

Haddock Prediction for 1951 Proves Accurate

By Howard A. Schuck, U. S.
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THE method of predicting the catch of haddock from Georges Bank a year in advance which was developed by the Woods Hole, Mass. Fishery Laboratory, proved 98.4 percent correct as regards the 1951 haddock landings. The method is dependent on the analysis of detailed data which have been collected routinely by the Fish & Wildlife Service since 1931.

Required for this analysis are the statistics of catch, including especially measures of the effort expended in making these catches, and data on the age composition and on the lengths and weights of the haddock landed over a period of years. The method depends on establishing the relation of the decline in abundance of each age group between succeeding years, together with establishing the variations in abundance of the several age groups contributing to the fishery. Once these relations have been established, it is possible to predict the landings for any year, providing data on the landings and on the age composition of the year preceding are available.

Although it has not yet been possible to present the full details of this method, it has been used to predict the Georges Bank haddock catch. This was made by Dr. William F. Royce to the National Fisheries Institute at their 1951 annual meeting in Boston, Mass. The prediction was for the "haddock year" of 1951, which differs by one month from the calendar year. The 1951 haddock year began February 1, 1951, and ended January 31, 1952.

It was predicted that a considerably greater catch would be made from Georges Bank in 1951 than the 80.5 million pounds landed in 1950. Just how much increase could be expected over 1950 obviously depended upon how much fishing would be done on Georges Bank in 1951. Thus, predictions were made for each of several fishing intensities.

If, in 1951, the amount of fishing on Georges Bank was the same as in 1950, the catch to be expected was set at 88 million pounds; for a 10 percent increase in fishing effort, the prediction was set for 93 million pounds; and

for a 10 percent decrease in effort, a catch of 83 million pounds was anticipated.

Size Also Predicted

Now that the 1951 haddock year is over, it is possible to make an evaluation of the prediction. But, of course, the evaluation at this time is not absolute since only estimates for the last two months of the landings are available.

The records show that there were 9.7 percent more days fished in 1951 than in 1950. With this increase in fishing, the catch was predicted to be 92.8 million pounds. Actually, 91.3 million pounds were landed. Thus the landings differed from the prediction by only 1.5 million pounds. The prediction proved 98.4 percent accurate.

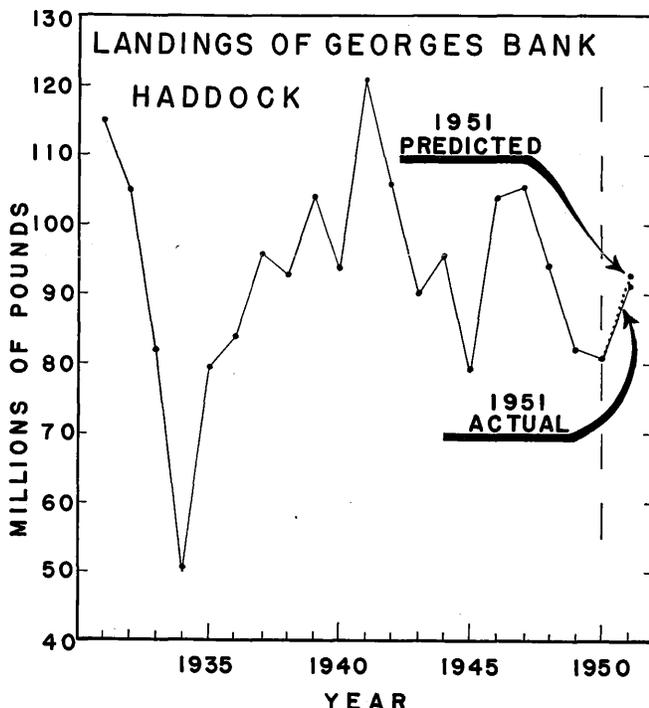
A prediction also was made of the size of haddock to be expected in the landings. It was predicted that "a larger than usual percentage of the 1951 catch would be good-sized scrod, averaging about 2¼ pounds".

In the average year haddock weighing about 2¼ pounds (2 to 2½ pound range) have accounted for approximately 29 percent of the landings. For 1951, all of the size composition data are not yet analyzed, but for 7 trips to sea made by Service biologists these data are available. Fully 43 percent of the landings from these trips were composed of 2 to 2½ pound fish. Thus, as predicted, considerably more of this size group were taken than are taken in an average year.

Encouraged by the fact that the actual landings closely approximated the predicted catch, we are now in the process of making the second annual prediction—that for 1952.



Howard A. Schuck, fishery research biologist stationed at the Woods Hole, Mass. Fish & Wildlife Service laboratory.



Graph showing Georges Bank haddock landings in millions of pounds for the 20-year period 1931-1950, and the predicted and actual 1951 production.

Larger Mesh Recommended for Georges Bank Haddock Nets

The commercial haddock fishery in the Georges Bank area off the New England coast may be brought under international regulation to attempt to increase the yield if a recommendation proposed at Ottawa, Canada is accepted by the International Commission for the Northwest Atlantic Fisheries.

Commissioners and advisers of ICNAF's Panel 5 met at Ottawa February 26 and 27 and accepted a recommendation made by scientists of both countries that the mesh size of haddock fishery nets should be increased from 2¾ to 3¾". This increase in mesh size would allow the escape of unmarketable baby haddock. The change in mesh size is intended to prevent the destruction of large quantities of small haddock. Boats not fishing for haddock would be allowed up to 5,000 lbs. of haddock or 10% by weight of their total catch.

Canada and the United States are the only two countries holding membership on Panel 5. The recommendation of the Panel is to be submitted to the general meeting of the 10-nation Commission to be held at St. Andrews, N. B., in June. If adopted by the Commission, it will be the first time in history that the high seas fishery of the Northwest Atlantic has been brought under conservation regulation.

(Continued on opposite page)

a skillet for French-frying. It comes in 10-ounce and 1½-pound cartons. The breaded product is turned out by a handful of plants at a rate of 10 million pounds a year.

Grooved Shrimp Now a Major Variety

W. L. Hardee, Brownsville dealer, reports that there is a trend toward better working equipment making it possible for boats to go farther away to such fabulous fishing grounds as Campeche Bay off Mexico where they gather the now highly acceptable grooved shrimp. Hardee estimates that 95 percent of all the shrimp docked at Brownsville and at Port Isabel is the grooved variety, whereas white shrimp formerly predominated. Both the brown-grooved shrimp and the pink—or spotted—grooved shrimp are unloaded there.

For generations, the only shrimp known were the white shrimp caught in bays and other coastal waters by small boats which scarcely ever ventured out of port for more than a few hours. Now high-powered Diesel driven boats with electronic fathometers and power winches are gone from port for long periods, sometimes weeks at a time, fishing for grooved shrimp.

Brownsville and Port Isabel became deep-water ports in the late twenties, and then in the year 1935, the first grooved shrimp were caught in any quantity. They were netted in 10 fathoms of water just off Padre Island and in sight of Port Isabel itself.

The shrimp were not immediately acceptable because of their color, their bronze hue being mistaken for the pink cast taken on by decaying white shrimp. It was not until wartime food demands became urgent that these shrimp began to be generally consumed.

In the late Fall of 1947 it was found that huge beds of grooved shrimp were offshore in 20 fathoms or more. Many additional bronze or brown shrimp as the trade calls them were found in waters to the South and this variety met with increasing acceptance on the part of the public.

Shrimpers Operate at Night

Grooved shrimp, including both the brown and pink varieties, are caught mainly by trawling operations at night, while the white shrimp are caught during daylight hours. Although the habitat of the grooved and white shrimp may overlap, the grooved species, more particularly the brown variety, frequents deeper water than the white shrimp. The greater bulk of grooved shrimp catches have been made at depths from 15 to 25 fathoms, although they have been caught in depths of 50 fathoms. The white shrimp are generally taken in less than 20 fathoms.

Since the initial landings of grooved varieties at Gulf Coast ports, a greater and greater proportion of the total



The 63' shrimp trawler "Luxury Liner", owned by Chris W. Dubard, Port Isabel, Texas. She was built by Southern Shipbuilding, Inc., Jacksonville, Fla., and is equipped with a D13000, 120 hp. Caterpillar Diesel.

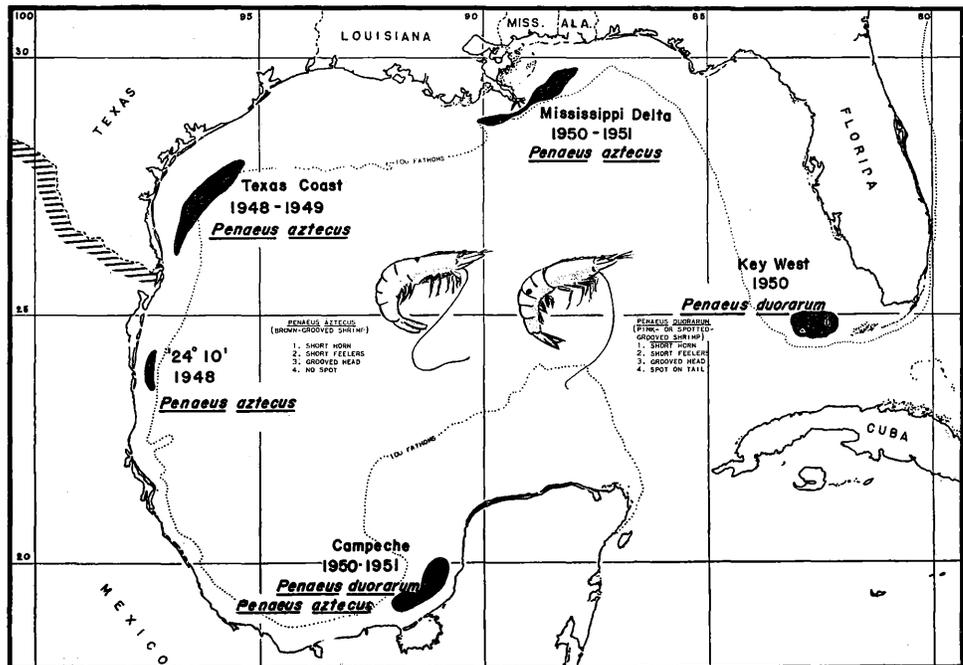
catch has consisted of these varieties, mainly because of (1) intensified trawling operations at night, (2) trawling at greater depths, (3) the location of new shrimping areas, and (4) trawlers extending their range of operation to a greater distance from home port. Estimates show that from 40 to 50 percent of present Gulf production is grooved shrimp as against less than 5 percent in 1945.

A factor of no small importance has been the shifting of the vessels' bases of operations from one Gulf Coast port to another, as well as from ports of the South Atlantic States, thus creating a much greater fishing intensity out of ports nearer the fishing grounds. Last, but of prime importance, has been the trade's acceptance of the grooved varieties despite their difference in color. However, generally speaking, the majority of grooved shrimp continues to sell a few cents per pound less than the common or white variety of the same size and quality.

Unutilized Shrimp Beds

There are still areas in the Gulf having stocks of shrimp not being utilized for one reason or another. One such (Continued on page 45)

Fish & Wildlife Service map showing new grounds for grooved shrimp. Beds of brown-grooved shrimp (*Penaeus aztecus*) are located in the Mississippi Delta area, along the Texas coast, the upper Mexican coast, and in the Campeche, Mexico area. This species of shrimp has a short horn, short feelers, grooved head, but does not have a spot. Pink- or spotted-grooved shrimp (*Penaeus duorarum*) are present in the Key West, Fla., and Campeche, Mexico, areas. A short horn, short feelers, grooved head and spot on tail are characteristics of this variety.



Scientists of the United States have been studying the haddock resources in the Atlantic for nearly 20 years, but intensive work toward the adoption of conservation measures was not started until 1948.

The Georges Bank haddock fishery is one of the richest of the famous Northwest Atlantic "banks" and supports a large industry centered in Massachusetts. The advance of modern fishing gear, particularly the trawl, along with natural biological fluctuations, have resulted in a decline in the haddock stocks. New England fishermen have been forced to extend their operations to the banks off the Canadian coast several hundred miles to the east.

The conservation and development of the fish stocks in Sub-area 5, which is the smallest of the five areas covered by the International Convention, have officially been under consideration since the ratification of the treaty in 1950. Sub-area 5 extends along the New England coast from the Rhode Island-Connecticut line to the international border between Maine and New Brunswick. The extensive scientific research already going on in connection with the haddock fishing of Sub-area 5 would be continued to assess the effect of the new mesh regulation.

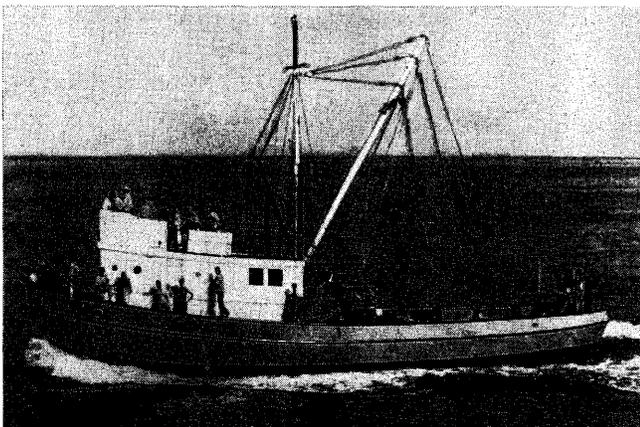
The Panel members also considered problems associated with the apparent decline in the redfish (ocean perch) landings. It was agreed that there would be continued investigation in this fishery with a view to later recommendations.

The meeting was under the chairmanship of Francis W. Sargent of Orleans, Mass., director of the Massachusetts Division of Marine Fisheries. Other commissioners in attendance were: Dr. John L. Kask, assistant director of the U. S. Fish and Wildlife Service, Washington; Bernhard Knollenberg, Chester, Conn.; Stewart Bates, Deputy Minister of Fisheries for Canada; and Howard MacKichan, general manager, United Maritime Fishermen Limited, Halifax, N. S.

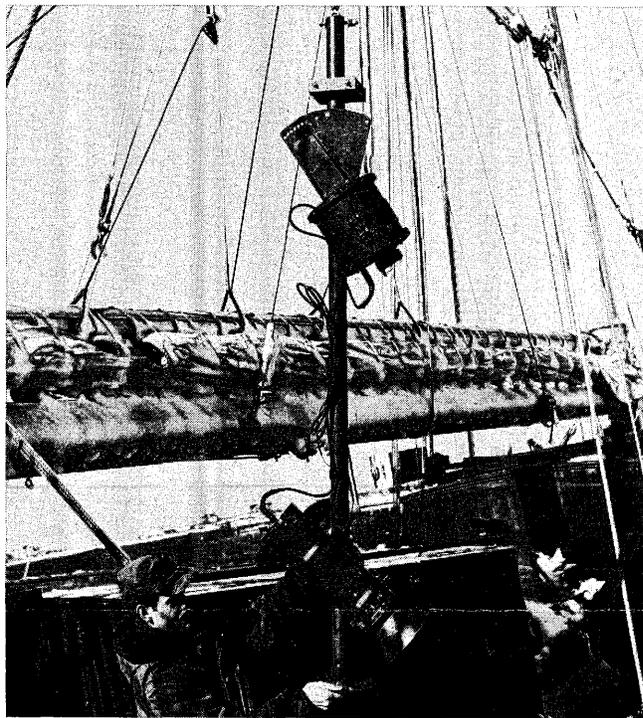
U. S. advisers and observers attending the meeting were: Dr. Wm. C. Herrington, Special Assistant to the Under-Secretary of State, Washington, D. C.; Dr. Herbert Graham and Howard Schuck, U. S. Fish & Wildlife Service, Woods Hole, Mass.; and Leonard O. Warner, member of the Commission's Advisory Committee, Providence, R. I.

"Good Housekeeping" Fish Cook Book

The March issue of *Good Housekeeping* magazine carried a complete 32-page fish cook book with 4-color pictures of fish dishes and recipes of all kinds for the preparation of fishery products. Included are salt-water fish, fresh-water fish, shellfish, canned fish, and frozen fish. There are instructions on how to bake, broil, poach, steam, pan fry, and oven fry. There also are instructions for fish suppers, luncheons, sandwiches, salads, sauces and relishes.



FLAGSHIP FOR THE FISHING FLEET of Sandimex, S. A., Santa Rosalia, Baja California, is the new 64' shrimp trawler "Elena". She is powered by a National Supply Co. 4-cylinder, 110 hp., 325 rpm. Atlas Diesel which turns 3-blade 50 x 42 propeller, giving the vessel a speed of 9.3 knots.



David M. Owen, underwater photographer, holds the newly-developed repeating underwater camera on the ice-covered deck of the research vessel "Caryn", after a trip to the sea scallop grounds off Nantucket Island, Massachusetts. The photographing of the scallop beds was part of an investigation of the sea scallop fishery being conducted by the Woods Hole, Mass. Oceanographic Institution.

Underwater Photography Used In Massachusetts Scallop Study

The first extensive look at the ocean bottom—sea scallop beds at a depth of 150'—was obtained recently near Nantucket Island, Mass. with a newly developed underwater camera, the Woods Hole, Mass. Oceanographic Institution reports.

A repeating underwater camera, which takes one picture every 45 seconds with the aid of a brilliant flashlight, was lowered over the side of the research vessel *Caryn*. The ship was allowed to drift over Nantucket Shoals, a favorite fishing ground for the six-million-dollar sea scallop industry of Massachusetts.

While the 97' sailing ship rolled heavily downwind in the trough of the Winter storm waves, underwater photographer David M. Owen and shellfish biologists Harry S. Turner and Arthur J. Posgay kept a constant vigil on the wire from which the camera was lowered.

At the end of a two-mile drift, the camera was brought back to the surface and Owen quickly developed the film in the darkroom of the laboratory on board the *Caryn*. He had succeeded in obtaining the first extensive view of the ocean bottom, giving him another first in underwater photography since, in 1948, he also took the deepest picture on record at a depth of 3½ miles in the Atlantic.

Although many of the photographs were out of focus, due to the rolling of the ship which kept changing the distance from the camera to the bottom, they gave valuable information to the biologists. A preliminary check indicated that the scallops were thinly distributed in the photographed area—only one scallop per 26 square feet was counted.

The sea scallop investigation at the Woods Hole Oceanographic Institution is part of a shellfish resources program supported by funds from the Massachusetts Division of Marine Fisheries. Although the sea scallop industry in general seems to be in a healthy state, the investigation was undertaken to learn more about the biology of the sea scallop and its relation to the environment.

Maine Fishing Fleet Suffers Extensive Storm Damage

Gale force winds and pounding seas raised havoc with fishing boats along the Maine coast on February 18, sinking a 102-ft. dragger and piling up several other craft on rocks and mudflats. The *John Nagle* went to the bottom off the end of Union Wharf in Portland, where she was being converted from an army patrol craft to a dragger by her owners, F. J. O'Hara & Sons, Inc.

Two other draggers piled up against the Portland Bridge. These were the 70-ft. *Alice M. Doughty* and the 90-ft. *Vandal*, both owned by the Harris Company. Another Harris Company boat, the 85-ft. *Vagabond*, was driven on the flats at Mill Creek Cove. The fifth casualty for the Portland fleet was the 78-ft. *Sea King*, owned by Maine Sea Foods, Inc., which broke her moorings and went aground on the flats between Central Maine Power Company's plant and its fuel storage tanks.

Tag Identifies Lobsters as from Maine

For the first time, a labeling device has been perfected that will identify every Maine lobster from the time it is taken from the pound until it reaches the consumer's table, cooked and ready for eating.

The Maine Publicity Bureau announced last month that this new type label, developed by Roland W. Hurtubise, president of the Maine Lobster Co. of Portland, is now being affixed to each lobster shipped out-of-State by his company. The button-type metal tag is clipped through the outside tail flipper and carries the message, "Maine Lobster, airborne, Portland, Me." on one side and "Maine Lobster, airborne" on the other.

The tag is one inch in diameter and cannot be removed without disfiguring the lobster. Thorough tests have proven it to be harmless to the consumer and it imparts no taste to the meat. The button remains on throughout cooking and is positive evidence that the lobster came from Maine. It is expected that within a short time all Maine shippers will use the permanent type lobster marker.

New Vessels Launched

Newbert & Wallace of Thomaston launched the 83 ft. dragger *Cap'n Bill 2d* on February 23 for Capt. Henry Klimm of Woods Hole, Mass. The craft is oak framed and planked and is powered with twin 165 hp. General Motors Diesels, driving a single wheel. The dragger is patterned after the *Jacob Pike* of Holmes Packing Corp., but has a higher rail and a whaleback forward. The vessel is equipped to sleep 12 men and its holds can take 90,000 lbs. of fish.

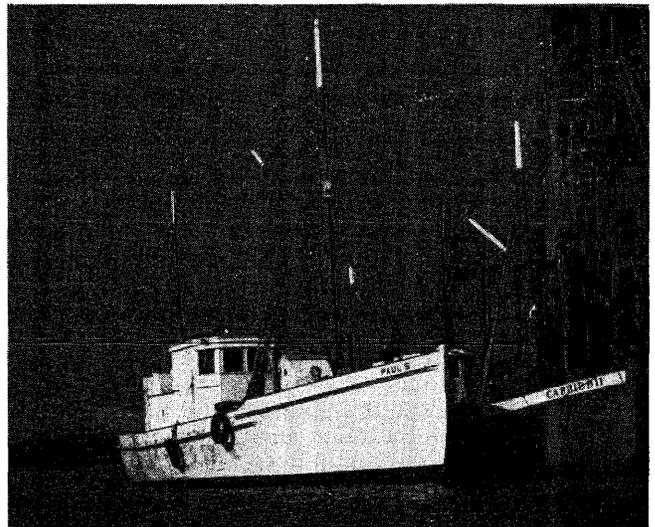
On February 7 the Rockland Boat Shop launched the 35 ft. x 10½ ft. x 3 ft. 4 in. lobster boat *Lillian* for Lavon Ames of Matinicus. The new craft is named for, and was christened by, Ames' daughter, Lillian. Power is supplied by a 115 hp. Chrysler gasoline engine. The vessel is oak framed and cedar planked, with Monel fastening below the water line.

Appointed to Sardine Committee

Moses P. Lawrence of North Lubec was appointed to the Maine Sardine Tax Committee for a five-year term by Sea & Shore Fisheries Commissioner Robert L. Dow on February 23. Lawrence succeeds Victor Corey of Portland and New York, whose one-year term expired on February 9. One of Maine's veteran sardine canners, Lawrence operates plants at North Lubec and Rockland in partnership with his brother Frank Lawrence.

Lobstermen Lose Lives in Storm

A rising northeast gale, carrying the start of a blinding snow storm, whipped Penobscot Bay into a mass of churning water off Old Man Ledge on February 17 and took the



The 54' sardine carrier "Paul S." at the wharf of her owner, F. H. Snow Canning Co., South Gouldsboro, Me. Power for the vessel is supplied by a 4-cylinder, 80-120 hp. P&H Diesel which turns 36 x 22 Columbian propeller through 2:1 Snow-Nabstedt reduction gear, to give a speed of 9 mph. Other equipment includes Shipmate range and Columbian steering gear.

lives of two men after their heavily laden 30-ft. lobster boat had foundered. Harland Davis of Cushing and James B. Haigh of Portsmouth, N. H. died of exposure after leaving their boat which filled and submerged.

"Flow" Is Rockland Highliner

Highline boat at the port of Rockland for the month of January was the *Flow*, which landed a total of 383,800 lbs., followed by the *Aloha*, with 119,300. Other boats reporting their landings were the *Breeze*, 106,250; *Ocean Spray*, 79,400; *Dorothy & Ethel II*, 43,300; *Helen Mae*, 21,300; *Rhode Island*, 17,200; and the *Little Growler*, 5,300.

Building Scallop Dragger

Bristol Yacht Building Co., South Bristol, is building a 77' scallop dragger for Raymond Larkey of Jersey City, N. J. and John G. Sturges of Brooklyn, N. Y. The craft will be powered with a 280 hp. Atlas Diesel.

Two Vessels Repowered

The *Lawrence Scola*, owned by Lawrence Scola and operated out of Portland and Boothbay Harbor, is having a new WM1197 Wolverine, 200 hp. 1600 rpm. Diesel installed at the Wolverine factory in Bridgeport, Conn.

The sardine carrier *Black Diamond*, owned by Seaboard Packing Co., Lubec, is to be repowered with a Lathrop DH-200 Diesel.

South Carolina Men Injured In Boat Explosion

Three men were injured early in February when the 26' oyster boat *Failfaith* exploded at the docks of the Yonge's Island Cannery Co. of Meggett. The boat burned to the water line.

James Calder, Jr. of Meggett, crewman on the oyster boat *Robert E. Lee*, tied up alongside the *Failfaith*, suffered second and third degree burns of the face and neck when the explosion caused a flame to spurt onto the *Lee*'s deck, trapping him against the cabin. No damage was sustained by the *Lee*.

Isiah Heyward of Meggett, mechanic on the *Failfaith*, suffered second and third degree burns of the hands and first degree burns of the face and neck. A third crewman, Carl Prosser of Yonge's Island, was treated for first degree burns of the left hand.