

5029

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Form 504
Ed. June, 1928

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

R. S. Patton *Director*

U. S. & G. SURVEY

L. & A.

OCT 14 1930

Acc. No.

State: Florida

DESCRIPTIVE REPORT

~~Topographic~~

Hydrographic

Sheet No.

5

5029

LOCALITY

Off Fort Pierce, Fla.

Sebastian Inlet to Fort

Pierce Inlet - Offshore

1930

CHIEF OF PARTY

Charles Shaw

5029

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

REG. NO.
5029

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. 5

REGISTER NO.

5029State FloridaGeneral locality East CoastLocality Sebastian Inlet to Fort Pierce Inlet - Off shore
~~Fort Pierce to Sebastian offshore~~Scale 1:80,000 Date of survey June - July, 19 30Vessel RANGERChief of Party Charles ShawSurveyed by Charles Shaw, E. B. RobertsPlotted E. B. Roberts~~Rechecked~~ by E. B. RobertsPlotting verified by: W. M. Gibson and W. C. RussellSoundings penciled by E. B. Roberts and W. C. RussellSoundings in ~~fathoms~~ feetPlane of reference M. L. W.

Subdivision of wire dragged areas by

Inked by

Verified by

Instructions dated December 31,, 19 29Remarks: Precise Dead Reckoning Sheet.

DESCRIPTIVE REPORT
to accompany
HYDROGRAPHIC SHEET NO. 5
1930

DATE OF INSTRUCTIONS:

Instructions for project No. 51 were dated December 31, 1929.

SURVEY METHODS:

The survey was made by use of the Fathometer throughout, lines starting and ending on buoy controlled positions, the lines being adjusted according to the best precise dead reckoning practice. The several features of the work are here discussed in order: -

a. CURRENT OBSERVATIONS:

This is a region of violent currents, subject to extreme variations in force within short distances. Observations were made wherever practicable, and while not numerous at all depths, they indicate that the full strength of the Gulf Stream is felt in 40 - 50 fathoms depth. This is borne out by the observed indications of the Gulf Stream, such as the distinctive color of the water, presence of Gulf Weed, and occasionally rips marking the edge of the Stream. The average current at the 100 fathom curve is a little less than 4 knots. It was impracticable to observe currents at the outer end of the long lines,

extending to the vicinity of the 250 fathom curve, but it is felt that the assumption of a 4 knot current at this point is a fair one. Current corrections were selected with these considerations in view. At best it is a matter of judgement. Current observations were made by anchoring buoys, then observing the changing relationship between such fixed points and free current poles. Distances were obtained by deflection angles and directions by compass. The current force and direction was obtained by plotting the results of these observations on polar coordinate paper.

b. TRANSFERS:

The transfers are arbitrarily assigned as representing the best judgement as to shift in position at the time of making turns, anchoring buoys etc.

c. LEEWAY:

Observations of wind velocities were made throughout the work. A sufficient number of leeway corrections were computed to indicate satisfactorily that no appreciable error results from neglecting the subject of leeway. Owing to the shortness of the runs and the light winds encountered, (seldom as much as 15 m.p.h. normal to the course) the corrections are negligible ^{of} magnitude.

d. PLOTTING OF SHEET:

Current corrections were applied proportionally over such portions of the lines as underwent no great change in current.

The closure error was distributed proportionally over each entire circuit. It is felt that the closure errors were not excessively large, considering the unusual current conditions existing.

e. LOG FACTORS:

The log factors were determined by a series of to-and-fro runs over a known distance. The two logs gave systematic results and no trouble was experienced with them. The observations for log factors will be found in Vol. 11, page 61, records for Sheet No. 3.

f. FATHOMETER CORRECTIONS:

Regular practice was followed as regards the obtaining and use of velocity and index corrections. The serial temperature curves seem fairly close in agreement. There were moderate local variations in temperature, but it is thought this can safely be neglected. Accordingly a single correction curve was constructed, covering temperature and salinity corrections for all depths for the season. An inspection of the tabulations and curves submitted herewith will show the method followed. Index corrections were determined by means of frequent vertical cast comparisons. The index correction was rather uncertain owing to its variability. A tabulation given herewith shows the method used in deriving these corrections. As a general

rule, where doubt existed the safe side was favored, that is, the correction giving shoaler soundings was accepted.

TIDE REDUCERS:

Tide reducers were applied in accordance with the instructions in the Hydrographic Manual.

DISCREPANCIES:

There are no noteworthy discrepancies.

DANGERS:

There are no dangers.

CHANNELS:

The area covered is all in deep water.

COMPARISON WITH PREVIOUS SURVEYS:

No important variations are noted, except that the position of the depth curves is moved a short distance inshore by this work.

GEOGRAPHIC NAMES:

There are no geographic features.

LANDMARKS:

There are no landmarks.

SCALE OF SHEET:

The scale of the sheet is 1:80,000.

TIDE GAUGE:

The standard automatic tide gauge at Fort Pierce Breakwater furnished the record for reducing the soundings.

STATISTICS
HYDROGRAPHIC SHEET No. 5

DEAD RECKONING

Florida 1930

Date	Vol.#	Day	Stat. Miles	Soundings	Positions	Boat used and Remarks.
		A B				
June 24	1	C	60.0	136 F 7 VC	30	RANGER
25	1	D	54.3	242 F 7 VC	31	
26	1	E	50.50	223 F 3 VC	28	
July 2	1	G	22.7	96 F 3 VC	13	
3	1	H	37.5	207 F 9 VC	22	
8	2	J	32.0	177 F	20	
TOTALS -			257.0	1,081 F 29 VC	144	

Area sounded in square statute miles - 716.0

Miami, Florida,
October 7, 1930

Respectfully submitted,

E. B. Roberts
E. B. Roberts,
H. & G. Engineer,
U. S. C. & G. Survey.

Sheet # 5 and accompanying records have been inspected and are
approved.

A handwritten signature in cursive script, reading "Charles Shaw". The letters are fluid and connected, with a prominent initial "C".

Charles Shaw,
Commanding Ship Ranger.

T I D A L D A T A

for

HYDROGRAPHIC SHEET

No. 5

Florida 1930

Charles Shaw - Commanding Officer

Ship RANGER

Location of tide gauge - Fort Pierce Breakwater.

Reading of Plane of Reference - 2.7 feet

Highest tide observed - 6.0 feet

Lowest tide observed - 1.7 feet

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 5029

The following statistics will be submitted with the
cartographer's report on the sheet:

Number of positions on sheet	..144.
Number of positions checked	..18..
Number of positions revised	...1...
Number of soundings recorded	..1081.
Number of soundings revised	...41..
Number of signals erroneously plotted or transferred

Date: Nov. 15, 1930.....

Cartographer: Harold W. Murray.....

SECTION OF FIELD RECORDS
REPORT ON SHEET No. 5029

CHIEF OF PARTY— Charles Shaw

DATE SURVEYED— June-July, 1930

SURVEYED BY— Chas. Shaw, E. B. Roberts

PROTRACTED BY— E. B. Roberts

SOUNDINGS PLOTTED BY— E. B. R., W. C. Russell

INKED BY— Harold W. Murray

VERIFIED BY W. M. Gibson, W. C. Russell.

1. The records conform to the requirements of the General Instructions.
2. The plan and character of development fulfil the requirements of the General Instructions.
3. The number of crossing lines is not considered adequate since the ship has passed over several desirable areas without recording soundings.
4. The precise dead reckoning was checked in the field.
5. The ends of the lines were checked with a

protractor as a matter of form.

6. No junctions were made nor compared since there is no adjacent work of similar date.

7. The curves can be completely drawn. The bottom appears to be of uniform character throughout.

Respectfully submitted:

Nov. 17, 1930

Harold W. Murray

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
WASHINGTON

March 20, 1931.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 5029

East Coast of Florida - Off-Shore

Surveyed in 1930

Fathometer Soundings

Instructions dated December 31, 1929 (Lydonia)

Chief of Party - C. Shaw

Surveyed by - C. Shaw, E. B. Roberts

Protracted and D.R. lines plotted by - E. B. Roberts

Verified by - W. C. Russell, W. M. Gibson

Soundings plotted by - W. C. Russell, W. M. Gibson

Verified and inked by - H. W. Murray

1. The records conform to the requirements.
2. The plan, character and extent of the survey satisfy the General and Specific Instructions.
3. There are only three points at which the lines cross. They agree fairly well at these points.
4. The information is sufficient for completely drawing the 50 and 100 fathom curves.
5. The junction on the west with H. 5032 is satisfactory. The soundings agree well south of Lat. $27^{\circ}45'$. North of this there is no overlap and a comparison of soundings is not possible.

At the present time there is no contemporary work North or South of this sheet.

The work on this sheet, H. 5029, should supersede any work on H. 1624 or H. 2920b which may fall within these limits.

6. The usual amount of field plotting was well done by the field party. The plotting of dead reckoning lines was verified in the field and was not rechecked in the office.

7. Character and scope of surveying - very good.

There are no shoalings or unusual features within the limits of this sheet. The largest error of closure on the dead reckoning lines was a little over two miles the next largest being approximately one and one half miles, and the others smaller. This is not considered excessive in view of the fact that all of the lines passed through the gulf stream with its violent currents.

The fathometer soundings appear regular and reliable except on C day where extensive rejections were made by the field party. The field party's corrections to the fathometer soundings were accepted.

8. No additional work is recommended.

9. Reviewed by R. L. Johnston. January 15, 1931.

Approved:

K.T. Adams

Chief, Section of Field Records (CHARTS)

F.S. Borden

Chief, Section of Field Work (H. & T.)