get out that magazines DO use the fruits of colour negative film and the photos in this article prove the point.

We are so convinced that both slides and negatives have their place in underwater photography, that we asked some of our underwater photo students to go cold turkey and use only colour negative for one major dive trip. All those who were gutsy enough to try the colour negative film had at least a 50% increase in good usable images.

When you spend thousands of dollars travelling to an exotic dive spot, why settle for just a small percentage of good shots. Why not use colour negative film and settle for a small percentage of bad shots. The only way you are going to know for sure is to give it a try. Keep an open mind and maybe you'll surprise yourself that you're not so negative about negatives any more. ■

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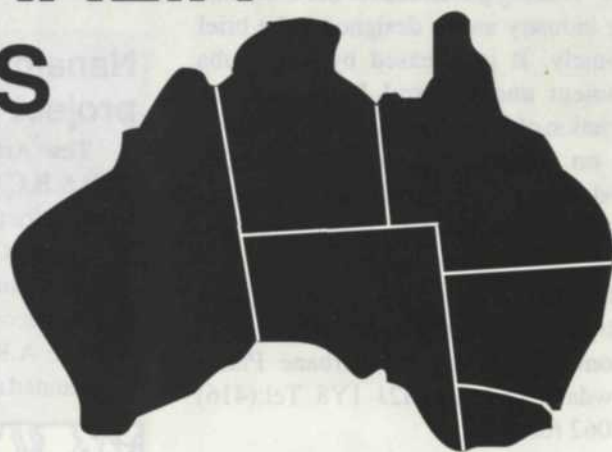
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Previous pages: Trumpet fish and french grunt at Riding Rock, San Salvador. (Photo by Jack and Sue Drafa) Left: Blue Tang Reef, Long Island. Above: Divers prepare to leave for a morning dive, UNEXSO, Freeport.

celebrate the 500th anniversary of Columbus' discovery of the New World.

Besides celebrating major historic events, scuba diving remains one of the premier attractions for Bahama vacationers. In fact, these beautiful Isles of June are one of the most popular diving destinations in the

world. Since there are no rivers in the Bahamas, the water has no silt or sediment. Water clarity is always gin clear. Divers are assured of underwater visibility ranging between 80 and 200 feet. This exceptional visibility is why Bahamian waters is often selected for motion picture productions, such as the filming of underwater sequences for several James Bond classics. Another case in point for Hollywood choosing the Bahamas are its precious wealth of undisturbed reefs, shallow coral gardens, vertical sponge covered drop-offs, intact shipwrecks, unexplored caves,

caverns and exotic blue holes.

These warm turquoise seas teem with a dazzling variety of tropical fish and invertebrate life forms including queen and french angels, parrot fish, squirrel fish, spiny lobster, flamingo tongues, and many species of conch. On some reefs, gigantic schools of grunts, margates or snapper are seen hovering over massive coral heads.

Currently, there are more than 30 diving operations scattered throughout the region. Whether you check-in at a resort, or a hotel that contracts the services of independent dive operators, your diving itinerary can be tailored to your individual preference. Luxury live-aboard dive vessels which operate out of the U.S.A. or the Bahamas, generally offer unlimited diving packages that can transport you to places that are virtually inaccessible and seldom dived.

For the adventuresome and very experi-

1600's. In 1926, the government officially changed the name back to San Salvador.

At the Columbus monument, was the first landing site for the Olympic Flame when it was brought across from Greece on its way to Mexico city for the '68 games, the first time the Games had ever been held in North America.

One of the highlights of touring San

left in existence anywhere in the world. The lighthouse keeper took us up the long winding staircase of the 72 foot tower. Here we were dazzled by the highly polished brass hardware of the nineteenth century metal-work. The huge prisms of the light itself are rotated by a large clock work gear mechanism. Driven by a set of weights hanging on chains down the middle of the tower. The weights must be cranked up by hand, just like resetting a giant cuckoo clock. The lighthouse keeper says that the 400,000 candle power of this enormous kerosene lantern, can be seen from 145 km at sea.

The Hotel

Riding rock Inn is the only hotel and dive resort on the island. It is owned and operated by Carter Williams, a native born San Salvadorian. The hotel provides 24 air conditioned rooms, as well as

some individual cottages, for a maximum capacity of about 50 divers.

Riding Rock Inn has bicycles and cars for rent to guests who want to experience and explore the island. There are endless white sand beaches surrounding the entire island. For anyone who wants to explore on their own, these are completely deserted beaches, where you can walk for kilometers without seeing another human being. There is excellent snorkelling available in the clear water among the many shallow reefs just off shore.

The Dive Operation

All of the diving services are under the direction of Collin Tozer, operations manager for Riding Rock Inn. The dive boats operate out of a surprisingly modern and efficient marina, just meters from the hotel. Divers are served by two large, deep V-hull dive boats with fully covered work areas and large dive platforms and ladders. At the marina, the facilities include a large drying

The scuba diving potential on San Salvador seems endless. Most of the 72 dive sites named so far, are within a 5-15 minute boat ride.

Salvador is visiting the Dixon Hill lighthouse on the Atlantic northeast corner of the island. This lighthouse, built in 1887, is one of the very few kerosene fuelled lighthouses

BACKSCATTER

Tips for overcoming problems with low visibility photography.

By Jack and Sue Drafahl

One of the most enjoyable aspects of diving today, is capturing your underwater experiences on film. A wide variety of new photographic equipment continually evolves designed to help improve your image quality. Unfortunately, the laws of

lights the particles and the background behind them. Therefore, the lighting contrast between the particle and the background is very low, which makes the particles almost invisible to the naked eye. When you light the particles with a flash or flashlight, you increase the ratio of light

on the particles compared to the background. This lighting contrast makes the particles visible to the human eye and records on the film as well. This explains why subjects photographed with available light appear to have less backscatter than subjects taken with flash. In reality, both situations have the same amount of backscatter particles, only the lighting contrast is different.

REDUCING BACKSCATTER IN UNDERWATER PHOTOGRAPHY

If you take any underwater photog-



Flash held in open water showing backscatter.

underwater physics make underwater photography more difficult than taking pictures on land. Underwater photographers have to compensate for low lighting conditions, extreme scene contrast, focusing problems, variable colour loss and backscatter. Backscatter is unique to underwater photography and is one of the most difficult problems to control. In order to correct this problem, divers need to fully understand backscatter and how it affects their photos. We will first explain the physics of backscatter, offer tips on how to minimize it, and advise what to do if you can't avoid it.

BACKSCATTER PHYSICS

To really understand backscatter, we first need to look at the physics of a backscatter particle. Simply stated, a backscatter particle is a small object floating in the water which may be composed of sand, coral, dirt, air bubble, decomposing matter, or it might even be a very small animal. Even in the clearest of waters, backscatter particles exist. So, why do more show up on film than we see with the naked eye?

The answer lies in the lighting of the subject. Sunlight evenly



Flash held behind subject shows less backscatter.

raphy classes, or read any books on the subject, you will find a wide variety of methods offered for reducing backscatter. The key in most of these solutions is to reduce the lighting ratio between the backscatter particles and the background. We will present some of the more popular solutions to eliminating backscatter.

1. MOVE THE FLASH AWAY FROM THE CAMERA

This is one of the most popular solutions and controls backscatter in two ways. By moving the flash away from the camera, you light less particles in front of the lens. Moving the flash also reduces the amount of light falling on the particles directly in front of the lens which reduces the ratio of light on the particles to the light falling on the background.

2. BACKLIGHT THE SUBJECT

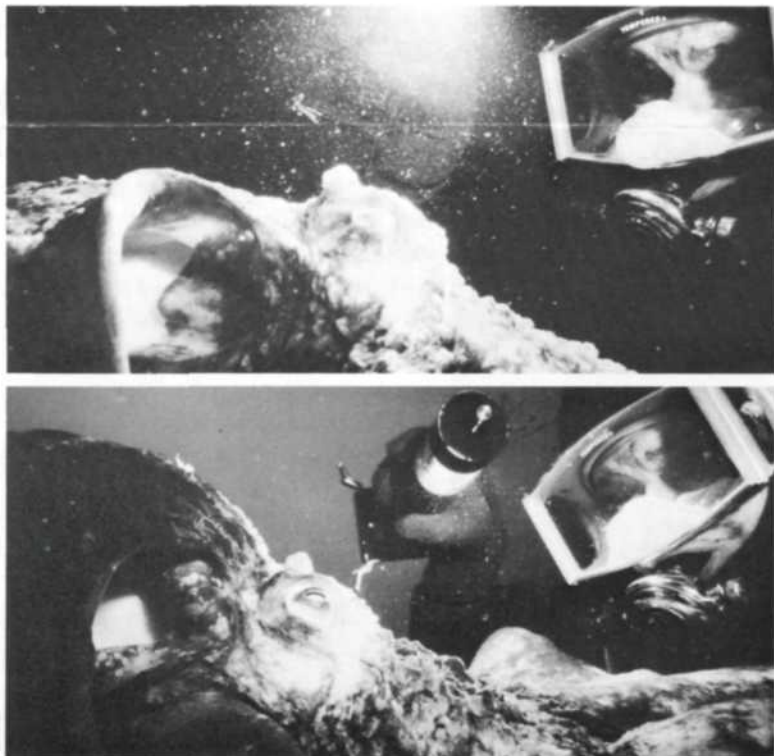
If you find the backscatter so concentrated that the first five solutions do not work, you can place your flash behind the subject so that it is completely hidden and light the subject from behind. This only works if the light will pass through the subject, or wrap around it enough to give it shape, colour, and size.

We have used this technique in cold water with large sea anemones when the visibility was about two feet.

3. USE A TWIN FLASH SYSTEM

Twin flash systems can reduce the effect of backscatter by evenly lighting the entire scene, including the background. Both flashes should be angled out at 45 degree angles, so the flash coverage is even and no hot spots.

A second method would be to point one flash directly at the subject at medium or low flash output, and the second flash towards the background at high output. The higher output on the second flash is



Top: Flash angled towards camera—backscatter.

Above: Flash angled away from camera—no backscatter.

needed because more light is required to reach the background. This method works best when the background is close to the subject.

4. USE A WIDE ANGLE FLASH

Using a wide angle flash reduces the concentration of light striking the backscatter particles, and also illuminates the background more than with a narrow angle flash. As the particles become thicker and thicker, you would move the flash further from the camera. Make sure that you re-aim the flash each time you move it from the camera. The more the flash angle lines up with the lens angle, the better the backscatter reduction.

5. USE A WIDER ANGLE LENS

This solution is pretty straight forward in its application. When you use a wide angle lens, you move closer to the subject, which means you have less particles between you and the subject. Less particles means less backscatter. This technique works well with both wide angle and macro photography. The drawback is that many subjects may not allow you to approach them as accomplished with the longer lens.

6. BALANCE FLASH AND SUNLIGHT

As we have stated before, the key to reducing backscatter is reducing the lighting ratio. If there are a lot of particles in the water, you can set your flash so that it matches the sunlight. This usually requires

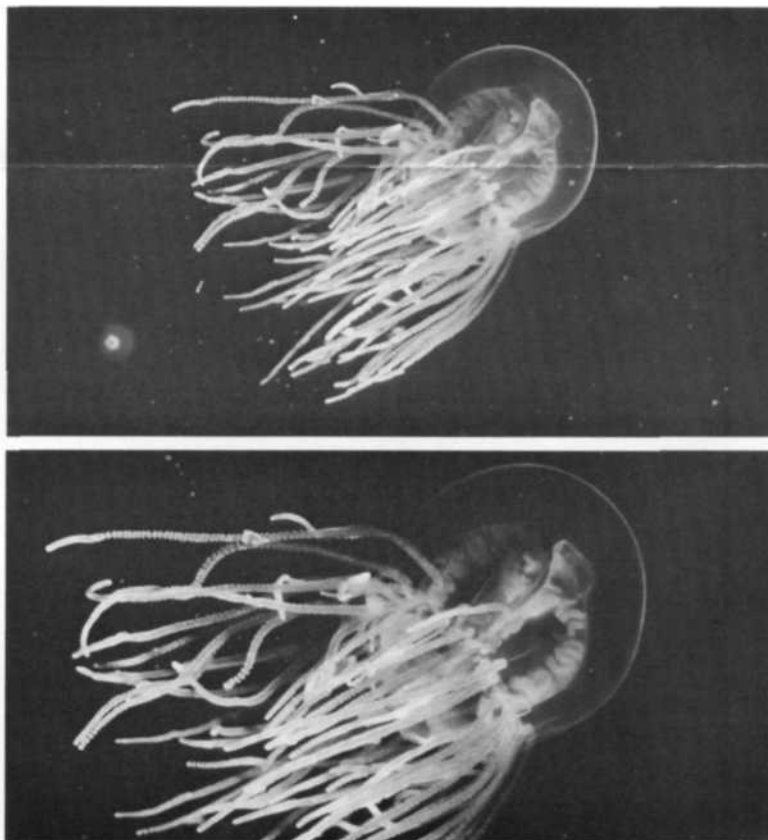
that you open the lens to a wider opening and reduce the amount of flash output to match the sunlight in the scene. If you use TTL metering, you will have to open the lens until the correct exposure is near flash sync. If you use a manual flash, you will have to take a meter reading of the sunlight, and then use that f/stop setting for your flash.

7. TURN OFF THE FLASH

Another solution to shooting in heavy backscatter, is to turn the flash off and shoot available light only. If the lighting is very low, you will have to use a wide open aperture or faster films. Colour loss is then corrected by using a colour correction filter, colour negative film, or using the new Kodak Underwater Ektachrome.

WHAT IF YOU GOT IT. HOW DO YOU GET RID OF IT

So, what happens if you do everything you possibly can, and backscatter ruins a great shot? In the past, the solution to this problem



Top: Original backscatter.

Above: Nikon scanner backscatter removed.

was time consuming and very expensive. It usually required making a print, having the print retouched and then recopied. The loss in image quality was great and most photographers considered these images a total loss.

Thanks to the computer era, all is not lost. With the introduction of the Photo-CD, film scanners, and retouching software, removing backscatter from an image is now a simple task. Your image would be scanned into the computer system via a photo CD or film scanner and photo retouching software used to electronically remove all the problem dirt particles. You would then take the new electronic image to a Service Bureau where it can be output to a colour printer, or a film recorder will create a new slide or negative. Image quality is about the same as a slide duplicate, but you have saved your prized image from pesky backscatter.

We find this system so useful, that when we are in situations where the backscatter is impossible to control, we shoot it anyway, knowing it can be salvaged on our electronic imaging system.

CONCLUSION

Half the battle in controlling backscatter is understanding how it is caused, and then matching a solution that will best minimize its effect. If you remember that all backscatter problems boil down to lighting contrast, your next trip's photo results will greatly improve. Keep in mind that backscatter can be beat! ■

Photo Accessories

Sea & Sea Lenses and Flashes for the Nikonos Camera system

By Jack & Sue Drafahl

It was late Thursday and we still had to finish packing our dive gear for a ten day dive trip. Our destination was the Brooks Institute of Photography research vessel *Just Love*, now located near La Pas, Mexico. Just when we thought we had our camera gear all packed, we got a call asking us to test some Sea & Sea equipment. We looked at our gear, and said, "Sure, what's another bag, we'll probably have to take an extra plane anyway". When we looked closer at what was sent, we were glad we had accepted the assignment because the box included a 15mm lens, 20mm lens, wide angle finder, flash arms, YS 50 flash, and YS200 flash. In this report we'll tell you just how well this equipment performed on our Sea of Cortez tour and a subsequent trip to the Bahamas, but first let's tell you more about the equipment itself.

Sea & Sea F/3.5 20mm lens

This extremely compact seven element wide angle lens is not much larger than the standard 35mm Nikonos lens and yet it has a 79 degree angle of coverage. The 20mm lens is designed to withstand depths of 200 feet and it works with all the TTL functions of the Nikonos V camera. The f/stop control is on the right side of the lens as you look down and it has a range of f/3.5 to f/22. Click stops at each full stop allows the diver to easily locate each f/stop. The focus control on the left side displays focus from infinity down to 1.3 feet. A depth-of-field chart is attached to the top of the lens and displays information about the most common settings. For example: depth of field for this lens at f/16 focused at three feet is 1.3 feet to infinity, which is the entire focus range of lens. The front of the lens has a 58mm filter mount if you decide to use a color correction filter. You will need to use a filter that has vent holes so that water can flood between the filter and lens.

Sea & Sea F/3.5 15mm lens

The 10 element 15mm lens is a must for those divers who want to concentrate their efforts on super wide angle pictures



Top: Sea & Sea 20mm lens and yellow Sub YS-50 on a Nikonos V body.
Above: A close up of a nudibranch on coral using YS Sub 50.

underwater. This lens is smaller than both the old and new Nikonos 15mm lenses and considerably less expensive. The Sea & Sea 15mm lens is also designed to work to depths of 200 feet with full TTL operation of the Nikonos V camera. The f/stop control is in full click stops from f/3.5 to f/22 and operates in the same manner as the 20mm lens. The focus control on the left side of the lens displays focus control from infinity down to one foot. A depth-of-field chart, displayed on the top of the lens, shows information similar to the 20mm lens except the range is greater. For example: f/16 focused at two feet results in a picture with sharp focus from infinity to .98 feet. The front of the lens is threaded for 77mm color correction filters. Again be sure to use filters that have vent holes to allow flooding water between the filter and lens.

Sea & Sea Multi-viewfinder MVF

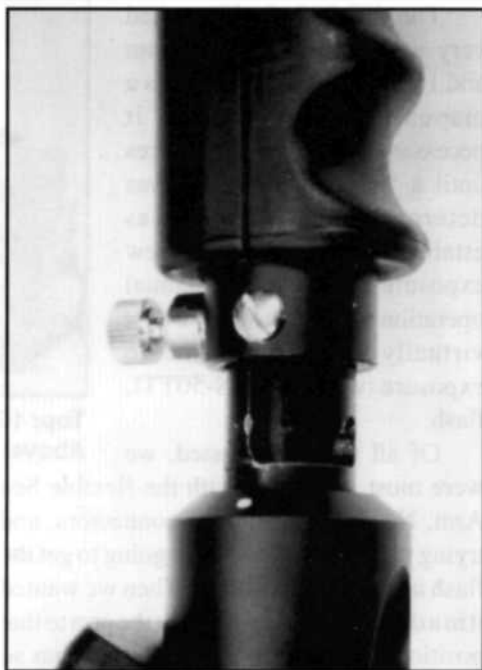
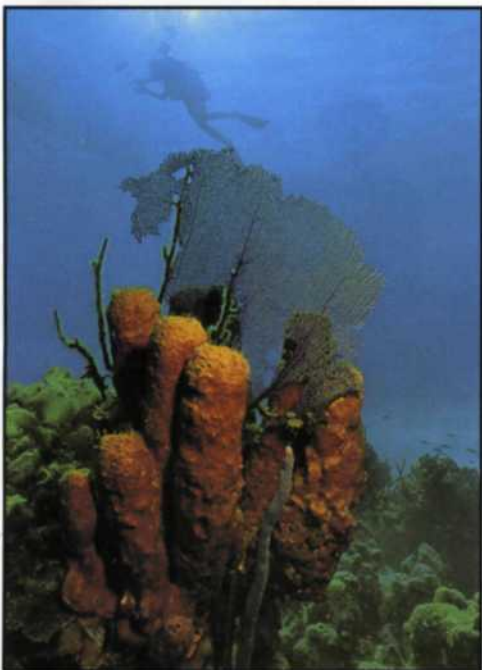
The Sea & Sea three element viewfinder

is designed to cover the 35mm to 15mm lenses with parallax correction. This small, high quality, glass viewfinder attaches to the hot shoe of the Nikonos camera, and locks in place with a locking knob located just under the finder. It is designed to work to depths of 180 feet and works with both Nikonos and Sea & Sea lenses.

Sea & Sea YS-50 TTL flash and flash arm

If macro and general photography is your game, the YS-50TTL flash is an ideal companion for your Nikonos camera. This lightweight flash is slightly smaller than the Nikonos SB-103 flash and has operating specifications very similar to the SB-103. The unit operates on four AA batteries and has an average recycle time of four seconds with Ni-Cad batteries. Batteries are loaded through a small o-ring sealed door in the back of the flash. A single control on the back of the flash switches the flash from the "off" position to "on" for use with the manual





Top: Queen angel on a reef using 20mm and YS 200 strobe.

Above left: Quick disconnect arm. Above right: Wide angle shot taken with 15mm lens.

mode, or "TTL" with the Nikonos V. A ready light in the middle of this control tells the diver when the flash is ready for the next exposure.

The YS-50TTL has a 90 degree angle of coverage with its built-in diffuser and has a color balance of 5400 degrees Kelvin. This slightly warmer color balance is designed to counteract the blue cast often found in underwater photography. The YS-50TTL flash attaches to the Nikonos camera with a two-part tray and flash arm. The Sea & Sea baseplate VII attaches to the Nikonos camera and the end of the plate is slotted to hold the Sea Arm IV. The base of this arm slides into the slot, turns, and locks into place. The arm has a sliding extension that doubles the distance of the flash to camera. This is especially useful for wide angle pictures, and situations with heavy backscatter. The flash is attached to the top of the arm and can be

turned to the desired angle before locking it into position with a large knurled knob.

Sea & Sea YS-200 flash and flash arms

If you want a powerful professional flash that covers extreme wide angle lenses, the YS-200 flash may be just what you are looking for. This heavy duty flash has a 110 degree angle of coverage, can withstand depths of 300 feet, and is powered by a removeable Ni-Cad battery pack. A single power control on the side of the flash allows you to select 1/2, full, and slave at full power. Recycle times at 1/2 power average three seconds and full power flashes take five seconds to recycle. A ready light indicator is located a short distance from this control, and is easily visible underwater. Fully charged batteries can provide between 200 and 400 flashes, depending on your power selection. A diffusion disk can be inserted into the front of the flash if you want to extend the angle of

coverage more than the 110 degrees. When not needed, this disk can be stored on the back of the flash with a unique attachment device.

Battery replacement and charging is accomplished by splitting the flash in half by releasing the two catch and strike clamps that hold the flash together. The batteries can be charged in or outside of the flash. If you plan on taking a lot of photos and want insurance, you can buy a spare battery pack and have it charging while you are on your dive.

The YS-200 is attached to the Nikonos camera with a unique flash arm called the Sea Arm. The Sea Arm attaches to a post at the end of the baseplate holding the Nikonos camera. The flash attached to the top of this arm with a large knurled knob. The Sea Arm is locked in place by pushing down on the arm turning it 90 degrees and releasing. The arm can be permanently secured in place with an attached thumb screw. This flexible arm can bend over 180 degree from the original position and easily hold the flash in place.

Sea & Sea field tests

When we tested the two wide angle lenses, we found the f/stop and focus controls very easy to read and turn underwater. We usually find most calculation charts useless on dives, but the depth of field charts on the top of each lens proved very helpful in

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setting up a hyper-focal distance for each lens. We were very impressed with their compact size and light weight, both for diving and traveling. The finder worked well with both lenses, although the viewing area is slightly smaller than some of the larger Nikonos viewfinders. The trade-off is that the one finder works for all lenses, while Nikon has separate finders.

We found the YS-50TTL flash most suitable for macro and close-up photography. It was small enough to allow us to sneak into those cracks and crevices to capture the critters on film. The YS-50TTL could be used with the 20mm lens, as long as the subject was in close to the photographer. We changed batteries every three to four rolls, and found no decrease in recycle time.

The YS-200 flash worked very well with both the 20mm and 15mm lenses. Because it is a manual flash, we found it necessary to bracket exposures until a "normal" exposure was determined. Once this was established, we lost very few exposures due to the manual operation of the flash. We lost virtually no pictures due to exposure with the YS-50TTL flash.

Of all the items tested, we were most impressed with the flexible Sea Arm. No more ball joints, connectors, and trying to figure how we were going to get the flash in a specific position. When we wanted it in a desired position, we bent the arm to that position and it stayed there. The arm has so much strength, that it holds the flash in position even in mid-air. We also liked the quick disconnect function. This allowed us

to extend the flash as far as our arms could reach for that special shooting situation. The Sea Arm rates a 10 on the 10 point scale!

Conclusion

When we review underwater photo equipment, we are always happy when the products work without a hitch. When these



Top: 15mm lens for Nikonos V.

Above: Sea & Sea camera accessories.

tools deliver the quality results we have come to demand, what more can we ask.

For information on Sea & Sea products contact Diversco, a division of Sherwood Scuba, 120 Shearson Cres., Cambridge, ON N1T 1J4 or any Sherwood Sea & Sea dealer. In the U.S.A. contact GMI Photographic, Inc. P.O. Drawer U, 1776 New Highway, Farmingdale, NY 11735 (516) 752-0066.

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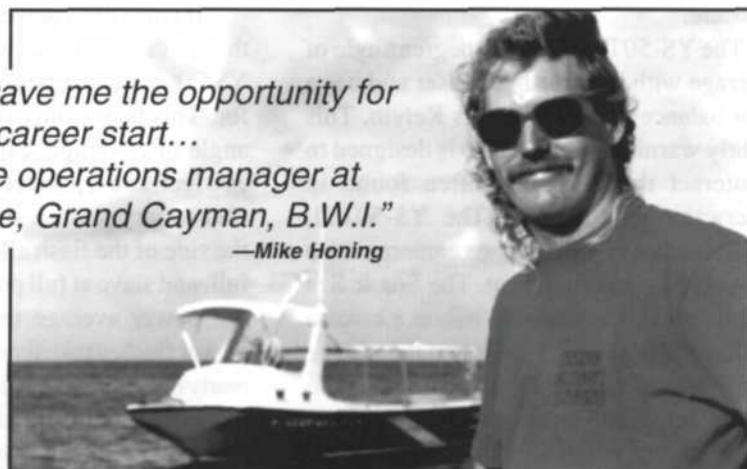
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Jack and Sue Drafaht

Underwater Self-Portraits

Stuck for a cooperative underwater model? Put yourself in the picture with this novel method of self-portraiture using a Nikonos camera and 15 mm wide-angle lens.

By Jack and Sue Drafaht

IT SEEMS THAT MOST UNDERWATER photographers enjoy shooting what are sometimes referred to as 'diver and...' photographs. You know the kind—diver and fish, diver and sponge, diver and coral—need we say more. These photos generally provide more impact than those with just a diver or one with just marine life.

Generally, these types of photos are not too difficult to obtain since we all dive with a buddy. But what if your buddy has no comprehension of your necessary hand signals, or moves across the sandy bottom like a Sherman tank? It's always difficult shooting macro in a sandstorm, no less when attempting wide-angle photography. And even if you have a cooperative model, it never fails that you encounter a difficult situation requiring such complicated hand signals that you couldn't communicate with even the best dive buddy.

So, what options do you have? You want to take great 'diver and...' photos but your dive buddy is no help. Too bad you couldn't do it without him or her. But wait, why not? We've discovered a simple way to take self-portraits underwater.

The idea is simply to extend your Nikonos camera with wide-angle lens and flash unit at arms length, point it directly at yourself and press the shutter. That's the basic principle, but here are a few tips to make the self-portrait process easier.

The camera and flash need to be connected together using one of the many brackets on the market. This will enable you to hold the entire assembly in your left hand while underwater. The Nikonos camera is preferred because of its size and weight.

The flash used should be as compact as possible while still providing you with a wide-angle beam. Since the flash will be

This photo demonstrates the technique used for U/W self-portraits—extend your Nikonos camera with wide-angle lens and flash unit at arm's length, point it directly at yourself, and fire the shutter.

at a close distance to the subject, the power output is not as essential as is the angle of coverage.

A 28 mm lens or wider is necessary to insure that the diver and whatever subject he or she chooses will correctly fit into the frame. A trial run in the neighborhood pool is highly recommended to insure the diver can hold the camera and flash in one hand, pose properly and still depress the shutter.

The simple step-by-step method for self-portraits underwater is as follows:

1/ Preset the f-stop to the correct exposure for the flash at an arm's length.

2/ Set the focus for the closest point, i.e. 15 mm lens is 9", 28 mm is 2 feet.

3/ Hold the camera in your left hand at arm's length with your thumb carefully over the shutter release.

4/ Point the lens slightly to the right of the scene to avoid getting your left arm in the photo. When looking at the camera, make sure your mask is at an angle to the camera and flash in order to avoid a reflection from the faceplate.

5/ Depress the shutter, advance the film and you're ready to repeat the process.

Some typical ideas for self-portraits underwater are: a diver holding animal and looking at the camera, the animal between the camera and diver, the camera on the ocean floor pointing up with the diver reaching down to the animal, diver holding the flash and looking at the animal, and the camera in a wreck or cave pointed out at the diver.

Several advantages can be derived from the self-portrait technique. First, you have a cooperative model who understands your every instruction for that complicated shot. Secondly, your focus and exposure will almost always be the same because the camera and flash are always held at arm's length, resulting in a high percentage of dynamic photos. Thirdly, one diver stirs up the ocean floor less than two. And lastly, some photos not possible before can easily be taken, such as holding the camera into an opening in a wreck and pointing out, resulting in a picture of a diver looking into a wreck.

Use this self-portrait technique in order to supplement your other underwater photos. It will add diversity to all your slide presentations. But remember, there is no substitute for using a cooperative diving model. Self-portraits only allow you more variety in your underwater endeavors. □