

5614

U. S. COAST & GEODETIC SURVEY
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DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
R. S. PATTON, DIRECTOR

DESCRIPTIVE REPORT

~~Tonnage~~ } Sheet No. 1
Hydrographic }

State FLORIDA

LOCALITY

EAST COAST, FORT LAUDERDALE,

PORT EVERGLADES

193 4

CHIEF OF PARTY

W. H. BAYNBIDGE.

5614

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. 5614

HYDROGRAPHIC TITLE SHEET

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. 1

REGISTER NO. 5614

State FLORIDA

General locality FLORIDA EAST COAST

Locality NEW RIVER INLET AND VICINITY

Scale 1:10,000 ⁵⁰⁰⁰ Date of survey June 25 - Aug. 6, 1934

Vessel CHARTERED LUANCH HI-E-PUS AND A BARGE

Chief of Party W.H. BAINBRIDGE

Surveyed by F. HOUSTON

Protracted by L.G. KING

Soundings penciled by L.G. KING

Soundings in ~~fathoms~~ feet

Plane of reference MEAN LOW WATER

Subdivision of wire dragged areas by

Inked by C. Stanley Lighthorn

Verified by C. Stanley Lighthorn

Instructions dated APRIL 30, 1934

Remarks: DATA SENT WITH SHEET: LIST OF SIGNALS, SOUNDING RECORDS, DESCRIPTIVE REPORT, TIDAL DATA, LANDMARKS FOR CHARTS, RANGE FOR COMPASS DEVIATION.

letter 876/1934

DESCRIPTIVE REPORT TO ACCOMPANY HYDROGRAPHIC SHEET NO. 1, FORT LAUDERDALE AND PORT EVERGLADES, FLORIDA, PROJECT H.T. 181. DATE OF INSTRUCTIONS, ORIGINAL, APRIL 30, 1934; SUPPLEMENTAL MAY 10, 1934.

SURVEY METHODS:

The outside work on this project was run using the regulation wire core lead line with eight pound lead, and three point control on shore signals as required by the Hydrographic Manual.

The inside work was for the most part run in a flat bottom boat propelled by an Elto 13 horsepower outboard motor, using lead and pole soundings with three point control on shore signals.

Due to the fact that New River was so narrow and crooked, a mid-stream course was run and in addition a line of soundings was run five meters off each bank. In each case three point fixes were taken when possible, without regard to changes of course as the boat was changing course at all times. As the shore of this river is definite, being for the most part lined with concrete retaining walls, the distance off shore may be plotted accurately.

Tarpon River, a small creek which joins New River in the vicinity of triangulation station Laud, was so narrow that only a mid stream course was run, with three point fixes taken when possible without regard to change in course.

The soundings in the inland waterway, south of Lake Mabel, were taken in the regular manner, but due to the rapidly changing angles of the fixes, notes of distance off shore should be considered when plotting these positions.

The numerous waterways shown on the topographic sheet are borrow pits dredged to build up the adjacent property. There was apparently no thought of dredging them for purposes of navigation as no regular depth was maintained and rocks, shoals, and even center ridges were allowed to remain in them. Their controlling depth is often only one to two feet at the bar and generally speaking, they are unsafe for motor craft except of the highest draft. A proper survey of these waterways would involve wire drag and an expensive control system.

DISCREPANCIES:

Due to the fact that the hydrographic work followed the topographic survey so closely, the topographic signals were quickly located at times without running the shore line. On running the shore line later, the positions of a few topographic signals were revised, but except in one case the revision was not enough to cause discrepancies in the boat sheet plotting. The location of hydrographic signals Pax, Nag, Kit, Me, and Shoal were changed during the course of this survey, but the change in location of signal Down only was great enough to require the replotting of

several positions on the boat sheet.

Two discrepant soundings were noted on the boat sheet and cleared up in the field. Position 43 to 44 (blue)C showed a shoal sounding in the inland waterway channel. This was proved in error by a check line, position 33 to 34 (blue) K, and drift soundings over the area involved. The error was probably due to unrecorded change in speed of the outboard motor.

Another discrepancy, position 1 to 2 (blue)F, showed a shoal sounding plotted in the channel of the boat sheet. This was in error mainly due to distortion of the boat sheet causing the shoal sounding to fall in the channel when it should have plotted on the edge of the channel. A check line, position 22 to 23 (blue)K, and drift soundings proved the channel clear and the sounding plotted allright on the smooth sheet.

When the character of the channel is considered several^{apparently} discrepant soundings are rationalized. The inland waterway is a dredged channel running through Lake Mabel up through Stranahan River and cut through New River Sound. The sides of the channel remain nearly vertical with shallow water running up to the channel edge. In some places material pushed up by the dredge formed shoals along the edge of the channel and parallel to its axis. Some of these shoals are bare at low water and in other places were located by sounding lines, drift soundings, or by visual inspection at low water, and marked by detached fixes. Such places appear on the boat sheet circled in red.

The character of this channel admits the possibility of having a line of shoal soundings plotting on a line of channel soundings in some places, due to its vertical banks, when the two lines were run near the channel edge and parallel thereto.

The main channel to Port Everglades has abrupt banks also, though not quite as vertical as the inland waterway.

The dredge Absecon was at work dredging this channel and the turning basin all during the course of this survey. The soundings were run after the dredge ceased operations, August 1, 1934, in that area.

Lat. 26°-07'-3" Long 80°-06'-1"
A dredge was operating in the second canal south of signal West near the mouth, taking back-fill material out of the canal to be thrown behind new retaining walls along the adjacent shore.

Developements were going on in the vicinity of signals Rag, Rock, West and Sunset Lake during the course of this survey, and a change was being made both in the shoreline due to the building of retaining walls, and in depth of water due to dredging operations to procure back-fill material.

Due mainly to the noise of the outboard motor, several corrections of angles and fixes can be noted in the record. In each case however, the correction was made immediately in the field or later when by checking the boat sheet the error was obvious.

DANGERS:

There is no special danger outside to be mentioned on this survey except the fact that there are sand ridges parallel to the general trend of the shore and varying from the depth on either side of as much as twelve feet in some areas. This formation is usual along this coast, but as the five fathom curve is not over a mile off shore, no danger need be incurred by running any closer in.

The channel to Port Everglades was recently dredged and is well marked by day or night. Inside there is danger in the shoal water on each side of the inland waterway, but the channel is well marked by day and attention to the Coast Pilot will avoid all dangers.

There is a line of submerged rocks, apparently the remains of an old jetty, in New River Inlet. This is a minor and little used channel, however, and only boats of light draft use this passage as the controlling depth on the bar is only two to three feet.

CHANNELS:

On this survey the most important channel is the dredged entrance to Port Everglades. It is about 150 feet wide and has a depth of not less than 35 feet to the turning basin, and not less than 33 feet across the turning basin to the slip. The least recorded depth was 23 feet against the northwest corner of the slip and was probably a small fill made by trash falling from the dock. The usual draft of vessels using this channel is 30 foot maximum.

*inked on sheet.

The inland waterway is a dredged channel which is about 120 feet wide with a general controlling depth of nine feet. However an eight foot spot occurs about 70 meters south of signal Ben, north of Las Olas Boulevard; and traffic should hold about 15 meters north of a line between signals Fly and But (Aids No. 7 and No. 9 respectively) to obtain the controlling depth. The vessels using this channel vary in draft up to five feet. *For 350 meters south of from Port Everglades channel the controlling depth is 8 feet.*

*Engin 8' Jan. 1935

The channel out New River Inlet is unimportant. It is never used by boats of over three feet draft.

A short dredged channel, marked by a lighted range, is the only entrance to the U.S. Coast Guard wharf. This channel carries seven feet but care must be taken to stay on the range for it is flanked on each side by shoal water and is only about fifty feet wide. Coast Guard boats of not more than five feet use this channel.

* approx 1400 meters north of "The Inlet"

The channel up New River to Fort Lauderdale city docks is limited in the vicinity of signal Scout to a depth of five feet. In the vicinity of signal Laud and up to the city wharf, a mid channel course will carry eleven feet, and much greater depths are found in this stretch.

CHANGES:

44930 (1928-29)

A comparison with the last previous survey shows that changes in shoreline and depths off shore occurred south of the jetties south of the channel into Port Everglades.

In other respects the present and former surveys check remarkably close considering the fact that the sandy bottom involved was subject to current action for several years between surveys.

In one case investigated a previous survey sounding of 7 feet occurred between soundings of 11 and 12 feet. A check line, 40 to 41 (red)h gave 11 feet near this 7 foot sounding. In this vicinity the shore line has been out back and the soundings increased near shore.

Between 24 and 25 (red)h an old sounding of 32 feet occurred between a 27 and a 26. A check line, 34 to 36 (red)h gave a 29 in the immediate vicinity of this sounding, apparently proving the existence of the deeper sounding.

In another case an old sounding of 29 feet plotted close to a 25 foot sounding between 20 and 21 (red)g. The check line, 37 to 38 (red)h gave a 28 near the old 29.

The north point of the survey checks satisfactory.

DESCRIPTION OF SUB-PLAN:

The sub-plan is for the area of New River and its tributaries between longitude $80^{\circ} 07' 30''$ and $80^{\circ} 08' 30''$.

run near R + Tarpon R junction
An overlap was made between the topographic stations Down and Stump. To do this the positions, 34b, 4c, 20c, 21c, and 22c were transferred from the sub-plan to main sheet by latitude and longitude as the station Got could not be plotted on the main plan.

INLAND WATERWAY RANGE:

North from Port Everglades Harbor to the incompletd draw-bridge in the Stranahan River, the inland waterway channel can be navigated by holding the Fort Lauderdale Water Tank in the center of the span of the bridge mentioned above.

Work on the bridge stopped with the bascule left up and it has remained in that position.

Note: Landmarks for Charts filed in Charts Section, letter 876, 1934. R

STATISTICS FOR HYDROGRAPHIC SHEET NO. 1, FT. LAUDERDALE & PORT EVERGLADES.

Date 1934	Letter	Angles	Soundings	Miles	Vessel	Volume
June 25	a	133	671	13.5	Hiepus	I
" 26	b	130	742	17.0	"	I
" 27	c	25	113	2.0	"	I
" 28	d	93	523	10.0	"	I
" 28	d	37	167	4.0	"	II
" 29	e	13	60	2.0	"	II
" 30	f	77	366	9.0	"	II
July 2	g	130	595	17.5	"	II
" 3	h	41	169	4.0	"	II
" 5	j	--	90	.5	"	II
" 6	k	--	33	--	"	II
" 9	l	17	93	2.5	"	II
" 10	m	47	246	5.0	"	II
" 12	n'	5	5	--	"	II
" 12	n	29	202	4.0	"	III
" 21	p	31	128	3.0	"	III
" 27	r	22	101	2.5	"	III
Aug. 4	s	61	293	9.0	"	III
" 6	t	29	84	2.0	"	III
		920	4681	108.5	Hiepus	
July 13	a	74	340	5.0	Barge #2	IV
" 16	b	45	222	3.5	"	IV
" 17	c	72	377	6.5	"	IV
" 18	d	75	477	7.5	"	IV
" 19	e	92	419	7.0	"	IV
" 20	f	75	365	7.0	"	V
" 23	g	14	64	.5	"	V
" 25	h	42	175	3.0	"	V
" 27	j	--	32	--	"	V
Aug. 3	k	37	185	2.5	"	V
" 6	l	8	282	5.0	"	V
		534	2938	46.5	Barge #2	
Totals		1454	7619	154.0		

Submitted by

F. Houston *F. Houston*
 Surveyor,
 U.S. Coast & Geodetic Survey.

Approved by

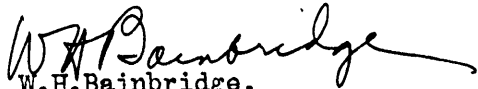
W. H. Bainbridge
 W. H. Bainbridge,
 Jr. H. & G. E., Chief of Party,
 Party No. 22,
 U.S. Coast & Geodetic Survey.

Inspection Note,
Hydrographic Sheet No. 1,
Fort Lauderdale and Port Everglades,
Florida,
1934
Project H.T. 181.

The shoal sounding of 13 feet checked at latitude $26^{\circ} - 05'$ - 955 meters, longitude $80^{\circ} - 05'$ 1190 meters, and the 9 foot shoal 350 meters north are on the submerged jetty as checked from the U.S. Engineer's blue print.

In the Inland Waterway in New River, in the triangle formed by the topographic signals Ell, Rock, and But, the cross-current soundings between positions 45d, and 46d were on the first line run in this vicinity and were proven to be misplaced by subsequent channel lines. The error was due to outboard motor trouble, and slowing down before the end of the line was reached. This part of the line was adjusted to agree with the lines run later.

The sheet and records have been examined and approved.


W.H. Bainbridge,
Jr. H. & G.E., Chief of Party,
Party No. 22,
U.S. Coast & Geodetic Survey.

Jan 8, 1935

Chief of party · W.H. BAINBRIDGE
 Surveyed JUNE - AUG - 1934
 Surveyed by F. HOUSTON
 Protracted by L.G. KING
 Verified & inked by C. STANLEY LIGHTBOWN

1. The records conform to the requirements of the General Instructions except that "Same" was used, at the top of ^{end} 37 pages ⁽³⁷⁾ in volumes, instead of signal names. Six positions were erroneously numbered in records also. ✓
2. The usual depth curves were completely drawn ✓
3. The field plotting was completed to the extent prescribed in Hydrographic Manual except as noted below
 - a. Dangers noted in records such as piling - stumps and suction pipe, were not shown on smooth sheet ✓
 - b. Three positions on smooth sheet were erroneously numbered ✓
 - c. One buoy erroneously "numbered"
 - d. Thirteen positions were erroneously plotted, from 20 meters to 175 meters off. ^{Field plots}
 - e. Of the 163 soundings revised, 62 were erroneously copied from the records, the balance (101) were revised due to a correction to tide reducer. ^{Field plots}
 one sounding of one foot was plotted as eleven feet. ✓
 - f. The degree minute and second symbols were omitted ✓ and also "m" for (meters for records) for triangulation station ^{Field plots}
 - g. The smooth plotter in making transfers of shore lines etc. failed to show a number of rocks shown on topo sheet and also docks, wharves, sunken barge, islets islands and low water line. The verifier spent about 9 hours in making transfers and corrections to this part of work. (2P)
4. The office draftsman did over part of the field draftsmans work as noted above. ✓

5. No junction was made with other sheets as the latest previous sheet was completed in 1929 (H-4930) ✓
A visual comparison was made with this sheet however and the curves follow the general trend of this survey. The surveys (in 1883-1885) - H 1554 ✓ and H 1605 show a considerable change both on the ocean side and inside waterways.

REMARKS

6. The verifier revised the angles points 43-44 red x day to make line agree with boat sheet and to improve the three fathom curve at this point. ✓
(Lat $26^{\circ}30'.5$ Long $80^{\circ}5'.2$)

A sounding of 26 ft between 8-9 k (blue day) plots between a 12 and 19 foot sounding (42-43 c blue) these lines were carefully checked and are correct according to records. This discrepancy occurs at the northern edge of turning basin and may have been caused by dredging.

The soundings and lines mentioned under "inspection note" of descriptive report was corrected by verifier. all other check or cross lines appear to be good.

This sheet has not been compared to air photo compilation because the only one available was done in 1929. ~~air photo~~ Photographs are now being taken in this area and new compilation will be ~~made~~ ^{made} ~~in about 30 days~~. Topo. sheets 6181-6182 - (1934) were used as authority for shore lines etc.

The notes and numbers of beacons are poorly ~~to~~ lettered and are in black instead of red, also the positions numbers are too large, these will be changed after review if reviewer considers it necessary. Not worth while changing.

May 4 - 1935

Respectfully submitted
C. Stanley Lightbourn

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. 5614

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

Number of positions on sheet	145.4
Number of positions checked	..145.
Number of positions revised	...15.
Number of soundings recorded	.761.9
Number of soundings revised	..162
Number of signals erroneously plotted or transferred	...0...

Date: MAY 4-1935

Verification by C. STANLEY LIGHTBOWN Time: 98½ hrs.

Review by G. Ricciardi Time: 38½ "

L200

Diff

April 5, 1935.

Division of Hydrography and Topography:

✓ Division of Charts: Attention: Mr. E. P. Ellis

Tide Reducers are approved in
5 volumes of sounding records for

capt ellis

HYDROGRAPHIC SHEET 5614

Locality New River Inlet and Vicinity, Florida East Coast

Chief of Party: W. H. Bainbridge in 1934

Plane of reference is mean low water reading

- 2.4 ft. on tide staff at New River Sound (Las Olas Blvd. Bridge)
- 6.2 ft. below B.M. 1
- 3.1 ft. on tide staff at Ft. Lauderdale (Andrews Ave. Bridge)
- 6.0 ft. below B.M. 1
- 2.3 ft. on tide staff at Intra Coastal Canal
- 6.9 ft. below B.M. 1
- 2.1 ft. on tide staff at North Jetty (Port Everglades)
- 7.1 ft. below B.M. 1

Height of mean high water above plane of reference is 2.3 ft. at Intra Coastal Canal; 2.4 ft. at New River Sound; 2.5 ft. at North Jetty; 2.6 ft. at Ft. Lauderdale.

Condition of records satisfactory except as noted below:

Atty *Starn*
Chief, Division of Tides and Currents.

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5614 (1934) - FIELD NO. 1

New River Inlet and Vicinity, Florida East Coast, Florida

Surveyed in 1934

Instructions dated April 30, 1934

Hand Lead and Pole Soundings.

3 Point Fixes on Shore Signals.

Chief of Party - W. H. Bainbridge.

Surveyed by - F. Houston.

Protracted by - L. G. King.

Soundings penciled by - L. G. King.

Verified and Inked by - C. S. Lightbown.

1. Condition of Records.

The records are neat and legible and conform to the requirements of the Hydrographic Manual except as follows:

- a. The use of the word "same" at the tops of a large number of pages in the sounding volumes where names of signals should have been used.
- b. A number of positions were erroneously numbered in the records.
- c. The position numbers are too large. Since the position numbers show up black on photographs they are confused with soundings when of equal size.
- d. A number of dangers noted in the records, as well as the degrees, minutes and seconds symbols were not shown on the smooth sheet.

The Descriptive Report is complete as to essential details and satisfactorily covers all items of importance.

2. Compliance with Instructions for the Project.

The instructions for the project have been complied with except as follows:

- a. A number of shoal spots and ridges off the coast were not sufficiently developed.

3. Sounding Line Crossings.

Cross lines are in good agreement with the general system of lines.

4. Depth Curves.

Within the limits of the survey the usual depth curves may be satisfactorily drawn.

5. Junctions with Contemporary Surveys.

Satisfactory junction was made with U. S. Engineer's Survey of August, 1934, Port Everglades (Bp's. 27872-27873) which supersedes Bp. 27315 of January, 1934.

Junction with H-4930 (1928-29) on the east is satisfactory.

Junction with H-4811 (1928) on the south is satisfactory.

6. Comparison with Prior Surveys.

- a. H-1545 (1883), H-1605a (1884),
H-1554 (1883), H-1605b (1884).

A comparison between the above surveys and the present survey reveals numerous changes in depths and locations of shoals as well as changes in shore line. Because of the time elapsed between the earlier surveys and the present survey, the general character of the area and the nature of the bottom, it is unnecessary to consider in detail, from the standpoint of information to be carried forward, the various changes noted. The present survey should supersede all of the above surveys for charting purposes.

- b. H-4811 (1928).

This survey is on a scale of 1:20,000 and slightly overlaps the present survey on the south with a few soundings which are in fair agreement. The new survey is on a larger scale and in considerably greater detail, and within its limits should supersede the old work for charting.

- c. H-4930 (1928-29).

This survey is on a scale of 1:10,000 (sub-plan) and 1:20,000 and covers the area of the present survey with the exception of the inland waterway.

The agreement in depths is generally good except at the entrance to and part of New River Inlet and Port Everglades.

The configuration of the bottom in the Inlet has been completely changed. The old channel is now very much shoaler and narrower and appears to be gradually filling up, while in New River, the present survey shows deeper soundings as a result of dredging operations.

The Port Everglades Channel has completely changed the hydrography in this vicinity as far offshore as the 40 foot curve due to dredging operations.

Four 9 foot soundings, of which one is charted, fall on the present survey in the vicinity of lat. $26^{\circ}07'$, long. $80^{\circ}05.7'$ and are the shoalest on a ridge paralleling the coastline. They fall among soundings whose depths on the present survey are in general good agreement with those of the old work. This area reveals a number of ridges paralleling the coastline and since the present survey failed to sufficiently develop this area, the soundings have been carried forward.

Four additional soundings in lat. $26^{\circ}07.25'$, long. $80^{\circ}05.65'$ fall in a blank area and are shoaler than the surrounding depths of the present survey. They better delineate 18 foot curve and since the surrounding depths on the old survey are in good agreement with those of the present, they have been carried forward.

7. Comparison with Chart No. 1248, 3260.

a. Hydrography.

Within the area of the present survey the chart is based on surveys discussed in the foregoing paragraphs and also on surveys by the U. S. Engineers. The latter's survey of 1934, Bp. No. 27965, covers New River Inlet and the adjacent section of New River Sound. It is in good general agreement with the present survey. Attention is called to several shoal soundings of from 13.1 to 14.5 feet, making a shoal area on the blueprint which fall in a blank area on the present survey in lat. $26^{\circ}06.95'$, long. $80^{\circ}05.95'$. This blueprint should be used in conjunction with the present survey for charting.

The area including Port Everglades and vicinity is covered by the Engineer's Bp. No. 27873 (1934) and is in general good agreement with the present survey. Since the engineer's survey is more closely developed than the present, the two surveys should be used in conjunction for charting.

b. Controlling Depths.

The controlling depths of 32 feet in Port Everglades and 33 feet in the Turning Basin (letter 564, 1935) are maintained by the U. S. Engineers, who survey the areas periodically.

The controlling depths of 8 feet in the Intracoastal Waterway (letter 77, 1935) is maintained by the U. S. Engineers. This depth is corroborated by the present survey which has run several lines through the passage.

c. Aids to Navigation.

The charted aids to navigation are in substantial agreement with the positions as located on the present survey, except as follows:

In New River two black and one red beacons are not charted, No's. 5, 11, and 2, respectively.

In New River Sound the charted white beacon No. 8 is shown as red, and two white beacons in this area have been added.

In Stranahan River near Lake Mabel, two red beacons are not charted, No's. 16 and 18.

In Lake Mabel the charted white beacon is shown in black. Beacon No. 9 (black) is not charted.

8. Field Plotting.

A number of positions were erroneously plotted by the field party and a number of soundings were incorrectly copied from the records.

The transfer of necessary details, such as rocks, docks, etc., from the contemporary topographic sheets was not complete. This was accomplished in the office.

9. Additional Field Work Recommended.

The two indicated ridges about 300 meters north and south of the Port Everglades Channel axis, which extend offshore in an easterly direction, and another ridge running north and south in approximate long. $80^{\circ}05.75'$ between lat's. $26^{\circ}06.5'$ and $26^{\circ}07.5'$ should be developed. The former are evidently the submerged breakwaters, shown on the U. S. Engineers Bp. No. 27315 (1934).

10. Superseding Old Surveys.

Within the area covered, the present survey, with the indicated additions from previous surveys, supersedes the following surveys for charting purposes:

H-1545	(1883)	in part.
H-1554	(1883)	" "
H-1605a	(1884)	" "
H-1605b	(1884)	" "
H-4811	(1928)	" "
H-4930	(1928-29)	" "

11. Reviewed by - G. Risegari, August 9, 1935.

Examined and approved:

C. K. Green, *C. K. Green*
Chief, Section of Field Records.

L. O. Robert
Chief, Division of Charts.

J. B. Borden
Chief, Section of Field Work.

Glude
Chief, Division of H. & T.

*Applied to chart #546
Nov. 7, 1935 g.H.S.*

*Applied to chart 1248
Mar. 20, 1937 g.H.S.*

25 Jan 10, 1936
E.A.R.

Applied to chart 847 - May 4, 1936