



Diag. Ch. No. 1251-1 & 1252-1

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State: *Fla*

### DESCRIPTIVE REPORT.

Hydrographic

SHEET No. 2623 Sheet No.

*Northern Approaches to Key West*  
LOCALITY:

*Smith Shoal*

*Near Key West*

1903

CHIEF OF PARTY:

*H. W. Rhodes*

2623

APR 7 1903

Acc. No.

Descriptive Report of Smith's Shoal

U.S.S. "Hydrographer" March 1903.

Smith's shoal is an irregular shaped coral patch about 6 miles  $N \times W$  mag. from n. w. Passage Light House, n. w. of Key West, Fla.

It is surrounded on all sides by 7 fathoms of water, and the least depth found on it was 11.3 feet.

Its 6 fathom currow comprises an irregular shaped area about  $\frac{1}{4}$  mile in diameter, with its greatest diameter lying in a general East and West direction. Inside of this 6 fathom currow the depths are irregular and a number of coral heads with an average depth of 12 feet on them, are found near the center of the patch. In most cases they have four fathoms of water alongside.

The coral heads have in general a white appearance, and can be plainly seen when directly over them, but give little or no indication of their presence, by light colored water, on approaching.

For executing the work two water signals were moored, each about two miles distant from the shoal, and used in conjunction with the n. w. Passage Lt. House for

determining all positions.

These signals were spruce spars about 18 feet long carrying on their tops a black cage in the shape of a horizontal "V", and surmounted by flag poles carrying large black and white flags. The signals were moored in six and nine fathoms of water respectively, by  $\frac{1}{2}$ " chains attached to the lower ends. In addition to the weight of the chain, balance balls weighing about 100 lbs. each, were attached to each spar to keep it upright at all times.

It was intended to anchor these signals with practically no scope of chain but the one in 9 fathoms was not properly adjusted and it had a flood and ebb tide position.

In clear weather the signals showed up very distinctly, and were entirely satisfactory.

Their positions were determined by triangulation from Key West and N. W. Passage Lt. Houses.

After developing the shoal with a rectangular system of lines, the channel sweep was set to the least depths found and another rectangular system of lines at  $45^\circ$  to the original system, was superimposed. The drag struck and carried away several times and the final development

and location of the coral heads was made by a whaleboat party.

During the work tides were observed at N.W. Passage Light House and connected with the datum plane as established by the U.S. Engineers.

Respectfully Submitted,

H.W. Rhodes, Chief of Party,  
Commanding Str. Hydrographer.

Report  
Hydrographic <sup>on</sup> Sheet No. 2623.  
Smith Shoal,  
Northern Approaches to Key West,  
Fla.  
Assistant Rhodes,  
1903.

The soundings have been observed to the limit of half a foot accuracy and by the omission of fractions of a foot in the plotting a considerable part of the accuracy of the survey has been sacrificed. These sacrifices may be enumerated as follows:

1. The soundings cannot be relied upon for anything closer than a foot, while they can be taken as close as tenths of feet.
2. Differences in the crossing of lines of one foot or more are a frequent occurrence which often could be avoided or greatly reduced by giving halves of feet.
3. The contour lines are not as exact as they could be drawn; they would appear greatly modified if positions were given.
4. Whenever the question concerning precise depths on racks, shoals and channels comes up, as it is sure to do, we cannot give a satisfactory answer by inspecting the sheet, but have to refer to the records.

This question of retaining fractions of  $\frac{1}{2}$  foot on original sheets in certain cases as a safeguard has nothing to do with the policy of avoiding fractions in reductions.

By going over the records of the survey I find on several places the distinct statement that the rocky patches are coral rocks or heads, yet I fail to see the word coral ever mentioned on the sheet. But this is not the point I want to make; the existence of the "shoal" established beyond a doubt the fact that from Rebecca Shoal to Key West the Florida Keys are skirted on the inside, as outside, by a coral reef. There are numerous indications of such a reef on Chart No. 11 and a closer survey may bring many more to light. It appears then to me that Smith Shoal is a misnomer (a shoal is an aggregation of sand), it should have been called Smith Reef.

A. Linden Kohl. 7/20/3.

That the soundings have been taken accurately to the nearest half foot is very doubtful. In the whale boat work (mainly within the 18 ft. curve)  $\frac{1}{3}$  of the soundings only are taken to  $\frac{1}{2}$  ft. A remark in the sounding book shows that with a "moderately easterly breeze" there was a "3 ft. swell; short sea." Any sounding taken to  $\frac{1}{2}$  ft. with a 3 ft. swell, with a lead line marked to one foot is a doubtful quantity. It seems useless to cover the sheet with fractions of a foot when the difference between any two soundings on a line is 1 ft. or more, and the average difference between two lead smen on either side of the vessel is 1 foot.

The fractions could only effect the soundings within the 24 ft. curve, and while the fraction may make the curve smoother in some places it would make the same curve more irregular in other places. Within the 18 ft. curve fractions have been used where they would effect the profile of the bottom. The rocks have the fraction  $\frac{1}{2}$  ft. given when so shown by records. On one rock where the records show 11.3 ft. 11 ft. is shown on the sheet, which is correct, as .3 of a foot cannot be measured with a lead line marked to 1 ft.

The word coral does not occur in the records column for bottom, but R. does, and that was entered on the sheet. There is a remark in the sounding book (for the whale boat) that "These shoal spots appear to be coral heads" but no specimens were taken. However, the word Co. has been added to the R. where it occurs.

J. C. D.

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