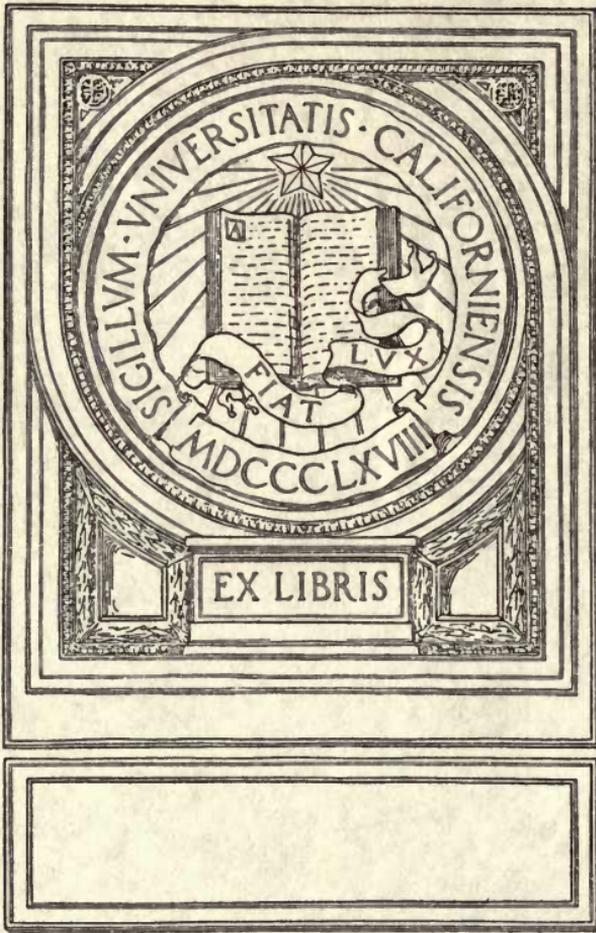


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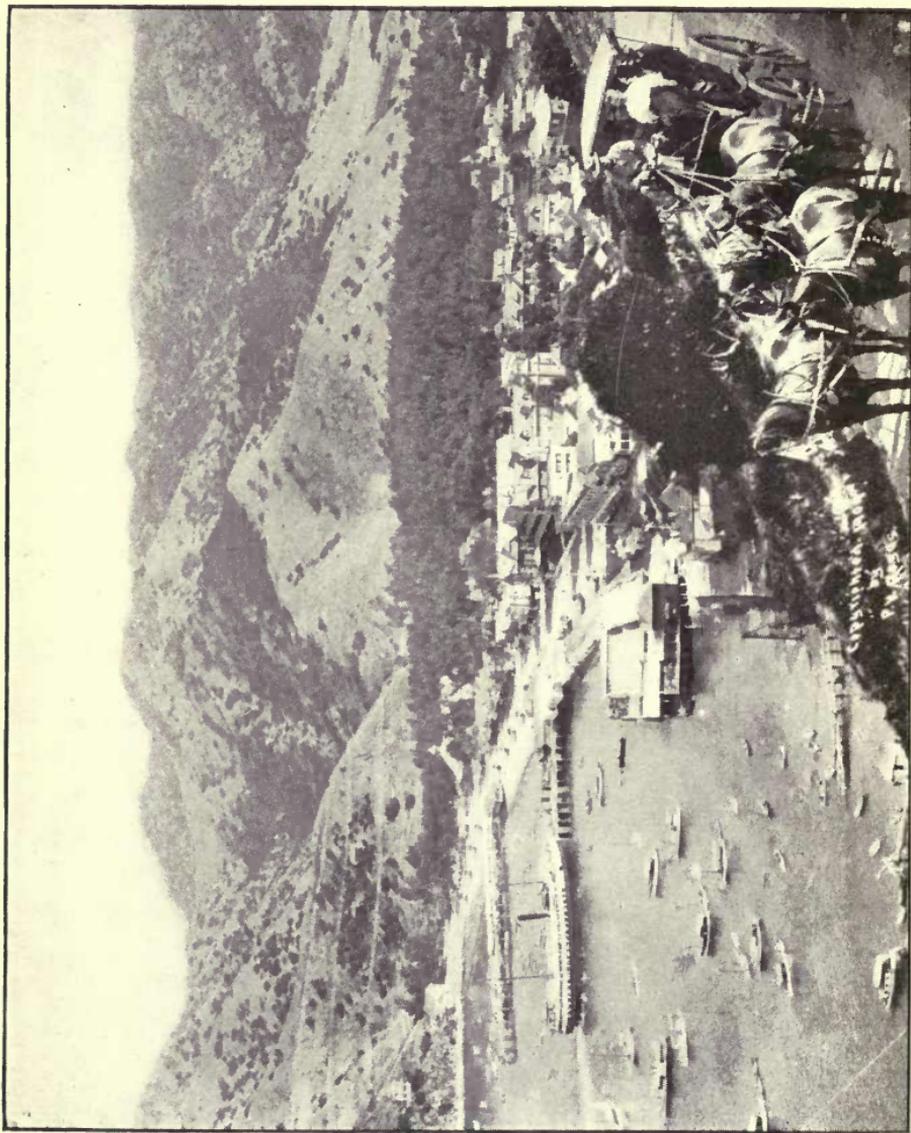
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Avalon, Santa Catalina Island, California. Tuna Club in the foreground, and stage to the west end fishing grounds.

THE FISHES *of* THE PACIFIC COAST,

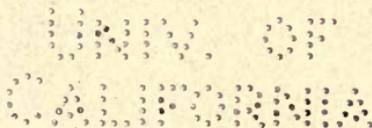
A Handbook for Sportsmen and Tourists

By

Green

CHARLES FREDERICK HOLDER

Founder and President of the Tuna Club of
Santa Catalina, Member of the French
Académie des Sports, Honorary
Member of the Fly Fishing
Club of London, etc.



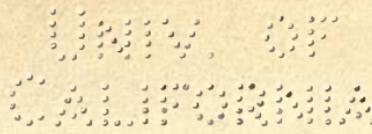
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[The Fishes of the Pacific Coast]

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AMERICAN



The Fishes of the Pacific Coast

PREFACE

THE object of this little volume is to present to students, schools, colleges, anglers, fishermen, tourists and seekers after piscatorial information in general a series of pictures of Pacific Coast game fish, mainly photographed alive and in their natural habitat. In a word, the attempt is to have the pictures tell their own story. To this is added a brief account of the fish, its food, habits, companions, season, value, how it is caught, when, where and how; a little book which will slip into the pocket, yet tell all that it is desirable to know, offhand, enabling the angler or student to recognize at once the fish he has caught or sees in the market, and find its name.

Several pictures are included, showing the fishing grounds on various parts of the Pacific Coast, from San Francisco, Monterey, or Del Monte, to the Coronados.

This entire region has made the reputation of California by the extraordinary size and number of its game fish. The remarkable photographs of living fish were taken for the author by Mr. Peter V. Reyes of Avalon, in a specially devised tank, by the courtesy of the local zoölogical station, showing them in their natural environment. Some of the fishes of this region are too large to keep in confinement, and these

8. FISHES OF THE PACIFIC COAST

are shown either mounted or on the gaff, so that they may tell their own story as far as possible. Many of the fishes are confined to a very restricted region of a few hundred miles, and many to Southern California only.

LOCALITIES

The Pacific Coast is particularly rich in its fishes. The sea abounds in them; the rivers and lakes are the home of that extraordinary trout, the indigenous rainbow, while others have been introduced, so that the Pacific Slope of North America, and particularly California, has become the most remarkable angling- and fishing-ground in the world. This is particularly true of Southern California, where a fishing-ground has been located about the islands of Santa Catalina and San Clemente (a government island), that has attracted world-wide attention and is visited by over one hundred and seventy-five thousand persons annually.

The fishing regions of the Pacific Slope may be divided into several districts:

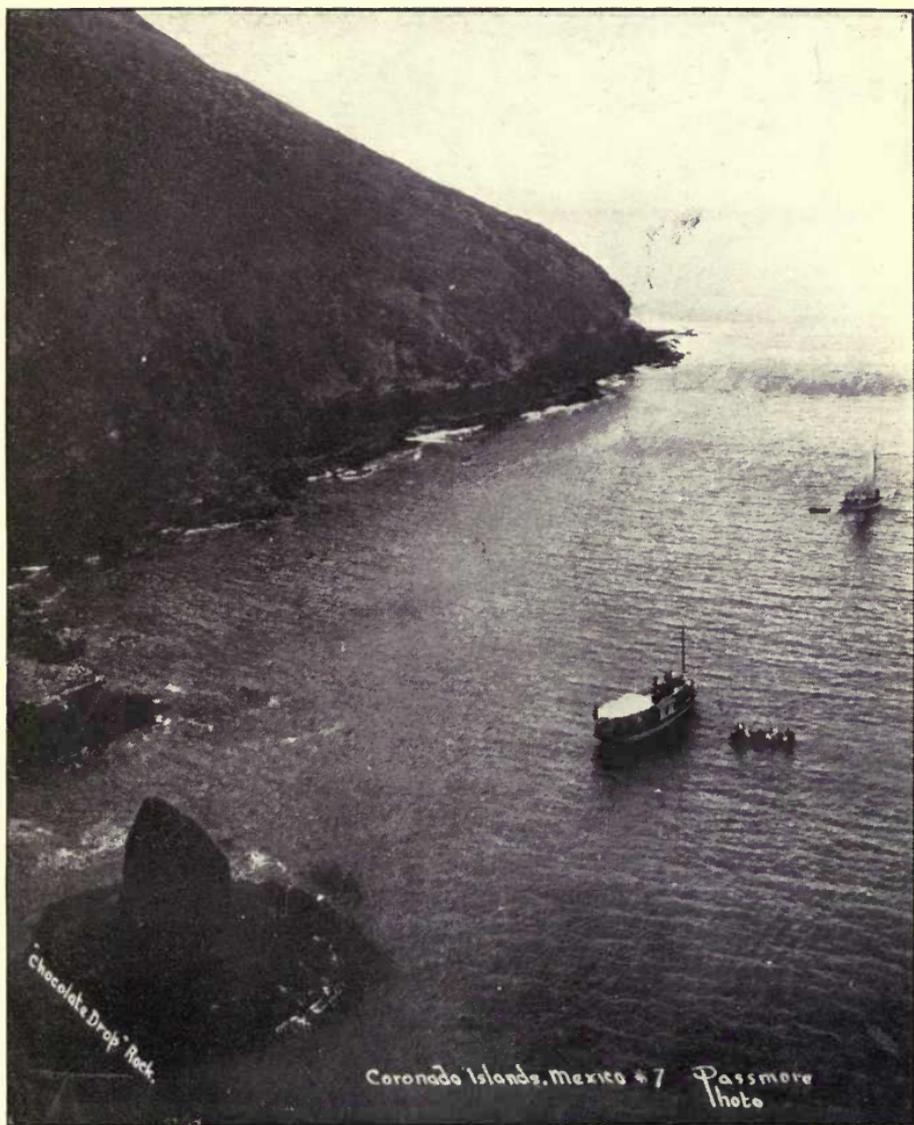
First—That of the Sierra Nevada, including the lakes, such as Tahoe, Klamath, Pend d'Orelle, Lake Chelan and others, numbering many hundreds; and the rivers, such as the Kern, Truckee, Sacramento, Russian, Merced and others.

Second—The Bay region of San Francisco, with its salmon, black bass, striped bass, steelhead and trout.

Third—The salmon and trout regions of Washington and Oregon.

Fourth—The region about Monterey Bay, including the salmon trout in the Soquel, Carmel and other rivers.

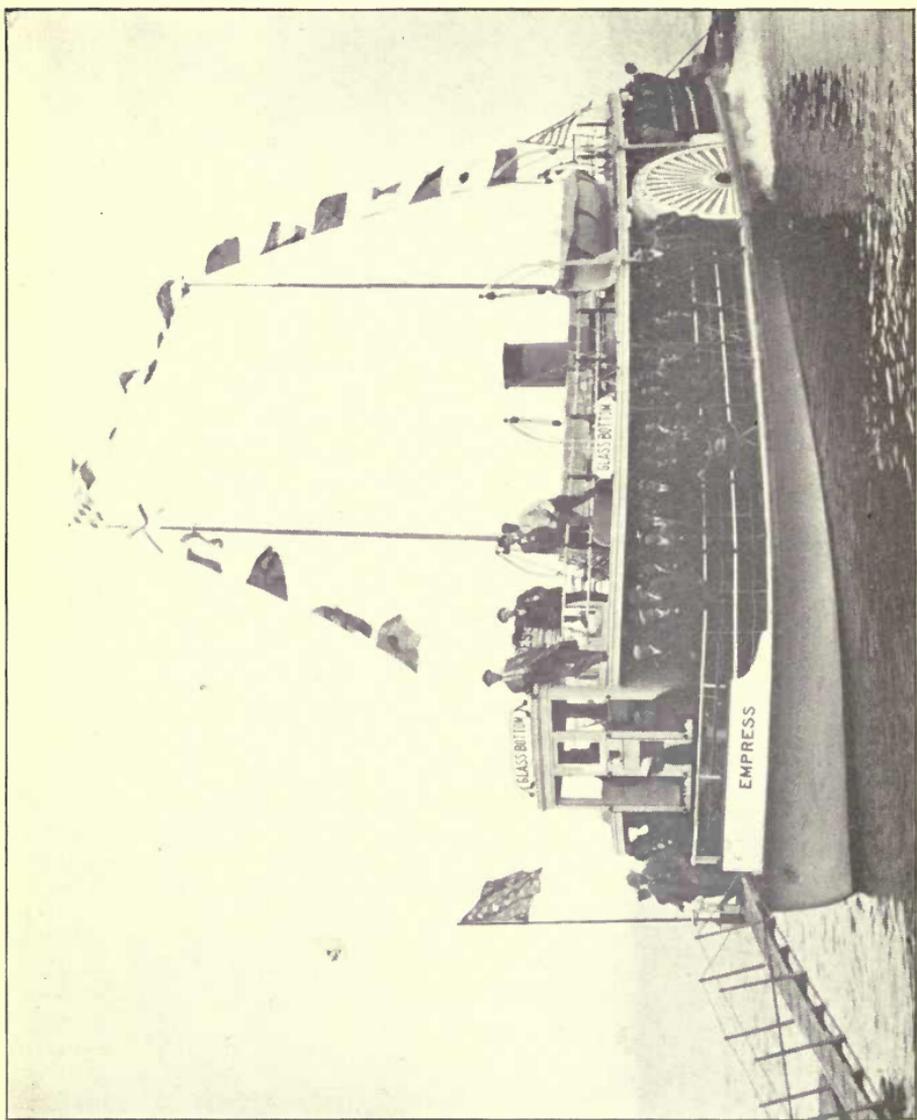
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One of the Coronado Islands off Coronado Beach, California

Fig. 2

TO VINTAGE
AMERICA



The Glass Bottom Boat. Avalon Bay, California.

Fifth—The lakes and streams of the Sierra Madre, and the streams of Ventura, Santa Barbara and Los Angeles counties, in Southern California.

Sixth—The Santa Catalina Islands, off Los Angeles, eighteen miles from the city.

Seventh—San Diego Bay, Coronado, the Coronado Islands, offshore.

Eighth—The long sandy beaches of Redondo, Long Beach, Santa Monica, Huntington Beach, Del Mar, Newport and other places, affording excellent surf fish for angling,—the angler casting from the beach or pier for the various fishes which affect the surf.

SANTA CATALINA

This region embraces several thousand square miles, including the islands of Santa Catalina, San Clemente, San Nicholas and Santa Barbara. Santa Catalina is about eighteen miles from Los Angeles at its nearest point, but the Port of Avalon, on the east end, is about thirty-two miles distant. The island is twenty-two miles long. It runs northwest and southeast, practically parallel to Los Angeles County, off Long Beach, San Pedro, Newport, Bolsa Chica, Alamitos and other places, and gives a lee for anglers of nearly twenty miles. The island is a mountain range, and the bays are the mouths of attractive canyons which wind up into the interior.

The island has an area of about fifty-five thousand acres, a fine coach road running almost its entire length, with trails over its mountains half a mile above the sea. It is a park, a garden at sea, winter and summer, as so remarkable is the climate that the

islands bloom and blossom during the Eastern winter, and are delightful in the summer.

None of the islands, except Santa Catalina, are open to the public without a permit, and none, except Santa Catalina, have a regular boat service. The latter is a part of Los Angeles County, and has a regular town of eight or nine thousand inhabitants in summer, and daily ocean steamers, one in winter and three in summer. There are hotels, boarding-houses, camps, cottages, in fact, every facility for the visiting angler to live either luxuriously or economically. The town abounds in shops, and at a long boatman's pier lie scores of fine craft which add to the pleasure of the angler, and from ten to thirty can be counted any day in season trolling along shore thirty miles out at sea, yet in water perfectly smooth.

ANGLING BOATS

The entire life of the islands of Santa Catalina is based upon sport. The local shipyard builds boats adapted for the special purpose, eighteen feet long, launches of from ten to forty horsepower, with engines amidship and seats for the anglers facing the stern, with rods out to the right and left. There is also a fleet of glass-bottom boats for viewing the fish, and the famous beauties of the seaweed. Some of these hold several hundred people, and are valued at from ten thousand to thirty thousand dollars. The angling launches range in value from eight hundred to thirty-five hundred dollars. There are also many small row-boats, yachts, racing-boats, etc.

TUNA CLUB

This club, on the bay of Avalon, is an institution well known all over the country for its distinguished membership and the remarkable catches its members have made. The clubhouse stands on the water, and is an attractive building with davits for small boats, private dock and hoist. On its inner walls are many fishes, the catches of its members. This club has several branches, as the "Light Tackle," the "3-6," and it has established a standard of sport on the coast that has been felt everywhere. Hand-lines are tabooed, and the large fish are all taken on lines and rods so light that the story reads like a traditional fish story.

Nine-ounce rods, six-ounce rods, six- and nine-thread lines are the ones most in vogue, as to enter the summer and winter tournament of the clubs one must use this tackle. The tournament begins May 1st and ends November 1st, and at the club may be seen gold badges and silver cups to the amount of several thousand dollars, which are contested for with the greatest zest. This results in reducing the merciless catch of fishes, and, as all are eaten, it is evident that the club has done good service along the line of piscatorial philanthropy.

SANTA BARBARA ISLANDS

These islands lie east and west opposite Santa Barbara, on the Santa Barbara channel, just as the Santa Catalina group lies on the Santa Catalina channel. There are four in the group,—San Miguel, Santa

Rosa, Santa Cruz and Ana Capa, while south and west lies San Nicholas.

The fishing about all these islands is excellent, and can be reached from Santa Barbara. No regular boats run, as all are private property, and permission must be had to land on them. Launches to visit the islands may be obtained from professional fishermen at Santa Barbara, Ventura, San Pedro, Avalon or Santa Catalina. All these islands are mountainous, and have no good harbors. They are sparsely covered with brush and low trees, but are extremely interesting to visit.

CORONADO ISLANDS

An excellent fishing region is at San Diego, off Coronado Beach, at the Coronado Islands, which are barren rocks, and the visitor must live on his boat. By going out to sea from Coronado along the kelp beds large fishes are to be had, such as black sea bass and others.

MONTEREY BAY

Monterey Bay fishing is but a few hours from San Francisco, and Del Monte, Capitola, or Santa Cruz afford good points of departure.

SIERRA NEVADA

Lake Tahoe is the central point for all this region. South, one reaches the Kern river, and north one comes to the fine fishing of the Feather river, reached from Chico or Klamath Lake, the Rogue river and others.

THE FISHES

THE LEAPING TUNA

(*Thunnus thynnus*)

THE leaping tuna is a giant mackerel that roams the temperate seas of the world in vast schools. It appears at Santa Catalina, its spawning- and feeding-ground, soon after the coming of the flying fishes in spring, and remains in normal years until September 15th, but being a migratory fish, it is very uncertain. The fish attains a weight of fourteen hundred pounds, but the average size of the Santa Catalina fish is one hundred and fifty pounds, and the record, two hundred and fifty-one pounds, is held by Colonel C. P. Morehous. The sixty or seventy members of the Tuna Club who have taken a fish of over one hundred pounds could tell extraordinary stories of the battle to the finish with this remarkable game fish. The author's record fish weighed one hundred and eighty-five pounds, towed his heavy boat about twelve miles in four hours, the boatman fighting against it all the time, with no let-up to make it possible to gain an advantage. Other contests have lasted from five to fourteen hours. The bait is the flying fish, and a sixteen-ounce rod, with twenty-four or twenty-one thread standard line, are required by the regulations of the Tuna Club, as devised for its annual tournament.

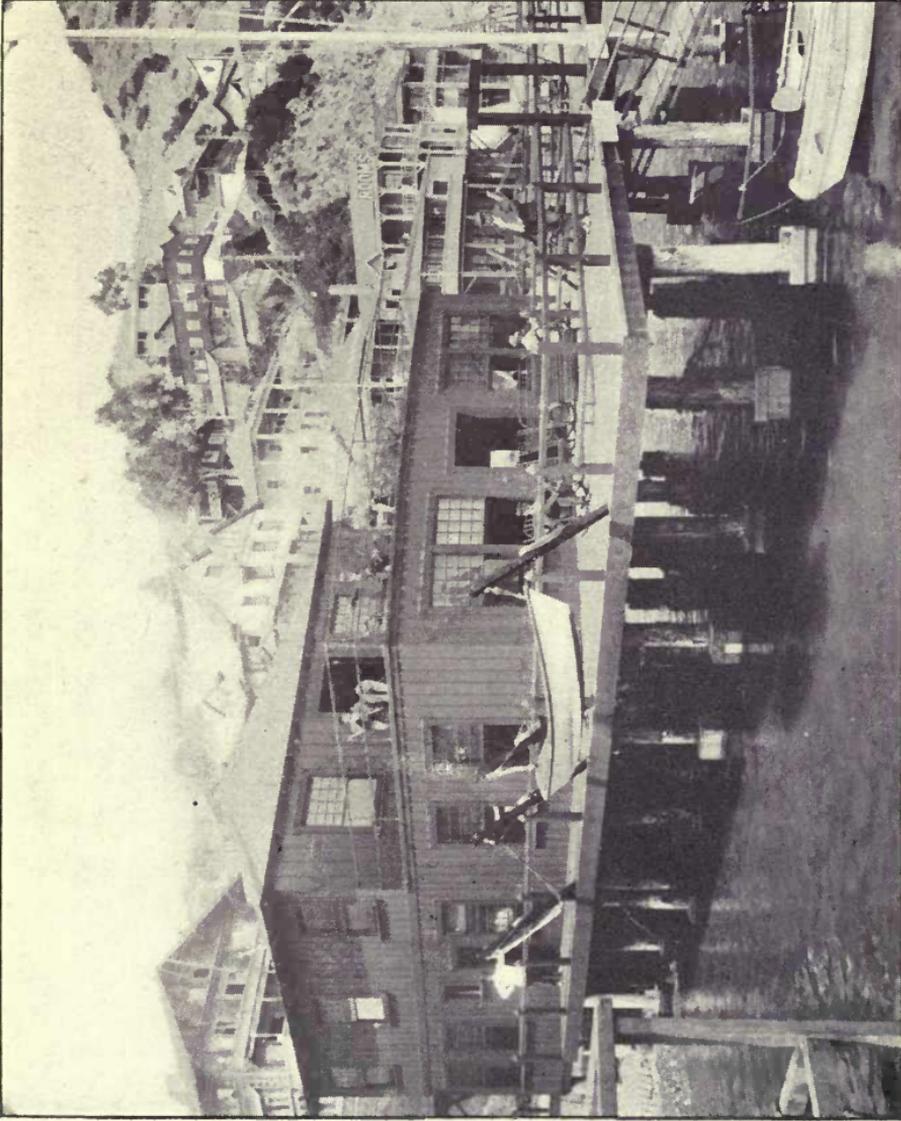
GAME QUALITIES OF TUNA

Some idea of the qualities of the leaping tuna as a game fish can be had from my experience in taking the first large tuna with a rod. I had taken a number of tunas in this way when, one morning, I had a strike which took nearly all the six hundred feet of line. I think it was stopped at five hundred and fifty feet. It then began to tow the heavy yawl to the northeast, directly up the island, having been hooked off Avalon. During an hour, in which we were towed four miles, I made a desperate effort to stop the fish, but its fierce rushes, its downward plunges, gave me the fight of my life, and, at the end of an hour, I appreciated the fact that I was weaker, and the fish seemingly growing stronger. I thought of the remark of an old boatman when I was playing a ten-foot shark in Florida. "Massa Fred, if yo' had to wuk like dat yo'd sho' think yo'self in hard luck, yo' sho' would, das a fac."

If you call it work, it was work, but, looking at it from the standpoint of sport, to overcome a big fish that had all the chances on its side was a different matter.

When we came near Long Point I brought it in within one hundred feet of the boat, when it suddenly made a rush and, despite my boatman's oars used gently, it towed us a mile out to sea, stern-first, then out of the calm lee into rough water. When it hauled the stern down low, dangerously low, I had to give line or swamp; in fact, one big sea nearly swamped us and "Jim" had to drop the oars and take the bailer, while I held the rod in my left hand and bailed with the other, watching the sea and the

THE TUNA CLUB
SANTA CATALINA ISLAND

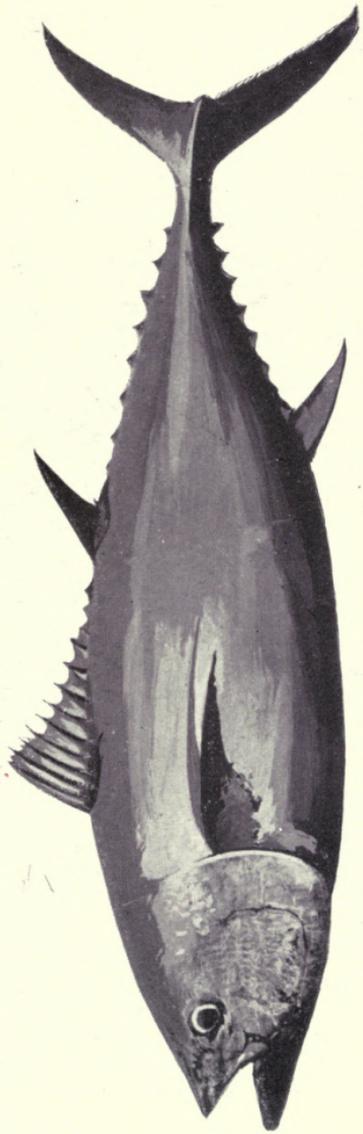


The Tuna Club, Santa Catalina Island, California

Fig. 4



Cups and medals of the Tuna Club. Avalon, California



The Leaping Tuna, *Thunnus thynnus*. Tuna Club Rod Record, 251 Pounds, Santa Catalina Island.
Fig. 6

TO VIVI
ALBONIAO



Leaping Tuna, taken by Col. John E. Stearns of the Tuna Club. Captain Farnsworth, gaffer

Fig. 7



PHOTO. BY REYES

Showing the author's Tuna rod in action, and the position in playing a Tuna, the launch, gaffer, etc.

Fig. 8

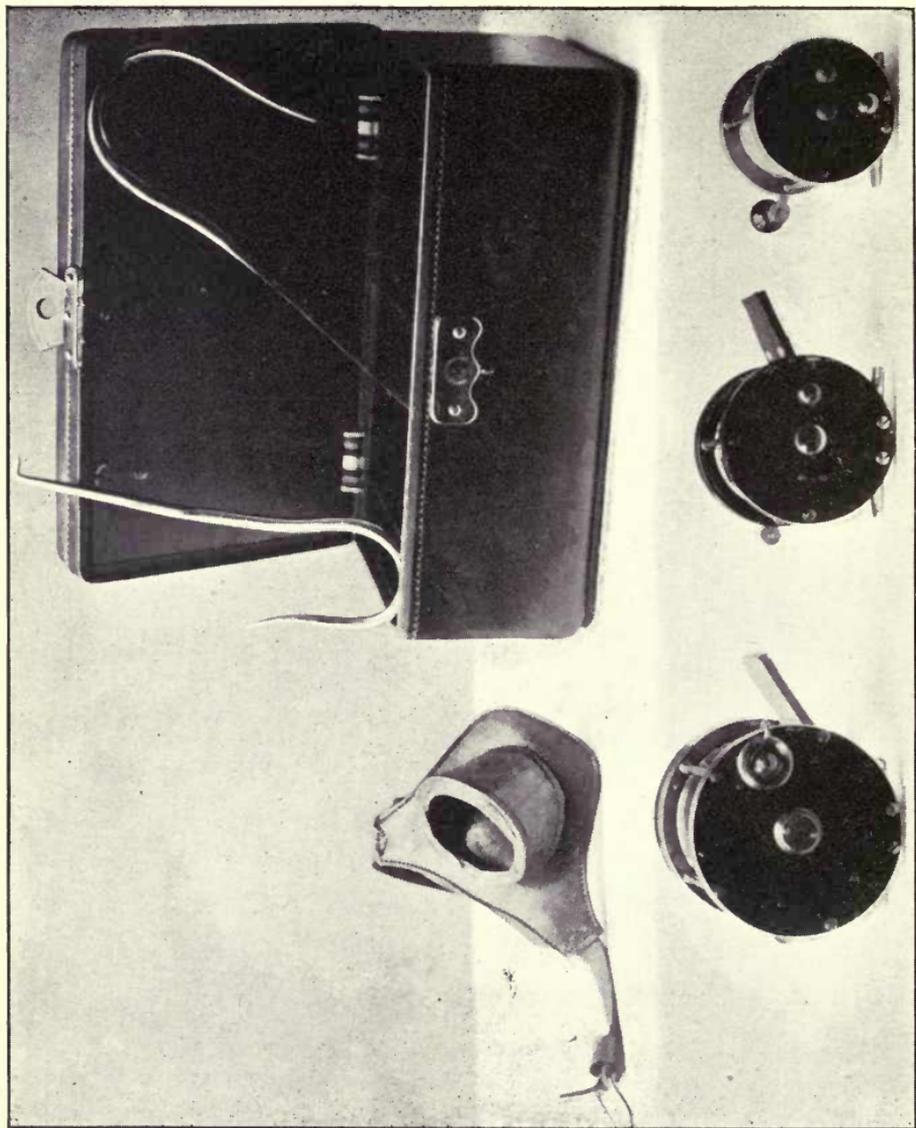


PHOTO. BY REYES

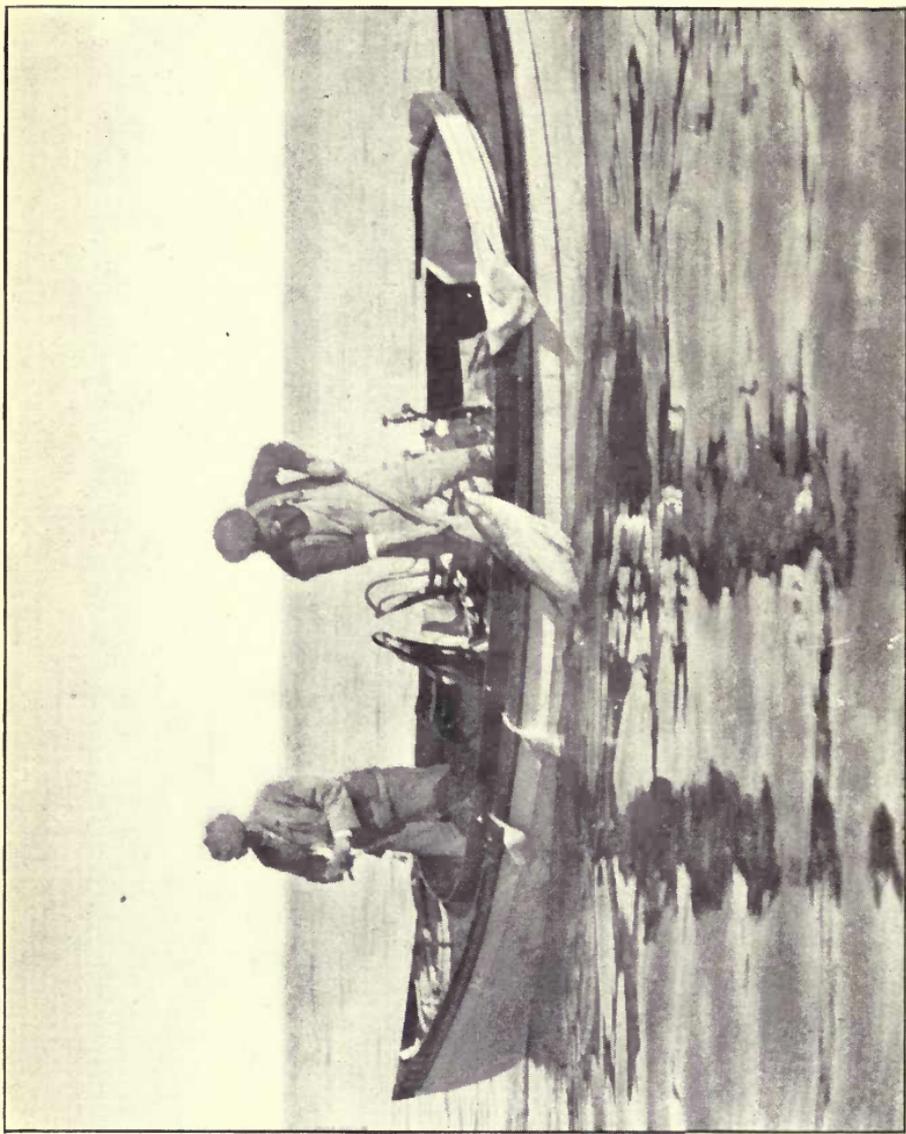
Tackle Box, Gaff Hooks, Butt Belt, Reels for Leaping Tuna, Yellow-fin and Yellowtail



Yellow-fin Tuna, *Thunnus maculatus*

Fig. 10

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Yellow-fin Tuna, *Thunnus maculatus*. Avalon, California. Taken by T. S. Manning, Secretary, Tuna Club.

tip. I never did so many things at once in my life. We were headed out to sea, but suddenly the tuna turned and swam directly inshore, swimming steadily for a mile; then, worried by persistent pumping, which consists in lifting the fish with thumb on the drag as high as possible, getting it in a foot, then dropping the point and reeling for your life, it rose to the surface with a vibrant thrill on the line, hit the surface with a swirl, as though to get its bearings, then came at the boat along the surface like a shot out of a gun. It was a magnificent play. Jim and I sprang to our feet and watched it, I reeling desperately, totally unable to get in the slack, reeling, perhaps, from habit. The tuna came within ten feet of the boat, then turned in a cloud of spume that drenched us, and dashed off. I can only compare it to a flip across the face with a glove—a challenge to mortal combat, which we had accepted an hour and a half before.

I stopped the fish before it took all the line, then commenced again the heart-breaking task of reeling it in. At times I could not turn the handle of the reel, could not make an inch, could only press my half-paralyzed thumb on the leather brake and hold on to the rod. Now the tuna was thrashing about on the surface, turning the blue sea into silver filigree; now it plunged into the depths, making the reel cry out; then it would come up to one side and whirl around the boat as though chased by a shark.

There was no trick known to fishes this splendid game did not play in its effort to beat us, to wear us down; but of all them, I think the rush in of two or three hundred feet was the most sensational, as, every time it came, I wanted to swing my hat and cheer the

fish. I was positive it would escape. But a mysterious dispensation from St. Zeno must have been given us, as, after three hours, I had it nearly on the quarter and called for the gaff. But I was too sanguine. I had it within twenty feet circling, when suddenly it sprang away and dashed to the bottom, only to come whirling to the surface again, and dash about the boat at a rate that was ominous; then it turned in the direction of Avalon and swam steadily on and on. To give the details of this contest, with its exciting moments, its astonishing plays, its stupendous activities, would be impossible, but in the third hour—after not a moment's rest—the tuna started down the coast and towed us back to Avalon. Here, after nearly four hours, and after a ten- or twelve-mile tow, I again brought it to the quarter and held it, a glorious moment. Jim pushed the gaff over, hooked the fish and, for a second or two, held the monster that beat the water and tossed the foam in air. Then the gaff handle was shivered, and the fish, which we now saw well for the first time, and that it was a giant, rushed off, taking fifty feet. Again I rounded it up with fingers that had no feeling, bracing for a last effort. Slowly it came in, circling the boat; now it was on the quarter, and Jim, with a quick movement, slipped a larger gaff under it, jerked the big head out of water and held it at the rail, while it almost swamped us. Then he slipped it in, and the biggest tuna up to that time ever taken with rod and reel lay thrashing the boat with menacing blows.

I have taken a number of tunas, but none so thoroughly proved themselves in the game-fish class as did this splendid one hundred and eighty-three

pounder of 1897; the fish that suggested to me the founding of a Tuna Club, that has since become famous the world over. Sixty-nine members of the Tuna Club have taken these fishes of over one hundred pounds, and could the stories of all of them be secured, the struggles, the master plays, the real battles between man and fish, it would make a story of great interest, as such a battle has worn out many a well-conditioned man.

Largest Leaping Tuna (*Thunnus thynnus*)—Over 100
pounds— Pounds

Dr. C. F. Holder, Pasadena, Cal., season 1898 . . .	183
Col. C. P. Morehous, Pasadena, season 1899 . . .	251
Gen. A. W. Barrett, Los Angeles, season 1900 . . .	164
Mrs. E. N. Dickerson, N. Y. City, season 1901 . . .	216
Ernest E. Ford, Alhambra, Cal., season 1902 . . .	174
John E. Stearns, Los Angeles, year 1902	197
Gen. A. W. Barrett, Los Angeles, season 1904 . . .	131
P. S. O'Mara, Salt Lake City, season 1909	153
L. G. Murphy, Converse, Ind., season 1910 . . .	175¼

THE YELLOW-FIN TUNA

(*Thunnus macropterus*)

This fish is called the haranaga in Japan, where it has long been well known, also at Honolulu, but in 1907 it appeared in Southern California for the first time, so far as known, in twenty or more years, and afforded great sport with the nine-ounce tackle described. At first glance it resembles the leaping tuna, but it averages about sixty pounds and is more symmetrical. Its tail and fins are of a beautiful lemon tint; the upper portion is greenish, the belly a vivid silver; altogether it is one of the most beautiful fishes

of the sea. It appeared in large schools coming up from the south and took sardine bait vigorously, and afforded anglers much sport. The peculiarity of the sport was that this tuna played and fought on the surface, and towed boats about for hours. It appeared in company with long-finned tunas and bonitos, and was very tame. I had my boatman toss over bait and a swarm of fishes would rise out of the depths to seize it, and among them this beautiful tuna from Japan, as clever as a trout; the others would seize the baited hook at once, but not the yellow-fin; he swam about picking up the bits of sardine, but always avoiding the one which concealed the hook. The year before these fishes bit with avidity and afforded splendid sport to the rod and reel fishermen.

THE YELLOW-FIN AS A GAME FISH

The sudden appearance of the yellow-fin tuna in Catalina waters created a sensation, and it at once assumed a position as one of the finest of game fishes, and, so far as actual sport is concerned, may be compared to its gigantic cousin, the leaping tuna.

The yellow-fin is common in the waters of Japan and the Hawaiian Islands; in fact, Japanese waters are supposed to be its home, and a Japanese specific name has been given it by Jordan; so that its appearance on American shores may be considered more or less accidental, the schools doubtless following the Black Current of Japan.

To see a yellow-fin tuna in the water, swimming about, is worth a pilgrimage to California alone, as it is a beautiful fish. It combines a cleverness of its

own with the strength of the tuna. Its distinctive feature as a game fish is its method of playing, which is almost entirely on the surface.

The tackle used is the nine-ounce rod and line, though a more certain method is to use a regular tuna outfit, baiting with a large smelt or sardine. My own unsuccessful methods were casting from a standing boat into a school. While the fish would take the bait I threw over, I never could lure one into taking my hook. Mr. L. P. Streeter of the Tuna Club tells me that nearly all the fish he took in the first year of their appearance made a splendid straight-away rush on the surface, the ideal thing to do from an angler's standpoint, as the pumping or lifting (see p. 25) of these big fish in deep waters is one of the melancholy features of rod fishing in blue water with possibly half a mile beneath one.

To save the fish there was but one thing to do; that was, to follow. So Mr. Streeter had his boatman, Captain Fisher, put on full speed as soon as they could turn, and they chased the tuna for several miles. In the course of an hour or more they succeeded in bringing the fish alongside and gaffing it, but not until it had made a most gallant fight for liberty. Comparatively few of these big fishes have been taken. The records are as follows:

Largest Yellow-fin Tuna (*Thunnus macropterus*)—

Over 50 pounds—

* Arthur J. Eddy, Chicago, Ill., season 1906... 60

* E. J. Polkinhorn, Torreon, Mex., season 1907.. 50½

The yellow-fin is very uncertain in its movements; some seasons not coming at all, again being found in

numbers, but not biting. In point of fact, the entire tuna tribe, if we except the albacore, is whimsical—"uncertain, coy and hard to please."

THE OCEANIC BONITO

(*Gymnosarda pelamys*)

In the spring, and often in summer, a mackerel-like fish about two feet in length, richly striped with dark longitudinal waving lines, comes in to the Southern California coast and affords excellent sport. I have never seen one over twelve pounds, but this oceanic bonito has the fighting power of a fish of twice the size, and, as it often plays on the surface, it gives the angler a fine test of skill and endurance. The bait and tackle is the same as in the case of the long-fin, a nine-ounce rod, though I have often taken them with the six-ounce rod, known as the 3-6, which is really the tackle best adapted to it.

This bonito is found at sea and is a wide rover. Its eggs are deposited at sea and little is known of its habits, owing to its wandering nature. It doubtless goes south in winter, ranging north in summer.

OCEANIC BONITO AS A GAME FISH

The bonito, with its silver body and decided black stripes, is a splendid catch, as it can always be counted on for a hard, strenuous, stubborn fight. The method of taking it is by trolling alongshore a little farther out than for a yellowtail, or on the grounds of the albacore, with sardine or smelt bait or a Wilson spoon. The

latter is effective, but rather expensive, the spoon costing from fifty cents to one dollar, and a large fish is more than likely to carry it off. The little bonito, compared to the tuna, its second cousin, is a voracious fish. It generally strikes on the run, and never stops, its rush being so impetuous that, like the tuna, it hooks itself if the rod is held firmly, as it should be, the thumb pressed on the brake or leather with just sufficient force to prevent overrunning of the line.

The splendid play of this twelve-pound fish is amazing to the tyro, as, when it is finally stopped, it surges downward, then around in long reaches, nearly always on the surface, so that the angler stands, and, with the butt of the light rod in the leather socket of the belt, plays it with all the accumulated delights of the sport. Rarely will this fish sulk, more often being seen on the surface, fin out, dashing this way and that with the rapid movements of all of the bonitos, often falling a victim to the small but savage bonito-sharks, which, scenting the blood, follow and drive it to even fiercer efforts to escape. The bonito is supposed to run in schools, but I have seen them in great masses. They are widely distributed, generally running in pairs, though possibly they assemble at times in compact schools, like the barracuda and tuna. Like others of the kind, they spawn on the high seas, the eggs floating; the young, with others, find their first protection beneath masses of floating kelp and weed.

That the bonitos go south or out to sea in winter is well known, as it is the exception to catch them at that season. They evidently follow the food supply to some offshore bank, or, like the birds, go to the south,

to return in spring and summer to contribute to the admirable food fishes of the region.

LONG-FIN TUNA

(*Thunnus alalunga*)

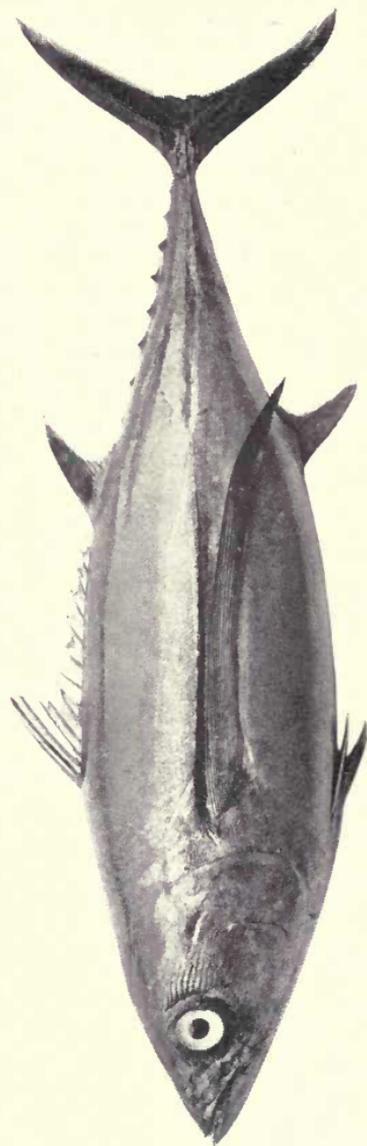
The long-fin tuna appears in Southern California in early spring and, in mild seasons, remains the year round. It is as thick-set a fish as can be found, and while they have been seen as heavy as one hundred pounds, the average weight is thirty pounds. It is a deep-water fish, that is, is found offshore about two miles, but is caught at or near the surface, taking a bone, jig or sardine bait. By drifting and chumming, this tuna can be lured to the surface, where it will bite as fast as the bait is tossed over. I have placed a sardine on the end of a gaff and lifted in a thirty-pound albacore (as it is also called), and, I think, under some circumstances they would almost take bait from my hand. The Tuna Club recommends a nine-ounce rod and a nine-thread line for them, six hundred feet of the latter being used with a long wire leader and a number seven hook. These fishes have an extraordinary long side fin, and are very active in their motions. They run in well-distributed schools, covering large areas. They prey upon sardines, smelt and all small fry, and their greatest value is in angling, the fish making a wonderfully game play with the rod, it often requiring half an hour to land one.

TAKING A LONG-FIN TUNA

This tuna rarely, if ever, comes in near shore. In California it is never taken off beaches; it is essentially a deep-water fish, keeping to the main channels and



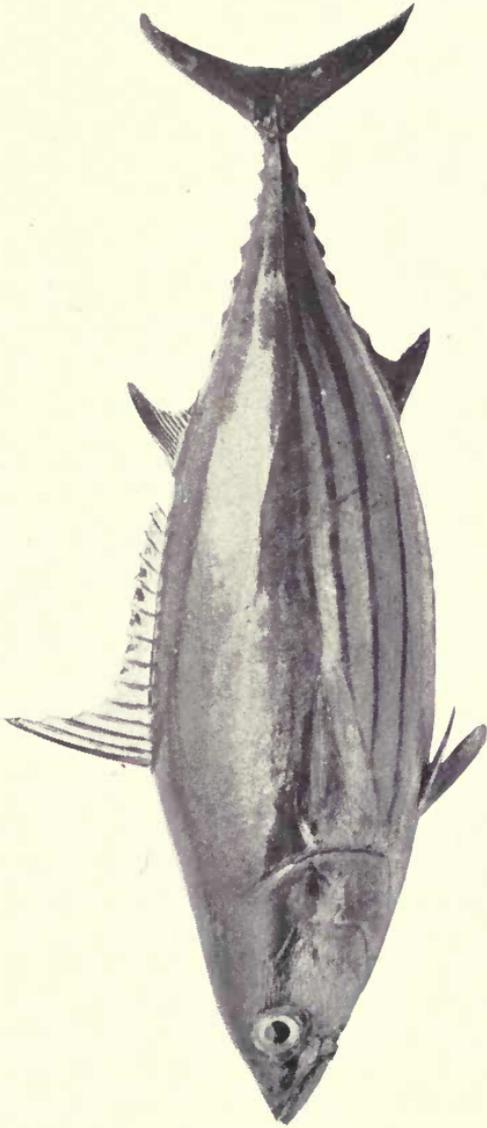
Oceanic Bonito, *Gymnosarda pelamis*. Bait, sardine or spoon.



The Long-fin Tuna, *Thunnus alabunga*. Santa Catalina Channel. Open sea, off shore. Bait, sardine or spoon.

Fig. 13

THE
BONITO
SARDINA



The Bonito. *Sarda Chilensis*.

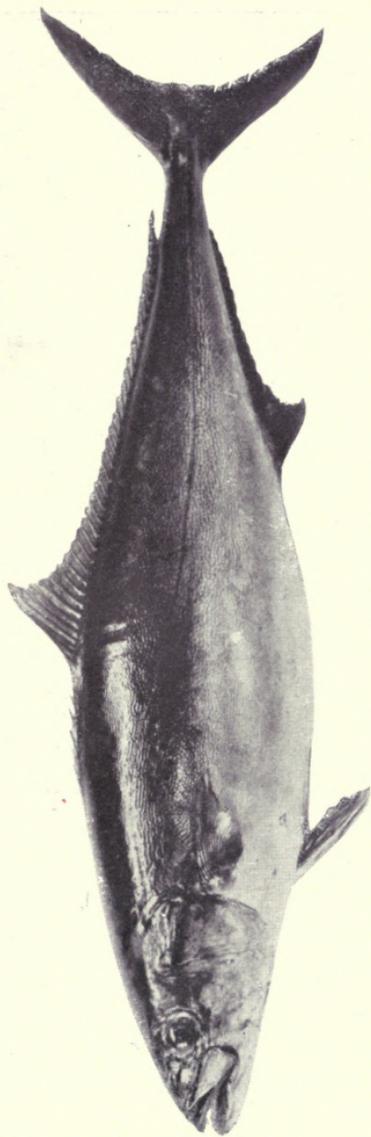
FIG. 14

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MAY 1911



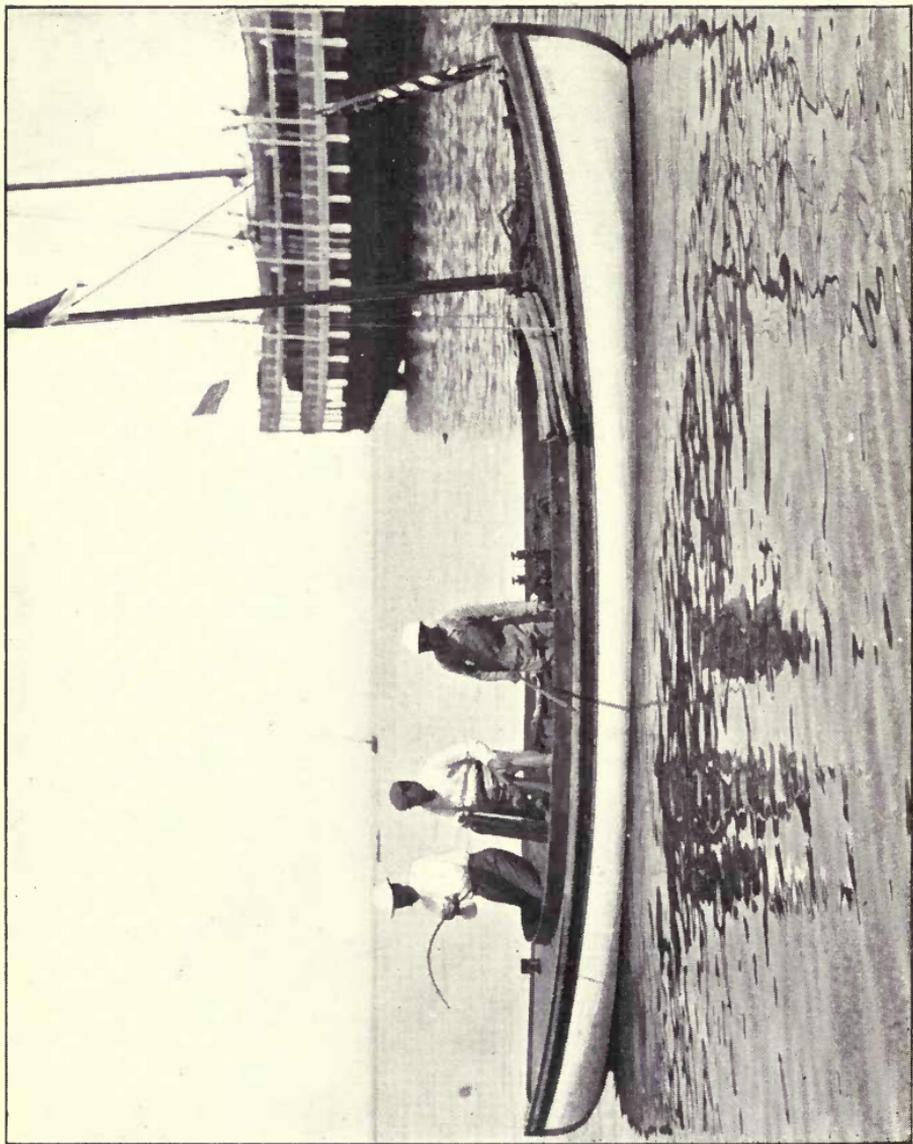
Record Bonito, *Sarda chiliensis*, of the Tuna Club. Taken by Miss Edith Holder. Los Angeles, California.

Fig. 15



The Yellowtail, *Seriola dorsalis*. Tuna Club Rod Record, 60½ Pounds. Taken by W. W. Simpson, England.

Fig. 16



Playing a Yellowtail. Avalon Bay, California.

CENTRE

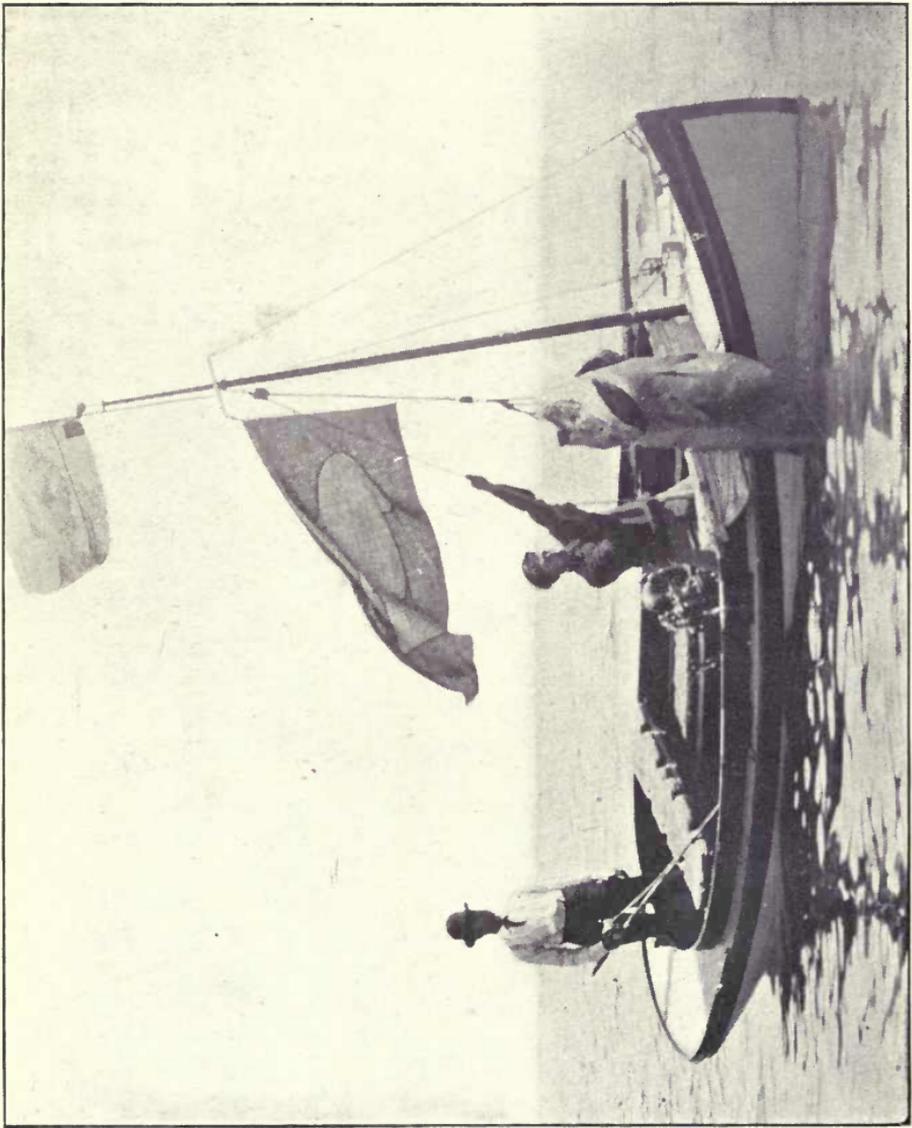


PHOTO. BY REYES

Black Sea Bass, *Stereolepis gigas*. Tuna Club Rod Record, 436 Pounds. Taken by L. G. Murphy.

Fig. 18

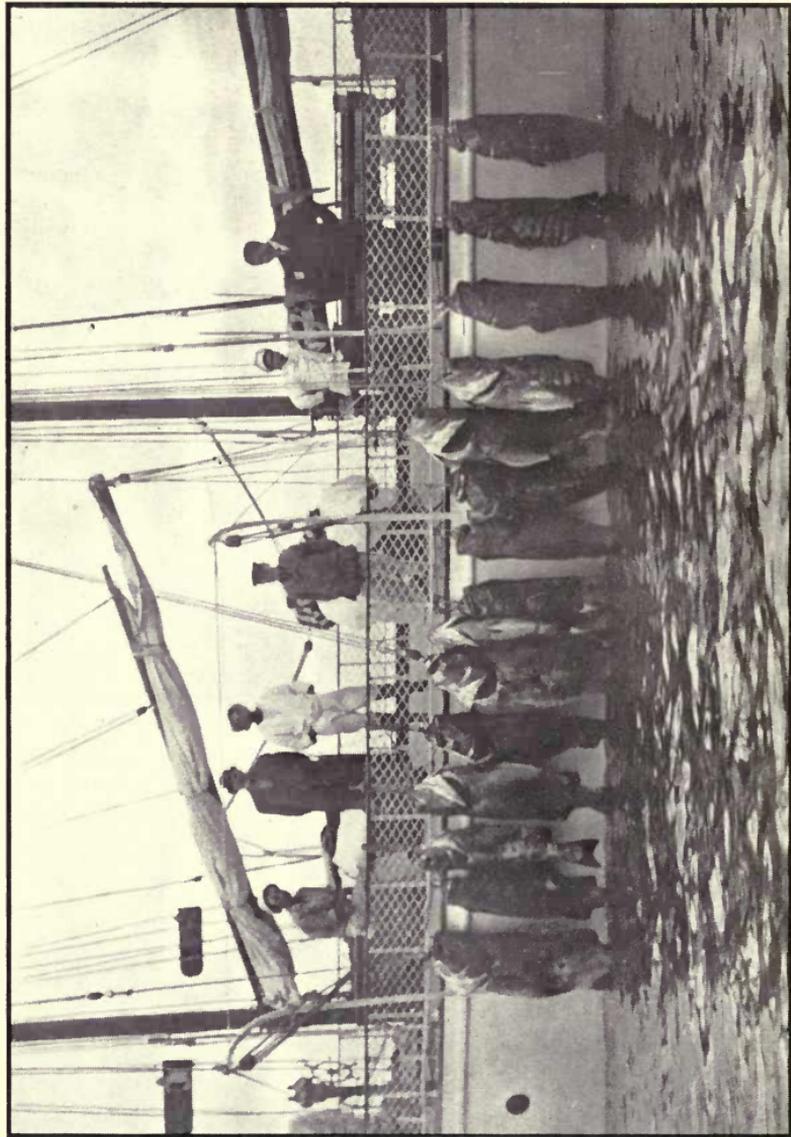


PHOTO. BY REYES

A morning's catch of Black Sea Bass, Lower California, by Messrs. Conn, Murphy and Sharp, of the Tuna Club.

the high seas. The most famous place for it is off Avalon, Santa Catalina Island, about two miles, in water as smooth as a lake, owing to the situation of the island. Here often ten or twenty launches of the type described on page 12 will be seen moving slowly about, the two anglers, with rods to right and left, trolling for the game. The moment a strike comes the gaffer stops the engine and tosses some bait overboard to keep the school about the boat, and the sport is on, as now both anglers have bending rods. The long-fin runs up to one hundred pounds, but the fish usually caught are between twenty-five and thirty pounds. The long-fin tuna soon shows his game qualities with a desperate and rod-racking rush into the depths. There is but one thing to do, and that is to let him have his way and gently check him. The amount of line a twenty-pound fish will take depends upon the tackle; usually the nine-ounce rod is employed, but the fish is also taken on the six-ounce and the thread of a line that goes with it, and then the time is almost doubled. In any event, twenty or thirty minutes of play are devoted to the fish, making a hard game fight before he is brought to the surface and seen coursing along, a thing of beauty, with big staring hypnotic eyes, and long side fins, like poniards.

At last he comes in and is gaffed, and so plentiful are these fishes that an endless number could be caught if desired.

The long-fin tuna moves in great well-distributed schools, not in a compact mass, and is generally associated with the various bonitos and often with the tuna and the yellow-fin tuna. All these fishes are often seen trying for the bait. They feed on small fishes—

sardines, mackerel and squid; the larger ones prey on the flying-fish, driving them into the air.

The long-fin tuna is known in many seas, but there is but one species, though it has many names. The name albacore is given to the leaping tuna in some waters. It is always a pelagic, deep-sea fish; that is, it lives on or near the surface, in deep water, following ships, and in many ways showing its sociability. In California it is now used as a food fish.

The Tuna Club rod records are as follows:

Largest Albacore—

Chas. W. Miller, Denver, Colo., season 1901...	30
Ernest Fallon, Los Angeles, Cal., season 1902...	38
John Van Liew, Los Angeles, Cal., season 1903.	38
Stewart Ingram, Los Angeles, Cal., season 1904.	46
I. C. Pillster, Denver, Colo., season 1905.....	48
* Gustave J. Frickman, N. Y. City, season 1906.	38 $\frac{3}{4}$
* A. B. Cass, Los Angeles, Cal., season 1907....	41 $\frac{3}{4}$
* C. R. Sturdevant, Pasadena, Cal., season 1908.	43 $\frac{3}{4}$
* J. W. McIntyre, Catlin, Ill., year 1908.....	65 $\frac{1}{4}$
* S. A. Guy, Shreveport, La., season 1909.....	43 $\frac{3}{4}$
* W. N. McMillan, Nairobi, E. Africa, winter season 1909-10.....	50
* H. A. Omson, Los Angeles, Cal., season 1910..	37 $\frac{1}{2}$
* C. R. Guertler, New York, winter season 1910-11.	51 $\frac{3}{4}$

THE CALIFORNIA BONITO

(*Sarda chilensis*)

This article was written in 1910. Since then this fish is followed by large steamers and canned as tunny.

The ordinary bonito or skipjack is very common off the California coast, and is one of the most highly

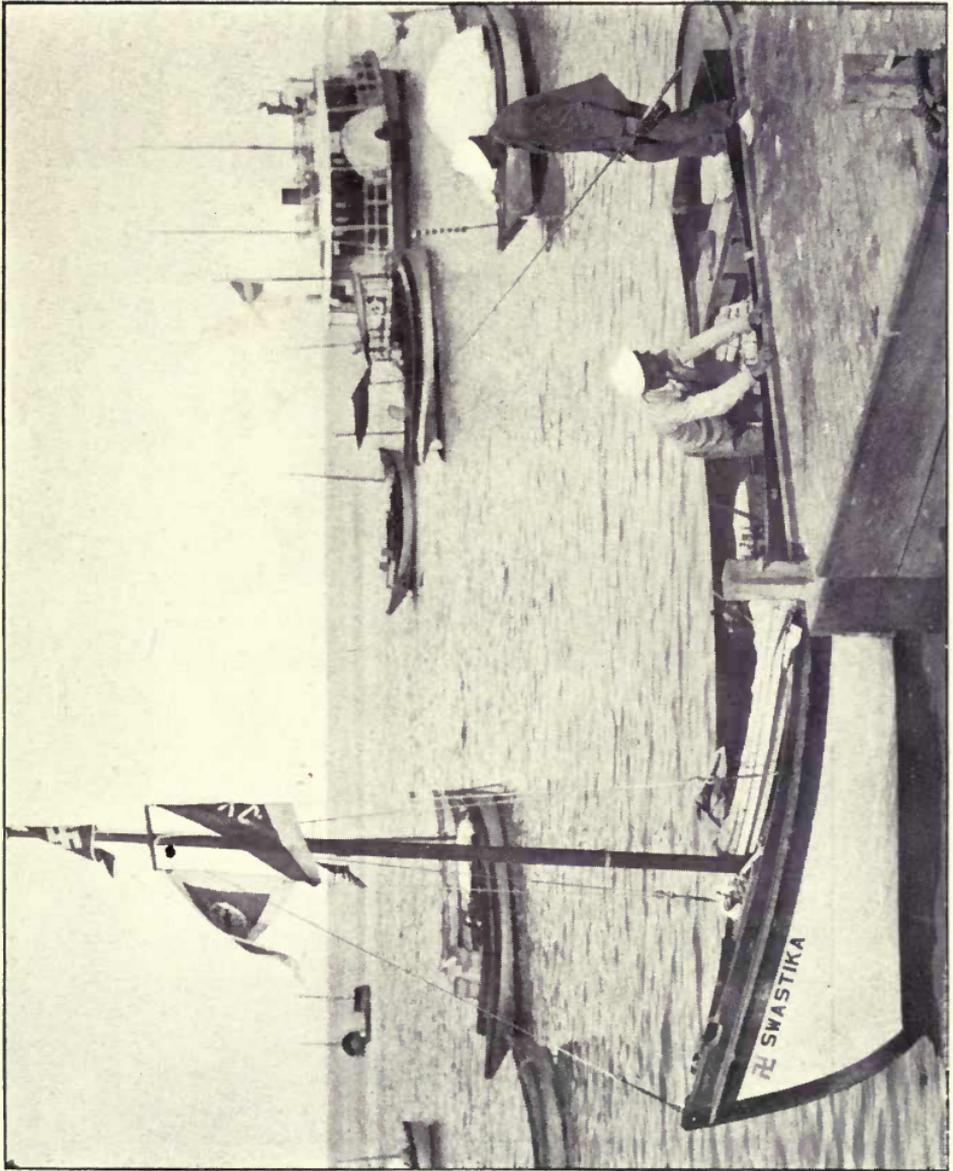
esteemed game fishes. I have never seen one over twenty pounds in weight, and the average fish is about eight pounds. It is the humming-bird of the fishes, quick as a flash, dashing here and there, and with its coat of many colors, a thing of incomparable beauty. It is short and very thick-set, the upper portion a vivid blue, the lower silver, with dark lines lengthwise; the tail is always in motion, wriggling violently and sending the little fish along at a prodigious rate of speed. When taken from the water it is seen to be enveloped in a marvelous investment of color, so that it gleams and scintillates like a humming-bird. It is very tame, approaches the boat, and is taken with the 3-6 tackle described, or a heavy eight-ounce trout rod for small ones, though the twenty-pounder referred to was played for one hour on a nine-ounce rod and made a most extraordinary fight. The charm of the bonito as a game fish lies in the fact that it plays on the surface almost entirely and rarely sulks. The best fishing-ground for the bonito is two miles off Avalon Bay, California, where it is found in company with the long-fin tuna and the "yellow-fin." It rarely, if ever, approaches the islands and is never found near the mainland beaches or surf.

It is caught in deep blue water, but on the surface, either by trolling or by casting when the fish are located, and it can be kept around the boat by chumming. Its habits are not definitely known, but it comes north in spring, leaves in winter, and doubtless deposits its spawn on the surface of the Santa Catalina channel.

THE YELLOWTAIL

(Seriola dorsalis)

Those who have taken the Amber Jack of Florida will recognize the yellowtail as a second cousin, longer and more slender, but with a green vestment above, silver below, a single stripe of yellow, with finlets the same, which, with its large lustrous eyes, makes it one of the most attractive of fishes. It is a desperate fighter. I have seen a twenty-pounder give a man the buck fever so that he dropped the rod. The yellowtail is par excellence a Southern California fish, though it is found down and up the coast and in the Gulf of California, but to be seen at its best and in the greatest numbers one should go to San Clemente or Santa Catalina Island. The fish attains a weight of one hundred pounds and a length of nearly five feet, but the average fish weighs about twenty pounds, heavy enough for either "duffer" or expert. The yellowtail arrives in Southern California about March and remains until December, and ranges as far north as Santa Barbara, rarely to Monterey, and some years it is taken at Avalon every week in the year, when the winters are mild and dry. In winter it goes south and off into deep water, being occasionally taken on the outer banks at that time. The tackle for the yellowtail should be the nine-ounce rod described, but the Tuna Club has a branch, the 3-6, devised especially for yellowtail, which gives this splendid fish the advantage. The rod weighs six ounces, the line is a six-thread, and with this fish up to forty pounds have been taken. The record rod catch of yellowtail is a sixty-one pounder. The hook for yellowtail is a 7° or 10°,



Typical Tuna Club Angling Launch, Avalon, California. Mr. A. L. Beebe going out.



PHOTO. BY REYES

Sword Fish weighing over 300 pounds taken with rod and reel by Col. John E. Stearns at Santa Catalina Islands.

Fig. 21

U.S. DEPARTMENT OF COMMERCE
BUREAU OF FISHERIES



PHOTO. BY REYES

Tuna Club Rod Record Sword Fish, 339 Pounds, caught by Hon. C. G. Conn. Captain Farnsworth, gaffer.

Fig. 22



PHOTO. BY REYES

The Convict Fish

Fig. 23

according to occasion. If fish of ordinary size are desired, sardine bait is used. If large fish, forty or fifty pounds, are running, then a flying-fish is used, weighing a pound or so. The delicate line has a wire leader with several swivels. Trolling with eighty feet of line is the usual plan, but if the fish are in abundance the angler can allow the boat to drift, and cast. When hooked, the yellowtail makes a series of vicious runs that are irresistible, taking line and often breaking it. If there is any obstacle near, kelp or a pile, the clever yellowtail will rush at it and break the line at once. When it has exhausted all its tricks it sulks and sulks until the angler raises it by "pumping" on the rod, when it will repeat indefinitely its rushes or plays. It can be said that the yellowtail depicts the "Ultima Thule" of gaminess. It may be worn out and gaffed, but it is never conquered, it never surrenders.

Largest Yellowtail (*Seriola dorsalis*)—

F. V. Rider, Avalon, Cal., season 1898.....	41
F. S. Gerrish, Jacksonville, Fla., season 1899....	37
R. F. Stocking, Los Angeles, Cal., season 1899..	48
T. S. Manning, Avalon, Cal., season 1901.....	33
Dr. Trowbridge, Fresno, Cal., season 1902....	47½
F. P. Newport, Los Angeles, Cal., season 1903..	46
H. Meyst, Chicago, Ill., season 1904.....	44
J. E. Pflueger, Akron, Ohio, season 1905.....	43
* A. A. Carraher, Avalon, Cal., season 1906... 38½	
* Edward C. Sacks, Butte, Mont., season 1907..	41¾
* W. W. Simpson, England, season 1908.....	60½
* C. E. Ellis, Spokane, Wash., season 1909....	48¾
† C. G. Conn, Avalon, Cal., winter season 1909-	
10.....	40½
* Dr. B. F. Alden, San Francisco, season 1910..	45½
* Mrs. Evelyn Garrett, Los Angeles, winter	
season 1910-11.....	45

THE BLACK SEA BASS

(*Stereolepis gigas*)

Probably no catch ever made with rod and reel has so taxed the credulity of the layman and general public of the Atlantic coast as that of the black sea bass of Santa Catalina waters. On the face of it it appears preposterous to ask any one to believe that a three hundred-pound fish can be taken with a line so small that it will lift but forty-two pounds, or two pounds to the thread or strand; yet this is a very common catch here from June to October. Imagine an ordinary five-pound black bass by magic lengthened out in good and comely proportions to six or seven feet, and given an avoirdupois of several hundred pounds, and you have the black sea bass, jewfish or June fish, the gigantic sea bass of California, peculiar to the region and the gulf. It is not to be confused with the jewfish of Florida; it is an entirely different fish, a free swimmer, taking to deep water or outer banks in winter, coming inshore in summer to make its home on the submarine slopes of the great mountain islands of California, where their spawn is deposited, but the young rarely, if ever, seen. The black sea bass frequents the vast kelp beds, which shelter the regions near shore, in water about forty feet deep, though they are often seen in shallow water.

It is a most interesting sight, this giant of the kelp groves. I was with Dr. Gifford Pinchot, anchored on a submarine mountain spur of San Clemente a few years ago, in September, lying on deck looking down into the marvelous blue of the water, when suddenly I saw a black sea bass swim up the side of the

mountain. It must have been five or six feet long, ordinarily a most conspicuous object, yet so marvelous was its adaptation to the blue of the sea and the mystic aurelian tint of the rock, that it was with great difficulty that I could follow it, although the water was not over fifteen feet deep. Its movements were extremely graceful, slow and dignified. Another time I watched a large black sea bass swimming through the kelp; saw it take my bait and observed the riotous rush when it was hooked.

These giant bass, which attain a weight of one thousand pounds, vary much in appearance. Some are long and rangy, well-proportioned; others are short and stout. But they average well, and all, in the main, when alive, are attractive fishes and most graceful in their movements. That so enormous a creature is a powerful foe goes without saying, and that it is now taken with tuna tackle (p. 15) is more than astounding. But the Tuna Club has many medals, cups and trophies which have been won by anglers from all over the world for taking them with sixteen-ounce rods and a twenty-one-thread line.

There are various ways of fishing for the big bass. It can be taken by trolling a whitefish slowly along, ten feet from the bottom. This is rarely attempted, as it is uncertain, but that it is plausible is shown by the fact that many anglers, when pulling in a line, have seen the big bass come up with a stupendous rush for it, exactly as a black bass will charge a minnow. Another way, and that most followed, is to anchor a launch, Fig. 19, near shore and a kelp bed, in water forty or fifty feet deep. The cable should be made ready to cast off and buoy. The line, exactly

like that used in tuna fishing, is baited with a six- or eight-pound live whitefish or a big piece of albacore; provided with a heavy sinker, it is lowered to within six or eight feet of the bottom; the wait then begins. Sometimes the lure is taken at once. I have had strikes as soon as it reached the bottom and have taken three fish in rapid succession. Again the wait may be a long one.

The strike of this fish is a nibble, then a gentle running out of the line, exactly the reverse of that of the tuna. The angler slacks away ten or twenty feet, then allows the line to come taut and, in the technical terms of angling, gives the fish "the butt." It is then that the boatman tosses the buoy overboard, and the boat, if a small one, is towed away after the fish, which makes a desperate rush out to sea. At first all that can be done is to press on the brake and try to stop the line from running out, without breaking it. I have hooked fishes of this kind that I could not move, nor could any one in the boat. Generally the bass will endeavor to reach a kelp bed and wind itself among the trunks of these submarine trees; so the boatman's endeavor is to induce the fish to swim out to sea, pulling it away from danger; once in fairly deep water beyond the kelp zone, an opportunity is afforded to play it to a finish. I have brought an eighty-pounder to gaff with a nine-ounce rod in less than twenty minutes, and have played another, an unseen fish, for hours with a sixteen-ounce rod and never could land him.

There is a great difference in these fishes. Some are active and hard to land; others are merely heavy; but the average is a hard-fighting desperate load to

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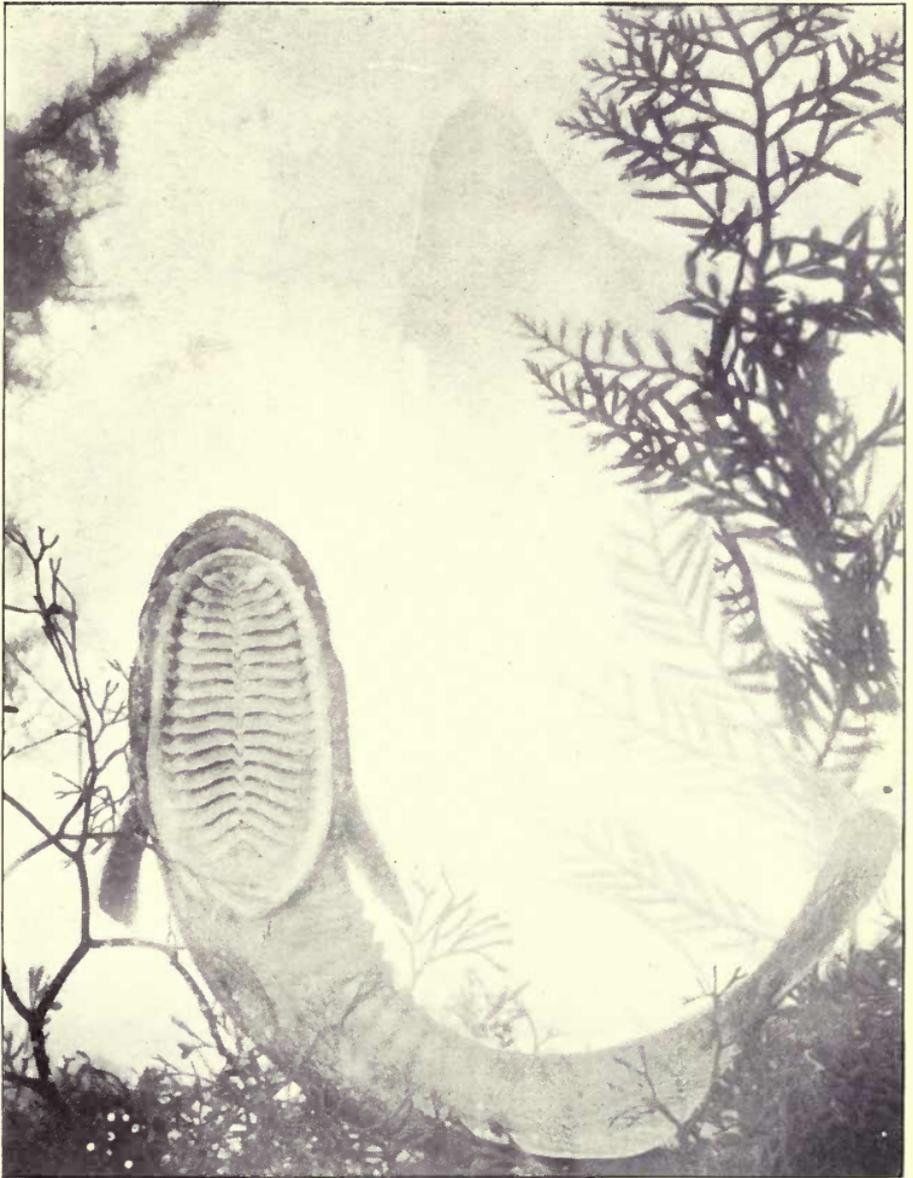


PHOTO. BY REYES

The Remora of the Sworáfish, *Echeneis remora*. Santa Catalina.

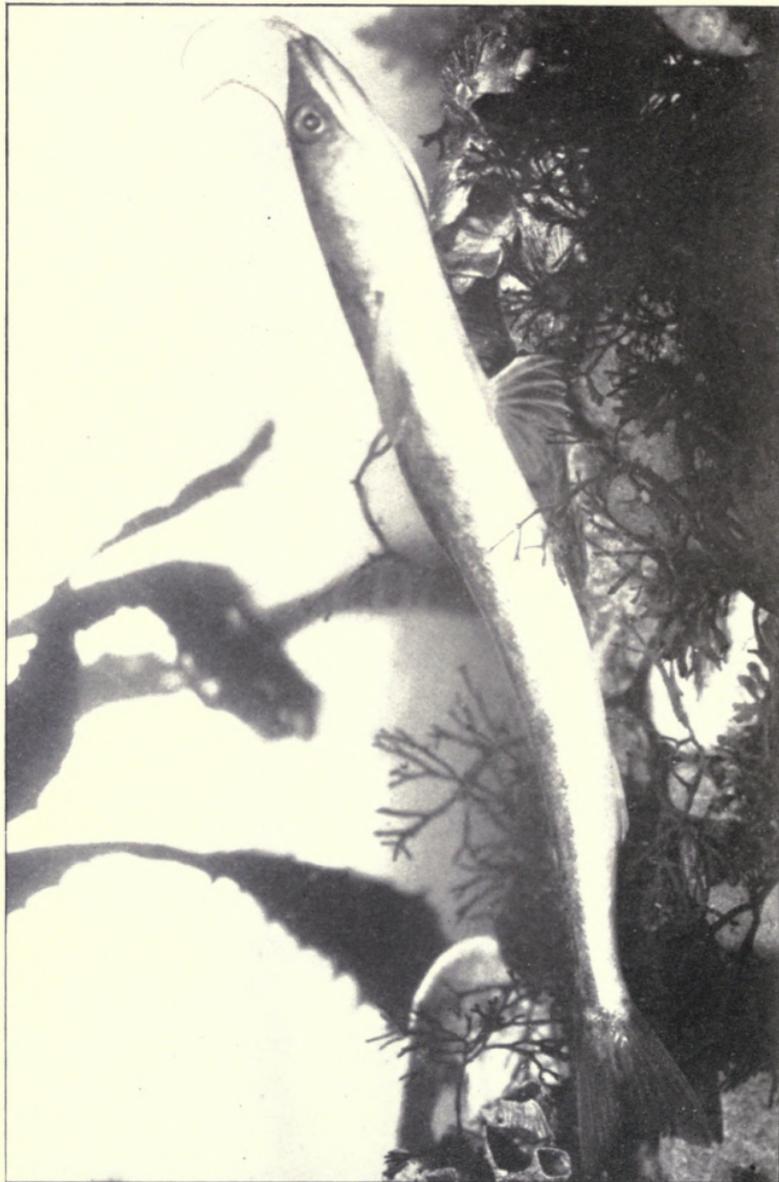


PHOTO. BY REYES

The Lizard Fish, *Synodus lucticeps*. Santa Catalina.



PHOTO. BY REYES

Parrot Fish, *Iridio semicinctus*.

NO. 100
ANNO 1910



PHOTO. BY REYES

The Ghost Fish, *Trachipterus*. Deep water

Fig. 27

U.S. FISH AND WILDLIFE SERVICE

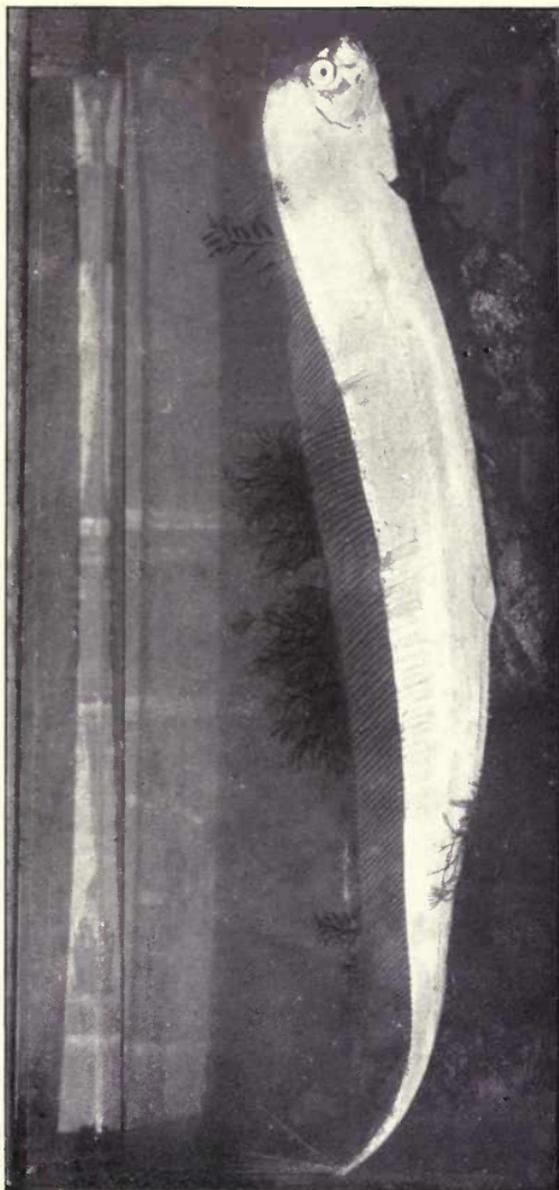


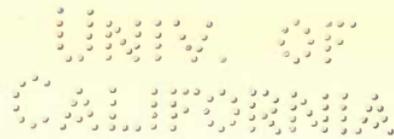
PHOTO BY REYES

Live Ribbon Fish, *Regalecus russelli*. Length twenty-two feet. Avalon Aquarium, Avalon, California.

Fig. 28



The Bonito Shark. A rod catch by Mr. Sharp. Jim Gardner, boatman.
Fig. 29



Hammerhead Shark, *Sphyrna zygaena*. Taken on rod.

Fig. 30



The Rock Bass, *Paralabrax clathratus*

Fig. 31

lift, making the game one of excitement to the finish. For hours boats have been towed by these big fishes; the angler who lands one certainly earns his sport. At the end of the struggle the big fish will appear near the surface, and when the gaff reaches his under jaw and he is held, he tosses water over the boat and makes a brave display of his power and strength. The fish is then taken in tow, if very large, or hauled up on the stern by block and tackle and taken inshore to be weighed by the weighing committee of the Tuna Club, as there are records, cups, medals and trophies which go to the breaker of existing records.

The rod records of the Tuna Club are as follows:

Largest Black Sea Bass (*Stereolepis gigas*)—

F. V. Rider, Avalon, Cal., season 1898.....	327
T. S. Manning, Avalon, Cal., season 1899.....	372
F. S. Schenck, Brooklyn, N. Y., season 1900....	384
C. A. Thomas, Pomona, Cal., season 1901.....	384
H. T. Kendall, Pasadena, Cal., season 1902....	419
Edward Llewellyn, Los Angeles, season 1903...	425
H. L. Smith, New York City, season 1904.....	402
L. G. Murphy, Converse, Ind., season 1905.....	436
C. H. Earle, Los Angeles, Cal., season 1906....	372
C. J. Tripp, Los Angeles, Cal., season 1907.....	427
Lloyd B. Newell, Los Angeles, Cal., season 1908.	380
R. C. Baird, San Francisco, Cal., season 1909....	394
Jesse Roberts, Philadelphia, Pa., season 1910....	385

THE SANTA CATALINA SWORDFISH

There are two swordfishes found on the California coast—the common Eastern swordfish, *Xiphias*, and the Santa Catalina swordfish, *Tetrapturus*. The former is taken with the harpoon and is not considered a game fish, attaining a weight of from six hun-

dred to eight hundred or more pounds. The latter rarely runs over three hundred pounds, the average being about one hundred and fifty pounds, this medium weight making it available as a rod and reel catch. The Catalina swordfish is long and slender; one of the most beautiful fishes in the world, being garbed in a purple coat of extraordinary brilliancy. Its sword is much shorter than in the larger fish, more of a poniard than a sword, and the fish has virtually two, as the lower jaw is sharp and dangerous. Its eye is large and black, its belly silver, its back royal-purple. Its top fin is tall and set into a scabbard; its tail is large and crescent-like. In fact, no more debonair swash-buckler ever swam the seas than this fish, which attains an extraordinary size.

At times it runs in vast schools, but when it appears at San Clemente and Santa Catalina in July, August and September, it is generally in pairs, and is seen either leaping or swimming slowly along, its tall dorsal and the upper lobe of its tail high above the water, a conspicuous object.

As might be expected, the tackle for such game must be of the strongest, and that already described for leaping tuna is used. To make the capture more satisfactory the angler generally sits in a rowboat or skiff and is towed behind a launch, with about one hundred and fifty feet of line out, and flying fish bait. The moment a strike comes the skiff casts off and the boatman takes the oars, while the launch lies off and follows the game at a safe and reasonable distance. The swordfish, like a tarpon, has a very hard mouth, hence when the strike comes the angler pays out line, often twenty or more feet, to give the swordfish an

opportunity to fully take it. Then the "butt" is given, and if the fish is hooked it will often go into the air in a wild and clumsy leap, falling back on its side with a crash—a totally different leap from that of the tarpon or tuna. Now, if well hooked, the fight is on and the swordfish will make a run calculated to give any man's nerves a test. A big fish has been known to walk off with six hundred feet of line and leave the angler nothing for his pains. But the average fish is stopped before this catastrophe occurs, and then it is that the swordfish of the sea will demonstrate that he is the king of all big game fishes, so far as spectacular play is concerned, which is saying a good deal, having the tarpon in view. A lively tarpon will jump ten or twelve times; a swordfish has been known to leap fifty times before it was caught. I once followed Dr. Gifford Pinchot when playing a swordfish. Before I caught up with the skiff the fish had jumped twenty times, and how many it jumped in the two-hour night chase I do not know; but Dr. Pinchot brought it to gaff fourteen times before he at last got it. This fish swam away with the skiff at a five-mile per hour rate with great ease, and afforded a wonderful illustration of all the qualities known as game—leaping, slashing, charging, this way and that—in all, a most exhilarating fish to have on a cobweb of a line.

Some years ago, having taken swordfish in Florida on line and with the grains, I offered a swordfish cup to the Tuna Club, which has now several names on it. Through the adventures of Messrs. Stearns, Conn, Pinchot and others the Santa Catalina swordfish has taken its place as the great game fish of the world, re-

garding it from the standpoint of sensational play. The swordfish is taken from launches with tuna tackle, but it lends excitement and interest to take it from a small skiff, towed astern, that can be cast off at the strike and towed away by the fish. The angler should insist on the launch, and a sea-going one, lying by, as in the case of Mr. Pinchot and myself, off San Clemente, a catastrophe might well have happened in a heavy sea and fog in a two-hundred-pound skiff.

The visitor to the Tuna Club will see two magnificent specimens—the swordfish of Colonel John E. Stearns, the other that of Mr. Conn—not only splendid trophies, but fishes which suggest literal battles of the sea where sportsmen met the big and dangerous game with line so light that the layman will not believe that a fish of its size could be taken with it, as it appears to be manifestly absurd. Yet it is true to the letter, as the Tuna Club is most careful of its records.

The swordfish preys on fishes of all kinds; dashing into schools of mackerel and sardines, cutting them down, then picking up the pieces. It is very pugnacious, and some extraordinary battles have been witnessed between the fishes.

The swordfishes spawn in the open sea and the young are at first very different from the adults. Very little is known as to their habits.

The rod records of the Tuna Club are as follows, and it should be remembered that the records were won on rods weighing not over sixteen ounces and lines not over twenty-one- or twenty-four-thread. In a word, these splendid trophies have been won in open dangerous fights at sea where swordfish had every

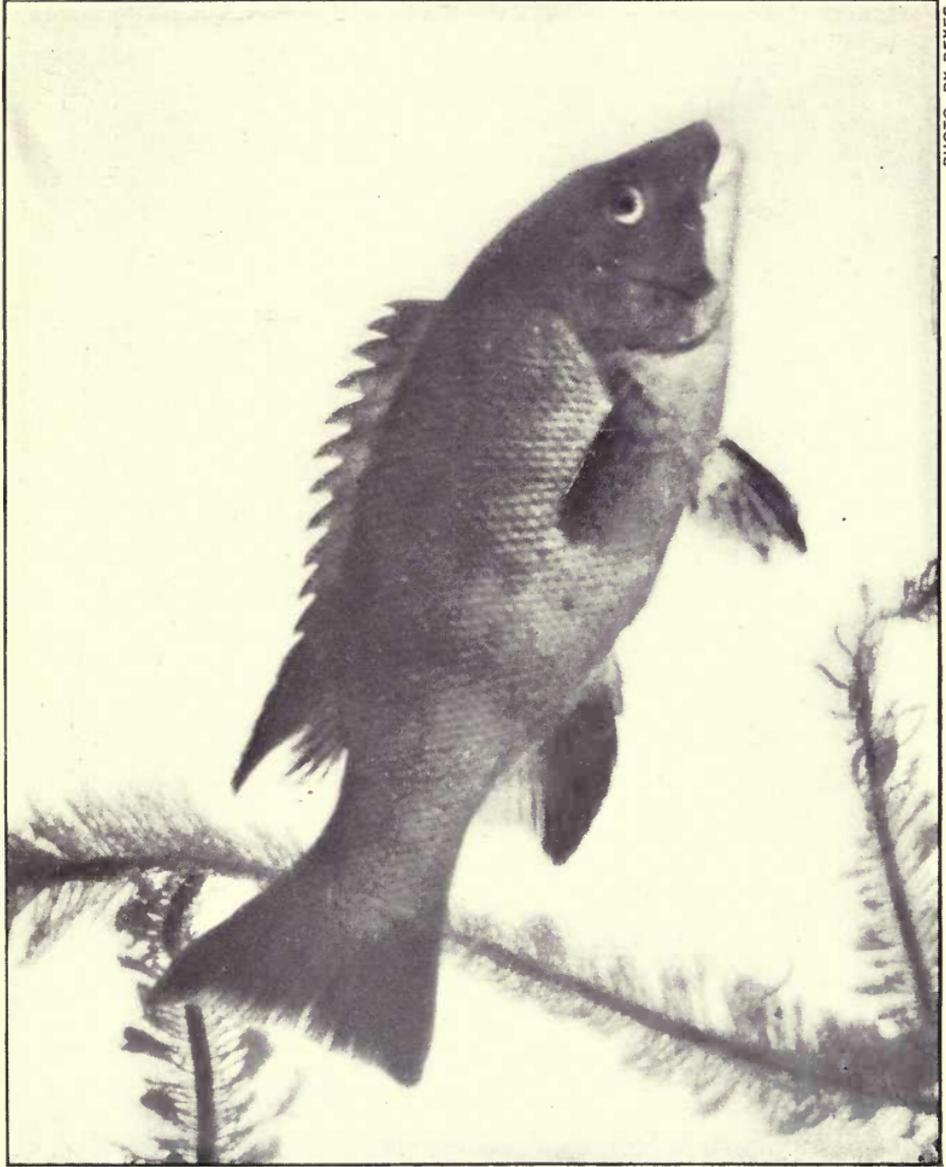


PHOTO. BY REYES

Young Male Sheephead, *Pimelomictopon pulcher*. Shallow water. Bait, abalone or fish.

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF FISHERIES



PHOTO. BY REYES

Blue-eye Perch, *Girella nigricans*. Shallow water. Bait, abalone or crayfish.

NO. 141
ANNALS

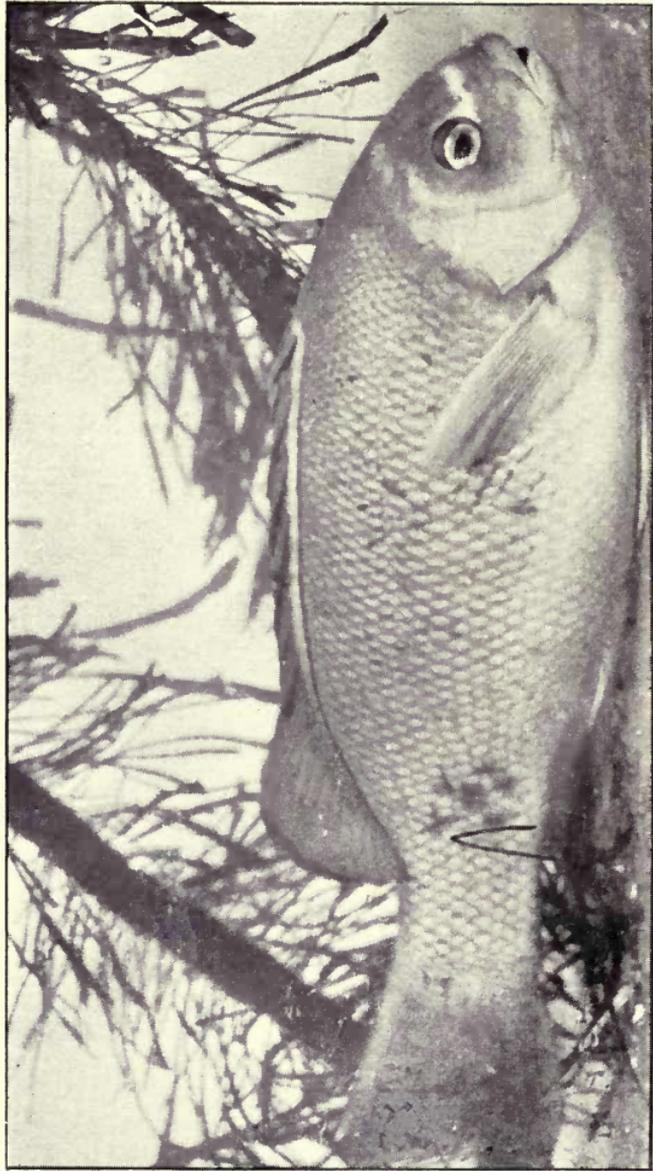


PHOTO. BY REYES

Blue-eye Perch, *Girella nigricans*.

possible advantage. If the reader desires data relating to the vicious nature of swordfishes, he will find a list of scores of boats and ships that were rammed, sunk or damaged by them, compiled by Professor G. Brown Goode, of the Smithsonian Institution at Washington.

Largest Swordfish (*Tetrapturus mitsukurii*)—

Edward Llewellyn, Los Angeles, season 1903....	125
Ernest Fallon, Los Angeles, season 1905.....	128
Geo. E. Pillsbury, Jr., Los Angeles, season 1908..	138
C. G. Conn, Elkhart, Ind., season 1909.....	339
John E. Stearns, Los Angeles, season 1910.....	392

THE HALIBUT

One flat fish, a cousin of the little sanddab, found in California waters, is the halibut, which may be found up to sixty or seventy pounds and is considered a game fish. On the walls of the Tuna Club hangs a halibut which weighs sixty pounds, taken by Mr. Rotherham with what was literally a trout rod, after a fight of over an hour. The halibut can be found on sandy bottoms at the entrance to the mouths of the various canyons, and is often taken when trolling, coming up after the bait with a strange undulatory motion. The young of these fishes, when born, have an eye on each side, but as the fish grows and falls on its side, one eye travels over, until, in the adult fish, we have the two eyes on the top side. In some of the flat fishes (flounders) of Japan the eye is said to pass through instead of going around—a remarkable fish story.

It is impossible in the scope of this little book, intended as the briefest possible handbook of the fishes of the Pacific coast, of value to the angler, to do more

than mention all the fishes which may be caught, as the interesting convict fish with its stripes, Fig. 23, the remora with sucking disc, Fig. 24, which rides about on sharks, turtles and swordfish; the beautiful kelp fish, which builds a nest and mimics the kelp and hangs in it in strange positions. The great red grouper or rockfish, found in deep water, and a valuable food fish; the strange lance-like lizard fish, Fig. 25, with fierce teeth; the little parrot fish, Fig. 26; the little kelp fishes and many more found everywhere.

In deep water we find the ghostfish, Fig. 27, or king of the salmon: the marvelous ribbon fish, Fig. 28, like a beautiful satin ribbon, fifteen or twenty feet long, with brilliant vermilion fins or plumes. This fish attains a length of thirty or more feet and is probably the foundation of many of the sea-serpent stories. In deeper water, occasionally coming in, is the Indian-head fish, with beautiful colors; the savage walking fish, and many others, rarely seen by any one, but all adding to the interest in the sea which abounds in the most bizarre and interesting forms.

SHARKS

Sharks are hardly included among game fishes, yet the bonito-shark, found in California waters, of about thirty pounds, leaps into the air when hooked and affords a very good imitation of a game fish. So with the oil-shark, beautifully marked. I have taken it up to sixty pounds on a nine-ounce rod from the beach; had it been a salmon instead of a shark, the play it made would have been considered remarkable.

The sharks captured off the islands of San Clemente

and Santa Catalina in summer with rod and reel tax the credulity of those who read, but the accounts are reliable. It is not considered remarkable to kill sharks ten feet long with tuna tackle. Mr. Gilmour Sharp has taken such a bonito-shark—a monster big enough to dine on a man. It was played for several hours on a twenty-one line, and killed after a long and determined fight. The great sharks follow the tunas, bonito and other schools of fish, occasionally dashing into them like tigers and carrying off their prey. A large so-called grouper or land shark is also taken here, but the really game shark is the long lithe

HAMMERHEAD

It is ten or more feet in length, and weighs from one hundred and fifty to two hundred pounds. This shark is a most forbidding creature. To show its strength, I hooked one about ten feet in length, which towed me a mile out to sea and was never stopped until five skiffs tied on, the men all rowing as hard as they could. Not until I had its big ugly hammer-like head triced up to the skiff did it give in, and it then more than once almost tipped over the light craft. If one wishes a battle with a spice of danger, a hammerhead with rod and reel from a skiff can be commended.

THE BARRACUDA

The Florida barracuda is a solitary game fish, with the courage of its convictions and the staying qualities of a bull terrier. Its California cousin is a totally different fish. It is smaller, rarely exceeding fifteen

pounds, goes in close schools, though sometimes breaking up, and is to be compared to the fresh-water pickerel as a game fish; it is, in fact, a failure compared to the rest of the finny tribe found in these waters. It appears in early spring in vast schools coming from the south, and is followed with net and line, sardine or bone, by the professional fishermen, who consider it one of the most valuable summer food fishes. I have taken it with an eight-ounce split bamboo, and some individuals afford some sport on such tackle; but the average fish comes in very readily and shortly gives up the fight.

THE MACKEREL

In early spring vast schools of mackerel come up the coast and afford good sport for anglers with light rods. The fish is not the same as the famous Eastern mackerel, nor is it so good a food fish; but as game on a light split bamboo no one would criticise it. When the fish are biting they are exceedingly voracious, and the angler can cast at them with an exaggerated fly made of a piece of white or red cloth and take them in unlimited quantities. These fishes are migratory; now in one place, the next day in another, disappearing in the fall for some unknown resort.

ROCK BASS

Another small fish to be caught in unlimited quantities is the rock bass. It is shaped like the black bass, and altogether an attractive fish, with brilliant blue



PHOTO. BY REYES

The Medialuna, *M. californiensis*. Bait, abalone or crayfish.

Fig. 36

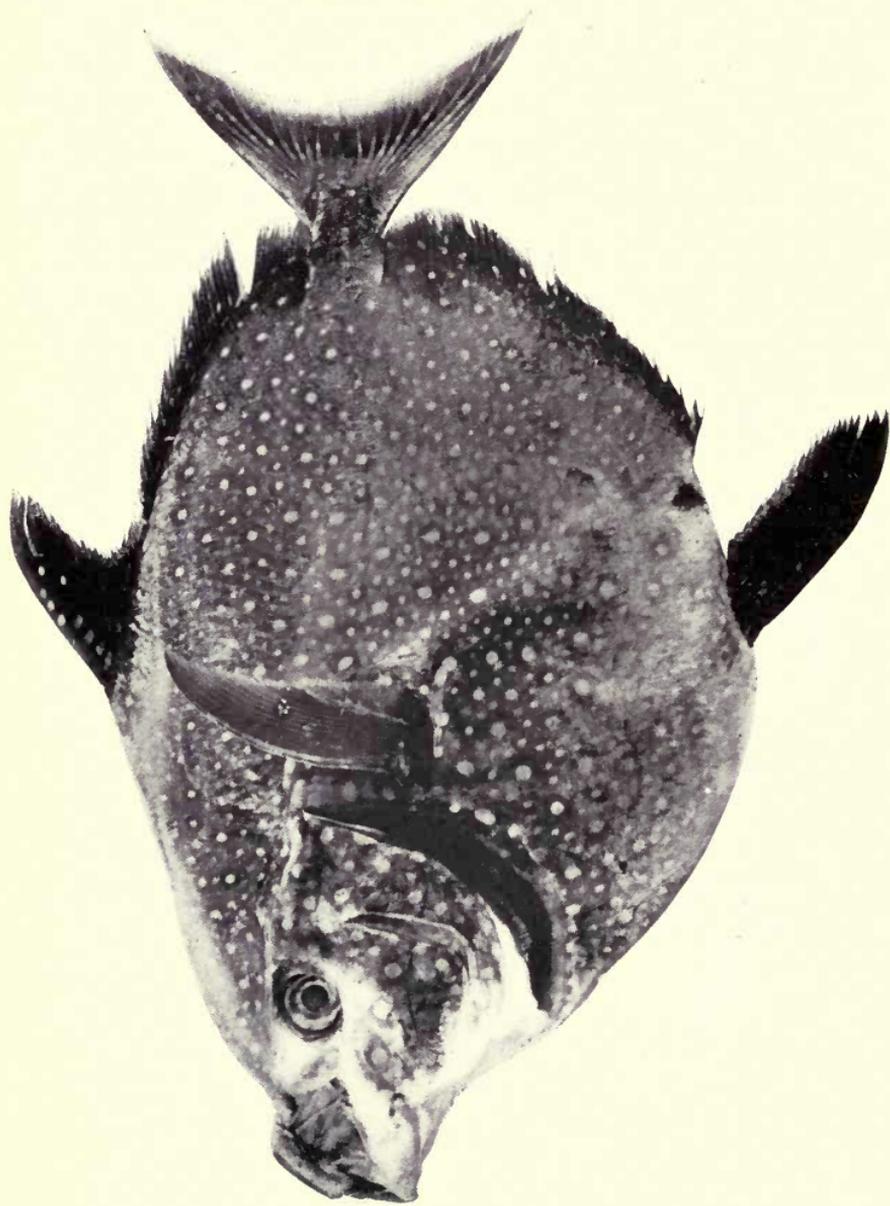
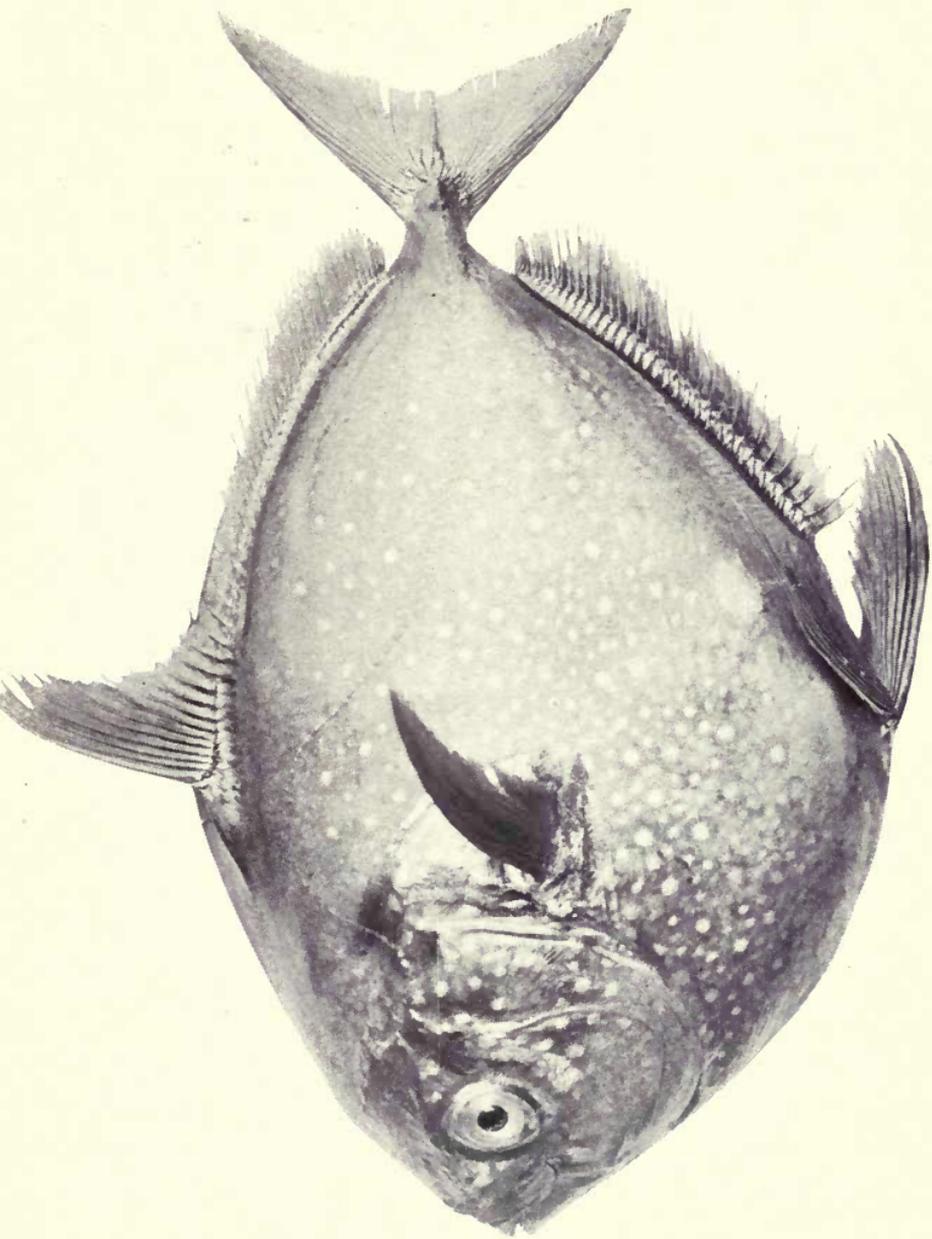


PHOTO. BY REYES

The Opah, Santa Catalina, California.

U. S. GEOLOGICAL SURVEY
BUREAU OF FISHERIES



The Opah, *Lampris regis*. Santa Catalina, California.

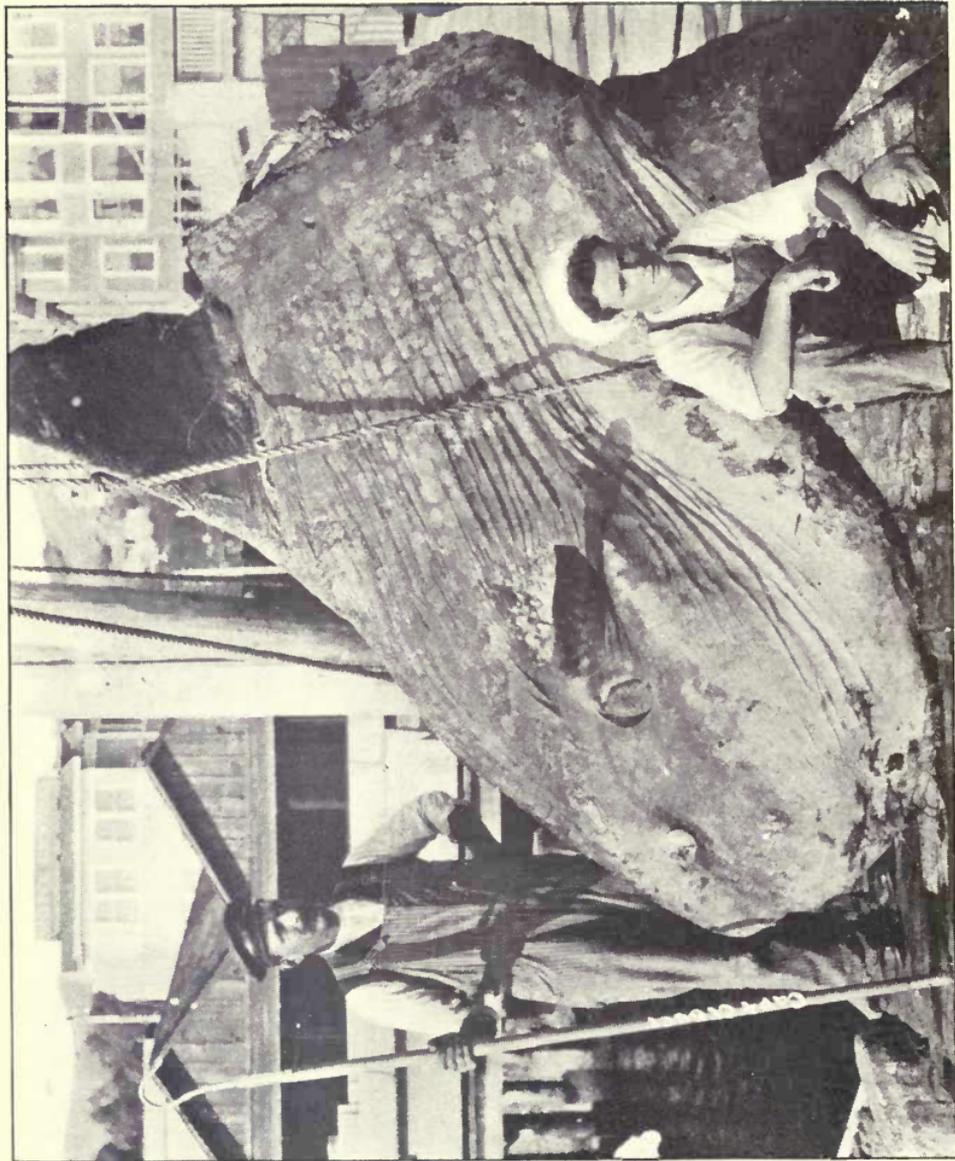


PHOTO. BY REYES

Sunfish, *Mola mola*. Santa Catalina. Taken by W. N. McMillan, London.

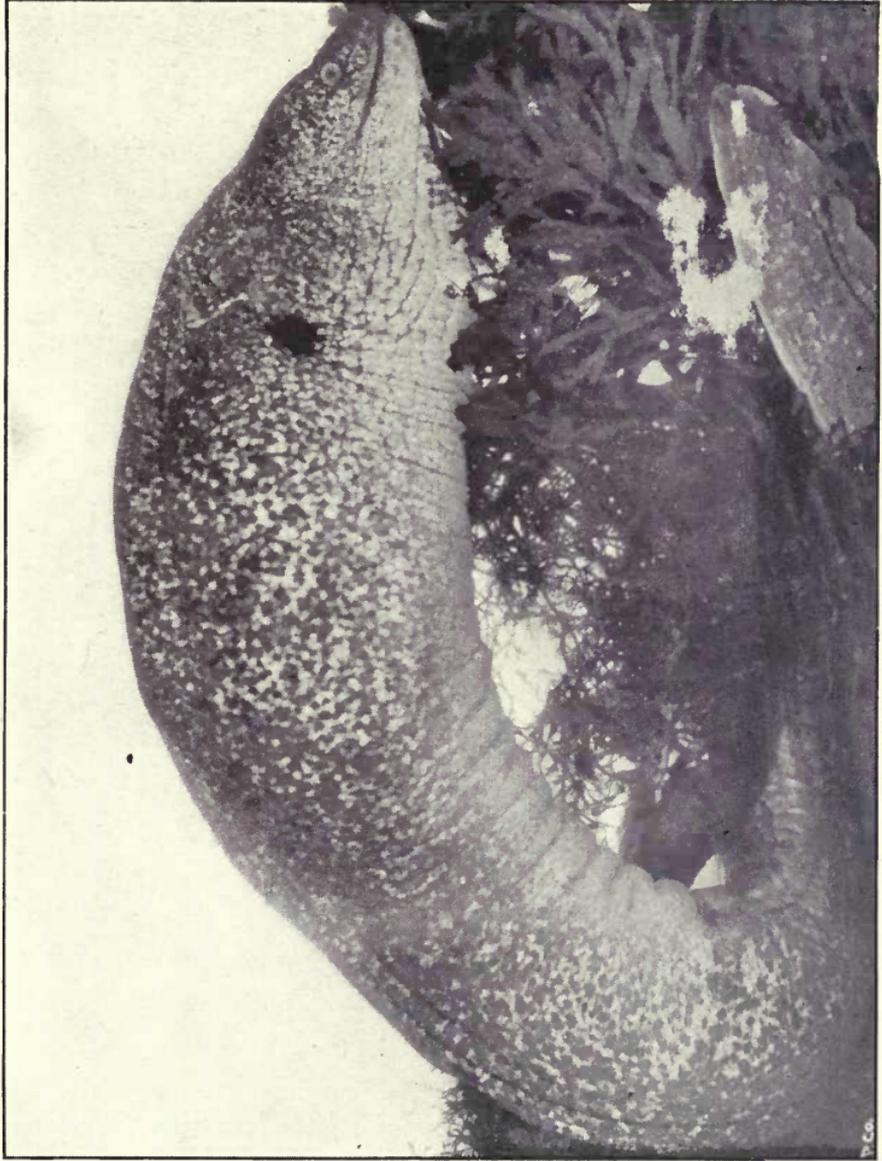


PHOTO. BY REYES

The Moray or Seal Eel, *Lycodonis mordax*.

70 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900 950 1000

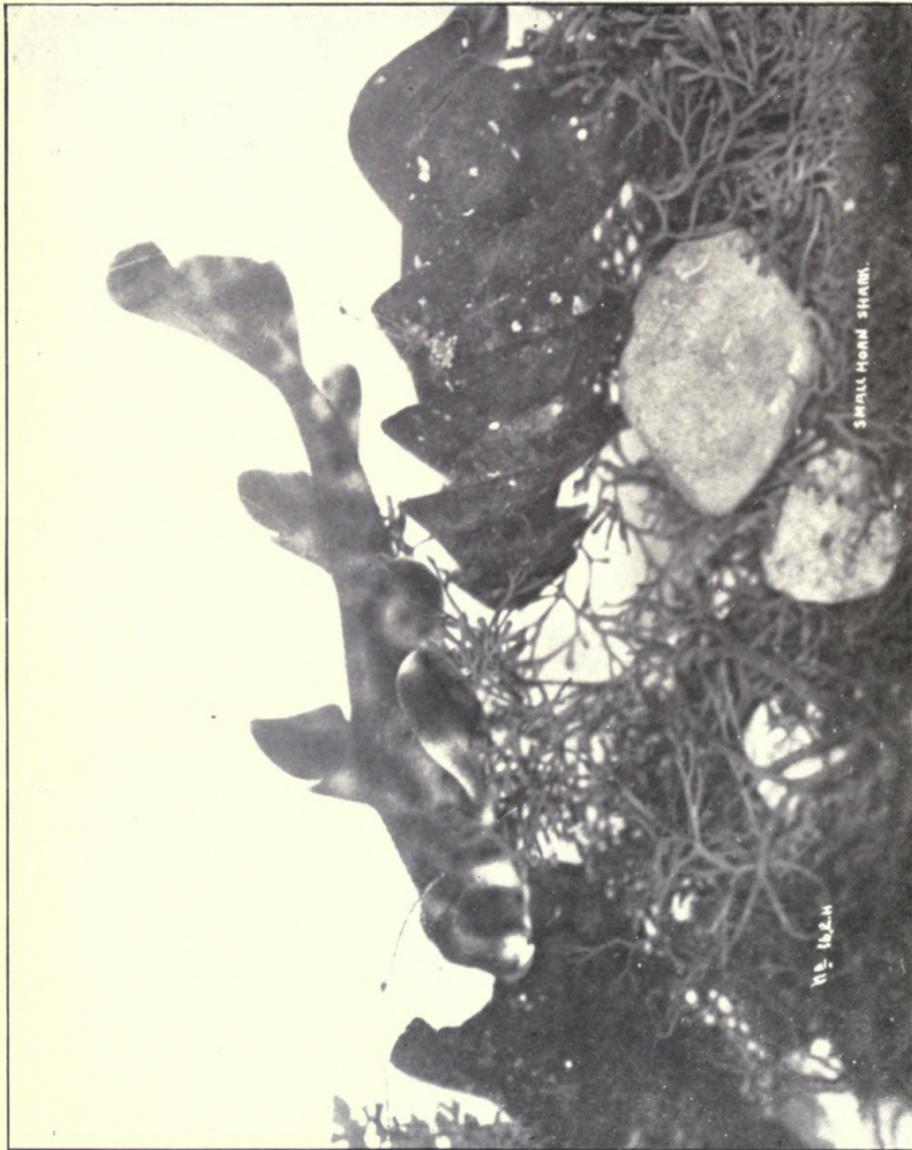


PHOTO BY REYES

The Port Jackson Shark and Egg.



PHOTO. BY REYES

Tuna Club Record White Sea-bass, 60 Pounds, caught by Mr. C. H. Harding, Philadelphia, Pa.



PHOTO. BY C. G. CONN

White Sea-bass, *Cynoscion nobilis*. Taken by Hon. C. G. Conn.

Fig. 43

eyes, and garnished with many beautiful tints, shades and colors.

It attains a weight of eight or more pounds, and with very light tackle affords some sport, though to the yellowtail or white sea bass angler it is considered a nuisance, as it is an inveterate bait stealer, and in places can with difficulty be avoided. It spawns in August, when fishes of the largest size are taken close inshore.

This fish is of the type of a number of so-called rock fishes, groupers and others, among the most important fishes of the coast.

SHEEPSHEAD

Another bottom fish, found in comparatively shallow water, is the sheepshead, totally different from the sheepshead of the Atlantic or Gulf of Mexico; a large fish, with a prominent domed head and perpendicular stripes, black and red. The male, Fig. 32, is a most striking creature; the dome, jet black, the lower jaw pure white. The fish has a peculiar habit, like the Southern parrot fishes, of rolling its eyes about.

The female, Fig. 33, is very different in appearance, being gray or white or all red, without the dome. The young are beautiful and graceful little creatures. The sheepshead feeds on shellfish, crabs and various animals, and, in the shallow water of San Clemente, can be seen in great numbers moving slowly about, using its side fins in a peculiar manner.

The large males often attain a weight of twelve pounds, and are hard fighters on 3-6 tackle. The bait most effective for them is crayfish or abalone, though

they will take sardine at times. Any rocky bottom in fairly shallow water abounds in these highly colored fishes.

BLUE-EYE PERCH

With the sheepshead are found a number of small fishes which, when approached with proper tackle, afford excellent sport. One is the blue-eye perch, Figs. 34, 35, of five or six pounds; a very attractive little fish adapted to an eighteen-ounce split bamboo with abalone bait.

THE BLACKSMITH

Another small fish, but a hard fighter on the same tackle, is the bluefish of two or three pounds, known as the blacksmith.

The boatman who knows the game will anchor at White Rock or some point near shore, and, after judicious chumming to collect them, can provide his patron with a delightful change from the big and hard fighting game with which all the islands abound.

These and many of the fishes described are of especial interest, as they are peculiar or indigenous to this region. With them is seen the brilliant orange-colored angel-fish, or golden perch, which sometimes takes a small hook. Its young are called electric fish by the amateur savants of the glass-bottom boat, as they are a vivid blue, almost iridescent, color, seeming to flash and sparkle like gems. When very young they are entirely blue, but gradually change to yellow as they grow older, until, in the adult stage, they are entirely yellow or a reddish-yellow.

THE MEDIALUNA

This is a little fish, Fig. 36, rarely caught by the angler because it has a small mouth and does not care for the invariable sardine or smelt bait. It is found about rocky points, as White Rock, and at four or five pounds is as game a fish as one could wish, if a very light resilient rod is used. It must be baited up by chumming, and the lure must be crayfish or abalone.

THE OPAH

(*Lampris luna*)

The angler on these summer seas catches many strange or weird fishes, which, while not game in the strict sense of the word, add piquancy to the sport. One of the rarest fishes of all seas, the opah, is occasionally taken here. It is so rare that almost every individual taken anywhere is on record. I recall four or five caught near Santa Catalina, and one, it is said, was taken off San Clemente with rod and reel by a Long Beach angler.

The fish attains a weight of seventy pounds. It somewhat resembles a sunfish, with large eyes and very small mouth; its colors defy description. Its general tint is pearl or silver, and over it a vestment of old rose seems to be drawn; its fins and tail are a most brilliant red or scarlet. As to its habits nothing is known. It is seen floating on the surface in summer, and doubtless feeds on the small animals of the sea.

SUNFISH

(Mola mola)

Another strange fish, very common here, is the sunfish, Fig. 39. It is shaped like a great head or face, oval or round. Its tail is a rim of muscle, and its dorsal and ventral fins are great spikes, making it a conspicuous figure in summer as it swims along, fin out of water, or lies prone on its side in the sun. Its mouth is very small, with massive ivory-like teeth, seemingly useless. Its skin is like sandpaper, and covered with mucus, which is often phosphorescent at night. These fishes grow to an enormous size. Once when fishing with Colonel C. P. Morehous, with the aid of his boatman, Charles Hammond, I took a sunfish which must have weighed fifteen hundred pounds. We ran alongside, and, seizing the tall fin, bent it over the rail, gaffing the monster before it woke up, though a terrific struggle ensued which almost wrecked our launch. So huge was this fish that our launch could not tow it, and only by the aid of another launch did we manage to tow it into port. I had an excellent opportunity to observe the fish's methods of swimming, and later released it uninjured.

The young of the sunfish are very singular creatures not resembling the adult. I have had my boat surrounded by scores of six- or eight-pounders, and their continual leaping was a source of much interest. Captain Farnsworth caught one which was estimated at half a ton. Mr. McMillan took one almost equally large. I have gaffed them in the Atlantic, and had a hand in the capture of one at the mouth of the St. Johns River, Florida, which must have weighed three-

quarters of a ton, all of which shows that the fish has a wide range. As to the economic value of the sunfish little is known. I should imagine its rough skin was of some value; its flesh is used by farmers in Maine as a fertilizer. I have seen boys use the white muscular tissue as India rubber for balls. The flesh is insipid and uneatable.

MORAY

There is a large snake-like fish, the moray, Fig. 40, in these waters, that occasionally fouls the hook of the bottom angler and makes a prodigious fight; a savage, dangerous creature with teeth like a snake, and a habit of coiling like a rattlesnake and striking out when hauled in.

With the morays, in rocky places, the angler will find the puff shark, coiled up in the rocks, the Port Jackson shark, Fig. 41, with ivory spines in front of each ray, and various sculpins, big and little, of value to the marketman, but not to the angler.

FLAT FISHES

A variety of flat fishes or rays are found on the sandy bottoms of California waters. The sting ray, with a sharp, rat-like tail, and others more or less dangerous to the bather, all with remarkable strength on a light rod. One of the largest is the angel fish, a seeming cross between a ray and a shark; a fish six or eight feet long, which will swallow a bait and evidently go to sleep.

The most interesting of all these fishes is the elec-

tric ray or torpedo. It may be recognized by its round or oval shape. Men have been knocked down by the shocks they give out. I once took a small one from the tank in the Naples aquarium and, by placing one hand beneath it, the other on its back, received a shock which jerked my arm back violently. Needless to say, the torpedo is not a quest of anglers.

THE WHITE SEA BASS

(*Cynoscion nobilis*)

Sometimes in May, earlier or later according to the season and the weather, the voyager in the glass-bottom boat at Avalon, in peering down into the beautiful kelp beds, will see, poising in the arches and caverns of the submarine forests, scores of big fishes resembling the salmon. They may be three or four feet long and weigh forty or fifty pounds. In appearance they are attractive, well shaped; a gray color above, iridescent in the sunlight, silvery below, ideal fishes for the rod and reel. This is a giant weakfish, a cousin of the Eastern weakfish, known in Southern California, particularly at Santa Catalina and San Clemente Islands, as the white sea bass, one of the finest game fishes of the region. It comes from somewhere in April, and remains late into the summer. It is seen in well-distributed schools up the coast for miles at times; in Avalon Bay I have taken five or six in a forenoon, none of which were under fifty pounds in weight. This bass will take a spoon, a sardine in trolling, and is often taken still-fishing near shore with live bait.

The tackle to use is a nine-ounce rod, and a number

nine, or even smaller, line, as the bass is not so powerful as a yellowtail and can be taken on the 3-6 tackle described; its play with this tackle is most interesting. If an eighty-pounder should happen to take it, it is needless to say that the angler might lose the game.

I have hooked the white sea bass within five feet of the boat; at once the fight was on, the fish making splendid rushes away, not seeking the depths (which are the despair of the angler) as much as most of the fishes described, due to the vast depths about the islands and the fact that they are the tops of mountains rising from the sea. The fish will rush away, circle the boat, if in shallow water, and put up a most clever fight. As the fish swims in schools, and is slow and dignified in its movements, it is an interesting creature to attempt to catch. One can often move upon a school and cast a sardine into it, or, when the bass is in a bay, one can lower a bare hook down into the often present school of sardines and snag one, which will often be taken by a big bass which would ignore the countless thousands swimming about it.

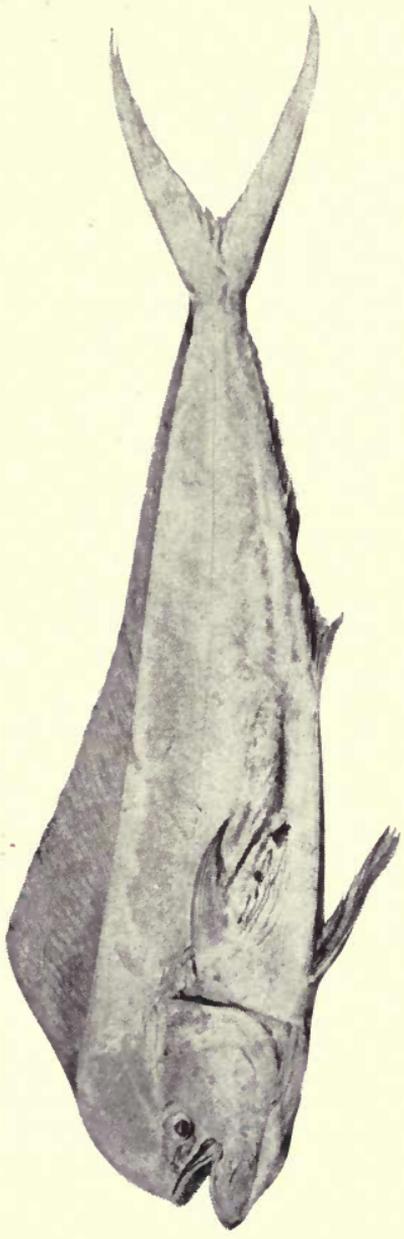
When feeding, the white sea bass becomes greatly excited. A school of several hundred will dash into a bay or indentation, driving sardines, flying-fish or squid out upon the beach. At such times they will take bait or a spoon very readily. I have seen thirty boats in Avalon Bay, nearly all the occupants of which were playing a fish not less than forty pounds in weight. One lady was repeatedly towed across the bay by an eighty-pounder on the end of a hand-line. This day, with a companion in a light skiff, with light rods, we took ten white sea bass, five each. At one

stage of the game, it was a tug of war, my companion's fish going astern, while my own dashed ahead; we saved them both. All the fish were over fifty pounds in weight. Over one hundred such bass were taken this day, May first, not one hundred feet from the beach, where scores of people watched the extraordinary scene of breaking rods and lines, as ten times as many fish were hooked as were landed.

The so-called sea trout of Southern California is a small species of this fish, ranging up to twelve or fifteen pounds; it is beautifully spotted. This is *Cynoscion parvipinnis*. In the Gulf of California another species is found, *C. macdonaldi*. This fish I have taken in Tobarí Bay, Gulf of California, with a spoon; they run up to one hundred and fifty pounds in weight. These magnificent game fish test the strongest tackle and are shown in Fig. 42.

The white sea bass is a good food fish. In Monterey Bay it is taken by the ton in nets, and I have seen them brought in at Capitola by the boatload for shipment to San Francisco; all were over fifty pounds, and ran up to eighty. When fishing for salmon here I have found the sea bass a nuisance, hooking them continually when trying for the Chinooks; under ordinary circumstances one would hardly consider such a fish a nuisance. The Tuna Club has special prizes and trophies—cups, medallions and medals for the angler who breaks the club records. Some of the club's catches with rod and reel are as follows:

- Largest White Sea Bass (*Cynoscion nobilis*)—
 Edward M. Boggs, Oakland, Cal., season 1899.. 58
 Wm. P. Adams, Chicago, Ill., season 1903..... 52
 C. H. Harding, Philadelphia, Pa., season 1904.. 60



Dolphin, *Coryphaenus hippurus*.

Fig. 44

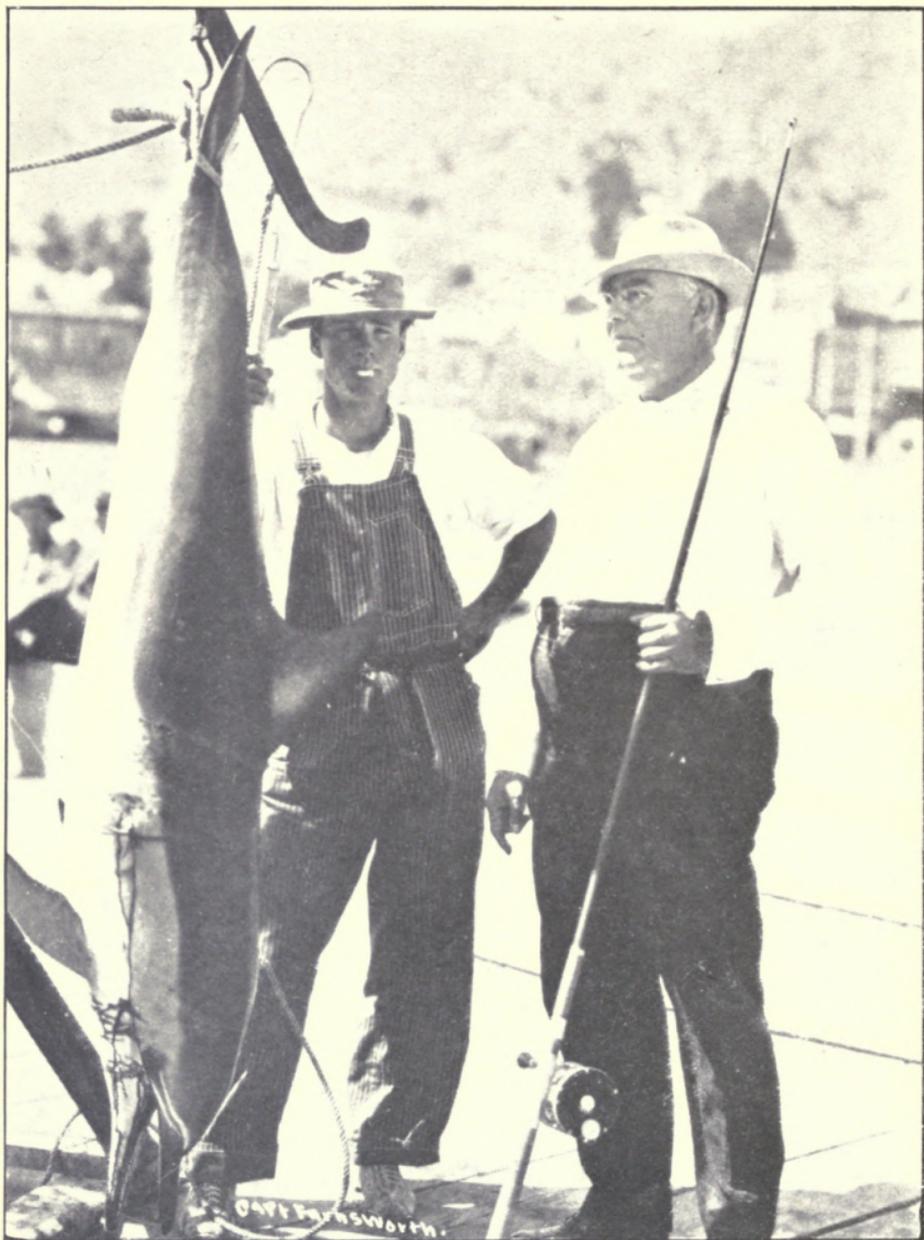
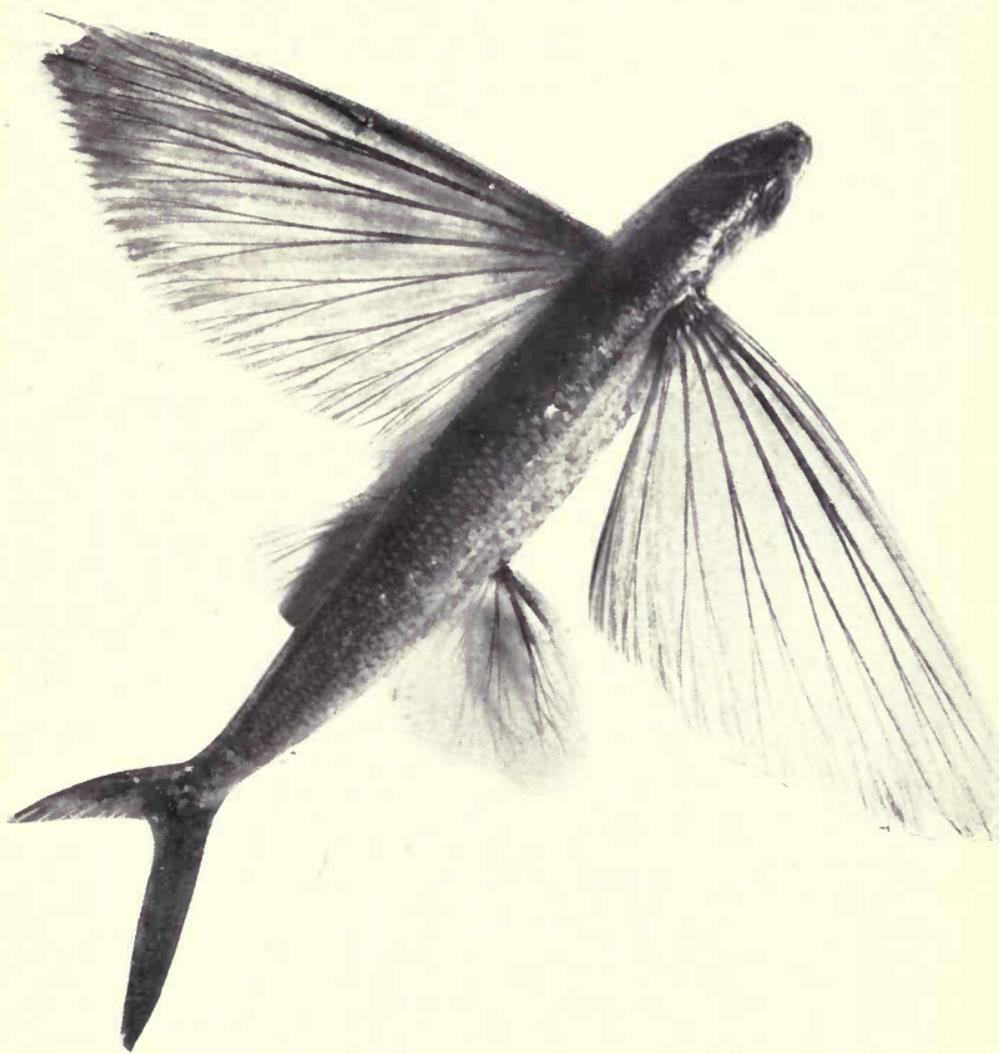


PHOTO BY REYES

Bottled-nose Dolphin (mammal). Taken by Col. John E. Stearns.



Santa Catalina Flying Fish, *Cypselurus californicus*. Bait for Tuna.

Fig. 46

NO. 1000
ABALONE



PHOTO. BY REYES

The Abalone, *Haliotis*.



PHOTO. BY REYES

The Crayfish or Lobster, *Panulirus interruptus*. Food of many fishes.

Fig. 48

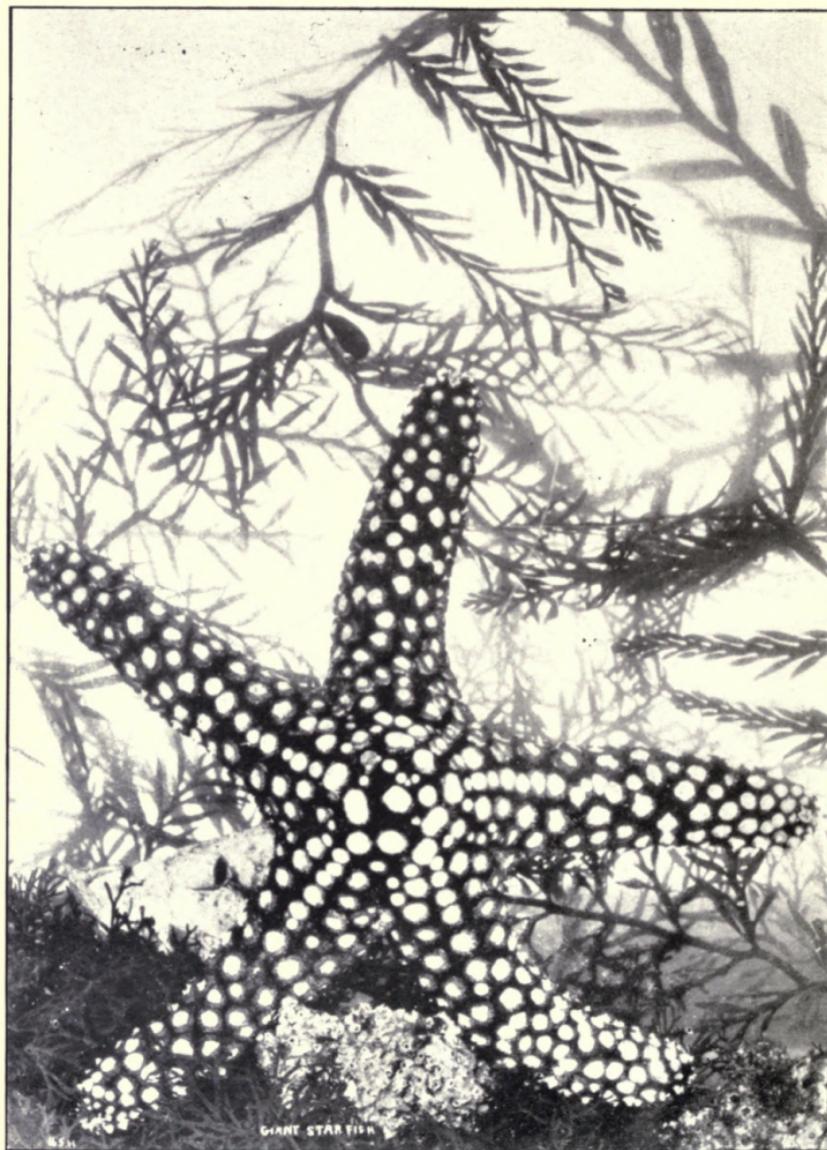
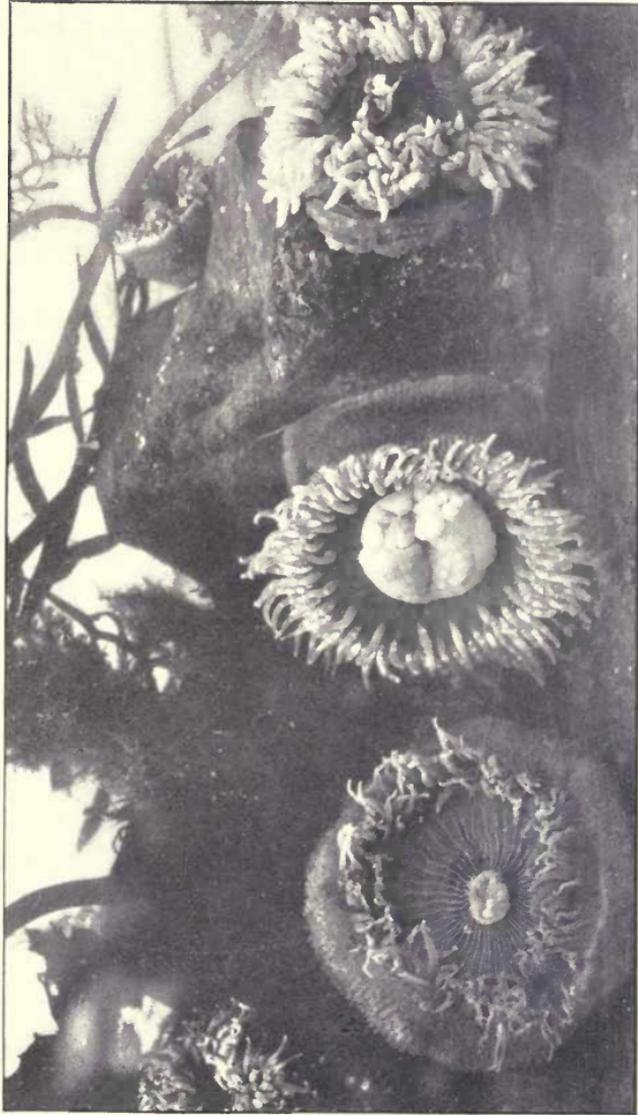


PHOTO. BY REYES

Giant Star Fish. Avalon Bay, California.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



Sea Anemones.

Fig. 50

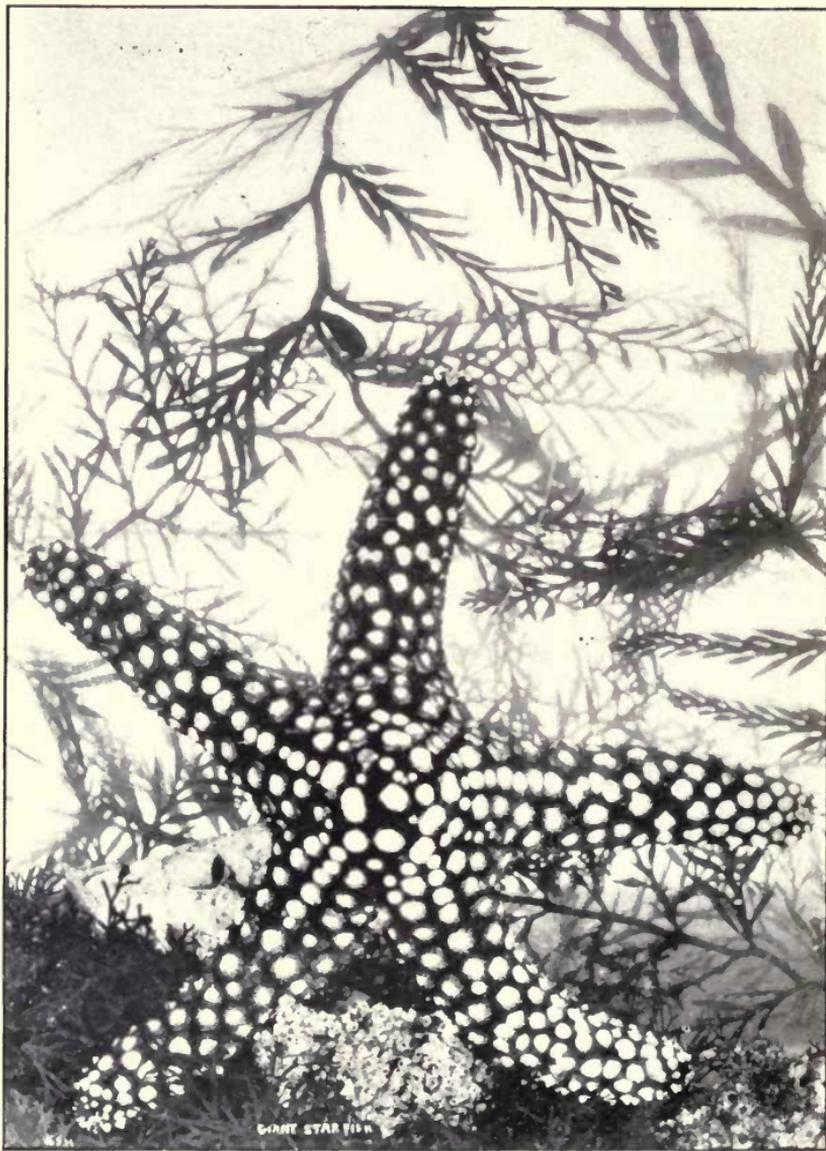


PHOTO. BY REYES

Giant Star Fish. Avalon Bay, California.

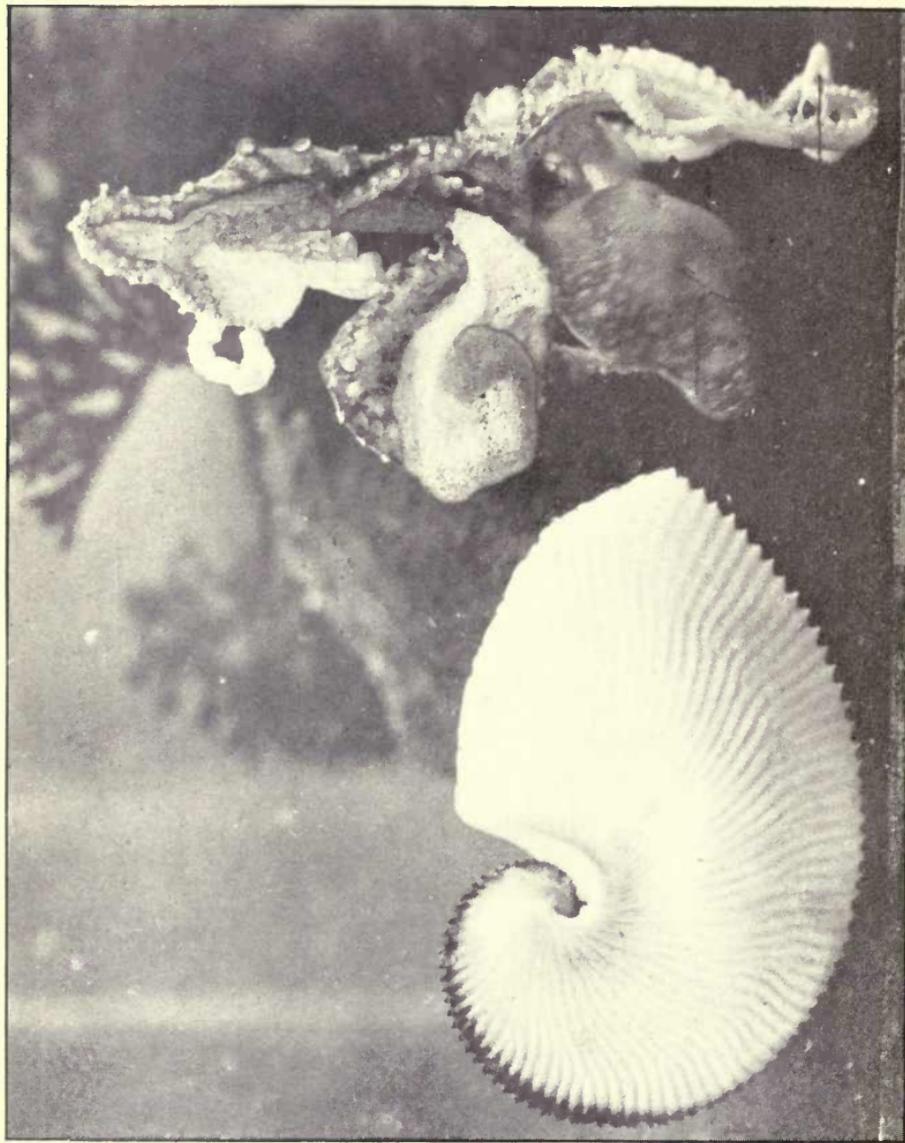


PHOTO. BY REYES

The Paper Nautilus and Egg Case. Avalon Aquarium, Avalon, California.

E. C. Wilson, Denver, Colo., season 1905.....	36
* A. L. Beebe, Portland, Ore., season 1906.....	34
* Arthur J. Eddy, Chicago, Ill., season 1906....	34
* Mrs. E. H. Brewster, Avalon, season 1907....	53
* S. A. Barron, San Dimas, Cal., season 1908...	40
* A. L. Beebe, Portland, Ore., season 1908....	40
† A. L. Beebe, Portland, Ore., season 1909....	46¾
* J. W. Frey, Los Angeles, Cal., winter season 1909-10.....	51¾
* Benjamin Thaw, Pittsburg, Pa., season 1910..	44
* A. E. Eaton, Avalon, winter season 1910-11...	38

THE DOLPHIN

(*Coryphæna hippurus*)

The dolphin is one of the most beautiful of all fishes, its colors, ranging from yellow to green and gold, making a glorious show as the fish rises to the surface. It is a long, round- or dome-headed fish with a splendid dorsal fin from head to tail, which can be elevated like a crest or depressed. It is swift of movement, brilliant in color, and almost as hard a fighter as a yellowtail. It appears at the channel islands of California in spring and remains until October. It is taken with a nine-ounce rod, trolling as for yellowtail, or I have seen several lying beneath the islands of kelp which float off these islands in summer, and, by casting with sardine bait, they could be taken with ease, though the fish is among the very rare catches and, so far as known, taken with the rod nowhere else. It is a world-wide fish, found out at sea in all oceans, swimming by ships at the cutwater.

I have taken the fish in the sargasso beds of the Florida Strait, out at sea. The dolphin attains a length of five or six feet. There is a smaller species

of about two feet. The rod record of the Tuna Club is held by Dr. Mattison in a thirty-pound fish. He has offered a loving-cup for any one who shall beat his record.

THE RONCADOR

Along the mainland shores of California, specially south of Santa Barbara, there are a number of fishes which are found either in the surf or near it, and afford excellent sport to anglers. Such is the yellow-fin roncador (*Umbrina sinaloe*). Roncador *stearnsi* is another fine fish; a round-nosed silver and yellow fish, delicious for the table, when freshly caught, and a good fighter on light tackle. One can often see them in small schools from the Redondo, Long Beach and other piers, and on the west or south side of Santa Catalina, where there is surf. They feed on shellfish and the crabs of the sand, and are fished for with clams. They go by several names—the yellowfin, surf and roncador—and rarely exceed seven pounds in weight. The little surf fishes of the coast are interesting from the fact that the young are born alive.

FISHING PIERS

All along the coast of California, but especially from Santa Cruz south, every town, as Monterey, Santa Cruz, Capitola, Avalon, Santa Barbara, Santa Monica, Long Beach, Ocean Park, Venice, Naples, Del Mar, Sun Set, Coronado and others, all have remarkable piers built out into the ocean at great expense, and all, or most of them, for the benefit of the angler, though many contain shops and many amusements.

Here, winter and summer, an eighth of a mile out to sea, one will find scores of anglers with long bamboo poles fishing, at places like Redondo and Newport, where deep water runs inshore, and taking fishes of large size.

BAIT ANIMALS

There are many animals found in these waters which have a distinct relation to the fisheries. The flying-fish, Fig. 46, is one. It has four wing-like fins and weighs about a pound. It is one of the most important bait fishes of the region, employed for tuna, yellowtail and white sea bass. This is the fish that is supposed to fly, but it is merely a living aeroplane. Its tail is the screw which, violently whirled about, forces it into the air when the large gauze-like wings are spread and the fish soars from one-eighth to one-quarter of a mile if the wind is favorable. When the inertia fails, its tail drops until it touches the water, when the whirling is recommenced, forcing the fish into the air again. I have seen the wind take these fishes like butterflies thirty feet in air. They are the natural food of the tuna and, living on the surface, or near it, are ever ready to spring into the air in an effort to escape.

SARDINES

(*Clupanodon cœruleus*)

Countless schools of sardines are found about the islands. They spawn in the bay of Avalon and in the early spring are followed by birds and fishes and also by professional fishermen working for the canners.

The sardine is very important to the angler, as it is the bait par excellence for the great game fishes of the region, though a spoon or bone "jig" is often successful.

SMELT

(*Osmerus*)

Smelt are common on the Pacific coast, attaining a length of eight inches. They are also valuable as food and bait, but do not rank with sardines.

ABALONE

This shellfish, Fig. 47, known as the earshell or haliotis, is found on almost every rock about the islands not already looted by the Chinese and Japanese. They are valuable as food and particularly as bait for certain fishes, as sheepshead, whitefish and others.

The crayfish, Fig. 48, is also a bait and food for certain fishes, or was until it became scarce, due to the lack of laws in the State of California. There are a variety of crabs found in the kelp and on the bottom; spider crabs of large size, food for various predatory fishes and of much interest; huge starfishes, which clamber over the rocks, Fig. 49; sea cucumbers, anemones, Fig. 50, and sea urchins; all are eaten by certain sharks or rays. In the open water float many beautiful animals; giant jelly fishes, twenty or thirty feet long, their discs, of lavender or maroon, presenting a remarkable appearance as they drift in the blue current, meteors of the sea. Here are myriads of small jellies of many shapes, one almost black; also swarms of ascidians, as the chain-like salpa, the fire-body, or

pyrosoma, all of which blaze at night in mystic lights. Even the most insignificant animals, as the peridinium—an infusorian—often colors the waters near the mainland shores red, which at night turns the ocean into a seething caldron of vivid flame, so that the entire Santa Catalina channel appeared to have ignited, all caused by a vast congregation of animals invisible to the naked eye. Every drop of water is alive, contributing to the story of the sea and its inhabitants.

SALMON

(*Oncorhynchus tshawytscha*)

The remarkable diversity of sports in California and the Pacific Coast is seen in the fact that in Monterey Bay there is fine salmon fishing. The Chinook salmon is the one which affords the best sport, although there are many kinds found up to Alaska affording fine sport about Vancouver Island.

The big schools of salmon which lie off the mouths of the Sacramento in the winter ascend in summer and spawn; the majority die in the rivers after the spawning. In July and August, with the regularity of clockwork, a big school of Chinooks, Fig. 52, is found between Monterey and Santa Cruz, and followed by scores of professional fishermen and anglers. The latter go out from Santa Cruz, Capitola, Carmel and Monterey in small launches or boats, and, when the school is found, have sport that has made this region famous all over the country, and several clubs have been organized to prosecute it.

The fish generally lie thirty or forty feet down, so that the line, baited with sardine, anchovy or smelt,

is lowered by means of a sinker, and trolled slowly along. In rod fishing the sinker is made detachable and comes off as soon as the salmon is hooked. The fish do not jump to any great extent, but are very game and afford fascinating and attractive sport. The salmon range up to forty or fifty pounds, but the average catch of the writer has been about thirty.

STRIPED BASS

(*Roccus lineatus*)

Some years ago striped bass were introduced into Sacramento River from the East, and have taken their place as the game fish par excellence of what may be called the San Francisco region. They are trolled for with spoons on the flats and fished for with bait successfully in various parts of the great bay. That the fish are migrating is shown by the fact that several have been taken in the Southern California waters, five hundred miles away.

TROUT

A large volume could be written on the fresh-water game fishes of the Pacific coast alone, as they range from the Alaska grayling to the rainbow trout and steelhead; but as this volume is merely intended as a picture book of fishes, with minimum description, the reader is referred to the large works of Jordan and others, referred to in the appendix.

The rainbow trout is the native fish. It is found in all the streams of California that amount to anything down into Mexico, and has been carried all over the

world. Twenty-pounders are taken in Klamath Lake, Oregon, and the author has a nine-pounder, Fig. 53, from the same region. It is a hard-fighting, good eating fish and, in swift water, like the San Gabriel, Feather and other rivers, is a joy to the man or woman with the rod.

Famous trout rivers are the Soquel, San Gabriel, Truckee, Kern, Sacramento, Santa Ynez, Merced, Ventura, Rogue, Carmel, Russian, Williamson and many more, in which are found the Dolly Varden, cutthroat, rainbow, golden, lake, silver, Tahoe, brook, brown, in fact, almost every trout known, nearly all introduced. The lakes are Bear Valley, Klamath, Tahoe group, Weber, Blue Lakes and hundreds of others in California, Oregon and Washington, affording a variety of scenery and sport unparalleled in the world, for a complete list of which apply to the Southern Pacific Railroad Company of San Francisco.

STEELHEAD

(*Salmo gairdneri*)

The steelhead is a notable fish peculiar to the Pacific coast and found in or at the little lagunas of every notable stream as far south as the San Gabriel. They are supposed by some to be rainbows gone to sea, but they appear to be a different fish, making two up-the-river runs in the year, affording fine sport. Twenty-pounders have been taken in the Santa Ynez, and the Rogue of Oregon affords fine sport for them.

GRAYLING

In some of the Alaskan streams the grayling is found.

BLACK BASS

Black bass has been introduced into a number of streams, lakes and private waters of California, as the dam at San Diego, while the Blue Lakes, north of San Francisco, abound in them.

THE ECONOMIC VALUE OF ANGLING

The average reader has little conception of the value of sport as an asset to a community.

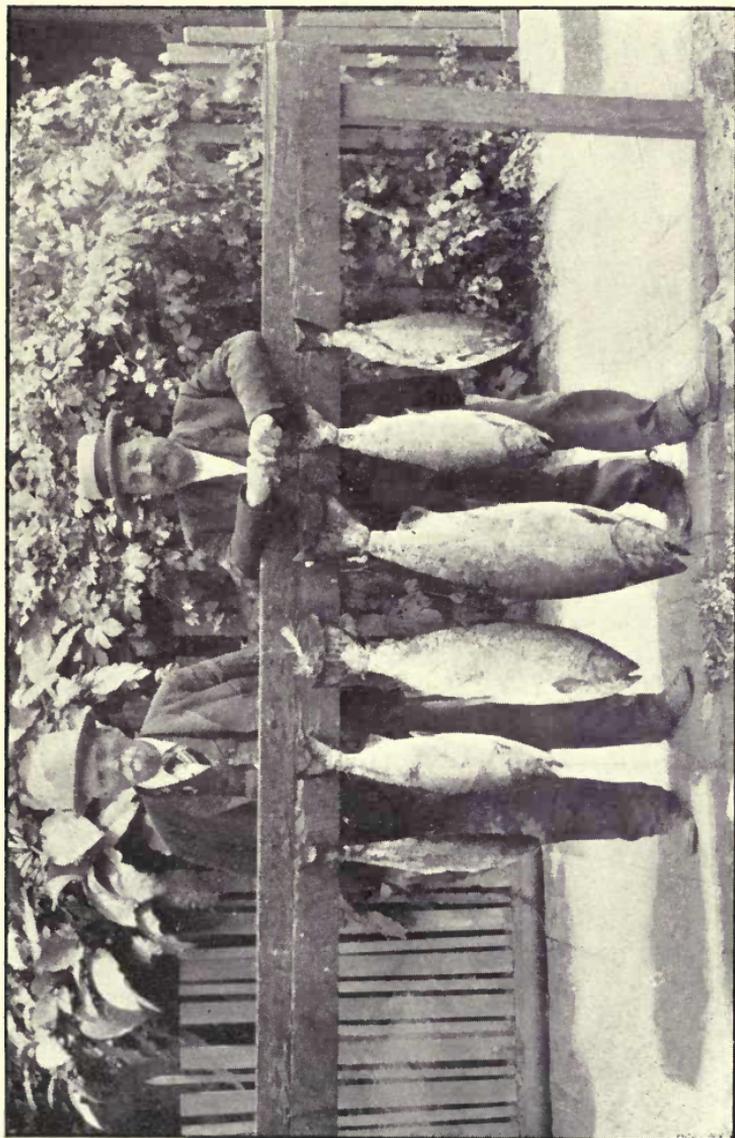
The State of Maine values its fishing and hunting at five million dollars per annum; in other words, sportsmen bring that amount to spend in the State every year. In California the actual amount expended in sport annually is much more than this, as hundreds of anglers come from all over the world.

In Avalon, the town of Santa Catalina, the boatmen who guide and gaff for visiting anglers have nearly two hundred thousand dollars invested in sport and its appliances.

FISHING AUTHORITIES

If the angler desires more explicit data regarding the fish of the Pacific coast he will find them in the following works:

The Southern Pacific Company publishes an angling pamphlet.



Salmon. Monterey Bay, Santa Cruz, Del Monte, California.



Rainbow Trout, *Salmo iridius*. Klamath Lake, Oregon.

Fig. 53

No - THIS IS NOT A Salmo, AS THE SPOTS
ARE LIGHT ON PINK, A Salvelinus TRAIT.
ALSO THE SCALES ARE TOO SMALL, AND THE
EDGED
FINS ARE FRIPPED WITH WHITE. LOOKS LIKE
A LARGE BROOK OR DOLLY VARDEN.

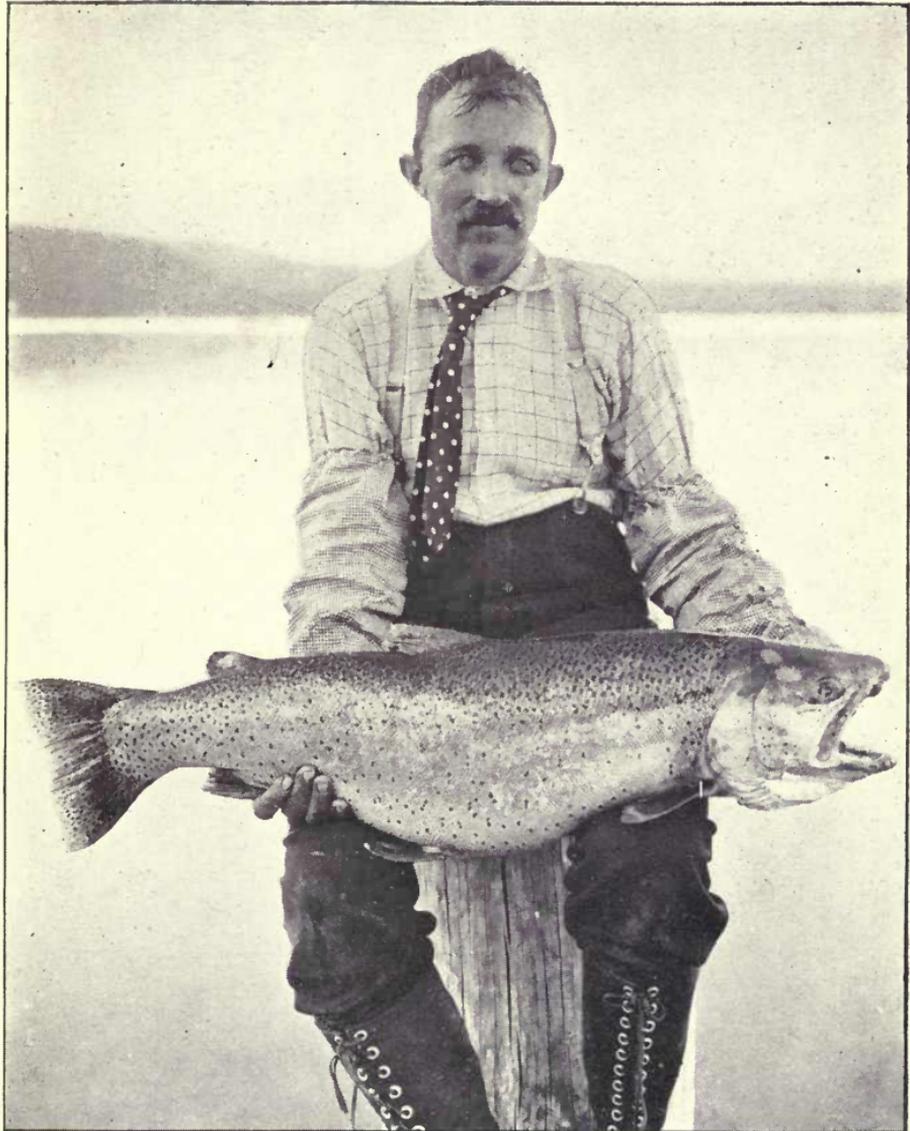
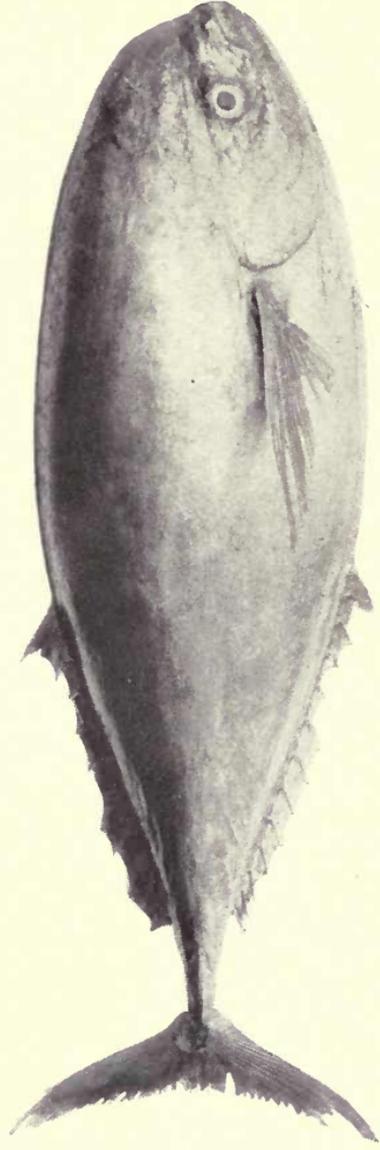


PHOTO. BY PARKER

The Lake Tahoe Trout, *Salmo henshawii tahoensis*. A thirty pounder.

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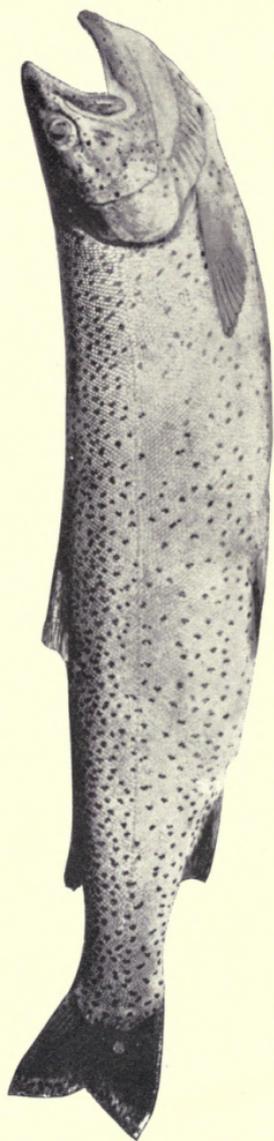


The Silver King, *Lutjanus imperialis*.

Fig. 55

NO. 241
APR 10 1900





Steelhead Trout, *Salmo gairdneri*, San Buenaventura River.

Fig. 56

An exhaustive work on fishes is that of Dr. David Starr Jordan, President of Stanford University.

Works on angling and the sport are: "The Big Game Fishes," published by Macmillan and Co., New York; "The Log of a Sea Angler," Houghton Mifflin Company; "The Channel Islands of California," McClurg & Co., Chicago, Ill.; "Big Game at Sea," The Outing Publishing Company, New York; "Recreations of a Sportsman," G. P. Putnam's Sons; "Fish Stories," Henry Holt and Company; "Guide to Study of Fishes," Henry Holt and Company, New York; United States Fish Commission Reports, etc.

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