PART X.

THE RED-SNAPPER FISHERY AND THE HAVANA MARKET FISHERY OF KEY WEST, FLORIDA.

By SILAS STEARNS.

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In the natural-history section of this report the distribution and habits of the red snapper have been so thoroughly described that it is unnecessary to advert to them here.

This fishery is located almost entirely in the Gulf of Mexico, and in Florida it ranks next in importance to the sponge fishery. The vessels engaged in it are smacks and smaller vessels that preserve their catch in ice, and also the small open boats that fish near the harbor mouth, using no preservative of any kind. Pensacola is the greatest distributing point in the country for red snappers. All vessels belonging in Mobile, New Orleans, and other western ports land their fish here, to be shipped to their home ports. Outside of this, those cities depend largely on Pensacola for their supply of deep-water fish, as do all the inland towns and cities from the Gulf to the Canadian boundary.

The fishing grounds and methods of fishing.—The grounds where the red snapper are taken lie along the coast from off Mobile Bar to the latitude of Tampa Bay, in depths of water ranging from 10 to 40 fathoms. Between Mobile Bar and Cape San Blas they seem to be gullies in level sand-flats, where all sorts of animal life have found shelter from the strong currents, providing food for each other. These gullies are of all lengths and widths, some not much larger than a small vessel, while others are several miles long and quite wide. One harmonious feature about them is the way in which they lie, being parallel to one another, and running in nearly every case southeast and northwest. The farther to sea they extend the more life there is in them and the more coral and lime-rock is present, until a depth of 40 or 50 fathoms is reached. Beyond 50 or 60 fathoms the bottom becomes sandy.

Eastward and southward of Cape San Blas the snapper is found mainly living upon ridges and points of calcareous rock which protrude at more or less frequent intervals from the vast sand deserts of the Gulf bottom. In the shoaler water, rock shows itself in rather even ridges, or perhaps in almost level tracts that rise but little above the surrounding sands; while in the deeper water, as from 19 to 35 fathoms, there are sharp uneven hills and valleys that often make a difference of 3 or 4 fathoms in the depth of water within a distance of 200 feet. The latter region is the more thickly populated with fishes, but as on all grounds south of Cape San Blas, the red-snapper yields supremacy of power, in numbers, to the groupers (*Epinephelus*). They being here more abundant, more easily taken than the snapper and of not much value and in limited demand in the United States, these southern grounds are not as valuable to the red-snapper fishermen as those west of Cape San Blas where the groupers are not so troublesome. Still there

are colonies of red-snappers living by themselves in the southern region, which yield most excellent fishing on account of their having been but little disturbed by man. They are, however, small, and lying, as they do, far from land in broad areas of unproductive bottom, they are difficult to find.

The fishing grounds south of Mobile Bar in 37, 39, and 40 fathoms are called "The Southwest Ground" or "Campeche;" southeast from the same point in 19 fathoms, is the "Trysail Ground;" a small spot in-shore of that is known as the "Dutch Bank." Then from Pensacola Bar, is the "Old Southwest Ground," a small shoal-water spot but a few miles from land; the "Middle Ground" is another small bank, situated 5 or 6 miles from the bar; the "Old Deep-water," a 40-fathom ground S. and S. by E. off-shore; and the "Charles Henry Ground," and the "Henry Holes," at the edge of deep-water southeasterly from the bar. Between Pensacola and Cape San Blas there are numerous small spots for fishing which have each several names given according to the fancy of the fishermen, and often referring to some object on land that may be used as a range or bearing; as for instance the "Roger's Hill Bank," the "First Yellow Bluff," and the "Second Yellow Bluff" banks, the "Fifteen off Bald Hill," &c. Off-shore there are other grounds, designated by the depth of water on them, and some conspicuous land-marks that the fishermen use to lay their course from, as "The Twenty-one Off The Pass," "The Second Seventeen Off The Inlet," the "Saint Andrews Ground," the "Old Cape Ground," and the "New Cape Ground." South of Cape San Blas the grounds are not so well known, and also being mostly far from land are not so easily distinguished from each other. There are a few names applied to large areas of ground, as the "Dog Island Grounds," and the "Middle Ground," one including at least 25 miles square and the other being twice as large.

The fishing grounds are found by sounding, the sudden change in the depth of water showing that a gulch is reached, whereupon the vessel is hove to until the lines are tried for a bite. If the fish bite freely, a buoy is placed to mark the spot and the vessel is allowed to drift, with sails slacked off sidewise from the wind, until the fish cease to bite, when the sails are trimmed in to work the vessel up to the buoy again.

In smooth water, when a first-rate "bank" is found, the vessel is anchored near the buoy, but on small and thinly populated "banks" anchoring is unnecessary, for two or three drifts suffice to catch up all the fish that will bite. Some "banks" are so infested with foul fish, sharks, large jew-fish, leather-jackets (*Balistes capriscus*), and porgies (*Sparus pagrus*) that they give the snappers but little chance to bite, and the fishermen are obliged to leave them for others.

The gear used in this fishery consists of cotton lines 60 fathoms long, arranged with two cod-fish hooks at the end, on different snoods, and a piece of lead for sinker, weighing 2 pounds or more, fastened to the line 5 or 6 feet above the hooks. Red-snappers, and in fact all the large bottom fish caught on these grounds have their swimming-bladders very much distended with air by being relieved of the great pressure to which they are accustomed, and unless the air is removed at once the fish will not live in the vessel's well, nor will it keep so fresh in ice. To provide for this, when the fish are to be kept alive, the fishermen have little metal tubes, called "prickers," fitted in wooden handles and sharpened at the end, which they thrust through the side of the fish into the bladder, when the air escapes, and the fish is thrown into the well as lively as ever. The coarse scales of the side seem to cover the opening made by the pricker, keeping water from filling the cavity of the stomach. When fish are to be stored in ice, the air is let out by means of an old file or a one-tined fork that the fishermen sometimes use for handling fish. The deeper the water is that fish are taken from, the more distended they are with air. Those caught in 35 or 40 fathoms are puffed out in an almost round form, and the scales along the sides are started and turned up on end, giving the fish a peculiarly distressed appearance.

As a rule groupers do not become much distorted, but instead have their stomach protruded from their mouths. In such cases the stomach, when pricked, collapses and goes back to its proper place.

Some of the fishermen have finger "stalls" to prevent the hard lines from wearing and cutting their fingers, but they are not in general use. They are knitted woolen coverings for each separate finger. The Connecticut fishermen have a leather thumb "stall" to use in their business, so that they can hold the fish, while unhooking and pricking them, by the under jaw, with the thumb in their mouths, and not suffer from the snapper's long, sharp teeth.

Both fresh and salt baits are used in snapper fishing. The former is undoubtedly the best, and of the different kinds of shore fish, bluefish (*Pomatomus saltatrix*) and lady-fish (*Elops saurus*) are the best, either fresh or salted.

In the spring, summer, and fall the fishermen get sufficient bait of the kinds just mentioned on the beaches by seining, but in winter they have to depend on that which they have laid by in salt in the fall, and "bank bait" is fish caught on the "banks" and used fresh. Snappers are very capricious at times, especially in regard to their food. One hour they will readily accept salt bait, and the next nothing but fresh baits will do.

In such cases, when no fresh bluefish or lady-fish can be had, sharks, leather-jackets, porgies, and like fish are cut up and substituted. In this kind of fishing the lines are not dropped quite to the bottom, for there the large fish and groupers remain, and as the fishing goes on it often happens that the fish are tolled near the surface, when much labor is saved.

Unlike the custom on Key West smacks, these fishermen prick their own fish as they are caught, and much more care is exercised that the fish shall not touch the deck or anything that would injure them. When the well is so full of fish that holes in the bottom cannot be seen, no more are put in, for if too much crowded there is risk of losing the whole fare. Eight thousand pounds is a good load, and these smacks do not average more than 5,000 pounds.*

In winter it is necessary to go 50 or 75 miles eastward from Pensacola Harbor for snappers, while in summer they can be caught within 20 miles of it. The smacks belonging on the coast fish all the year, but are limited in summer as to the amount they shall bring to market. The Connecticut smacks come to Pensacola in November and remain until May, when they go home to engage in fishing for the New York market. All the vessels in this business average one trip per week.

Vessels employed by the Pensacola dealers deliver their cargoes as they arrive in port, handling them in bulk, and selling by the pound for fish weighing under 7 pounds, and so much apiece for all over that size. Large fish of any kind are not as salable as small ones, and but a comparatively small amount is taken at any price.

Those vessels fishing for the Pensacola Ice Company have ice-houses in them and carry ice, so that if they have heavy weather, and the fish will be damaged, they are taken from the well and placed in ice. All fish, both from the well and from ice, are packed away in the dealers' ice-boxes as soon as landed and weighed. The Mobile and New Orleans smacks bring most of their fares to Pensacola, to be shipped to home ports by rail or by steamboats. By doing this they avoid all risks of losing their cargoes by fresh water in Mobile Bay and about New Orleans, and also save much time. The additional expense of shipping in this way is more than balanced by the greater amount of fish that can be landed at Pensacola.

History of the red-snapper fishery.—About 1845 the red-snapper fishery was pursued in a small way from Mobile and New Orleans, and for a long time the only red-snappers landed

* The well-smacks are now being superseded by tight-bottom vessels and the fish are preserved in ice.

anywhere were brought to those ports by two or three small sloop-smacks which were the greater part of the time engaged in seining shore fish, and sold there at high prices in the public markets

About the year 1874 attempts were made at Pensacola to catch and handle red-snappers in a more economical and business-like manner. Staunch, well-equipped schooner-smacks were chartered in Connecticut to fish off Pensacola during the winter, and on shore arrangements were made for the storage, shipment, and sale of a large catch. On account of the poor facilities for transportation of such goods, the high prices at which the fish must be sold, and their strangeness to inland people, there was but small demand for several years, and the prospect was not encouraging to the men who had interested themselves in the enterprise. At last, however, the red-snapper became introduced throughout the country, and most other conditions were favorable for its sale in large quantities.

The pioneer Pensacola firm introduced several new methoths and features into the business, such as the buying of fish by the pound instead of by the bunch, as had before been the custom, the shipping of fish to the interior, using ice for the preservation of fish on the vessels, and the wages system of payment to the fishermen.

In 1880–'81 another fishing firm was established and new impetus given to the trade.

This season witnessed the most decided changes from many of the old customs of the business, ashore and afloat, to the latest ideas and newest methods. The fleet of vessels was considerably enlarged, and the whole improved in equipment and in the plans for catching and preserving fish. Men of experience from the deep-water fisheries of the northern countries were employed, some receiving shares of the voyages, while the majority were paid monthly wages. The crews were enlarged in number from five to seven or eight men, the extra men being required to fish from dories at different parts of the ground. Before this all of the fish that swallowed the hook or had their stomachs forced out of their mouths were thrown away, as they would not live in the well, but good ice-houses or pens were built into the vessels and all the "gulleters" saved, amounting to several hundred fish on some trips.

It was also found profitable to have a supply of ice at hand so that in stormy weather all of the fish may be removed from the well, to prevent their being chafed or killed. At first each vessel would take one or two tons of ice, but within five months the same vessels carried five or six tons, and they brought very few of their catch in wells. Consequently since that time nearly all the additions to the fleet have been vessels without wells, but with large and convenient storage-room for ice. The question of having a regular supply of fresh bait has received much attention for six years, and still is unsolved. A small pound was kept down one fall during a run of young menhaden, and as long as the fish were present it kept a supply of good bait. The part of the year when red snappers are dainty about their food is early spring when, generally, no good bait-fish can be caught anywhere within 400 miles of the fishery. The northern salt-bait, excepting squid, have been tried and proved of no value for snappers.

Another year a small freezing-room was filled with lady fish (*Elops saurus*), which kept in excellent condition, and answered the purpose well when carried to the fishing-grounds in ice water, but it was too expensive to become generally used. For the preservation of small or soft fishes there is no better way than to keep them in ice water.

The fishing-grounds lately resorted to by the fleet are so far from land and so small in area that very often the good weather would be spent in finding them by the old plan of steering a certain course and then blindly searching with sounding line. Therefore to lessen such difficulties the vessels were provided with patent taffrail logs, and the captains in some cases instructed in the simple methods of finding their position at sea by the sun.

Other methods of fishing such as are used in other waters, as for instance, trawl-lines and the cod gill-nets, have been tried by the fishing firms at a considerable outlay of money and time, but without success. One of the schooners the same year had a full crew of Gloucester or Portland trawlers, and a good outfit of trawls and dories, but it was soon decided that more fish could be caught with hand-lines than on trawls. A fishing steamer of about 85 tons was thoroughly tried in the business, and while she was quite successful and at times had great advantage over sailing vessels, the running expenses were too heavy to make it a profitable investment. The value of the steamer, invested in schooners, would give much larger returns of money, as well as of fish.

The necessity for going so much farther from Pensacola to catch red-snappers in winter has brought a larger and better class of vessels into the business than was formerly required. The most of them have been brought from the north, where they were engaged in the cod, mackerel, or New York market fisheries.

During the winter the larger vessels go 210 to 250 miles eastward from Pensacola to the "Middle Ground," consuming 10 to 15 days on a trip, and bringing home on an average 1,500 fish, and as many as 4,000 fish.

Such vessels carry from 6 to 10 tons of ice and about three weeks' outfit of stores, wood, and water. The smaller vessels fish between Pensacola and Cape San Blas, mainly southerly from Pensacola Bar, and make weekly trips. For this fishing-ground 1,000 fish is considered a good fare. During the spring, summer, and early fall, the whole fleet is fishing westward of Cape San Blas, and is quite successful on grounds that are barren in winter. Some of the vessels are either laid up at Pensacola or are engaged in northern fisheries during the months of June, July, August, and September, when it is too warm to send large quantities of fish to the interior. The fishermen are of all nationalities, and are taken largely from the merchant ships that visit Pensacola. The captains are paid by a one-fifth share of the net proceeds of the catch and 8 per cent. for skipperage; the mate receives $40 per month as wages, the cook $30 per month; and each of the crew $25 per month. The vessel pays the mate and cook from her share. The other bills are all put in together and deducted from the gross stock before there is any division between captain and owners. Some vessels still sail on the old share plan, which gives the vessel 40 per cent. of the gross earnings, less 40 per cent. of the ice bill, and the crew the remainder, less their share of the ice bill and all of the store, wood, and bait bills, which is divided equally among them. The captain receives, in addition to his share, 15 per cent. of the vessel's share.

In winter this red-snapper fishery is very rough, and even those accustomed to George's and Nantucket Shoals complain of the hardships to be endured in it. The large fishing schooners from Portland and Boston always meet with more accidents to spars and sails in one season of the choppy seas and sharp squalls of the Gulf than they do in a long time at home.

The buying price of red-snappers has remained nearly stationary for several years. At the beginning of the business at Pensacola all sizes were bought at the rate of 4 cents per pound. Then for several years there was very little demand for large size fish, during which time the prices were 4 cents per pound for small sizes under 7 pounds, and 37½ cents apiece for all fish over that weight. About 1879 the prices became 3½ cents per pound for small and 25 cents apiece for large, or "counts," at which point it has remained the most of the time, with occasional fluctuations to outside vessels of 3 cents per pound for small and 20 cents apiece for counts. Groupers have never been readily salable, and are a nuisance to the trade, as they are becoming more abundant every year, and seem to be in less demand. The fishermen bring in but a small proportion of the number caught. The grouper is a good food fish, but cannot be sold at all as long as a snapper can be had, even though the price of it is but one-half that of the other. Formerly

a few groupers were taken with snappers at the same price, but for the past two years they have been separated and sold for one or two cents per pound.*

2. THE RED-SNAPPER FISHERY OF EAST FLORIDA.

In East Florida snapper fishing is carried on chiefly by amateur fishermen and with the same kind of bait as in the Gulf.† It is stated that the fish will sometimes bite at a white rag. I am inclined to doubt the statement of Norris, the only angling authority who has written understandingly about this species, who says that they bite readily at the silver or pearl squid. They are similar in habits to the sheepshead and sea-bass, and it is well known that these fish seldom rise to the surface.

A trip to the snapper banks is a favorite summer recreation for the gentlemen at Jacksonville. A tug is chartered for the day, and always returns to the city with flags flying, whistles triumphantly sounding, and gorgeous festoons of redfish hanging over the bows.

Dr. J. Kenworthy, of Jacksonville, describes one of these excursions as follows:

"Eighteen of us left Jacksonville at 2 o'clock in the morning, reaching Mayport before daylight. Before the sun rose we were 12 miles from the shore and near the banks. The second cast of the lead furnished unmistakable evidence of rocks, and overboard went the lines. They scarcely touched bottom before the cry of 'Snapper!' 'Snapper!' was heard, and a crimson beauty graced our deck. All were soon engaged, forward, aft, starboard, and port. To feel the bite of a 25-pound snapper at a depth of 12 fathoms causes a sensation never to be forgotten. As the line is pulled in, and the fish is first seen at a depth of several fathoms, he looks like silver, and not larger than one's hand. As he comes nearer his tints deepen; as he struggles at the surface to escape, all his rich, brilliant colors are displayed; and when he reaches the deck every one exclaims 'What a beauty!' For a few minutes the shouts resounded from all sides; but a change soon occurred. Each man labored as if the number to be captured depended upon his individual exertions, and no breath or time could be spared to cry 'Snapper!' or indulge in fisherman's chaff. In less than two hours the whistles sounded 'Up lines!' for we must cross the bar at a particular stage of the tide. The fish were biting rapidly, but our tired arms and blistered fingers induced us all quickly to obey the warning.

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*Since the above account was written Mr. Stearns has obtained the following additional information about the extent of the Pensacola fishery:

Statistics of red-snapper fleet, 1874 to 1886.

Season of—	Number of vessels.	Tonnage.	Number of men.
1874–'75	11	328.22	60
1875–'76	13	376.95	71
1876–'77	11	323.47	57
1877–'78	10	297.10	54
1878–'79	11	282.12	60
1879–'80	14	302.11	71
1880–'81	21	458.03	108
1881–'82	26	732.39	150
1882–'83	24	662.91	133
1883–'84	25	577.96	140
1884–'85	27	751.56	163
1885–'86	33	1,149.10	231

In the season of 1885–'86 Mr. Stearns states that the fishery has been a financial failure, probably on account of the severe cold having driven the fish into deeper water.—*A. H. Clark.*

†Since 1882 there have been three or four schooners from Noank, Conn., fishing for red snappers off the east coast of Florida in winter, marketing the catch at Savannah. They ship part of their catch to New York.

"On the home trip our captures were counted—not sea-bass, porgies, and small fry, but fish worth counting—and it was found that the party had captured one grouper weighing 35 pounds, two of 18 pounds, and 208 snappers, averaging 25 pounds each, the entire catch weighing 2½ tons."

Dr. J. Kenworthy's description gives a vivid idea of the abundance and voracity of red snappers on their feeding grounds.

"In April, 1877," says Mr. Goode, "the pilot-boat Nina, of Mayport, went out at noon and returned at noon on the following day. She carried six fishermen who brought back with them 90 red snappers, weighing from 20 to 30 pounds each, or about 2,300 pounds in all, besides 40 blackfish. The snappers were sold to a Savannah dealer for $1 each, and he forwarded them to New York. I saw 35 of them on the steamer Gazelle on the way to Jacksonville. I also had an opportunity of tasting one of them. The delicate flavor was destroyed by the vile process of frying, by which Floridians make their good food indigestible."

"G. W.," a correspondent of Forest and Stream, details in the issue of that paper for May 25, 1876, the history of a trip to the snapper banks, which is here abridged in order to present it as a contribution to the history of this splendid species:

"The snapper is a large, chunky-built fish, of bright-red color, weighing from 20 to 60 pounds. Its home is on a reef extending parallel with the coast, directly out to sea, from the mouth of the Saint John's. It bites greedily; when hooked fights nobly; and last, but not least, 'eats' splendidly. The steamer Mabey was to leave Jacksonville at 2 a. m.; so half an hour before that time I wended my way through the deserted streets, armed with a rope, which by courtesy they called a snapper-line, and a hook about 6 inches long. Most of the excursionists were present and the remainder were speedily collected, and then, with about fifty impatient fishermen, the Mabey steamed rapidly down the Saint John's, and about daylight arrived at Mayport, which is near the bar. It consists of some twenty houses, built upon the white sand, without a trace of vegetation. It is a summer resort for the people of Jacksonville, who go there for the sea-breeze and the fishing. Having obtained our bait, we left this place and crossed the river, where a very pretty collection of cottages marks the site of Pilot Town, so named from its being the home of the pilots of the Saint John's Bar. Having obtained our pilot, we stood directly out to sea. Many of the party were seasick, and while I myself was in a deplorable state, lying flat on my back, we reached the banks. After throwing out a buoy to mark the place, the fishermen baited their hooks and cast them out, and it was at this stage of the proceedings that I, who had not stirred from the cabin, heard a frantic yell of 'Snapper!' 'Snapper!' accompanied by a scampering upon deck, which sounded as if bedlam had broken loose. The noise continued, the yells grew more frequent and were of a different character, for, mingled with the cries of 'Snapper!' I now heard 'Blackfish!' 'Shark!' My sporting instinct was aroused, and, in spite of myself, I staggered to my feet, and, grasping my line, frantically gained the deck. Such a sight! The deck was strewn with blackfish and five or six large snappers, while over the side leaned four and thirty frantic men, some pulling in, some throwing out, and all yelling like madmen. I forgot that I was sick. It was a triumph of mind over matter. Baiting my hook, I quietly lowered my line. It hardly touched the bottom before I felt a pull that nearly pulled me over. I responded with a right good will. I pulled; the fish pulled. Sometimes he gained, and then, with a mighty effort, I would bring him in. The deck resounded with encouraging shouts. Finally he appeared in sight, 4 or 5 fathoms deep in the clear, blue water. He soon reached the surface, and, grasping my line, I hauled him on board. What a beauty! I never had experienced such a feeling of triumph as when, out of sight of land, I landed that snapper. Congratulations poured in, for he was the largest caught that day, and weighed full 40 pounds. I returned to the sport, and though I hooked another snap-

per, I did not land him; but I caught a noble string of blackfish, sometimes two at a time. We could stay on the bank only forty-five minutes, for we had to get back in order to cross the bar at high tide. But in that time were caught 20 snappers, weighing in the aggregate 600 pounds, and over 250 blackfish, which weighed from three-fourths to 1¼ pounds each. If we had struck the reef a little sooner we might have staid two hours, and I assure the reader that two hours of such fishing is as much as he will want.

"We strung all our fish forward, and, forgetting our sickness, sat down to a chowder of snapper, such as might make an epicure's eyes water. We arrived at Jacksonville with bell ringing, whistle blowing, and all our flags flying, and were greeted by a large and enthusiastic crowd."

2.—THE HAVANA MARKET FISHERY OF KEY WEST.

ORIGIN, PRESENT CONDITION, AND METHODS OF THE FISHERY.

A trade in fish has been carried on between the Key West fishermen and the Cubans for over fifty years, having been first started by Connecticut fishermen who spent their winters in the Gulf. At first the smacks were small and chiefly sloops, carrying 5,000, 6,000, or 7,000 pounds of groupers in their wells. As schooners came into general use in the fisheries they were sent here. These were larger, with greater well room. In 1860 there were eight or ten smacks engaged in the trade. At that time there was great demand for fresh fish in Havana, and good prices were paid for them. A smack would make eight or nine trips a year if she fished summer and winter, and it was considered that she was doing very well at that. Some few contracted with the Cubans to furnish groupers at 50 cents apiece for all fish over 5 pounds; those weighing less were counted two for one. This rate was finally broken up by competing parties, who would meet the vessels at sea, offering large prices, such as 15 or 20 cents per pound for all sizes of fish. The result was that more smacks were brought out after our civil war was ended, and the fishermen crowded them so with large deep-water fish that would not live long in the "cars" that they failed in business. Since then, or for the past ten years, the trade has assumed larger proportions, and is carried on by more reliable parties.

The smacks now make twelve or fourteen trips per year, or more than a trip per month, unless they fall in with a wrecked vessel, when they perhaps miss a trip while attending to it. (All smacks, and spongers have licenses for wrecking.) The fishing grounds are located all along the West Florida coast from Charlotte Harbor to Cedar Keys in water that is deeper than 7 or 8 fathoms. Fish are found only about the "patches" of rocks that occur on the bottom off that coast. Some of the best fishing places are in gullies where there is living coral and an abundance of other animal life; other places (not so productive generally) are on ridges of calcareous rock, that seem to be surrounded by no amount of animal life, except, perhaps, minute animals that live in the scanty growth of marine plants. When the fishermen reach the "grounds," or the vicinity of localities where they have previously caught fish, they use the lead-line continually until rocky bottom or fish are found. The sounding-lead itself has an "arming" of tallow or wax to show the character of the bottom, while on the lead-line is attached a baited hook, which is generally taken by the fish if there are any near. When rocky bottom is found, but no fish, the vessel is allowed to drift or move slowly, while the crew try their fishing-lines, and very often good fishing grounds are found in that way. As soon as it is ascertained that there are plenty of fish below, the schooner's jib is hauled half-way down, the mainsail slacked off to the fullest extent, and the schooner allowed to drift sidewise over the spot. Finally they drift away from the fish; then the lines are taken in, jib hoisted, mainsail hauled flat (foresail is seldom used at all), and the smack is worked up to

windward of the fishing ground, in order to make another drift across it. Those well acquainted know of places where they can drift several miles and catch fish nearly the whole time. They never anchor on these rocky banks, for there is every chance to lose an anchor. Fishing-lines are hard-laid cotton lines, with hooks and leads of about the same size as those used in codfishing. On these lines the lead is at the end, with the two hooks attached to it above by snoods that are 2 or 3 feet long. Groupers are strictly bottom fish, and the idea is to have the hooks as near the bottom as possible.

Baits for grouper fishing from the smacks engaged in the Havana market fishery are obtained on the fishing grounds or in the bays. Usually the grouper will take any kind of meat or fish, and then salt pork, beef, or salt fish is used to catch enough fresh bait—groupers, snappers, or sharks—to serve in catching the whole load; but there are times, winter and spring generally, when the groupers cannot be induced to take any but the choicest baits. Then the fishermen go into some bay and catch a quantity of mullet, which they put up in barrels with brine, to be kept in reserve for such times as the groupers do not bite freely. Several other kinds of fish, such as the bluefish (*Pomatomus saltatrix*), the lady-fish (*Elops saurus*), and the jackfish (*Caranx pisquetus*) are equally as good, or perhaps better, than the mullet, but are not usually found in sufficient quantities to be much sought for. This salted bait is not soaked out before being used, and seems to be as readily taken by the fish as if it were fresh. Pieces of about 2 inches square are used on each hook.

The men have to be very expert to hook the fish while drifting, and it is necessary to work fast, for the vessel moves rapidly and the spots are small. The deck is kept wet, so that the fish will not be "burned," as the fishermen call it, or injured by the hot deck, and the fish are thrown on to it as fast as caught. One of the crew, the captain usually, stands by and pricks each fish before placing it in the well. The air-bladder, or swimming-bladder, is so distended with air on being relieved from the pressure of water that the fish would not live in the well, but would float belly up; so the fishermen have a small metallic cylinder which they thrust into the bladder from the side, just above and a little back of the pectoral fin, whereupon the air rushes out with a hiss and the relieved fish flaps into the well and swims downward. Every fish must be "pricked," as this operation is called, and one of the crew does nothing else.

No fish are put into the well that are caught in over 10 fathoms of water, as they would not live until the smack reached Havana. Fish caught in over 20 fathoms of water appear at the surface swollen all over, eyes pushed nearly out of the head, and even the scales on the sides started and standing erect, presenting a distressing appearance, to say the least. Such fish will live a day or two after being pricked, but must be handled very carefully. Those from shoal water are quite hardy, and will live for months in a smack's well.

The big schooners that are now in the business carry 12,000 pounds or more, and it takes a week or two of fishing to fill them up. When the well is so crowded that the holes in the bottom cannot be seen, it is calculated that they have enough. Sometimes when it becomes calm, and the fish are not getting sufficient circulation, they have to take out a great many fish and place them in live cars alongside. This does not often happen at sea, but is of frequent occurrence in Key West and Havana Harbors. For that purpose each smack carries three or four cars, which are 8 feet long, 4 feet deep, and 4 feet wide, and made so that they can be taken apart and stowed below deck. As soon as loaded the smacks come to Key West and clear for Havana. Their cargoes are all estimated as being the same, and appear on all the manifests alike.

Arriving in Havana the smacks are assigned a place to lie in, and have to undergo many strict formulas. Their first wish is to have the fish placed in live-cars, so that they will not die. A few

days after their arrival the purchaser comes aboard with scales and proceeds to weigh the cargo alive, changing them from one car to another across the scales. The expenses per smack in Havana amount to nearly $100, and the other expenses per trip from $50 to $100.

The manifests are made out by the party who clears the smack, generally the owners or agents, then taken to the custom-house to be recorded and signed by the officials there. It is made out in the following form:

CLEARED BY FOGARTY & JOHNSON.

Report and manifest of the cargo laden at the port of Key West, Fla., on board the American schooner Mary Matilda, whereof H. Taylor is master (or conductor), bound for Havana, Cuba.

Shippers.	Consignee.	Number.	Description (marks, &c.).	Weight.
				Kilos.
Master. Ship-stores: ½ bbl. beef, ½ bbl. flour, ½ bbl. pork, coffee, and small stores.	Manuel Suarez	2262	2,262 kilograms of live fish (estimated), valued at $500, or 1,000 escudos. No other merchandise on board. Vessel and cargo consigned to Manuel Suarez.	2,262

Signature of ——— ———,
Collector of Customs.