

5227

5227

Form 504

U. S. COAST AND GEODETIC SURVEY
DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey *Hydrographic*
 Field No. Office No. *5227*

LOCALITY

State *Massachusetts*
 General locality *Nantucket*
 Locality *Coal. Dredge Bank*

1922

CHIEF OF PARTY
A. E. Parker

LIBRARY & ARCHIVES

DATE

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U. S. COAST & GEODETIC SURVEY
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5227

Form 504
Ed. June, 1928

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

State: Mass.

DESCRIPTIVE REPORT

~~Topographic~~ } Sheet No. 8 5227
Hydrographic }

LOCALITY

Nantucket Shoal

Davis Bank

1932

CHIEF OF PARTY
W. E. Parker
Herman Odessey

DESCRIPTIVE REPORT to ACCOMPANY
HYDROGRAPHIC SHEET No. 8
VICINITY OF DAVIS BANK, PROJECT HT-107
U.S.C. & G.S.S. HYDROGRAPHER
W. E. PARKER, CHIEF OF PARTY

DATE OF INSTRUCTIONS: August 24, 1932.

CONTROL: Control consisted of a series of survey buoys planted about one mile apart and located by R.A.R. The control was tied in with ~~(the Georges Bank triangulation and)~~ coast triangulation. ✓ Q

SURVEY METHODS: Three point "fixes" taken on the previously located survey buoys furnished control for the hydrography. The buoy anchor positions were used in protracting all positions.

Red light fathometer soundings with impact oscillator were used during most of the work. Occasional hand lead soundings were taken as a check. During D day, while sounding in shoal water, hand lead soundings were taken between the following positions: 1 to 16, 150 to 152, 160 to 161, 164 to 176 and 179 to end of day. ✓

DISCREPANCIES: Several jumps in positions, during C and D days, occurred on a change of fix. It is believed the storm on October 12 and 13 caused a slight misplacement of several of the survey buoys. One or more positions were rejected when these jumps occurred and soundings plotted on line between the accepted positions. ✓

The soundings ~~on A, B and C days~~ check very well
on crossings, considering the irregular nature of the bottom.
Some crossings at the north end of the sheet are quite irregu-
lar but this can be attributed to the irregular bottom. ✓

Respectfully submitted,

John C. Tribble, Jr.
John C. Tribble, Aid
U. S. Coast and Geodetic Survey
Ship "HYDROGRAPHER"

Examined and approved
J. G. Parker
Chief of Party

STATISTICS FOR SHIP "HYDROGRAPHER", HYDROGRAPHIC SHEET NO. 8.

Volume No.	Date 1932	Day	Statute Miles	Soundings fath L.L.	Positions
1	Oct.10	A	84.0	1022	118
1	Oct.11	B	14.8	167	25
1	Oct.14	C	41.2	509	75
2	Oct.15	D	91.0	967 152	200
Totals			231.0	2665 152	418

DESCRIPTIVE REPORT to ACCOMPANY
HYDROGRAPHIC SHEET NO. 8
VICINITY of DAVIS BANK, PROJECT HT-107
U.S.C. & G.S.S. GILBERT
HERMAN ODESSEY, H. & G.E.,
CHIEF of PARTY
1932

DATE of INSTRUCTIONS:- August 24, 1932.

HYDROGRAPHERS:- Herman Odessey, H. & G.E., W.H.Bainbridge, Jr.
H. & G.E., and Jeremiah S.Morton, Jr. H. & G.E.

CONTROL:- Control consisted of buoy signals located by the
vessels engaged on R.A.R. work in this vicinity.

LIMITS of WORK:- The work allotted this vessel on hydrograph-
ic sheet No. 8 includes: the development of the ten fathom
curve on both sides of the channel from latitude $41^{\circ} - 07'$ to
the northern limit of the work; an examination of the reported
location of the grounding of the S.S. EXPARTA; and the devel-
opment of the shoal area at the northern limit of the work.

SURVEY METHODS:- Standard surveying methods were used for
the sounding, the lead line being used for the most part, red
light fathometer, with impact type oscillator, at other times.
Fathometer soundings were used, in part, from positions 166D
to 192D. These soundings were corrected by a direct compari-
son with the lead line. A fathometer sounding was also used
on position 13E where a "no bottom" sounding was obtained
with the lead line; this sounding was corrected for tide only.

The Commanding Officer was in charge of the hydrogra-
phy at all times and the angles were observed by Lieuts. (j.g.)
W.H.Bainbridge and Jeremiah S.Morton.

Three point "fixes" on buoys located by the party of the "HYDROGRAPHER" were used to control the work. ✓

GENERAL: In the area covered by this vessel the bottom is composed of hard packed grey sand and is noteworthy for its irregularity and steep slopes. The area ^Fnortheast of buoy "A" is particularly irregular. ✓

The edges of the channel and the shoal area northeast of Buoy "A" are marked by tide rips when there is an appreciable swell running. In many cases the rips indicate a sudden change of depth rather than dangerous shoaling. The location of the tide rips is roughly sketched in on the sheet because they were present only at some stages of the tide and complete data to locate same is lacking. ✓

DISCREPANCIES:- There were some jumps in positions on a change of fix apparently caused by some slight inaccuracy in the location of the signals. The positions were held as plotted in all cases, except positions 1 and 2E, because the jumps were not large and the effect on the accuracy of the work negligible. Positions 1 and 2E were plotted on the sun angle, time, and course; as the location of the middle object, Buoy "EE", is apparently in error with reference to the other buoys. ✓

The middle object is not 'EE' of any note. Both lines confirm each other in indicating a shoaling up, note above 'Breakers' 87.

Jumps occurred between the following positions: 22 to 23A, ✓
change of fix G-GR₂-F to GR₂-F-E. A slight jump between positions 58 and 59A on change of fix GR₂-E-D to E-D-C-. The worst jump is between positions 93 and 94A on change of fix C-B-AA to B-AA-A; here the line turns right but plots back to the left so is shown as a broken line. Small jumps occur between positions 82 and 83D and ✓

86 and 87D. Between positions 242 - 243D there is an appreciable ✓
 jump on change of fix AA-C-D to C-D-GR₂. Positions 44 and 45A
 plot in approximately the same place but this was caused by the
 strong head current; the vessel was surrounded by tide rips at ✓
 that time.

The crossings of sounding lines are very good, consider-
 ing the irregular nature of the bottom and the kind of control.
 On the west side of the channel there are some discrepancies in
 the crossing of the work done on A and B days by the work done
 on E day. This may have been caused by a slight change in the
 locations of the buoys due to the storm which intervened be-

^{B and E}
 tween these two days. Between positions 1 and 2E there is an 89'
 sdg. on a 70' sdg. between positions 84 and 85A. The slope is

quite steep here but if the work on E day was moved north a lit-
 tle the crossing would agree more closely, which is also true
 where the same line crosses between positions 9 and 10B. Where

the jump occurs between positions 93 and 94A the crossing with E
 day is not good but the difference is not of great importance.

The crossing between 121 - 122A and 91 - 92A places a 87' sound- ✓
 ing on a 109' sounding, but the slope is so steep that a small
 error in the positions would account for this. Different fixes
 were used, which may account for the discrepancy. The soundings
 on D day at the northern end of the sheet appear irregular, but ✓
 the bottom here is very irregular. Practically all of the

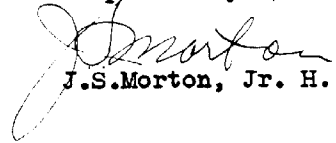
fixes are weak, surrounding edp indicate some variation

*note A day at this
 given in table tide
 with E day is
 floods which would
 account for marked
 changes in buoy pos*


Fixes are weak - ref. letter

soundings were checked by an officer.

Respectfully submitted,


J.S.Morton, Jr. H. & G.E.

Forwarded approved

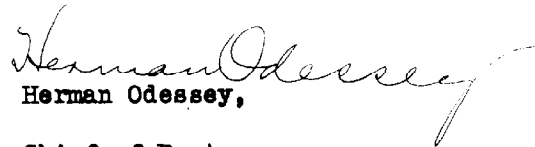

Herman Odessey,
Chief of Party.

STATISTICS FOR SHIP "GILBERT", HYDROGRAPHIC SHEET NO. 8

Volume No.	Date 1932	Day	Statute Miles	Soundings		Positions
				L.L.	Fath.	
1	Oct. 10	A	27.5	467	35	137
1	Oct. 11	B	8.5	139	--	48
1	Oct. 14	C	18.8	254	1	99
1	Oct. 15	D	51.0	629	111	259
2	Oct. 16	E	5.7	86	27	30
Totals			111.5	1575	174	573

CERTIFICATION

This is to certify that Hydrographic Smooth Sheet No. 8,
and accompanying records covering the survey by this vessel in
the vicinity of Davis Bank, have been inspected and are approv-
ed.



Herman Odessey,

Chief of Party,

Commanding Ship "GILBERT".

DATE OF INSTRUCTIONS.

May 16, 1932

-

August 24, 1932.

SURVEY METHODS.

Soundings were taken with the fathometer using the red light method. Frequent hand lead comparisons were made because the fathometer corrections varied considerably during the time of sounding. Three point fixes taken on survey buoys were used to control the hydrography. ✓

The position of Great Rip 2, which was furnished this party by the OCEANOGRAPHER was held fixed. The positions of the survey buoys were computed using the bombed distance between buoys furnished by the HYDROGRAPHER and celestial azimuths observed by this party. (See next page) ✓

Positions of buoy anchors were used in protracting all positions. At first the direction of the current was observed and the position of the buoy laid off in the same direction and used in the protracting. It was noticed by observation on the buoys when passing them while running sounding lines parallel to the line of buoys that the current was setting in different directions at adjoining buoys. It not being possible to observe the current at all buoys simultaneously, the position of the buoy anchor was used to reduce the minimum error due to signal bearing of position. ✓

DISCREPANCIES.

Line 100 "D" to 109 "D" failed to check with line 15 "C" to 18 "C" and was rejected as being in error. *essential and occurred in 1932.* ✓

Line 77 "E" to 80 "E" was rejected because of uncertainty of identification of signals used. ✓

DANGERS.

No dangers were found in the channel.

Submitted By,

George E. Morris, Jr.
George E. Morris, Jr.

Approved.
George D. Conner.

C O M P U T A T I O N S
O F
C O N T R O L

Computations of position of Survey Buoys were forwarded to office December 7, 1932, (Transmitting letter received December 12, 1932), titled "Position Computation, Survey Buoys Davis Shoal Channel" .

S T A T I S T I C S .

Vol. No.	Date 1932	Day	Stat. Miles	Sound. Fath.	Positions.
1	Oct.9	A	5.0	24	5
1	" 10	B	51.8	294	138
1	" 14	C	33.4	173	105
1	" 15	D	45.8	289	177
2	" 15	D	31.9	206	126
2	" 16	E	<u>41.6</u>	<u>266</u>	<u>145</u>
			209.5	1252	696

TIDAL NOTE.

The tide reducers were obtained from the predicted tides for Newport, R. I., as given in the Atlantic Coast Tide Tables for 1932. The time of tide was considered to be 3 hours and 40 minutes later and the ~~mean~~ range one half as large as at Newport.

January 9, 1933

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in
8 volumes of sounding records for

HYDROGRAPHIC SHEET 5227

Locality Nantucket Shoal, Coast of Massachusetts

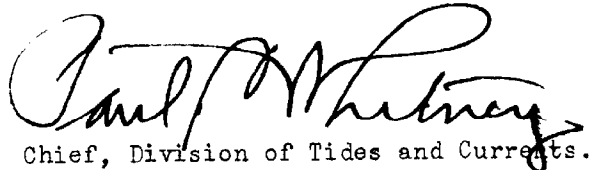
Chief of Party: W. E. Parker in 1932

Plane of reference is Mean low water.
ft. on tide staff at
ft. below B. M.

The tide reducers were obtained from the predicted tides for Newport, R.I., as given in the Atlantic Coast Tide Tables for 1932. The time of tide was considered to be 3 hours and 40 minutes later and the range 1/2 as large as

Condition of records satisfactory except as checked below: at Newport.

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.


Chief, Division of Tides and Currents.

SECTION OF FIELD RECORDS

Report on H. 5227 - Davis Bank - Nantucket Shoals.
Surveyed in 1932
Fathometer - Handlead
Instructions dated Aug. 24, 1932.
Vessels. Hydrographer, Lydonia, Gilbert.

Chief of Party - W. E. Parker.
Surveyed by - W. E. Parker, G. D. Cowie and H. Odessey.
Protracted by - J. S. Morton, F. A. Riddell and G. E. Morris.
Soundings by - J. S. M., G. E. M. and J. C. Tribble.
Verified and inked - J. Fleming.

1. The records conform to the requirements of the Hydrographic Manual.
2. The plan, character and extent of the survey comply with the general and specific instructions.
3. Protracting and Plotting. The field work on the sheet was very good although many soundings necessary for accurate drawing of depth curves were omitted.
4. Crossings. As noted in the Descriptive report, there are numerous instances of excessive differences at crossings. These differences are partly accounted for by very uneven bottom. It is probable also, that lack of accuracy in the control with the consequent possible displacement of soundings, accounts for some differences.

All were carefully examined but it was found impossible to eliminate them.

5. Depth Curves. Depth curves can be drawn to serve the purposes of charting, but the small scale and lack of detail render it impossible to draw the curves with accuracy in several complex areas.

6. Junctions. There are no adjoining contemporary surveys.

7. Comparison with Previous Surveys. H. 2095 - Year 1891.

a. In that part of the old work covering the area of the present survey tide reducers were applied except on W day.

b. Indicated changes noted in the comparison are:-

- (1). 21 ft. (this survey) ^{Lat} 41°-09', ^{Long} 69°-43.6 where 60 ft. appears on H. 2095.
- (2). 23 ft. (H. 5227) and "strong tide rips" ^{L.} 41°-13.'5, ^{L.} 69°-42.'0, well east of the 60 ft. curve on the old work.

c. Note the agreement in position and form of the "trough" represented by the 120 ft. curve in 41°-12.'5, 69°-42.'0.

d. In the main channel N. and S. of GR₂ definite change does not appear to have taken place.

H. 5227.

Comparison with H. 2089 - Year 1891.

e. The tide reducers on the above sheet is applied only to soundings of 30 ft or less.

f. Along Meridian 69°-36' a series of parallel ridges whose major axes lie east and west, are not brought out in the old survey.

The distinguishing feature of bank formations in this locality is the N. and S. direction of the longer axes. The ridges noted, therefore, appear unusual.

g. On Davis Bank agreement appears good but the manner in which the tide reducer was applied in the old work introduces important changes in the 30 ft. curve on the bank.

h. Comparison with 1305 (scale 1:400,000).

The scale of the above sheet, is too small and the soundings too few to furnish a basis for comparison.

i. H. 223 (year 1847).

This survey is considered too remote in time to be of value for comparison in an area like this in view of the later or 1891 surveys.

j. Comparison with Ch. 1107.

The true positions of Great Rip Light Buoy" and N2 which covers the north end of south Davis shoal are respectively:-

2150 M - 100° true from the charted position.

930 M - 166° true from the charted position.

k. The true position of "Rose and Crown" Can buoy is approx. 2100 m 178° true from the chart position.

The above position was plotted in the office from the Geographic Positions contained in "Computations of Positions of Buoys" Nantucket Shoals. 1932.

l. The position of the can buoy marking the western extremity of "Davis South Shoal" is not given and does not fall within the limits of this sheet (see end of Par. 2, special instructions).

REMARKS

The apparent uncertainty regarding signal buoys C. D. and CC, DD, which appear on the Hydrographer's and Gilbert's boat sheet has been brought to the attention of higher authority and officers participating in the work.

The decision has been to accept the smooth sheet control as plotted by the field party on this sheet.

No further surveying is required in the area covered by this sheet.

Feb. 8, 1933.

By- J. C. Fleming.

H. 5227.

This survey was made primarily because of the reported grounding of the S. S. Esparta, (Letter 553, 1932) when a 16 foot sounding was obtained. The survey shows that the lighted buoy shown on Chart 1107 in approximate Lat. 41°-07.2', Long. 69°-42.65', is now about one and one fifth miles E.S.E. of its charted position. The fact that the course of the vessel was laid off from this buoy is probably the cause of the grounding. When the position of the grounding was plotted from the data furnished it fell within one quarter of a mile of the 19 foot shoal, shown on this sheet, H. 5227, in Lat. 41°-10.'0, Long. 69°-37.2'. This is assumed to be the position of the grounding and the removal of the $2\frac{3}{4}$ fm. P. D. sounding from Chart 1107 is recommended when this sheet, H. 5227, is applied.

The only sheets which have any value for comparison with this work are the surveys of 1891, H. 2089 and H. 2095. While the area is regarded as somewhat changeable and there are numerous instances of the poor agreement of a few soundings, no radical changes appear to have taken place. The general agreement is better than was expected but there are a good many blank areas on the old surveys, and the recent survey, H. 5227, should supersede all previous work within its limits.

The verifiers report covers all other details of the work.

Inspected by - R. L. Johnston. Feb. 21, 1933.
E. P. E.

Approved: L. O. Colbert, *L. O. Colbert*,
Chief, Field Records Section.

W. P. Agnew
H. Borden
Chief Section, Field Work

G. H. Rice
Chief Div. of Hydrog. and Topog.

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. *5227*

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

Number of positions on sheet	.....	<i>1677</i>
Number of positions checked	.....	<i>396</i>
Number of positions revised	.....	<i>8</i>
Number of soundings recorded	.....	<i>5818</i>
Number of soundings revised	.....	<i>68</i>
Number of signals erroneously plotted or transferred	.....	<i>None</i>

Date: *Feb. 8, 1933*

Cartographer: *J. Fleming*

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

U. S. COAST & GEODETIC SURVEY
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REG. NO. 5227

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. 8

REGISTER NO. 5227

State MASSACHUSETTS

General locality NANTUCKET SHOAL

Locality DAVIS BANK

Scale 1:40,000 Date of survey Oct. 10 to 15, 1932

Vessel's HYDROGRAPHER, LYDONIA and GILBERT

Chief of Party W. E. PARKER

Surveyed by W. E. PARKER, GEORGE D. COWIE and HERMAN ODESSEY.

Protracted by J. S. MORTON, F. A. RIDDEL and G. E. MORRIS.

Soundings penciled by J. S. MORTON, G. E. MORRIS and J. C. TRIBBLE.

Soundings in ~~fathoms~~ feet

Plane of reference M.L.W.

Subdivision of wire dragged areas by _____

Inked by _____

Verified by J. Fleming Feb - 1933

Instructions dated AUGUST 24, 1932

Remarks: _____