REPORT OF THE FEDERAL COMMUNICATIONS COMMISSION - 1937

GREAT LAKES AND INLAND WATERS RADIO SURVEY

The Commission at its "en banc" session on May 26, 1937, designated Commissioner Thad H. Brown to have charge of organizing and carrying forward the work incident to the "special study of the radio requirements necessary or desirable for safety purposes for ships navigating the Great Lakes and the inland waters of the United States" provided for in section 15 of Public. Law No. 97, approved May 20, 1937.

Section 15 of Public Law No. 97 states as follows: Section 602 of the Communications Act of 1934 is hereby amended by adding at the end thereof a new subsection to read as follows:

"(e} Such part or parts of the Act entitled 'An Act to require apparatus and operators for radio communication on certain ocean steamers," approved June 24, 1910, as amended, as relate to the ocean and to steamers navigating thereon, are hereby repealed. In all other respects said Act shall continue in full force and effect. The Commission is requested and directed to make a special study of the radio requirements necessary or desirable for safety purposes for ships navigating the Great Lakes and the inland waters of the United States, and to report its recommendations, and the reasons therefor, to the Congress not later than December 31, 1939."

This law amends the act for the purpose of promoting safety of life and property at sea through the use of wire and radio communication to make more effective "the international conference for safety of life at sea, and for other purposes." Intensive study of the preliminary plans "for carrying out the purposes of the amendment has already been started by Commissioner Brown, and the work of selecting competent personnel is now under way. It is planned to have only a small staff, headed by a chief administrative officer, for the purpose of carrying on this special study.

The duties of this chief administrative officer will involve making a special study of the unique transportation and communication problems of the Great Lakes; studying the comparative advantages of radiotelephony and radiotelegraphy; making a study of the radio-frequency-allocation problems with a view to the selection of suitable frequencies for the distances involved on the Great Lakes; formulating plans for coordinating radio tests between ship and shore and between ship and ship; making a study of radio-interference conditions on the Great Lakes, particularly with respect to the separation required between maritime frequencies and those of other services; collecting data and doing liaison work between the Federal Communications Commission and the Department of Transport, Dominion of Canada, pertaining to Great Lakes maritime affairs, assisting in the preparation for and conduct of special public hearings to be held in the principal cities surrounding the Great Lakes, including Buffalo, Cleveland, Detroit, Chicago, and Duluth; coordinating the study of the communication needs of the Federal Government departments, including the United States Coast (Guard, the United States Bureau of Lighthouses, the Bureau of Air Commerce, and the United States Weather Bureau; investigating problems incident to the use of automatic distress-alarm apparatus and direction-finding equipment for safety purposes; investigating the availability of wire facilities at remote points along the Great Lakes, from the standpoint of locating shore radio stations at points where rapid and efficient communication may be carried on; surveying the transportation lanes and the nature of both freight and passenger traffic; making special studies with reference to radio needs during the navigation season, as

distinguished from such needs during winter operations, when shipping is greatly curtailed; investigating radio needs from the standpoint of dangers to navigation; making special studies with reference to the history of past disasters on the Great Lakes to determine whether radio would have played an important part as a means of preventing such disasters; preparing regulations applicable to ships bearing tonnage to determine whether the provisions of Public Law No. 97 should also be made applicable on the Great Lakes; making special studies with respect to the type of equipment for operation of ship work, including the present installed transmitting and receiving apparatus, as well as the improved type of apparatus that might be made available on the market; determining what qualifications should apply to radio operators on the Great Lakes, depending upon class of ship (passenger or cargo), tonnage, nature of voyage, and type of emission; and preparing the final report and recommendations to the Commission preliminary to the submission of the Commission's report to Congress pursuant to section 602 of the act. The special study, together with the report of the Commission's recommendation and the reasons therefor, will be submitted to the Congress not later than December 31, 1939.

REPORT OF THE FEDERAL COMMUNICATIONS COMMISSION - 1938

GREAT LAKES AND INLAND WATERS SURVEY

The Great Lakes and Inland Waters Survey was provided for in section 15, Public Law No. 97, which amended section 602 of the Communications Act of 1934, requesting and directing the Federal Communications Commission "to make a special study of the radio requirements necessary or desirable for safety purposes for ships navigating the Great Lakes and the inland waters of the United States, and to report its recommendation, and the reasons therefor, to the Congress, not later than December 31, 1939."

The Commission on May 26, 1937, designated Commissioner Brown to be in charge of the survey, including the selection of the necessary personnel.

A conference has been held with officials of the Department of Transport of Canada, in order to exchange views and to develop plans for cooperation in the conduct of the survey. Investigations have been instituted into the number and types of vessels, navigation conditions, the nature and extent of marine casualties ou the Great Lakes, land-wire facilities, and existing radiotelegraph and radio-telephone facilities. The factual basis for recommendations with respect to radio communication requirements has received first consideration. Substantial progress has been made in these basic studies, and several of them were nearing completion at the close of this fiscal year.

The vessel survey, which includes an analysis of the types, tonnage, equipment, ages, and services of all commercial vessels on the Great Lakes operating under the American flag, is virtually completed. This study has been based upon questionnaires returned by owning and operating companies on the Lakes.

A study of the channels, routes, distances, ship lanes, and navigation aids has been conducted. A series of surveys of weather conditions and hazards to navigation has been undertaken. An

analysis of the nature and volume of the commerce of the Great Lakes, including the ports at which the commerce originates and to which it is destined, the routes of movement, and the types of commodities, is being made.

A comprehensive study of marine casualties on the Great Lakes during the last two decades is nearing completion. This study includes the trends in marine casualties involving loss of life and damage to property on the Great Lakes, and an analysis of these casualties according to cause, type of vessel or vessels involved, and whether or not radio communication might have prevented or mitigated the losses.

A study of radio facilities on the Great Lakes now in process includes an analysis of shore radio stations and vessel radio facilities. This study is based upon returns from radiotelephone and radiotelegraph stations to questionnaires prepared by the survey. In its studies and investigations the survey has had the benefit of the data relating to navigation and commerce on the Great Lakes that have been collected and published by other Government departments.

A number of Federal Government departments have a vital relationship to the promotion of safety of life at sea and on the Great Lakes. In recognition of this interest a, general advisory committee has been formed. The membership of this committee includes representatives of the following executive departments and independent agencies:

Department of State, Treaty Division.
Treasury Department, United States Coast Guard.
Department of War, Board of Engineers for Rivers and Harbors.
Department of the Navy, Communications Division, Office of Naval Operations.
Department of Agriculture, Weather Bureau.
Department Commerce:
    Bureau of Lighthouses.
    Bureau of Standards.
    Bureau of Marine Inspection and Navigation.
    Coast and Geodetic Survey
.United States Maritime Commission, Technical Division.
Federal Communications Commission.

The investigation has been directed toward the determination of the efficiency of radiotelegraph and radiotelephone communication facilities in the Great Lakes area. An engineering group for the Great Lakes and Inland Waters Survey work was organized by utilizing the services of the regular personnel of the Commission and an engineer especially employed for this purpose. In addition, communication personnel of the United States Coast Guard, Navy, Signal Corps, Bureau of Standards, and Lighthouse Service have rendered valuable cooperative assistance and are regularly available for consultation. Radio station facilities, personnel, and vessels of the respective Government departments have also been made available. Radio communication tests under practical conditions were made on Lake Huron, for the purpose of comparing the effectiveness of radiotelephony and radiotelegraphy from the standpoint of emergency and distress communications. Test transmissions made from a Coast Guard cutter at various points

on Lake Huron were observed aboard other Coast Guard vessels off shore near Alpcna, Mich., and on the beach at. North Point, near Alpena.

Preliminary hearings were scheduled to be held on the Great Lakes and Inland Waters Survey, commencing July 18, 1938, at Cleveland, Ohio.

Inland waterways other than the Great Lakes will receive study by the Survey, and the results thereof will also be included in the final report.

REPORT OF THE FEDERAL COMMUNICATIONS COMMISSION - 1939

GREAT LAKES AND INLAND WATERS SURVEY

The special study of the radio requirements necessary or desirable for safety purposes for ships navigating the Great Lakes and inland waters of the United States, which the Congress directed the Federal Communications Commission to make and report its recommendations and reasons therefor to the Congress not later than December 31, 1939, is being conducted under the direction of Commissioner Thad H. Brown.

During the past year open formal public hearings were held at Cleveland, from July 18 to July 22, 1938, from August 1 to August 5,1938, from March 6 to March 17, 1939, and from April 5 to April 6,1939; at Detroit from August 16 to August 18, 1938; and at Washington, from May 23 to May 26, 1939. Members of the Great Lakes and Inland Waters Survey research and engineering staff presented testimony based upon investigations conducted by the Survey in these hearings. Testimony was presented by representatives of commercial shipping companies, shipmasters' associations, communication companies, labor organizations, yachting associations, and governmental agencies with respect to vessel operating conditions and the use of radio communications.

The engineering group for the Great Lakes and Inland Waters Survey, utilizing the services of some of the personnel of the Commission and one additional engineer employed specifically for the purpose, continued to carry out its experimental test projects designed to determine the relative effectiveness of radiotelegraphy and radiotelephony for safety-communication purposes under practical operating conditions on the Great Lakes, and to ascertain the reliable communication ranges which could be obtained using a type of radio transmitting installation comparable to equipment of average cost and design available on the open market. This equipment at various times was installed and operated for these tests on board Government and commercial vessels navigated over the steamship lanes on Lakes Huron, Michigan, and Superior. Suitable radio receiving and measuring equipment was set up and operated on the shores of these lakes and on board two Government vessels. These tests during the summer season of highest atmospheric interference to radio communication were carried out on Lakes Huron and Superior during July and August 1938, and on Lake Michigan during the more favorable radio receiving conditions of the fall season.

Two commercial type auto-alarms, modified for operation on the Great Lakes distress frequency 410 kc., were also subjected to tests under practical operating conditions on Lake Superior,

utilizing the radio station on board a Coast Guard cutter and a commercial cargo vessel as transmitting ship stations for this purpose.

Communication tests were conducted with regularity during the periods mentioned, generally at sunrise, noon, sunset, and In the evening of each day. Each test involved attempted complete reception at the official receiving points of both radiotelegraph and radiotelephone test messages transmitted under equivalent conditions on at least six frequencies distributed throughout the radio spectrum. Considerable resultant engineering data of a comparative nature was developed and prepared in the form of exhibits. These exhibits, together with considerable oral description of this experimental emergency work, were made a part of the record of hearings conducted at Cleveland, Ohio, during the month of March.

The factual studies of the physiographic features, volume and nature of commerce, types of vessels, operating conditions, navigation facilities and conditions, navigation and other casualties, weather conditions, radio communication facilities and services of the Great Lakes, commenced in December 1937 have been completed. Following the first informal conference with representatives of the Department of Transport, Dominion of Canada, held in New York May 12, 1938, a second informal conference was held with these representatives at Ottawa, on October 17, 1938, in order to facilitate the studies, to arrange for the transmission of data with respect to Canadian vessel operation, radio facilities and services, and to consider suggestions for further cooperation between the representatives of the radio regulatory bodies of the United States and Canada. Since the inauguration of the Survey there has been a material increase of voluntary installations of radiotelephone facilities on vessels of the, Great Lakes. As of May 1, 1938, there were 109 vessels on the Great Lakes equipped with radiotelephone, 65 of the United States registry and 44 of Canadian registry. As of July 24, 1939, there were 146 American vessels equipped with radiotelephone and 50 vessels of Canadian registry.

Conferences between representatives of United States and Canadian vessel owners of the Great Lakes were held in Toronto on October 5, 1938, and January 9,1939. Resolutions were addressed jointly to the Commissioner-in-Charge, Federal Communications Commission, and to the Minister of Transport, Dominion of Canada, in connection with these conferences which expressed the opinion of these operators that radiotelephone has been demonstrated to be a prompt and reliable instrumentality for communication between ships and between ship and shore, and requesting the Governments of the United States and Canada to immediately endeavor to reach an agreement and to make frequency allocations at least on a temporary basis for a uniform radiotelephone communication service with respect to all of the Great Lakes.

Through the cooperation of the State Department, the Federal Communications Commission and the Department of Transport of the Dominion of Canada established a temporary arrangement for uniform radiotelephone communication upon the same fundamental basis as that used for radiotelegraphy, thereby affording the proper opportunity for the demonstration by United States and Canadian vessel owners of the practicability of radiotelephony for safety purposes on the Great Lakes. This system is being used, insofar as practicable, by vessels of United States and Canadian registry during the season of 1939. The results of this temporary arrangement, the operation of which is being observed by members of the Engineering staff of the Commission, are expected to be of material service to the Commission and to the Canadian Department of

Transport in the development of various proposals and recommendations for a uniform system of radio communication on the Great Lakes. As a result of such consultation between these representatives and members of the staff of the Great Lakes and Inland Waters Survey, the study of radio communication requirements necessary or desirable for ships navigated on inland waters of the United States was limited to passenger-carrying vessels of 100 gross registered tons or over, and freight vessels of 1,000 gross registered tons or over engaged in operation on bays and sounds or on other larger bodies of inland waters, excluding those which confine their operations to the rivers.

REPORT OF THE FEDERAL COMMUNICATIONS COMMISSION - 1940

GREAT LAKES AND INLAND WATERS

GREAT LAKES SURVEY

The special study of radio requirements necessary or desired for safety purposes for ships navigating the Great Lakes and inland waters has been concluded, and the final report of the Commission to the Congress was in preparation at the close of the year. The survey as submitted to the Commission on December 11, 1939, by Commissioner Thad H. Brown, contains 621 pages analyzing 3,167 pages of testimony and 341 exhibits which were introduced at hearings. This study was made pursuant to Section 15 of Public Order No. 97 approved by the 75th Congress May 20, 1937. By Public Resolution No. 441 of the 76th Congress, the time for making Commission report to Congress was extended from December 31, 1939, to January 1, 1941. Following conferences in 1938 with officials of the Department of Transport, Dominion of Canada, representatives of the Commission and other interested departments of the United States Government again conferred informally with Canadian officials at Montreal, Canada, on October 12 and 13, 1939. Consideration was given to mutual problems concerning the increased voluntary use of radiotelephone communication in the short-distance maritime mobile service of Canada and the United States. and considerable factual data which had been accumulated during the course of the survey were carefully reviewed. In addition, a satisfactory basis was established for further cooperation between the two governments looking toward possible adoption of uniform ship radio requirements for safety purposes on the Great Lakes.