

5548

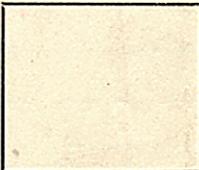
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Ed. June, 1928

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
R. S. Patton *Director*



State: Florida

DESCRIPTIVE REPORT

~~Topographic~~
Hydrographic
Wire Drag

} Sheet No. 4 5548

LOCALITY

Florida Keys

Elliott Key to Turtle Reef South

of Angel Fish Creek

193 4

CHIEF OF PARTY

Harold A. Cotton

5548

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

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REG. NO. 5548

HYDROGRAPHIC TITLE SHEET
WIRE DRAG SHEET NO. 4

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. 4

REGISTER NO. 5548

State Florida

General locality Florida Keys (Key West)

Locality Elliott Key to Turtle Reef

Scale 1:20,000 Date of survey July 25-Sept 19, 1934

Vessel Drag Tenders Marindin and Rodgers

Chief of Party Harold A. Cotton

Surveyed by Harold A. Cotton

Protracted by J. D. Groff

Soundings penciled by _____

Soundings in ~~fathoms~~ feet

Plane of reference M.L.W.

Subdivision of wire dragged areas by _____

Inked by _____

Verified by Jarne Cormick

Instructions dated November 17, 1934

Remarks: _____

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SHEET NO. 2D

WIRE DRAG

FLORIDA KEYS

1934

SHORE PARTY NO.3

HAROLD A. COTTON,
CHIEF OF PARTY.

DESCRIPTIVE REPORT
to accompany

HYDROGRAPHIC SHEET No. 4D (Wire Drag)

FLORIDA KEYS

INSTRUCTIONS:

This survey was executed in compliance with the Director's
✓ Instructions dated November 17, 1933, Project H.T. 158.

LIMITS AND CONTROL:

Same as for Hydrographic sheet No. 5578 (no. 4 H.A. Cotton - 1934)

AREA DRAGGED:

The wire dragging on this sheet consisted of the following:

(a) The entire length of Hawk Channel from a junction on the
north with wire drag work on sheet No. 5540 (No. 2 (Wire Drag) H.A. Cotton - 1934
to the southern limits of the sheet. ✓

(b) Pacific Reef Channel from deep water to Hawk Channel. ✓

(c) Entrance to Turtle Harbor from deep water to just outside
the Turtle Harbor beacons.

(d) The cross-reef channel from (c) above to Hawk Channel. ✓

(e) Search for a P.D. wreck outside Long Reef. ✓

DETAILS OF DRAGGING:

A detailed account of each days dragging will furnish a complete
report on the work accomplished.

"A" Day Dragging Hawk Chamel from just north of Caesar Creek to
Beacon #20 off Broad Creek. The effective depth of the finished strip varied
from 10 to $11\frac{1}{2}$ feet. ✓

Groundings during this day were as follows:

(a) After putting the drag out at the beginning of the day, it
was necessary to tow to the eastward to get into position. At position 5A, the
drag grounded near buoy #4 and at F buoy where soundings of 7 and 8 feet
respectively were secured. ✓

Descriptive Report

Wire Drag No.4

(b) Just north of Beacon 17, a 10 foot spot was found in surrounding depths of 18 feet. When again dragging off Beacon 17 on E. day, the, N buoy was taken close to but to the westward of this 10 ft. spot. ←

(c) At three points to the southward of Beacon 17, the drag grounded and pulled clear; viz position 21-23 A near buoy #5, position 27A near bouy #4 and position 32-36 A at N buoy. The latter grounding was inspected and the large buoy could be seen just touching the flat sand bottom. weight? ←

(d) Just south of Beacon 18, buoy #1 touched and pulled clear between positions 40A and 41A. ←

(e) A 10 foot spot with surrounding depths of 13 feet was found just outside Beacon 20 at position 50A.

"B" DAY

Dragging Hawk Channel from Caesar Creek entrance to Beacons #12 and #15. The effective depth of the finished strip varied from 10 to $11\frac{1}{2}$ feet.

When first set out, only the western portion of the drag was set at E.D. of 10 feet; the eastern portion was set at 5 feet to clear the 7 and 8 foot shoals found the preceeding day. The 8 foot spot was cleared but the drag was a little too far to the eastward to clear the 7 foot spot; the drag grounded near the latter and two additional shoals of $7\frac{1}{2}$ feet and 8 feet respectively were found. ←

On the next strip (9B - 18B see overlap), all the shoals were cleared with $5\frac{1}{2}$ feet effective depth, the strip grounding at position 18B on a $3\frac{1}{2}$ foot shoal on the side of the channel. ←

Other grounding on this day were as follows:

(a) A 11ft. spot (surrounding depths 20 ft) on the west side of the channel about midway between Beacons 14 and 15.

(b) A $9\frac{1}{2}$ foot spot (surrounding depths 17 ft) about a third of a mile south of Beacon 15. ←

"C" DAY:

Dragging Hawk Channel from "B" day above to junction with work on sheet No. 5540 (No.2 (wire Drag) H. A. Cotton 1934) to the northward. The effective depth of the finished strip was $10-10\frac{1}{2}$ feet. ←

Descriptive Report

Wire Drag No.4

The following groundings occurred during the day:

(a) Drag grounded and pulled clear at position 5c between buoys #2 and 3 @ sounding 10 1/2 feet.

(b) Grounded at position 8C on west side of strip - shallowest sounding of 7 feet found to northward.

(c) Grounded at pos 16 C between F +)

"D" DAY

Dragging Pacific Reef Channel from deep water toward Hawk Channel. The effective depth of the completed strip varied from 6 1/2 ft. to 10 1/2 ft. as far as Beacon #3.

An effective depth of 10 1/2 ft. was carried as far as Beacon #1 (position 1D-18D) and 7 ft. to a short distance beyond Beacon #3 (position 33D to 42D). At the latter position the drag grounded on a 4 1/2 ft. shoal about 150 meters north of Beacon #3. Just to the eastward of this sounding two 4 ft. shoals and a 5 ft. shoal were found.

At the time of grounding on the 4 1/2 ft. spot (position 42D - sounding 6d), the weather was clear and calm and the bottom perfectly clear. Innumerable shoals could be seen to the westward and dragging was accordingly discontinued and all shoals investigated which could be seen in the neighborhood. These shoals ranged in depth from 4 1/2 to 9 1/2 ft. and were located from 100 meters to 300 meters north of the line of beacons.

A particularly bad obstruction found at this time was the stub of an old piling (sounding 22d) with but 3 1/2 feet over it, 160 meters northwest of Beacon #5.

See additional note regarding "D" day under General below.

"E" DAY

Dragging consisted of completing work about junction of Hawk Channel and Pacific Reef Channel and then dragging Hawk Channel from Beacons 20 and 21 to the southern limits of the sheet.

Opposite Beacon #17 the dragged area was extended westward so as to pass close by the beacon. This strip was continued eastward through Pacific Reef Channel with an effective depth of 6 1/2 feet ~~of 6 1/2 feet~~ until grounding on a 6 ft. spot about 200 meters N.N.W. of Beacon #3. *except that drag grounded several times.*

The end of the above strip overlaps strip 33D - 42D so as to give a completed drag strip through these shoals, the effective depth of same being 6 1/2 ft. and width about 125 meters.

2 sec above par

To carry this depth of 6 1/2 ft through Pacific Reef Channel requires passing close to Beacon #3 and care to avoid the stubs of an old piling with 3 1/2 ft. over it lying about a third of the distance from Beacon 5 toward Beacon 7.

The grounding off Beacon #3 leaves a strip at that point. A very narrow strip however close to Beacon 3 has been covered.

South of Beacons 20 and 21, the effective depth of the drag strip 20E - 51E varied from $9\frac{1}{2}$ to $10\frac{1}{2}$ feet.

The only grounding on this strip was at the end of the day between buoy #10 and F where a 10 foot shoal was found about 200 meters southwest of Beacon #25.

"F" DAY

Dragging from deep water outside Turtle Harbor Sea Buoy to Turtle Harbor Entrance buoy and on toward Hawk Channel.

About half a mile inside the Sea Buoy a relatively large flat shoal area was found on which two shoal soundings of $20\frac{1}{2}$ ft. and $21\frac{1}{2}$ ft. were secured. The shoal was the least depth found going into Turtle Harbor.

The drag was wrapped about Turtle Harbor Entrance buoy with a good overlap and a strip then commenced through the marked channel to the N. W. leading to Hawk Channel.

On the south side of the channel and just beyond Beacon #1 a 11 ft. spot was found with surrounding depths of 25 feet.

"G" DAY

Dragging a complete strip from Hawk Channel to off the inner entrance to Turtle Harbor. This strip crossed the inner end of the previous days dragging ("F" day). An effective depth of 10 feet was carried to a junction with the work of "F" day and an effective depth of $19\frac{1}{2}$ feet beyond the work of "F" day to the harbor entrance.

At position 12G, the drag grounded on a 10 foot spot from which it was lifted clear and the dragging continued.

NOTE Dragging of Turtle Harbor and entrance is plotted on Sheet No. H-5726A (No.6 (Wire Drag) H. A. Cotton-1934)

"H" DAY

Dragging P. D. position of wreck off Long Reef - nothing found.

The Gulf Stream was running north so strong at time of doing this work that the drag was far north of the P.D. position by the time it was set out. It was accordingly necessary to take the drag up and set it out again. On this second attempt, it was necessary for the off shore launch (End launch) to tow south-east at nearly full speed in order to keep the drag stretched in and east and west direction.

Prior to starting the second strip, it was necessary to stand by for some time while several ships passed. Positions taken during this interval showed a drift of 3.5 knots to the northward.

GENERAL:

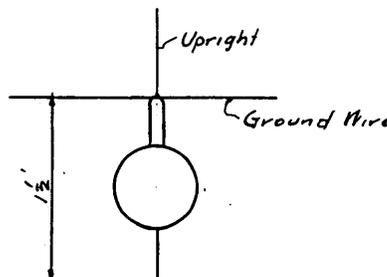
During the dragging over the area of this sheet, the ability to see bottom was considered as justifying the following procedure upon several occasions.

(a) When a shoal could be plainly seen and the least depth obtained without question, it was not considered necessary to again drag over the shoal with a drag set to clear the shoal by two or three feet.

(b) Similarly when shoals could be plainly seen there was believed to be no objection to lifting the drag clear of the shoal and proceeding after the least depth on a shoal had been obtained. On such occasions due precaution was taken to maintain tension on the ground wire during the maneuver.

On "D" day the plotted length of drag is in excess of the recorded length of 1200 feet by about 200 ft. This could be accounted for either by the toelines actually being 300 feet instead of 200 feet or the drag actually having an extra section. It is believed the length of toeline is correctly recorded as 200 feet, this agreeing with the corrected entry in the record and with the plotted boat sheet positions as well as a very definite intension to have a short toeline on this work. On the other hand, the drag master had, on a few occasions, become confused regarding the length of drag, in putting out a number of small buoys determined by dividing the length of drag by the length of section. In this case it is believed six small buoys were put out ($1200 \div 200$) giving seven instead of six sections.

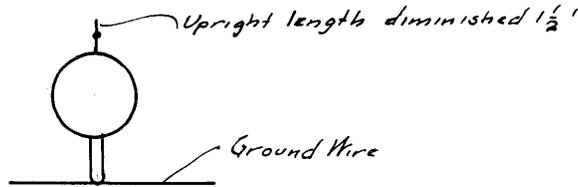
Throughout the length of Hawk Channel it was intended to drag to an effective depth of 10 feet. A tidal change occurring near the end of "E" day reduced the effective depth to $9\frac{1}{2}$ feet for the last quarter mile dragged on this day. *9 1/2 ft. effective depth was due to a lift correction which was considered excessive and was not here in office plotting. James Curwick* This area covered by 10 foot drag strip on H-5726b (1934)
On this drag work the large weights were actually dragging $1\frac{1}{2}$ feet deeper than the ground wire. This was on account of the method of making the large weights fast to the drag as shown in sketch.



Descriptive Report

Wire Drag No.4

The method of attaching the large weight was later changed to the following



This excessive depth to which the large weights were dragging accounts for several grounds in depths in excess of the effective depth of drag.

Drag tests will be found recorded in two different ways in the Sounding Record.

(a) Drag Depth	Test Rod Depth	Intercept on Rod	Effective Depth
(b) Drag Depth	Test Rod Depth	Effective Depth	Lift.

In the latter case the effective depth is entered directly without recording the intercept.

The hydrographic boat sheet (Sheet No. 5578 (No.4 H.A. Cotton 1934)) was used for one of the boat sheets on this work. The other boat sheet is being forwarded. The latter really has but little plotting on it as most of the plotting was on a tracing cloth overlay which was lost.

STATISTICS.

Number of Linear Miles	32.0
Number of soundings	41
Number of positions	332
Number of Angles	996
Sq. Stat. Miles Area	18.6

Respectfully submitted

Harold A. Cotton

Harold A. Cotton,
Lieutenant Commander, Chief of Party,
U. S. Coast and Geodetic Survey.

In order to avoid undue confusion in plotting, the following drag strips were plotted as overlays on separate pieces of tracing paper. These overlays accompany this report
(A) Pos GB-18B
(B) Pos 337-427
(C) Pos 1E-19E
(D) Pos 16G-36G

January 8, 1935.

Division of Hydrography and Topography:

✓ Division of Charts: Attention E. P. Ellis

Tide Reducers are approved in
5 volumes of/sounding records for
wire drag and
HYDROGRAPHIC SHEET 5548

Locality Elliott Key to Turtle Key, Florida Reefs

Chief of Party: H. A. Cotton in 1934
Plane of reference is mean low water reading
2.1 ft. on tide staff at Angelfish Key
3.1 ft. below B.M. 1

Height of mean high water above plane of reference is 2.4 feet.

Condition of records satisfactory except as noted below:



Chief, Division of Tides and Currents.

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. ~~.....~~ 5548

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

Number of positions on sheet	..337
Number of positions checked10
Number of positions revised9
Number of soundings recorded41
Number of soundings revised3
Number of signals erroneously plotted or transferred0

Date: May 8, 1935

Verification by J. A. Mc Cormick

Time: 17 hrs.

Review by H. J. I. Cahill

Time: 22 1/2 hrs

Applied to chart 1249 prior to review J.M.A. 4/4/35

Verifier's Report on H-5548.

Records:

Records are in fairly good shape. Field party not very consistent in entering effective depths. Also omit summary of effective depths at end of each day's work. Boat sheets very poor. Ende Launch used boat sheet of H-5578 which was in such poor condition that it was of little use to the verifier. Ende Launch used separate boat sheet with Far Buoy's path only in pencil.

Drafting:

Drafting was very good. Field draftsman made very few mistakes in plotting drag strips. His big difficulty was unfamiliarity with the Blue Drag manual. Drag strips were not plotted according to the color specifications in the manual. Verifier did not attempt to change the color of the strips but did change the effective depths to the proper color. Verifier also removed the numerous "E.D.'s" which field party placed after each effective depth. Field party plotted no groundings. Verifier placed these superfluous notes were placed on the smooth sheet by the field party. Verifier did not remove them where there was no conflict with the drag work. No overlay ^(of effective depths) is submitted with this sheet. Field party submitted four small overlays of work in crowded areas. Verifier transferred these to the smooth sheet in their proper colors.

Remarks:

Positions 23-26 A were ~~reported~~ ^{checked} by verifier. Drag was aground at 22A and no positions were taken on the Ende Launch from 23-26 A. Field draftsman plotted a continuous strip but verifier removed everything between 22A and 27A. Note appears at position 32.6 A, "Drag aground at 'N'." Position 36A says "Drag clear." Verifier has shown this by plotting groundings at positions 32.6, 34 and 35A. Grounding was plotted at buoy "1" position 48A (according to record) although drag continued.

and tender found a 10 ft. depth at buoy "1" position 50 A.

Grounding at Buoy "7" position 37B plotted from information in End Launch record. No note in Guide Launch record.

Positions 6-8 C were ~~checked~~ ^{dashed} by verifier. Drag was around during this period. Effective depth shown by verifier as 10 feet from 5-8 C to avoid confusion. See descriptive report for discussion of length of drag on "D" day.

Grounding of drag just after position 13D no checked by depth of $6\frac{1}{2}$ feet obtained at 9d.

There was undoubtedly a grounding at position 49E but there is no note in the records as to which buoy at which it occurred.

Positions 1 and 2 of are not very strong locations. There is insufficient coverage in the drag strips 1-19 F and 20-52 F.

Tide change was made by field craftsmen at position 48F instead of 47F. Similarly tide change should have been at 55F instead of 56F. Verifier considered errors too unimportant to change the plotting.

11 foot depth was obtained at position 3f while effective depth was 10 feet. This is undoubtedly another case where the weights were hanging $1\frac{1}{2}$ ft. below the ground wire.

Effective depths from 31-47 H were simplified by verifier. Minimum effective depth in strip was used over entire strip in order to avoid confusion due to the numerous upright settings and the intricate maneuvering of the launches.

Instructions from Lt. C. X. Green after verification was made were to seek the questionable areas where drag was grounded and pulled clear after considerable lapse of time. These changes were made. Where soundings on shoals were deeper than effective depth when drag hung up they were changed to agree with effective depth. Exception at 3f. Later strip supports sounding.

May 8, 1935.

Submitted,

J. A. McCormick

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5548 (1934) W. D. - FIELD NO. 4

Elliott Key to Turtle Reef, Florida
Surveyed in July - September, 1934
Instructions dated November 17, 1933 (H. A. Cotton)

Wire Drag, with Hand Lead Soundings

3 Point Fixes on Shore Signals

Chief of Party - H. A. Cotton.
Surveyed by - H. A. Cotton.
Protracted by - J. D. Groff.
Soundings penciled by - J. D. Groff.
Verified and Inked by - J. A. McCormick.

1. Condition of Records.

The records are neat and legible and conform to the requirements of the Hydrographic Manual and S. P. 118, except as follows:

- a. The drag position number at time of grounding was not entered in the "Remarks" column opposite sounding position number in sounding record. (3rd paragraph, page 36 - S. P. 118).
- b. In some cases a cut to the grounding was not recorded. (Next to last paragraph, page 32 - S. P. 118).
- c. Position angles on shoals were not checked by taking an angle to a fourth object. (page 33 - S. P. 118).

The Descriptive Report is clear and comprehensive and covers all matters of importance.

2. Compliance with Instructions for the Project.

The plan, character, and extent of the survey comply with the instructions for the project. However, while it is brought out in the Descriptive Report that conditions for seeing the bottom were exceptional, the system of lifting the drag over the shoals, and not re-running the consequent splits should not be followed in important areas.

3. Junctions with Wire Drag Surveys.

This work is joined on the north by H-5540 (1934) W. D., and on the south by H-5726b (1934) W. D., with ample overlap and consistent depths.

4. Comparison with Latest Hydrographic Survey.

H-5578 (1934).

The present survey (H-5548) falls within the area of the above contemporary hydrographic survey. The effective drag depths are consistent with the depths shown on this survey.

5. Comparison with Chart No. 1249.

a. Hydrography.

The effective drag depths are consistent with the charted soundings.

Two detached soundings were taken outside the dragged area at lat. $25^{\circ}20.1'$, long. $80^{\circ}12.5'$ and these ($16\frac{1}{2}$ and $17\frac{1}{2}$) failed to substantiate the 10 foot sounding charted at that place. This is disposed of in the review of H-5578 (1934), par. 6b3.

6. Field Plotting.

The field plotting is satisfactory and conforms to the requirements of the Hydrographic Manual and S. P. 118, except that the standard color scheme was not followed.

This was left as plotted but the effective depths were inked in the correct color to conform with standard practice.

7. Results of Survey.

a. Drag Work.

- (1) An effective depth of 10 feet was carried the length of Hawk Channel included on this sheet.
- (2) As developed, a maximum depth of $6\frac{1}{2}$ feet may be carried through the channel running north of Pacific Reef. However, this requires hugging Bn. #3 very closely and this channel should not be recommended for more than $4\frac{1}{2}$ feet.
- (3) An effective depth of 17 feet was carried from the east into Turtle Harbor, and 10 feet from Turtle Harbor to Hawk Channel.
- (4) Numerous shoal spots were located.

b. Charted Wreck.

The P. D. wreck formerly charted at lat. $25^{\circ}26.2'$, long. $80^{\circ}06.6'$ by authority of Coast Pilot "D" page 201 was definitely disproved. It has been removed from the chart.

8. Additional Field Work Recommended.

The work in this area is complete except for a small split at lat. $25^{\circ}22.8'$, long. $80^{\circ}10.2'$. It is probable, however, that the $4\frac{1}{2}$ foot sounding within this split is the shoalest depth in this small area, and this channel is relatively unimportant. No additional work is required.

9. Reviewed by - Harry T. Kelsh and R. L. Johnston, June 13, 1935.

Supervised by - A. L. Shalowitz.

Examined and approved:

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

L. O. Tolbert.
Chief, Division of Charts.

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

G. H. de
Chief, Division of H. & T.

80° 12'

80° 11'

25° 24'

Tide change

Drag set down

Drag set up

Transferred to smooth sheet jam.

25° 23'

(A) Pos. 6B to 18B - Drag Sh. 4

5548

Tide change

Drag set down

25° 23'

Transferred to smooth sheet jam.

25° 22'

80° 12'

80° 11'

80° 10'

(C) Drag Sh. 4 - Pos. 1E to 19E

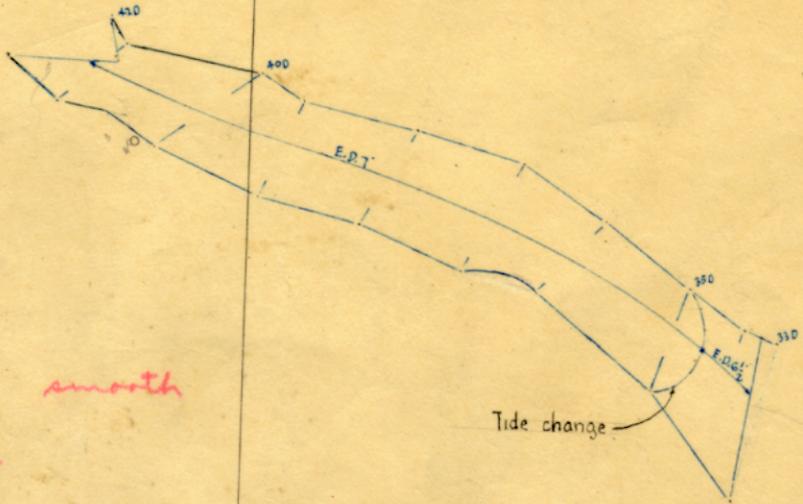
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80° 11'

80° 10'

80° 09'

25° 23'



Transferred to smooth
sheet.
jam.

25° 22'

(B) Drag Sh. *4 Pos 33D to 42D 5548

OVERLAY TRACINGS

25 Dec 13, 1936
Simp