ABALONE DIVERS: A VANISHING BREED?

Fifty years ago the diver was king, a swashbuckling pioneer of the last frontier with a chance to strike it rich. Now, plagued by vanishing abalone and returning sea otters on the California coast, he is lucky to make a living.

We were two hours by fast boat from Santa Barbara harbor, idling along in 60 feet of water near Ford Point on the backside of Santa Rosa Island, that sun-browned land lump in the middle of the Channel Islands chain. Rudy Mangue, a commercial abalone diver for over 20 years, swam along the bottom tied to the boat via air hose. Jimmy Finch, also a 20-year veteran diver, steadied the craft over Rudy's bubble trail, simultaneously maneuvering the stern away from the air hose and out of the path of a compressor-drowning swell. The procedure, a throwback to the early days of abalone diving, is called live-boating.

Live-boating in rough seas is tricky, but it covers a lot of bottom quickly. Rudy and Jimmy wanted this convenience to locate a reef Rudy had harvested 15 years ago, then overflowing with abalone but since worked out. Rudy is president and Jimmy is treasurer of the California Abalone Association, a Santa Barbara based group representing most of today's commercial abalone divers. The CAA had leased the bottom in this area from the California Fish and Game Commission. Commercial divers planned to restock it with baby abalone, but first we needed the exact coordinates of the spot. Rudy's only map of the bottom was his memory. Yet, like a man going home, he remembered the landmarks—the character of the reefs, the lay of the kelp beds. He knew we were close.

Suddenly, he catapulted out of the water and landed on deck, sprawled over the engine hatch. Rudy is a big man, slow-talking, with an ambling gait

Opposite: Old-timer Glen Bickford remembers the days of hard-hat gear, when he could shuffle across the ocean floor and gather up to 800 "abs" in two hours. The 1960s brought new equipment, many more divers, and a steady decline in the number of abalone. Above: Today commercial divers like Win Swint (left) and Lad Handelman (right) are counting on efforts to restock the supply. If all goes well, they'll harvest a percentage of the results in about five years.

punctuated by continual hitching of the pants. He flies only in emergencies—this time to escape a thousand-pound shark.

The white shark population is increasing along the California coast, thanks to the proliferation of its prey—protected marine mammals such as elephant seals, sea lions, harbor seals, and sea otters. Rudy's shark came at him from low against the bottom, probably attracted by the air bubbles. When it got within arm's reach, Rudy punched at it with his abalone bar and sprinted for safety. The shark was closing in when he surfaced.

The story tumbled out in hyperventilated bursts, Rudy's eyes wide as plates. But by the end of it he was grinning like a boy who had scored another coup on the cookie jar. He guffawed, exclaiming, still windless, "Boy, was I scared!"

After the shark attack the men decided to move up the line and look for another spot to restock. By day's end we had found a good one, and every abalone boat within earshot knew about the white shark—how Rudy had called its bluff

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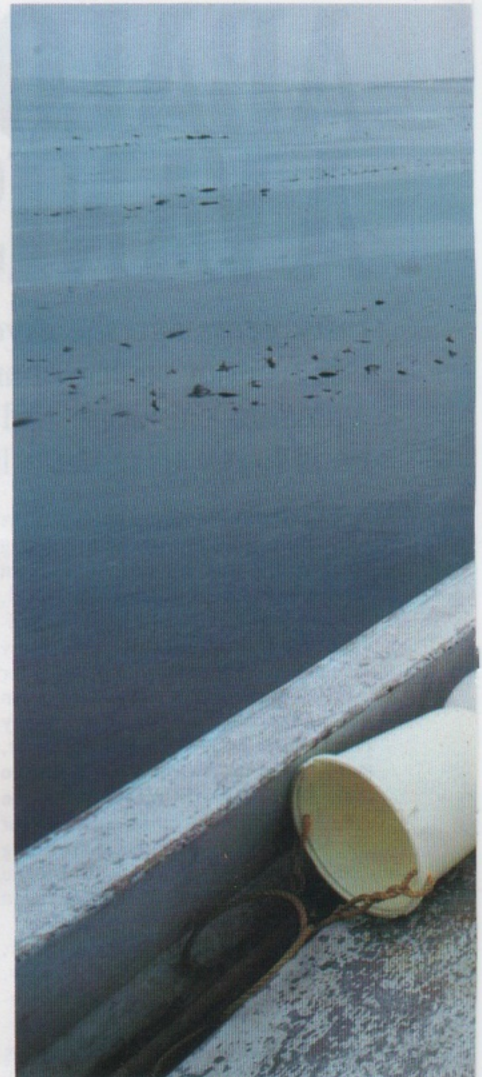

Top: A commercial diver often spends six or more hours a day underwater searching reefs and rock outcroppings. Most days he goes home with only a few dozen abalone to show for the effort. Above: Off the Channel Islands, a diver for the California Abalone Association prepares to hand plant a juvenile on a site leased from the California Fish and Game Commission.
Above right: Jimmy Finch remeasures his abalone on deck before stowing them in the live well, where circulating water will keep them alive and fresh for several days. A well full of abalone is a bonanza at close to $100 a dozen. But when Jimmy's catch is small, the price barely covers fuel, boat maintenance, and expenses.

and escaped, really no big deal, just another day diving abalone. But in the anchorage that night, sipping wine and playing poker in the cramped cabin of Jimmy's boat, Rudy admitted that live-boating had probably saved his hide. Maybe his life.

Abalone divers rarely live-boat anymore; the cost of fuel is too high. Instead of working directly beneath a moving boat, they anchor on a spot and explore all the bottom they can reach within 600 feet, the length of air hose attached to a boat-mounted compressor. The technique is called dead-boating; the equipment, hookah gear. Today's diving life is a far cry from the early days of the industry, when a few thrill seekers jumped into the sea to explore the last earthly frontier and seek their fortunes.

California's abalone-diving fishery began in 1897, when Japanese immigrants imported divers and hard-hat gear from home to haul tons of the succulent giant sea snails from the depths. Dried and sliced, abalone was a treat traditionally reserved for rich Orientals. Americans thought it looked and tasted like shoe leather. But after an enterprising restaurateur invented the abalone steak—sliced, pounded, and quick-fried—abalone soon became a coveted delicacy for the American table.

The Japanese concentrated their operation at Monterey, on the central California coast. The American industry began at Morro Bay, about 150 miles farther south. Bill Pierce, nicknamed Abalone Bill, improvised an air compressor from a six-cylinder Chevy block sawed in half. He wangled a Japanese diving suit—

helmet and breastplate weighing 40 pounds, lead shoes weighing 20 pounds each, rubberized canvas dry suit under which went a couple of sets of woolen underwear, and 65 or 70 pounds of extra lead for good measure. He plunged into the ocean at the forefront of a new American fishery that eventually turned Morro Bay into the red abalone capital of the world.

Red abalone are premier in the abalone kingdom, the largest of 65 species found worldwide. It is the most profitable of seven species found in California, and the traditional mainstay of the industry. Reds grow only on the west coast from southern Oregon to Baja California, but the most prolific red abalone reefs were located between Monterey and Morro Bay. For almost 60 years this small stretch of ocean produced the bulk of California's red abalone.

Enormous loads of abalone came out of the sea along the central coast, harvested by American divers who did not know a thing about diving, at least in the beginning. Early methods were haphazard, reckless. There were no rules, no dive tables, no decompression chambers, just bullheaded endurance, frequent misery, and a chance to get rich. Divers shuffled up to eight miles a day through dense kelp forests, surfacing every few hours to wipe compressor oil scum off their faceplates. They learned the effects of pressure the hard way: how spending hours far under the sea then surfacing without decompressing causes nitrogen bubbles to form in the bloodstream and invade the joints, maybe the heart, lungs, or brain. They got the bends, or as they say, "got bent." Some were killed, some permanently crippled. But they were harvesting perfect abalone country, mapped in their minds by landmarks like Salmon Creek and Beckett's Reef—hot spots where abalone were so thick that divers could pick them by feel; where a good day's work could cobble a boat deck with a hundred dozen lunkers; where divers got paid 50 cents a dozen for reds, and $50 was a lot of money; where men like Glen Bickford could pick 67 dozen in two hours.

Glen Bickford arrived in Morro Bay in 1936. After a few months diving abalone, he realized it was a tough way to make a living. He wrote home, "I don't see how any man stands it to go down week after week, six or eight hours a day underwater. It gets the toughest diver down. After a couple of weeks of good weather, they get as screwy as a bunch of pet coons.

Above: To dramatize the threat from sea otters, diver Merrill Jacobs sets up a display at the Santa Barbara harbor. He found these otter-foraged abalone shells near Point Conception, not far north of Santa Barbara.

They don't hear what is said to them and don't remember the things they say and do. They all have trouble with their ears."

Glen dove for abalone 13 years, then dove another 20 on the Department of Fish and Game abalone survey team. Now retired, he still lives in Morro Bay with half a roomful of diaries and woolly memories of the early years. He can spin tales by the hour, reliving endless life-threatening scrapes and near misses. Yet he says, chuckling over the perils he wrote about almost half a century ago, "I guess I figured none of these people would live long, exposed to such dreadful hardships. Looking back from here, I am less impressed. I see nothing about diving that should be deleterious to a man—as long as he doesn't get killed."

Of course, a good number of early divers did get killed. Air hoses had a nasty penchant for wrapping themselves around unsheathed propeller blades. This cut off the air supply with a sound likened to thunking a ripe watermelon. Slow-thinking or unlucky victims got sucked into their helmets at pressures double or quadruple that at sea level, or they suffocated underwater. Among the casualties was Abalone Bill Pierce. But abalone divers relished the challenge, the thrill of beating the odds. The survivors were kings of the sea, a brotherhood of close-call specialists exploring a place where few had been. They related tales of macabre adventure that would stand a landlubber's hair on end. But any diver would agree that picking abalone was no big deal, just another job.

Who would want a job standing in the stern of a flat-decked lumbering boat (there were no cabins in the 1930s) maneuvering a tiller bar with one foot while trying to balance on the other—standing there for 16 hours straight, in the middle of a howling storm and 15-foot seas? Dutch Pierce would, even after being gale-caught at sea, a more than occasional occurrence.

Then there was the time Jim Stilson got squeezed into his helmet so hard his head emerged resembling a black velvet basketball. His features disappeared; his eyes were swollen shut and his gums so puffed out they covered all but the tips of his teeth. Somehow, his crew peeled off his gear, carried him ashore, and dragged him to the back room of a store. He could not talk, but he never lost consciousness. And the store owner kept shaking his head, telling everyone who came in, "You ought to see what's in the back room. Never saw anything like it in my life!"

These men were American diving pioneers—rough, tough men, but real men, they liked to think. They had seen the worst nature had to offer. They had lived through it and laughed it off. Today's abalone divers are much the same, although conditions are vastly different.

The diving life-style changed after World War II when California opened the Channel Islands to commercial harvest. Gunwale-sagging loads of pink, green, and black abalone flooded the market. This was a time of abundance, and abalone processors set up shop in Santa Barbara to handle the influx of virgin stocks. Processors like Barney Clancy treated their divers as family, buying their boats, paying their bills, sending out pickup boats to haul in their loads. Clancy's "Black Fleet" was the epitome of this practice—a fleet of at least a half-dozen black-painted boats manned by the industry's best divers, which traveled en masse to a spot, picked it clean of legal-sized abalone, then moved on. These boats were looked on with awe, feared by the competition, called the scourge of Morro Bay when they moved north to harvest reds on the central coast.

In those days red abalone were still abundant on the central coast, and they thrived around some of the Channel Islands. But the bulk of the islands' harvest were pinks, many so old they were wormy. Processors employed divers' wives and schoolchildren to pick out the worms from loads so large that divers were limited to quotas of 80 dozen per boat; the shops could not handle more. But even in those days of abundance, experienced divers knew the bonanza would not last. Old-timers knew from the beginning that picking abalone in many spots in the Channel Islands was a one-time proposition because those areas were not producing young abalone.

Along with the islands' abalone decline came radical improvements in diving equipment. Wet suits replaced hard-hat gear, and every greenhorn with a hankering for the sea jumped into the abalone business. Competition escalated until, in the mid-1960s, over 700 divers were trying to make a living picking abalone. The old ways faded, and few old-timers joined the new movement for a peculiar reason—many did not know how to swim.

Today, divers no longer swagger around picking their ears with tenpenny nails. Their image is symbolized by low-riding boats built especially for abalone harvesting. Jimmy Finch's 26-foot Radon boat is a prototype of today's sleek craft. He bought it 15 years ago and spent the first year traveling to work in style—bedecked in full foul-weather gear and a motorcycle crash helmet with flip-down face guard that his mother bought him to keep the waves out of his eyes. He has since built a windscreen.

Jimmy's *Port Flush* is considered a perfect dive boat, consisting of a nine-by-eight-foot bow cabin outfitted with two bunks and a propane stove, about ten feet of deck snaked with air hose, and an engine compartment. Not your basic

Above: Teddy-bear looks belie the sea otter's voracious appetite. Each day he consumes up to 37 percent of his body weight in shellfish. The protected species already has wiped out the central coast's abalone industry. More than likely, the expanding sea otter population will soon reach Santa Barbara waters.

luxury cruiser. Wood-hulled and heavy, it still bucks the sea like a renegade bronc. Jimmy rides it standing slack-kneed as it sails off the crest of a ten-foot wave and plummets like a wrecking ball into the trough, as if it were the most natural thing in the world.

The newest boats are more advanced, built of molded fiberglass to increase speed and save fuel. They bounce so hard in heavy weather that some divers wear kidney belts to protect themselves from abuse. But these boats created a measure of independence unknown before. Now divers can work alone, and many do. Travel time is halved; divers can journey farther, faster. They normally spend several days at sea, holding their daily catch in live wells. Rather than holing up in the nearest anchorage, they can run before a storm if they have fair warning. Nevertheless, they are still dependent on the weather, married to it, in fact. Explains Crazy Harold, an industry old-timer, "There aren't as many abalone now, so if you don't have clear water you're in deep s---!"

Numbers are the biggest change in today's abalone industry. Where hard-hat divers hauled in loads of a hundred dozen, today's men are happy with ten dozen. Instead of 50 cents a dozen for reds, the take is now close to $100. Some people blame overfishing, but the situation is more complex. And it implicates one of the cutest animals on the planet—the sea otter.

The keystone predator of some 40 shellfish species, an otter must eat the equivalent of one-fourth of its body weight daily. For an average adult, this amounts to about 20 pounds of shellfish a day, or two and a half tons of meat a year. Once ranging along the west coast from Baja California through the Aleutian Islands, sea otters were hunted to near extinction during the fur trade, although a few managed to survive. With the population sharply reduced, shellfish mushroomed, and early divers reaped the bonanza. Divers working the central coast were doubly fortunate, harvesting unusually fast-growing abalone that were able to rejuvenate their stocks year after year in the absence of otter predation.

Fish and Game size limits, set to perpetuate a sustained-yield harvest, require divers to pick red abalone seven and three-quarters inches long or larger, leaving the smaller animals to spawn and renew the resource. By 1960, however, multiplying sea otters had expanded into prime central coast abalone grounds. They ate every abalone they could find, regardless of size. By the early 1970s, the Morro Bay abalone industry—a multi-million-dollar enterprise—found itself out of business.

Glen Bickford, working for Fish and Game at the time, documented the abalone decline on the central coast. He declares, "The evidence is conclusive and absolute. But arguing about sea otters and shellfish is like arguing religion or politics. You can't convince anybody. Yet in areas where otters are now, commercial divers haven't been back for 15 years, and there are still very few abalone."

Many environmentalists refused to believe the evidence then; a few sea otter

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protectionists are unconvinced today. And what began as a biological conflict has ballooned into a full-scale political rhubarb.

Divers like Jimmy Finch and Rudy Mangue, who both began in Morro Bay, have moved to Santa Barbara, now the hub of the industry. Along with most commercial divers, they work the Channel Islands—under increasing competition from a booming sport-diving industry.

The ocean around the islands is often hostile. The wind howls, chopping the sea, and currents run like rivers, carrying abalone spawn to unpredictable spots that are here today, gone next week. Jimmy Finch believes there is an oceanic cycle at work in the islands. He has seen the bottom thrive, then die, and come to life again. This instability makes abalone diving catch-as-catch-can work, usually an all-day anchor drill: throw the hook, roll over the side, and pick a few abalone; pull the hook, move, and repeat.

This goes on in water varying from 50-foot visibility to near zero, and in depths from 140 feet to the intertidal zone. Diving for black abalone, a smaller species sold almost exclusively to Orientals, is done only in shallow water, much of it in pounding surf capable of destroying a boat, as happens occasionally—a $20,000 investment wiped out with one hard-breaking swell. Divers often spend six or more hours a day underwater, usually with only a few dozen abalone to show for the effort. They measure their days in decompression meters, but still they get bent.

Once in awhile, however, the drudgery pays off. Recently, one diver unloaded 130 dozen abalone in three trips, making about $11,000 in two weeks. Finding a hot spot is every abalone diver's dream. But there is an unwritten code—one man does not jump another's claim, although there is no law against hedging a little. Once a diver brings in a good load, everyone else is on the lookout; and with today's fast boats, there are few secrets.

Faced with stiff competition, uncertain financial gain, and rugged working conditions, what goads abalone divers to hang on? Jimmy Finch, an old-timer at 38, does it as a matter of choice but can not explain why. Many younger divers, products of the surfing generation, say they like the freedom, the self-reliance, the chance to earn good money. The industry has a 50 percent turnover rate; yet for the diehards, the lure is a primal challenge to the survival of the fittest, the

Continued on page 74

Continued from page 16
pride of being unique. Since the industry became a limited-entry fishery several years ago, only 175 people in the United States dive commercially for abalone. All 175 work in California, most of them out of Santa Barbara. They are still close-call specialists—a brotherhood of survivors.

Some find the challenge irresistible. Santa Barbara resident Bill Bossert graduated from the University of Miami with a master's degree in biology, yet gave up a biologist's career to go abalone diving. That was 21 years ago. He has been a top producer, or "highliner," ever since. If the current is ripping, Bill ties off his air hose on the anchor line and works with the flow, then pulls himself back for another pass. It is a grueling procedure; most divers would not attempt it. But for Bill, it is just part of the game.

Rudy Mangue is one of the best scratchers in the business, a man who thoroughly enjoys diving—"rolling boulders," his cohorts chide—methodically exploring every inch of bottom within reach. Rudy is married, with three children to support. Several years ago he took a job with Tidewater Marine to help make ends meet, but his heart still belongs to abalone diving. That is why he has jumped into the political arena. He spends as much time at meetings as he does underwater because he is concerned about the industry's future. Concern is why he spearheaded the industry's abalone-planting efforts—and why he was out at Santa Rosa Island jousting with white sharks.

Fish and Game biologists arrived at Santa Rosa the day after we had located the alternate bottom-lease reef. They inspected it, found no live abalone already living there (a condition of the lease), and gave their blessing to change the lease site. Rudy and Jimmy thought the reef could hold close to 5,000 abalone. They planned to release 1,500 hatchery-bred animals immediately and the rest when the abalone association could afford more seed.

If the tiny abalone survive, divers will be able to harvest a percentage at five inches, or in about five years, leaving the rest to spawn and enhance the resource. Planting is a long-range, risky investment, but the future of the industry rides on its success. Commercial divers plan to lease more sites, and private business groups have begun similar efforts. The state of California under Governor

Continued on page 78

Continued from page 75
Brown's Investing for Prosperity Program, plans to release 10 million seedlings by the end of 1983; the 1982 budget for this purpose is about $250,000. Research already has proven the project has merit. Fish and Game experimental plants made in 1979, in cooperation with commercial divers, are now bearing fruit. Juvenile abalone are emerging on the planted reefs. These reseeding efforts hold promise—but for one drawback: migrating sea otters.

Through natural range expansion, otters might reach the Channel Islands in a few years. With political help, they may arrive sooner. A plan is brewing to relocate about 200 otters to form a second colony and enhance the otter population. A targeted site for the move is San Nicolas Island, gateway to the Channel Islands. Since California otters are listed as "threatened" in the Endangered Species Act, they fall under the jurisdiction of the U.S. Fish and Wildlife Service. That federal agency has been unresponsive to the new shellfish crisis it seems ready to perpetrate, and to biological evidence indicating other areas as better sites to move sea otters.

The relocation plan is embroiled in controversy, ironic because many scientists believe California otters are not significantly threatened. Fish and Game biologists estimate that close to 1,800 otters live in California seas; they consider this a viable population. An estimated 140,000 more otters, not listed as threatened and considered by all but a few scientists to be members of the same subspecies, live in the ocean bordering Alaska and the Aleutians. Dr. Charles Woodhouse, assistant director of the Santa Barbara Museum of Natural History, says that Alaskan otters could be used to replenish the California supply in the event of a natural or man-caused disaster. Officially, however, the Endangered Species Act recognizes California otters as a separate subspecies. If the U.S. Fish and Wildlife Service acknowledged Alaska and California otters as the same subspecies, (a belief held by Dr. Woodhouse and the majority of the scientific community), that federal protection agency might be persuaded to view the Alaska population as a reserve bank and allow the California population to be managed to protect parts of the coast for shellfishing.

A Santa Barbara organization called Save Our Shellfish, established to lobby for sea otter management, is working toward that acknowledgment. In 1981, SOS petitioned the Fish and Wildlife Service to recognize the two groups of sea otters as a single subspecies. The petition has been shelved while federal biologists initiate more studies. Meanwhile, the conflict has escalated into a political power struggle—sea otter protectionists against fishermen, and the Fish and Wildlife Service against the state Department of Fish and Game, which is now trying to regain control of California's otters so it can zonally manage them.

The outcome of these maneuverings is yet undecided, and the fate of today's commercial diving industry hangs in the balance. But abalone divers are going ahead with their reseeding plans although they realize they are fighting a highly emotional issue. Public support for total sea otter protection is tremendous. Nonetheless, divers believe the conflict can be solved through careful management of sea otters, abalone, and man's use of a desirable shellfish resource. Jimmy Finch declares, "The poundage is down but the economics are still here. It's just stupid to throw that away. What we're talking about it not just preserving abalone but all shellfish—preserving a food source." Abalone divers are excited about reseeding; they are eager to preserve their future.

Jimmy and Rudy were planning that future as we bumped up the line, going back to work after Fish and Game biologists had approved the reef. Rudy put us over another spot he remembered from years past, illustrating again how intimately abalone divers know the ocean floor. The men suited up against a 30-knot wind as the boat seesawed on the chop. But the bottom was still, and they picked nine dozen abalone in four hours. Rudy's shark scare was a distant memory—it happened yesterday. Yet he gleefully related the time Kenny Gray accidentally stuck his head between the jaws of a fair-sized white, took almost a thousand stitches, and was back diving abalone in six weeks.

The increase in white sharks poses a menace to divers, but it is just part of the job, no big deal. Sea otters and politics pose a more immediate threat, a threat to the survival of the abalone-diving livelihood and life-style. For abalone divers, that threat is no laughing matter.

D.B. Pleschner is a free-lance writer and photographer with a special interest in environmental issues. She is currently writing a book on the history of the abalone industry.