REPORT ON BOCILLA PASS

CHARLOTTE COUNTY, FLORIDA

For

WOTITZKY, WOTITZKY & JOHNSON

Punta Gorda, Florida

Prepared By

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Gulf Accretion and Erosion

The general Gulf of Mexico coastline in the vicinity of Bocilla Pass has formed numerous passes during the period of available records. However, only a few have survived until today without major change. The inlets in the general vicinity of Bocilla Pass are from north to south: Stump Pass, Knight Pass, Bocilla Pass, Little Gasparilla (Boca Nueva) and Gasparilla Pass.

Plates 4 and 5 show these passes very well, but by 1925 (Plate 6) major changes had taken place since the original surveys:

(1) Stump Pass has moved south about $1\frac{1}{4}$ miles.

(2) Knight Pass has been cut through Island No. 6.

(3) Island No. 6 is now part of Island No. 1.

(4) Boca Nueva has migrated south about $\frac{1}{4}$ mile, and is renamed Little Gasparilla Pass.

(5) Island No. 2 is called Knight Island.

(6) Island No. 1 is called Don Pedro Island.

Chart 1255 revised to November 1951 (Plate 7) shows Knight Pass and Bocilla Pass closed and accreted areas have developed on the south shore of Little Gasparilla and Gasparilla Passes. By 1962, sand had closed Little Gasparilla Pass, and natural forces had eroded the offshore remains of Island No. 6. Stump Pass was shoaling as the channel depth indicates. Depth in 1957 was 7 feet and depth in 1962 was 2 feet. Also, the sand spit from the south shore of Stump Pass, which is visible in the February 1956 and September 1957 charts (Plates 8 and 9), is beginning to curve into the mouth of Stump Pass.

Shoaling around the Gulf coast inlets is characteristically located seaward of the inlet proper. A large fan shaped shoal is usually present opposite each such inlet. These shoals are a source of beach building material for the Gulf beaches and usually supply the material in greatest quantity during stormy weather when shoal material is driven ashore on the downdrift side of the inlet. However, these shoals can close an inlet unless the currents through the inlet are stronger than th shoaling forces.

Stump Pass has the largest tidal prism to Lemon Bay, Knight and Bocilla Passes when in existence were only supplemental openings to Lemon Bay. Gasparilla Pass has the largest tidal prism to the north end of Gasparilla Sound. Little Gasparilla Pass was only a supplemental opening to Gasparilla Sound.

The currents to both Lemon Bay and Gasparilla Sound were reduced first by the construction of the railroad bridge to Boca Grande beginning in 1909 and later in the 1950's by the construction of the Gulf of Mexico Intracoastal Waterway and the road bridge to Boca Grande.

The original bridge piles were severely damaged by worms necessitating new piles. The new piles together with the old piles formed a partial barrier separating the north part of Gasparilla Sound from the south part. The intra-coastal Water Way channelized the flow of water north and south and the road bridge further reduced the tidal prism of the north part of Gasparilla Sound greatly reducing the ability of Bocilla Pass and Little Gasparilla Pass to maintain their openings to the Gulf of Mexico.

The reopening of Little Gasparilla Pass in the 1950's by local interests and the dredging of Bocilla Pass in the 1960's after Judith proved futile. According to Mr. Ralph M. Cole, a native of the area and longtime fisherman now retired, these two passes remained navigable for only a few years after their reopening. The bridges to Boca Grande and the Intracoastal Waterway construction had reduced the tidal current flow through the passes enough so that the current force was not able to overcome the shoaling forces.

The Beach Erosion Control Study, Lee County, Florida, by the Corps of Engineers, dated July 29, 1969, states that the littoral drift of sand for Gasparilla Island is generally to the north although periodic reversals do occur. The result is that the northern end of Gasparilla Island is accreting while the southern end is eroding.

A study by Gee & Jenson, Consulting Engineers, Inc., for Mr. Dewey A. Dye, Jr. in 1961 showed that the north side of Stump Pass has a southerly littoral drift and that the pass is an effective barrier to sand flow south of the pass. Stump Pass to the north blocks most sand flow south and Gasparilla Pass to the south blocks most sand flow north. The net result is that Bocilla Pass is in an area where the littoral drift is variable and small in volume.

Storms

To date, there have been 23 storms of hurricane force, defined as tropical cyclones, with wind velocities of over 75 miles per hour, that passed within 100 miles or less of Stump Pass from the date of the original government survey (E. B. Camp's survey) of Lemon Bay and vicinity.

A chronological list of these storms is included in the appendix between sections of U. S. Coast and Geodetic Survey Charts 175 and 1255 (Plates 4 to 12) as pertinent.

Between publication of the September 1895 chart and the publication of the May 1925 chart, the area was influenced by 6 hurricanes which passed within 100 miles of Bocilla Pass. The changes, as reflected by the two charts and described in the two preceding sections, were very noticeable. New inlets have opened, old ones have closed, and Bocilla Pass had closed as had Knight Pass. Stump Pass has two openings to the Gulf of Mexico and Little Gasparilla Pass has a spit from the south shore inside the inlet reducing its width. By February 1956, one of the openings of Stump Pass has closed and a spit is evident from the south shore of the pass. After hurricane Donna in September 1960, part of the spit of Stump Pass had been forced into the Pass and by 1962 Little Gasparilla Pass had closed.

From the surveys and charts, it is evident that the area is unstable and subject to radical and rapid changes caused by passing storms. Even storms of less than hurricane force have had a noticeable effect on the area.

The latest opening of Bocilla Pass was by dredge in the Spring of 1957, but interior canals were reduced in both width and depth by tropical storm Judith on October 9, 1959. The storm passed over Boca Grande, moved northeast, and exited to the Atlantic Ocean near Vero Beach.

An aerial investigation of the Bocilla Pass area shortly after hurricane Agnes (June 1972) indicated that a new pass could be cut south of the 1957-1959 inlet if a severe storm should pass close to the area.

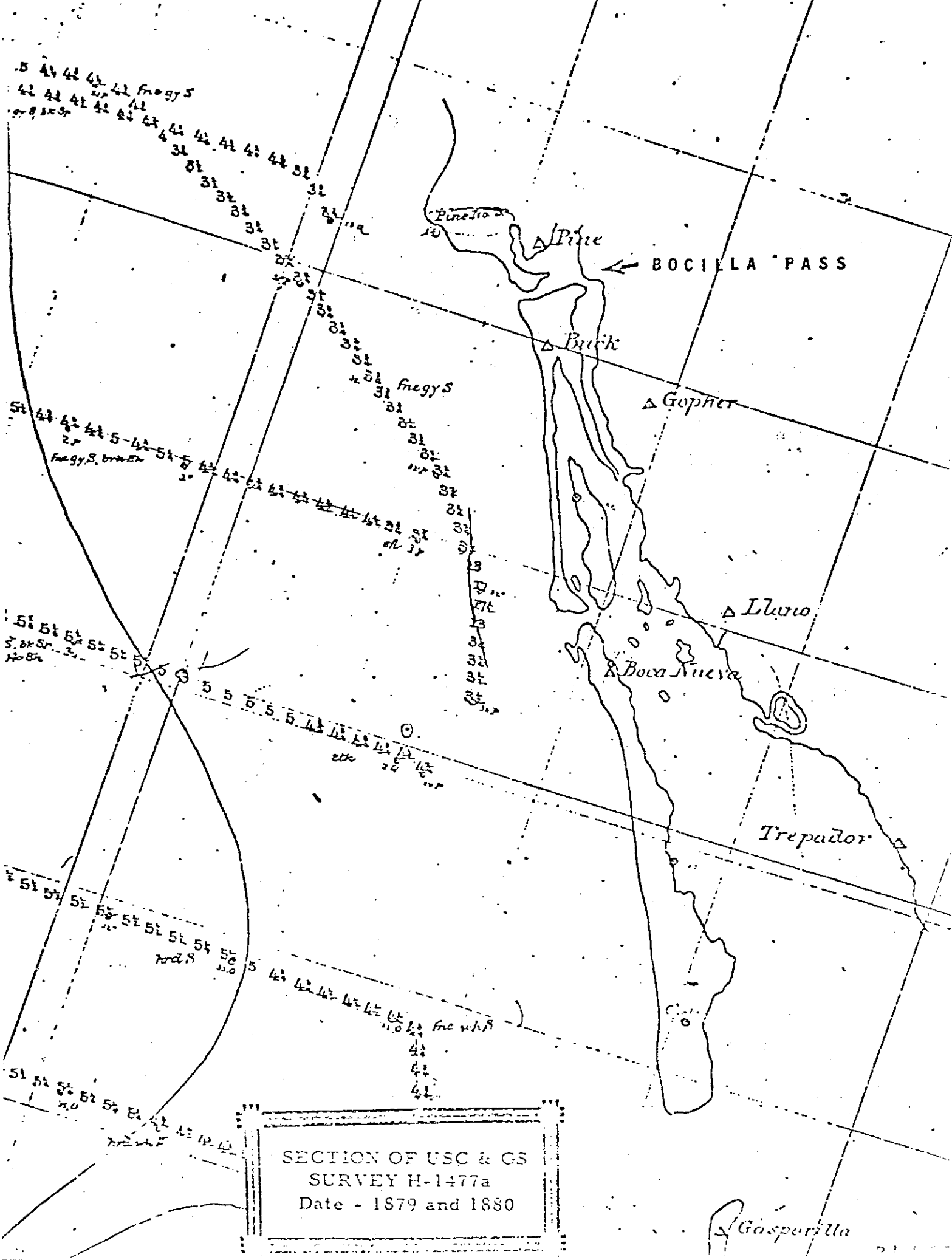
Tides

Tides in the Bocilla Pass area are a mixture of diurnal and semi-diurnal tides. The mean tide range is 1.6 feet as determined by the U.S. Coast and Geodetic Survey. Ebb tide erosion is the dominant factor in inlet behavior on the Gulf Coast of Florida. It was responsible for deepening and enlarging the ditch in the Spring of 1957 to a navigable channel about 4 months later.

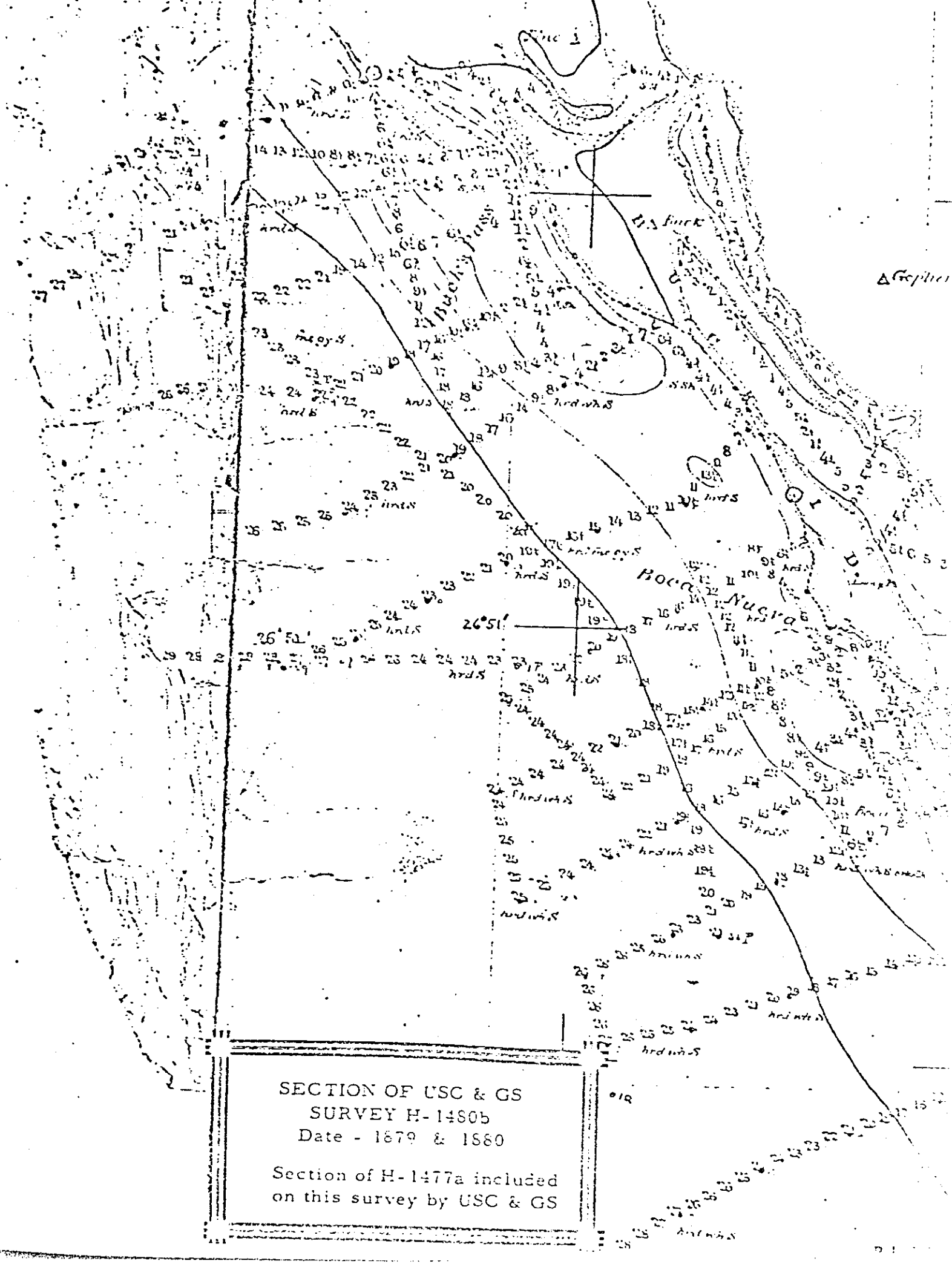
The ebb tide on the Gulf coast is dominant because of the peculiar compound tidal curve involving a mixed diurnal and semi-diurnal tidal phenomena. During a few days of each month there is a sudden very strong ebb tide which results from changing from a high-high to a low-low in a period of a very few hours. This strong ebb tide sweeps the inlets clean and transports great quantities of material seaward to feed the offshore shoal areas. However, the Intracoastal Waterway and bridges to Boca Grande have greatly reduced the tidal influence and the ability of the minor inlets in the Lemon Bay and Gasparilla Sound area to remain open for more than a few years.

Land Surveys

A comparison of the December 1895 survey by E. B. Camp with the May 22, 1971 survey by A. B. Brown (Plate 16) indicates that Parcels A, B & C are predominantely located on lands which would be in the channel of the original Bocilla Pass. Furthermore, Parcel A is located where the most recent Bocilla Pass channel was located.



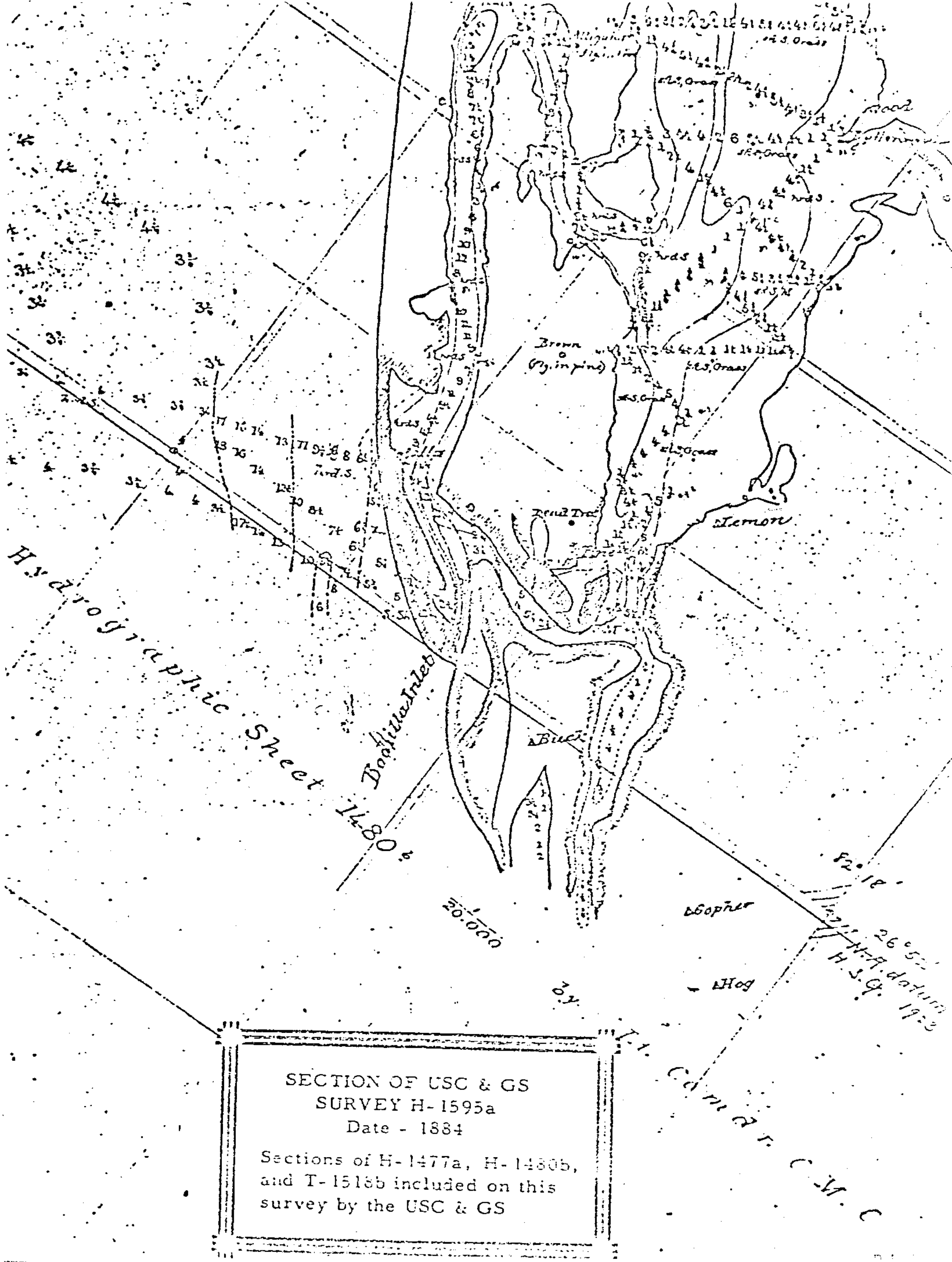
SECTION OF USC & GS
SURVEY H-1477a
Date - 1879 and 1880



SECTION OF USC & GS
SURVEY H-1480b
Date - 1879 & 1880

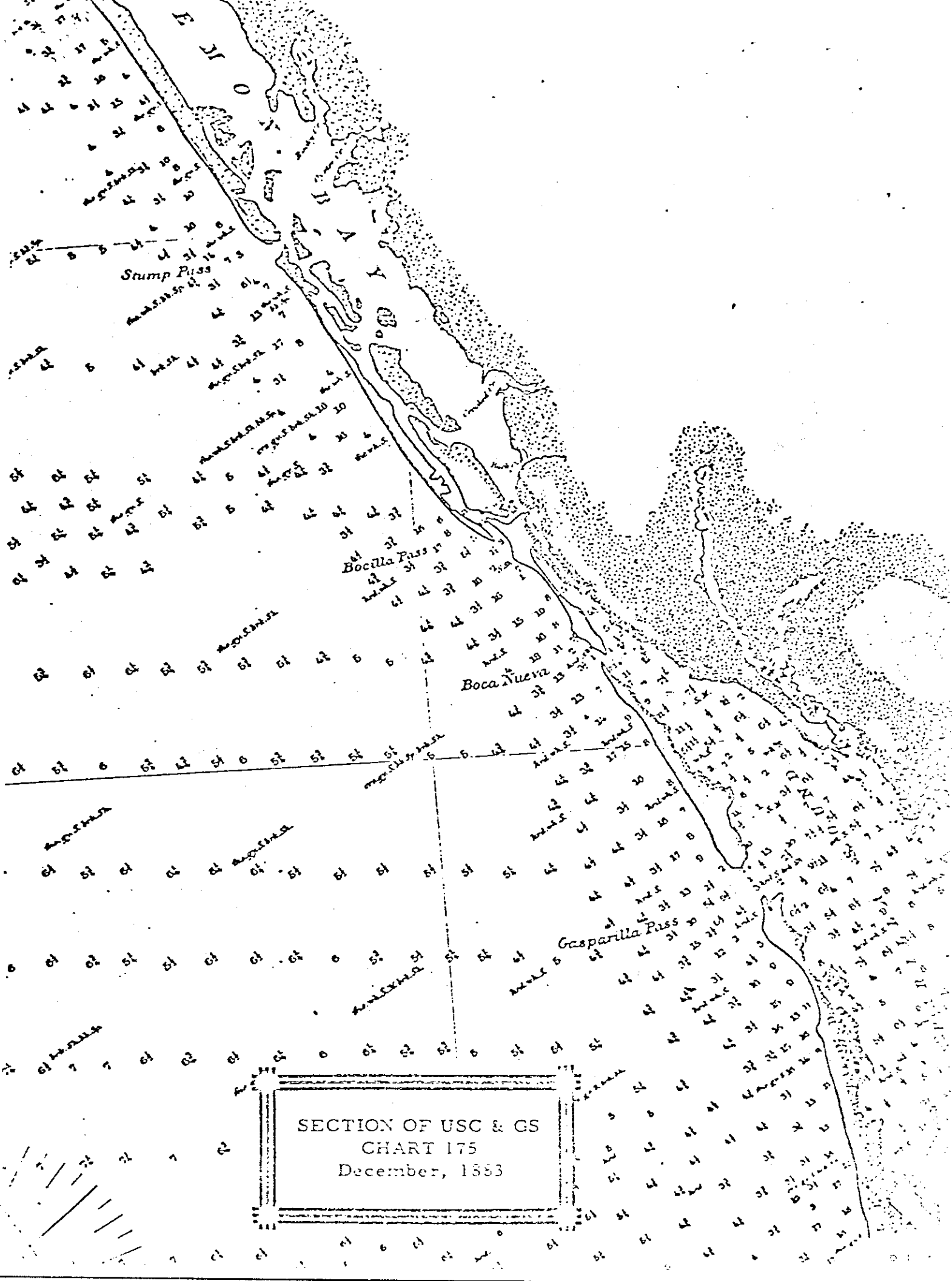
Section of H-1477a included
on this survey by USC & GS

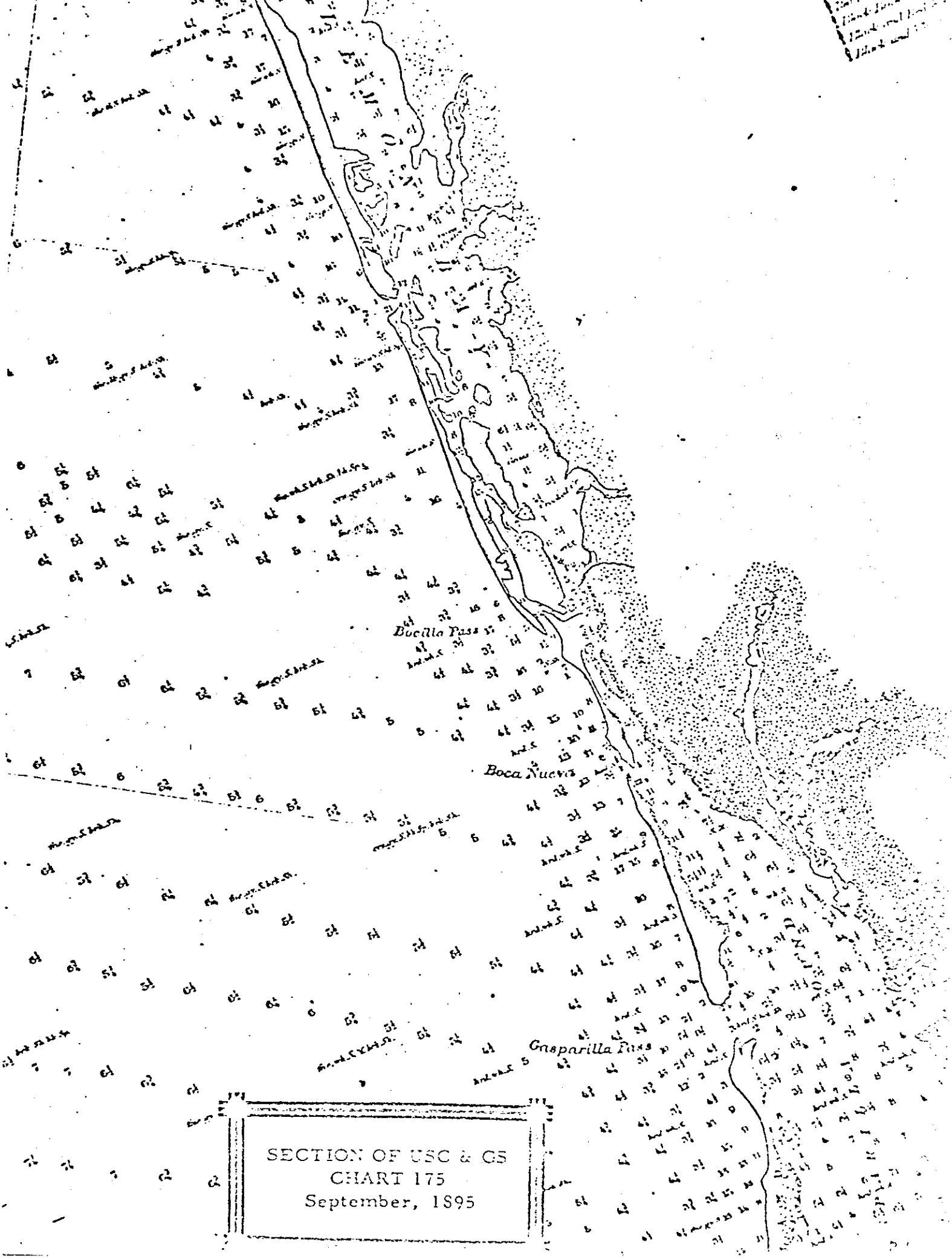
SECTION OF USC & GS
SURVEY T-1518b
Date - 1883



SECTION OF USC & GS
SURVEY H-1595a
Date - 1884

Sections of H-1477a, H-1480b,
and T-1518b included on this
survey by the USC & GS


Stump Pass
Bocilla Pass
Boca Nueva
Gasparilla Pass
SECTION OF USC & GS
CHART 175
December, 1883

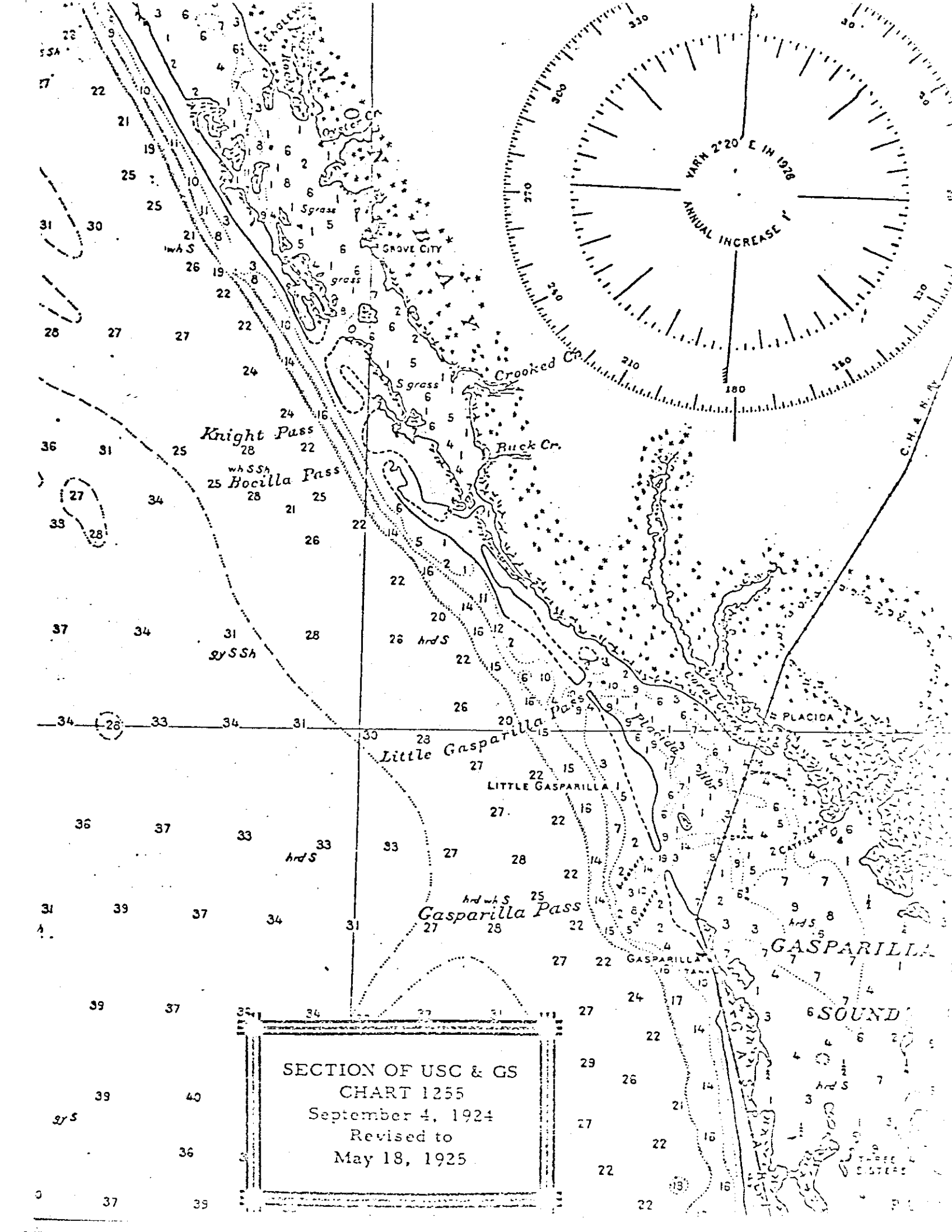


SECTION OF USC & GS
CHART 175
September, 1895

Hurricanes passing within 100 miles of Bocilla Pass.

1900	September 5 - 7
1901	August 10 - 17
1903	September 10 - 16
1910	October 11 - 18 *
1911	August 9 - 14
1912	September 11 - 13

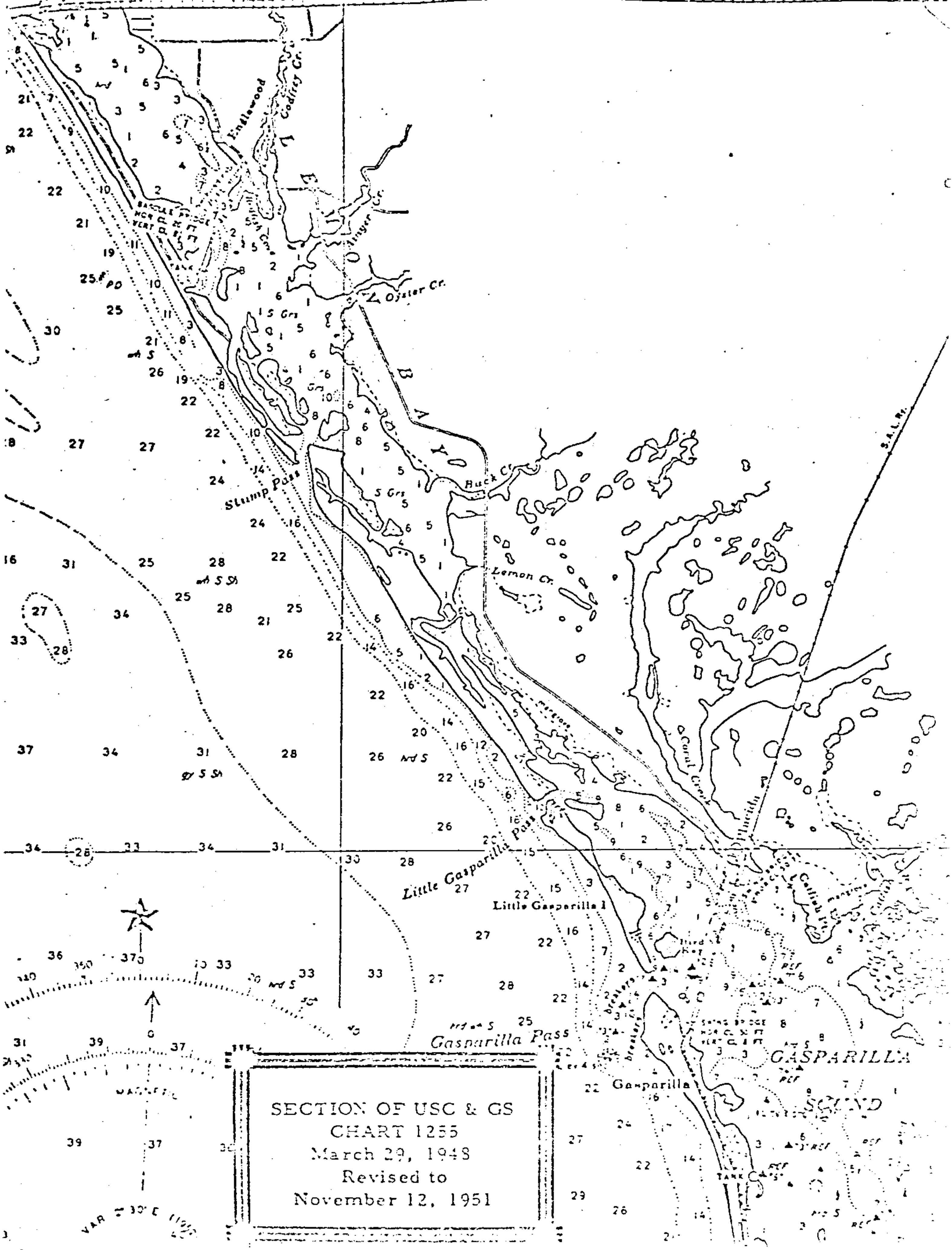
* Storm passed very close to Bocilla Pass or was very severe.


VARN 2°20' E IN 1926
ANNUAL INCREASE 7'
Knight Pass
Bocilla Pass
Little Gasparilla Pass
Gasparilla Pass
Crooked C.
Buck Cr.
GROVE CITY
PLACIDA
LITTLE GASPARILLA I.
GASPARILLA
SOUND
SECTION OF USC & GS
CHART 1255
September 4, 1924
Revised to
May 18, 1925

Hurricanes passing within 100 miles of Bocilla Pass.

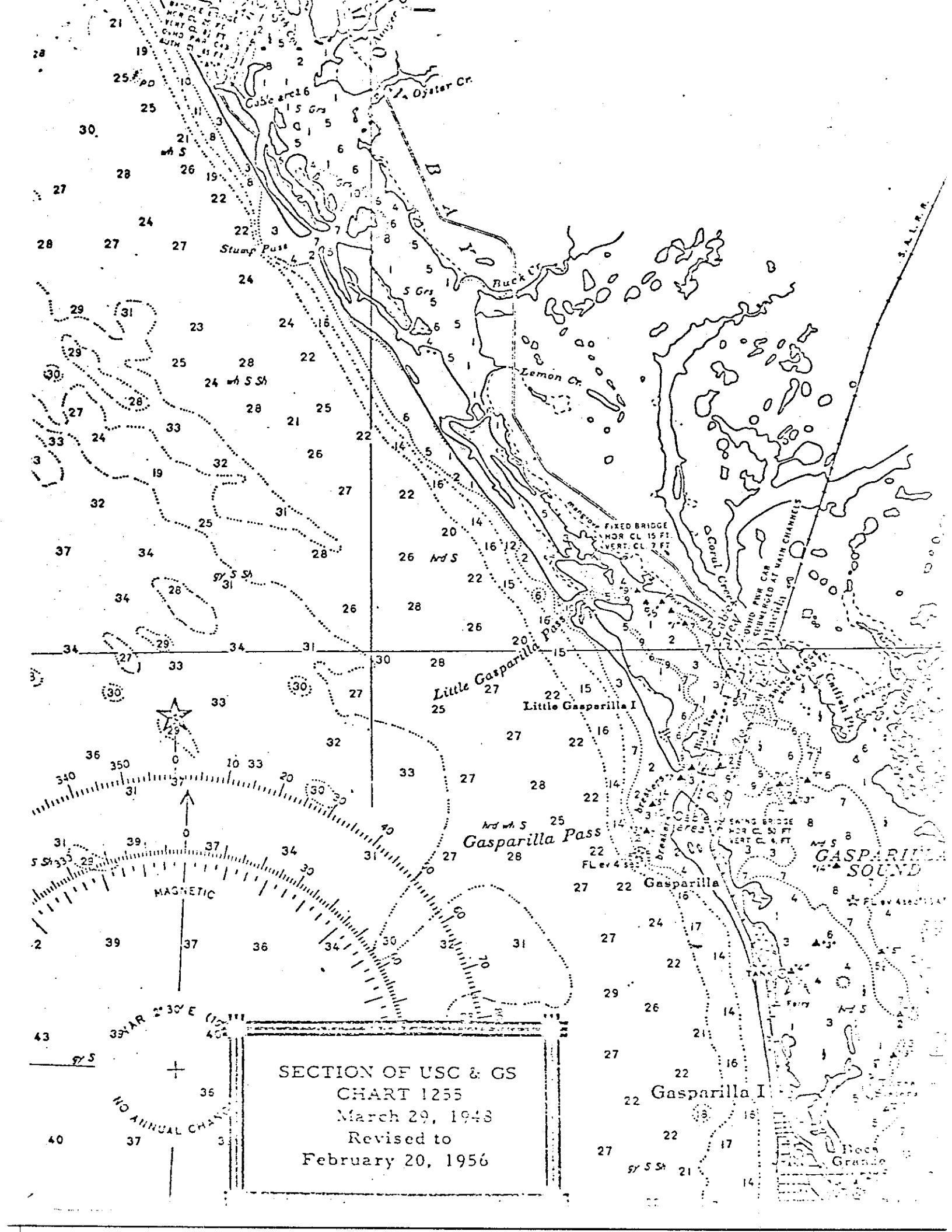
1926	September 6-22	*
1928	September 16-22	
1929	September 22 - October 4	
1932	August 24 - September 4	
1933	July 25 - August 4	
1935	August 31 - September 8	*
1936	July 27 - August 1	
1941	October 4 - 12	
1944	October 13-21	*
1945	September 15-20	
1946	October 7-9	*
1947	September 11-19	
1948	September 19-25	
1950	October 17-21	
1951	September 30 - October 7	*

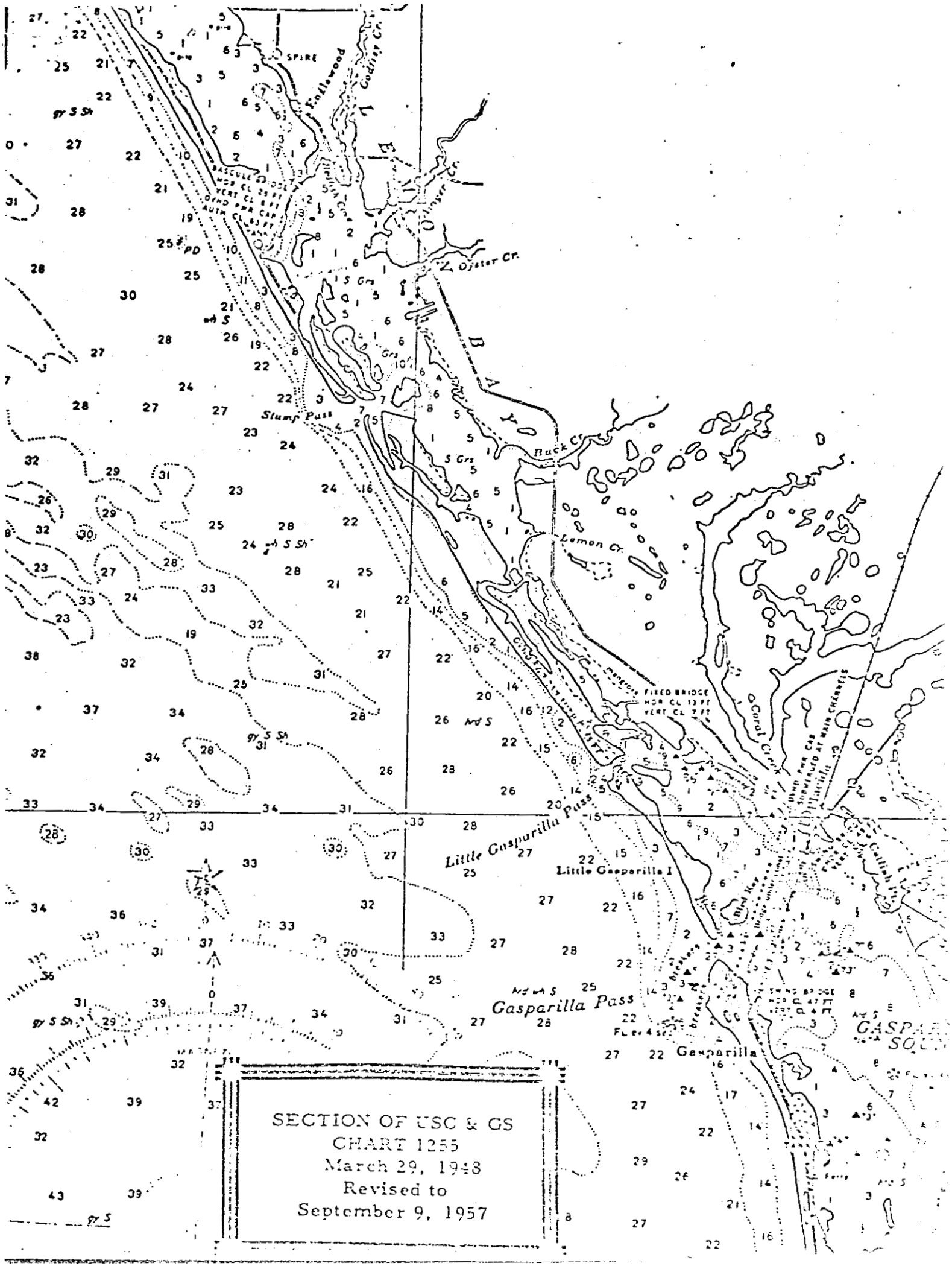
* Storm passed very close to Bocilla Pass or was very severe.


SECTION OF USC & GS
CHART 1255
March 29, 1948
Revised to
November 12, 1951
Englewood
Godfrey Cr.
Oyster Cr.
Stump Pass
Buck Cr.
Lemon Cr.
Coral Creek
Little Gasparilla Pass
Little Gasparilla I
Gasparilla Pass
Gasparilla
GASPARILLA
SOUND
S.A.L.Ry.
MAGNETIC

Hurricanes passing within 100 miles of Bocilla Pass

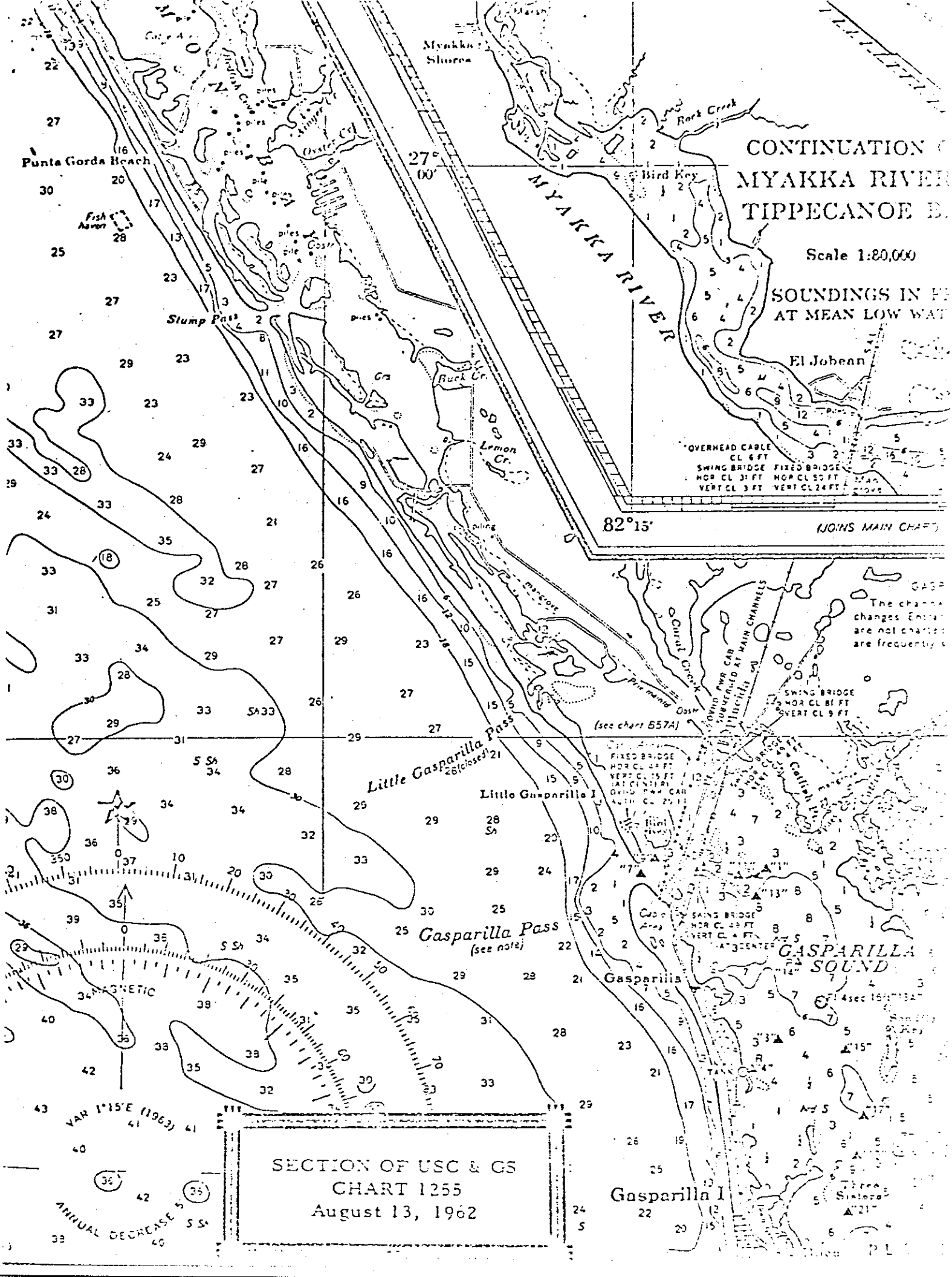
1953 October 8 - 10

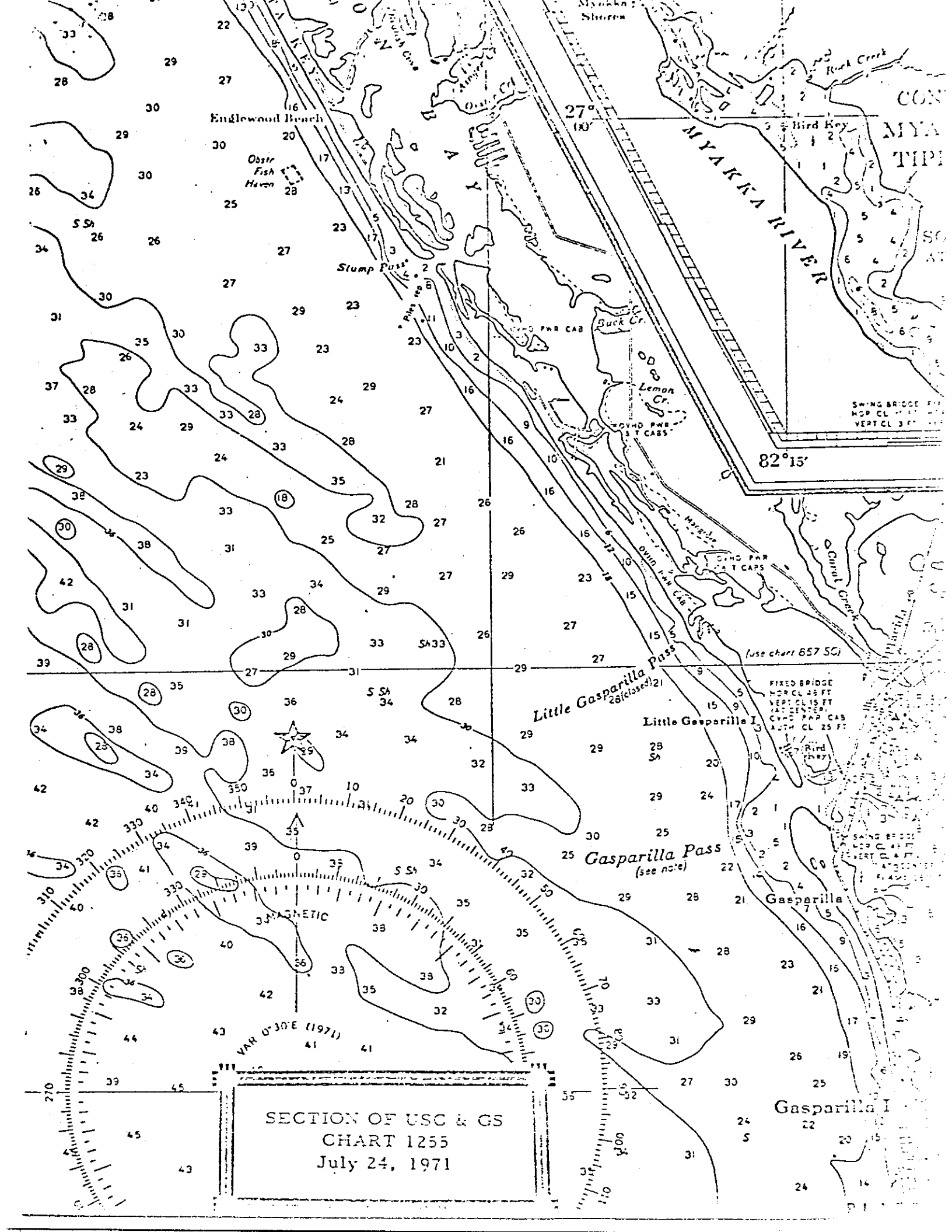

Stump Pass
Buck Cr.
Lemon Cr.
Little Gasparilla Pass
Little Gasparilla I
Gasparilla Pass
Gasparilla
Gasparilla I
GASPARILLA SOUND
Coral Creek
Cable area
Oyster Cr.
FIXED BRIDGE
HOR CL 15 FT
VERT CL 7 FT
SWING BRIDGE
HOR CL 50 FT
VERT CL 4 FT
MAGNETIC
VAR 2° 30' E
NO ANNUAL CHANGE
SECTION OF USC & GS
CHART 1255
March 29, 1948
Revised to
February 20, 1956

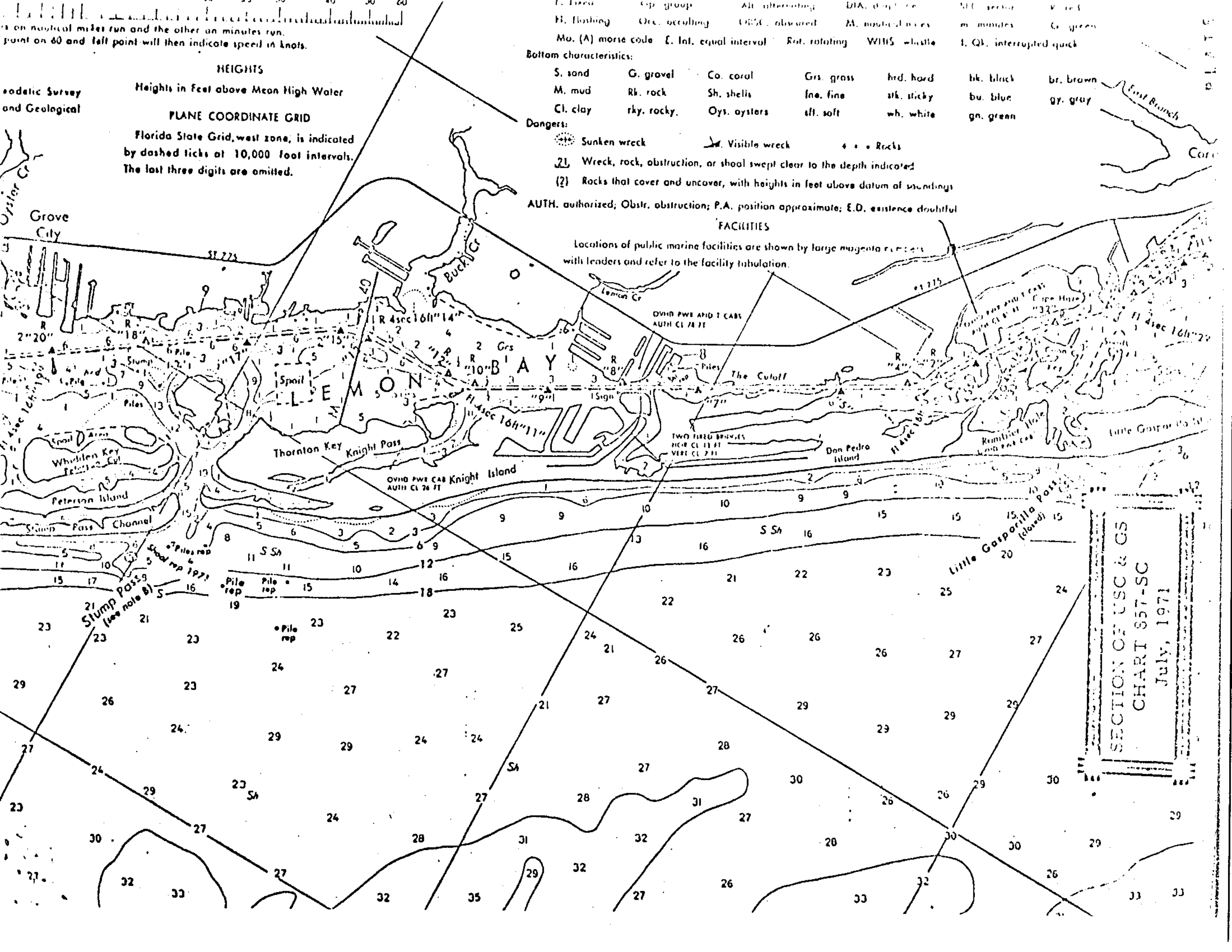

SPIRE
Endeavor Creek
Coding Cr.
Oyster Cr.
Stump Pass
Buck Cr.
Lemon Cr.
Coral Creek
Little Gasparilla Pass
Little Gasparilla I
Gasparilla Pass
Gasparilla
SECTION OF USC & GS
CHART 1255
March 29, 1948
Revised to
September 9, 1957

Hurricanes passing within 100 miles of Bocilla Pass

1960 September 3-13


CONTINUATION
MYAKKA RIVER
TIPPECANOE
Scale 1:80,000
SOUNDINGS IN
AT MEAN LOW WAT
MYAKKA RIVER
Myakka River
Rock Creek
Bird Key
El Jobean
Punta Gorda Beach
Fish Haven
Oyster Cr.
Stump Pass
Buck Cr.
Lemon Cr.
27° 00'
82° 15'
(JOINS MAIN CHART)
OVERHEAD CABLE
CL 6 FT
SWING BRIDGE
HOR CL 31 FT
VERT CL 3 FT
FIXED BRIDGE
HOR CL 50 FT
VERT CL 24 FT
Curral Creek
(see chart 857A)
SWING BRIDGE
HOR CL 81 FT
VERT CL 9 FT
Little Gasparilla Pass
26(closed)
Little Gasparilla I
Gasparilla Pass
(see note)
GASPARILLA SOUND
Gasparilla
Gasparilla I
MAGNETIC
VAR 1°15'E (1962)
ANNUAL DECREASE 5'
SECTION OF USC & GS
CHART 1255
August 13, 1962


Englewood Beach
Stump Pass
Buck Cr.
Lemon Cr.
MYAKKA RIVER
27°
10'
82°15'
Bird Key
Little Gasparilla Pass
Little Gasparilla I
Gasparilla Pass
(see note)
Gasparilla
Gasparilla I
Coral Creek
(use chart 857 SC)
MAGNETIC
VAR 0°30'E (1971)
SECTION OF USC & GS
CHART 1255
July 24, 1971


point on 60 and left point will then indicate speed in knots.
HEIGHTS
Heights in Feet above Mean High Water
PLANE COORDINATE GRID
Florida State Grid, west zone, is indicated by dashed ticks at 10,000 foot intervals. The last three digits are omitted.
odetic Survey
and Geological
Fl. flashing
Occ. occulting
Alt. alternating
Mo. (A) morse code
E. Int. equal interval
Rot. rotating
WHIS whistle
I. Qk. interrupted quick
Bottom characteristics:
S. sand
G. gravel
Co. coral
Grs. grass
hrd. hard
bk. black
br. brown
M. mud
Rk. rock
Sh. shells
fne. fine
stk. sticky
bu. blue
gy. gray
Cl. clay
rky. rocky.
Oys. oysters
sft. soft
wh. white
gn. green
Dangers:
Sunken wreck
Visible wreck
Rocks
21 Wreck, rock, obstruction, or shoal swept clear to the depth indicated
(2) Rocks that cover and uncover, with heights in feet above datum of soundings
AUTH. authorized; Obstr. obstruction; P.A. position approximate; E.D. existence doubtful
FACILITIES
Locations of public marine facilities are shown by large magenta numbers with leaders and refer to the facility tabulation.
Grove City
Oyster Cr
Buck Cr
Lemon Cr
First Branch
LEMON BAY
Thornton Key
Knight Pass
Knight Island
Whidden Key
Peterson Island
Stump Pass Channel
Stump Pass (see note B)
The Cutoff
Don Pedro Island
Little Gasparilla Pass (closed)
Little Gasparilla Island
Spoil Area
OVHD PWR AND T CABS AUTH CL 74 FT
TWO FIXED BRIDGES HOR CL 11 FT VERT CL 7 FT
OVHD PWR CAB AUTH CL 74 FT
Fl 4sec 16ft 11
R 4sec 16ft 14
Shoal rep 1971
Pile rep
SECTION OF USC & GS
CHART 857-SC
July, 1971