

2523-2524-2525
2526

2523. 2524. 2525.
2526

Diag. Ch. No. 1351-2

Form 504	
U. S. COAST AND GEODETIC SURVEY DEPARTMENT OF COMMERCE	
DESCRIPTIVE REPORT	
Type of Survey	<i>Hydrographic</i> 2523 2524
Field No.	Office No. 2525-2526
LOCALITY	
State	<i>Florida</i>
General locality	<i>Key Tortugas</i>
Locality	
1902	
CHIEF OF PARTY	
<i>P. A. Welser</i>	
LIBRARY & ARCHIVES	
DATE	

2524

Diag. Cht. No. 1351-1

Department of Commerce and Labor
COAST AND GEODETIC SURVEY

O. H. Fissmann
Superintendent.

State: *Florida*

DESCRIPTIVE REPORT.

Hyd. C. Sheet No. *2524*

LOCALITY:

See

2523

1902

CHIEF OF PARTY:

P. A. Welker

2524

2525

Department of Commerce and Labor

COAST AND GEODETIC SURVEY

CH. G. F. G. S. M. A. N. N.

Superintendent.

State: *Florida*

DESCRIPTIVE REPORT.

Hydro Sheet No. *2525*

LOCALITY:

See

2523

1902

CHIEF OF PARTY:

P. A. Walker

2525

2526

Department of Commerce and Labor
COAST AND GEODETIC SURVEY

O. H. Tittmann
Superintendent.

State: *Florida*

DESCRIPTIVE REPORT.

Hyd. Sheet No. *2526*

LOCALITY:

See

2523

1902

CHIEF OF PARTY:

P. A. Walker

2526

U. S. COAST AND GEODETIC SURVEY.

O. H. Pittmann, Superintendent.

State: Florida.

DESCRIPTIVE REPORT.

Hydrographic Sheets Nos. 2523
2524
2525
2526

LOCALITY:

Dry Tortugas.
Florida.

1902.

CHIEF OF PARTY:

P. A. Walker, Assist.
Com'd'g Lt. Blake.

RB.

WRITE ME AT: Apalachicola, Florida.
TELEGRAPH ME AT: " "

TREASURY DEPARTMENT,
U.S.COAST AND GEODETIC SURVEY, STR. "BACHE",
Apalachicola, Florida.

April 27th 1902.

Mr. O. H. Tittmann,
Superintendent of the U.S.C. & G. Survey,
Washington, D. C.

Sir:-

In obedience to "Instructions and Memoranda for Descriptive Reports, 1887", I beg leave to submit the following report on Hydrographic Sheets Nos. 2523, 2524, 2525 and 2526, the first two mentioned being upon a scale of 1:20000 and the latter two upon a scale of 1:10000. The work represented upon the four sheets was executed between January 12th. and May 24th., 1901, and comprises an hydrographic resurvey of the region in the vicinity of the Dry Tortugas, Florida, which consists of a group of coral and sand reefs and Keys covering an area of about eleven miles in a general north east and south west direction and about five miles wide in an north west and south east direction. Eight Keys are showing above water all of which are surrounded by reefs of considerable extent with deep water between them. The reefs rise abruptly from deep water and during thick weather they should be approached very cautiously, as little warning is given by the lead. During clear weather the lighthouse upon Loggerhead Key, and Fort Jefferson, a large brick structure on Garden Key, are visible for many miles to sea according to the clearness of the atmosphere and will give ample warning of approach to the reefs.

Fort Jefferson was built upon Garden Key, between the years of 1853 and 1870, at a cost of about \$15,000,000.00, but about the year 1878 it was abandoned by the Army on account of the frequent recurrences of yellow fever and from about the year 1888 until the year 1899 it was used as a National Quarantine Station under the Treasury Department. The entire locality is now under the jurisdiction of the U. S. Navy Department and extensive improvements are contemplated with a view of establishing the largest coaling station in Southern waters. During the past year all of the old guns of the fort were dismounted and removed, an excellent evaporation and water works plant was established. Plans had been made for an electric plant, the building of beacons, the placing of lighted buoys, and the channel ~~and~~ ^{around} Garden Key for approaching the coaling wharves was being dredged. In May 1901 a draught of 27 feet could be carried through this channel. The plan is to continue the dredging until a channel 30 feet deep and 300 feet wide has been ~~obtained~~. A post office has been established and mail is received three times a week by the Navy Tug Boat running between Key West and Tortugas. Order and discipline is obtained through a company of marines stationed at the fort. There is telegraphic cable connection with Key West and telegrams are readily sent to all parts of the world. The entire region is in charge of the Commandant of the Naval Station at Key West.

East Key, Middle Key and Sand Key are covered with a white sand and are elevated only three or four feet above the surface of the water. The sand shifts with the prevailing winds and accordingly their general outlines and position are slightly changed. On a clear day they are visible for a distance of eight or ten miles at sea. Long Key and Bush Key consist of bare coral and

are not visible for any great distance. Bird Key is a low sandy island covered with underbush. In former years it was used as a burial ground for persons dying of contagious diseases. The pest house was established on this Key. Loggerhead Key is an island about one mile long and 1/4 mile wide, covered with a white sand, considerable underbush with a few trees around Dry Tortugas Light-house and dwellings which are located upon the island.

Fish are abundant in this locality, but with the exception of the grouper are difficult to catch with hook and line, and this fish (the grouper) is not considered good for eating during the months of May and October. Snappers are abundant but could not be caught with hook and line. Some fine pan fish were caught. Without doubt fish could be caught in great quantities by means of a seine. Around the reefs are numerous crawfish. Sharks are also abundant.

There are four channels leading into the harbor of Tartugas.

The southeast channel leads between East, Middle and Sand Keys on one side and Bush and Long Keys on the other side. It is well marked by buoys and can safely be entered by vessels drawing 28 feet.

The southwest channel leads between the reefs making off from Loggerhead Key on the one side and the reefs making off from Bird Key and Garden Key on the other side. This channel is also well buoyed and can safely be entered, there being a good 6 fathoms of water through it.

There are two channels leading through the reefs from the northwest, both of which are well marked and can safely be entered by following the buoys. There is no less than 6 fathoms through either of the entrances.

There are numerous good anchorages inside of the reefs which afford excellent shelter from all winds. The best anchorage being in from 6 to 10 fathoms of water to the northwestward from Garden Key, where there is excellent holding ground and no danger of losing an anchor from catching under coral heads, the bottom is of a grayish clay and very sticky.

Bird Key Harbor to the southwest of Garden Key affords perfect shelter and is an excellent harbor for small crafts that are able to enter through the narrow passage.

The prevailing winds, from December to April, are northerly and during these months northers are very frequent often coming up unexpectedly and with great force, their duration being usually three days. During the remainder of the year the winds are mostly southerly with occasional squalls and thunder storms.

The method of locating positions of soundings used in this survey, was by simultaneous sextant angles and the three point problem. The signals were located by means of triangulation. For the reduction of soundings the plane of reference established at the tidal station at Fort Jefferson was used. The rectangular system of hydrography, running lines approximately east and west and north and south was used. Diagonal, zigzag and radiating systems were run over all spots showing indications of shoals.

The following extract from my annual report of June 30th. 1901, may be of interest in showing the difficulties encountered in making this hydrographic survey:

By January 12th. all the necessary signals for hydrographic purposes had been erected, the triangulation was in progress and enough signals had been ~~erected~~ ^{located} to commence hydrography. Four signals were found necessary and had been erected upon the outer

shoals to the northward of Fort Jefferson, from Pulaski Shoal around to the north and west to Loggerhead Light House. These signals had been erected after considerable difficulty in from 6 to 25 feet depth of water. The bottom was of a hard coral formation and pipes could not be pumped down. In places where the water was not over 12 feet deep, wooden signals were built. Ordinary tripods were framed on board of the Steamer, were taken to the places, put together by spreading across two moored boats, the lower parts of the tripods being weighted heavily with iron, and lowered overboard. A signal pole with targets was secured to the top of the tripod by means of a bolt, and the pole was guyed with wire to heavy anchors dropped overboard from the boats. In water which was from 12 to 25 feet in depth, 2-1/2 inch gas pipe heavily weighted at the lower end was dropped overboard from the steamer and smallboats and then guyed in the same manner as the wooden signal. Targets were secured to the tops of the pipes. Tripod signals made of iron pipe were also tried, but were found to be no more satisfactory than the single pipe. The weather during the month of January was very stormy and little work was possible. This region was frequented by fierce northers every few days and it blew with considerable force for sometimes as much as a week without cessation. Between January 18th. and 21st. a gale carried away three of the water signals and it was February 4th. before all of the signals had been again erected and located, during a part of the time, however, a little hydrographic work was done in sheltered places. The early part of the month of February was fairly good for work and much was accomplished, the latter part however, was again stormy. On the afternoon of February 19th. a very heavy squall from the southwest carried

away the two large hydrographic signals which had been erected upon East and Middle Keys. According to the weather report the wind at Key West blew at the rate of 45 miles per hour and there was considerable damage to buildings at that place. During the night of February 19th. a violent norther developed and five of the signals upon the outer reefs, to the northward, were carried away by the heavy sea. Stormy weather prevailed during the greater part of the remainder of the month, and during a part of the month of March, little work was accomplished.

As during the first part of the season the prevailing winds were very strong from the north, it was decided not to rebuild the signals upon the reefs to the northward until after the stormy season was over. The work upon the sheet including the southeast channel was therefore taken up. x x x x x x
x x x x x x x x x x

By the first of April the work in the vicinity of the southeast channel had been completed and the signals upon the reefs to the northward had been rebuilt and located. Rapid progress was made during the first part of the month, but between the 16th. and 20th, the weather again turned stormy and four signals, one upon Sand Key and three of the water signals upon the reefs were carried away, thus causing another delay. It was the 2nd. of May before it was possible to erect and locate the water signals again, on account of heavy sea, progress was made, however, in sounding the southeast channel. After this, good weather prevailed and excellent progress was made, more work being accomplished during the month of May than in over three months previous. From personal experience and after examination of the records at the station at Tortugas, I am satisfied that little work can be accomplished in this region

during the time from the middle of June and the middle of March. The favorable months for all work are from March 1st. to June 1st.

By the 24th. of May the hydrographic survey of all of the approaches to Dry Tortugas had been completed. To make the contemplated examinations further out to sea required the erection of more signals and their location, the preparation for which, alone would require the remainder of the time available for the season. It was therefore decided to close work in accordance with your instructions of May 10th.

The following is a summary of the work accomplished upon the four sheets:

- Area sounded in square geographical miles----- 71.3
- Number of miles (geographical) run while sounding-1667.9
- Number of angles measured-----27875
- Number of soundings-----52178
- Number of tidal stations established-----1

Very respectfully,

P. A. Walker

Assistant, U.S.C. & G. Survey,
Commanding.

REPORT
on
HYDROGRAPHIC SHEETS
2523, 2524, 2525 and 2526.
Dry Tortugas,
Fla.

Hydrographic Sheets 2523, 2524, 2525 and 2526 of Tortugas Harbor and approaches were finished in the Office as follows:

2523, 2524 and 2526 were plotted and inked by P. B. Castles under the immediate direction of W. C. Willenbacher. 2525 was plotted in pencil by Mr. Castles and verified and inked by Mr. Willenbacher.

The final verification consisted of a general examination of the records and sheets as plotted and comparison with adjoining or overlapping work of previous seasons, which showed that the crossings are good and the work combines exceptionally well with overlap of previous seasons, - notably in case of parts common to sheets 2525 and 2349; also 2348 and 2525, and 2349 and 2526. Sheets 2348 and 2349 are by Assistants Davis and Barnette, U.S.N., season 1897-8.

The area covered is well developed and for completeness lacks only the special examination of shoal indications.

7-20-03.

J.T.W. (Signed).

Copy to Willenbacher
11/11/03