

A large school of silver fish, possibly sardines, swimming in clear blue water. The fish are densely packed in the upper half of the frame and more sparsely distributed in the lower half. A vertical wooden post is visible on the right side of the image, partially obscured by the fish. The overall scene is a vibrant underwater scene.

Watercolors

Ken Bondy

Watercolors

by

Ken Bondy

March, 2007

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to my grandchildren, in the order of their appearance:

*Cameron Dirk Bondy
Logan Andrew Dunn
Ryan Ernst Bondy
Elizabeth Kathryn Bondy
Megan Elizabeth Dunn
Sean Kenneth Tierney-Bondy*



Left to right, Ryan, Sean, Logan, Megan, Elizabeth, Cameron

*"As I once became part of them,
all these creatures of the sea are now a part of me,
in my mind,
in my soul,
in my dreams."*

*Christopher Newbert
"In A Sea of Dreams"
1994*

It can't be said any better

preface

I fly fairly often on commercial airliners between my home in Los Angeles and the San Francisco Bay area. On the southbound trip, usually in the late afternoon, I like to sit on the starboard side of the plane in the window seat, my face pressed to the Plexiglas, watching the California coast slide by below me. On those flights my senses overflow, because my life seems to be inextricably woven and bound to that beautiful band of California coastline, and for a short time the land, the ocean, and my memories blend together and become one.

First comes the lovely crescent shape of Monterey Bay and the green cypress-covered peninsula. Nestled in the center of the peninsula is the city of Monterey, and the little stretch of beach called Cannery Row. In spite of all its commercialism now, I am still haunted there by the ghosts of John Steinbeck and Doc Ricketts, big heroes from my adolescence. Steinbeck was the first to really open my eyes and mind to the beauty of words and the great art of storytelling.

Even from twenty thousand feet I can recognize my favorite Monterey dive sites. Whaler's Cove on Point Lobos is easy to spot. I have spent many delightful hours there underwater watching a parade of colorful California marine life pass by me and my camera. Occasionally I think I can see the white buildings of Monterey Peninsula Hospital just south of the city, tucked among the pines and the cypress, where I said goodbye to my beloved adopted father Bud Enochs.

My life has been so full. I've had a satisfying and rewarding 45-year career as a structural engineer. Talk about fringe benefits—that career has also allowed me the means and the time to spend two thousand hours flying small airplanes and another two thousand hours underwater on scuba—how many people have seen the views of our world that I have? Best of all I have four fantastic children, three with my genes and the fourth, hopefully, with some of my influence. I have six beautiful grandkids, and now know why people say that grandchildren are the best thing that can happen to a person. I've been married for thirty years to a wonderful woman who traded having more than one child for a life with me. Amazing, Pam. You probably made the wrong decision, but I am and will be eternally grateful that you made it.

My eldest daughter's name is Coleen, and I mention her often throughout this book. That is because she is my best dive buddy. She has dived with me in all the places described on these pages. She appears in many of the photographs. She was right beside me when I made many of the other photographs, like the next one of the elephant seal. When I first became a certified diver my wife Pam had already been certified for several years. Pam accompanied me on several trips in my first few years as a certified diver, but it soon became apparent (particularly after she bought me my first underwater camera) that I liked diving and underwater photography a LOT better than she did, and she opted to stop diving. But she was wonderful about allowing me the freedom to pursue this thing that was beginning to be an obsession with me. With her blessing I did several trips by myself, but found that it was lonely. The miraculous things you see underwater are so much better if shared with someone you care for. So after Pam decided to hang up her fins, so to speak, and I found traveling alone on dive trips to be unsatisfying, I approached Coleen, who was an undergraduate student at UCLA at the time, with what I thought was a pretty good deal. Get certified, I told her, and I will take you diving with me all over the world. She got certified, and I took her diving with me all over the world. The amazing things we have seen

together underwater have created a bond between us that will last for both our lifetimes. It's like an unspoken secret we will always share.

*But I digress. Now Monterey is behind us and we are abeam what must be the most beautiful stretch of coastline in the world, the one along California Highway 1 between Monterey and Morro Bay. Robert Louis Stevenson described this coast as the "...most beautiful meeting of land and sea in the world," hard to argue that. You can't really tell just how spectacular it is from up here. From my airliner view the green coastal hills just **become** ocean, and you don't see the detail in the dramatic cliffs and canyons and magnificent, desolate beaches that form this coast. Down there on a few of those isolated beaches great herds of northern elephant seals are making their comeback from near extinction. I've clambered down the rocky cliffs with Coleen and we have seen them up close, looked into their big mysterious black eyes and tried to imagine what bizarre and wondrous things they see when they dive down to feed, a **mile** below the surface of the ocean.*



Northern elephant seal

In real life, as I mentioned, I'm a structural engineer, and several of the old Highway 1 concrete arch bridges make me proud of my ancient profession and profoundly in awe of the men and women who designed and built these strikingly beautiful structures, before I was born. Rather than detracting from the natural scenery these bridges enhance their surroundings in an odd and emotional way, and they look like they have been there forever.



Old concrete arch bridge on California Highway 1

South of Big Sur, the coastal terrain flattens and becomes greener as the airplane levels off at 35,000 feet and what is called the Central Coast lies below. I spot Hearst Castle almost directly below me in the low hills of San Simeon, and then, just ahead to the right, is Morro Rock, the huge granite monolith guarding the entrance to Morro Bay and perhaps the most recognizable feature on the California coast, maybe on the entire Pacific coast.



Morro Rock, entrance to Morro Bay

Seeing “the rock” triggers a sensory overload of emotions. What a connection I have with this part of California—how much of my life was influenced by the places below me. Three of my kids, all except my youngest daughter Lisa, went to college here (Lisa followed in her dad’s footsteps and went to UCLA.) The two oldest, Dirk and Coleen, graduated from Cal Poly in San Luis Obispo, the youngest, Jesse, went to Cuesta College just to the north. Coleen not only went to school here, but here she lived, worked as a newspaper reporter, was married, and later suffered great pain. But I know she still has much love for the Central Coast.

All of Morro Bay is visible in the warm afternoon light. I get a little nostalgic as I think of all the dives I have done down there, all the amazing critters I have seen under its cold waters. Now I can see the two old wooden T-piers which serve the bay. The one right next to the 3 power plant stacks is called the North T-Pier, or the “Coast Guard Pier” because of the small military base there. Coleen introduced me to this dive site about 20 years ago when she was living in Morro Bay. Since then I have spent perhaps a hundred hours directly under that pier, thirty feet underwater, rooting around in its bottom junk and finding and photographing some of the most beautiful and unlikely animals imaginable. It is one of the world’s greatest dives, and yet few know it even exists. My photographic journey starts there in Morro Bay, and continues to four other magical places that I think are the best dive destinations in the world.

"The numbers of living creatures of all orders, whose existence intimately depends on kelp, is wonderful. A great volume might be written describing the inhabitants of one of these beds of seaweed"

Charles Darwin, 1834

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Chapter 1

Morro Bay, California

In the late 1980s a new term crept into the vocabulary of experienced, world-traveling divers. That term was **“muck diving.”** I am not sure, but I think it originated with Bob Halstead, the pioneer of Papua New Guinea diving and the owner of the ***Telita***, one of the world’s first great “liveaboard” dive boats. Occasionally, due to weather or some other unusual situation, Bob would find himself anchored far from the magnificent PNG coral reefs the Indo-Pacific is famous for, but instead on a featureless, often silty shallow area close to shore, sometimes in the vicinity of a pier or other site strewn with man-made junk.

Looking around underwater in such an unlikely area Bob, to his surprise, started finding amazing creatures, animals not found anywhere else. These included all types of pipefish, seahorses (including the amazing little pygmies), flamboyant cuttlefish, astoundingly beautiful shrimps, frogfish, octopus, and a dazzling array of nudibranchs. He started showing these places to guests, they liked them, and the term “muck dive” was born to describe them. The term spread literally around the diving world, and today everybody seems to know what a muck dive is. There are magnificent resorts dedicated to muck diving; perhaps the best of these is Kungkungan Bay Resort in Indonesia.

I love muck dives, and have done some of the best in the world in Papua New Guinea, Indonesia, the Solomon Islands, and a few other exotic places. But my favorite is right here in my home state of California, under an old wooden pier in Morro Bay called the “Coast Guard Pier.” Its official name is the “North T-Pier,” but because of the Coast Guard facility there it is commonly called the “Coast Guard Pier.”



Coast Guard Pier, Morro Rock in background partially obscured with fog.

Morro Bay is an idyllic little resort town located just north of San Luis Obispo on California’s Central Coast. It is the northbound jumping-off point for what may be the most beautiful

drive in the world, California Highway 1 from here up to Monterey. Many tourists use it as a base for visiting Hearst Castle in San Simeon, only about 30 miles to the north. The bay is a place of great natural beauty. It is also a very special place ecologically, with dunes, wetlands, forest. Great blue herons nest here, and it is home to many other bird species. It is a photographic paradise:



Morro Rock viewed from just south of Fairbanks Point

While the Coast Guard Pier is a truly magnificent dive, I can't really say that it is **better** than the great warmwater muck dives of the Indo-Pacific. I think I just like it better because I can do it virtually any time I want (with a 3-hour drive each way and cooperating tides, of course). Perhaps I like it so much because of the memories that the Central Coast holds for me, or the fact that I associate it so strongly with my daughter Coleen, with whom I have dived it so many times. Maybe I like it so much because almost nobody else pays any attention to it. It has become "my" dive.



Coast Guard Pier looking north toward stacks, entry point at extreme left where pier bends

It's a fairly easy dive as pier dives go, but it's certainly not as easy as warmwater muck dives. The water is cold—normally 50-55°F. I don't think I have ever seen it above 55. So that means a lot of equipment, including (for me) a dry suit (DUI TLS350), heavy weights, gloves, hood, etc. Although it can be dived in almost any weather, it is very tide-related. Morro Bay gets flushed by the tides twice a day, and the currents are raging during the 6 hours or so between the two high and low tides. Four- to five-foot tidal changes are common. It's fun to watch the boats anchored out in the bay turn around with each tide, pointing north toward the mouth of the bay on the incoming tide, south toward Los Osos when the tide is going out.

The dive can only be safely made straddling the high or low tide, about a half hour on either side of slack, the point where the current reverses. The best time to dive the pier, I have found, is on the higher of the two daylight tides. The incoming water from the sea seems to be the cleanest at that time. Visibility at the pier is affected by conditions outside the bay. If the surf is pounding the breakwater, the tides bring in dirty water and visibility is limited, even at the highest tide. On the other hand, if ocean conditions are calm outside the bay, sometimes you can see the bottom standing on the pier.



North T-Pier (Coast Guard Pier), Morro Bay, looking northeast



Entry and exit points

I have probably done more than 100 dives here. In the early years, when Coleen lived in Morro Bay, I almost always dived it with her; however in subsequent years I have mostly made the dive solo. Sometimes when I need a pier dive fix and there is a high tide around noon, I will drive up alone, do the dive, and return home on the same day. Other times my wife Pam and our beautiful little red English bulldog Sarah will accompany me. While I am underwater Pam and Sarah walk around the pier area and make friends. When we have time we will stay overnight at a doggie-friendly hotel in Morro Bay and do the dive on two consecutive days. I also make the dive with my brother-in-law and good friend Gary Powell, who lives in Modesto. It takes Gary about the same time to drive to Morro Bay from his home in Modesto to the north as it takes me from mine in the Los Angeles area to the south. Gary is a very experienced diver and a superb underwater (and topside) photographer. Like me, he has some sort of genetic flaw that causes him to enjoy a dive like this. Coleen, of course, actually **having** my genes, was predestined to like the dive. She had no choice.

My dive routine has gotten pretty well established. First I check in with the Coast Guard and the Harbormaster, whose offices are right at the foot of the pier. Everybody is friendly. I usually spend some time talking to the Coast Guard men and women. They are so young, so fit, so beautiful, so “American” in the absolute best sense of what that term means. They are always interested in “what I see under there.” I occasionally bring them some prints of the animals I photograph under the pier, and they always seem to appreciate them. A framed 13”x19” print of one of my photos (a nudibranch) hangs in the commander’s office. I am very proud of that.

I usually drive my car out onto the pier and unload equipment at my entry point, which is at the interior corner of the intersection of the two arms of the pier (see the previous photo). After unloading I move the car to a public parking lot behind the Harbormaster’s office. At the right time (about forty minutes before the slack tide) I hang my camera in the water on a drop line from a cleat on the pier deck, suit up, and do a giant stride entry off the pier. At high tide, the difference in elevation between the top of the pier and the water surface is 8-10 feet. That is a serious “giant stride.” But it puts me right about where I want to be at the start of the dive, it is safe, and it minimizes any surface swim and the dangers from boat traffic.



Entry point

Because the maximum water depth under and around the pier, even at high tide, is only about 30 feet, the dive times tend to be long; for me, often over an hour. Most of my dives used to end when I ran out of film; now with digital equipment I can shoot several hundred high-resolution images on a single dive and it is almost always remaining air (or bladder condition—you don't pee in a dry suit) that ends my dives. When I see about 700 psi on the gauge I make my way over to the rocky slope at the foot of the pier on the northwest side, and exit there with a strenuous climb up the rocks to the street. Boat traffic is a constant danger in this environment, so the return swim must be made either directly under the pier or, if that is not possible, right on the bottom. Coleen and I wrote an article¹ a few years ago on techniques for diving piers that we think contains lots of valuable information for divers who want to do this sort of dive.



Exit point at foot of pier on northwest side

¹ Bondy, C. and Bondy, K., "Pier Diving – the Rewards are Peerless," Dive Training Magazine, May 2000, pp. 102-105

Nudibranchs are the big underwater photographic attraction here. They are that bizarre family of marine snails without shells that may be, as a group, the most beautiful animals in the world. Sacramento is the geopolitical capital of California, but Morro Bay is the nudibranch capital. I don't know what draws them to this spot and sustains them here (marine biologists probably do), but they come and they thrive. There are so many nudibranchs under and around the pier that you often see two different species very close to each other. I have never seen that anywhere else. Sometimes I see the two different nudibranchs approaching each other and can set up the shot to get them both in the frame. Other times I don't see them both, particularly when one of them is very small, and I only realize that I got two in the same frame when I see the image later. In the following photo I clearly saw the two individuals and was able to capture them next to each other:



Hermissenda crassicornis (below), *Triopha maculata* (above)

In the photo below I didn't see the little *Hermisenda* in the lower left until I looked at the image on the computer:



Triopha maculata (center), *Hermisenda crassicornis* (lower left)

In the next photo, it took me several months and many viewings on the computer before I saw, with considerable shock, the little *Acanthodoris rhodoceras* nudibranch in the lower left corner of the frame. I wish I had seen the *Acanthodoris* at the time I made the image, because he would have made a great subject, and he is the only one of his species I have ever seen:



Triopha maculata about to crush a little Acanthodoris rhodoceras in the lower left

Here's another amazing encounter (I did see this one coming) between two different nudibranch species, one very common (the *Hermisenda*), the other very unusual (the *Flabellina*):



Hermisenda crassicornis and *Flabellina trilineata* squaring off

In the past few years there has been an explosion in the number of *Hermisenda crassicornis* nudibranchs in the bay. In the past you always stood a good chance of seeing a *Hermisenda*—now you can't miss. There are literally thousands of them under and around the pier. In some areas there is one every few inches. Perhaps a marine biologist can explain that to me. Here a nice family of them lines up for me in order of size:



Three *Hermisenda crassicornis*



Hermissenda crassicornis on red bryozoan



Hermissenda crassicornis with giant starfish in background



Hermissenda crassicornis

Hermissendas are one of the most beautiful nudibranchs in the world, but somehow because they are so common in California their beauty seems diminished, taken for granted. Why is that, I wonder?

The other nudibranch species that has greatly increased in numbers under the pier is the beautiful *Triopha maculata*. I used to see one every few years; now it is not unusual to see several individuals on every dive. The increase in *Triopha* numbers is not as spectacular as with *Hermissenda* but still very noticeable. *Triophas* are fascinating animals. They can get very large (3-4 inches), they move rapidly (for a snail), and they come in a wide variety of color variations, from deep chocolate brown to pale orange. Their spots are raised above the skin and brilliant white in the larger individuals. Here are a few *Triophas* with different color variations:



Triopha maculata, common in Morro Bay, unusual elsewhere. Light orange base color.



Triopha maculata head with dark chocolate-brown base color



Triopha maculata, light orange base color, doing a U-turn



Triopha maculata, small individual with pale orange base color and less distinct spots

I have seen many other species of nudibranchs under the pier. Here are a few of them:



Flabellina trilineata, unusual in the Bay



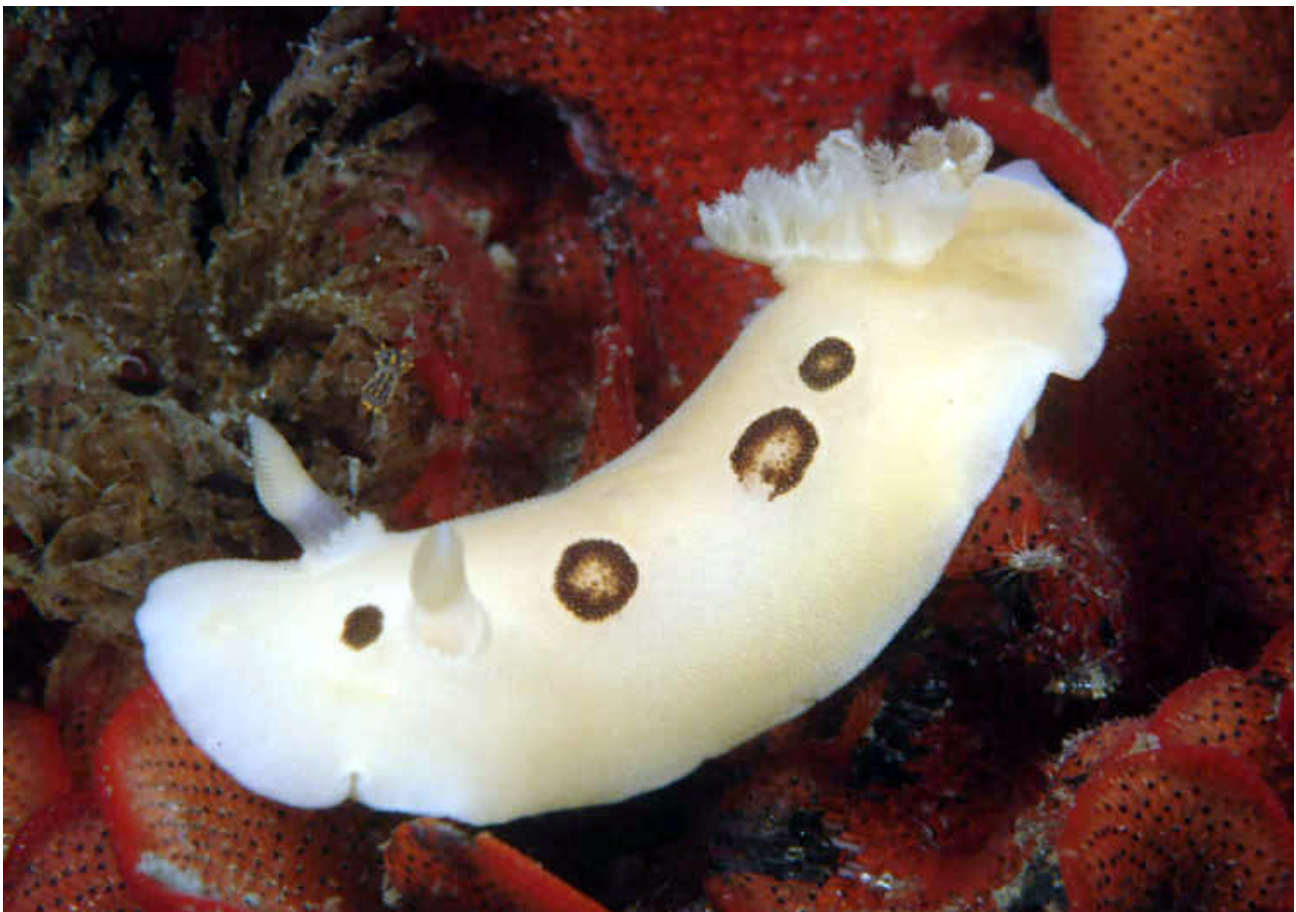
Clown nudibranch (*Triopha catalinae*) with withered right rhinophore (horseneck clam siphons in lower left)



Clown nudibranch (*Triopha catalinae*) head-on (this one has two good rhinophores)



Aeolidia papillosa, shaggy nudibranch



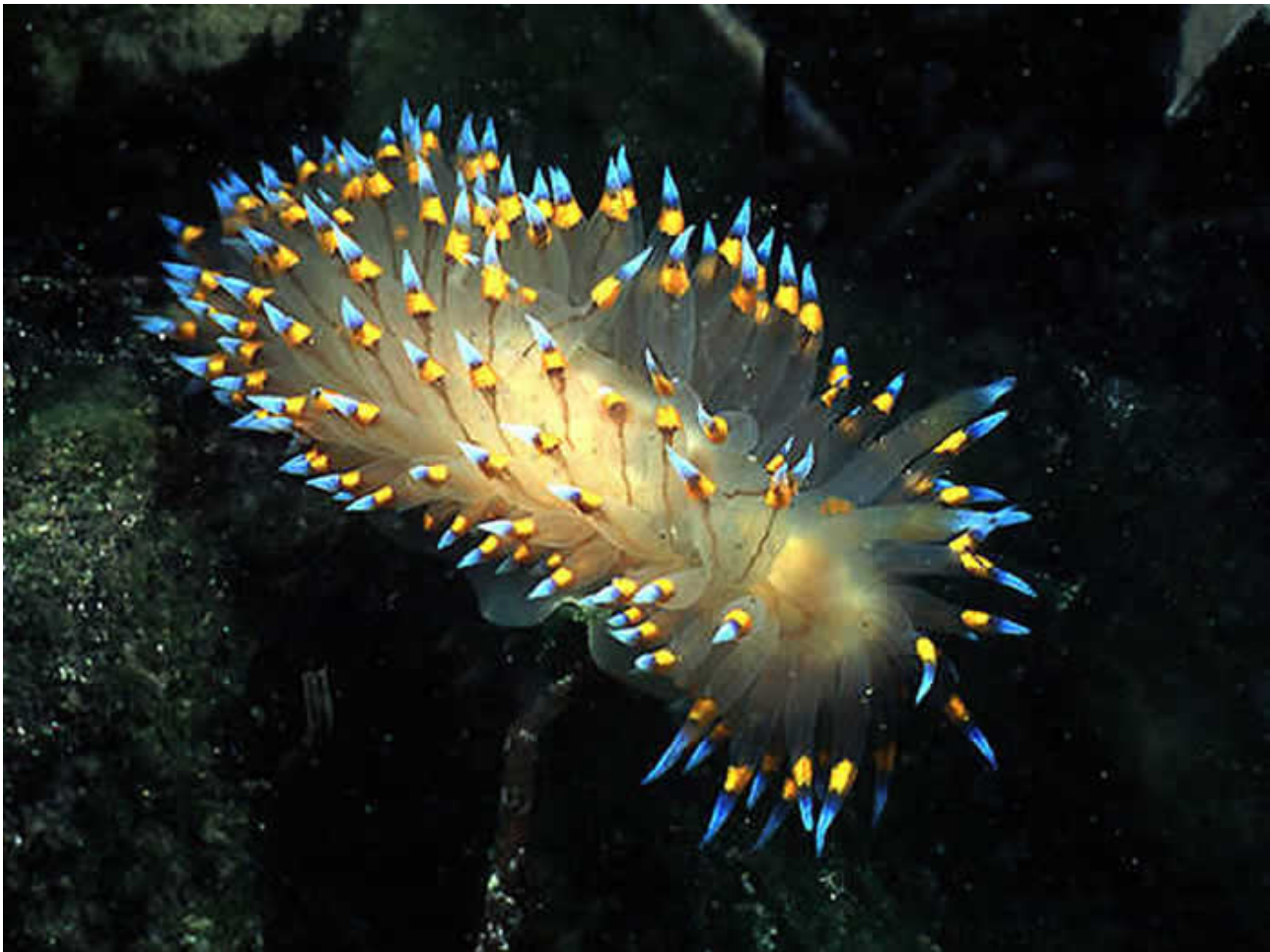
Diaulula sandiegensis, one of several dorid nudibranchs commonly seen



Acanthodoris lutea, "puff" nudibranch (my term,) very unusual



Mating *Polycera atra* nudibranchs



Janolus barbarensis, Santa Barbara nudibranch

Of course there are many other kinds of animals living under the pier. A favorite of mine is the fringehead blenny. Only a few inches long, they are found peeking out of almost any round opening—tubes, shells, bottles—all are home to fringeheads. They are not easy to spot. Most of the time you have to see some movement. But once you find one, you can stay with him/her for the rest of the dive if you want, because they rarely leave their shelter.

That raises an important point about underwater photography. When you find a good subject, **stay with it**. One of my first mentors, Jim Cooluris, taught me this a long time ago and it is one of the most valuable lessons I ever learned. Underwater photography is a low batting-average endeavor. So when you find a good subject, it is best to stay with it and make lots of images, rather than just firing off a few frames and moving on. There is no guarantee that you are going to find a better subject later in the dive, and a bird in hand is better than....well, you know. You might think that your first image is a masterpiece, probably because of the excitement of finding a good subject, but it rarely is. Take lots of frames and change something in every frame; composition, angle, exposure, strobe position, etc. The keeper image, the one you are happiest with, is often one of the last ones you make.

Back to fringeheads. They will retreat back into their lair if they are threatened or disturbed, but if you keep still for a few seconds they will invariably peek out again, ready for a photo. Earlier I talked about seeing two different types of nudibranchs right next to each other—occasionally you can see two different types of **animals** right next to each other, like the

Triopha nudibranch crawling on the green wire and the orange fringehead just below it peeking out of its hole:



Triopha maculata nudibranch next to fringehead blenny peeking out of hole

This next one reminds me of the late film actor Marty Feldman, whose eyes pointed in two directions like this fringehead:



Marty Feldman fringehead (actually Neoclinus uninotatus)

Here are some other fringeheads I have met over the years under the pier:



Fringehead having bad hair day in bottle (Neoclinus uninotatus)



Sarcastic fringehead (Neoclinus blanchardi)



Sarcastic fringehead (Neoclinus blanchardi)



One-spot fringehead (Neoclinus uninotatus)



Sarcastic fringehead (Neoclinus blanchardi)



One-spot fringehead (Neoclinus uninotatus) with Hermissenda



Orange fringehead, very unusual

One day recently I saw a large sarcastic fringehead in an old length of 2" diameter PVC pipe:



Sarcastic fringehead in 2" PVC pipe

As is usually the case, curiosity got the better of him and he came out to see what was going on:



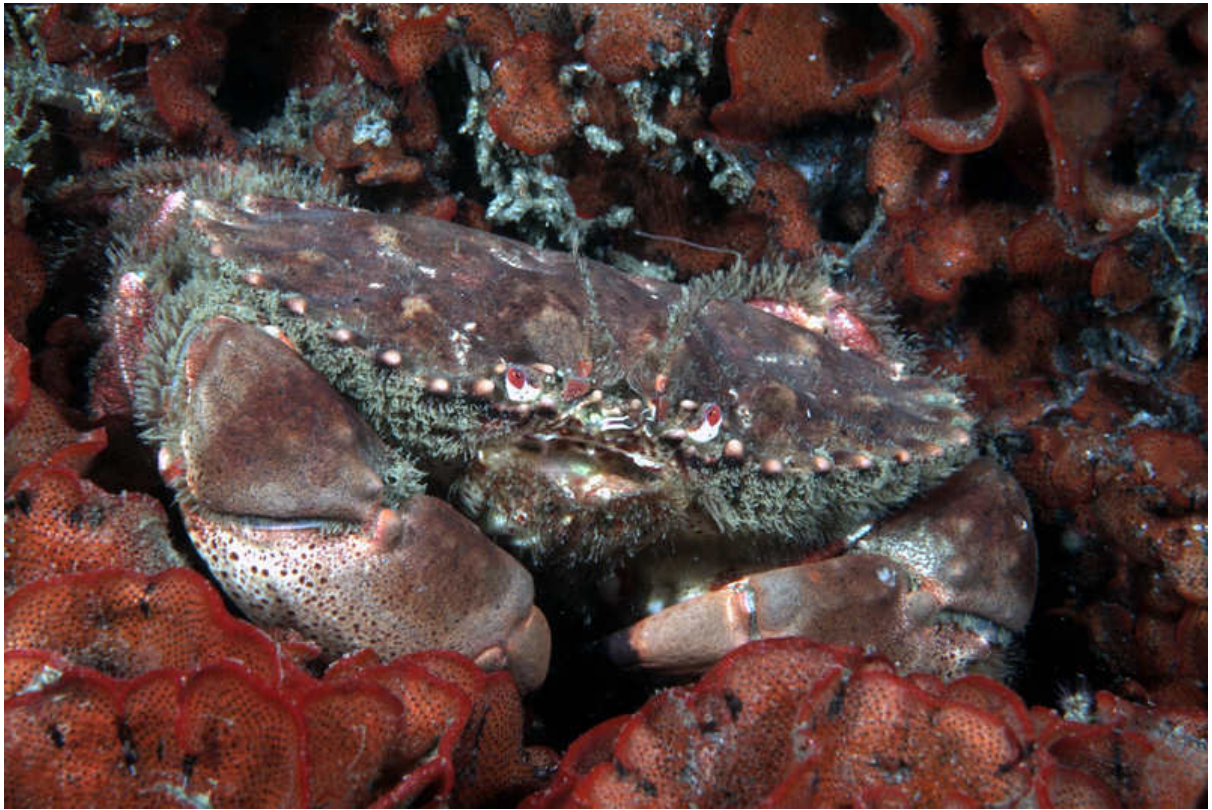
Sarcastic fringehead in PVC pipe

I'm not sure what made me think of this, but I put a small piece of bottom rubble just inside the edge of the pipe to see what he would do with it. He took it in his mouth and spit it out. He and I did this several times; it was kind of like playing fetch with my bulldog Sarah:



Sarcastic fringehead playing fetch

Invertebrate life bustles under the pier. Crabs of all sizes, from little hermits to the big sheep crab, scurry everywhere. Here's a favorite; he looks like an old blue-bearded man with attitude:



Grandpa crab with blue beard; probably *Cancer antennarius*



Dungeness crab *Cancer magister*



Coon-striped shrimp Pandalus danae



Shrimp on red starfish, Heptacarpus palpator

Occasionally octopi reveal themselves. They are fascinating animals; sensitive, curious, and intelligent. How do they manage all that without a spine? Sometimes if you hold a finger close to them in a non-threatening way they will reach out an arm and touch you. I have seen them hiding in tires, cans, shoes, an old broken boom box, and a toilet. Here's one that came right out into the open and posed. He tried to fool me by changing colors, but it didn't work. I knew what he was:



Octopus

Underwater visibility is never very good in the bay. The best you can hope for is about 15 feet horizontal. Occasionally you can barely see the surface from the bottom; that's about 30 feet of vertical visibility. However, that doesn't happen very often. Most of the time you can't see the surface when you are on the bottom. But you don't need much visibility for this type of photography; you just have to see your subject, which is normally only a foot or two in front of you. So a body length of "viz" is adequate for muck diving. With one exception, there are no really beautiful wide-angle or panoramic opportunities under this pier. The exception is the piling.

Piles are the vertical structural members that support the pier deck. The piles under this pier are wooden, about 16 inches in diameter (like telephone poles), irregularly spaced and at various angles to the vertical as seen in the following photo. Underwater they are **covered** with colorful life and they are absolutely beautiful. On good viz days the piles are particularly interesting to explore. You can still only see short pieces of them in one view, but those pieces are spectacular.



Pier piling and superstructure looking southeast

Twenty years ago, when I first started diving here, virtually every pile was covered with anemones. Near the bottom, in deeper water, plumose (*Metridium senile*) anemones abounded. Near the top, the colorful (mostly green) “congregating” anemones held sway. The *Metridiums* came in two colors, white and gold. In some areas the white predominated with a sprinkling of gold; the reverse occurred in other areas as seen in the photos below:



Plumose anemones on vertical surface of pilings (white predominant)



Plumose anemones on vertical surface of pilings (gold predominant)



Barnacle in gold metridiums



Plumose anemones on piling



Plumose anemones on piling

Concentrations of *Corynactis californica* anemones turn some pier piles into “strawberry fields forever.” They are small and very beautiful with their white “ball” tips. They come in various colors—here they are mostly red—but there are some colonies of gold or yellow. They are kind of an icon of California diving (as their scientific name suggests) and are found virtually everywhere along the California coast and the offshore islands.



Corynactis anemones



Corynactis anemones

Often there are barnacles among the *Corynactis*, feeding by waving their beautiful little fans:



Barnacle in *Corynactis anemones*

Over the years the life on the piles has changed. That, and the tremendous increase in the numbers of *Hermisenda* nudibranchs, are the most significant changes I have seen since I have been diving here. Everything else remains pretty much the same as I have always remembered it, but the carpet of plumose anemones that covered most of the piles 20 years ago has been largely replaced by a red *bryozoan*. Only a few piles now have the lush covering of anemones. Those tend to be, for some unknown reason, out near the ends of the top arm of the “T” and at the stem of the “T” where it meets the land. The vast majority of the other piles are now covered with red *bryozoan*. I have no idea whether that is a good or a bad thing, or neither. Perhaps it is just one of the normal cycles that happen in the ocean. One thing is for sure—there is as much life under the pier now as there was two decades ago; some of it is just different. I liked it better when the *Metridiums* were covering every pile, but the red *bryozoan* does make a nice negative space:



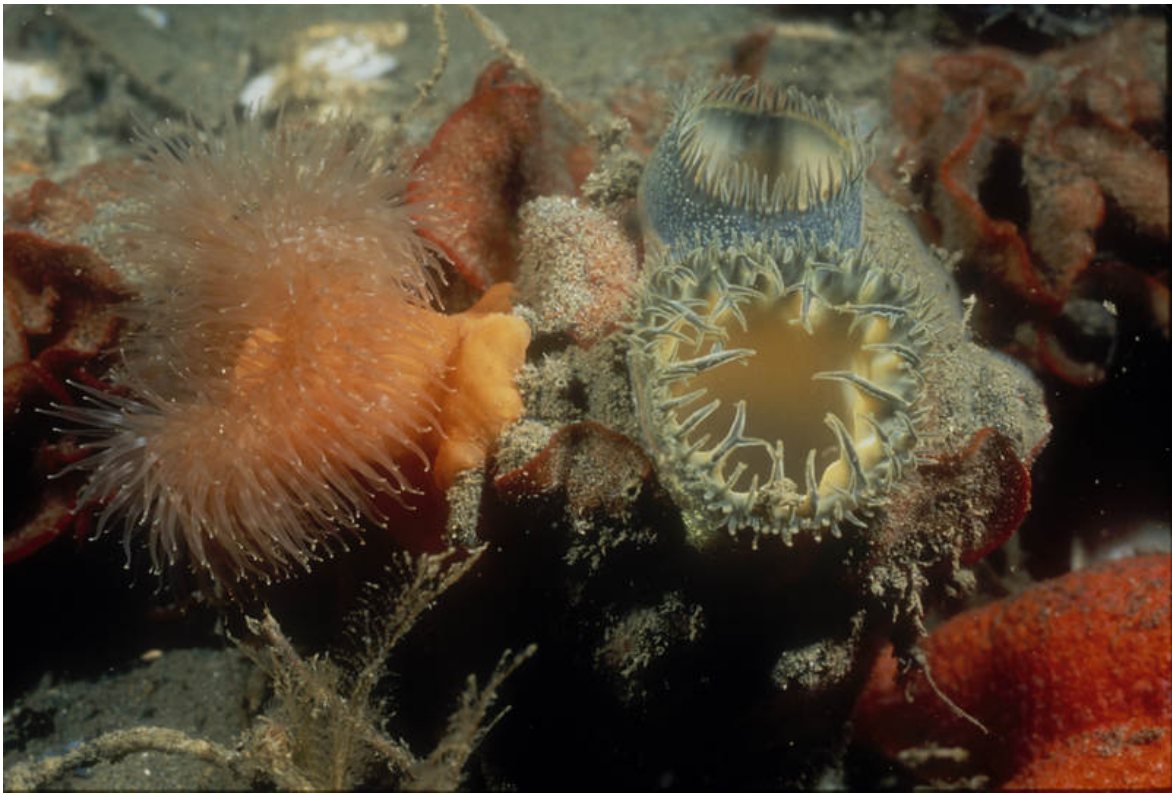
Hermisenda crassicornis on red *bryozoan*

Here is one of the prettiest benthic (bottom-dwelling) anemones I have seen under the pier:



Moonglow anemone (Anthropleura artemisia)

The bottom under and around the pier is covered with horseneck clam siphons. They are perhaps the most common living feature on the bottom; dull greenish-grey on the outside but very beautiful inside. They react by closing somewhat and retracting into the sand when they are touched. One side is for water in, the other for water out. The tentacles are shaped differently on the “in” and “out” sides. In the next photo the “out” side is above and the “in” side is below, as almost anybody could figure out by looking at the direction the tentacles are bending:



Horseneck a.k.a. gaper clam (*Tresus nuttallii*) siphon on the right, golden plumose anemone on the left



Hermisenda in front of horseneck clam intake siphon



Geoduck clam siphons (in and out)

You don't have to be underwater to enjoy the animals in Morro Bay. Here's everybody's favorite, the sea otter. They are often seen in the Bay, some tied up in kelp right next to the pier, like this one:



Sea otter in kelp

Perhaps the most unusual animal I've ever seen under the pier is this juvenile wolf eel. I came across him at the start of one of my first few dives under the pier, and he only gave me one shot before scurrying off into the green water. I didn't know what he was until one of my marine biologist friends identified him for me. I never saw another one in the next twenty years of diving the pier:



Juvenile wolf eel (Anarrhichthys ocellatus)

And finally, of all the thousands of images I've made under the pier in Morro Bay, I think this just might be my favorite. It says so much in so many ways:



Two little Metridium anemones fighting for survival on a recently discarded beer bottle. Isn't nature grand?



Morro Bay sunset.

Chapter 2

The California Channel Islands

Southern California is one of the world's most densely populated metropolitan areas. A virtual megalopolis along the Pacific coast for several hundred miles from the Mexican border to Ventura, it is home to 13 million human inhabitants. It sprawls with mass-graded housing developments, urban centers with clusters of tall buildings, vast industrial areas, clogged freeways, polluted air.

Unbelievably, only **eleven** miles from this glut of civilization is a beautiful uninhabited island, unchanged for tens of thousands of years. It was named "Anacapa" centuries ago by the Chumash Indians, California's original inhabitants. Wild and free, it is a nesting place to thousands of seabirds, gulls and pelicans; home to colonies of California sea lions and harbor seals. Twice a year, gray whales pass by in their 5,000 mile trip between Alaska and the calving lagoons in Baja California. Blue whales visit every summer. In the spring the Anacapa cliffs change color from brown and green to bright yellow as the *Coreopsis* flowers bloom.



Anacapa Island in the foreground, Santa Barbara Island in the background, the two smallest of the eight California Channel Islands

Underwater its clear, cold waters reveal forests of giant *Macrocystis* kelp, the world's fastest-growing plant, often getting to be one hundred feet tall. The tops of the kelp plants, taller than the water is deep, collect at the surface in amber clusters called "canopies." On sunny days shafts of sunlight pierce the golden canopy like daylight starbursts. Bright orange garibaldi fish wander in and out of the kelp shafts, decorating the seascape like jewels. The California kelp forests are one of the most beautiful sights to be seen underwater. The kelp is home to hundreds of species, providing shelter, camouflage, and food.



California kelp forest



Kelp forest, San Miguel Island



Kelp forest, Anacapa Island



Coleen in kelp canopy



Coleen under kelp canopy

Anacapa is one of a group of eight islands off the Southern California coast known as the California Channel Islands. Five of the islands (Anacapa, Santa Cruz, Santa Rosa, San Miguel, and Santa Barbara) form the Channel Islands National Park. Two of the other three, San Clemente and San Nicolas, are managed and controlled by the U. S. Navy, the third, Santa Catalina, is privately owned, and has the only permanent city or settlement. It is comforting to me knowing that, if things work out as planned, when my grandkids, and their kids, and their kids...go to these islands, they will see the same things that I saw in my lifetime.

The dichotomy of this place, the vast difference in ecology between civilization and wilderness in only eleven short miles, did not escape the eye of Jacques Cousteau, who named his 1987 film on the Channel Islands "*At the Edge of a Human Tide.*" Coleen and I, by the way, make a brief appearance in that film.

Kelp is an icon of California diving. Everything seems to revolve around it. It is beautiful at every level:



Kelp detail

The giant kelpfish tries to look like kelp:



Giant kelpfish, Santa Cruz Island



Giant kelpfish

Wide-angle scenic images in the kelp forest are some of the most dramatic photos that can be made underwater:



Reef scene, Anacapa Island



Kelp scene, Anacapa Island



Mike Watkins under the dive boat PEACE, Anacapa Island



Coleen at Ship Rock, Catalina Island



Jack mackerel school in kelp



Jack mackerel school in kelp, with diver (Dona Perry), Anacapa Island



Deep reef scene at Santa Rosa Island



Bat ray in kelp, Anacapa Island

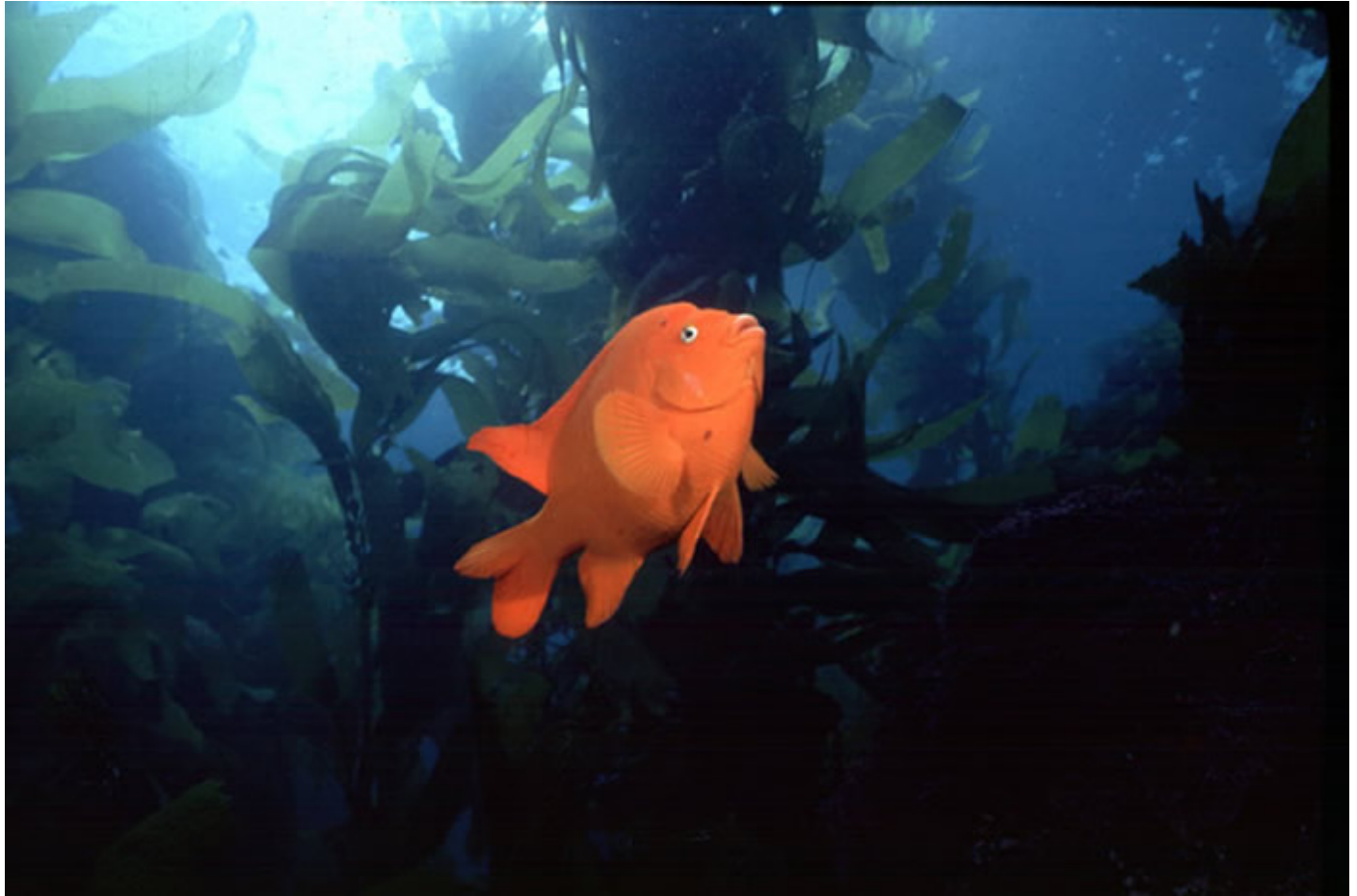


Kelp scene with red gorgonian (that's where you find simnias), Anacapa Island



Kelp scene with golden gorgonian, Anacapa Island

Another icon of California diving is the bright orange Garibaldi fish. Extremely common, protected by state law, it is seen on almost every dive. They add a touch of color to the kelp forest:



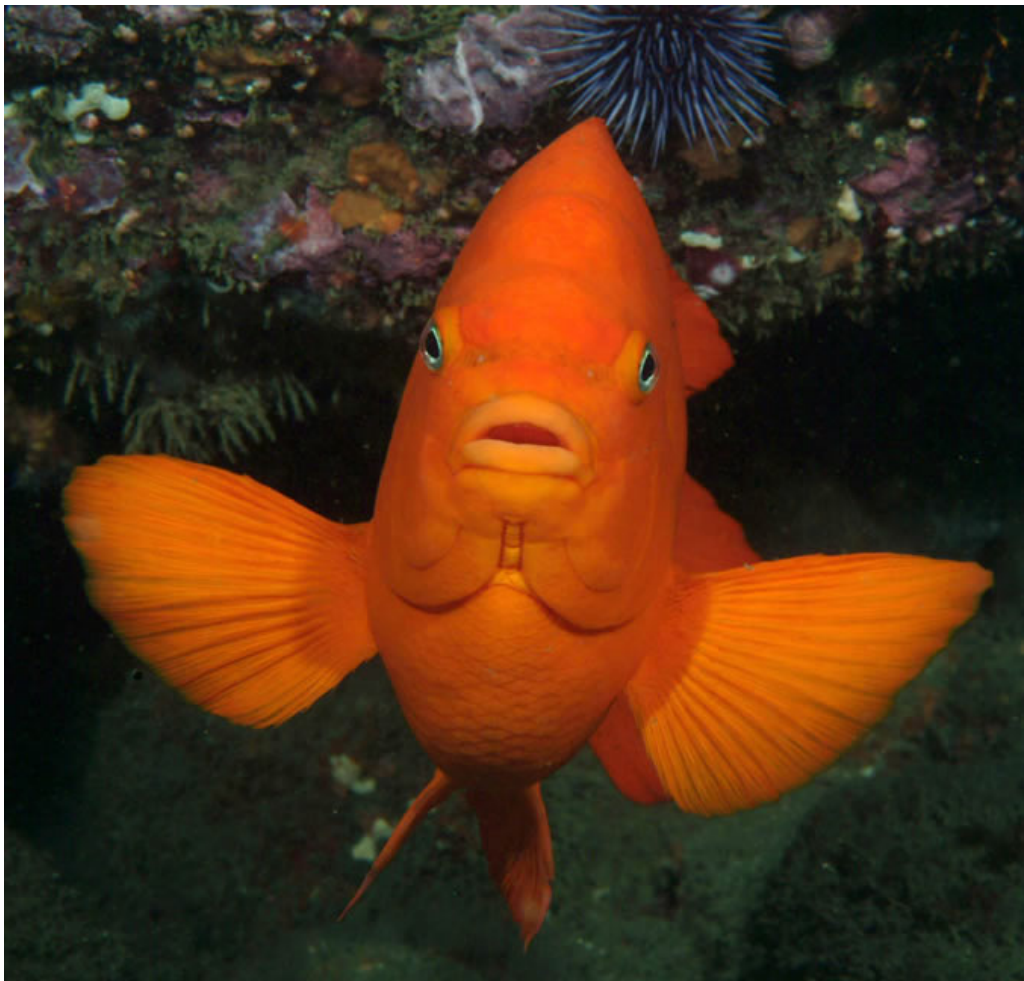
Garibaldi in kelp, Anacapa Island



Garibaldi and red gorgonian, Anacapa Island



Garibaldi, Santa Cruz Island

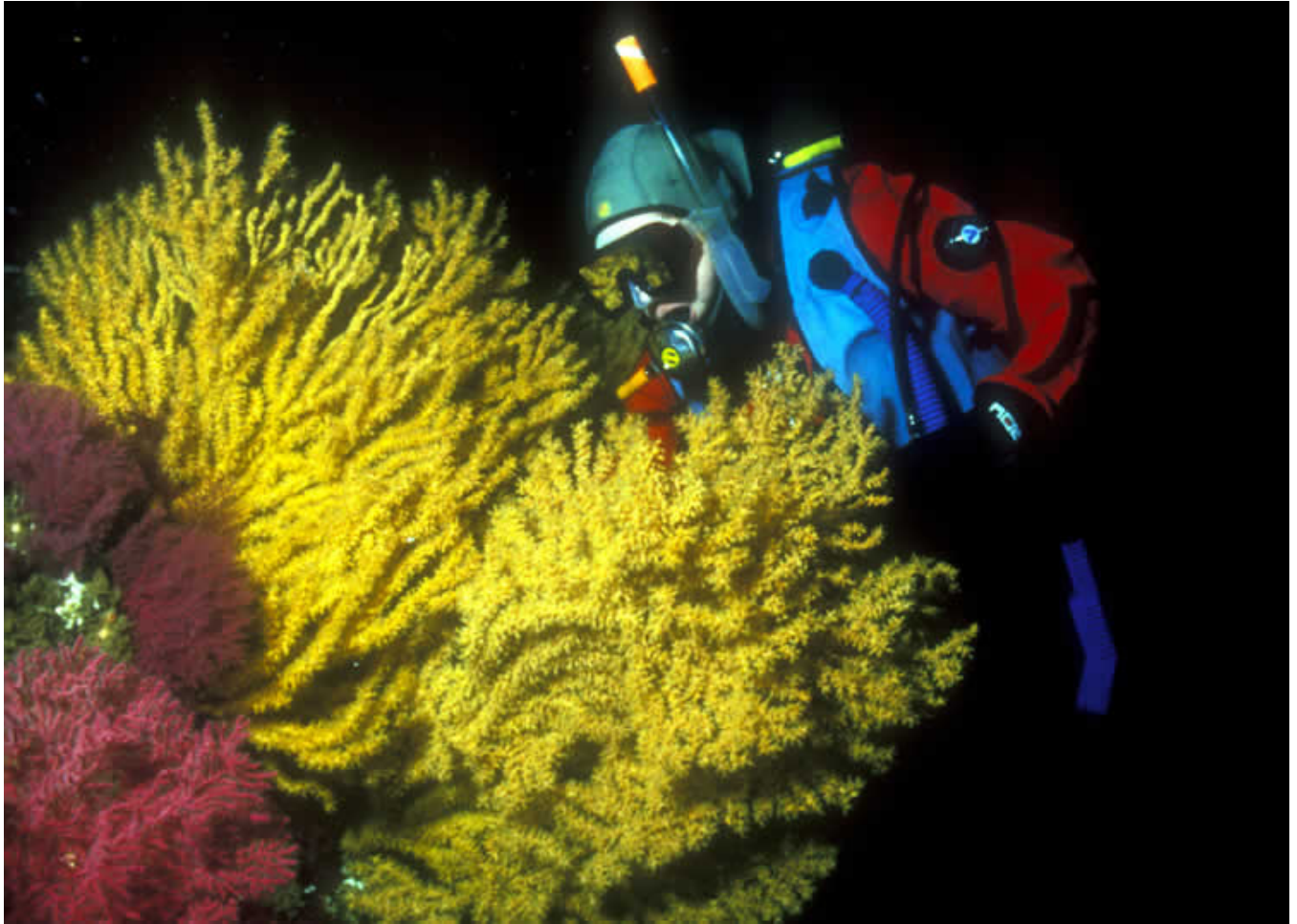


Garibaldi, Anacapa Island



Jack mackerel school above reef, Anacapa Island

Coleen and I used to dive on “six-pack” boats that specialized in Anacapa diving. With only six passengers, many of them regulars, the skippers of these boats could get to know the skill levels of the divers better than the crews of the bigger boats like the **PEACE** and the **Spectre**, which carry 30-40 divers, most of whom are unknown to the crews. The six-packs could thus drop divers on more advanced sites. One of these sites was a deep reef at the northwest end of Anacapa which had these beautiful large yellow gorgonian fans. I never saw these fans anywhere else in the Channel Islands:



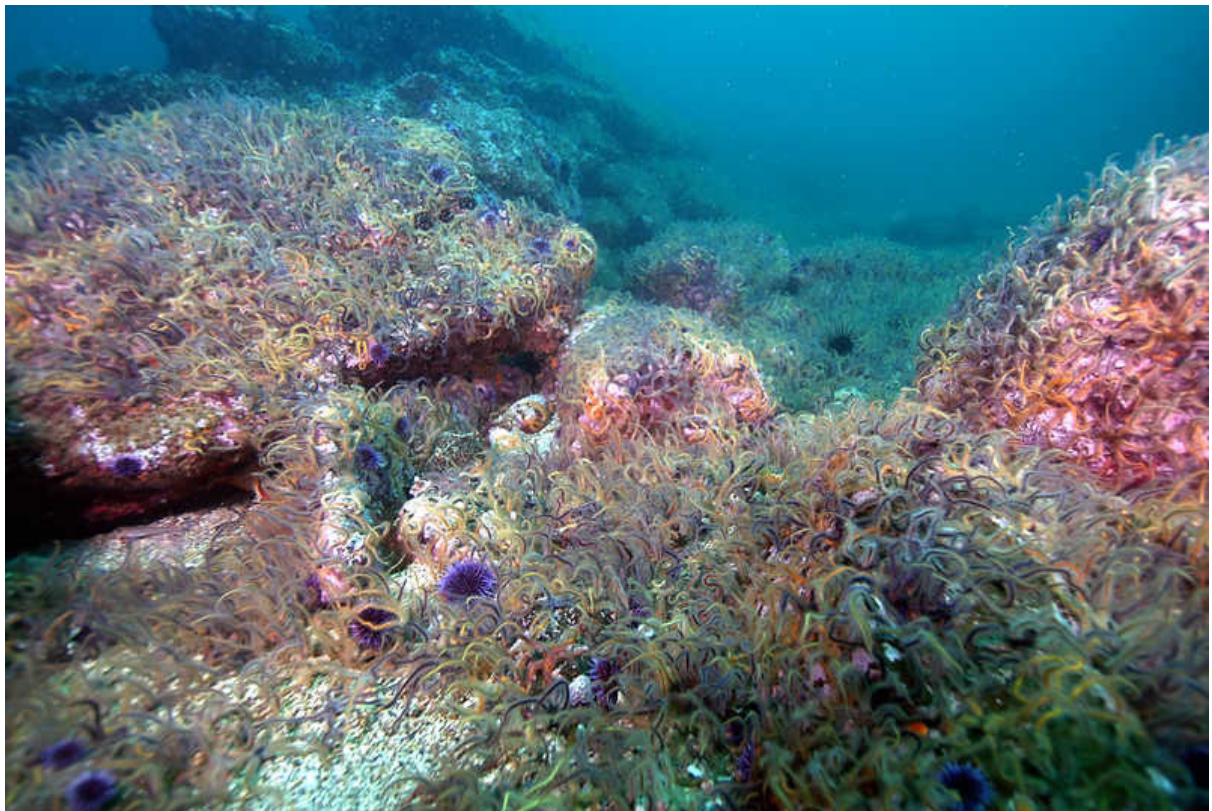
Coleen at deep Anacapa Island reef

In the late summer something special happens underwater at the Channel Islands. It probably happens at all eight islands, but to the best of my recollection I have only seen it at Anacapa, Santa Cruz, and Santa Barbara. Some prehistoric bell rings, and millions, maybe hundreds of millions, of brittle starfish (*Ophiothrix spiculata*) come out of hiding and carpet the reefs, extending their beautiful little multicolored arms up and around anything they can wrap them around. They are stunning little animals, each colored differently, some with blue arms, some red, some yellow, some with combinations of colors. If you look closely in the following photo of a small patch reef at Anacapa, you can see them covering every surface:



Patch reef carpeted with brittle stars, Anacapa Island

And this one at Santa Cruz:



Bezillions of brittle stars at Santa Cruz Island

They are beautiful in their own right:



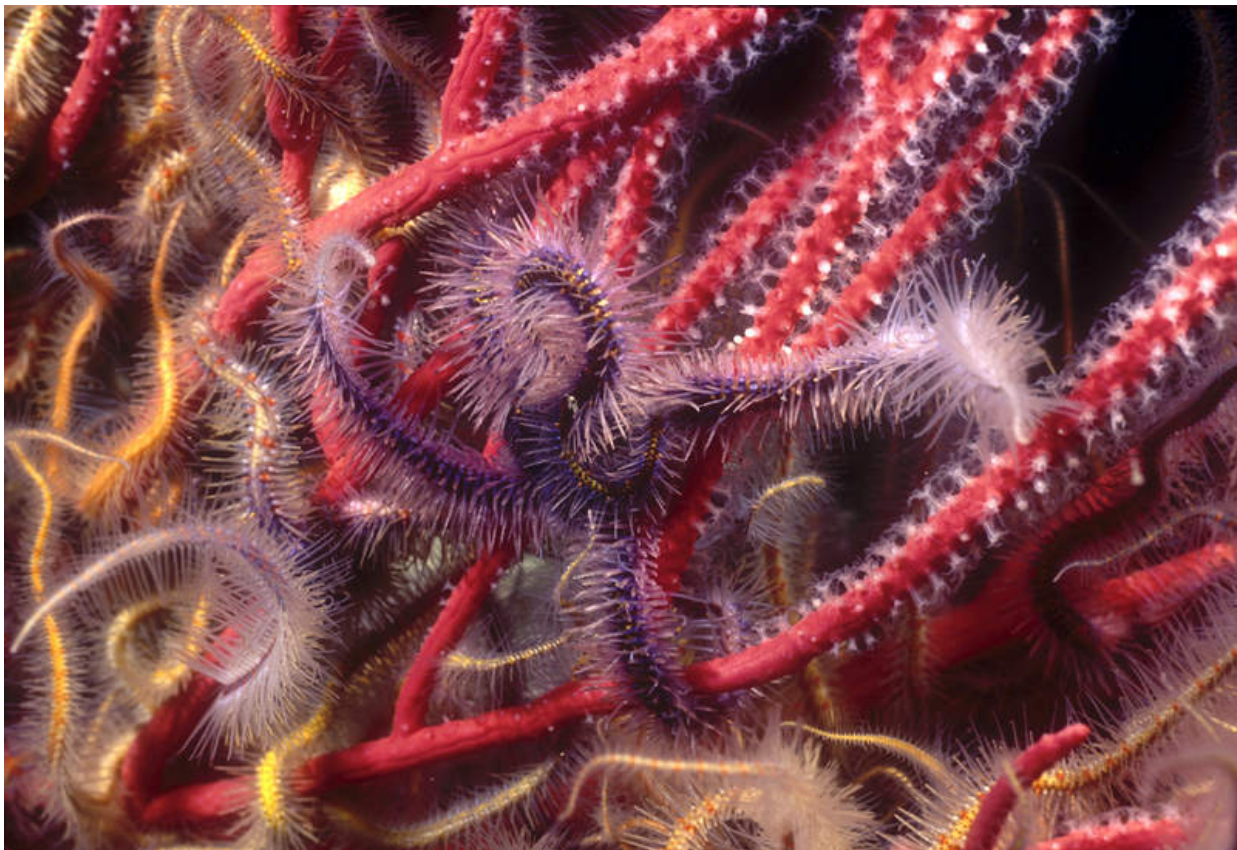
Brittle star (*Ophiothrix spiculata*), Anacapa Island



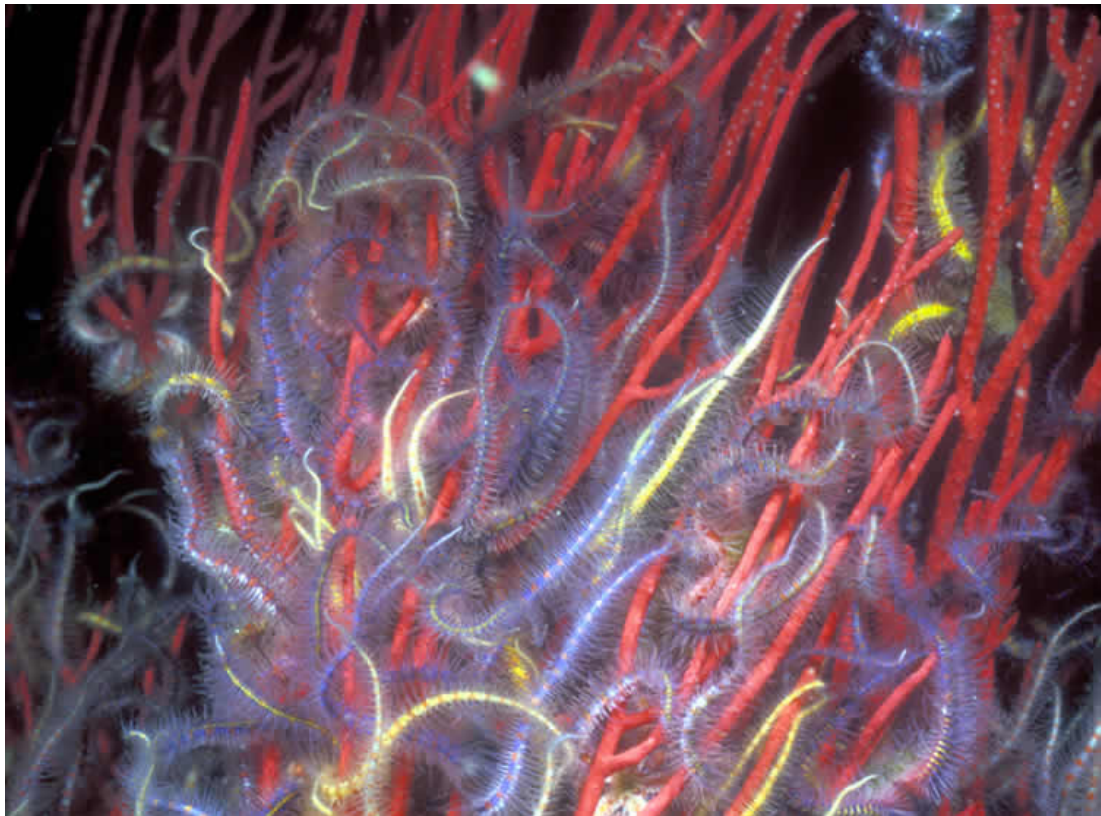
Brittle star, Anacapa Island



Brittle stars on red gorgonian, Anacapa Island



Brittle stars on red gorgonian, Anacapa Island



Brittle stars on red gorgonian, Anacapa Island



Brittle stars on red gorgonian, Anacapa Island

As pretty as they are themselves, they are even better photographically when used as a background to other California critters. With brittle stars as a background, even the most average subject can make an outstanding image. A common black-eyed goby, normally not a very exciting subject, gets beautiful when it sits on a bed of brittle stars:



Black-eyed goby on brittle stars, Anacapa Island



Black-eyed goby in brittle stars, Anacapa Island

As does this painted greenling:



Painted greenling in brittle stars, Anacapa Island



Benthic anemone, orange starfish, and brittle stars, Santa Barbara Island

And even one of the least attractive of the California nudibranchs can be made beautiful framed in brittle stars:



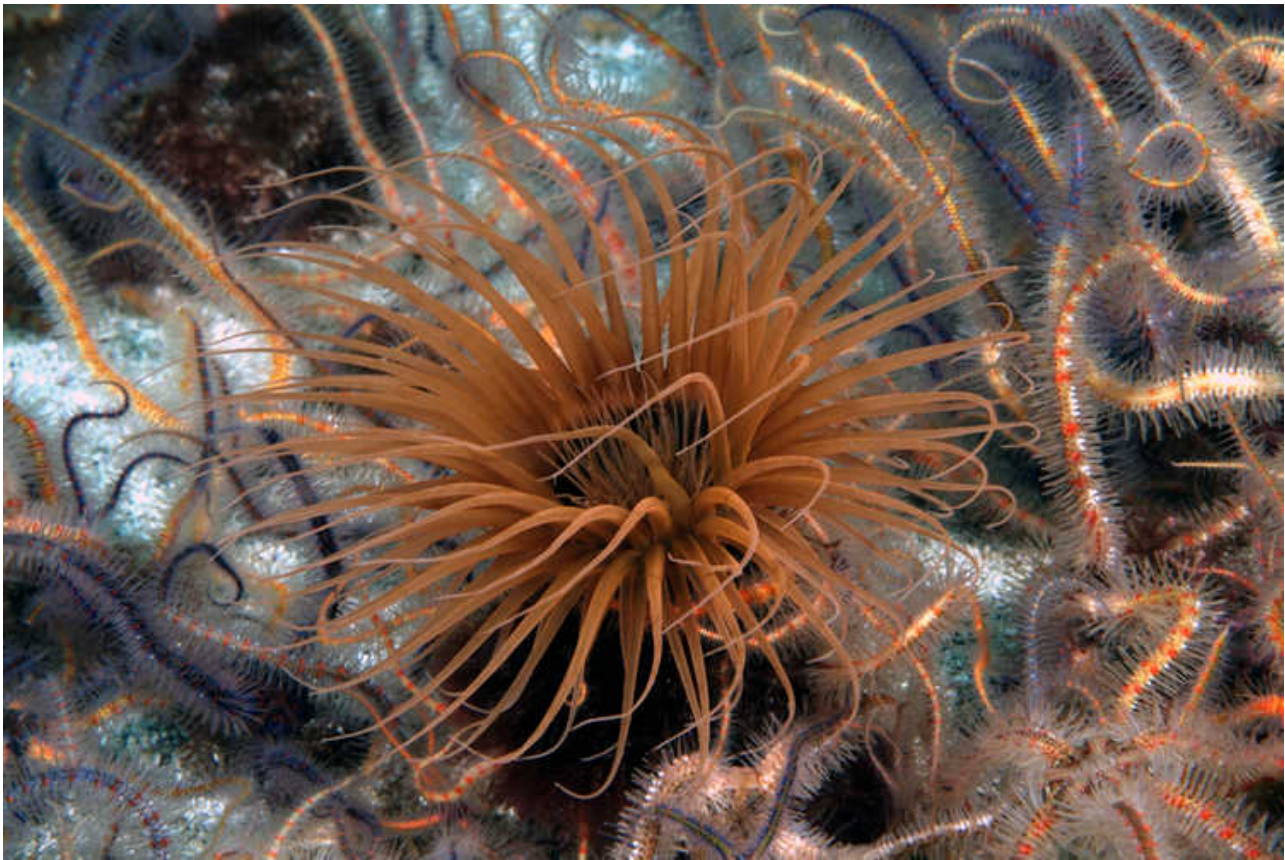
Lemon doris (Anisodoris nobilis) in brittle stars, Anacapa Island



Navanax inermis in brittle stars, Anacapa Island



Black-eyed goby in brittle stars, Anacapa Island



Tube anemone in brittle stars, Santa Cruz Island



Brittle stars on giant starfish, Anacapa Island



Hermit crab in brittle stars, Anacapa Island



Brittle stars on blood starfish, Anacapa Island

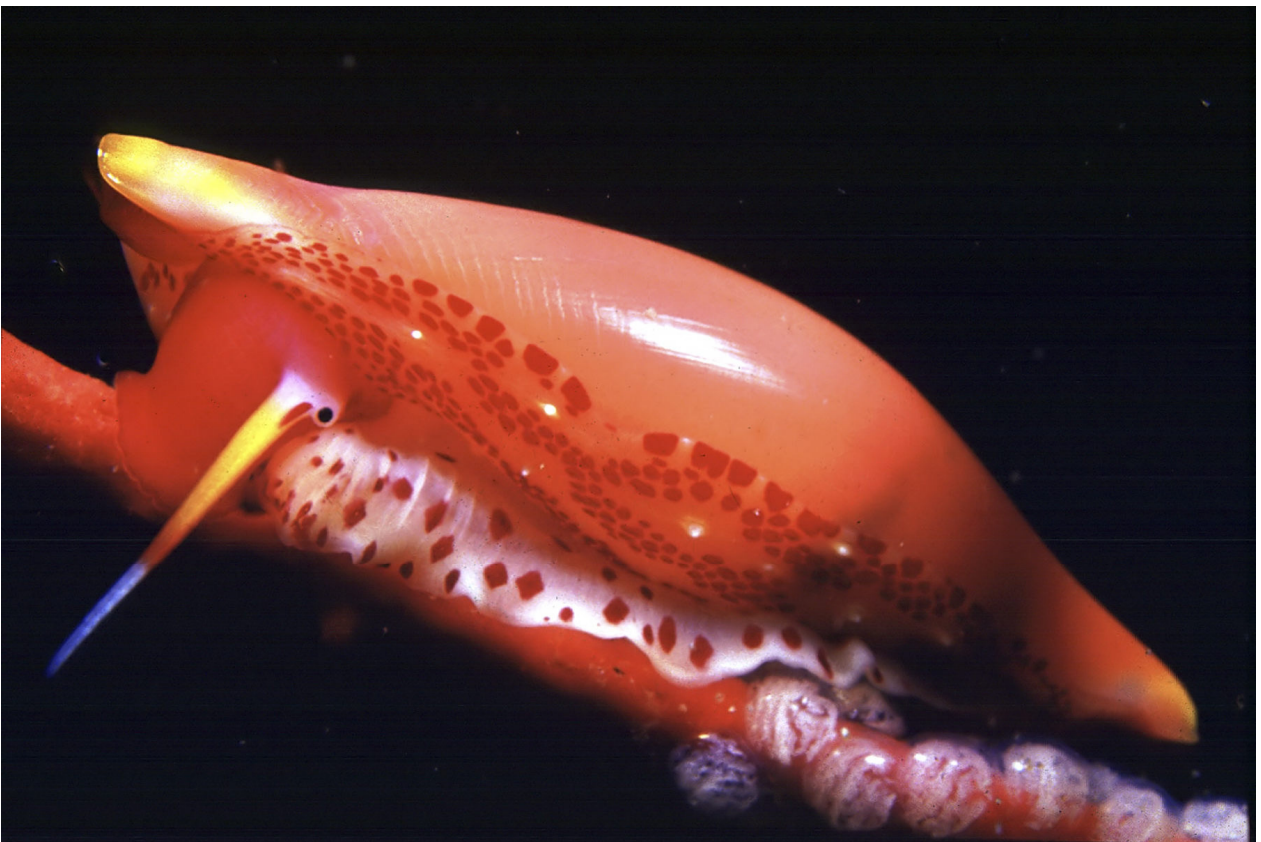


Rockfish in brittle stars, Santa Barbara Island

Earlier I mentioned the beautiful little *simnia*, a marine snail that is found only on the arms of the red gorgonian. They are less than an inch long and very hard to find. They look like lumps on the gorgonian arms. To find one, you locate a red gorgonian and carefully examine the arms for suspicious lumps. It helps greatly to have a modeling light. Without a light the red color of the snail blends with the red color of the gorgonian, both dull because red colors are not seen well at depths below about 20 feet. But the artificial light brings out the yellow and white colors in the mantle, and makes the snail easier to see. Here are two examples of California *simnias*:



Two simnias (*Delonovolva aequalis*) Anacapa Island



Simnia depositing eggs on red gorgonian, Anacapa Island

When I first started taking pictures underwater in the Channel Islands I got obsessed with the little blue-banded goby (also called the Catalina goby). Only about an inch to two inches long, it is strikingly beautiful with its red body and iridescent blue stripes. It is very common at the Channel Islands, but very difficult to photograph because it is so spooky. You can see them, but you can't get very close to them. Here's the view that you usually get of a blue-banded goby:



Blue-banded goby guarding scallop

They have a “personal space” of only about a foot. If all of you is more than a foot away from a blue-banded goby, you can pretty much do anything and it will stay put—it doesn't consider you a risk. However if anything (like a lens port) gets within a foot, **poof** they are gone, back in some nook or cranny in the reef and out of sight. When I was using Nikonos cameras with extension tubes and framers, I tried many times to photograph blue-banded gobies, but it was virtually impossible. They would never allow a framer to be placed around their bodies. Even after I had graduated to a housed SLR system (a Nikon F3 in a Tussey housing), I still couldn't consistently get close enough to one of these little fish to make a decent photograph, even with the classic Nikon 105mm micro lens.

I decided to get creative, so I put a 2X teleconverter and a magnifying diopter on the 105. That would allow me to get a 1:1 image (that means the actual size of the subject, and its

size on the film, are the same.) So with this setup, when you looked through the camera viewfinder, the plane that was in focus was only 1.5 inches wide and 1" high, and was 16 inches from the front of the lens port. This was easily outside the personal space of even the spookiest blue-banded goby. The problem was that with all the hardware and extra glass on the lens, the focus and aperture control rings on the housing wouldn't engage in the right place on the lens. The only camera control I had was the shutter. Not to worry, I set everything in advance before buttoning up the camera in the housing. I experimented topside with strobe positions, power settings, and apertures for a subject at minimum focus distance. It turned out that with my strobes set at full power, aimed directly at the subject 16 inches in front of the port, f16 gave me the correct exposure in air. I knew from past experience that there was about a one-stop difference between air and underwater exposures at close distances, so the aperture was preset at f11 for use underwater. Now all I had to do on the dive was to turn on the strobes, verify they were on full power and aimed correctly, find a blue banded goby, move in slowly on him until he was precisely in focus, and fire the shutter. No thinking was necessary underwater, a big advantage.

The disadvantage, of course, was that I had to devote the whole dive to subjects located exactly 16 inches in front of the port, and small enough to fit into the 1:1 frame. Another disadvantage was that when you looked through the viewfinder, you were looking for a subject about the same size as the film (1-1/2" by 1") sixteen inches in front of you. When you saw a goby, you then had to find it in the viewfinder. With even the slightest movement of the housing, things shot by in the viewfinder at about 100 miles an hour. It was extremely difficult to find what you were looking for, and hold it in the viewfinder once you found it. But all of that was doable, it took some perseverance but it worked for blue-banded gobies. After several such "no-controls" dives I was able to get many "head shots" of blue-banded gobies like this one, where even some of his little teeth can be seen. Remember, this fish is only about an inch long. It was all worth it:



Blue-banded (Catalina) goby, *Lythrypnus dalli*, Anacapa Island

Using this technique I was even able to get some decent photographs of the beautiful zebra goby, as spooky as its blue-banded cousin, but seen much less frequently:



Zebra goby, Lythrypnus zebra, Anacapa Island

My favorite type of underwater photograph is one with a common subject beautifully photographed. This preference probably originated and evolved from my exercise with blue-banded gobies. With luck, you can capture an unusual ocean event or an extremely rare and unusual subject, like a white shark eating a sea lion. While of obvious interest, photographically the quality of those images of spectacular events and/or subjects is largely a function of luck. You usually don't have a lot of time to set up a shot of a white shark eating a sea lion—when you come across it you shoot from the hip, take what you get, and rely on the interest of the subject or event itself to make the image. But with a common subject, one seen on almost every dive, the photographer has many opportunities and often the time to make the right photographic decisions, lighting, composition, angle, negative space, depth of field, point of focus—all of which make a really good image. A good photograph of a common subject combines the best of the art and the science of underwater photography. Here are a couple of examples of this type of image:



Purple hydrocoral, Santa Barbara Island



Starfish, Anacapa Island

I can't resist hermit crabs; they are one of my favorite subjects. California has some really good ones:



Hairy hermit crab, Anacapa Island



Hairy hermit crab leaving home, Anacapa Island



Blue-eyed hermit crab, Anacapa Island



Hermit crab, Whaler's Cove, Point Lobos



Hermit crab, Anacapa Island

In August of 1995 I spent a week on the dive boat **TRUTH** out of Santa Barbara with Howard and Michele Hall and their crew while they were making an episode for their video series *"Secrets of the Ocean Realm."* We made stops at Santa Barbara and Anacapa Islands. One morning we were anchored near Cat Rock on the ocean (south) side of Anacapa. Here Howard and the crew were filming the interesting "mouth-flaring" territorial behavior that male sarcastic fringehead fish exhibit when they get close to each other. Howard and Bob Cranston were underwater when those of us still on deck noticed a young gray whale very close to the boat. This was extremely unusual. The gray whale migration takes them southbound by the island in December and January, northbound in about March and April. A gray whale at Anacapa in August was extraordinary. At this time of year he should have been porking up in Alaska, not hanging out in Southern California.

But in spite of the fact that he shouldn't have been there, here he was, big as life (so to speak), and he hung around the boat for hours. The whale was in fact eating; the area he was in had a sandy bottom at about 60 fsw (feet of sea water) and Howard observed the whale dredging the bottom in the classic gray whale feeding behavior. We all had the opportunity to get some very rare underwater photos (and footage) of a gray whale in relatively clean water. Finally he tired of us or the food or something, and he rounded the east end of the island and disappeared in the channel. Howard, who is a trained marine biologist and an expert on gray whale behavior, told us that "strays" like this young whale are occasionally seen alone in places where they are not supposed to be, and there is evidence that they can eventually rejoin the herd. But he may have said this just to make the rest of us feel better. Howard wrote a terrific article about this incident which appears on his website at www.howardhall.com/stories/greymorning.html.



California gray whale, Anacapa Island



California gray whale, Anacapa Island



California gray whale, Anacapa Island

Michele Hall took a picture of me alongside the whale. I'm the one in the red dry suit with the snorkel. The whale is the one with the big gray back:



Author snuggling up to a gray whale, Anacapa Island (Michele Hall photo)

Here are some photographs of big and little California fish:



Sarcastic fringehead, Anacapa Island



Sarcastic fringehead, Anacapa Island



One-spot fringehead blenny, San Miguel Island



Island kelpfish, Anacapa Island



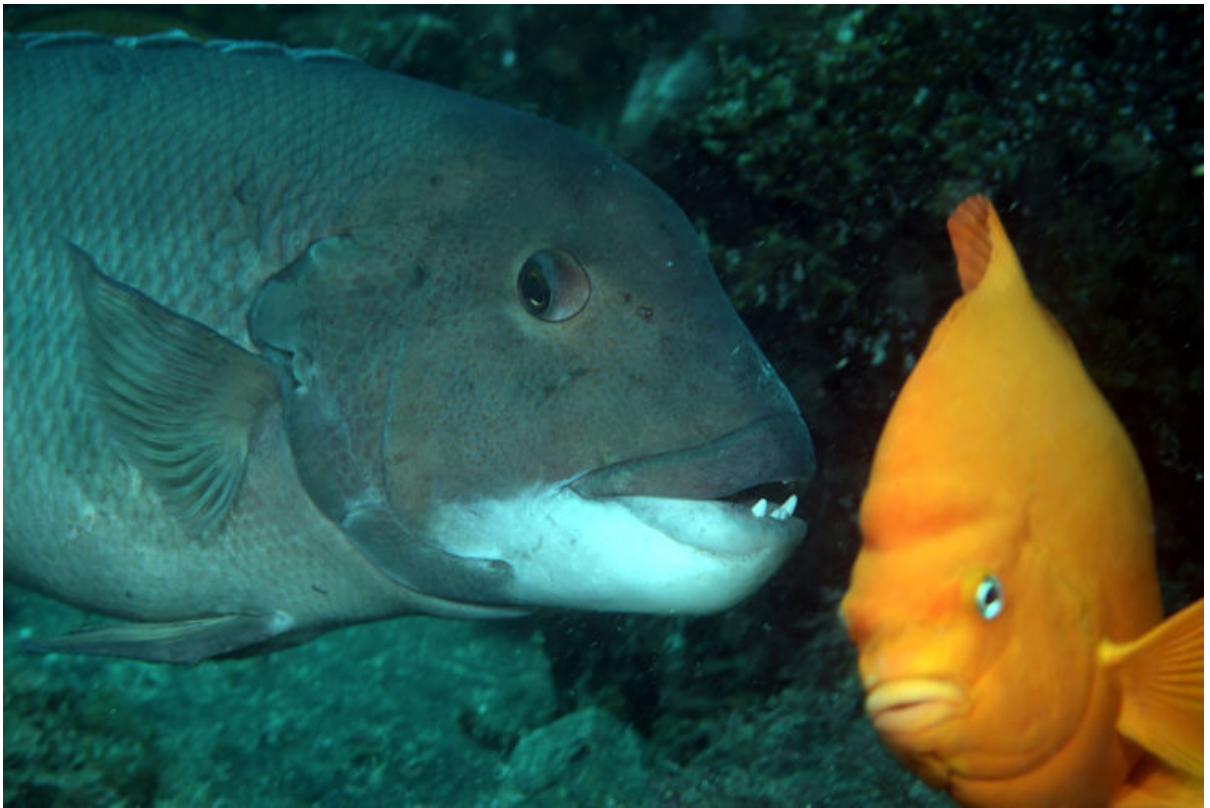
Rockfish face, Santa Cruz Island



Treefish, Santa Cruz Island



Calico bass, Anacapa Island

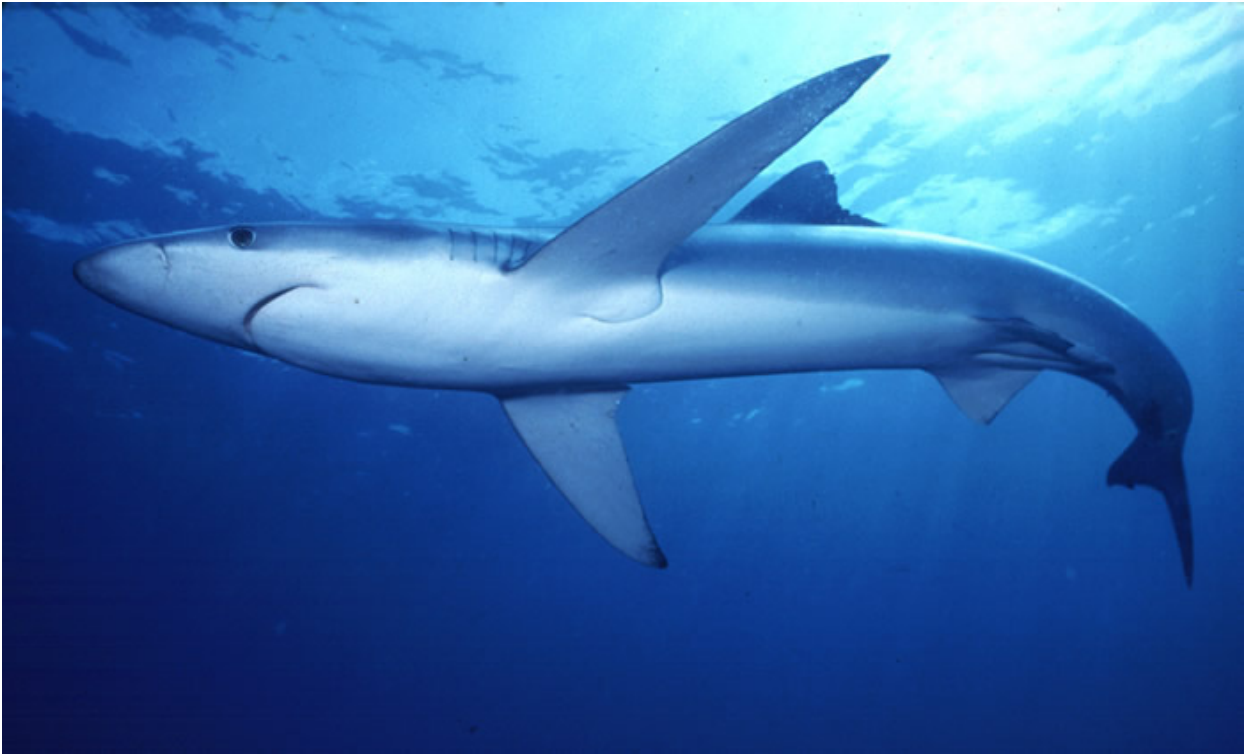


Sheephead and garibaldi, Anacapa Island

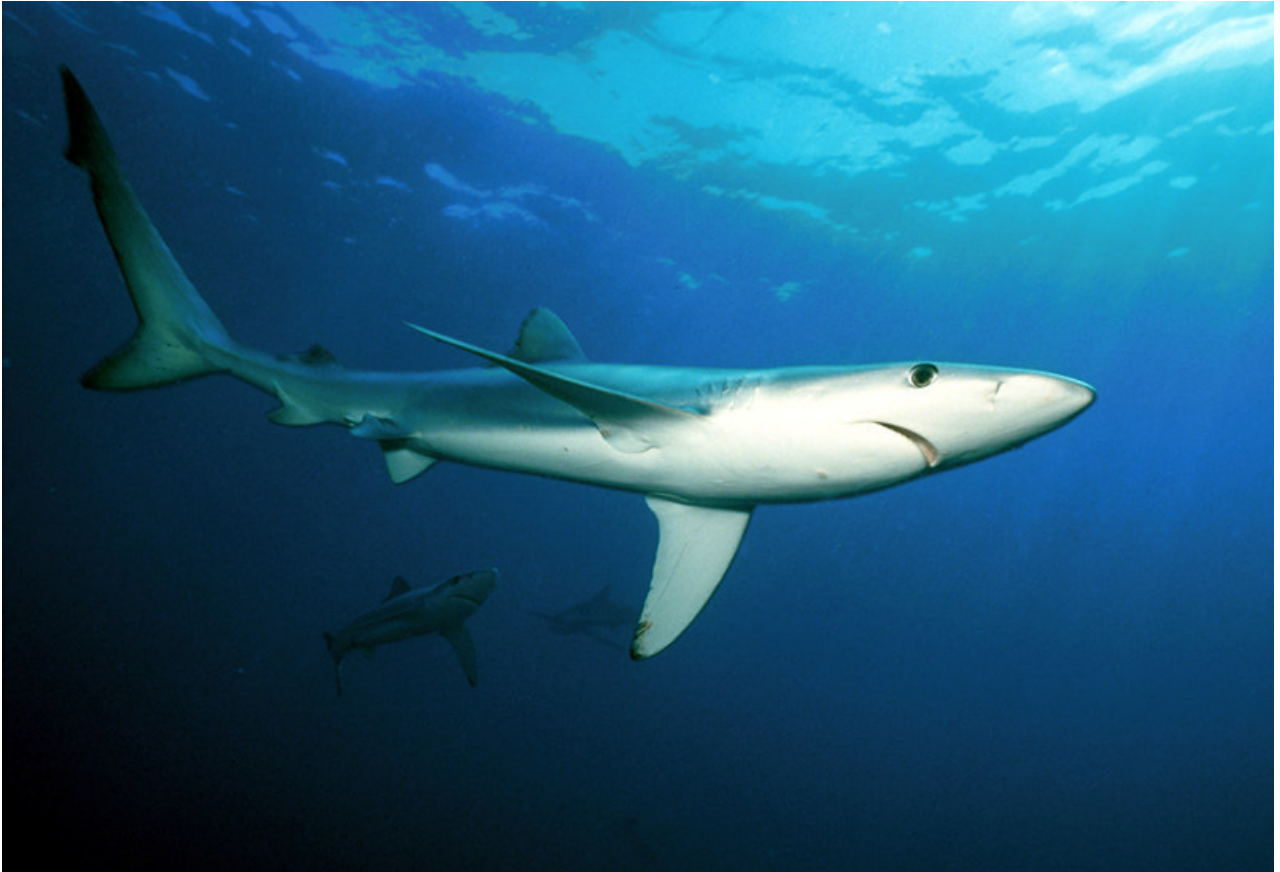


Painted greenling, Anacapa Island

I have done several caged blue shark trips in blue water about 25 miles west of San Diego. These trips are a great way to see this beautiful animal:



Blue shark



Blue shark

Anemones provide a lot of the beautiful color on California reefs:



Corynactis anemones



Tealia anemone, San Miguel Island



Green anemone, oil rig in Santa Barbara Channel



Red Tealia anemone and giant starfish, Monterey Bay



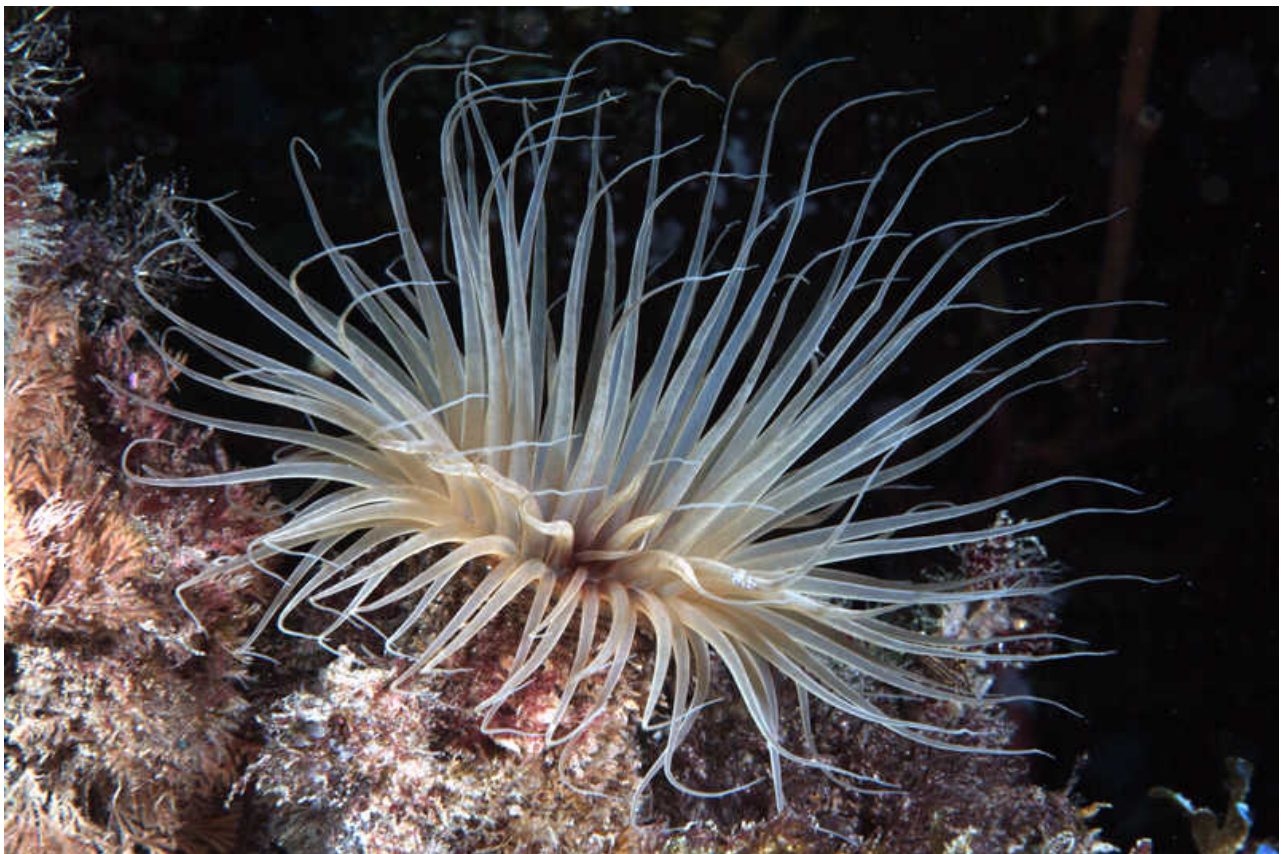
Rose anemone, Anacapa Island



Sand rose anemone, Santa Rosa Island



Green anemone mouth



Tube anemone, Anacapa Island

The big rainbow nudibranch preys on the tube anemone. They climb up the stalk and attack with a lunge at the tentacles at the last second. They don't kill the anemone; they just take a few tentacles. Here is one stalking a tube anemone:



Rainbow nudibranch (*Dendronotus iris*) stalking tube anemone, Anacapa Island

The Channel Islands have a rich and varied population of nudibranchs. One of the most beautiful of them is the *Hermisenda crassicornis*, but I spent so much time and space with them in Chapter 1 that I won't include any additional photos here. Suffice it to say that they are seen regularly at the Channel Islands. Probably the most common California nudibranch is the lovely Spanish Shawl. They, like *Hermisenda*, are one of the world's most beautiful nudibranchs, but because they are so common they are taken for granted. Here are some nudibranchs I have photographed over the years at the Channel Islands:



Spanish shawl (*Flabellina iodinea*), Anacapa Island



Spanish shawl, Anacapa Island



Spanish shawl, Santa Cruz Island



Hopkins Rose (Okenia rosacea), Whaler's Cove, Point Lobos



Mexichromis porterae, Santa Cruz Island



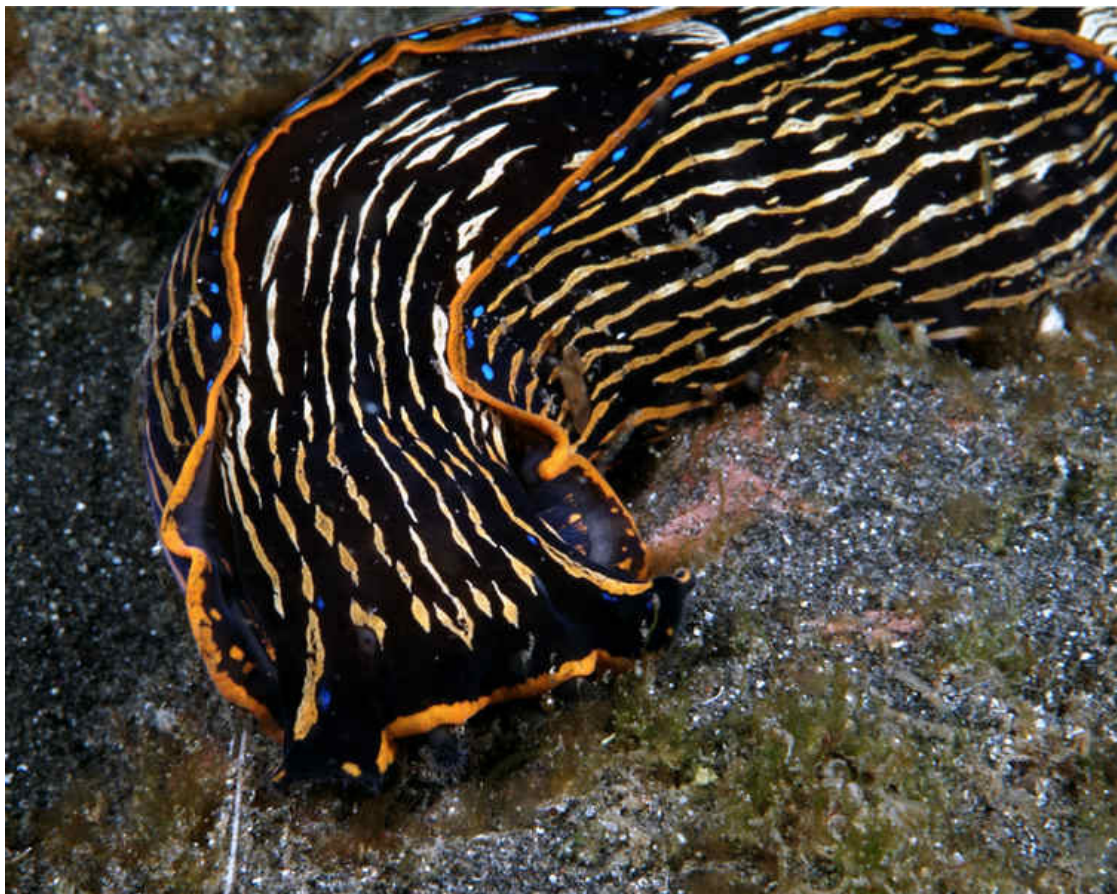
Flacelina stearnsi, Anacapa Island



Phidiana hiltoni, Santa Rosa Island



Dendronotus albus, San Miguel Island



Navanax inermis, Anacapa Island



Noumeaella rubrofasciata, Santa Cruz Island



Janolus barbarensis, Santa Cruz Island

One day in 1987 Coleen and I were diving in about 35 feet of water from a six-pack boat at Cathedral Cove, a nice spot near the east end of Anacapa on the north side. Early in the dive we noticed a young harbor seal watching us. (I am going to refer to the seal as “he” or “him” in the following discussion. I have no idea whether the seal was a male or a female; the use of the masculine here is for simplicity. I promise it is not sexist ☺.) Slowly, he approached us and began circling at very close proximity, at one point allowing a very tight face shot:



Harbor seal, Anacapa Island

Smitten with us, he began to touch us with his flippers, mouthing our hands and arms, brushing our hoses. The animal couldn't get enough of us. It was astounding, he could hold his breath for about 10 minutes, but then he would have to go to the surface for a breath. He would immediately head back down to us. That was kind of amusing, this beautiful sea creature that had to periodically breathe at the surface while we waited for him at the bottom with our tanks and bubbles. At one point he peered directly into Coleen's mask, bracing himself by holding her gloved hand gently. I managed to capture that image; it is one of my favorite photos. It has been published many times and has won several awards in underwater photo contests. Ted Danson used it in his *American Oceans Campaign* literature.



Coleen and harbor seal, Anacapa Island

We spent about 50 minutes with the harbor seal before we had to surface, at which point we lost sight of him. This was one of the most magical experiences I have had in several thousand hours underwater.



Brown pelican in flight

Chapter 3

Baja California and the Sea of Cortez

I think I was a Mexican in another life. I have a strangely powerful attraction for Mexico and all things Latin. The attraction is particularly strong for that part of Mexico known as Baja California. Perhaps it was just proximity; I grew up in the Los Angeles area, less than 200 miles from the Mexican border. I can't remember exactly how I got interested in Baja (the other life, maybe?) but I started going to Tijuana shortly after high school. I am uncomfortable admitting this, but one of the initial attractions I had to Latin culture was bullfighting. I was a huge Hemingway fan and "*Death in the Afternoon*" was a strong influence. The Latin pageantry, the whole spectacle of the Tijuana "*Bullring by the Sea*" grabbed me—but eventually the brutality and cruelty of the "*corrida*" outweighed the fun parts of the afternoon and I lost interest. I do remember loving the cultural shock of crossing the border, the mostly friendly chaos of the Tijuana streets, the drive out Calle Segunda to Playas de Tijuana, the colors, the smells of the mesquite fires. It was amazing that everything could be that different by just passing a few feet over some imaginary line. It was an attraction for me that would last a lifetime.

I made my first trip to the southern part of the peninsula in the late 1960s. It was a fishing trip to the classic "east cape" resort Rancho Buena Vista. On that trip we flew commercially to La Paz, and then took an air taxi flight in a high-wing single (I think it was a Cessna 206 or 207) from La Paz airport to the dirt strip at Buena Vista. The experience was literally life-changing for me—flying in a small airplane, landing on a dirt strip, the first taste of the Sea of Cortez where the desert just **became** ocean—the whole "Baja experience" back when it was still young, simple, and pristine. Back then Cabo San Lucas was a dusty little village. When I got back I started collecting and reading everything I could find on Baja California. I went crazy over Ray Cannon's classic book "*The Sea of Cortez*." Baja would become a major part of my life and experience for the next 40 years; it remains so today.

I learned to fly in the early 1970s and earned my private pilot's license in 1973. Within a year I had my instrument and multiengine ratings. Baja influenced my decision to take flying lessons. I knew flying would open up my access to the peninsula, making everything easier to get to and in much less time. In 20 years of flying I eventually logged over 1,700 hours, flying a wide variety of single-engine airplanes (Cessna 150, 152, 172, 177, 182, 210, Beechcraft Bonanzas F33, V35 and A36) and several multiengine airplanes (Beechcraft Travelair and Duchess, Piper Aztec.) In 1979 I bought a beautiful 1963 Beechcraft Baron, and in the next ten years logged over 1,000 hours in it, more than half of my total time. The Baron was like a family member.

My four kids kind of grew up in Baja. They loved Baja and the Mexicans loved them. The kids all thought they were Mexican...eventually that had to be explained. There were several places we particularly enjoyed and visited often—Hotel Punta Pescadero on the "east cape" near the southern end of the peninsula, Meling Ranch in the mountains north of San Quintin, and the cities of Loreto and La Paz.



Beautiful Hotel Punta Pescadero, site of many hermit crab races

But our favorite place was Punta San Francisquito, “PFQ” for short, a small basic Sea of Cortez resort about halfway down the peninsula on what must be one of the most beautiful beaches in the world. With a difficult drive on marginal dirt roads it is accessible by land (we have driven in several times in recent years) but it is known primarily as a “fly-in” place. We made over 100 flying trips there from the mid 70s to the mid 90s. We would make it down to San Francisquito for long weekends at least once a month in the summers. We could be there in less than 4 hours from Van Nuys airport, where I kept the Baron. Driving takes two full days. We kept a locker there, with two inflatable boats, scuba tanks, a small compressor, and an ungodly stash of fishing, diving, snorkeling and other beach, camping, and kid gear.

For five or six years in the early to mid 80s one of the San Francisquito employees was a magnetic, good-looking young Mexican kid named Savino. At one time I am sure I knew his last name, now I can’t remember it and I can’t find it in any of my notes. He was probably in his early twenties when we first met him. Our kids really liked him. Savino did everything, he was a master mechanic, fixed everything that needed fixing, and he was a decent bartender (although I don’t think I ever saw him do any cooking.) But his main skill was as a world-class fisherman. He handled the pangas with great skill, and he knew where to find the fish. He could approach a boiling school of yellowtail from just the right angle and stop at just the right point without disturbing them. When there was no action on the surface he generally knew where to find them down deep. Even when we kept our own little fleet of two inflatable boats there, we would still often go out with Savino in one of the PFQ pangas, because he was such a good fisherman and so much fun to be with. Most of our memorable stories from San Francisquito seem to involve Savino.



Short final, landing to the north in Baron 30SD, Punta San Francisquito



Punta San Francisquito looking north



Punta San Francisquito looking south



Punta San Francisquito looking north at the cabanas



Morning at Punta San Francisquito



My beautiful Baron 30SD tied down at Punta San Francisquito

One afternoon at PFQ we saw a huge cloud of birds working several miles out off the north point, maybe a third of the way to Isla San Lorenzo. The birds were too far for the inflatables, so we roused Savino from the bar and headed out in one of the PFQ pangas. When we got to the boil it was amazing; the ocean was exploding. Every imaginable marine animal was there eating—shoals of small fish were blasting out of the water, birds were wheeling and shrieking above and in the water, and the yellowtail were so thick you could walk on them. Hundreds of dolphins were breaking the surface, graceful thresher sharks were launching themselves completely out of the water, and even a pod of pilot whales was there. It was late summer and the presence of dolphins on the surface suggested yellowfin tuna below, so we dropped the jigs down below the yellowtail, and were immediately rewarded with four heavy hookups. When the first tuna showed color, we realized with horror that we were without a gaff. That was no big problem with the first three fish; they were in the 20-25 pound class and, with some effort, could be “bounced” into the boat with just the rod. Not so with the last one, that fourth fish was big.

The big fish was being fought by a close friend, now gone, Frank Armellini. When we saw the fish we knew it would be a problem, we estimated his weight at about 70 pounds. Frank worked him carefully and after a forty-five minute struggle the big fish was on his side next to the panga. There was no possibility of “bouncing” a fish that big without breaking the line; he had to be hauled in with bare human hands. I heroically volunteered to do it. The aft body of a yellowfin tuna, even a big one like this, narrows to a relatively small diameter just forward of the sharply forked tail. With this fish it was about the diameter of the skinny end of a baseball bat. That allows a fairly decent two-handed grip. I figured that would be better for hauling him in than by grabbing him by the gills, because the gill covers have sharp edges and don’t offer as good a grip as the tail. All that was good logic, but I forgot to take one thing into consideration, buoyancy. Hundreds of years ago a real smart guy named Archimedes discovered that an object in water is acted on by an upward force equal to the weight of the water it displaces. Since the density of the tuna was about the same as the water, he was virtually weightless when he was completely submerged. So it was easy to get some of him out of the water, but the more of him that came out of the water the heavier he got. When I had half of him out of the water, I was lifting damn near 40 pounds. So I found myself in this crazy rocking cycle with the fish—leaning over the gunnels of the panga I would pick up as much weight as I could, the panga would tilt over to my side as the weight increased, and each time I reached my strength limit the tuna would slip back into the water. We did several cycles like this. I just couldn’t lift him over the side. I was getting harassed and ridiculed, of course, by the other laughing occupants of the panga, and this didn’t help my temperament. Finally I managed to squeeze out a great shot of adrenaline, and with one mighty heave, I hauled him over the side. In doing that I of course fell over backwards and the fish, now rested, landed on top of me and started thrashing. It was quite a scene, me on my back embracing this wildly gyrating yellowfin tuna. Lures, poles, beer, oars, tackle boxes, shoes, hats, and people scattered in all directions. But after all that work I was not to be denied. The fish finally calmed down and I was able to roll it off of me and into the bottom of the panga. And after this incredible selfless effort, can you believe I was subjected to even more laughter and ridicule. But the battle was won. The great fish weighed 75 pounds and made magnificent sashimi. None of us, including Savino, ever again forgot a gaff.

My dear friend Jim Bailey and I kept two inflatable boats there in a locker. Both were Metzeler, superb pieces of German equipment, one a twelve footer called (by Metzeler) a “*Maya*,” and a bigger one, a sixteen footer called, appropriately, the “*Elefant*.” Our drill, after

coming back in from fishing or diving or whatever we were doing on the water that day, was to haul the boats up on the beach to a point well above the high tide line where it would remain overnight. One afternoon we hauled the bigger boat, the *Elefant*, up to a point which we thought was safe, and proceeded with the evening festivities. In the morning the boat was gone. We had substantially underestimated an extreme high tide, and sometime during the night, the water reached the boat, and the *Elefant* floated away. The morning was beautiful, warm and clear with virtually unlimited visibility, the sea was brilliant blue and dead calm, and there was no *Elefant* in sight. Frank Armellini was flying the smallest airplane that trip, a Cessna 172, he had plenty of fuel (none was available then at PFQ), and so Frank volunteered to do an aerial search for the boat. We talked to Savino who felt, based on his knowledge of the currents, that it would most likely have drifted to the south. So Frank took off in the 172 and headed south; it didn't take him long to find our *Elefant*. It was drifting about five miles offshore and, amazingly, about ten miles south of where it had started, sometime in the night. Frank spotted the location of the boat using landmarks on the coast, and headed back. Savino fired up the panga and Bailey and I headed for our drifting, crewless boat. It was right where Frank said it would be, and Bailey and I boarded it to bring it home. Savino waited until the engine, a Johnson 25 hp, lit off, and then both boats headed back north to PFQ. On the way back we passed huge boils of yellowtail working on the surface, and since we still had fishing tackle on board, managed to land a few for the day's ceviche. Our haul-out protocol changed that day; from that point on we tethered the boats to the center pole of a palapa so they wouldn't ever again wander away in the night.

Savino spoke very little English, about the same as we spoke Spanish. In reality our Spanish was probably a little better than his English. But we clearly communicated. He would often join us in the late evenings when his work was done, in front of our cabana. With the fire almost out, after everybody had eaten and drank and most of the guests and staff were asleep, we would lie on the sand contemplating cosmic things, and finish off the beer or the tequila. We would look at the stars and babble away in some half-Spanish, half-English form of marginally spoken language. It didn't matter too much what was said or understood, it was just fun to have him around. One night he started telling me and Bailey about his greatest dream, to buy a panga of his own, take it to Bahia de Los Angeles, and be an independent fishing guide up there. But he lamented that he would probably never have enough money to buy a panga of his own. I remembered all this, and wishing him well in his quest for a panga, just before I fell asleep. After I fell asleep Bailey continued wishing him well, and those wishes included asking him how much a panga might cost. About US \$2,000, Savino replied. Bailey, kind, emotional, and generous soul that he is, told Savino that he and I ("I" being now sound asleep) would be glad to give him the money to buy the panga. Savino was overcome with gratitude; he just couldn't believe our generosity. Neither could I, when in the morning Bailey sheepishly informed me that I owed Savino \$1,000. Hearing the whole story, how could I refuse? After all, Bailey told me that Savino offered us both free fishing for life. What a deal! It would save us thousands in the long run. So that morning we each wrote Savino a check for \$1,000. Mine came back, cleared through an Ensenada bank, in my bank statement about 4 months later, covered with magnificent flowing endorsements, signed by at least 10 Mexican bank officials and with several American bank stamps.

It was not a good investment, and the story, so full of promise, has a sad ending. Savino did eventually go to Bahia de Los Angeles, but he never bought the panga. He used the money for something else. Others who knew him in Bahia told me he got involved with

drugs. Eventually he got in trouble with the police and ended up in jail, for a long time, in Ensenada. What a waste of a beautiful young life.

I stopped flying in the early 90s. The reason I stopped flying is that my airplane, my beautiful Baron, was destroyed in a bizarre accident in 1989. It's one of those "good news/bad news" things. The bad news is that my airplane was destroyed. The good news is that nobody was in it at the time. My only aviation accident in 20 years of flying occurred when the plane was on the ground, and I was about 50 miles away. It happened during an air show at Van Nuys Airport (VNY) in July of 1989.

I kept the Baron in one of those metal T-hangars at a place called Execuflyte (formerly Bell Helicopter) at Van Nuys on the east side of the airport close to where Sherman Way passes under the runways, for those of you who are familiar with VNY. During the big air show, which Van Nuys hosts every summer, a pilot was taking three people at a time for a ride around the pattern in his four-seat Piper Turbo Arrow. He charged the passengers a fee for this, which was donated to the "Ninety-Niners," a famous women's flying club. It was like what used to be called "barnstorming." After making numerous trips around the patch throughout the day, he made one last fateful trip with three generations of passengers on board, a woman, her son, and her father. Astonishingly, the pilot ran out of gas on takeoff. That's right, on takeoff. Nobody runs out of gas on takeoff, but this guy did. With a large field and golf course right in front of him, the Arrow pilot decided to try a difficult procedure called a "180." Rather than putting it down straight ahead, he executed a 180-degree turn, without power, to try and make it back to the runway from which he took off. For a variety of reasons, this maneuver is rarely successful, and this one was no exception. Before he hit the ground he flew through my hangar. In passing through both sides of the hangar, he took off about 4 feet of my vertical stabilizer (the vertical part of the tail), bent my fuselage about 30 degrees, and lost both of his wings and horizontal stabilizers (the horizontal parts of the tail.) Amazingly, his bare fuselage came through the far side of my hangar in a vertical position without any spinning or cartwheeling, which undoubtedly saved all four lives on board. He skidded on his belly another 300 feet or so, bashing into a classic old Army T-6 trainer, which he also destroyed before coming to a stop. All of them lived although there were some serious injuries.

I found out about it on the 11-o'clock news. Just before going to bed that night, Pam and I were watching the TV news, and on came a story about an accident at the big Van Nuys air show. Somebody had destroyed an airplane and a hangar on the ground trying to make it back to the runway after an engine failure on takeoff. The view they showed on the tube looked suspiciously like what I see looking straight out in front of my hangar. Scared now, I called the Execuflyte number but got only their voicemail. After a restless night, I called again early in the morning and got a human, who said, yes, Mr. Bondy, I'm sorry to tell you it was your hangar and your airplane. Pam and I immediately headed for the airport to survey the damage. It was horrible. I was struck by the fact that there was no fire. I carefully inspected the two Arrow wings lying just outside the wreckage of my hangar my, both wing tanks completely dry and with no smell of gas fumes. He clearly ran out of gas.

In the months following the accident I had many negotiations with the Arrow pilot's insurance company. Obviously there was no question about who was at fault. Evaluating all my options, I decided to take a cash payoff rather than trying to repair the airplane. Everyone told me not to try to repair an airplane that badly damaged; it would "never fly right." Also, I was only flying the Baron about 50 hours a year at that time, and I didn't think

that was enough to stay current in a complicated twin-engine airplane. I would take the payoff, and look around for a nice single to buy, maybe a Cessna 182, a good, tough, reliable airplane which would do well in Baja. Unfortunately, because of all the aircraft litigation in the 80s, none of the “big three” manufacturers (Cessna, Beechcraft, Piper) were making single-engine piston airplanes anymore. The price of used singles thus skyrocketed. It was not a good time to be buying a used single-engine piston airplane. I rented a nice 182 at a fixed-base operator at Van Nuys for awhile, but eventually I stopped flying. I think my interest in diving and underwater photography had a lot to do with that. The last PIC (pilot-in-command) entry in my log was on July 30, 1993, when I did three touch-and-go’s and one full-stop landing, my last, in the rented Cessna 182 (N1818A.) I miss flying terribly. It was a huge part of my life for 20 years. The memories come flooding back every time I see a small airport, or hear the sound of a small airplane overhead. Or see a Baron.

The trips to Baja continued by land. Now our Baja travels are in Big Red, our H1 Hummer:



Coleen and Jesse with Big Red, pre-flames



Jesse with Big Red, post-flames

The Mexicans love the big red Hummer, particularly with the flames. At the military checkpoints along the Transpeninsular Highway they always try, I think in jest, to trade their drab green ones for mine. Once they offered two of theirs for mine. I probably should have considered that more carefully before politely rejecting it. The soldiers at these checkpoints have always treated us with courtesy and friendliness. Here a group of them pose in front of Big Red, fully armed, with Jesse:



Big Red meets the Mexican Army



On the road between San Felipe and Gonzaga Bay

I snorkeled many times on the beautiful reef right in front of Hotel Punta Pescadero, but my first dives on scuba in the Sea of Cortez were at San Francisquito. My introduction to liveaboard boat diving was in the Sea of Cortez in the mid 1980s, on the fantastic old Baja Explorador, one of the world's first liveaboard dive boats. I made three trips on the Explorador before it went to dive boat heaven. The Explorador dived the southern islands and seamounts from La Paz Bay up to Isla Catalan, just south of Loreto. The Explorador introduced me to all of the magical southern Sea of Cortez sites—the sea lion colony at Los Islotes, the famous El Bajo seamount, and the incredible pinnacle just off the north end of Isla San Jose with the wonderful name, Las Animas (The Spirits), one of the world's greatest dive sites. It was at Las Animas that I first saw the unforgettable spectacle of schooling hammerhead sharks. I have seen it many times now in other places, but there's something about that first time that I will never forget.

Whale sharks are the world's largest fish. A true shark, they reach lengths of over 50 feet. Every diver wants to see one. Filter feeders, they eat only plankton. How odd, the largest fish in the ocean eats only the smallest animals in the ocean. After two liveaboard trips on which whale sharks were seen by every diver except me (once in the Red Sea, once at Cocos Island in Costa Rica), I figured that it just might not be in the cards for me to see one. Then I discovered, by coincidence, that there is a regular population of whale sharks every summer in Bahia de Los Angeles.

With a little research I found that the whale sharks are generally in the bay from about July through December, with the best months being September and October. I also learned that the best base for our whale shark operation appeared to be a place called Camp Gecko, an eclectic collection of buildings and campsites a few miles south of the main part of Bahia de Los Angeles.



Camp Gecko, Bahia de Los Angeles

Camp Gecko is owned by a fascinating man named Abraham Vazquez (or just “Doc).” A trained and fully licensed medical doctor, “Doc” is a Baja legend. The Mexican government requires that newly graduated medical doctors serve an “internship” in some of the less-developed parts of Mexico. It’s kind of similar to mandatory military service. Doc got assigned to Bahia de Los Angeles, fell in love with it, and never left. Along with his medical skills he has a keen understanding and empathy for the marine life in the bay, particularly the whale sharks. He bought land and developed the popular Camp Gecko campground, from which he runs guided trips to see the sharks on one of several boats he owns and operates. So with that fund of knowledge, I arranged my first trip in search of the world’s biggest fish in September of 2002 along with my son Jesse and my good friends Jim Bailey and Armando (Mando) Regalado.

Bright and early on our first morning at Gecko we boarded Doc’s boat ***Gecko III*** and headed for the south part of the bay and a place called El Rincón, where most of the sharks hung out feeding on the plankton-rich water. Finding the sharks was easy, the water was glassy and their big dorsal fins were clearly visible as they cruised easily on the surface.



Whale shark on the surface

They could be approached easily from the boat and it was thrilling to look down on them as they slowly swam alongside us.



Whale shark, Bahia de Los Angeles

But it was even more thrilling to slip over the side and see them in the water:



Whale shark, Bahía de Los Angeles



Whale shark, Bahía de Los Angeles

I did another whale shark trip two years later in 2004 with similar great results. This time we used the services of guide Joel Prieto in his comfortable center-console panga:



Joel Prieto, Bahía de Los Angeles guide

Joel gave us a great trip and I can't say enough good things about him and our second successful quest for these amazing big animals. It was an incredible experience swimming with whale sharks, and I am glad I have finally seen them.



Whale shark, Bahía de Los Angeles

Jacques Cousteau called the Sea of Cortez “the world’s aquarium” because of its rich fish life. I know that’s a little hokey, but it has basis. The variety and abundance of fish life is truly extraordinary:



Big fish need little fish



School of small fish at Los Islotes



Jacks at Las Animas



Barberfish, a Sea of Cortez icon

I have seen a lot of sharks in the Sea of Cortez. I saw my first hammerhead and my first silky there.



Hammerhead sharks

Other areas of the world are richer in sharks now, notably Cocos Island in Costa Rica and the Galapagos Islands of Ecuador. Shark populations are declining in the Sea of Cortez because they are heavily fished. The main market is for fins, although I have seen some nomad fish camps where the filets are salted. Seeing sights like this, a panga full of fins from beautiful threshers, the rest of their bodies discarded and floating in the shallows, brought tears to my eyes:



Thresher shark fins at Punta San Francisquito



Discarded thresher shark bodies

Isla Guadalupe is a little volcanic belch of an island located 170 miles off of the west coast of Baja California, and about 280 miles south of the U.S. border. 22 miles long and 9 miles wide, it is barren above water but its shores and waters are rich with marine life. For decades it has been a destination for the long-range San Diego sport fishing boats, who load up on tuna and yellowtail from the waters around the island. Large colonies of fur seals and northern elephant seals haul out on its barren shores. It is probably the pinniped population that attracts Guadalupe's most famous inhabitants, great white sharks. A population of about 50 whites prowls the Guadalupe waters each fall. These sharks have spawned a small fleet of shark-watching boats operating out of San Diego and Ensenada. Divers on hookah rigs (regulators with long hoses attached to a compressor on the boat — thus the divers don't need tanks) view and photograph the whites from cages tethered to the mother boats. I scratched a very old itch in September of 2007 when I spent three days at the island with San Diego Shark Diving on the Mexican boat Andrea Lynn. I finally saw my first great white shark:



Great white shark at Isla Guadalupe

These caged and baited shark trips are surprisingly controversial. The criticisms usually take two forms, 1) the chumming and baiting changes the shark's behavior and makes them dependent on humans for food, increasing the danger for swimmers and surfers; and 2) the artificial atmosphere in which the sharks are seen. The first criticism, made long and loud by a group of San Francisco area surfers, actually shut down a white shark operation at the Farallon Islands just west of San Francisco Bay a few years ago. I believe the first criticism is false and is driven by the general hysterical fear of sharks which has been created by our media, starting with the old "Jaws" syndrome. Sharks, particularly those species which have

been around for as long as great whites, are opportunistic feeders and eat what they can, when they can. If the baited trips were to stop, the sharks would no doubt figure out some way to eat, probably in the same way they have eaten for the last 400 million years or so.

Based on what I saw on my Guadalupe trip, it is my personal, non-scientific opinion that these caged encounters are not really feeding experiences for the sharks. They actually consume very little food in the process. The baits are rarely eaten, rather they are toyed with by the sharks. In my opinion the baiting is a diversion for the sharks, like a cat playing with a toy. I think they simply enjoy the experience. When they are really hungry, they take care of that elsewhere.

The argument that caged shark trips create a danger for surfers and swimmers is, I believe, unsupportable. There is no evidence that baiting great white sharks, at significant distances from beaches where people swim and surf, increases the danger of shark attack for swimmers and surfers. Isla Guadalupe is 170 miles from any North American beach. It is difficult to imagine how baiting sharks at Guadalupe could have any effect on a North American swimmer or surfer, based on its remote location alone.

A more valid and thoughtful criticism, in my opinion, is the “zoo-like” artificial condition created by attracting the sharks with chum and bait. Clearly this does not present the shark in its natural condition, or represent its natural behavior. Nobody denies that, but compared with not ever seeing one alive and/or outside of an aquarium, I will gladly accept the opportunity to see one from the cage. I thought it was a thrilling, electric experience. Baited shark trips, targeting several different species, have become very popular among divers on several continents. The images that have been made on those trips have, I believe, positively impacted the perception of sharks among the non-diving population. Like aquariums, baited shark trips, on balance, have benefited sharks.

I believe one thing about these trips is undeniably true. The white shark population at Guadalupe would not exist but for the small fleet of shark-watching boats that operate there, and the publicity (and protection) that these trips have generated. The entire Guadalupe population of white sharks, estimated at about 50 individuals, could be completely wiped out by one fishing boat in about a week. Other than a small group of nomadic Mexican fishermen who work the island, no-one knew that great whites were there until a lot of long-range Guadalupe fishermen on the San Diego boats started landing only the severed heads of their big yellowfin tunas. The knowledge of the existence of great white sharks in clean water at Isla Guadalupe quickly spread to shark-watching outfits like San Diego Shark Diving, the one I was with on my trip. Soon several shark-watching boats were operating there, and great images of the sharks were being seen all over the world. This led to protection of the sharks by the Mexican government.

If the shark-watching industry had not “gotten there first”, I have little doubt that the shark-finning industry would have found them and done them great damage, potentially wiping them out. If that had happened, many people would have lost the chance, first-hand and in images, to see these magnificent, timeless animals in their natural habitat, for the benefit of the relative few who like to eat soup made from their fins.

The photographic opportunities were virtually endless for three solid days:

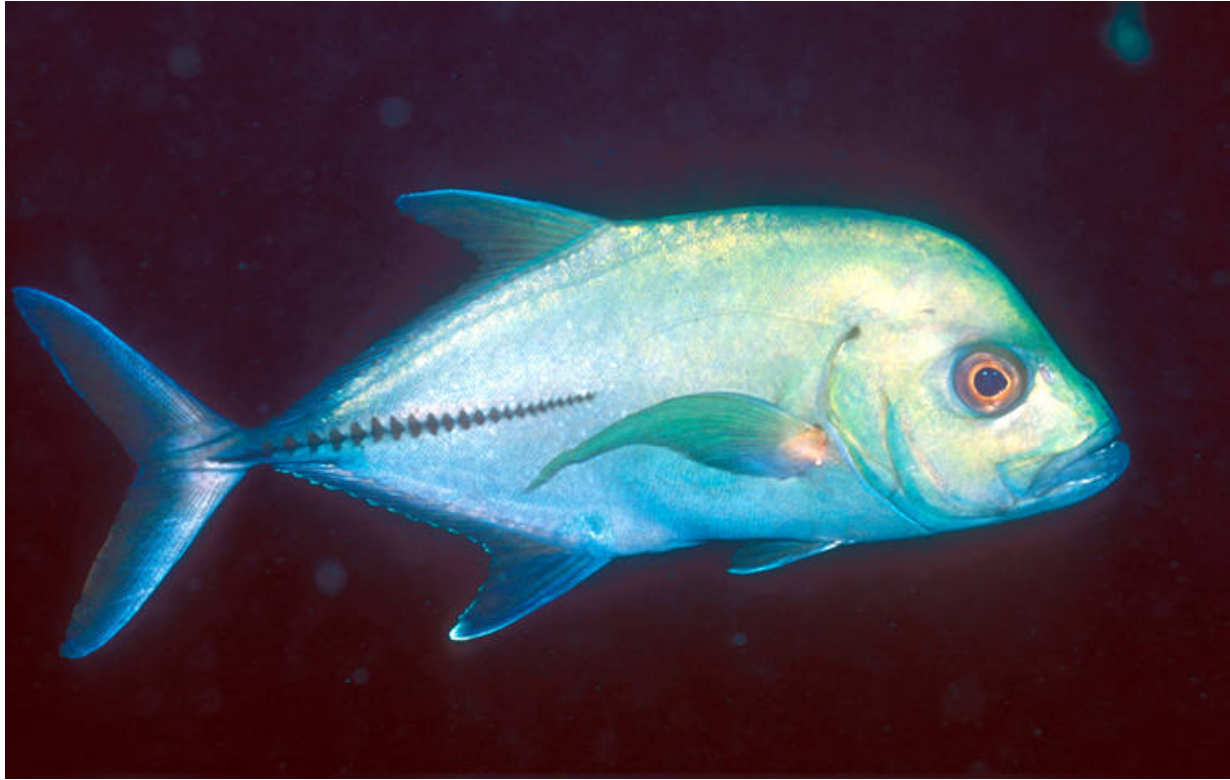


Great white shark at Isla Guadalupe



Great white shark at Isla Guadalupe

More Baja fish life:



Green jack



Juvenile King Angelfish



Adult king angelfish



Cortez angelfish



Striped moray eel



Jeweled moray eel



Green moray eels at El Bajo (moray condos)



Green Moray eels at El Bajo

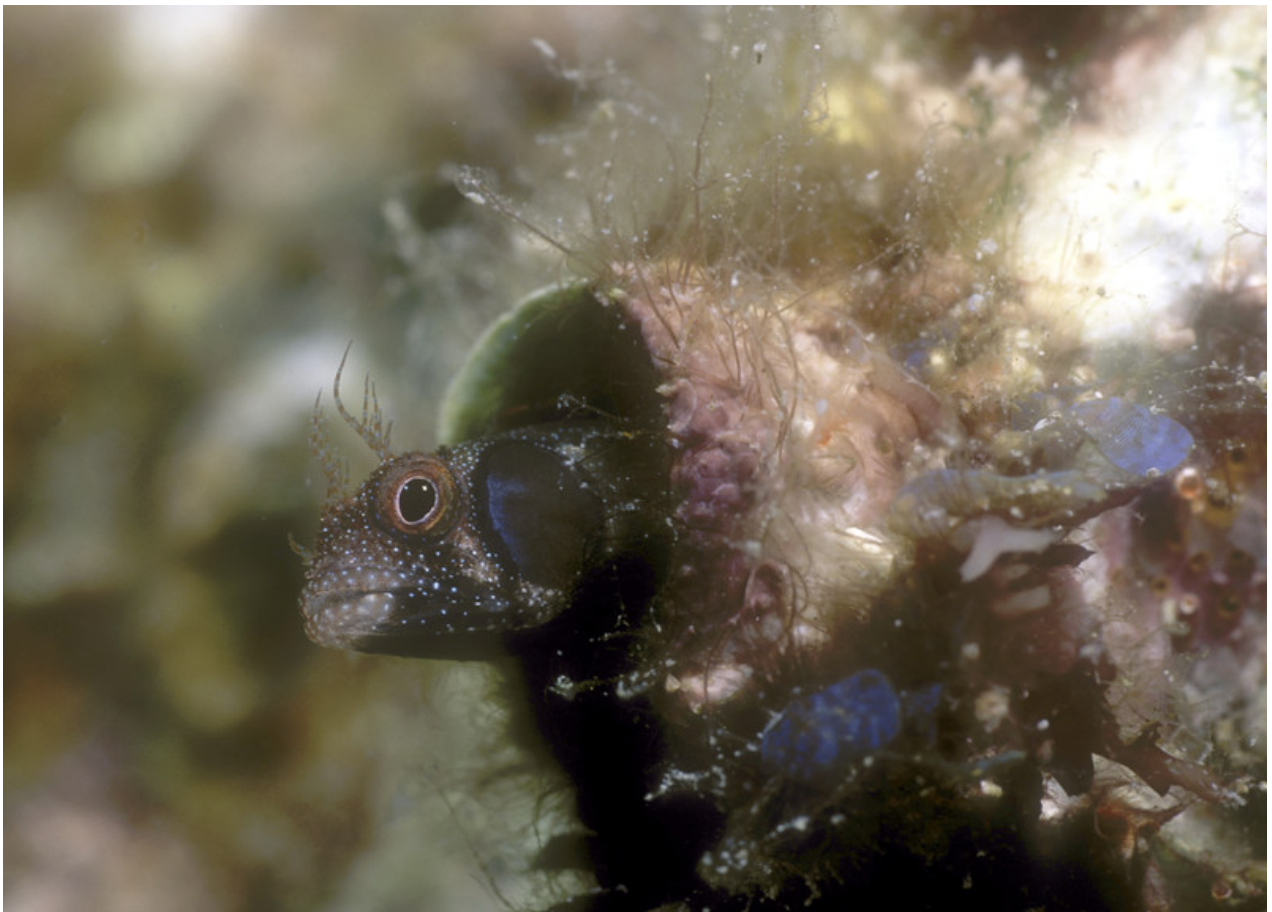


Pufferfish face

If you look closely at the Baja reefs, and try to ignore the sharks and mantas that might be right behind you, you could be surprised at the little faces you see peering out at you from almost every opening:



Tube blenny *Acanthemblemaria crockeri*



Tube blenny *Acanthemblemaria crockeri*



Tube blenny *Acanthemblemaria crockeri*



Tube blenny *Acanthemblemaria macrospilus*



Tube blenny Acanthemblemaria crockeri



Tube blenny Acanthemblemaria crockeri



Redhead Goby Elacatinus puncticulatus



Triplefin Lepidonectes corallicola



Longnosed hawkfish in black coral, wreck of the Salvatierra, near La Paz

The Sea of Cortez is not known for its nudibranch population, but it does have some beautiful species:



Nudibranch Hypselodoris agassizii



Nudibranch Hypselodoris agassizii



Nudibranch Chromodoris marislae



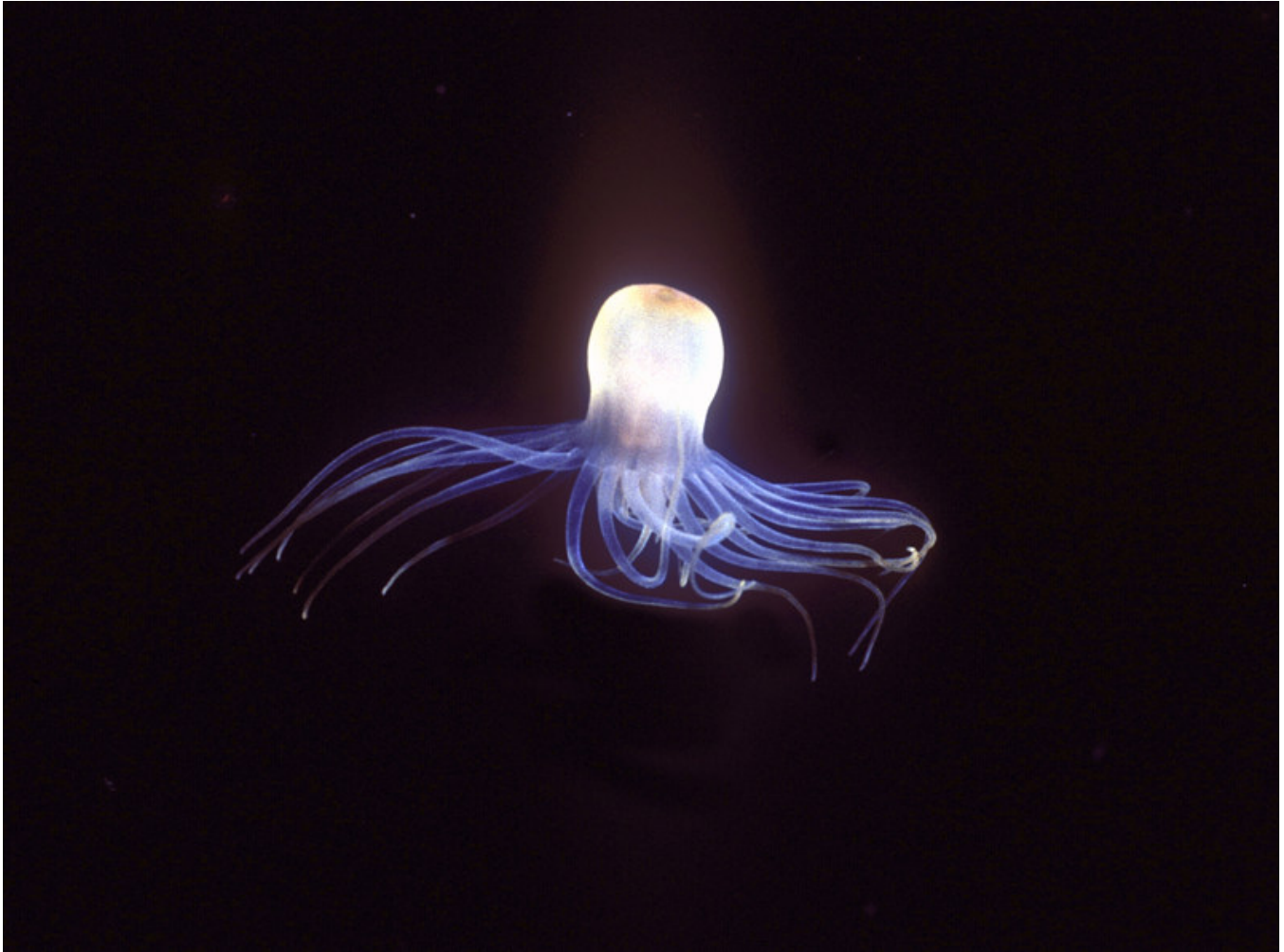
Nudibranch Roboastra leonis

Did I mention that I can't resist hermit crabs?



Hermit crab

Sometimes even the swim back to the boat results in some interesting photos:



Jellyfish

About 250 miles south of the tip of the Baja California peninsula is a small group of Mexican islands with the tongue-twisting name of Islas Revillagigedos. Because the largest of these islands is called Socorro, and that is a lot easier to say than Revillagigedos, they are often incorrectly called the Socorro Islands. Regardless of what you call them they offer some spectacular diving. These islands are home to one of the most beautiful fish in the world, the Clarion angelfish:

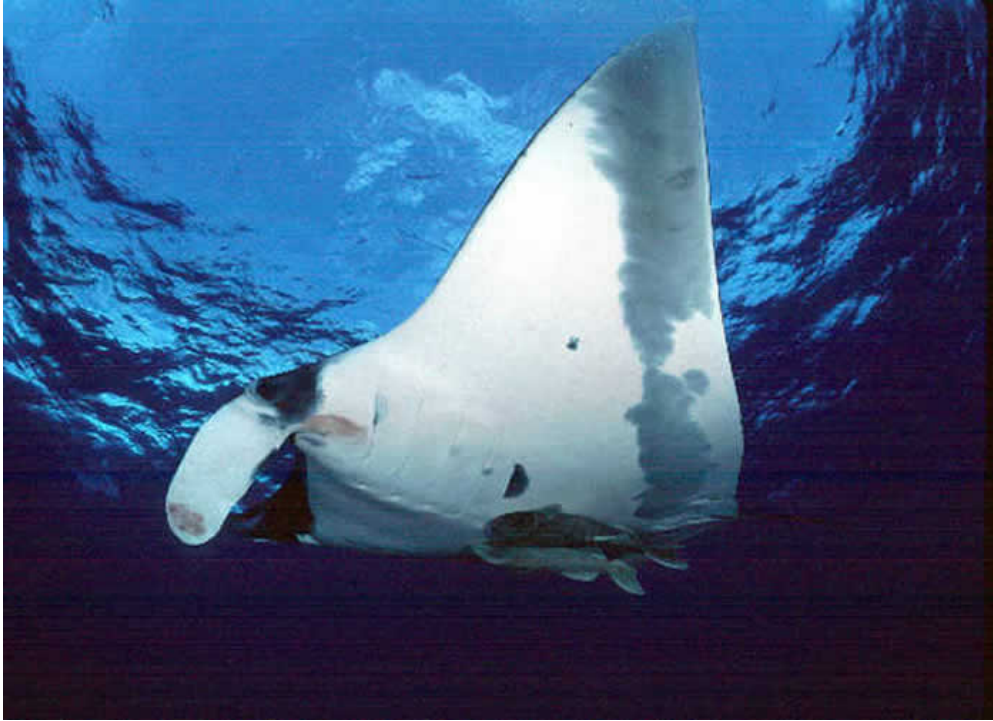


Adult Clarion angelfish, Socorro Island

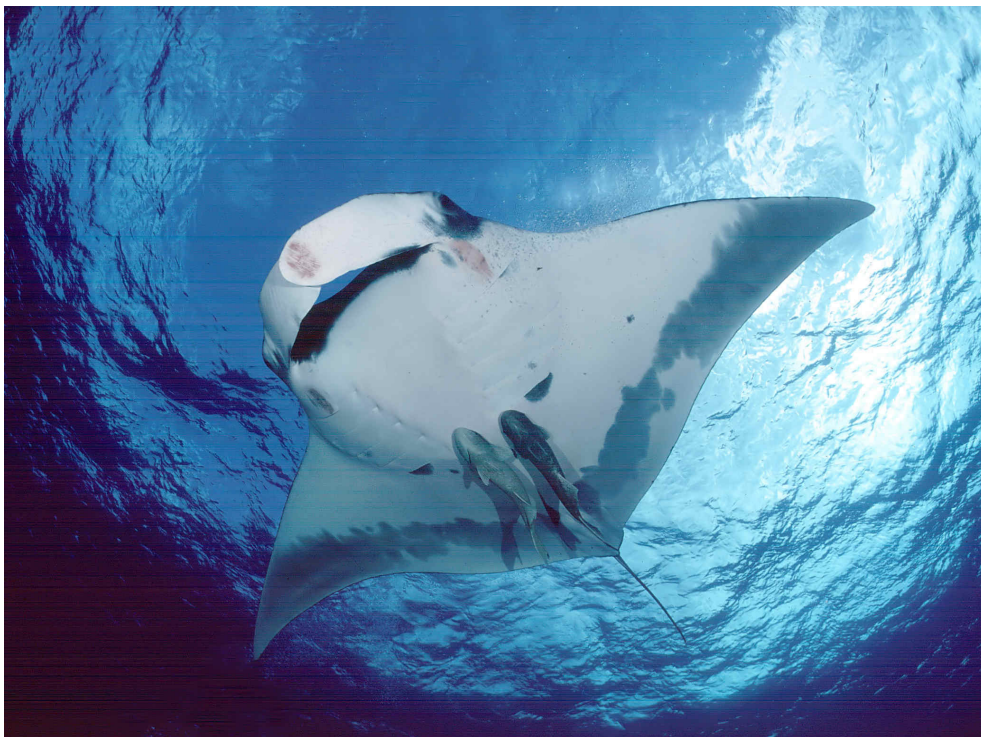


Juvenile Clarion angelfish, Socorro Island

The primary reason divers come here is to see manta rays. At a place called The Boilers at Isla San Benedicto, very large Pacific manta rays congregate and interact with divers. I am not a big fan of touching marine life, but here the mantas literally demand it. They will stop and hover over you like space ships, quivering at the touch of your bubbles. If you don't attempt to touch them, they will go to another diver. Many attach anthropomorphic explanations for this, "*they really like humans...*" but I think it has something to do with cleaning behavior.



Pacific manta ray with remoras, San Benedicto Island



Pacific manta ray with remoras, San Benedicto Island



Pacific manta ray with remoras and Coleen, San Benedicto Island

The California gray whale, one of the thirteen great whales (12 with baleen plus one, the sperm whale, with teeth), spends its summers feeding in the waters of Alaska. But late every year, in November or December, that old primordial bell rings, they hear it, and they head south, making the longest migration of any mammal. They swim over 5,000 miles down the Pacific coast of North America to mate and bear their young in three shallow-water lagoons in Baja California. North to south these lagoons are called Laguna Ojo de Liebre, Laguna San Ignacio, and Bahía Magdalena. Laguna Ojo de Liebre is also called Scammons Lagoon, named for the American whaling captain who discovered, in 1857, what the whales do there every year, and slaughtered them by the thousands in the rest of the nineteenth century. The whales were killed primarily to provide oil in lamps.

Considering that, something happens now in those lagoons that is incomprehensible. After being killed to the point of extinction, in the cruelest possible ways, these magnificent animals now actually seem to have forgiven us, or at least forgotten what happened to them in these lagoons. There is a behavior that happens in the lagoons every year now that defies explanation. They now actually **demand** interaction with humans.

Each of the lagoons has a thriving “whale-watching” industry which is regulated by the Mexican government. Tourists view the whales in small, motor-driven fiberglass skiffs called pangas. In a behavior described as “friendly,” certain whales regularly try to climb into the pangas with the tourists. It is unnerving when a 50-ton animal places its chin on the gunnels of your little boat. I have chased whales in all three of the Baja lagoons; and by far my favorite is Laguna San Ignacio. It is much more remote and difficult to access than the other two lagoons, and the facilities are limited. It is spectacularly beautiful in its isolation. In my opinion, based on my experiences in all three lagoons, more “friendly” behavior takes place in Laguna San Ignacio. A fringe benefit to chasing whales in Laguna San Ignacio is the chance to spend a little time in the small Baja town of San Ignacio, with its magnificent town square and old, beautifully preserved mission church.



Old mission church, San Ignacio, completed in 1786

Most of the friendly whale behavior occurs late in the calving season, in February and March, after most of the mating has taken place and when many of the males have left the lagoons and headed north. It is not unusual for a female with calf to literally push the calf to the boat, thus introducing the youngster to humans. The whales allow themselves to be touched, actually in many cases they **demand** to be touched; if you don't scratch them they will move on to another panga.



Just a little to the left, please

The interaction between whales and humans in the Pacific Baja lagoons is one of the most amazing things I have seen in nature. It changes the life of almost every person who experiences it.



Adult gray whale nuzzling our panga and getting scratched in Laguna San Ignacio

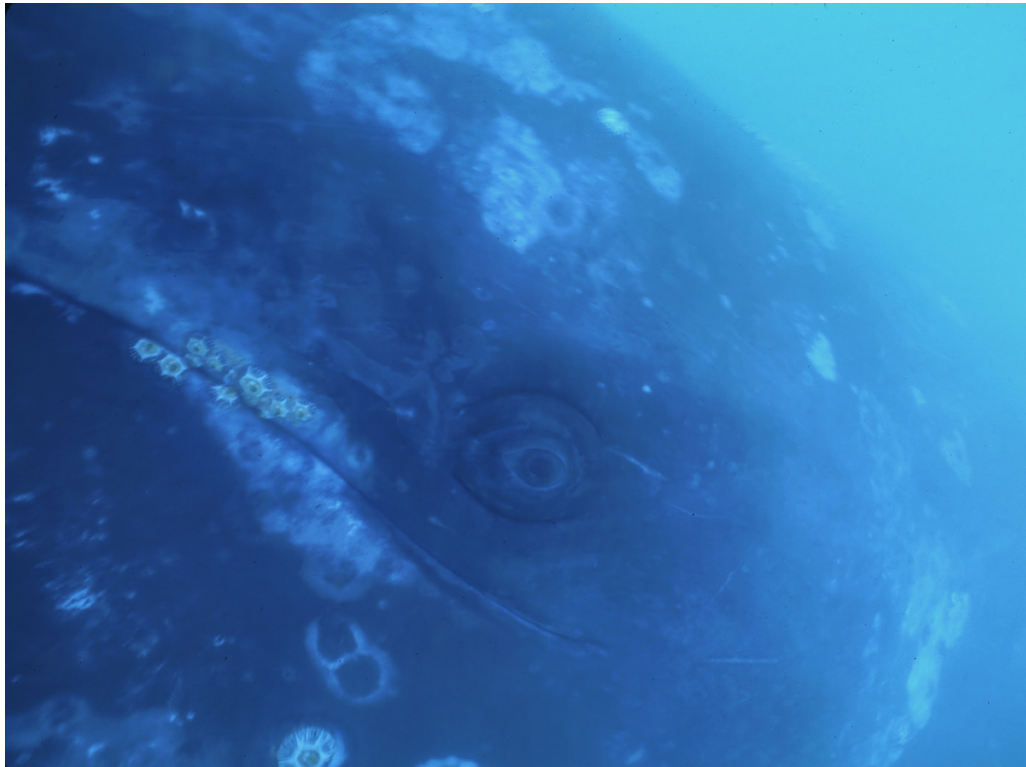


Pam's hand gently touching this whale's nose in Laguna San Ignacio

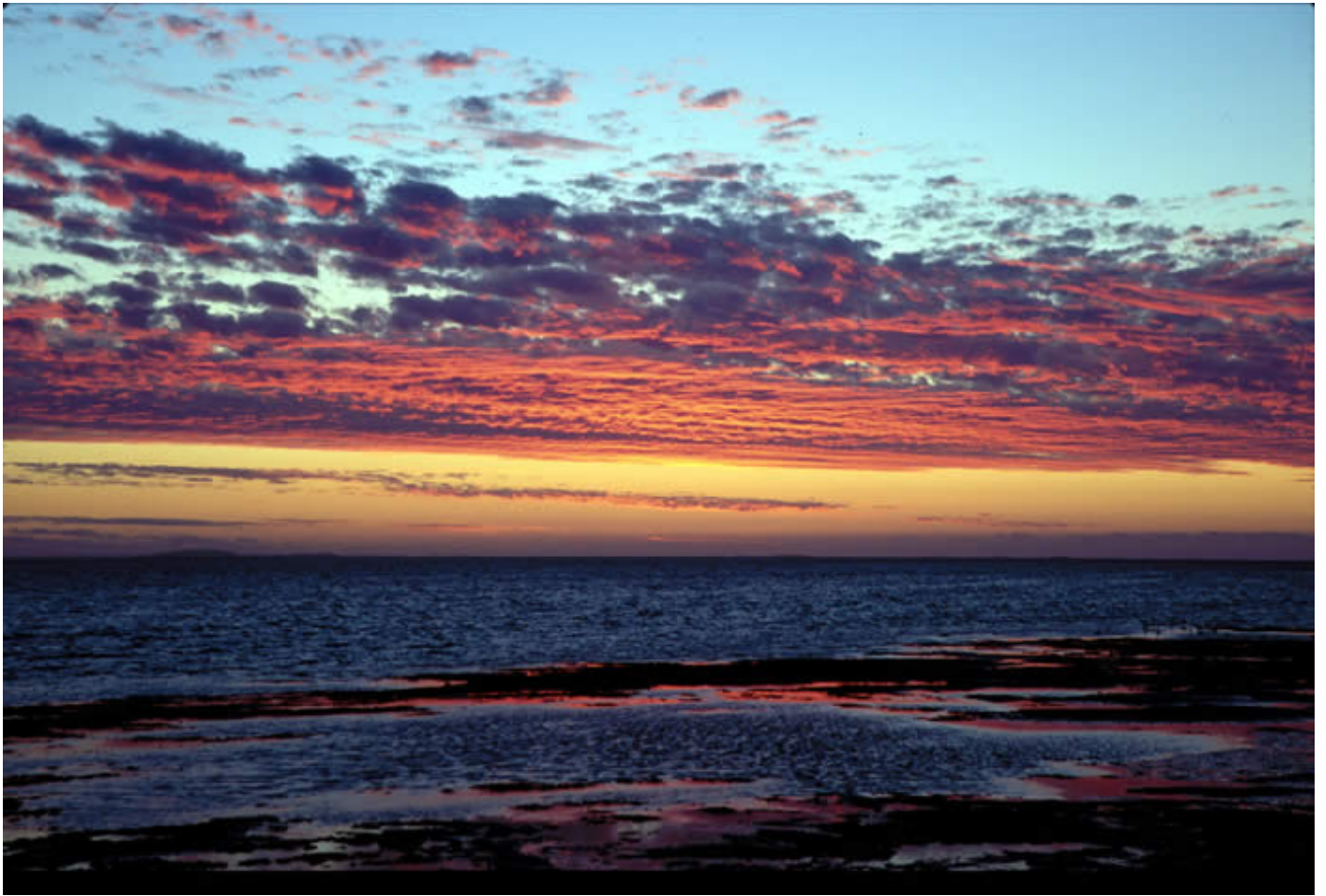


Late afternoon encounter in Laguna San Ignacio

Except with a hard-to-get permit from the Mexican government, you can't get in the water with the whales in the calving lagoons. So when I am there I usually take a Nikonos V submersible camera with me in the panga, hold it underwater and fire blind when a whale is alongside the boat. Here I got a nice image of an adult whale eyeball. What magical things this eye must have seen:



Gray whale eyeball, Laguna San Ignacio



Sunset at Laguna San Ignacio

The blue whale is the largest animal to have ever lived. Adults are over 100 feet long. Like other baleen species they were killed almost to extinction, and now protected by most countries, they are making a comeback. They are reliably seen in the Sea of Cortez near Loreto every winter. Here, in one of my favorite images ever, is one near Puerto Escondido, just south of Loreto:



Blue whale near Loreto

Chapter 4

Cocos Island, Costa Rica

When I started diving everyone told me that the best diving required great visibility and pretty reefs. With experience I realized that good visibility is over-rated, and while they are nice, pretty reefs are not required for exciting dives. After diving on a lot of pretty reefs in clean water, my interests started changing. This happened when I saw my first sharks in the Sea of Cortez. I was enthralled by their beauty and how different their real behavior is from the “Hollywood” perception of shark behavior. The more I saw the more I wanted to see. I started hearing about an island off the Pacific coast of Costa Rica where divers reported seeing many large sharks, including huge schools of hammerheads. The name of this place was Cocos Island. I made my first trip to Cocos in 1988 with Coleen, made six more trips after that, and it remains today one of my favorite dive destinations in the world.

Cocos is one of the most beautiful places on earth, uninhabited except for a small base of Costa Rican park rangers. All things considered, access, diving conditions, boats, it is perhaps the best place in the world to see big animals underwater. It is like a green tropical jewel, an emerald with the Pacific Ocean as its setting. It is everyone's idea of an uninhabited tropical South Seas island; it was Robert Louis Stevenson's inspiration for *Treasure Island*, and Michael Crichton's for *Jurassic Park*. 300 miles west of the Pacific coast of Costa Rica, Cocos is a feast for the eyes, topside and underwater.

A trip to Cocos is unlike most dive trips, land-based or liveaboard, because of its distance from the mainland. Three boats now make the trip, the Okeanos Aggressor, one of the Aggressor fleet boats, and two “Hunter” boats, the Undersea Hunter and the Sea Hunter. The boat is boarded in the little west coast town of Puntarenas, which is about a two hour drive from the Costa Rican capital city of San Jose:



Puntarenas, Costa Rica

The drive from San Jose to Puntarenas takes you through some beautiful Costa Rican countryside:



Coffee growing west of San Jose

It takes about 36 hours to cover the 300 ocean miles between Puntarenas and Cocos Island. The boat leaves Puntarenas in the late afternoon, runs all night, all the next day, all the next night, and arrives at the island early the next morning. The typical trips are ten days long, a day and a half of travel on each end and 7 full days of diving at the island. The crossing can be relaxing and productive if the ocean is calm. The full day at sea can be spent loafing, eating, sunning, eating, getting equipment ready, and eating. If the water is rough it can be agony—you wedge yourself into your bunk for most of a day and a half. The only good part of a rough crossing is you don't eat so much. In my experience the roughest crossings, the worst weather, and the best diving (more sharks and other big animals), is in the summer "wet season." This, of course, is a generality, and all generalities, including this one, are false.



An easy crossing on the Undersea Hunter

This is almost everyone's arriving and departing view of the island:



Arriving and leaving Cocos Island

My first trip to Cocos was on the Okeanos Aggressor. That was a wonderful experience, the boat was very adequate, and the crew was great. But my second trip was on the Undersea Hunter, and I fell in love with that boat and its fascinating owners, Avi Klapfer and Yosy Naaman, and all my subsequent trips were on the Undersea Hunter.



The Undersea Hunter at Cocos Island

One of the things I like about the Hunter is its dive operation, the Hunter uses fiberglass skiffs (pangas); the Okeanos uses inflatables. The pangas are faster, more stable, more comfortable, and easier to enter than the inflatables.



Group returning from Dirty Rock on one of the Undersea Hunter's pangas, the famous Amos Nachoum at the bow

I had two major impressions the first time I saw the island up close, one was that I had never seen anything so totally green, the second that the island seemed to be leaking. There were waterfalls everywhere:



The island is leaking



More leaks



Leaks everywhere!



Even more leaks



Cocos Island scene

Getting to Cocos Island is, as they say, half the fun. Well, maybe not half the fun but a lot of fun. I refer, of course, to the part of the trip in mainland Costa Rica. Costa Rica is a fantastic country, rich in beauty, natural resources and marvelous friendly people. Almost everyone starts the trip with a flight to the capital city San Jose, which is in a mountain valley roughly in the center of the country.



San Jose, capital of Costa Rica

The central square in San Jose is built above a magnificent subterranean Gold Museum with beautiful displays and many pre-Columbian pieces:



Central square in San Jose, built above Gold Museum

On my last six trips I would take at least a week for topside touring in Costa Rica before leaving for Cocos. The parts of the country that I liked the best were the Tortuguero area in the northeast, on the Caribbean near the Nicaraguan border; the Guanacaste area on the Pacific in the northwestern part of the country; the cloud forest of Monteverde; and the Drake Bay area of the Osa Peninsula in the southwest.



Jungle river near Tortuguero



Beach scene, El Ocotal, Guanacaste



Beach scene in Drake Bay



Monteverde cloud forest

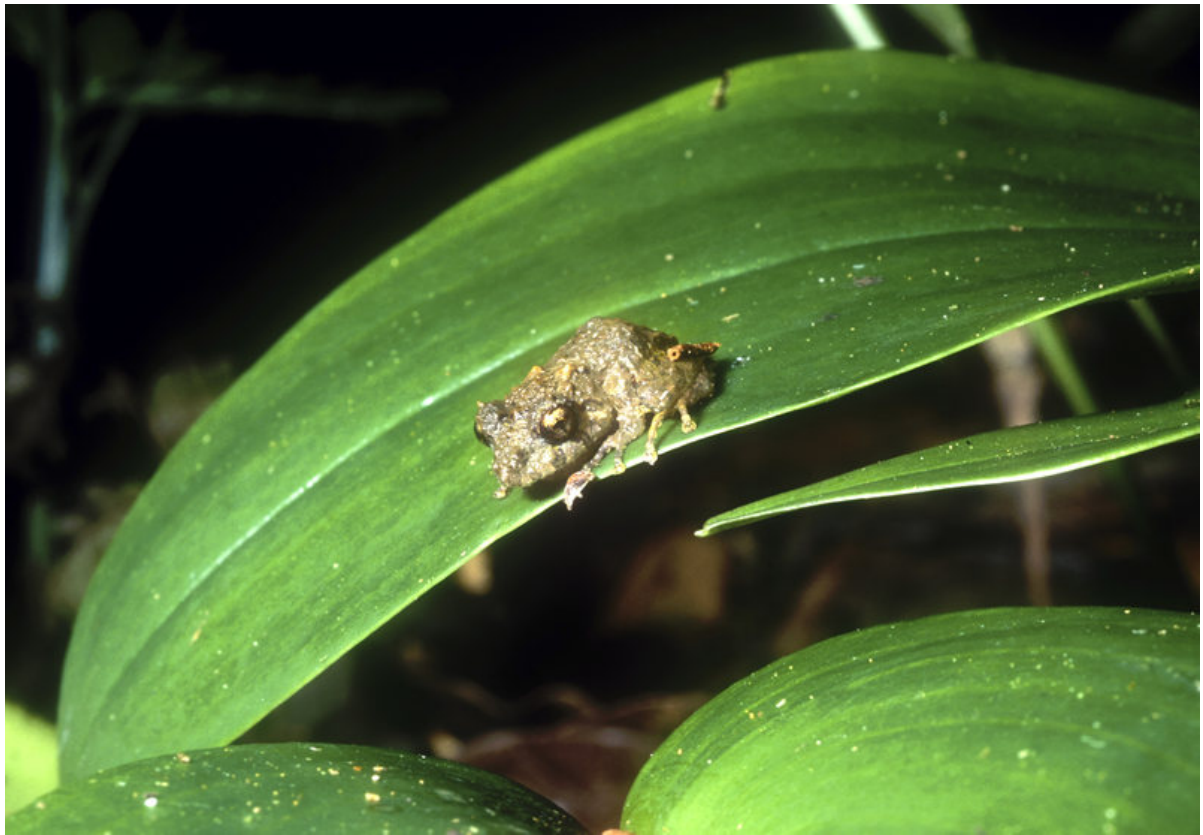
Here are some images of topside Costa Rican critters:



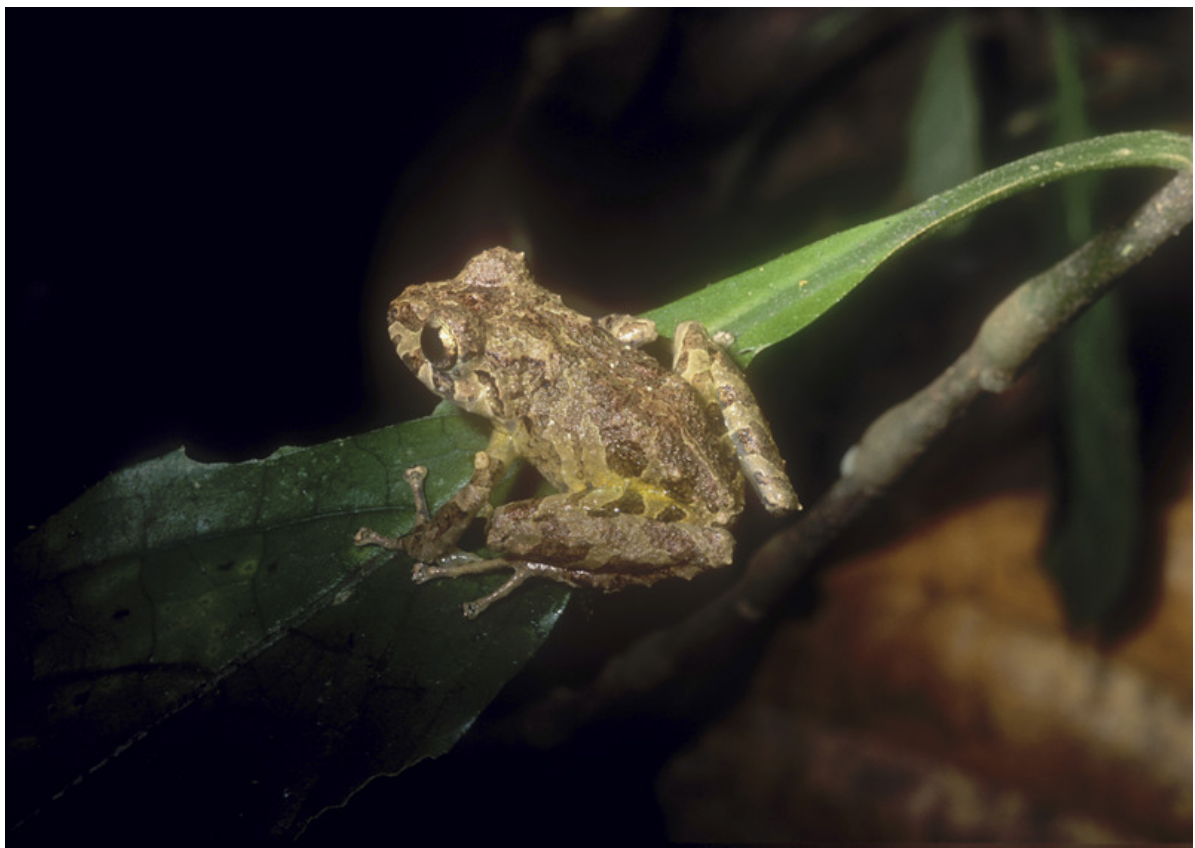
Cayman



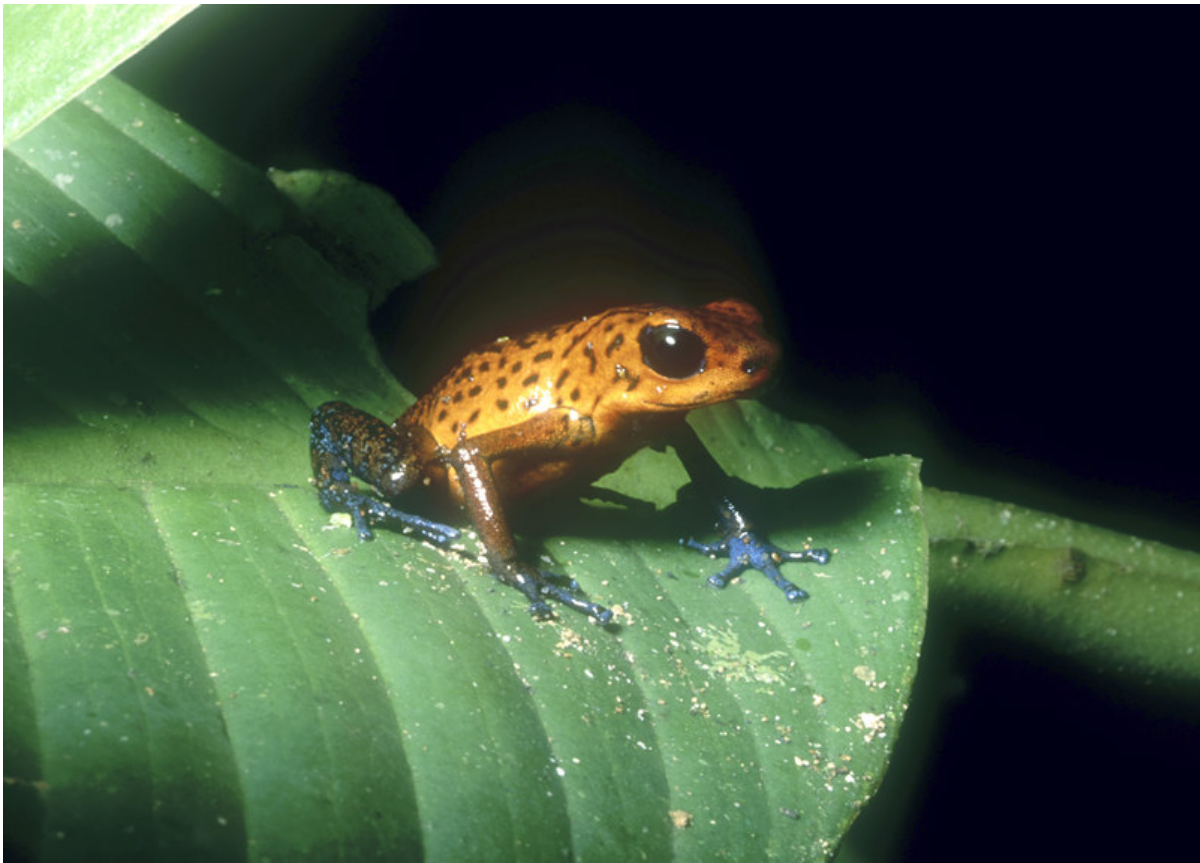
Tree frog



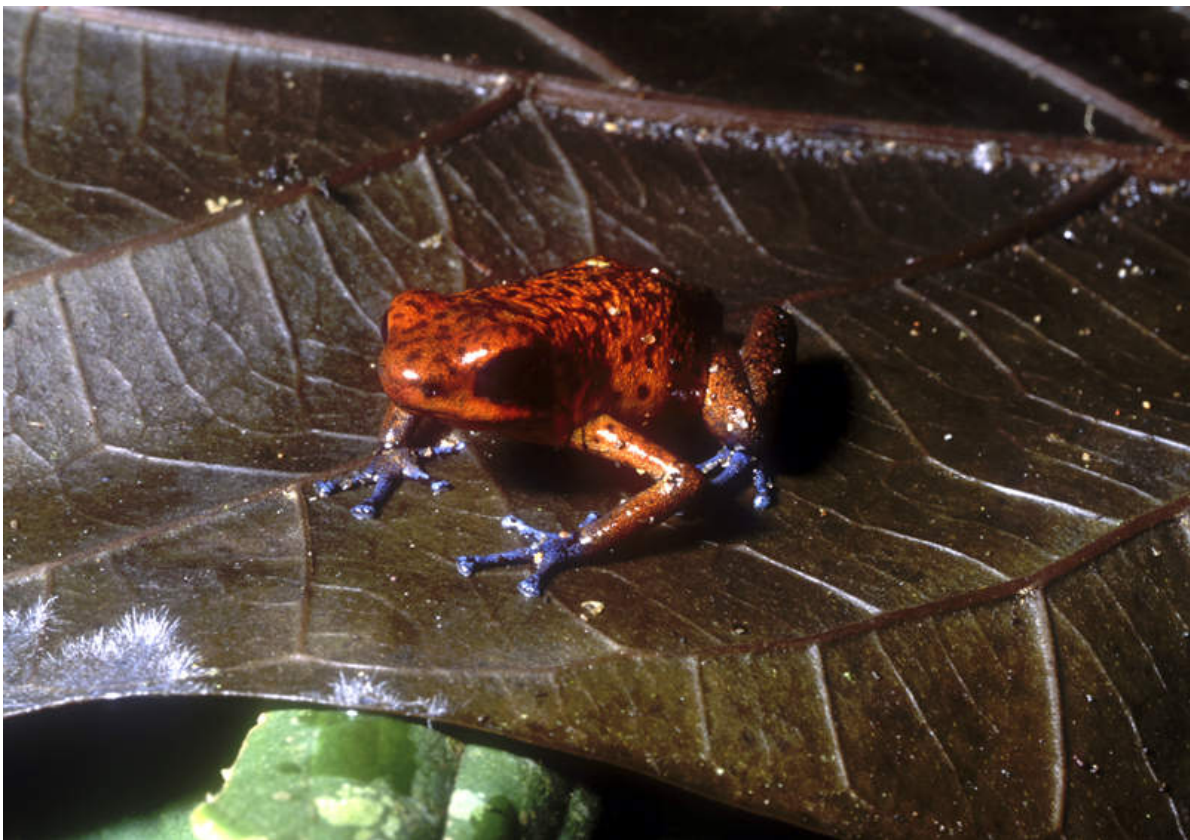
Tree frog, Monteverde



Tree frog, Monteverde



Poison dart frog, Tortuguero



Poison dart frog, Tortuguero



Poison dart frog, Tortuguero



Moth, Monteverde



Moth, Monteverde



Praying mantis, Tortuguero



Caterpillar, looks like a nudibranch!



Butterfly, Monteverde



Scarlet macaw, Drake Bay



Tree sloth



Orchid

Describing Cocos underwater is a bit overwhelming; you don't know where to start. There is so much to say. The amount of marine life around this island is truly breathtaking. Some animals are there on some trips and not on others, but you can always count on one thing: the great schools of bigeye jacks (*Caranx sexfasciatus*). I have seen big schools of jacks in many other places, the Sea of Cortez, the Solomons, Papua New Guinea, but the size of the Cocos schools is unmatched. They literally block out the sun. They can be seen at many of the charted Cocos dive sites, but the largest and most reliable school is at Sharkfin Rock. They are always there, like friends. The big jack schools are one of the most wonderful, emotional, inspiring things I have seen underwater:



School of jacks at Sharkfin Rock



These are big fish, 20-25 pounds each, *Caranx sexfasciatus*

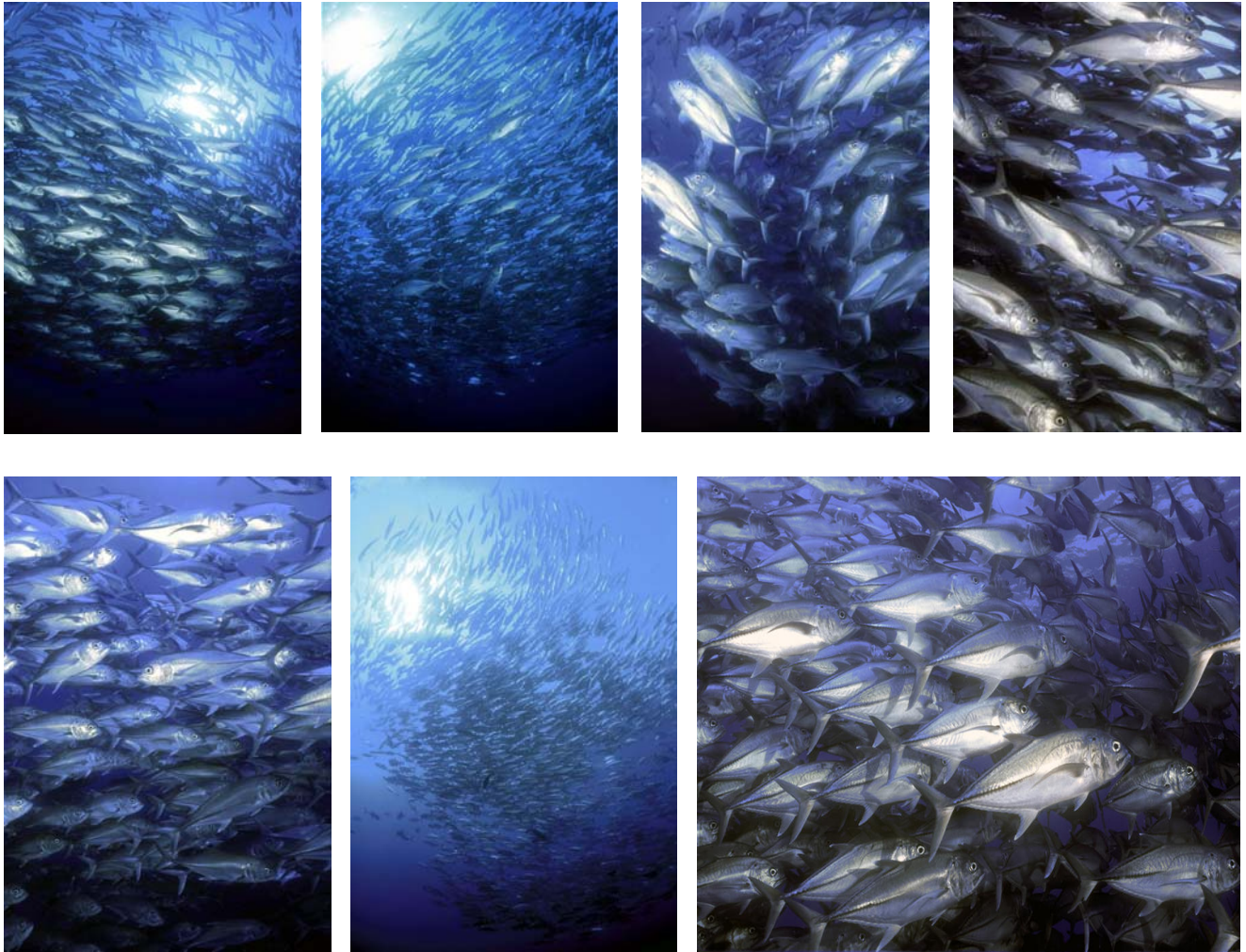


Swooping in and out of the valleys at Dirty Rock



Jacks, Sharkfin Rock

If you approach slowly, the jacks let you enter the school. They gently part as you pass by. It can be disorienting—all you see are silvery fish sides. It is difficult to tell which direction is up and you have to watch your bubbles to tell for sure. Here is a collage of jack photos I made over the years at Cocos:

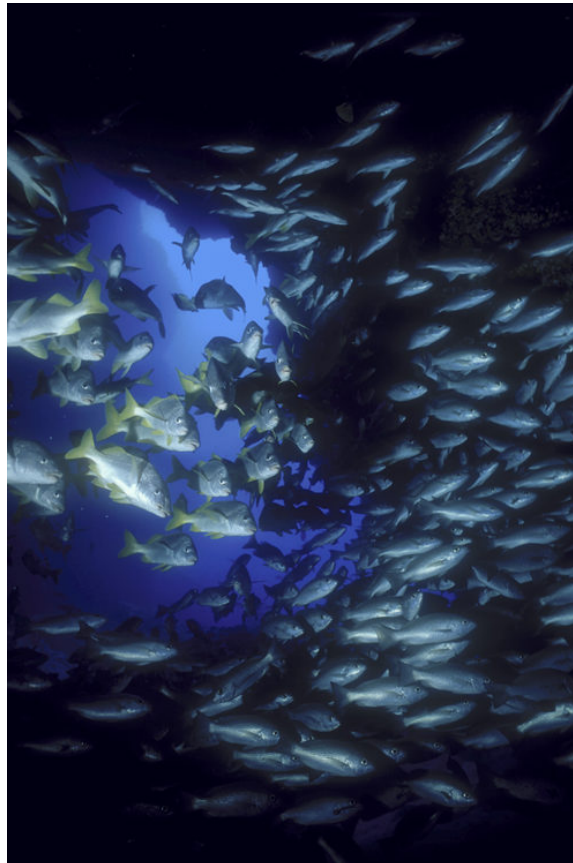


Jack collage

Of course there are dense schools of other fish species everywhere. There is a magical site called Dos Amigos, featuring a very large underwater arch, at least 70 feet from top to bottom. The arch is always filled with schools of fish and the photographic opportunities abound:



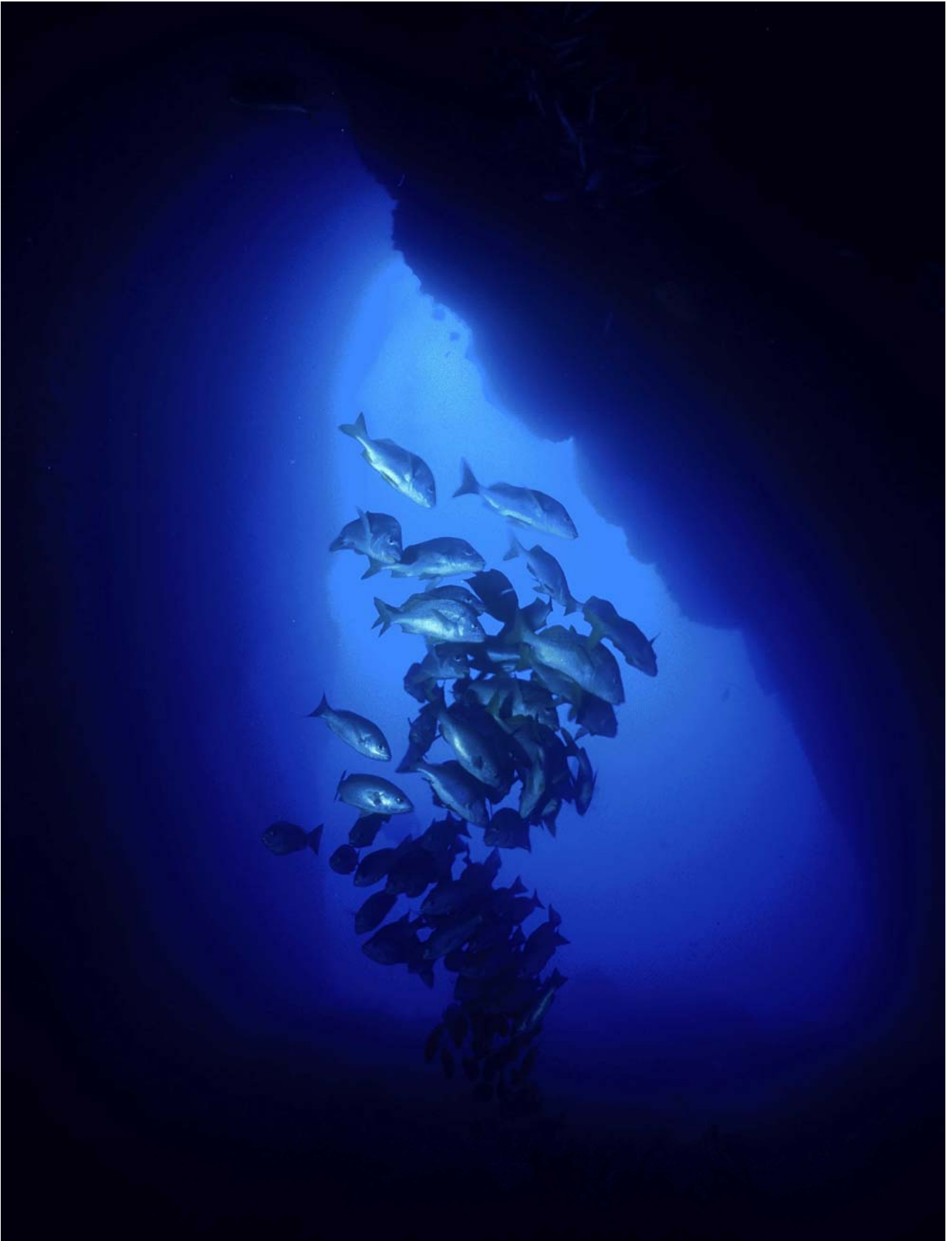
School of grunts, probably Peruvian (Roncador peruano), in the arch at Dos Amigos



Peruvian and yellowtail grunts in the arch at Dos Amigos



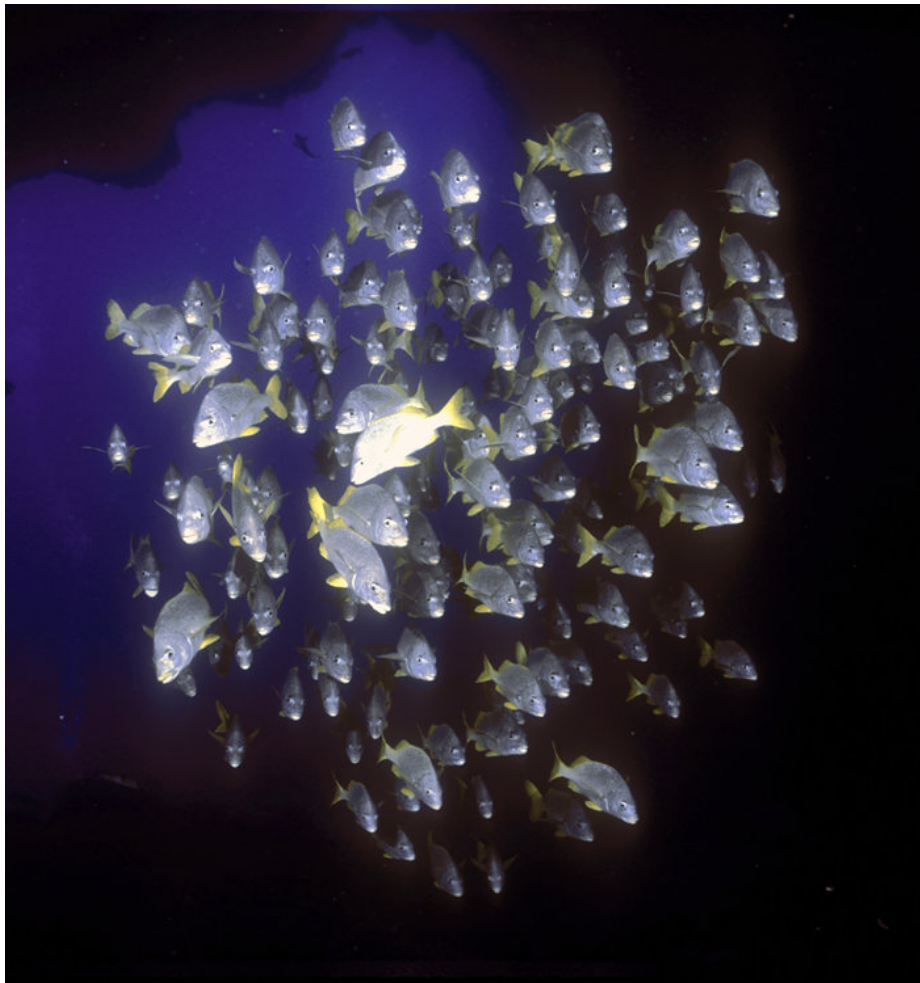
Grunts in the arch at Dos Amigos



Grunts in the arch at Dos Amigos

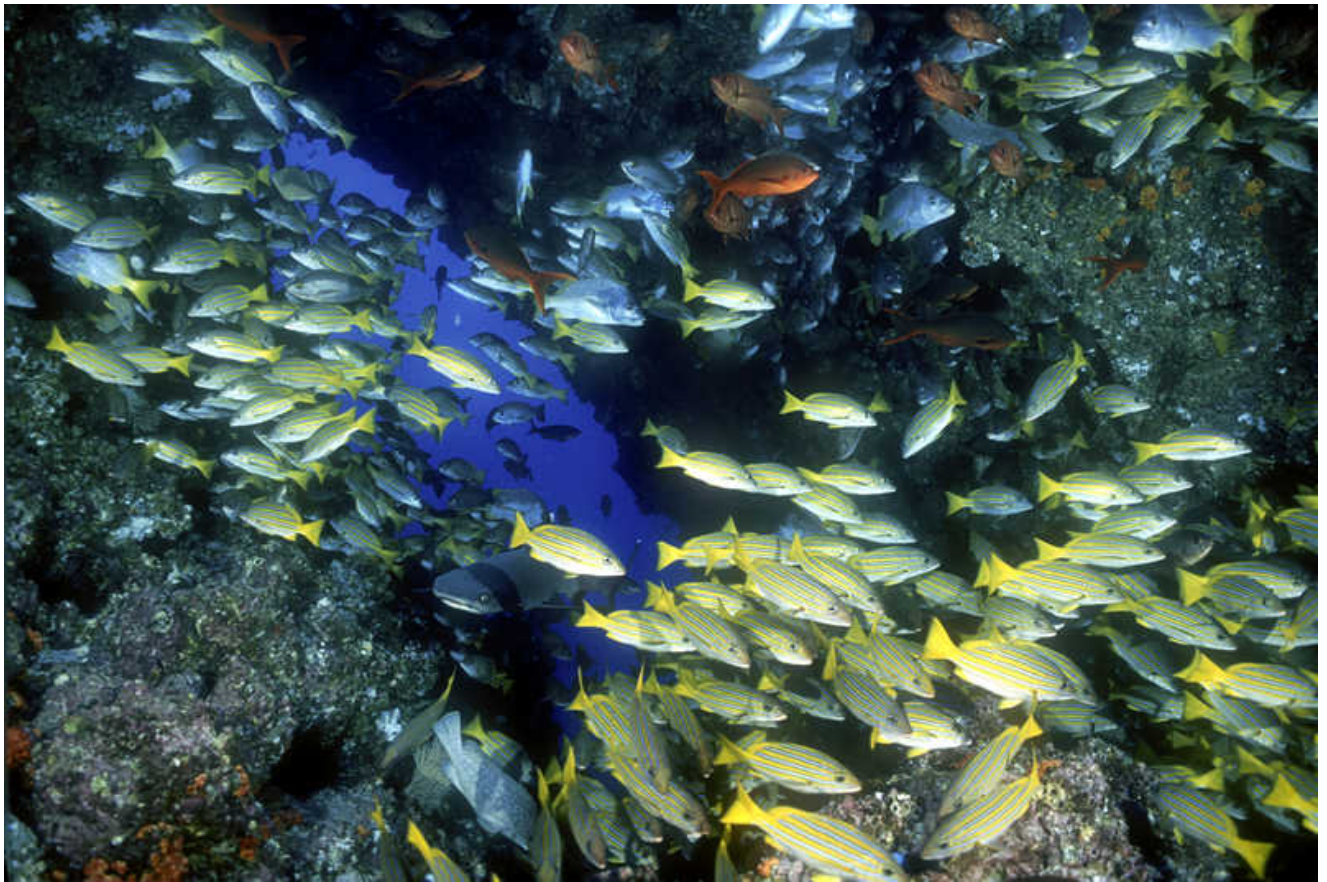


Grunts at Dos Amigos

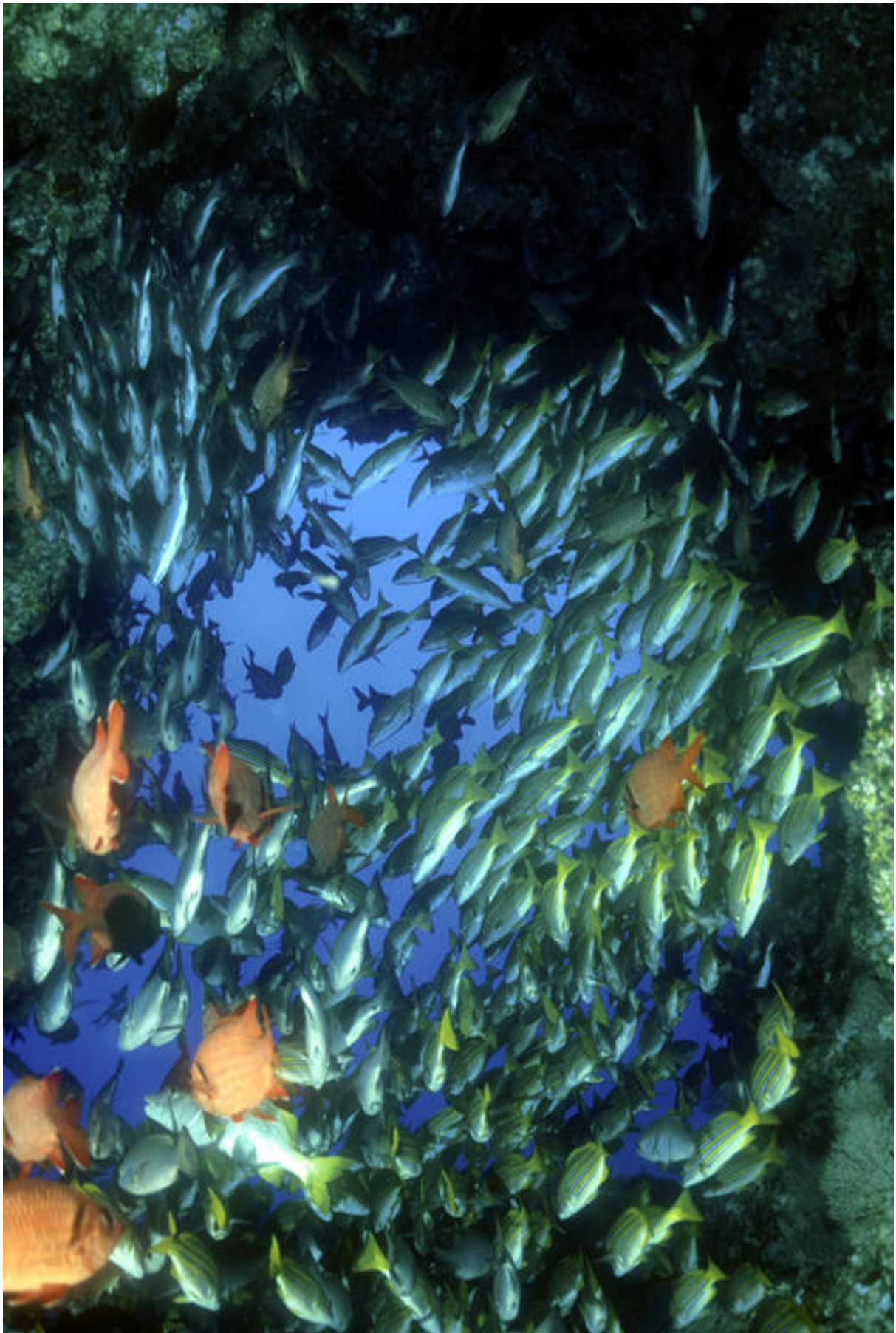


School of yellowtail grunts (Anisotremus interruptus) in the arch at Dos Amigos

There is another smaller arch, really just a swim-through, at a very popular site called Submerged Rock. It is always filled with fish:



Swim-through at Submerged Rock, note whitetip shark passing through the blue-striped snapper (*Lutjanus viridis*)



In the swim-through at Submerged Rock

Cocos has a large population of marble rays. They are like little space ships and make good photographic subjects:



Marble ray, Gary Powell in background, Dirty Rock



Trio of marble rays in heavy current at Dirty Rock



Marble ray at Dirty Rock



Green sea turtle

I have seen many Pacific manta rays at Cocos, the encounters have not compared with those in the Revillagigedos, but they are always thrilling. One day we were having lunch on the Undersea Hunter, anchored in Chatham Bay, when someone noticed a manta on the surface right next to the boat. It stayed for several hours and allowed all of us to snorkel

with it, photograph it, and for some of our divers, to grab on and take a ride. It did not seem bothered by the physical contact or the attention:



Diver and lunch manta



Taking a ride with our lunch manta

Here's a photo of our "lunch manta" and his hitchhiking remoras that I made with a free-dive on snorkel:

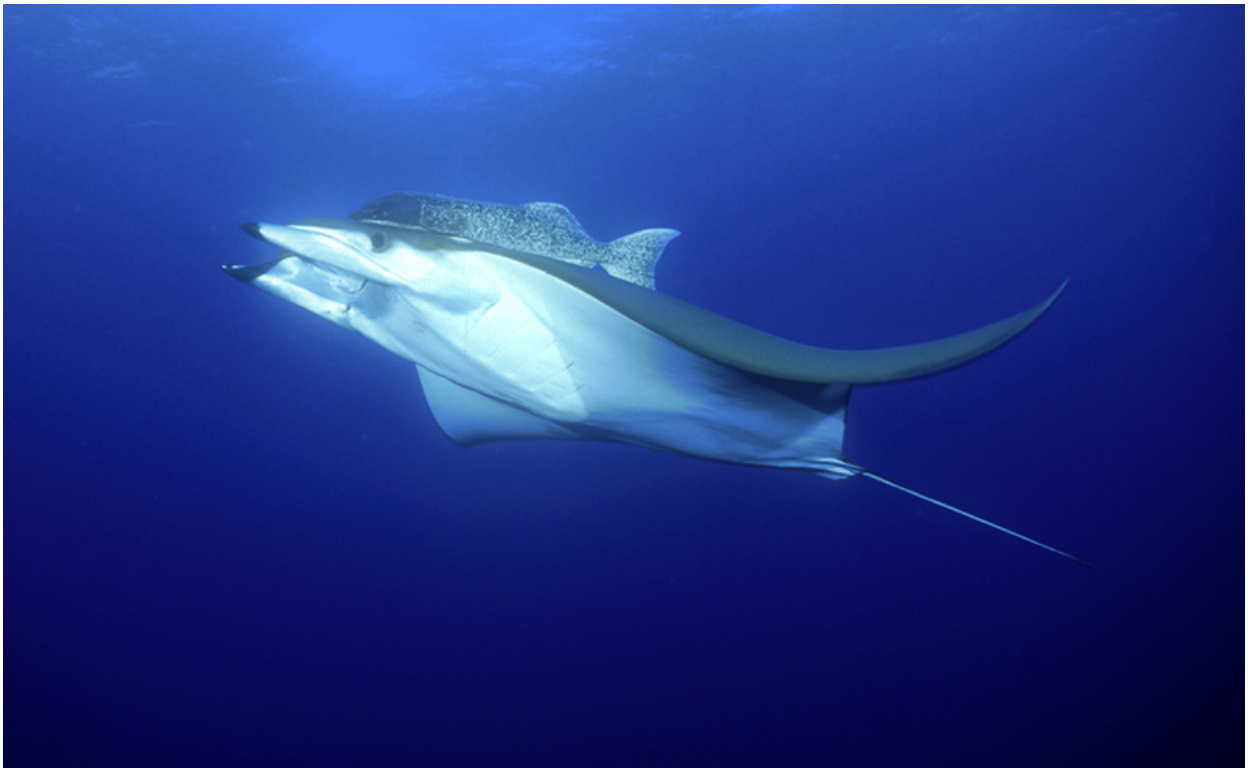


Lunch manta with remoras

Mobulas are smaller cousins to the big Pacific mantas:



Mobula at Alcyone



Mobula at Dirty Rock

Here's something that isn't photographed too often, a large yellowfin tuna. He swam right by me in open water after a dive:

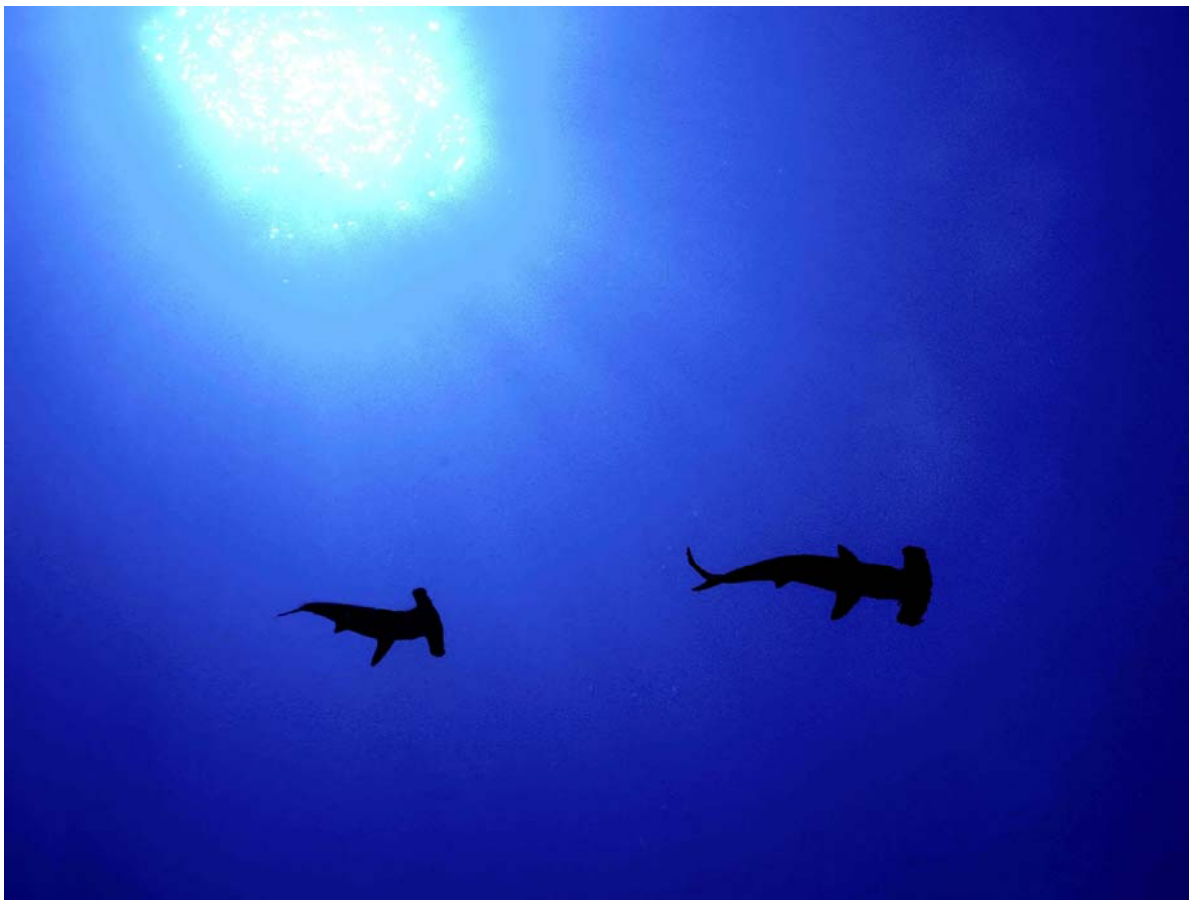


Yellowfin tuna

Most divers, including me, come to Cocos for the sharks. They are rarely disappointed:



Hammerhead shark school at Alcyone



Pair of hammerheads at Alcyone



Hammerhead at Manuelita



Hammerhead at Dirty Rock



Hammerhead at Dirty Rock

On one trip I noticed large numbers of hammerheads cruising near the bottom on the outside of Manuelita at about 130 fsw. Individuals occasionally left the school and cruised slowly up the rocky slope to about 80 fsw and paused, rolling to one side, almost stopping (stalling?) at a cleaning station. Clouds of barberfish would peck away at what appeared to be open mating sores. The sharks would swim as slowly as they could at the station, before circling away and descending to meet the school again on the bottom. I was able to wedge myself into the rocks slightly to the side and above the cleaning station and observe and photograph the amazing behavior. I'm sure I could have gotten closer with a rebreather but I still managed to get very close, without bothering them with my bubbles:



Hammerheads approaching cleaning station at Manuelita



Hammerheads cleaned by barberfish at Manuelita



Hammerhead leaving cleaning station

Second only to the hammerhead in numbers at Cocos is the whitetip shark (not to be confused with the more beautiful silvertip shark, see Chapter 5). Whitetips are kind of like the catfish of sharks—they are not as streamlined as the more classic “requiem” or *carcharhinid* species. They actually have little barbels on the sides of their mouths (thus the “catfish” thing), and they often lie on the bottom, sometimes piled up on top of each other:



Pregnant female whitetip



Whitetip missing top of dorsal fin



Whitetip



Whitetip pileup on bottom

Silky sharks are very beautiful and graceful, without doubt the boldest shark I have encountered. Unlike most other sharks, who could care less about you or who actively avoid you, silkies are very interested in what you are and will come very close to check you out. I have gently pushed them away many times with my fins, camera, and strobes. They are a medium-sized, open-water shark; most individuals at Cocos are about 4 to 6 feet in length. You don't see them on or near the reefs, only in open water away from any structure. I think their boldness comes from the fact that they feed mostly on schools of small open-water fish, and on large dead animals floating in the blue water. Any open-water "event" (like you bobbing on the surface) attracts them. I have never considered their behavior to be aggressive, just curious.



Silky shark



Silky shark



Silky shark



Silky with entourage

After ascending from a dive it is not unusual for the surface currents to carry the diver far from the dive site, where you end up floating in open water. All Cocos divers carry inflatable red “safety sausages” and whistles or air-powered “Dive Alerts” for such occasions, but even without those devices the panga drivers are extremely good at finding the divers on the surface. However it often takes 20-30 minutes of floating, or more, before you are picked up. On these surface floats large numbers of silkies often congregate around you and stay with you until the pickup.



Silky shark checking us out after dive

I always found watching this post-dive silky behavior exciting and beautiful, but it can be disconcerting for inexperienced divers and those who are uncomfortable with sharks. On one trip one of the divers, a very personable orthodontist from New Jersey and a new diver, was going to Cocos specifically to face, and hopefully overcome, his fear of sharks. He thought that diving at the sharkiest place he knew would help him get over his phobia. Kind of like someone with a fear of flying learning how to fly. On the first day of at the island my brother-in-law Gary Powell and I surfaced with him after a fabulous dive at Dirty Rock. Surface currents were strong and we were being swept away from the pinnacle into open water. Predictably, as we were floating along on the surface waiting for the panga, I noticed that there were about 30 big silkies cruising just below us at fin level.

The scene was surreal. Here we were, the three of us, bobbing along quietly in open water, 300 miles off the west coast of Central America, several miles from the main island, with no boat in sight and a big school of 6-8 foot sharks right below us. The Hunter was blocked from our view by the small outcropping of guano-covered rocks that give Dirty Rock its name. Unless they are very close, the two pangas are not easily seen when your eyes are

only about a foot above the water surface. Gary and I were not concerned; we had been in this situation before. The panga drivers know which direction the currents are running and where to look for us. They were undoubtedly busy with other divers and would get to us when they could. Rather than our dentist friend finding out about the sharks suddenly on his own, and going into shock or cardiac arrest or worse, I told him calmly and deliberately, kind of matter-of-factly, that there were lots of sharks right under us. His eyes widened and he dipped his mask into the water to check out the scene below. His head rotated from side to side as he took in the size of the gathering below him. He raised his head and looked at both of us with his eyes wide, damn near filling up his mask. The look he gave us can only be described as a mixture of fear and awe. He lowered his head and looked underwater again. Here this quiet, intelligent man with an intense fear of sharks was looking at his worst nightmare, about 30 big silkies brushing past his fins. Finally he looked up and softly uttered one of the most priceless, memorable remarks I have ever heard, *"Should I be worried?"*

Gary and I exploded with laughter, which I think both puzzled him and at the same time, eased his mind a little bit. When we could talk we told him no, don't be worried (yeh, right), just relax and enjoy it, push them away if they get too close. We all eventually survived, and were picked up shortly by the pangero. It was a wonderful, once-in-a-lifetime experience. I think as the week progressed and he spent more quality time with sharks, the therapy started kicking in, because his fear seemed to change to awe, and like the rest of us, he couldn't stop babbling about how beautiful and graceful sharks are.

In March of 1992 I made a Cocos trip which was right in the middle of a major El Nino event. The water was very warm, in the low 90s, and there were no sharks to be seen anywhere. Even the whitetips were absent. We thought they had gone deep, and they probably had, but if so it was deeper than we could go. I set my depth record on that trip, doing a bounce dive down to 160 fsw at Dirty Rock, but I didn't see a single shark. All was not lost, because early in the trip one of the crew found an orange frogfish at about 50 fsw on a rock at Manuelita, the small island just outside Chatham Bay where the Undersea Hunter normally anchored for the night. The frogfish was within easy swimming distance from where the boat anchored, and lacking sharks, it became the primary photographic subject for the week. Unfortunately for the frogfish, fortunately for the divers, the fish stayed in the same place all week, and was easy to find. It may be the single most photographed Cocos Island fish in history. Let's see, 14 divers, probably 15 frogfish dives for each diver, 36 frames with two strobes firing on each frame, $14 \times 15 \times 36 \times 2 = 15,120$, that's a lot of strobes flashing in one week. Particularly for an animal that can't close or blink its eyes. I made my contribution to blinding this beautiful and strange fish:



Frogfish at Manuelita, probably blind from all the strobes flashing

Chapter 5

Papua New Guinea

Of all the places diving has taken me, none has touched me more than Papua New Guinea (PNG). On the other hand, I believe there is no place on earth less touched by modern civilization than PNG. Going there is like stepping back 10,000 years. It is a trip into the Stone Age. There is nothing else like it. Arguably it offers the best diving in the world. There is no argument, however, that the combination of topside and underwater experience found here is unmatched anywhere. It is stunningly beautiful, all of it, the mountain rain forests, the river plains, and the coast and smaller offshore islands. There are people alive in PNG now who were born before their mountain villages had any contact with the western world². There are probably people living in PNG now who have **never** had any contact with the western world, other than jet contrails. There are parts of the country where pigs and seashells are the major units of currency. PNG has over 700 documented languages, more than 10% of the **world's** total. PNG has the best primitive art in the world. Some of it is applied to the artist's own bodies using paint, feathers, and **scars**.

PNG is an independent country, occupying the eastern half of the large island of New Guinea which is just north of Australia and just south of the equator. It includes a cluster of offshore, smaller islands, most off the northeastern shore in the Bismarck Archipelago. My first trip to PNG was in 1988. Coleen and I were part of a CIUPS group that chartered the dive boat **Telita**. We flew from Cairns in northeastern Australia to the PNG capital city of Port Moresby, spent a day in Moresby, and then flew to Kavieng, a small town on the extreme northwest tip of New Ireland Island in the Bismarck Archipelago. There we boarded **Telita** for ten days of diving around New Hanover Island. The flight from Moresby to Kavieng on Air Niugini, the PNG national airline, involved four stops, each one more eye-popping than the last. One of the first stops was at a town called Mount Hagen in the mountains in the Western Highlands Province. We got off the plane and wandered around the small airport. We saw men wearing grass skirts and bones through their noses. We knew we were not in Kansas.



Highlands man in traditional dress

² Connolly, B. and Anderson, R., *"First Contact,"* Viking Penguin, 1987

As I watched the scenery from the air on approach, and briefly walked around each little airport, seeing the people and the way they dressed (or didn't dress), I realized that this part of the world was very different from anything I had ever seen.



Women with colorful bilum bags at Tari Airport where airplane arrival is a big event



Women with bilum bags at airport gate



Road leading to airport



Flea market at airport



Clothes for sale

Regardless of how good the diving was going to be, and it was, I knew even before we got to Kavieng that I had to come back and see more of this magical place from above sea level. Eventually between 1988 and 2006 I made five trips to PNG, four included diving, one was a topside-only trip I made in 2000 with Pam. The diving trips included two in the New Hanover area in the northeast Archipelago out of Kavieng, and two in Milne Bay at the extreme southeastern tip of the main island out of Alotau.

There are two major topside areas of the country that **must** be seen, the Sepik River basin in the north and the mountain valleys in the highlands. The Sepik River drains the northern slope of the central mountain range flowing into the Pacific Ocean near the city of Wewak. Another major river, the Fly, drains the southern slope. The Sepik is bigger and more developed, with many villages along its 700-mile length. This development and population is perhaps due to early trade with the many Melanesian and South Pacific islands to the north. The best of the country's magnificent primitive art is created and traded along the banks of the Sepik.



Sepik River meandering inland from Wewak

I have made two trips on the river now, the first with Mike Watkins in 1990 on a comfortable, luxurious, but slightly bizarre three-story vessel known as the Sepik Spirit; the other ten years later with my wife Pam on the beautiful Melanesian Discoverer. The Spirit is a low-draft, jet-powered craft that was designed and built for use on the river and never leaves it. Mike and I flew into the Karawari Lodge airstrip on the river at Amboin, and both boarded and disembarked the Spirit after a short ride by skiff between the Lodge and the ship.



The Sepik Spirit

The Melanesian Discoverer is a large ocean-going catamaran, and our trip was one-way between the grass airstrip on the river, and the coastal city of Madang where the boat was based at the Madang Resort Hotel. This involved an overnight ride, at the end of the trip, on the ocean between the mouth of the river at Wewak and Madang:



Melanesian Discoverer



On short final to grass airstrip on Sepik River, Melanesian Discoverer on the river at the left



Unloading passengers at grass airstrip near river and Melanesian Discoverer

River views are breathtaking:



Scenic Sepik River view



Morning on the Melanesian Discoverer

Hundreds of villages line the banks of the river:



Sepik River Village

Transportation and trade on the river is mostly by dugout canoes:



Dugout canoe



Sepik River marina

Most villages have a “haus tambaran,” or “spirit house” where the men congregate to do men things and women (except for female tourists, of course) are prohibited. Architecture in the spirit houses is often spectacular:



Haus tambaran, center of male village society

Entering a spirit house for the first time is an unforgettable experience. You access the main floor, 6 to 8 feet above ground level, at one of several entrances, each with a short ladder. Inventories of the local artwork are stacked around the room. Groups of men are talking, sleeping, and engaged in various stages of crafting the art pieces made in that particular village. But the most extraordinary thing seen is a series of **fires** burning inside the spirit house. Each fire is contained within a metallic fire pit built into or resting on the wood floor. The normal daily outside temperature on the river is in the 90-100°F range, with high tropical humidity. It is stifling. In spite of that, the fires raise the temperature inside the spirit houses to at least 120°F. But believe it or not, the temperature isn't the most uncomfortable thing inside, it is the smoke. An acrid fog of smoke permeates everything,

making breathing almost impossible. But the men don't seem to mind the oppressive heat or the smoke. The reason is...mosquitoes. PNG is a high-risk malaria area. The river is plagued by swarms of mosquitoes, some the malaria-bearing *Anopheles* species. Even if they don't give you malaria, the bites are unbearable. The Sepik people have learned that smoke is a good repellent, and so they maintain a fire inside their living structures during waking hours. As oppressive as the heat and smoke is, it is better than being covered by mosquito bites. Anything is better than the mosquitoes.

Each village makes its own unique art; masks, baskets, bowls, jewelry, animal and human figures, etc., and sells them to visitors and to art wholesalers who have regular buying routes between the villages. One of the largest and in my opinion the best of these art wholesalers is a company called PNG Art, which maintains a large warehouse in Port Moresby. You can buy virtually anything that is made in PNG at PNG Art, and they are very honest and reliable. They ship anywhere in the world. A visit to PNG Art is almost as good as seeing the pieces on the river where they are made.

Many Sepik masks have a crocodile coming out of the mouth. It is a theme that runs through much of the Sepik art, where crocodiles are a big part of the culture:



Masks on display for sale



Sepik masks



Sepik masks

Another common theme is, well, the male sex organ:



Artist with spectacular Sepik figure

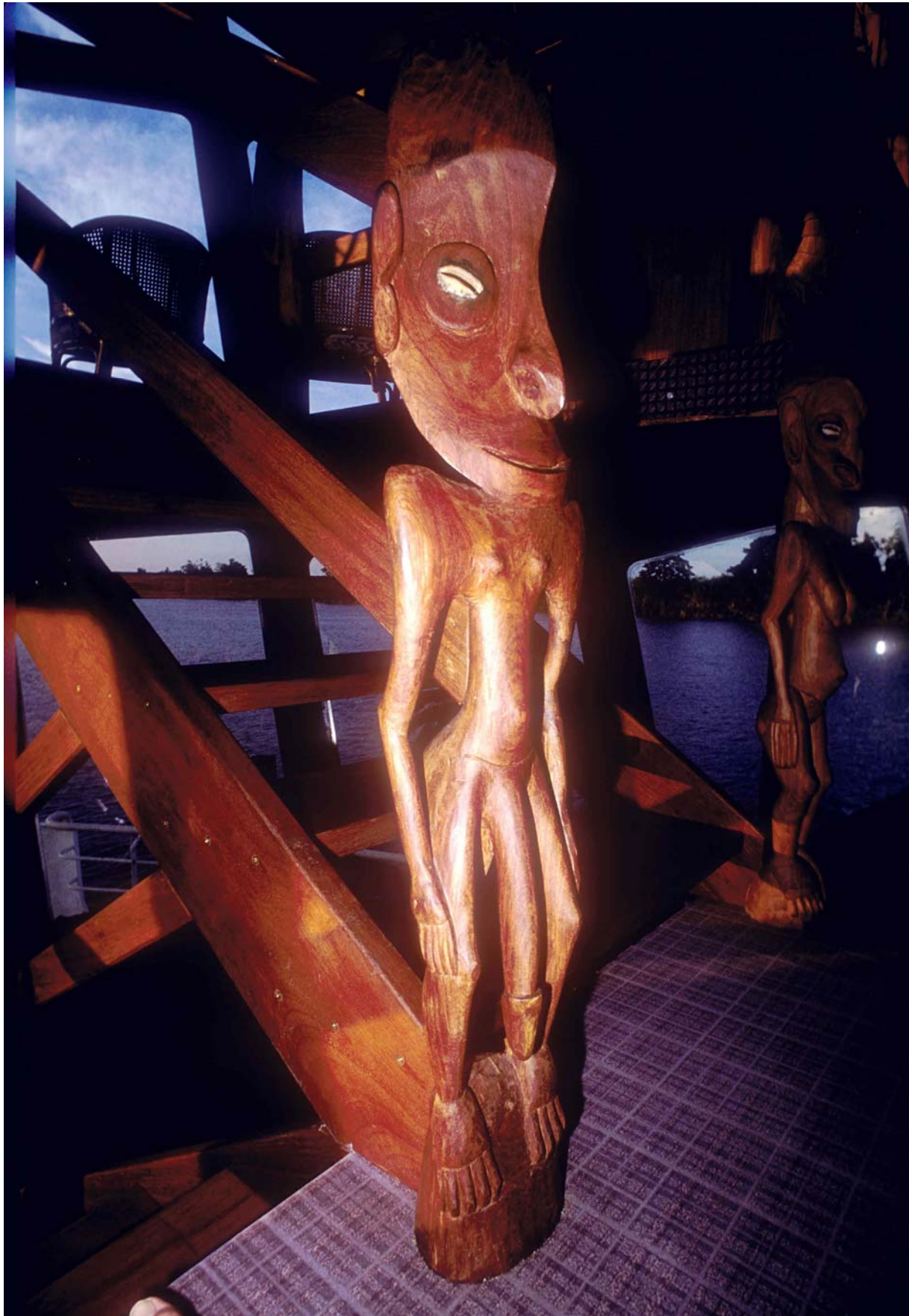


Father and son?

Similar emphasis on the same part of the male anatomy is seen in the built-in artwork on the Sepik Spirit:



Artwork on the Sepik Spirit



Particularly well-endowed wood carving on the Sepik Spirit

Continuing this theme, many Sepik River men wear penis decorations when they dress for ceremonies. They are made from large gourds or a woven straw-like material. They are a big seller on the river:



Penis decorations for sale at river village



Sepik men in ceremonial dress, man at left wearing penis decoration (I think)

Because of the abundance of hardwoods for creating masks, bowls, human and animal figures, and other art pieces, you don't see as much body decoration on the river as you do in the Highlands. However you do commonly see one type, the decorative scarring of men's backs as an initiation into manhood. The ritual is extremely painful (I am told), with ashes rubbed into the incisions to cause a mild infection and accentuate the scar. The scars are generally patterned to resemble the scales on the crocodile but I have seen other patterns. Here is a young Sepik man with a particularly elaborate scar pattern:



Sepik River man with initiation scars



Sepik river kids



Sepik River mother and kids



Flower girl, Sepik River

For me, the most fascinating part of PNG is the vast Tari Basin in the Southern Highlands. In a strikingly beautiful central mountain valley live some 40,000 Huli people, whose first contact with the outside world came less than 80 years ago. The Huli are gardeners (mostly sweet potatoes) and pig farmers. The pigs provide meat and are the standard of wealth in Huli society, used as a unit of currency. It is a male-dominated patriarchal society, where the women do most of the day-to-day gardening and pig-tending work and the men provide protection from potentially adversary neighbors. It's a pretty good deal for the men. Men and women, even married men and women, live separately, men in a central "spirit house" and women, children, and pigs in surrounding huts. Conjugal visits occur away from either domicile. The society is polygamous, and wives are purchased with pigs paid to the bride's family. The more pigs, the more wives and even more pigs—leading to more wealth and more status. A wonderful, moving study of PNG highland culture is Peter Matthiessen's book, *"Under the Mountain Wall"*³.

³ Matthiessen, P. *"Under the Mountain Wall: A Chronicle of Two Seasons in Stone Age New Guinea,"* Penguin Books, ISBN 0-14-02.5270-3, 1962



Huli woman with pigs



"Piggy-back"



Huli woman tending kids and pigs in Tari Valley

On the slopes of the mountains surrounding the Tari Valley is a magnificent facility known as the Ambua Lodge. It makes visiting the area a delight for the tourist. Transportation is provided between the airport and the lodge. Guests are accommodated in round grass-roofed huts with all the amenities. Meals are served family style, and tours to the villages in the valley are arranged every day. I stayed here on both of my Highlands trips, first in 1990 and then ten years later in 2000.



Ambua Lodge with Tari Valley in background

The Hulis lack the raw materials available to the Sepik River people for artwork, but they solve that by using their own bodies as canvases. Every social situation calls for a different type of body decoration, including paint, nose bones, feathers, animal skins, and giant human-hair wigs worn by the men (thus the name “Wigmen”). Seeing these people in ceremonial dress reminds one of a human coral reef.



Huli Wigman from Tari Valley in Southern Highlands



Huli Wigman from Tari Valley in Southern Highlands



Young Huli woman from Tari Valley in Southern Highlands

Huli kids in day-to-day life:



Huli boy



Huli girl with child



Huli boy practicing face painting



Huli kids

At one of the Tari villages we saw a “pre-wedding” bridal ceremony. Here is the bride:



Huli bride



Huli bride



Mother of Huli bride

When a husband dies, the widows go into one year of mourning. Shortly after the death, 365 strings of beads are hung around the widow's neck, and she paints her body with a chalky-white substance. Both indicate that the woman is in mourning. The white body paint is to make the woman less attractive and reduce temptations and advances from other men during the mourning period. Each day, one string of beads is removed. After one year of mourning the last string of beads is removed and the woman gets to clean off the white paint and seek a new husband.



Huli widow during one-year mourning period for departed husband

With increasing Western influence, the Huli culture is fading. The mix between the old and new cultures is now very apparent in the villages in the Tari basin. It is not uncommon there to see a Huli warrior, fully decked out in bright yellow and red body paint, hair wig, and nose bone, side-by-side with men dressed in Dockers and Rambo T-shirts.



Old and new at Tari airport

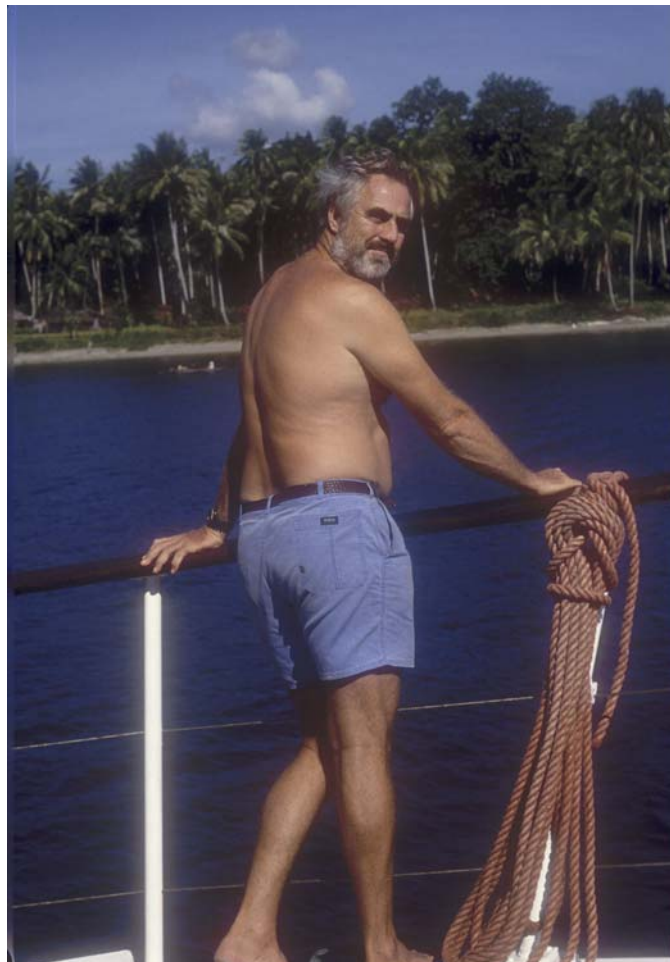
If you want to see this amazing part of the world the way it has been for centuries, you'd better hurry up. On January 26, 2000 during my last visit to the Tari basin I wrote the following in my log:

"Fewer men in traditional dress at Tari (town and airport) but saw many farther down the road towards Ambua. More missionaries and churches. First signs of begging from kids. Fewer pigs on the road. More organized shows in villages with more men and better photo opps."

Oh yes, I almost forgot, the diving. It's easy to get distracted in the Stone Age. My first three dive trips to PNG were on the classic liveaboard boat **Telita**, owned by the legendary Bob and Dinah Halstead. Bob, born in England but now an Australian citizen, and Dinah, a Papua New Guinean from Milne Bay, are the pioneers of PNG diving. The boat is named after their beautiful daughter. Bob and Dinah operated **Telita** for about 20 years until selling it to a large Australian dive outfit (Mike Ball). My last trip on **Telita**, in 1997, was after Bob had sold the boat and was one of its last cruises in PNG. Bob was on board as a celebrity guest.



*Dive boat **Telita***



*Bob Halstead on the **Telita**, New Hanover Island, 1988*

My fourth and last PNG dive trip (in 2006) was with Chris Newbert and Deda Wilms on the boat **Febrina**.



*Dive boat **Febrina** at Kwato Wharf, Milne Bay*

One of the delightful fringe benefits of PNG diving is the inevitable fleet of small outrigger dugout canoes that appears shortly after you anchor. This seems to happen anywhere, whether or not a village is visible. Silently they seem to come out of nowhere. Big ones and little ones show up, some with solo drivers and some with whole families. Some are just curious about us, but most are selling stuff, vegetables, fruit, artwork, jewelry, flowers. A cluster of canoes surrounds our boat for the entire time we are at anchor. Our boat crews almost always buy fresh fruit and vegetables from them. It is a true delight to watch all this develop.



Canoes in Milne Bay



The fleet arrives



Young boy selling bananas and jewelry



Sometimes the dogs come out with the family



Father and son, Milne Bay

Here's what the canoes look like from underwater:



*Canoes underwater, **Telita** at left, Milne Bay (note diver on swimstep)*



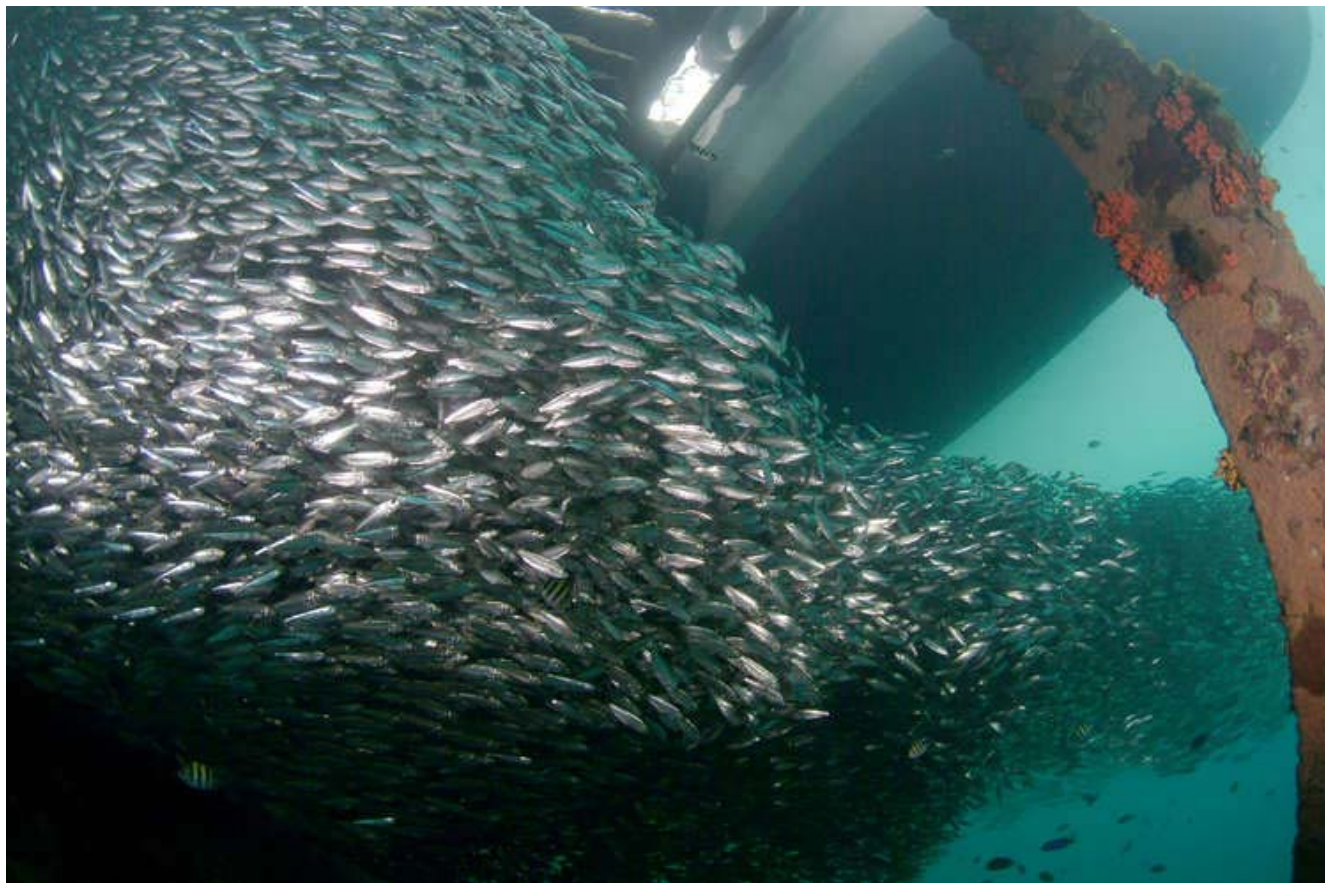
Diver under canoe, Milne Bay

From above water it is impossible to tell that a small wharf at Esa' Ala in Milne Bay is one of PNG's best dive sites, but it is. Here a small water-taxi boat is loading and unloading passengers:

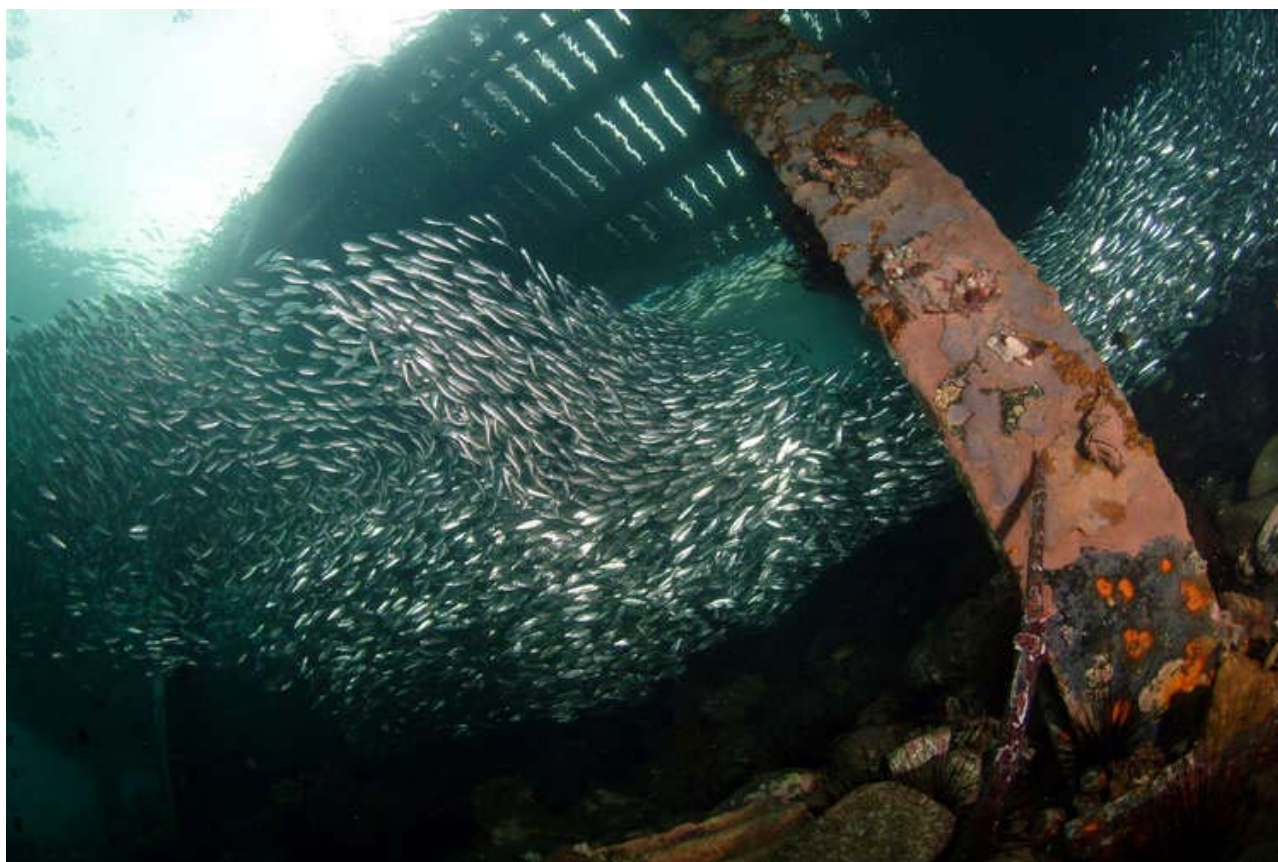


Esa' Ala Wharf above water

The attraction here is a huge, and I mean **REALLY** huge, school—no, **shoal** of small fish that is always under the wharf. I sat on the shallow bottom and fired off more than 100 frames as the shoal changed size and shape before my eyes. Is there a leader to this mass of fish life? Does one fish decide which way to go? One of life's unsolved mysteries. This is one of my favorite dive sites in the entire world. Photos from this place have won a number of major international underwater photo contests. For my photos here I used the Nikon 10.5mm fisheye lens. This is a wonderful lens for underwater work where there are very few straight lines and the corner distortion presents no problems. Here at Esa' Ala there are straight lines, the piling, and if the pile is near the edges of the frame the lens makes it look curved. But the 10.5mm lens, in my opinion, is the best way to show the scope of the fish and I don't think the distortion of the piles is too distracting.



Esa' Ala Wharf underwater, Milne Bay

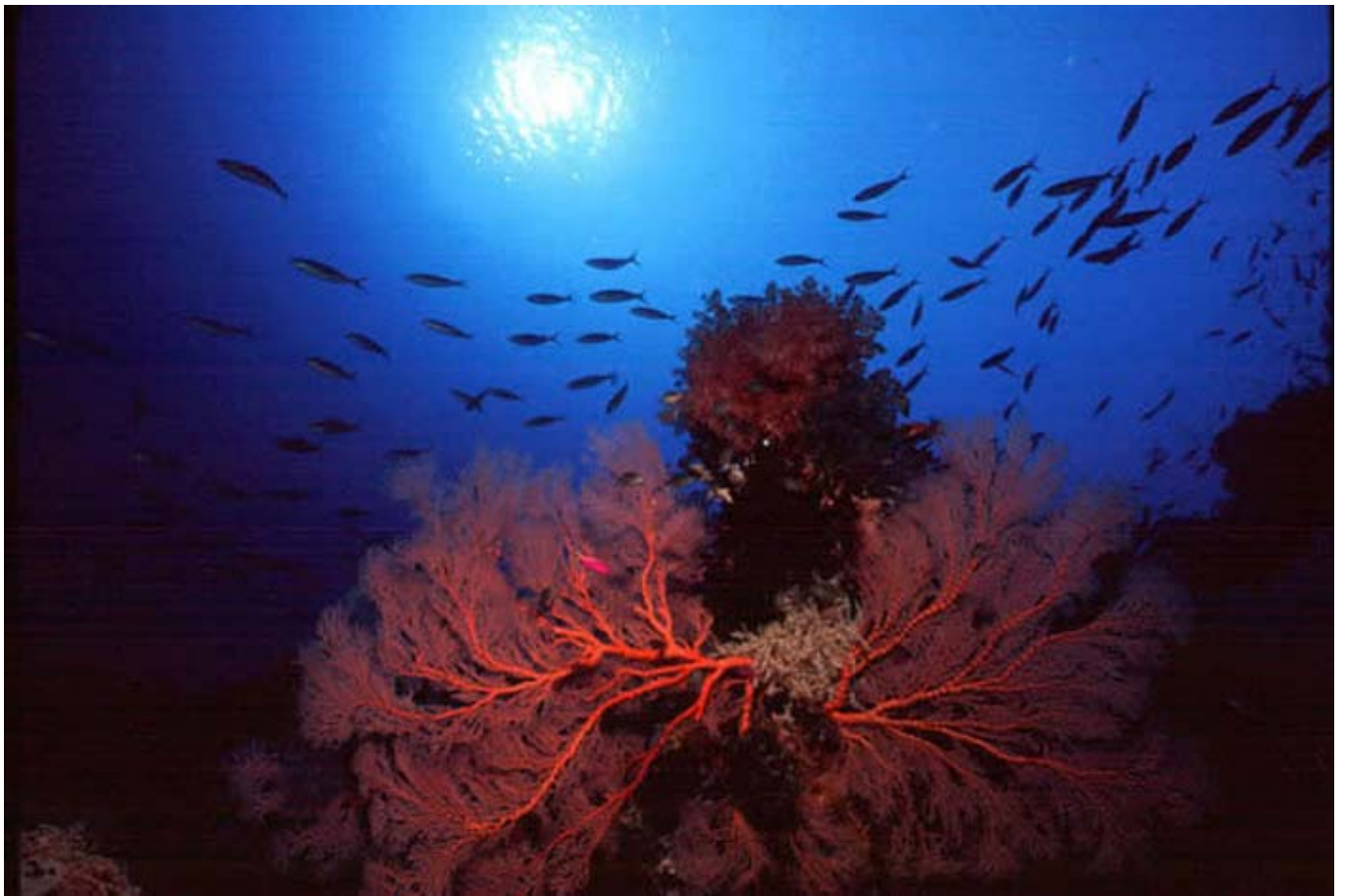


Esa' Ala Wharf underwater, Milne Bay



Fish warp, Milne Bay

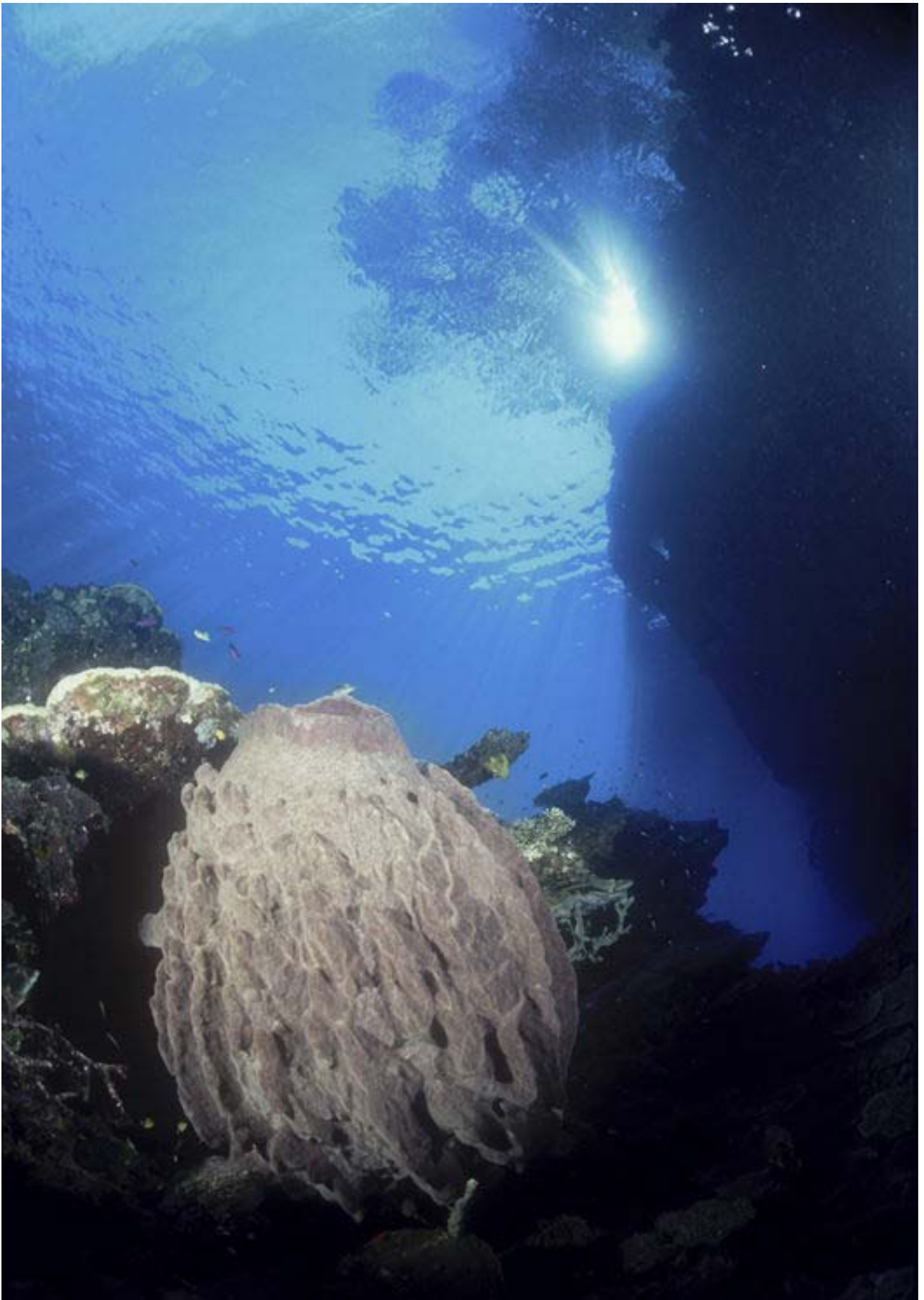
Wide-angle reef scenic panoramas are everywhere. The following image was taken in 1988 when I was trying hard to make my photos look like Chris Newbert's:



Reef scene, New Hanover Island



Reef scene, Milne Bay



Barrel sponge (note trees above water), Milne Bay



Morning in Milne Bay



Jewels, Milne Bay



Reef scene with nice stand of soft coral, Milne Bay

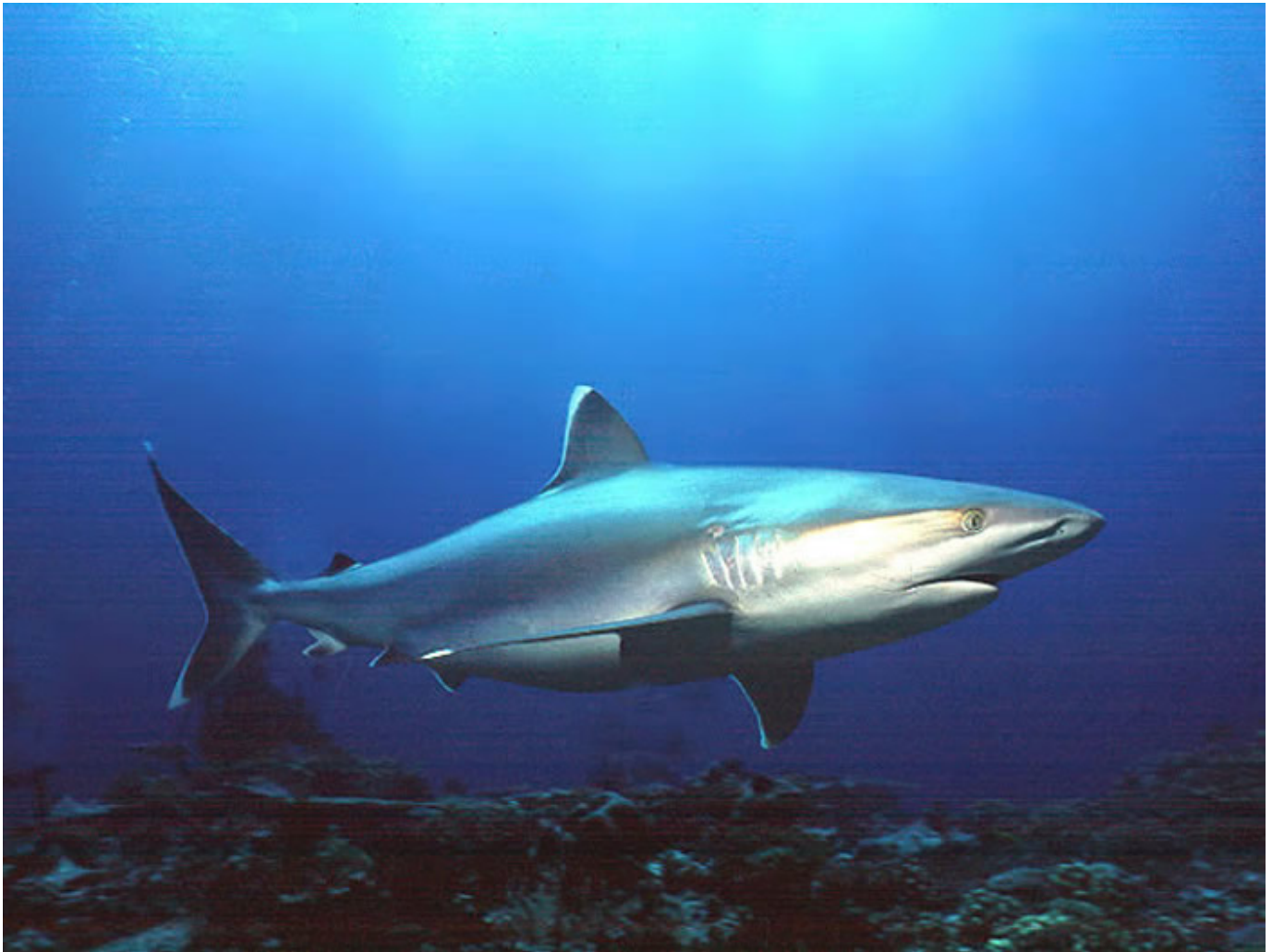


Reef scene, dive boat Febrina above, Milne Bay



Reef scene, Febrina above, Milne Bay

Bob and Dinah used to do a baited shark dive on a reef off of New Hanover Island. It attracted many silvertips, in my opinion one of the world's most beautiful sharks. I made this following image in 1990, and it was published in the *Nature Company Guide to Sharks and Rays*⁴:



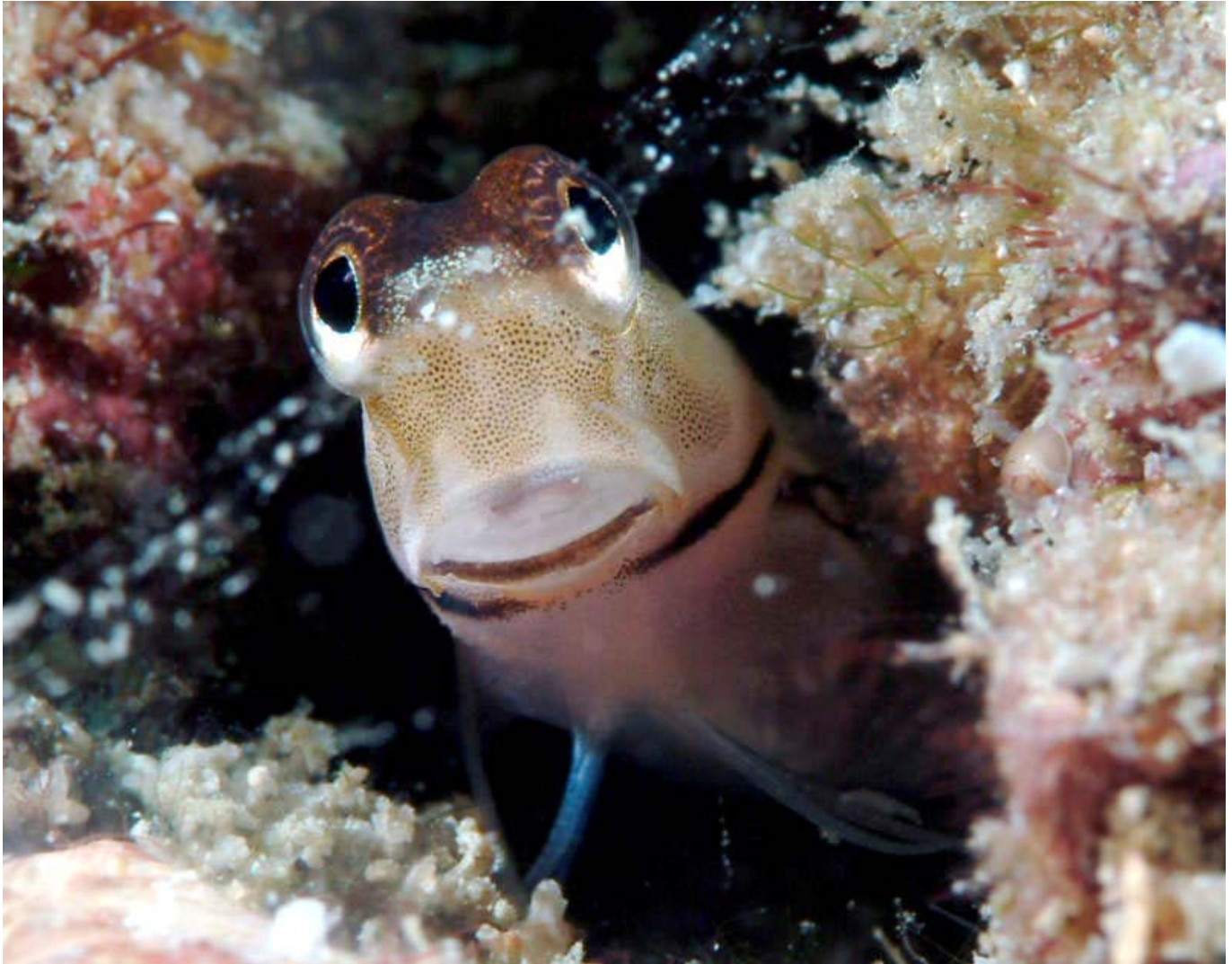
Silvertip shark, New Hanover Island

⁴ The Nature Company Guides, "*Sharks and Rays*," Time-Life Books, ISBN 0-7835-4940-7, 1997, p. 169

Fish life is abundant and unusual, especially the little guys:



Blenny, Milne Bay



Blenny, Milne Bay



Harlequin pipefish, Milne Bay

How's this for some spectacular camouflage?



Pipefish (above), leaf (below), Milne Bay



Harlequin pipefish, Milne Bay

And why no camouflage on this one?



Harlequin pipefish, Milne Bay



Pipefish

I've made several thousand photos of anemone fish. They are irresistible. This is probably my favorite:



Anemone fish, Milne Bay



Toadfish, Milne Bay



Santa Claus scorpion fish, Milne Bay



Lionfish face, Milne Bay



Rhinopias, Milne Bay (can you find the eye?)



Frogfish, Milne Bay



Cowfish, Milne Bay



Cowfish, Milne Bay



Two-spot gobies, Milne Bay



School of silver fish, Milne Bay



Saltwater catfish, Milne Bay

After my first **Telita** trip in 1988 I gave a print of this blue fire goby to Bob Halstead. He told me he had it framed and it now sits on his desk. I don't know if he was just shining me, but it was nice of him to say that nonetheless.



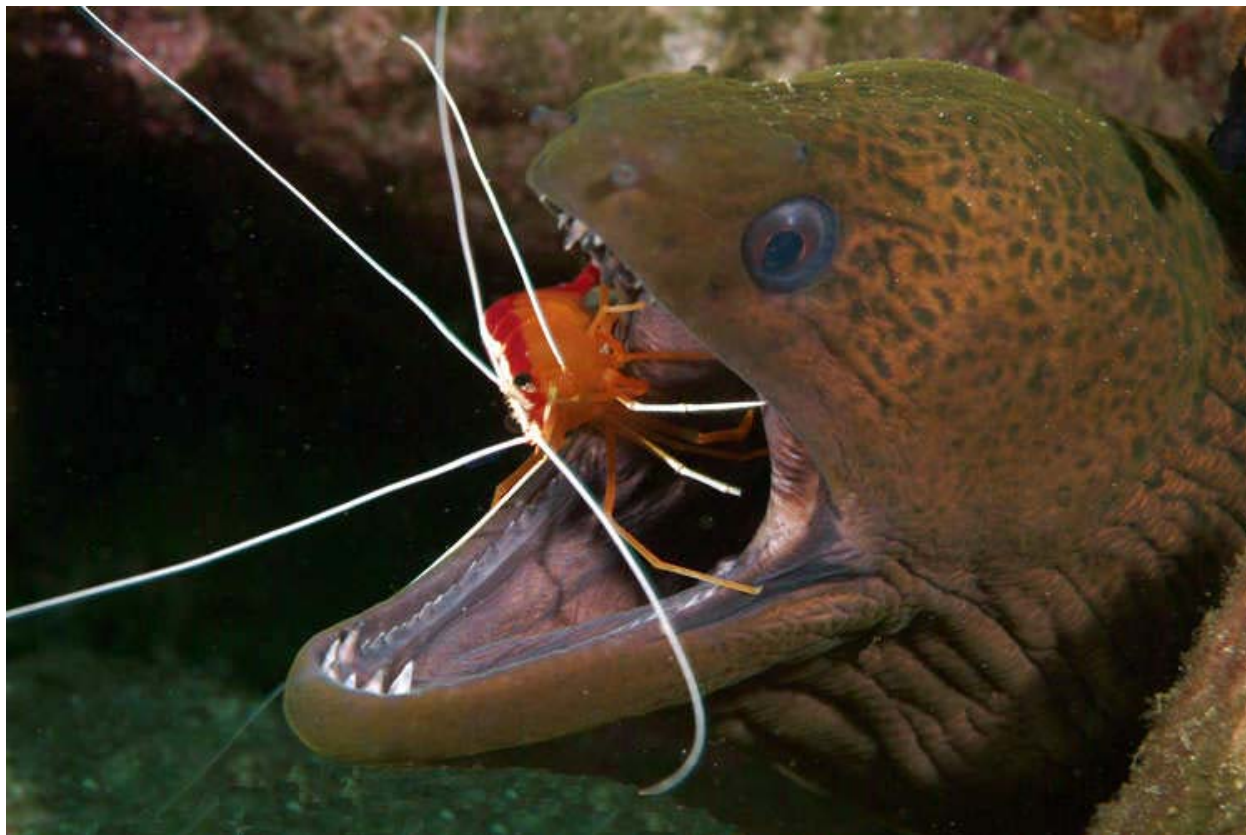
Blue fire goby, New Hanover Island



Snuggling eels, Milne Bay



Eels, Milne Bay



Shrimp cleaning mouth of moray eel, Milne Bay



Cuttlefish with eight perfectly folded tentacles, Milne Bay



Flamboyant cuttlefish, Milne Bay

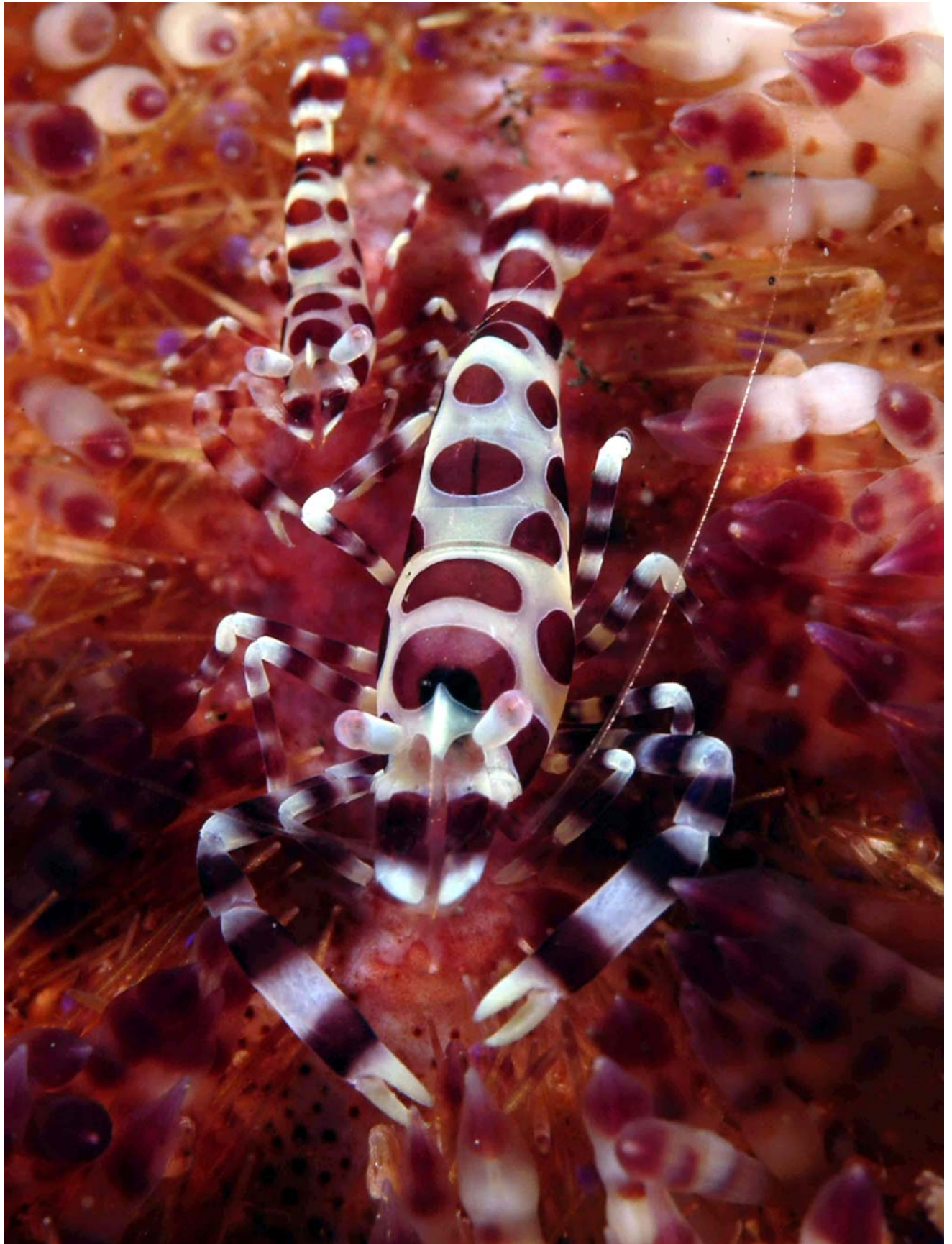
The next two photos are of the same small cuttlefish, made a few seconds apart. Note the color change:



Small cuttlefish (see color change in next photo), Milne Bay



This is the same cuttlefish as the previous photo, trying to fool me by changing color



Pair of Coleman's shrimp on fire urchin, Milne Bay



Imperial shrimp on sea cucumber, Milne Bay



Harlequin shrimp, Milne Bay



Crinoid shrimp, Milne Bay



Porcelain crab on anemone, Milne Bay



Hermit crab, Milne Bay



Imperial shrimp in fold of large nudibranch, Milne Bay

The variety of nudibranchs is astonishing, particularly at the muck divesites in Milne Bay. Here is the large nudibranch photographed with the Imperial shrimp in the previous photo:



Large nudibranch (about a foot long) from previous photo



Nudibranch, Milne Bay



Nudibranch, Milne Bay



Peekaboo nudibranch, Milne Bay



Nudibranch with Imperial shrimp, Milne Bay



Nudibranch, Milne Bay



Nudibranch, Milne Bay



Nudibranch, Milne Bay



Nudibranch, Milne Bay



Nudibranch, Milne Bay



Nudibranch, Milne Bay



Nudibranch, Milne Bay



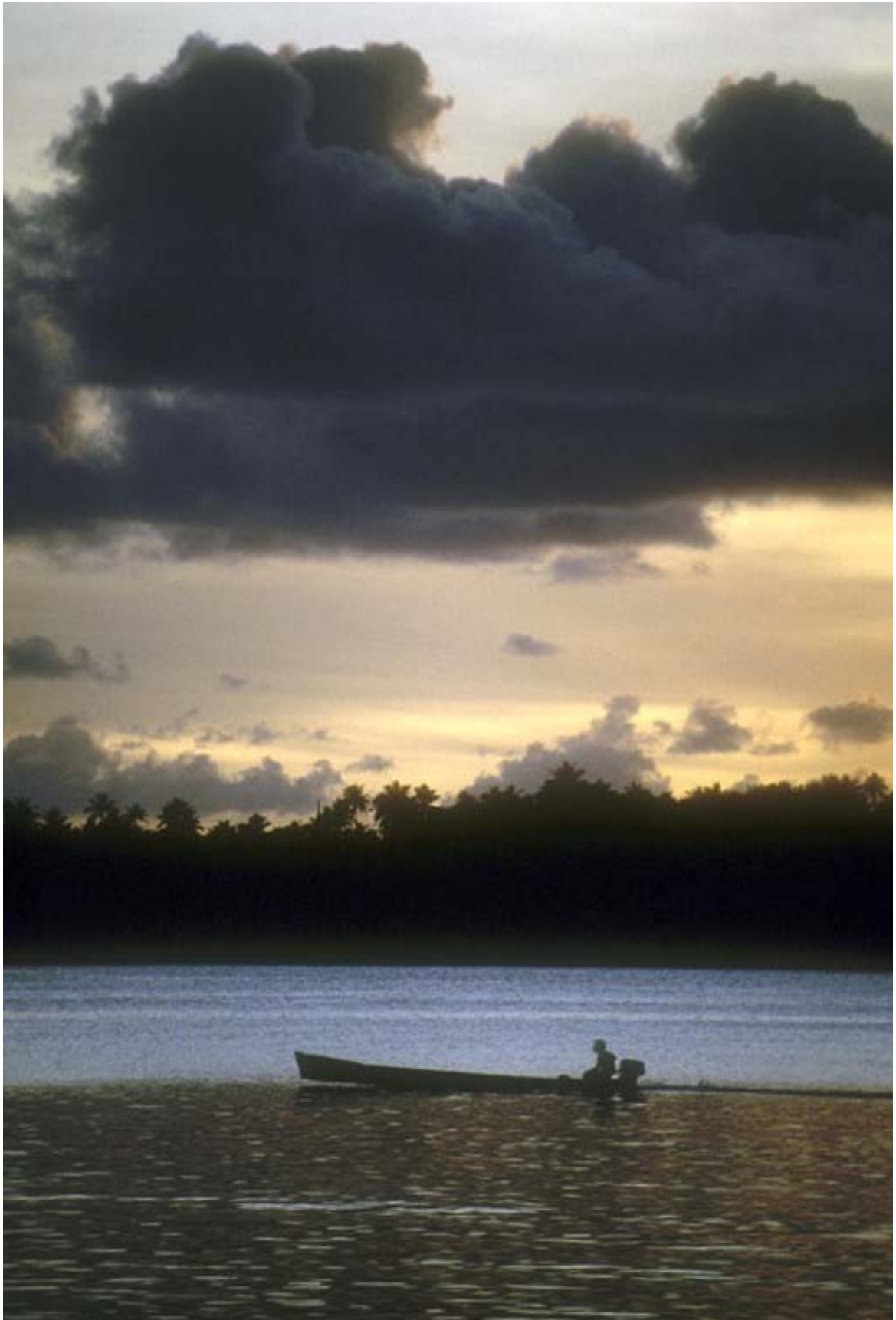
Nudibranch, Milne Bay

A highlight of the New Hanover Island **Telita** trips was the opportunity to photograph a living fossil, the chambered nautilus. At a known location midway through the trip, in the late afternoon the crew drops a baited trap to a depth of about 800 feet. When they haul it up in the morning, it almost always contains several live nautiluses. The unique design of the nautilus shell makes them resistant to the huge pressure change. It does this by removing water from the shell by osmosis, creating a vacuum inside. Thus there are no expanding gases inside the shell on the way up from 800 fsw, and structurally the shell resists the pressure at depth. Or so they say. It seems to be true, however, because I have seen it twice now and the animals do not seem to be affected. Each diver pair takes at least one animal with them down to about 60 fsw, has their photographic way with them, then releases them and watches them wiggle their way down to deep water again. It is a great experience and produces some good images of a rare animal:



Chambered nautilus, New Hanover Island

Papua New Guinea is truly the ***last place on earth***.....



Sunset, Kavieng, New Hanover Island

Chapter 6

Underwater Photography

It is hard to imagine a more difficult endeavor than taking pictures underwater. You have to be at least partially crazy to get involved in it, and if you are not crazy when you start, it is virtually guaranteed to make you crazy. First, you have to learn to survive in an alien environment. Before you even think about the highly specialized photographic equipment required, you have to learn how to safely breathe and move about underwater. That means you have to become a certified diver. The most important qualification required to become a good underwater photographer is to be a good diver. You can't worry about things like f-stops, depth of field, shutter speeds, exposure, point of focus, and other technical photographic stuff if you are not comfortable underwater. Things like breath and buoyancy control, awareness of time, depth and tank air pressure, must become second nature, like shifting while driving a car with a manual transmission.

Underwater photography, even with excellent diving skills, state-of-the-art equipment, and plentiful subjects, is still a very low batting average endeavor. You fail much more often than you succeed. That means that you discard a *lot* more images than you keep. But the occasional "keeper" can make up for all the throwaways. Underwater photography offers the highest highs, and the lowest lows of any endeavor I know. Everything in underwater photography is stacked against success. First, unlike taking pictures topside, you have a very limited amount of time to capture your image (before you have to surface or drown.) Whatever underwater subject you are seeking on each dive, you have to find it in less than an hour, you can't hang around all day waiting for something to appear. Second, from an equipment standpoint, you are working in a very hostile, corrosive environment. The basic camera mechanisms and electronics must be protected from *any* contact with salt water. This means sealed " housings " that contain and protect the camera itself, requiring intricate sealed control linkages between the housing and the camera buttons and dials, all subject to mechanical failure or leakage. The housing I currently use has 32 holes through it for control mechanisms, latches and ports, each with an o-ring to seal out the salt water, each subject to leakage. That's a lot of potential leaks.

Pam bought me my first underwater camera in 1980. She doesn't like to talk about that and rarely admits it, but it is in fact true. When asked about it, her typical answer is, "*what was I thinking?*" The camera was a Nikonos III, one of the first of the classic line of submersible 35mm underwater "viewfinder" cameras marketed by Nikon starting with the introduction of the Nikonos I in 1963. When describing a film camera, the dimension "35mm" refers to the width of the film strip, in millimeters, used in that camera. When referring to lenses, the dimension refers to the focal length of the lens (15mm, 20mm, 300mm, etc.) Lenses with short focal lengths (10.5mm, 15mm, etc.) are "wide-angle" lenses; lenses with long focal lengths (150mm, 200mm, 300mm, etc.) are "telephoto" lenses. "Submersible" means that the camera doesn't require a separate housing. All internal mechanisms and parts are sealed with rubber o-rings in the body of the camera itself. "Viewfinder" refers to the fact that the image is viewed not through the lens, like with single-lens-reflex (SLR) cameras, but through a viewfinder mounted above the lens. That means that what you see through the viewfinder is not precisely what the film sees when the shutter is open. This is referred to as "parallax." The difference in the two "views" is more pronounced the closer you are to the subject. Thus, with a viewfinder camera, it is more difficult to precisely compose a close subject than a far subject. With an SLR camera composition is precise at all distances because you are looking through the lens and your eye sees exactly what the film sees.



Nikonos III with 35mm lens (photo from Nikon archives)

The Nikonos III (introduced in 1975) was followed by a IV (1980) and a V model (1983), each with more electronic bells and whistles, each more vulnerable in case of a leak. The IV model was actually called the “IV-A” with the “A” suffix indicating that the camera had, for the first time, a built-in light meter with an automatic TTL (through the lens) exposure control system. I had a IV-A for a short period of time, but it was only produced for about three years before it was replaced by the V in 1983. I’m not sure what happened to my IV-A, I am a packrat and hardly ever get rid of my equipment no matter how obsolete. But there is, in fact, no IV-A on my shelf. Here’s what it looked like:



Nikonos IV-A with 35mm lens (photo from Nikon archives)

The Nikonos V was widely used by both amateur and professional underwater photographers for many years. I have owned four Nikonos V cameras and still have two today. The Nikonos cameras are magnificent pieces of equipment, reliable, and durable. Nikon made several high-quality interchangeable lenses for the “V,” the “standard” 35mm lens which can be used both in water and air, and three wider lenses, the 28mm, 20mm, and the classic 15mm, each corrected for use in water only. Nikon also made an 80mm Nikonos lens, but long lenses are of little use underwater and I don’t think I ever saw an 80mm lens outside of a camera store. All of the Nikonos underwater lenses had superb optics. Here’s a picture of the Nikonos V with the 35mm lens:



Nikonos V with 35mm lens (photo from Nikon archives)

When you are more than just a few feet underwater everything, even brightly colored things, look like they are a dull greenish gray. When you see blood underwater it looks green. I won’t go into the physics of that (as if I knew), but I ask that you accept it as fact. Shine a light on those dull-colored underwater objects, however, and the reds and yellows pop out. To bring out the beautiful colors underwater, photographers bring artificial light down with them. Artificial light is light that does not originate with the sun. The artificial light is produced by devices called “strokes,” and they are essential to most underwater photography. Underwater strokes come in various sizes and powers. Smaller, lower powered strokes are generally used for close-up, or “macro” photography, larger higher powered strokes are used for wide-angle photography. Power is provided by either regular batteries (typically AA) or custom rechargeable battery packs.

Strokes are physically attached to the camera or camera housing with a variety of articulated arms and brackets, generally made of aluminum, some of plastic. The arms and brackets allow precise positioning and aiming of the strokes. Electronically the strokes are connected to the camera system with waterproof cords. Most experienced underwater photographers use two strokes, one on each side of the camera. This allows even lighting

on the subject and avoids harsh shadows on one side. In my career I have used strobes from three companies, Nikon, Ikelite, and Sea and Sea.



Ikelite 50 "small" strobe – 4 AA batteries



Nikon SB105 "small" strobe – 4 AA batteries



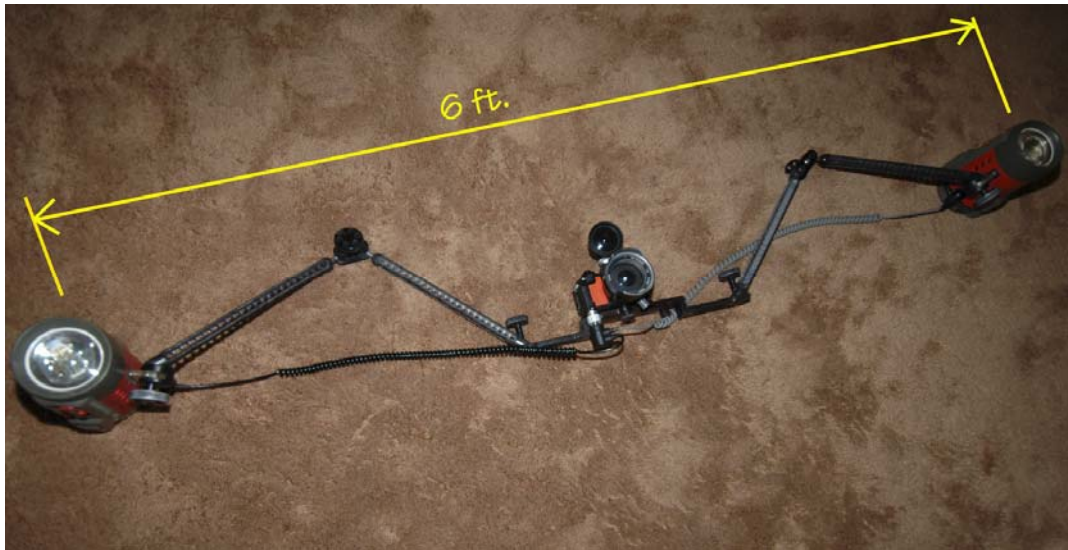
Nikon SB104 "large" high-powered strobe - rechargeable battery pack

Underwater photography has historically been divided into two broad categories, close-up or "macro" photography, and wide-angle photography. There is an intermediate category, fish photography, which combines aspects of both but is more closely related to the close-up category. The classic wide-angle lens for the Nikonos camera was the 15mm. It was a rectilinearly corrected lens, not a fisheye. That means that straight lines in the real subject stay straight in the image. The optics of the 15mm lens are fantastic. It was extremely sharp and had tremendous depth of field, almost everything from the lens to infinity was in acceptable, if not precise, focus, even at larger apertures. It came with a viewfinder that was mounted on a shoe at the top of the camera body. While precise composition is not critical with an angle of acceptance of 94 degrees, the viewfinder was still a great help. Some of the best wide-angle underwater photographs ever made were made with the 15mm lens.



Nikonos V with 15mm lens and dedicated viewfinder

For wide-angle images, before (and occasionally after) changing to a housed SLR system, I usually used the Nikonos V/15mm lens combination with two of the large, high-powered strobes, either the Ikelite 150/225 or the underestimated Nikon SB104. Contrary to a generally held and publicized opinion, I later learned that high-powered strobes are not necessary for good wide-angle underwater images. The subjects you want to light, or even **can** light, with the strobes are relatively small and close to the lens. Small strobes, properly aimed, are fully adequate for this purpose, but it takes some practice. To avoid illuminating particles in the water between the lens and the subject, I wanted my strobes to be as far from the camera laterally as I could get them, and aimed not directly at the subject, but straight ahead. This, if you do it right, creates a cone of non-illuminated space between the camera and the subject, lighting the subject but not all the stuff in the water in front of it. Here was my setup with two Nikon SB104's mounted on the longest arms I had. With the strobe arms extended, as shown in the photo, the strobes are slightly over 6 feet apart:



Nikonos V, 15mm, two SB104 strobes

This arrangement looks terribly awkward, and in air it is. In fact it would be virtually impossible to hold the strobes in this position in air, they are too heavy and the strobe arms would simply rotate at the clamped joints. To maneuver or carry this system in air you have to fold the arms in as shown in the photo below. However underwater the entire system weighs almost nothing, and is very easy to handle. You can hold it in place underwater with a fingertip. The strobes stay in the fully spread position with only modest pressure on the arm clamps.



Nikonos V, 15mm lens, SB104 strobes in folded "carrying" position

Wide-angle underwater photography can be stunningly beautiful, but it is by far the most difficult type of underwater image to produce. One of the reasons wide-angle underwater photos are so interesting is because, unlike other types of images, they almost always have two distinct subjects, one close and one distant, the background. Both of the subjects must be in acceptable focus and properly exposed. The extreme depth of field inherent in wide-

angle lenses helps to solve the focus problem, but the dual exposure is another matter. The close subject, often a fan, crinoid, sponge, soft coral, etc., is illuminated with artificial light from the strobes. The background subject, the water column or surface, sunburst, reef wall, kelp forest, huge school of sharks, etc., is lit with natural light from the sun. This involves two separate but related exposures, one for the strobe-lit close subject and one for the ambient-lit background. This takes considerable thought, particularly when you are trying to stay alive underwater. It is done by metering the ambient exposure for the background. That establishes the correct aperture, since the shutter speed will be set, either manually or automatically, to synch with the strobes (it will normally be 1/60, 1/125, or 1/250 sec depending on the camera). Knowing the aperture, the appropriate strobe power setting is determined based on the distance between the strobe and the close subject. The shutter speed has virtually no effect on the strobe-lit exposure. The strobe fires in about 1/30,000 of a second. If the subject or the camera is not moving excessively it doesn't matter whether the shutter is open for 1/60 or 1/250 of a second. Newer cameras can determine both exposures for you automatically, and normally they do it very well, but it has always been helpful for me knowing what is involved if I ever had to do it again manually.

Close-up or macro photography underwater is much easier technically, but it requires more skill in knowing, finding, and stalking your subjects. To overcome the problem with precise focusing on close subjects using Nikonos viewfinder cameras, some very clever people invented a system using extension tubes and framers. The extension tubes are attached between the camera and the lens, which greatly increases the focal length and decreases the minimum focus distance. The minimum focus distance on the Nikonos 35mm underwater lens, without extension tubes, is 2.75 feet (33 inches.) With extension tubes this can be reduced to less than 2 inches. A wire "framer" is attached to the bottom of the extension tube with a nut on a stud. The framer has two vertical "prongs" at precisely the minimum focus distance, separated by a distance just wider than the width of the image at that distance. This ensured that the vertical prongs of the framer did not appear in the image. Different sized framers are used with different lenses and extension tube lengths for different subject sizes and distances from the lens. Photographically, using extension tubes and framers is easy; everything is preset above water before the dive. The lens is set at the appropriate focus distance (generally infinity) and small aperture (generally f16 or f22), and the strobes are pre-aimed right at the framer. Now all you had to on the dive was to turn everything on, find a subject which would allow you to place the framer around it, and press the shutter. Whatever was right inside the framer when you released the shutter was always precisely in focus and properly exposed. Easy, right? Any subject of the right size, and which could be positioned inside of the framer, could be nicely photographed with a tube/framer system. Here's what the extension tube and framer system looked like:



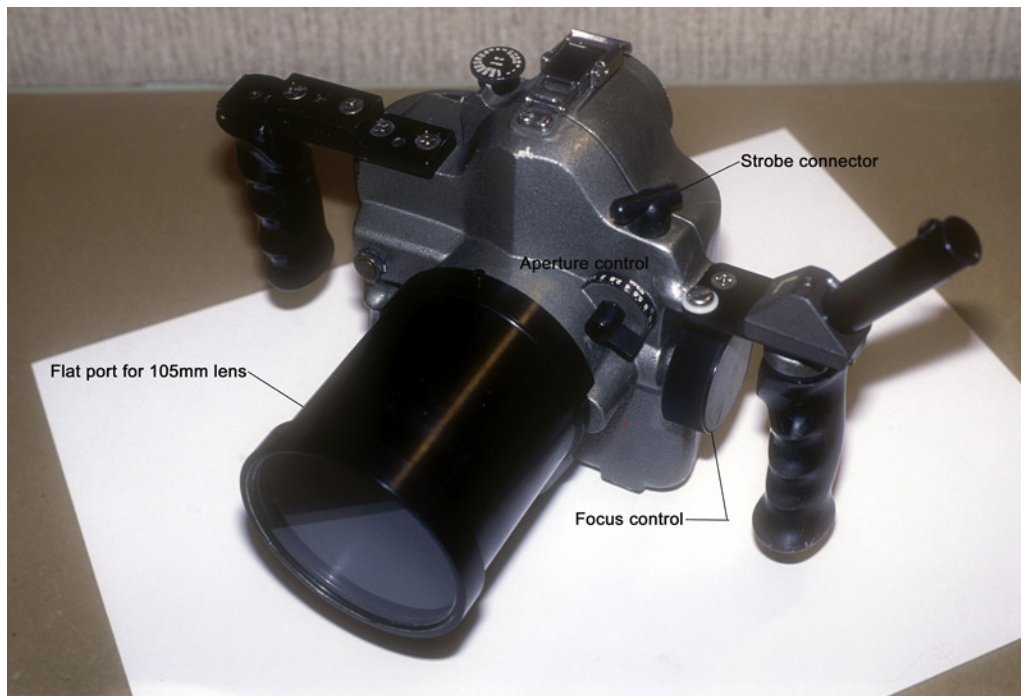
Extension tube and framer system

In the photo above, there is an extension tube between the Nikonos V body and the 35mm lens. The 3:1 framer is attached to the bottom of the tube by a stud and nut. The lens is preset at f22 and focused at infinity. That results in everything in the plane of the framer being in precise focus. The two small Ikelite 50 strobes are aimed directly at the framer. A modeling light, tremendously valuable for locating subjects in dim light, is attached to the shoe on top of the camera and pointed directly at the framer. The modeling light is the blue thing directly above the camera.

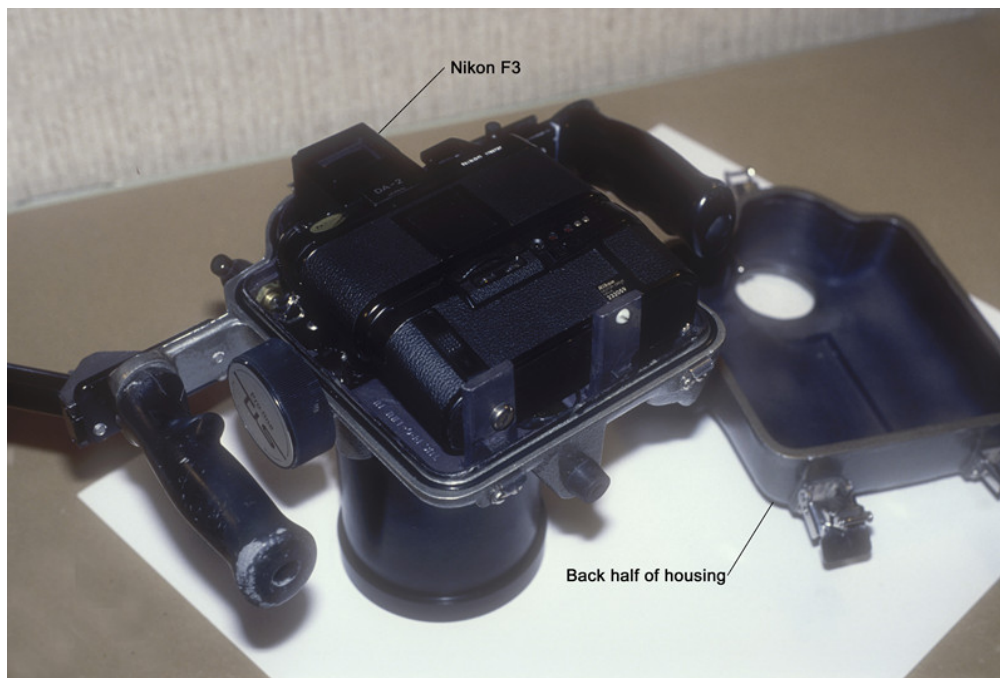
In the days when film was the only photographic media, I thought that everyone starting out in underwater photography should begin with tubes and framers. That was because every image, whatever the subject was, would at least be technically correct, i.e., anything in the framer would be properly exposed and in focus. Confidence could be built, and the photographer could start to get a feel for what water does to light. Plus, you could get some extremely good photographs with tubes and framers, as long as the subject would accept the presence of the framer. Tubes and framers have produced many publishable-quality photographs of relatively stationary and/or fearless subjects like nudibranchs, corals, anemones, and some types of fearless (or retarded) small fish. However I am not aware of any tube/framer setup that is compatible with the viewfinder “point and shoot” digital cameras that are now used underwater, so my advice about starting with tubes and framers is probably no longer valid.

The problem with tubes and framers, of course, is that not everything lets you put a framer around it. Primarily for that reason, like most “serious” underwater photographers, I eventually changed to a housed SLR system. That means a land SLR camera with interchangeable lenses, mounted inside a waterproof housing. External controls on the housing, linked internally to the actual camera controls, allowed the camera to be operated from the outside of the housing. Connections on the housing were provided for attaching

external strobes to the camera inside. The housed system I selected was a Nikon F3 camera (with attached motor drive) in an aluminum housing made by a company called Tussey. I had flat ports for the Nikon 55mm and 105mm lens, and a dome port for the wide-angle 20mm lens.



Tussey housing for Nikon F3 camera, front



Tussey housing with back opened showing camera

The F3/Tussey combination was my primary system for about five years in the late 80s and early 90s, for both close up and wide angle work. Since it did not offer autofocus or automatic TTL strobe exposure control, all of my strobe photography during that time period was done with manual settings. Because of that, I learned a tremendous amount about

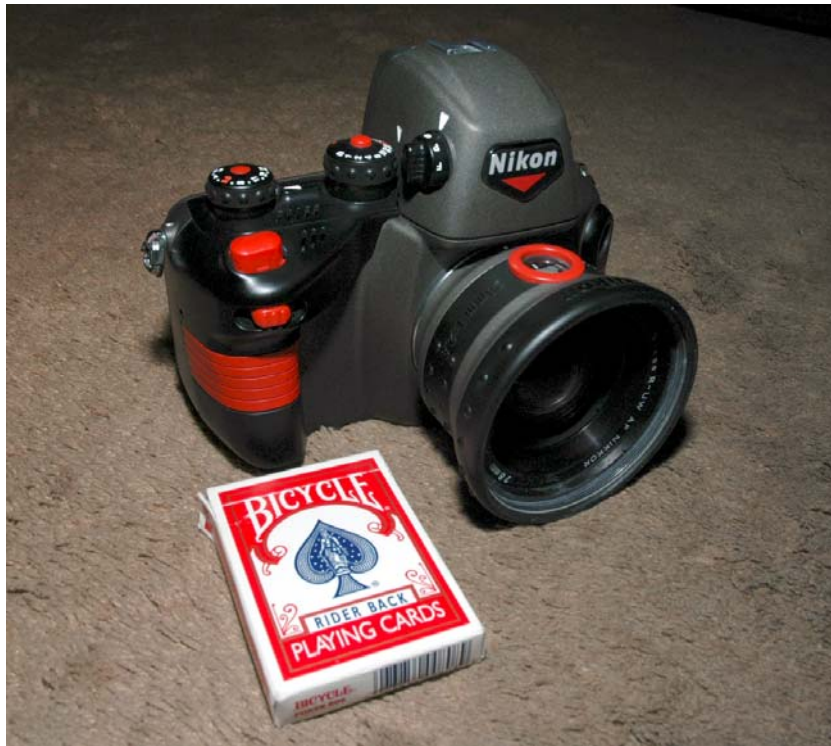
artificial light exposure control which has always served me well. Every serious photographer should master manual exposure control before you set that dial to “TTL” or “Automatic” and let the camera make all the decisions.

In 1992 Nikon introduced the world's first submersible underwater SLR camera, the Nikonos RS. “RS” stood for “reflex system,” meaning that it was a true single-lens reflex camera that could be taken underwater without a separate housing. Nikon eventually made four lenses for the RS, a 28mm, a 50mm, a 20-35mm zoom, and a 13mm fisheye. A third-party 2X teleconverter was available that could change the 50mm into a 100mm. The RS was a magnificent piece of equipment, and it was my primary, virtually my only, underwater system for about 12 years—from 1992, the year it was introduced, to 2004 when I went digital. I bought my first RS camera in 1992, the year it was introduced, and I bought another one in 1996 on the day Nikon announced they were discontinuing it. The RS system had pretty much everything the underwater photographer could want—self-contained without a housing, autofocus, automatic TTL flash exposure control, great lenses, and a huge viewfinder. So why was it a big commercial bust, marketed for only four short years?

The main reason that the RS was not a commercial success for Nikon was that it was extraordinarily expensive. The body alone sold for about \$3,500, and the lenses ranged from about \$1,000 for the 50mm and the 28mm, to over \$3,000 for the 20-35mm zoom. As I mentioned, a third-party 2X teleconverter was sold by a German company which would convert the 50mm to a 100mm, but it was also expensive (about \$1,200) and had limited availability. A full RS system, body, lenses, strobes, arms, brackets, could easily set you back \$10,000, and this put the RS simply out of reach for many divers. The cost of the RS system severely limited its market.

In my opinion, another serious drawback to the RS was that Nikon never made an RS lens in the 100-105mm range, which many photographers, including me, considered a necessity for macro work. Another thing that bothered many users was the excessive underwater weight of the RS system. With strobes, arms, and brackets attached the system weighed over 4 pounds underwater. This is significant enough to affect the weight you carried on your belt. Many divers, women in particular, complained about their wrists tiring in just holding and aiming the RS. The weight never bothered me, my wrists and arms were strong enough so that this never became a factor, and in fact I considered the weight somewhat of an advantage in making the camera system more stable underwater. But the excessive weight was consistently listed as a disadvantage of the RS system.

Finally, some of the early RS camera bodies flooded. I don't think the percentage of floods was high, but any significant flooding in a camera that expensive was unacceptable. Nikon quickly modified the hinged back and o-ring configuration to address these early floods, but the stigma of these expensive bodies flooding persisted. I never flooded one, but I know it did happen.



Nikonos RS with 28mm lens



Nikonos RS with 50mm lens



Nikonos RS with both backs open

For all of its glitches, real or perceived, the RS system worked for me. I absolutely loved it, and as I said, used it virtually exclusively for more than a decade. Which brings us to the digital photography revolution.

The whole nature of photography has now changed with the introduction and evolution of digital imaging. The advantages of digital photography are enormous, it is so much fun it should be illegal. There are, in my opinion, several things offering much less fun that **are** illegal. The quality of digital images is now so good that it is indistinguishable from film, and that includes looking at the images on a computer or looking at a print made from a digital image on an inkjet printer. For underwater photographers, there are two huge advantages, the most important being the ability to make virtually unlimited numbers of images on a single dive. With film, you are limited to 36 frames on a single dive, unless you take down more than one camera, and most photographers simply don't do that. With digital cameras and high-capacity storage media you can shoot several hundred high-resolution images on every dive with a single camera. With film, almost every one of my dives ended when I ran out of film. Now my dives generally end when I am low on air or I need to pee (you don't pee in a drysuit and I am one of those divers who thinks it is bad protocol, albeit feasible, to pee in a wetsuit). The second giant advantage for underwater photographers is the ability, also available to topside photographers of course, to briefly review the image immediately after you record it. Admittedly the view you get of the image in the small monitor on the camera is not exactly like looking at it on a large flat-screen computer monitor, nonetheless it can give you a lot of instant information and feedback about composition and exposure that you don't get with film, and that information is tremendously valuable.

So after 25 years of taking pictures underwater with a variety of film cameras I converted to digital in 2004. I use a Fuji S2 Pro SLR camera which accepts all my Nikon lenses and accessories, in a Subal FS2 housing (dome and flat ports) with two Sea and Sea YS-90DX strobes. I also occasionally use two Nikon SB105 strobes with this system. I use Nikon

10.5mm, 12-24mm zoom, 60mm, and 105mm lenses with the appropriate ports. I am grateful to my old friend, mentor, and world-class professional underwater photographer Marty Snyderman and to Fred Dion of Underwater Photo-Tech in Derry, New Hampshire, for all the advice they gave me about equipment. Here's what my system looks like:



Subal FS2 housing for Fuji S2 Pro digital SLR camera, dome port (photo from Subal website)



Subal housing, Fuji S2 Pro inside with Nikon 60mm lens, 2 Sea and Sea YS-90DX strobes, ready to hit the water

And finally, permit me a few closing thoughts. Underwater photography has been the most creative, and the only really *artistic* thing that I have done in my life. Certainly some of the engineering work I did was innovative and, therefore, creative. But it was creative in a scientific, heavily technical way. Photography has been my art. Unquestionably there is much engineering involved in underwater photography, and I have to admit that I always loved fiddling with the equipment, greasing o-rings, testing and setting everything up, whenever I got ready for a trip. It was almost as much fun as taking the pictures. Note that I said *almost*. I guess that's why I devoted so much time here to document the photographic equipment I have used over the years.

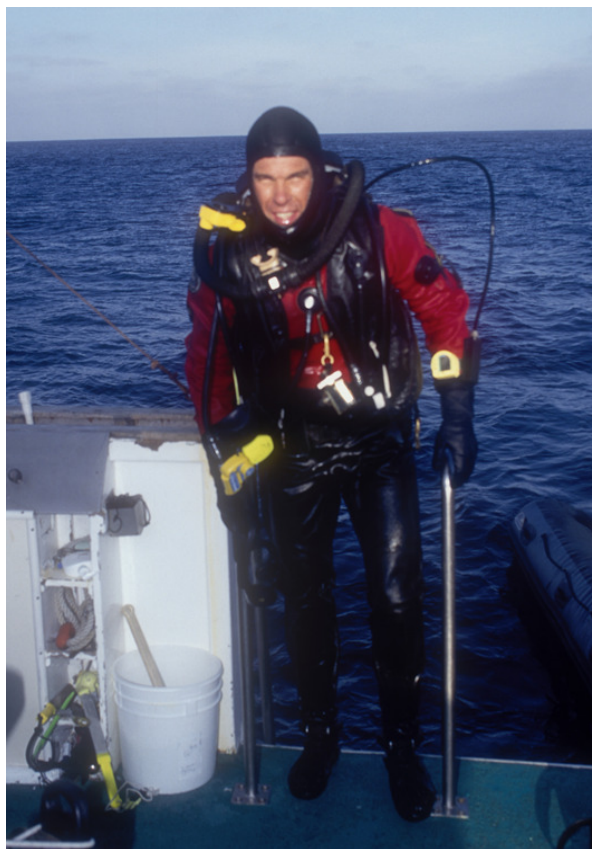
Underwater photography has opened my eyes to an amazing and stunningly beautiful world. A world right here on our planet, and yet we know less about it than we do about outer space. Underwater photography has led me to some of the most wonderful, fascinating places on the face of the earth, and it led me to a treasured relationship with my daughter Coleen. I wrote this so that my grandkids, and their kids...could experience some of the beautiful and amazing things I saw underwater, and read, in my own words, how I described them and felt about them. If some of this in any small way inspires them, or anyone who reads this, to become divers and underwater photographers, or just to appreciate the oceans more, this effort will have been worthwhile.

Chapter 7

Everything I Know About This Stuff I Learned From...

My first mentor in the field of underwater photography was Howard Hall, the famous marine film-maker and still photographer. That was long before I knew Howard personally. I started taking pictures underwater in the late 1970s. I was learning largely by trial and error, and after firing off maybe 5,000 images I finally got a few that were scientifically identifiable. When that happened I was hooked forever. In 1985 I bought Howard's book, *"Guide to Successful Underwater Photography,"*⁵ first printed in 1982, next in 1985. In the book's foreword Ron and Valerie Taylor pay tribute to Howard's work, *"Now, Howard Hall has written a book telling everyone a way to take underwater photographs that's better than any other way and in a language that's clear, to the point, and easily understood."* That was an understatement.

In simple, straightforward terms Howard explained the fundamentals of how to take a good picture underwater, primarily by showing a series of 33 actual photographs he had made, and then explaining how he made them. He did all that in a way that was not overly technical or pretentious. He introduced the concept of "close-focus, wide-angle photography," which literally revolutionized the field of underwater scenic photography and is used now by virtually every professional and "serious amateur" underwater still photographer. This was a truly "honest" how-to book. Howard didn't hint at things like other authors did, giving up just enough of the secret to keep you interested but holding back the really good stuff as a teaser for the next book.

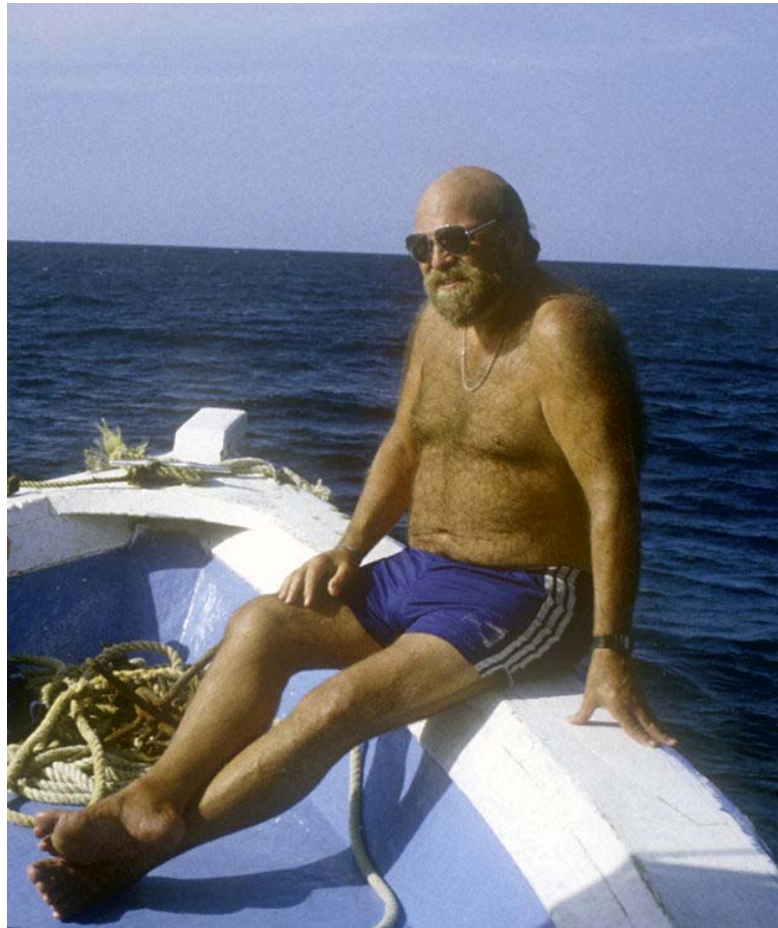


Howard Hall, Anacapa Island, California, dive boat "Truth," 1995

⁵ Hall, H., *"Guide to Successful Underwater Photography,"* Marcor Publishing, ISBN 0-932248-03-9, 1982

In this book he actually offered valuable, practical secrets of underwater photography. I still consider it the best underwater “how-to” photography book ever written. Reading this book was a major influence in my development as an underwater photographer. Later I actually met Howard personally and had the opportunity to dive with him and his wife Michele while they were filming an episode of their wonderful video series and book, “*Secrets of the Ocean Realm*”⁶. Watching the way he worked underwater was a great thrill and a further inspiration.

My first flesh and blood mentor was Jim Cooluris. Jim was the founder of the *Channel Islands Underwater Photographic Society* (CIUPS), a group of talented divers and photographers based in Oxnard, California. I met Jim and a group of CIUPS members by coincidence in 1985 on a dive trip in the Sea of Cortez on the old “*Baja Explorador*,” one of the first liveaboard dive boats in the world. As a result of that meeting I joined CIUPS and was an active member for about ten years. Jim has vast experience with diving and underwater photography, and he shared it freely and generously:

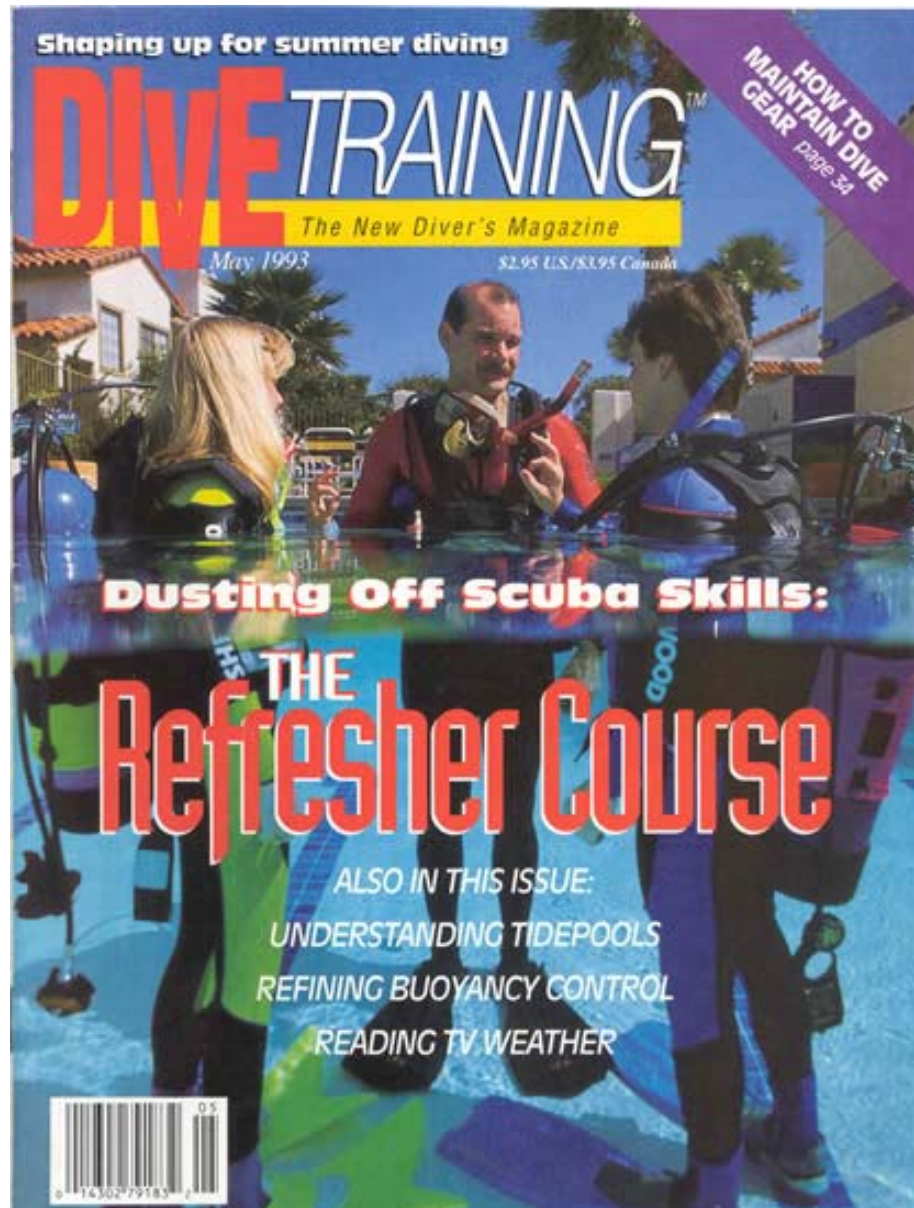


Jim Cooluris in Roatan, Honduras, 1987

I developed many friendships with the club members; however two CIUPS members in particular taught me much about making pictures underwater. Neither was a professional underwater photographer, but considering their talent, each could have been. The first was John Dyer. An extremely competent diver and world-class photographer, I consider John to

⁶ Hall, M. and Hall, H., “*Secrets of the Ocean Realm*,” Beyond Words Publishing, Inc., ISBN 0-7867-0453-5, 1997

be among the finest underwater photographers in the world. I am surprised that he never “turned pro.” His work is magnificent and compares favorably with that of the masters like Newbert and Hall. Like them, he had an artistic style that was wonderful and unique, and a rare insight and sensitivity to marine creatures and the ocean environment. Much of what I learned from John came from watching him work on CIUPS dive trips, mostly in California waters but also on a few warm-water trips we did together. He was always giving with his time and knowledge when I would ask him questions. Once I asked John to be a model for me in a cover I was shooting for Dive Training Magazine. Here he is as the “instructor” on the May 1993 DTM front cover, teaching my son Dirk and my daughter-in-law Kristen how to “dust off their scuba skills:”



John Dyer, center, a formidable instructor and underwater photographer

My other CIUPS mentor was Mike Watkins. Mike, like John, was a superb diver and an excellent underwater photographer. Mike’s photography was outstanding although I don’t think he was as serious about it as was John. He taught me a lot about equipment and technique. He also told me, accurately, where I could find *simnias*, the little red California

marine snail that makes one of the best underwater subjects around. I knew I was accepted by the CIUPS “in-group” when Mike told me how to find *simnias*. I will always be grateful for that; those tiny red snails were the subjects of some of my favorite photos. Mike and I got to be good personal friends and we traveled together on many dive trips around the world. He taught me the often-painful art of beach diving in California. Eventually Mike’s interest in underwater photography waned and he turned more to hunting. He always had a freezer full of lobster and halibut filets. He tried to teach me hunting, but I was a bad student. I had the thrill of seeing him take a large halibut at Zuma Beach once. Unfortunately we drifted apart over the years but I will never forget his friendship, wisdom, warmth and humor, and all the things he taught me in the early part of my underwater photography learning curve.



Mike Watkins and two big bugs from San Nicolas on the PEACE, late 1980s

Two professional photographers were major mentors and became good friends, Marty Snyderman and Chris Newbert. I met Marty on a caged blue shark trip he led out of San Diego in the late 80s. Hearing him talk and watching him work the sharks made me realize

that he was something special. I think Marty's main interest is film but he is an outstanding still photographer. He is a prolific writer, and although I have known him personally for many years, much of what I learned from him came from his articles in various diving magazines and publications. I also attended several of Marty's lectures at dive show seminars. Like Howard Hall, Marty doesn't sandbag. He tells you how to do it in no uncertain terms.



Marty Snyderman (left) being tasted by blue shark (right), off San Diego, 1988

Years ago I signed up for a humpback whale trip Marty was running in the Silver Banks area of the Caribbean north of the Dominican Republic. He and I both missed our flight (the last one) out of Miami to Puerto Plata where we were to have boarded the boat. Having no chance to catch up with the boat, we pondered our fates. Here we were in Florida in February facing a week with nothing to do. We could have just gone back home, he to San Diego, me to LA. However we decided to make the most of it and we ended up in Homosassa Springs photographing manatees in the Crystal River. Along the way we caught a spring training game in Winter Park (we are both big baseball fans and ex-college players.) In spite of the bad start, it turned out to be a fun week. I got my best manatee photos ever, and Marty got some that he has published many times. Marty wrote a magazine article about our Florida misadventures turned adventures which he called "*When Life Gives You Lemons, Make Lemonade.*"

Marty and I once made an interesting trade. He used over forty of my photographs in the second edition of his beautiful book "*California Marine Life.*"⁷ In return for the use of the photos, he let me dead-head for a week as an observer with his crew making a film on shark

⁷ Snyderman, M., "*California Marine Life,*" Roberts Rinehart Publishers with Monterey Bay Aquarium, ISBN 1-57098-127-2, 1998

behavior⁸ on the great boat “*Undersea Hunter*” at Cocos Island in Costa Rica. **By far** I got the better part of that deal.

More than any other person, Chris Newbert influenced how I tried to take pictures underwater. I strived, no; I **ached** to make my pictures look like his. I never succeeded, no-one has (with the exception of his wife Birgitte (Deda) Wilms), but his advice and guidance clearly made my photography better. Most people never meet someone who does one thing better than anyone else in the whole world. In knowing Chris, I have had that opportunity. He is, in my opinion, simply the best underwater photographer in the world. His mastery over the art and science of underwater photography is unmatched.

I first heard of Chris in 1985, shortly after he published his classic book, “*Within a Rainbowed Sea*.”⁹ I read a few glowing reviews of the book in the dive magazines. At that time I was starting to make some decent underwater images myself, and was pretty impressed with my own abilities and what I thought was my vast knowledge of who was who in the field. Newbert was an unknown (to me), and I read the reviews with some skepticism. How could anybody I hadn’t heard of be as good as these critics said he was? The answer came quickly. Chris was doing a “book tour,” promoting “*Within a Rainbowed Sea*” by presenting slide shows to dive clubs and underwater photo groups around the country. Through a connection with someone at CIUPS he scheduled a show for the club in Oxnard. I attended. Nothing about underwater photography was ever quite the same for me. I was blown away by the quality of his images, his knowledge of the marine life they depicted, and the techniques he used to make them. Of course I bought the book. I savored every photograph, every word of the beautiful prose Chris used to describe them. Yes, he can write too. I had never seen anything like his photography. Chris’s photography was both intimidating and inspiring. Intimidating because it showed me how far I had to go; inspiring because someone had already been there. I became a lifetime Newbert disciple.

I first got to know him personally when Mike Watkins and I signed up for a Hawaii trip on the Kona Aggressor on which Chris was advertised as the photo pro. Chris did this as a favor for the Aggressor Fleet to promote the new boat. Chris offered his multi-day photo course on this trip, and Mike and I eagerly attended each session. We also watched him work underwater. Chris formed a travel company called Rainbowed Sea Tours, which runs limited-capacity underwater photo trips on the best boats in the world’s greatest locations. Chris and Deda personally lead and host each of these trips. I have now done Rainbowed Sea trips with them to the Red Sea, the Galapagos Islands, the Solomon Islands, and Papua New Guinea. I cannot express in words how important his advice, instruction, encouragement and friendship have been for me in my efforts to make good underwater photographs. Here are Chris and Deda enjoying a 1992 sunset in the Red Sea:

⁸ Snyderman, M., “*Secret World of Sharks and Rays*,” PBS NATURE series, 1998

⁹ Newbert, C., “*Within a Rainbowed Sea*,” Beyond Words Publishing Company, ISBN 0-681-29908-8, 1984



Chris Newbert and his wife Birgitte (Deda) Wilms, Red Sea, 1992

The Author

Ken Bondy has been diving and taking pictures underwater for 30 years. He has logged more than 2000 dives in the world's greatest dive destinations. He lives in Southern California with his wife Pam and his English bulldog Sarah. He is retired from a long career as a structural engineer specializing in the design of concrete building structures.



Ken Bondy (photo by Amos Nachoum, Cocos Island)

A low-angle, upward-looking photograph of a giant kelp forest. The image captures the silhouetted stalks and leaves of the kelp against a bright blue background. Sunlight filters through the dense canopy at the surface, creating a series of bright, starburst-like light patterns that illuminate the water and the plants below. The overall effect is one of a deep, sunlit underwater world.

“Underwater its clear, cold waters reveal forests of giant *Macrocystis* kelp, the world’s fastest growing plant, often getting to be one hundred feet tall. The tops of the kelp plants, taller than the water is deep, collect at the surface in amber clusters called “canopies”. On sunny days, shafts of sunlight pierce the golden canopy like daylight starbursts.”

Ken Bondy