2006 - 2012 INCL.

2006 - 2012 INCL.

Diag. Cht. No. 1251-1 & 1254

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. ..... *Office* H-2006—— No. H-2012 Incl.

LOCALITY

State FLORIDA

General locality WEST COAST OF FLORIDA

Locality

1890

CHIEF OF PARTY

J. F. Moser

LIBRARY & ARCHIVES

DATE OCTOBER 3, 1890

B-1870-1 (1)

2006 - 2012

U. S. COAST AND GEODETIC SURVEY.

T. C. Mendenhall, Superintendent.

State: Florida.

DESCRIPTIVE REPORT.

Hydrographic Sheets Nos. 2006, 2007, 2008, 2009, 2010, 2011, 2012.

LOCALITY:

West Coast of Florida.

1890.

CHIEF OF PARTY:

Lieut. J. F. Moser.

Write me at: Baltimore, Md. Fla

Telegraph me at:

My Express Office is:

Rec'd Oct. 2

Report A

T Ala.

James A. D. Bache

July 1st, 1890.

2—567

Dr. T. C. Mendenhall

Superintendent C. & G. Survey

Washington, D. C.

Sir:

In obedience to "Instructions and Memoranda for Descriptive Reports" I beg leave to submit the following report "A" of the operations of the party under my charge during the winter of 1889-90.

The work assigned this party was the completion of the unfinished hydrography, coast of Florida from Key West to Bahia Honda and through Florida Bay, Barnes Sound and Card's Sound.

The party entered upon the work Jany 24th and finished it May 14th, when by your direction we returned to Baltimore, stopping en route at St. Simon's Sound to make an investigation of the reported changes of the bar at that place.

The differences in the topography in Florida Bay, south of the Florida Main, have been fully referred to in my report "B" and in my letter of previous date to the Office. I will only add in this connection that the shore line of the Keys and main as we observed it will be found dotted in red on the sheets, and in cases where the Keys furnished do not exist symbols are used which are explained on the sheets. The notes in the sounding books will be found very full on this point, and I think no difficulty will be experienced by the draughtsman in tracing the work from the records.

The new shore line is not made up entirely from the positions of the ends of the sounding lines where they impinge on the shore, in fact the greater portion is traced from independent positions on the shore line and tangents from these positions to the prominent features.

The draughtsman in plotting the soundings may find some differences where the work connects with that of previous seasons, due to differences of planes and differences of tidal movement. I have before this written so much on the

of the wind is very great. I have been at anchor at different points along this coast and during Spring tides and fair weather would experience a regular rise and fall of tides of five feet and over, yet a moderate wind blowing up would hold the waters for ten or twelve hours at high or low water level depending upon the direction of the wind.

I mention this to establish the fact that planes of reference may differ very largely where established independently during different seasons.

The work of the season of 87-88 was closed on a line from a point about six miles East of Cape Sable to Sandy Key to East Bahia Honda Key, and the soundings reduced by blocks and referred to the permanent gauges at Cape Sable, Content Key and a Bache comparison gauge between the two. During that season we experienced many norther, which make very low waters, and I always felt that our plane was too low, though I rejected all abnormal tides.

This past winter was very mild; one

vagaries of the tides in this locality that I hesitate to add more to it for fear of repeating, but as I am anxious that my work should be criticised with a knowledge of the facts as they are presented to the field officer, it must be my excuse for again entering upon this subject. In my opinion, on the West coast of Florida, the tidal wave after it enters the Gulf of Mexico impinges first on the northern sections and then takes a direct Southerly course, making the tides later as the more southerly portions are reached and as it passes over the shoaler waters, from Cape Romano South, it accumulates in height until it's greatest height as attained between Cape Sable and Sawyers Key (See Chart 15). As it enters the shoaler waters of Florida Bay it is constantly cut off by mud flats and shoals until in the vicinity of the Twin Keys, and thence East it is lost and the water levels change with the winds entirely.

Although the average rise and fall of tides in the vicinity of Cape Sable and Content Key is about four feet still the influence

experienced but two northers and they were very light and I am satisfied that our plane is high for a winter plane.

What I have here said refers to all this section. I have in all cases reduced the work by blocks, grading one block into the other by time and height, but even this in many instances fails on account of the many fluctuations, caused by winds and barriers of shoals and flats. To get perfect results in this section it would be necessary to have many permanent stations with long series of simultaneous observations; this the number of any party would not permit nor did I think the work, for our purpose, demanded it.

No accurate information could be obtained of the inside waters though I sought for it everywhere, and as I now review the work with the light of our present knowledge I see where it could have been improved. I think however the work will be found satisfactory, and if upon plotting the work any points are found which are not clear I beg they may be referred to me for explanation.

I do not believe that the changes over this area are very great; there are points, where owing to the great difference in time and range of tides the current is very strong, where changes do occur; this refers particularly to the narrow slues running from the Gulf to the Reefs between Key West and East Bahia Honda Key, but generally speaking I do not believe in rapid changes in this section. As I have mentioned in former reports the bottom formation is rock. From Cape Romano south this rock is covered with about one foot of sand or mud. As the head of Florida Bay is reached to the eastward this rock covering is increased in depth, but nowhere do I believe that the rock lies more than five feet below the surface of the bottom.

I made a special report on the buoyage of a section of this District some time ago and suggested then the consideration of red sectors in the reef lights. I will only add the consideration of the buoyage of the channel between Pigeon Key and Knights Key. This channel connects the waters of the Reef with

the Gulf, lies about 35 miles East of Key West, is wide and has a least depth of 8½ feet. A few buoys would make this channel available.

The titles and statistics for the sheets will be found appended.

Very respectfully

J. F. Moser.

Lieut. Asst., Asst C. & G. Survey

Chief of Party.

U.S. COAST & GEODETIC SURVEY
OFFICE OF
JUL 3 1890
HYDROGRAPHIC INSPECTOR.

Forwarded

Chas. M. Thomas, Comd'r., U. S. N.,

Hydrographic Inspector C. & G. Survey.

2006

Hydrography.—Proj. No. 1; Sombrero Key Lt. to N.W. Passage Lt., Florida Reefs, Fla.

Date	Letter	Number of— Sounding book	Miles Naut.	Soundings	Angles	Name of Vessel	Observers
1890							
Mch. 21	a	1	12.75	739	4	Whaleboat	Ensign E. H. Durell
" 22	b	1	13.00	692	4	"	" "
" 24	c	2	11.20	583	2	"	" "
" 25	d	1	13.20	656	6	"	" "
	4	2	50.15	2,670	16		
Mch. 26	e	1	17.50	843	20	Gig	Ensign E. H. Durell
" 27	f	1	13.50	826	62	"	" "
" 28	g	1	11.90	775	18	"	" "
" 29	h	2	11.20	651	—	"	" "
Apr. 1	i	2	15.00	847	38	"	" R. D. Tisdale
" 2	k	2	7.50	418	2	"	" "
" 3	l	3	15.50	679	20	"	" "
" 4	m	3	13.00	463	4	"	" "
" 5	n	3	14.50	535	6	"	" "
" 7	o	3	17.75	700	62	"	" "
" 8	p	4	16.00	794	36	"	" "
	11	4	153.35	7,531	268		
Mch. 21	a	1	11.60	535	—	Flat-boat	Ensign R. D. Tisdale
" 22	b	2	4.50	237	4	"	" "
" 24	c	1	11.60	536	2	"	" "
" 25	d	2	9.20	830	24	"	" "
" 26	e	1	13.30	610	4	"	" "
" 27	f	2	10.00	464	—	"	" "
" 28	g	1	12.70	615	—	"	" "
" 29	h	2	13.00	676	—	"	" "
Apr. 1	i	2&3	11.00	956	10	"	" E. H. Durell
" 2	k	3	13.30	753	6	"	" "
" 3	l	3	12.00	724	—	"	" "
" 4	m	3	8.80	468	—	"	" "
" 5	n	4	12.20	576	4	"	" "
" 7	o	4	15.10	837	17	"	" "
" 8	p	4	12.00	644	14	"	" "
	15		170.30	9461	85		

7

(over)

Hydrography:— Tracing; Vicinity of Knight's Key & East Bahia Honda Key, Fla.

Date	Letter	Number of — Soundg book	Miles Naut.	Soundings	Angles	Name of Vessel	Observers
1890							
Mch. 19	a	1	23.50	892	170	Stm. launch	Ensign R.D. Tisdale & M@A. J.L. Dunn.
" 20	b	1	9.50	374	85	"	" " " "
			33.00	1266	255		
Mch. 19	a	1	12.12	865	162	Whale boat	Ensign E.H. Durell & Pay Yeo. T.S. Martin
" 20	b	1	2.60	36	34	"	" H.A. Bispham & E.H. Durell.
			14.72	901	196		

Recapitulation				
	33.00	1266	255	Stm. launch
	14.72	901	196	Whale boat
Total on Sheet	47.72	2,167	451	

Hydrography — Proj. Nº 1. (Cont'd)

Date	Letter	Number of — Soundg book	Miles Naut.	Soundings	Angles	Name of Vessel	Observers
1890							
Mch. 19	a	1	7.10	669	37	Spy's boat	Ensign S.M. Strite
" 20	b	1	8.20	919	78	"	" " & L.C. Bertolette
" 21	c	1 & 2	15.40	1738	122	"	" " "
" 22	d	2	15.70	1806	140	"	" " "
" 24	e	3	8.50	998	102	"	" " "
" 25	f	3	14.60	1201	152	"	" " "
" 26	g	4	15.50	1427	135	"	" " "
" 27	h	4 & 5	18.00	1313	144	"	" " "
" 28	i	5	15.00	1408	151	"	" " "
" 29	k	5 & 6	16.00	1466	116	"	" " "
Apr. 2	l	7	15.00	1362	123	"	" " "
" 3	m	7 & 8	14.10	1280	116	"	" " "
" 4	n	8	15.80	1168	109	"	" " "
" 5	o	8	13.60	1114	106	"	" " "
" 8	p	9	8.70	624	26	"	" " "
" 9	q	9	13.50	1097	—	"	" " "
	16	— 9	214.70	19,590	1,657		

Recapitulation				
	50.15	2670	16	Whale boat
	153.35	7531	268	Gig
	170.30	9461	85	Flat-boat
	214.70	19590	1657	Spy's boat
Total on Sheet	588.50	39,252	2,026	

2007

Dupg. Cht. No. 1249 & 1250

Acq. No.

Department of Commerce and Labor

COAST AND GEODETIC SURVEY

GC Mendenhall

Superintendent.

State: Florida

DESCRIPTIVE REPORT.

Hyd C *Sheet No:* ~~2006~~ 2007

LOCALITY:

West Coast of Florida

All SHA 2006

1890
~~190~~

CHIEF OF PARTY:

Lieut J.E. Moser

No 2007

Hydrography — Proj. No 3; Barnes & Cards Sounds & Florida Bay, Fla.

Date	Letter	Number of — Soundg book	Miles Naut.	Soundings	Angles	Name of Vessel	Observers
1890							
Jan. 28	a	1	23.25	1309	164	Stm launch	Ensign S.M. Strite & M@A. J.L. Dunn
" 30	b	2	14.10	1044	144	"	" " " "
" 31	c	1	24.80	1033	161	"	" " & Pay Yeo. T.S. Martin
Feb. 1	d	2 & 3	23.80	1363	182	"	" " " "
" 5	e	4	27.75	1228	184	"	" " " "
" 6	f	3	14.10	791	120	"	" " " "
" 11	g	4	8.00	346	52	"	" " & M@A. J.L. Dunn
" 12	h	3	18.00	680	104	"	" " " "
" 13	i	5	26.40	994	156	"	" " " "
" 14	k	6	24.30	910	138	"	" " " "
" 15	l	3	11.15	775	119	"	" " " "
" 19	m	5	23.80	974	149	"	" " " "
" 20	n	4	17.40	718	113	"	" " " "
" 24	o	6	11.10	449	67	"	" " & Pay Yeo. T.S. Martin
" 25	p	7	16.40	675	112	"	" " & M@A. J.L. Dunn
" 26	q	8	6.30	368	78	"	" " " "
" 27	r	6	13.30	527	96	"	" " " "
" 28	s	8	——	——	41	"	" " " "
Mch. 1	t	8	——	——	41	"	" " " "
" 10	u	7	15.75	635	79	"	" " " "
" 11	v	8	24.40	836	103	"	" R.D. Tisdale & " "
" 12	w	9	14.00	541	66	"	" " " "
" 13	x	9	8.75	382	58	"	" " " "
" 14	y	7	7.50	456	75	"	" " " "
" 15	z	9	3.50	250	24	"	" " " "
			377.35	17,284	2,626		
Jan. 28	A	1	7.00	286	58	Spy	Ensigns R.D. Tisdale & E.H. Durell
" 30	B	1	12.80	768	90	"	" " " "
" 31	C	1	11.20	726	88	"	" " " "
Feb 1	D	1 & 2	10.40	601	62	"	" " " "
" 6	E	2	3.80	175	22	"	" " " "
" 7	F	2	13.50	531	80	"	" " " "
" 12	G	3	11.00	593	76	"	" " " "
" 13	H	3	25.80	1175	140	"	" " " "
" 19	I	3	17.50	732	96	"	" " " "
" 20	K	4	3.80	177	26	"	" " " "
" 24	L	4	20.90	824	114	"	" " " "
" 27	M	4	15.30	570	60	"	" " " "
Mch 10	N	5	15.50	684	100	"	" S.M. Strite & L.C. Bertolette
" 13	O	5	7.30	381	83	"	" " " "
			175.80	8,223	1,095		
Jan. 31	a	1	9.00	1451	165	Whaleboat	Ensign L.C. Bertolette & M@A. J.L. Dunn
Feb. 1	b	2	13.40	1060	160	"	" " " "
" 5	c	1 & 3	13.50	1165	150	"	" " " "
" 6	d	2	12.30	1151	143	"	" " " "
" 7	e	3	11.60	720	110	"	" " " "
" 8	f	4	11.10	846	113	"	" " & Pay Yeo. T.S. Martin
" 10	g	3	12.90	1219	216	"	" " " "
Mch. 6	h	4	——	——	63	"	" R.D. Tisdale
" 11	i	5	10.60	574	112	"	" E.H. Durell & " "
" 12	k	6	16.40	1061	125	"	" " " "
" 13	l	5	7.60	403	68	"	" " " "
" 14	m	6	12.90	691	99	"	" " " "
" 15	n	5	9.00	608	45	"	" " " "
			140.30	10,949	1,569		

(over)

Hydrography:— Proj. Nº 3 (Cont'd)

Date	Letter	Number of— Sound'g Book	Miles Naut.	Soundings	Angles	Name of Vessel	Observers
1890							
Feb 11	c	1	15.00	1143	115	Gig	Ensign L.C. Bertolette & Pay.Yeo. T.S. Martin
" 12		2	13.80	981	114	"	" " " "
" 13		1	12.60	1024	152	"	" " " "
" 14		2	16.30	1048	97	"	" " " "
" 15		3	11.10	846	103	"	" " " "
" 19		2&4	9.30	686	95	"	" " " "
" 20		3	8.70	687	86	"	" " " "
" 25		4	21.10	1222	148	"	" " " "
" 26		3	8.70	587	61	"	" " " "
27		5	5.50	434	106	"	" " " "
28		4	3.50	233	64	"	" " " "
			125.50	8,891	1,141		
Jan. 28	a	1	2.00	202	32	Spy's boat	Ensign R.D. Tisdale
Feb. 6	b	1	3.80	241	28	"	" "
" 11	c	2	5.80	369	38	"	" " & E.H. Durell
" 12	d	2	2.80	167	26	"	" " "
" 14	e	2	15.00	664	76	"	" " "
" 15	f	2	10.00	462	54	"	" " "
" 21	g	2&3	11.60	774	86	"	" " "
" 25	h	3	11.70	868	100	"	" " "
" 26	i	3	15.20	998	122	"	" " "
" 27	k	3	4.20	265	34	"	" " "
" 28	l	4	15.00	709	76	"	" " "
Mch. 6	m	5	6.10	527	10	"	" S.M. Strite & L.C. Bertolette
" 8	n	5	9.10	675	108	"	" " " "
" 11	o	5	3.00	290	26	"	" " " "
" 14	p	5	8.60	693	96	"	" " " "
" 15	q	6	6.10	656	80	"	" " " "
May 8	r	6	.90	37	23	"	" R.D. Tisdale
" 9	s	6			28	"	" "
" 10	t	6	1.00	37	14	"	" "
			131.90	8,634	1,057		

Recapitulation

	377.35	17284	2626	Stm. launch
	175.80	8223	1095	Spy
	140.30	10949	1569	Whale boat
	125.50	8891	1141	Gig
	131.90	8634	1057	Spy's boat
Total on Sheet	950.85	53,981	7,488	

Diag. Cht. No. 1250

Department of Commerce and Labor
COAST AND GEODETIC SURVEY

T. C. Mendenhall
Superintendent.

State Florida

DESCRIPTIVE REPORT.

Hyd^c Sheet No. 2008

LOCALITY:

West Coast of Fla.
SHA "B"
Sec. 1 2006

1890
~~190~~

CHIEF OF PARTY:

Lt. J. E. Mauer

2008

Hydrography — Proj. No 3(a); Approaches to Florida Bay, Fla.

Date	Letter	Number of — Sounding book	Miles Naut.	Soundings	Angles	Name of Vessel	Observers
1890							
Apr 23	a	1	6.80	315	22	Spy's boat	Ensign R.D. Tisdale
" 24	b	1	9.00	421	34	"	" "
" 25	c	1	5.00	261	12	"	" "
May 1	d	1	14.00	682	68	"	" " & E.H. Durell
" 2	e	1	18.60	819	96	"	" " "
" 3	f	2	26.70	947	118	"	" " "
" 5	g	2	20.70	720	76	"	" " "
" 6	h	2	7.20	267	24	"	" " "
Total on Sheet.			108.00	4,432	450		

Diag. Chy. No. 1253 Loc. No.

Department of Commerce and Labor
COAST AND GEODETIC SURVEY

FC Mendenhall
Superintendent.

State: Fla

DESCRIPTIVE REPORT.

Hyd C *Sheet No:* 2009

LOCALITY:

West Coast of Florida

See SHA 2006 YB

1890

CHIEF OF PARTY:

Lt J F Moser

2009

Shark

Hydrography:— Proj. No 6; ~~Rogers~~ River to Lossman's River,

West coast of Florida.

Date	Letter	Number of— Sound'g book	Miles Naut.	Soundings	Angles	Name of Vessel	Observers
1890 Apr 17	A	1	14.00	890	68	Stm. launch	Ensign S.M. Strite & Pay Yeo. T.S. Martin
Apr. 15		1	6.33	417	70	Gig	Ensign S.M. Strite & Pay Yeo. T.S. Martin
" 16		1	2.50	272	15	"	" L.C. Bertolette
" 17		1	8.10	629	—	"	" "
			16.93	1,318	85		
Apr. 15	a	1	6.30	606	—	Dinghy	Ensign L.C. Bertolette

Recapitulation				
	14.00	890	68	Stm. launch
	16.93	1318	85	Gig
	6.30	606	—	Dinghy
Total on Sheet	37.23	2,814	153	

2010

Diag. Cht. No. [illegible]

Department of Commerce and Labor
COAST AND GEODETIC SURVEY

T.C. Mendenhall
Superintendent.

State: Fla.

DESCRIPTIVE REPORT.

Hyd C Sheet No. 2010

LOCALITY:

West Coast of Florida

See S HA +B 2006

1890
~~190~~

CHIEF OF PARTY:

Lt. J.F. Moser

2010

Hydrography — Proj. No 7; Lossmans River to Parilion Key, West coast of Florida.

Date	Letter	Number of — Sounding book	Miles Naut.	Soundings	Angles	Name of Vessel	Observers
1890 Apr. 22	A	1	13.70	890	43	Stm. launch	Ensign S.M. Strite & Pay Yeo. T.S. Martin
Apr. 18		1	12.08	796	48	Gig	Ensign S.M. Strite & Pay Yeo. T.S. Martin
" 19		1	14.40	850	4	"	" "
" 23		1	7.20	408	18	"	" " " "
			33.68	2,054	70		
Apr. 18	a	1	13.30	1150	8	Dinghy	Ensign L.C. Bertolette
" 19	b	1 & 2	15.50	960	—	"	" "
			28.80	2,110	8		

Recapitulation				
	13.70	890	43	Stm. launch
	33.68	2054	70	Gig
	28.80	2110	8	Dinghy
Total on Sheet	76.18	5,054	121	

2011

Dipg. Cht. 1254

Acc No:

Department of Commerce and Labor
COAST AND GEODETIC SURVEY

F. C. Mendenhall
Superintendent.

State Fla

DESCRIPTIVE REPORT.

Bay d C Sheet No. 2011

LOCALITY:

West Coast of Florida
1B
See SHA 2006

1890
190

CHIEF OF PARTY:

Lt. J. J. Moser

2011

Hydrography.— Proj. Nº 8; Parilion Key to Tiger Key,

West coast of Florida.

Date	Letter	Number of — Soundy book	Miles Naut.	Soundings	Angles	Name of Vessel	Observers
1890							
Apr. 23	A	1	10.60	510	—	Stm. launch	Ensign S.M. Strite
" 24	B	1	9.60	553	—	"	" "
" 26	C	1	21.00	1167	10	"	" " & Mc A. J. L. Dunn
			41.20	2,230	10		
Apr. 24		1	3.75	243	6	Gig	Ensign S.M. Strite
Apr. 22	a	1	10.10	645	—	Dinghy	Ensign I.C. Bertolette
" 23	b	1	12.20	921	10	"	" "
" 24	c	2	15.10	931	14	"	" "
" 26	d	2	14.10	904	6	"	" "
" 28	e	2 & 3	15.30	945	—	"	" "
			66.80	4,346	30		

Recapitulation				
	41.20	2230	10	Stm. launch
	3.75	243	6	Gig
	66.80	4346	30	Dinghy
Total on Sheet.	111.75	6,819	46	

2012

Acc. No.

Department of Commerce and Labor
COAST AND GEODETIC SURVEY

T C Mendenhall
Superintendent.

State: Fla

DESCRIPTIVE REPORT.

Hyd^c *Sheet No* 2012

LOCALITY:

West Coast of Florida

See SHA 2006

1890
~~190~~

CHIEF OF PARTY:

Lt J F Moser

2012

Cape Romano

Hydrography — Proj. No 9; Tiger Key to ~~Cabimbas Pass~~,

West coast of Florida.

Date	Letter	Number of — Sound'g book	Miles Naut.	Soundings	Angles	Name of Vessel	Observers
Apr. 28	A	1	16.10	982	8	Stm. launch	Ensign S.M. Strite & M.A. J.L. Dunn
" 29	B	1	19.20	1055	6	"	" " " "
" 30	C	2	16.60	918	156	"	" " " "
May 1	D	2	12.40	626	—	"	" "
			64.30	3,581	170		
May 8	[illegible]	1	3.70	328	30	Gig	Ensign S.M. Strite & Pay. Yeo. T.S. Martin
" 9	[illegible]	1	7.30	662	70	"	" " " "
			11.00	990	100		
Apr. 29	a	1	13.00	894	—	Dinghy	Ensign L.C. Bertolette
" 30	b	1	13.60	920	2	"	" "
			26.60	1,814	2		

Recapitulation				
	64.30	3581	170	Stm. launch
	11.00	990	100	Gig
	26.60	1814	2	Dinghy
Total on Sheet	101.90	6,385	272	

Hydrography:— Proj. Nº 10; Caximbas Pass to Wiggins Pass,

West coast of Florida.

Date	Letter	Number of—				Name of Vessel	Observers
		Soundg book	Miles Naut.	Soundings	Angles		
May 2		1	6.80	580	75	Gig	Ensign S.M. Strite & Pay. Yeo. T.S. Martin
" 3		1	7.50	844	66	"	" " " "
Total on Sheet			14.30	1424	141		

Hydrography:— Examination of bar, Entrance to St. Simon's Sound, Ga.

Date	Letter	Number of— Soundg book	Miles Naut.	Soundings	Angles	Name of Vessel	Observers
1890							
May 16	A	1	4.25	170	—	Ship	Lieut. J.F. Moser & Ens. H.A. Bispham
" 17	B	1	2.25	124	—	"	" " " "
			6.50	294			
May 16	a	1	7.00	1055	70	Whale boat	Ensign R.D. Tisdale & M@A. J.L. Dunn

Recapitulation				
	6.50	294	—	Ship
	7.00	1055	70	Whale boat
Total on Sheet	13.50	1,349	70	

U. S. COAST AND GEODETIC SURVEY.

O. H. Tittmann, Superintendent.

State: Florida

DESCRIPTIVE REPORT B.

Hydrographic Sheets Nos. 2006, 2007, 2008, 2009, 2010, 2011, 2012.

LOCALITY:

Off Coast of Florida

1890.

CHIEF OF PARTY:

Lieut. J. F. Moser, U.S.N.

June 30, 1890

Descriptive Report B

Archives
RBG
10.14.90

Section VI

Coast of Florida

Hydrography, by Str. "Bache"

Lieut. J. F. Moser U.S.N.

assist. C. & G. Survey, Comdg

1889 - 90

Respectfully referred to the Assistant in charge for file in the Archives

T. C. Mendenhall
Superintendent

Oct. 14, 1890.

Write me at: Baltimore, Md.

Telegraph me at: Oct. 13

My Express Office is:

Report — 1890

Section II.

U. S. Coast and Geodetic Survey,

Report "B"

1890 Jan. 24 May, 17

Steamer A. D. Bache

June 30th, 1890.

2—547

(3.)

Dr. J. E. Mendenhall

Superintendent, C. & G. Survey

Washington, D.C.

Sir:

In obedience to paragraph 26, page 31, Regulations Coast and Geodetic Survey, and in accordance with "Instructions and Memoranda for Descriptive Reports", I beg leave to submit the following report of the operations of the party on board this vessel during the winter of 1889-90.

Having refitted at Baltimore the "Bache" sailed from that port Janu 1st, but on her arrival at Hampton Roads it was ascertained that the lead sheathing on the bottom had become detached; it was therefore necessary to return to have the defect remedied. We made a second start Janu 11th, and after a very disagreeable passage, in which we encountered much wind and sea, we arrived at Key West Janu 19th. After coaling and

[redacted]

taking on board lumber &c, we proceeded to the working ground and commenced operations Jany 24th.

In order to properly explain the work on which this party has been engaged it will be necessary first to refer to the work of previous seasons, and in doing so if Charts 15 and 16, with the appended sketches, are kept in sight my remarks may be cleared.

During the winter of 87-88 the off-shore work South of Cape Romano was finished, seaward to the ten fathom curve; from the line of keys between Pavilion Key and Cape Sable to a line across Florida Bay (from a point 4 miles east of Cape Sable) to Sand Key to East Bahia Honda Key; and thence from Key to Key on the Gulf side to N.W. Channel Light, thus completing the off-shore hydrography in this section. This left still a large area undeveloped, viz:- the waters between the Keys, and included in the above lines, and the finished work on the reefs and the greater part of Florida Bay, Barnes Sound and Card's Sound. During the following season, winter of 88-89, the most important part of this section was developed, viz: the waters included in the lines already mentioned, and from

a line Big Spanish Key — Big Pine Key east to a line from Oyster Keys — Twin Keys — Shell Key. This included the only practical channels in this section from the Reefs to the Gulf, the Knights Key Channel and the Spanish Key Channel, both with a depth of 7 ft. at M.L.W.

When this work was finished it was thought unnecessary to execute the hydrography over the remaining unfinished portion on account of the fact that no channels for commercial purposes existed; the craters being very shallow, admitting only very small boats. Upon my representation, however, that we knew there was no crater over this region but in order to represent it on our charts it would be necessary to run a few lines to exhibit this fact, the Office concluded to permit this party to finish the remainder of the undeveloped area by a simple system of lines, using the topographical features to locate by, if possible, and also to finish in the same manner the inlets and river mouths from Cape Sable to Cape Romano. The party on board this vessel was engaged upon this work during the season, and in order to make my remarks clearer I shall divide the work into three sections and,

Consider each section separately as they are all differently conditioned.

The first section is that portion of our work South of the mainland and included in the waters covered by the words Barnes Sound on Chart 15, and thence east through Card's Sound to Pumpkin Key, where we connected with the work previously executed in Key Biscayne Bay.

These waters, in the first section, are entered from the reefs by slues between all the reef keys; from the westward by slues between Twin Key and Shell Key and Upper Matecumbe; from the eastward by slues through Card's Sound. These waters are interspersed with many keys and are cut up into numerous lakes and ponds; the dividing lines however are not land but shoals which during extreme low water may be bare in places, but usually they have about a foot of water over them and are covered with grass. These ponds have from five to seven feet of water and on the reef side are connected by narrow slues which though as deep as the ponds have bars permitting a draught of 2½ feet at ordinary water level to pass through. That is, a boat drawing about 2½ feet, can pass through the

whole length of these inside waters, but it is necessary to be acquainted with the locality as the slues are difficult to find. This system of lakes or ponds exists largely over the waters which are mis-named on Chart 15 as Barnes Sound, but it is only on the reef side where continuous connecting slues are found; along the center and northern portions the waters are shallower, flats numerous, and the ponds apparently disconnected. A westerly wind makes high water over this section and a correspondingly greater draught can be carried through. An easterly wind makes low water, so that allowance must be made for the wind.

There is no traffic through these inside waters; occasionally a turtler or a sponger makes his appearance there; this large area seems to be unknown even to the dwellers of the reef keys, and it seems to be a great event when one of them goes as far as the mainland. There are no distinctive features to the land; the shores of the keys and main are covered with mangrove bushes and trees, and for the most part are swampy though generally containing sand or shell ridges; the mud in many instances is so soft as to render

landing for signal building almost impossible.

I soon learned that it was impossible to develop this locality by topographical features, and that a regular system of signals would be necessary and the lines of soundings executed in a simple but definite way. The surface marks of the triangulations executed here over thirty years ago are almost entirely obliterated; here and there a monument on its side, a stake or the remnant of a tripod leg is all that remains, and even these indications are not frequent. Exceptionally a complete Δ^nn is recovered. For our purpose, however, working on a scale of 1:10,000 and protracting only to the nearest minute, even if the stake or monument recovered is simply one of the side witness marks it can make no material difference; if however it were necessary to connect a regular system of triangulation it would be a more difficult matter.

We started our work on two Δ^nns recovered — Δ^ns West and Road — and two partially recovered — Δ^ns Middle Plantation and Mark; with these we worked into the field to the northward of Upper Matecumbe and Plantation Key. We recovered no Δ^ns to the northward and as it was necessary on account

of the great number of interfering keys and the dense high growth to multiply our signals very much, I felt a little apprehension of the exact positions, particularly as the locations had to be made by climbing the center poles of the signals and making the observations with a sextant. Happily however as the work progressed and expanded to the Eastward we found four more Δ^{ns} and with these checked back and found the positions of our signals very good. There now, however, remained a portion south of the main and north-east of Man-of-War Bush and Rabbit Key over which I could get no check. I therefore sent the "Spy" on this section to work into the field from the Westward from the base Δ^{ns} Man-of-War Bush and Rabbit Key, which was happily accomplished.

The principal cause of annoyance on this work and the cause for my desire to have the positions well checked was the utter disagreement of the topography as furnished on our sheets and that found in the field. This great difference in the topography occurs in what is called Barnes Sound on Chart 15, and extends south of the

mainland for a distance of from four to seven miles. This will best be seen on my sheet where I have had the actual shore lines dotted in red.

This difference in topography at first alarmed me as I felt that our work was at fault, but after we had checked our signals by Sts from different directions and I had examined our smooth plotted lines of soundings I knew that our work was good and the sheet in error. This will partly be seen by examining our plotted lines of soundings and noticing how evenly they run, and this with a constant interchange of signals, and by noticing too that where the topography is good on the reef side how the lines agree with it. These are tests which badly located signals cannot stand.

I will say that these changes might have occurred through natural causes, though I do not believe in great and rapid changes even in this country, but there may have arisen conditions with which we are not acquainted, a series of violent hurricanes may have swept over this section, or long continuous and violent rains may have swelled the everglades creating an enormous water discharge, still there are certain points which

even a local ~~cataclysm~~ would hardly explain. For instance, notice the Key on which △ Deep Point is situated, this Key now has probably one-fifth the area shown on the sheet; and the large Key close to on the N.E. represented as nearly two miles long on the sheet is no where in sight; nor is there a bank or shoal to indicate any former position; in fact there is about six feet of water there, as deep as it is anywhere in this section. Notice also on my sheet that the difference or defect never occurs on the site of a △ⁿᵉ; these △ⁿᵉˢ were on the shore line then and are now with very few exceptions; I may also say that the topography in the immediate vicinity of the △ⁿᵉˢ is almost invariably good. In examining my sheet you will see that between Barnes Sound and Card's Sound there are a number of land-locked basins; in the upper ones the defect is very great. As an example, let me call attention to the difference of positions of △ⁿᵉ Alligator and Hawk relative to the topography. You will notice that both these △ⁿᵉˢ on the shore line furnished are on the west shore of the strip of land. As our lines approached △ⁿᵉ Alligator it was found that

the shore line south of this point was much farther to the Westward, and on executing the work inside one found the Eastern shore line of the strip correspondingly to the Westward, so much so as to throw Δ Hawk on the inside pond instead of the Barnes Sound side, and this seems to be the proper place for it as it could hardly have served any definite purpose so close to Δ^nr^ Alligator on the Western side, whilst on the Eastern side where there are few Δ^ns^ it would seem to answer its purpose. Changes or defects of this kind could be mentioned all over the upper portion of this sheet, but an inspection of the work will convey more than a description.

In Card's Sound one had no difficulty whatever; sufficient Δ^ns^ were found to carry the work forward at once and the topography furnished agreed so well that there were no doubtful points.

Lines of soundings were carried to the reefs between all the keys so as to make a thorough connection.

The adoption of a plane of reference gave some difficulty. The permanent gauge was established at Δ Road and several comparisons made over the

field but the results are all unsatisfactory. The fact is that there is no regular tidal action in these waters, the water levels depend entirely upon the winds except in the immediate vicinity of the inlets where the tides slightly modify the conditions. I had the curve of Road gauge plotted and saw that the curve followed the direction of the wind. I then adopted what might almost be called an arbitrary plane; the abnormal high and low waters were rejected and taking what seemed to be a normal series a line was drawn slightly below the average curve. The difference cannot be great for the changes in water levels are in tenths of a foot, except during violent gales long continued when the water may stand either very high or very low. I would suggest that a note be placed on the charts on which this work is reduced stating that Easterly winds make low waters and Westerly winds high waters.

The gauge for the Cards Sound work was observed at Barnes Pt. The change in water levels there was not great and I therefore adopted a similar method of obtaining a plane.

I may here refer incidentally to the keys and

the inhabitants.

None of the keys in this section, inside of the reef keys are inhabited, nor are they suitable for habitation; the same is true of such portions of the south shore of the mainland visited by us. Terrestrial animal life is not as abundant as one would imagine. Deer and some of the smaller Carnivora are occasionally found on the keys; Opposum and Raccoons are more plentiful. On the mainland I am told deer, bear, panthers and wild cats are ~~numerous~~ and occasionally an ocelot is found. Of birds the heron family is numerously represented, and with the ibis man-of-war hawk and teal duck forms the principal series of water birds. A large flock of flamingoes are found in one place on the south shore of the main. I had frequently heard this flock referred to but always with a certain amount of secrecy and never with regard to any definite location. I believe this flock can be found any winter and that it is the only flock in Florida. The place where they congregate is about 16 miles east of Cape Sable, in the bay formed by two points of land extending to the southward, and

on Chart 15 they look like a pair of horns. The place is rather inaccessible from the Westward but can be approached from the Southward and Eastward. I am told by a gentleman, who secured five or six specimens, that the birds were in several flocks, very wild and numbered about 2000.

These waters abound with fish and turtle, amongst them very large specimens of saw-fish. I am told that in the Northern part of Card's Sound Manatee are still found.

The reef keys are largely inhabited; the dwellings with few exceptions are on the reef side and the people are engaged in farming. To one accustomed to see farming carried on in a country where the soil is deep and fertile on visiting these plantations, it seems almost an absurdity to call them farms, for the principal feature is the absence of earth or soil, one would almost imagine that Nature would produce as well in a lime-stone quarry, yet the productions of the few handsful of soil is wonderful. To walk over one of these farms is no easy matter, for the surface is very rough and you see nothing but acres and acres

of coral and coral rock, and from the apparently solid rock trees and bushes projecting in their growth. It looks as if a stone cutter had very carefully chiselled holes and inserted the trees. Upon a closer examination crevices and clefts will be found containing a few handeful of earth, holes formed by the decomposition of the softer portions which lead to other hollow spaces and in which the soil has been sparingly carried. One might in truth say that planting should be conducted with a shot gun. Yet as I said before the little earth is wonderfully productive. Tomatoes and egg plant ripen all winter and are sent in small crates to Key West and from thence by Steamer to New York. Nearly all the tropical fruits grow here but the pineapple forms the marketable crop. On the largest plantations they cut about 10,000 dozen a season; on the smaller plantations from 500 to 1000 dozen.

In my previous reports on this section I have referred to the formation of these keys and it is unnecessary for me to do so here again, I will only add however that the additional evidence which I have confirms the theory I advanced

that these Keys were formed by other forces than those now existing.

From all the authorities I could find, and they are not many, I should say that we have mis-named these waters. Barnes Sound is locally known as the waters covered by the word Card's on Chart 15. At the eastern end is a point on which we have a Δ^me called Barnes Pt. and from this point extends a shoal to the N. W. joining the mainland. East of Barnes Pt. to the Arsenicker Keys is Card's Sound, divided into Little Card's Sound, the western portion, and Big Card's Sound, the Eastern portion. The waters now occupied by the words Barnes Sound on Chart 15 have no name, or at least I could find no one who knew a name for them, and I fancy it comes under Bay of Florida. The large land-locked pond between the words Barnes Sound and Card's Sound on Chart 15 is known as Black-water Sound.

Having finished the Eastern work, or the first section, we proceeded to run lines of soundings, traversing the waters between the

Keys from Big Pine Key to Key West, which I may term the second section. I had hoped to do all this work by simple traverses and using the topographic features to locate the lines, but we found the work more difficult than we imagined it would be. There are so many bunches of mangroves, shoals and bars, and the waters generally so shallow that anything like a system could not be adhered to. We found the topography very good and located largely by tangents to points.

It must be remembered that all this work was simply what might be called "filling in" work, executed rather for the purpose of showing that no commercial channels existed than for the development of one and two foot channels.

The tides as usual on this section gave us no end of trouble. The great difference in time and rise and fall on the Gulf side, compared with the reef side, produces complications which cannot be imagined unless experienced, and add to all the influence of the winds and it is almost impossible to get correct planes for reduction. We started with a gauge at

No Name Key but soon found that the tides bore no relation to the field of our work. I then moved the gauge to a small Key south of Sudjoe and this gave us certain central results. We used in connection with this gauge numerous comparisons, and from them and the predicted tides at Content Key and A. W. Channel Light, constructed other gauges and then reduced the work by blocks, grading one block by time and height into another.

The short series of tides are of course incomplete, but it would have been simply waste of time to have remained over for complete series. I think it will be found that our work here is quite good enough for the purpose, and in fact much stronger than the case demands. In the neighborhood of Torch Key and Sudjoe there are several channels from the Gulf to the reefs which I think our work, when plotted, will show a depth of four feet. In an east and west direction from 1½ to 2 feet is all that can be carried at low water. Small craft, in good weather, drawing three feet and possibly a little more use this inside passage, but unless they have high water they

anchor at different points for a full flood.

The Keys on this section are but sparingly inhabited, the soil or rocks not being so favorable for cultivation as the eastern Keys. They are generally covered with mangrove bushes and trees with occasional clumps of pines.

The Key which we call Sawyer Key is locally known as the Bay Cudjoe; with this exception I found no difference in the names.

Having finished the work on the second section, the party proceeded to Shark River, north of Cape Sable, to commence work on the inlets and river mouths between Cape Sable and Cape Romano.

It will be remembered that when this party executed the hydrography from Cape Sable to Cape Romano and thence seaward to the ten fathom curve, that there was no shoreline on our sheets, the hydrography preceding the topography. It was the intention then to carry the hydrography in to the outer line of keys, but the boats frequently went inside of this line and lost the signals for a correct location. My instructions in such cases

to the boat parties were to put a stake at the end of the line, get two boat positions outside and cut in the stake. This may not have always been done, and I was very glad to be able to verify this work and to extend it as far in as the topography was subsequently carried.

The work here then consisted in the more thorough development of the mouths of the rivers, the passes and openings, and the extension of the hydrography as far as the topography between the keys. I think very few, if any, differences will be found, but if any are found I would suggest that this last work be given preference as it is better conditioned. I would ask also, if not now done, that the shore line be inserted on the finished sheet of this party for that section, winter of 87-88. If it is then deemed advisable, in order to avoid the multiplication of sheets, the work in this section this year can be transferred to the old sheet.

The soundings are reduced to the planes of Round Key and Lossman's Key, where the permanent observations were made two years ago. The old gauges and B. M.'s were found in good condition

A full account of this section with sailing directions &c will be found in my report for the winter of 87-88. I will only add that it was remarked that some erosions had taken place since our former work was executed, that a Pine had been washed away and that similar changes had taken place at Rabbit Key.

Having finished the work to Cape Romano, at which point I again examined the Alva channel close to the Cape and the approaches to the inside channels, we proceeded to examine the passes north of the Cape. I had noticed that Big Marco Pass was buoyed and that our chart gave more water than the buoy book called for.

This work north of Romano was done prior to my assuming command of the "Bache" and I was therefore unacquainted with the system, but on examining the sheet I saw that no special developments had been made and that the curves drawn at the Pass were from a limited number of soundings made in the vicinity in connecting the ship lines with the shore line. We developed Big Marco and Barnabas Passes but were unable to locate correctly on account of not being

furnished with the latest data from the Office. Upon communicating with the Office and Asst Nirgesheimer I learned that the latter in his work this year had developed these passes with the latest data and I have therefore rejected our work at these points.

The weather during the season was excellent; until the last week of the season we lost but two days on account of unfavorable weather.

The Hydrography was all executed in boats and was very trying; the distance to and from the field was generally great and many difficulties were daily encountered. I would therefore call your attention to the cheerful manner in which the members of the party carried out all my directions. The number of miles of soundings, 1360, speaks for itself.

I desire to add that in criticising this work it must not be done from the standpoint of regular systematized hydrography. The large area, covered as it is by flats and shoals with no commercial channels, was covered by lines as open as the conditions would permit. I am satisfied however that the work is all that can be desired, and

July 15 / 90

that it will prove perfectly satisfactory.

This season finishes my fifteenth season of field work and with it my connection will be severed from the Coast Survey. I shall always look back upon this duty as the most agreable of my Naval career, and I shall hold in grateful remembrance the military and civil members of this service with whom I have been associated.

The report on tides, the memorandum of Anchs visited and the statistics will be found appended.

The officers of the party are as follows:—

Ensign H. A. Bispham, U.S.N.
Ensign R. D. Tisdale, U.S.N.
Ensign S. M. Stone, U.S.N.
Ensign L. B. Bertolette, U.S.N.
Ensign E. H. Durell, U.S.N.
P.A. Surgeon John M. Steele, U.S.N.
Asst Engineer E. H. Scribner, U.S.N.
Recorder J. L. Dunn
Recorder J. McL. Tiffany
Recorder Thos. L. Martin

Very respectfully
L. F. Moser.
Lieut. U.S.N., Asst C. & G. Survey
Chief of Party

Forwarded
Chas. H. Kinney, Comd'r., U. S. N.,
Hydrographic Inspector C. & G. Survey.

Memoranda of Tide gauges and data on Projection No. 4; "Barnes & Card's Sound".

Two main gauges were established: — 1st, about 700 meters to the eastward of △ Road on the Bay side of Key Largo, and continued from January 28th to March 16th, 1890. 2nd, at western entrance to Jewfish Creek, and continued from March 10th to March 15th, 1890.

Road Gauge: — At this station no definite tidal movement could be determined from the readings; they seemed influenced almost entirely by the wind. The tide curve was plotted for the entire time on a scale greatly exaggerating the rise and fall in comparison with the time. From this curve an empirical M.L.W. reading on gauge of 2.6 was decided upon.

With this gauge all the Ajax's work was reduced; also all the other boat work except that of the gig and whaleboat on the Hawk Channel side of the entrances between Upper Matecumbe, Windley, Middle Plantation and Largo keys; and that of the steam launch and whale boat

in the exclusive limits of Mard's Sound.

Several comparison gauges were established by the "Spy" in running the work in the N.W. section of Projection No. 3, but as they agreed closely with the Road gauge the work was reduced directly by the main gauge.

The portion of the gig's and whaleboat's work that runs beyond the limits of the keys into Hawk Channel has been reduced by the computed tides for Indian Key referred to Key West, from the Tide Tables, Atlantic Coast, 1890.

Two B.M.'s were established:— They each consist of a copper nail driven into a crab tree, with a square of iron nails around each copper one. A blaze is also cut around the square and the letters "B.S." cut into the bark. Each nail is 4.69 ft. above the mark "3" of the gauge.

B.M. above zero (0) of gauge 7.69 ft.
M.L.W. (assumed) on " 2.60 "
B.M. above " M.L.W. 5.09 "

The trees are about 4 metres from N.W.M., 20 metres apart, and about 50 metres from gauge. The land on which the trees are situated is owned by Enoch Baker & Sons. The adjacent land is wooded.

the shore of coral rock; there are no features of any prominence to indicate the position of the gauge.

Day and night tides were observed. The time used was 5 hrs. 30 min. slow of G.M.T. — corresponding with the meridian of 82° 30' west of Greenwich.

The tide observers were Martin Christophersen (2nd Fire) and Jorgen T. Egestol (Sea.)

Jewfish Gauge: — This gauge could not be referred to the Road gauge on account of the location; the curve was therefore plotted and a reading of 2.2 on the gauge assumed as that of M.L.W. To this gauge was referred the work of the steam launch and whale boat exclusively in Card's Sound. The whale boat's work in the vicinity of Broad Creek was reduced by a mean of the predicted tides for Indian Key and Cape Florida, referred to Key West from the Tide Tables of the Atlantic Coast, 1890.

No G.M. was established at Jewfish.

The same time as at Road was used. The tide observer was Jorgen T. Egestol (Sea.)

Memoranda of Tide gauges and data for Projections Nos 1, 6, 7, 8 & 9 — Coast of Florida

Proj. No. 1 :— Tides were observed at a small Key close to and N.W. of Cudjoe from March 27th to April 11th inclusive. A comparison was made midway between this gauge and the reefs, and also at the Channel Keys. Daily comparisons were made by the Spy throughout her work.

Predictions for Content Key were received from the Office for March 19th to April 19th inclusive, from which, by comparison, North Cudjoe was constructed from March 19th to 27th. After comparing all gauges with North Cudjoe the projection was divided into eight blocks :—

Block No 1, which comprises the waters north of the Keys and east of Snipe Keys was reduced by Content Key predictions.

Block No 2, which comprises the waters south of Block No 1, extending to the W^n end of large Keys to S'd, and which was the "Spy's" work, was reduced by the "Spy's" gauges. These gauges were referred to M. L. W. at North Cudjoe and times interpolated between North Cudjoe and

Content Key predictions.

Block No. 3, which comprised about the upper half between the large keys, was reduced by North Sudjoe, but one hour earlier to grade the difference between the inside and outside tides.

Block No. 4, which comprised the lower half of water between same keys as far as the entrance from Hawk Channel, was reduced by Sudjoe, two hours earlier.

Block No. 5, which comprised all outside work including entrances, was reduced by Key West Tides taken from Tide Tables.

Block No. 6, which comprised basins in Sugar Loaf and Saddle Bunch Keys, was reduced by North Sudjoe, one hour later.

Block No. 7, which comprised the waters among the Keys extending from the western end of Block No. 2 to a line joining Mud Keys to southernmost Keys, was reduced by North Sudjoe, one-half foot less range.

Block No. 8, which comprised all remaining waters to Std and Wd of Block No. 7, was reduced by A. W. Channel Tides as obtained from Chart and Tide Tables.

These blocks are defined on the projections, which see.

Projections Nos 6 & 7 were reduced by a tide gauge on Lossman's Key, established in 1887-88. Old tide-staff was used.

Projections Nos 8 & 9 were reduced by a tide gauge re-established on Round Key from B. M. of 1887-88.

Memoranda of Δ^{ns} visited during the winter of 1889-90 on the coast of Florida.

Δ Upper Matecumbe:— Landed on point described by A. H. Seward, Dec. 29th, 1858. Found four piles of stone about eight feet apart in a square in the center of which was a hole (5"×5") in rock. No center mark was found. Erected single stick signal (3"×4" scantling) over the hole. Rock much worn away in a honey-combed manner.

Δ Low:— Landed on key described by Mr. Seward but found no trace of a Δ. Searched the S.E. part of the island, but a more vigorous search might possibly discover the Δ^{m} point. Nailed signal to a tree on North shore line.

Δ Patti:— Landed on point described by G. A. Fairfield, 1860. Found four granite pillars lying in crater twenty feet from shore line, central one by a stut driven into the ground, and other pillars bearing about N.N.E., E.S.E. and S.S.W., each about 6 ft. distant from center. Re-established pillars where found and built single stick signal 20 feet

N.E. of center on shore line.

Δ Scum: — Landed on point described by E. A. Fairfield, 1860: Found granite pillar lying on ground which is rocky. Found rusted pieces of spike near pillar which had apparently been driven in rock. Built single stick signal over point found and replaced granite pillar.

Δ Mark: — Jan 21st, 1890, found two wooden stubs sticking in mud at M.W.M. on east shore about ten feet from extreme north point of Key. Erected single stick signal (3"×4" scantling) equidistant from stubs and three feet to westward. The stubs recovered were about 12 feet apart, ranging north and south.

The Key is that described by A. A. Seward, Jan. 4th, 1889. A thorough search was made for the stone pillar supposed to mark the center of Δm but no evidence was found.

△ Savannier Creek :— No description or sketch furnished. Landed on island where tripod had been but found no trace whatever. The island was covered with mud three feet deep and mangrove trees, while a mud flat made out to the northward, dry at low water.

△ Hammer :— Landed on point described by Lt. A. Fairfield, 1860, but found no trace of △ⁿᶜ point. Point was thick with mangrove trees and showed evidence of having been washed away.

△ West :— Searched for △ marked by stone monument &c, per description Jan. 8th, 1859. After a careful search failed to find the monument, but found remains of three legs of a tripod: Its tangents on surrounding keys plotted very nearly on △ I considered it recovered and built a canting signal.

△ Torry :— Made a careful search for this △ⁿᶜ following the description of Jan. 19th, 1861. Failed to find any signs of the △ⁿᶜ or signal.

G. N. Seward, 1854.
J. S. Totten, 1852.

Δ^ns Middle Key, Main Key, Little Bard's Pt., Bards Pt., Division Pt.

On March 8th/90, searched for Δ^ns Middle Key, Main Key (G. N. Seward, 1854) Little Bards Pt. (J. S. Totten, 1852). Δ^ns Middle Key and Main Key were found about 1½ ft. under water, the shore line having apparently washed away. Δ Little Bards Pt. was found on shore line. Re-secured latter (by pegs driven in sand. Searched also for Bard's Pt. but failed to find it. On March 10th searched for Δ Division Pt. but failed to find it.

Δ^ns Rabbit Key, Man-of-War Bush, Oyster Key.

See also J. F. M. 1888-9.

Visited Δ^ns Rabbit Key, Man-of-War Bush and Oyster Key and found the station marks of all in excellent condition. Established by G. N. Seward, 1857-9.

Δ Pigeon:— Feb. 6th/90; visited Key on which Δ^n is located. Searched for the point but failed to recover it; shore line of Key on W^n side apparently unchanged; a more protracted search with clearing away of the brush &c might result in the recovery of the Δ^n.

All these points established & decorated by G. A. Fairfield, 1880.

△ Buttermut :— Feb. 6th/90, visited Key on which this △m is located. Searched for the point but failed to recover it. No evidence of any sort found, nor is there any likelihood that further search would result differently.

△ Bottle :— Feb. 6th/90, visited Key on which △m is located. Searched for the point but failed to recover it. The shore line of this Key most densely covered with mangroves, and the narrow ridge of broken shells is almost impassible; it appears highly probable that any witness marks, unless of very recent date, would be covered by the shells which are very soft and readily shifted by the action of the water.

△ Road :— Feb. 7th/90, visited Key Largo in vicinity of △m, and recovered evidence of the point. The iron spike mentioned in the Descriptions of Stations furnished was not recovered, but a granite stub was found lying on its side, together with three piles of stones, in apparently the positions of the legs of a tripod. A hole was cut in the coral rock and the stub placed in it, — the hole being

Points established and described by G. A. Fairfield 1880.

where the squared head of the stub rested, sinking it to about one-third its length. Stones and dirt were piled around it, and a heap of large stones placed around the stub for further identification.

△ Pie ✓ :— Granite monument in 8 ft. of water, 79 ft. east of the eastern end of small Key was found.

△ Whaleback ✓ : — This △ᵐᵉ point was not recovered. No traces of a blazed tree could be found.

△ Moat ✓ : — After a careful search this △ᵐᵉ point could not be found.

△ Spit ✓ : — After a careful search this △ᵐᵉ was not found.

△ Alligator ✓ : — Parts of the tripod were found, but the △ᵐᵉ itself could not be recovered, although pieces of the earthen cone were found. Orig. desc. by A. H. Seward, rd. by G.a.T. 1858.

△ Duck ✓ : — The granite monument was found in excellent condition.

A. H. Seward, 1854.

△ Spider Pt. :— The earthen cone was found with a stake driven down through it. The cone was broken and about one foot under water.

A. H. S. '54

△ Channel Pt. :— After a careful search this △ⁿ was not found. The point on which it was situated has washed away.

A.H.S. '54

△ Bush Pt. :— Part of the signal was found standing but the flagpole was blown over. The three wooden stakes were placed around the signal as described. The earthen cone was not recovered.

A.H.S. '54

△ Shell Key :— After a careful search this △ⁿ was not found. The point has washed away.

A. H. S. '54

△ Grass Pt. :— After a careful search this △ⁿ was not found.

A.H.S. '54.

△ Snake Pt. :— After a careful search this △ⁿ was not found.

△ Panama :— The large boarded-up tree over this △ⁿ was blown over and lying in the water.

ΔH8

Δ Thursday St.:— An old tree was found lying in the crater. This tree had scars of an axe and had nails driven in it. A signal was planted in the mud at the roots of the tree.

ΔH8.54

Δ Largo St.:— This Δ was found March 8th, 1890, in one foot of water and about 5 meters from a growth of mangrove bushes. It was surrounded by dead mangrove stumps and roots. The stones at S. and W. were just below the surface of the water. The center and N. stones were above water.

Δ ~~Jewfish~~:— Not recovered.

J.S.T. 5 V

Δ Barnes St.:— An old black mangrove tree was found on Barnes St. bearing the marks and scars of old cuttings. It was just at the water's edge in a comparatively open spot. Back of it was an open growth of young trees. A signal consisting of two sapodillas was placed in this tree.

Δ ~~Covenant St.~~:— Not recovered.

U. S. Coast and Geodetic Survey. Steamer A. D. Bache. [Form 11.—Statistics of Field Work.]

Statistics of Field Work executed by Lieutenant J. F. Moser, U.S.N.

Date of beginning field work	Jan'y 24th, 1890
Date of closing field work	May 17th, 1890
RECONNAISSANCE:	
Area of, in square statute miles	
Lines of intervisibility determined as per sketch submitted	
Number of points selected for scheme	
BASE LINES:	
Primary, length of	
Secondary, length of	
Beach measurements, length of	
Number of days employed in measurements of base	
Number of days employed in re-measurements	
TRIANGULATION:	
Area of, in square statute miles	
Signal poles erected, number of	
Observing tripods and scaffolds built, number of	
Observing tripods and scaffolds built, heights of	
Days occupied in opening and verifying lines of sight, number of	
Stations occupied for horizontal measures, number of	
Stations occupied for vertical measures, number of	
Geographical positions determined, number of	
Elevations determined trigonometrically, number of	
GEODESIC LEVELING:	
Elevations determined by spirit-leveling of precision, number of	
Lines of geodesic leveling, length of	
LATITUDE, LONGITUDE, AND AZIMUTH WORK:	
Latitude stations occupied, number of	
Pairs of stars observed for latitude, number of	
Average number of observations on a pair	
Longitude stations, telegraphic, number of	
Longitude stations, telegraphic, number of nights on which signals were exchanged	
Longitude stations, chronometric, etc., number of	
Azimuth stations, number of	
Number of nights of observations for azimuth	
Number of stars observed for azimuth	

GRAVITY DETERMINATIONS:	
Number of pendulum stations occupied	
MAGNETIC WORK:	
Stations occupied for observations of the magnetic declination, number of	
Stations occupied for observations of the magnetic dip, number of	
Stations occupied for observations of the magnetic intensity, number of	
TOPOGRAPHY:	
Area surveyed in square statute miles	
Length of general coast-line in statute miles	
Length of shore-line of rivers in statute miles	
Length of shore-line of creeks in statute miles	
Length of shore-line of ponds in statute miles	
Length of roads in statute miles	
Topographic sheets finished, number of	
Topographic sheets, scales of	
Topographic sheets, limits and localities of:	

HYDROGRAPHY:	
Area sounded in square geographical miles	830
Number of miles (geographical) run while sounding	2360.7
Number of angles measured	11,218
Number of soundings	123677
Number of tidal stations established	7
Number of specimens of bottom preserved	
Current stations, number of	
Hydrographic sheets finished, number of	8
Hydrographic sheets, scales of	1:20,000 & 1:40,000
Hydrographic sheets, limits and localities of:	

Proj. Nº 3 :— Barnes & Card's Sounds & Florida Bay, Fla.

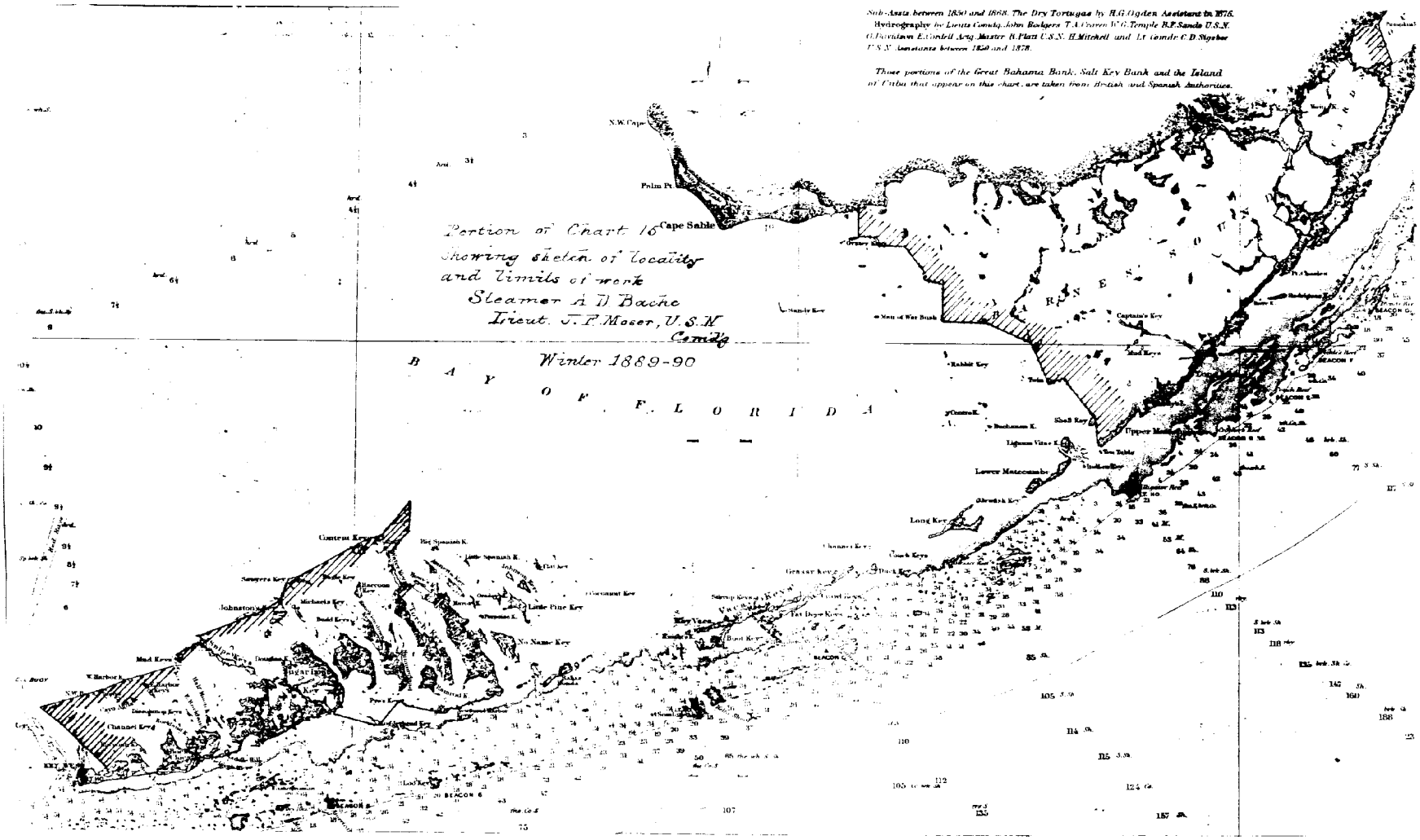
" Nº 3(a) :— Approaches to Florida Bay, Fla.

" Nº 1 :— Sombrero Key Lt. to N.W. Passage Lt., Florida Reefs, Fla.

Proj's Nos 6, 7, 8, 9 & 10 :— Cape Sable to Wiggins Pass, West coast of Florida

Tracing, vicinity of Knight's Key & East Bahia Honda Key, Fla.

Examination of bar, entrance to St. Simons Sound, Ga.


Sub-Areas between 1850 and 1868. The Dry Tortugas by H.G.Ogden Assistant in 1875.
Hydrography by Lieuts Comdg. John Rodgers T.A.Craven W.G.Temple R.P.Sands U.S.N.
G.Davidson E.Conkrill Actg. Master B.Platt U.S.N. H.Mitchell and Lt Comdr C.D.Sigsbee
U.S.N. Soundings between 1850 and 1878.
Those portions of the Great Bahama Bank, Salt Key Bank and the Island of Cuba that appear on this chart, are taken from British and Spanish Authorities.
Portion of Chart 16
Showing sheet of locality
and limits of work
Steamer A D Bache
Lieut. J.P.Moser, U.S.N
Comdg
Winter 1889-90
Cape Sable
Palm Pt
N.W. Cape
Sandy Key
Mouth of War Brook
Captains Key
Rabbit Key
Shell Key
Upper Matecumbe
Lower Matecumbe
Lignum Vitae K.
Long Key
Channel Keys
Grassy Keys
Duck Keys
Content Keys
Big Spanish K.
Little Spanish K.
Johnston Key
Little Pine Key
No Name Key
Mud Keys
W. Harbor K.
Channel Key
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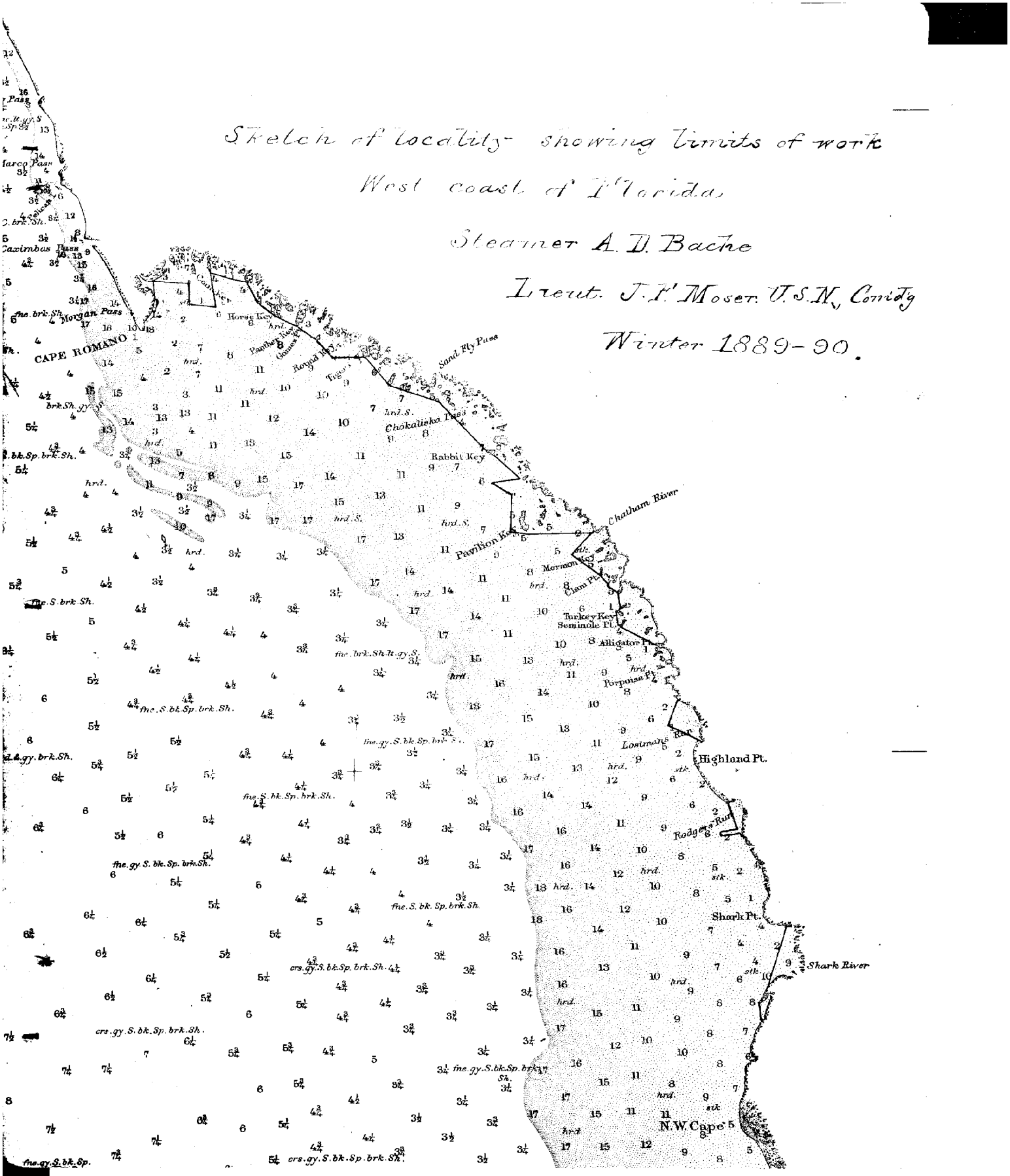
Sketch of Locality showing limits of work
West coast of Florida
Steamer A. D. Bache
Lieut. J. F. Moser U.S.N. Comdg
Winter 1889-90.
CAPE ROMANO
Morgan Pass
Horse Key
Pamlico Key
Royal Key
Sand Fly Pass
Chokaliska Pass
Rabbit Key
Chatham River
Pavilion Key
Mormon Key
Clam Pt.
Turkey Key
Seminole Pt.
Alligator Pt.
Porpoise Pt.
Highland Pt.
Rodgers Run
Shark Pt.
Shark River
N.W. Cape
Marco Pass
Caximbas Pass

Hydrography:— Proj. Nº 3; Barnes & Card's Sounds & Florida Bay, Fla.

Date	Letter	Number of — Sounding book	Miles Naut.	Soundings	Angles	Name of Vessel	Observers
1890							
Jan. 28	a	1	23.25	1309	164	Stm launch	Ensign S.M. Strite & M@A. J.L. Dunn
" 30	b	2	14.10	1044	144	"	" " " "
" 31	c	1	24.80	1033	161	"	" " & Pay Yeo. T.S. Martin
Feb. 1	d	2 & 3	23.80	1363	182	"	" " " "
" 5	e	4	27.75	1228	184	"	" " " "
" 6	f	3	14.10	791	120	"	" " " "
" 11	g	4	8.00	346	52	"	" " & M@A. J.L. Dunn
" 12	h	3	18.00	680	104	"	" " " "
" 13	i	5	26.40	994	156	"	" " " "
" 14	k	6	24.30	910	138	"	" " " "
" 15	l	3	11.15	775	119	"	" " " "
" 19	m	5	23.80	974	149	"	" " " "
" 20	n	4	17.40	718	113	"	" " " "
" 24	o	6	11.10	449	67	"	" " & Pay. Yeo. T.S. Martin
" 25	p	7	16.40	675	112	"	" " & M@A. J.L. Dunn
" 26	q	8	6.30	368	78	"	" " " "
" 27	r	6	13.30	527	96	"	" " " "
" 28	s	8	——	——	41	"	" " " "
Mch. 1	t	8	——	——	41	"	" " " "
" 10	u	7	15.75	635	79	"	" R.D. Tisdale & " "
" 11	v	8	24.40	836	103	"	" " " "
" 12	w	9	14.00	541	66	"	" " " "
" 13	x	9	8.75	382	58	"	" " " "
" 14	y	7	7.50	456	75	"	" " " "
" 15	z	9	3.50	250	24	"	" " " "
		9	377.35	17,284	2,626		
Jan. 28	A	1	7.00	286	58	Spy	Ensigns R.D. Tisdale & E.H. Durell
" 30	B	1	12.80	768	90	"	" " " "
" 31	C	1	11.20	726	88	"	" " " "
Feb. 1	D	1 & 2	10.40	601	62	"	" " " "
" 6	E	2	3.80	175	22	"	" " " "
" 7	F	2	13.50	531	80	"	" " " "
" 12	G	3	11.00	593	76	"	" " " "
" 13	H	3	25.80	1175	140	"	" " " "
" 19	I	3	17.50	732	96	"	" " " "
" 20	K	4	3.80	177	26	"	" " " "
" 24	L	4	20.90	824	114	"	" " " "
" 27	M	4	15.30	570	60	"	" " " "
Mch. 10	N	5	15.50	684	100	"	" S.M. Strite & L.C. Bertolette
" 13	O	5	7.30	381	83	"	" " " "
		5	175.80	8,223	1,095		
Jan. 31	a	1	9.00	1451	165	Whale boat	Ens. L.C. Bertolette & M@A. J.L. Dunn
Feb. 1	b	2	13.40	1060	160	"	" " " "
" 5	c	1 & 3	13.50	1165	150	"	" " " "
" 6	d	2	12.30	1151	143	"	" " " "
" 7	e	3	11.60	720	110	"	" " " "
" 8	f	4	11.10	846	113	"	" " & Pay Yeo. T.S. Martin
" 10	g	3	12.90	1219	216	"	" " " "
Mch. 6	h	4	——	——	63	"	" R.D. Tisdale
" 11	i	5	10.60	574	112	"	" E.H. Durell & Pay Yeo. T.S. Martin
" 12	k	6	16.40	1061	125	"	" " " "
" 13	l	5	7.60	403	68	"	" " " "
" 14	m	6	12.90	691	99	"	" " " "
" 15	n	5	9.00	608	45	"	" " " "
		6	140.80	10,949	1,569		

(over)

Hydrography:— Proj. Nº 3 (Cont'd)

Date	Letter	Number of — Sounding book	Miles Naut.	Soundings	Angles	Name of Vessel	Observers
1890							
Feb. 11		1	15.00	1143	115	Gig	Ensign L.C. Bertolette & Pay Yeo. T.S. Martin
" 12		2	13.80	981	114	"	" " " "
" 13		1	12.50	1024	152	"	" " " "
" 14		2	16.30	1048	97	"	" " " "
" 15		3	11.10	846	103	"	" " " "
" 19		2 & 4	9.30	686	95	"	" " " "
" 20		3	8.70	687	86	"	" " " "
" 25		4	21.10	1222	148	"	" " " "
" 26		3	8.70	587	61	"	" " " "
" 27		5	5.50	434	106	"	" " " "
" 28		4	3.50	233	64	"	" " " "
	"	5	125.50	8,891	1,141		
Jan. 28	a	1	2.00	202	32	Spy's boat	Ensign R.D. Tisdale
Feb. 6	b	1	3.80	241	28	"	" "
" 11	c	2	5.80	369	38	"	" " & E.H. Durell
" 12	d	2	2.80	167	26	"	" " "
" 14	e	2	15.00	664	76	"	" " "
" 15	f	2	10.00	462	54	"	" " "
" 21	g	2 & 3	11.60	774	86	"	" " "
" 25	h	3	11.70	868	100	"	" " "
" 26	i	3	15.20	998	122	"	" " "
" 27	k	3	4.20	265	34	"	" " "
" 28	l	4	15.00	709	76	"	" " "
Mch. 6	m	5	6.10	527	10	"	" S.M. Strite & L.C. Bertolette
" 8	n	5	9.10	675	108	"	" " " "
" 11	o	5	3.00	290	26	"	" " " "
" 14	p	5	8.60	693	96	"	" " " "
" 15	q	6	6.10	656	80	"	" " " "
May 8	r	6	.90	37	23	"	" R.D. Tisdale
" 9	s	6			28	"	" "
" 10	t	6	1.00	37	14	"	" "
	19	6	131.90	8,634	1,057		

Recapitulation

	377.35	17284	2626	Stm. launch
	175.80	8223	1095	Spy
	140.30	10949	1569	Whale boat
	125.50	8891	1141	Gig
	131.90	8634	1057	Spy's boat
Total on Sheet	950.85	53,981	7,488	

Hydrography:— Proj. Nº 1; Sombrero Key Lt. to N.W. Passage Lt., Florida Reefs, Fla.

Date	Letter	Number of— Sounding book	Miles Naut.	Soundings	Angles	Name of Vessel	Observers
1890							
Mch. 21	a	1	12.75	739	4	Whale boat	Ensign E.H. Durell
" 22	b	1	13.00	692	4	"	" "
" 24	c	2	11.20	583	2	"	" "
" 25	d	1	13.20	656	6	"	" "
			50.15	2,670	16		
Mch. 26		1	17.50	843	20	Gig	Ensign E.H. Durell
" 27		1	13.50	826	62	"	" "
" 28		1	11.90	775	18	"	" "
" 29		2	11.20	651	0	"	" "
Apr. 1		2	15.00	847	38	"	" R.D. Tisdale
" 2		2	7.50	418	2	"	" "
" 3		3	15.50	679	20	"	" "
" 4		3	13.00	463	4	"	" "
" 5		3	14.50	535	6	"	" "
" 7		3	17.75	700	62	"	" "
" 8		4	16.00	794	36	"	" "
			153.25	7,531	268		
Mch. 21	a	1	11.60	535	—	Flat-boat	Ensign R.D. Tisdale
" 22	b	2	4.50	237	4	"	" "
" 24	c	1	11.60	536	2	"	" "
" 25	d	2	9.20	830	24	"	" "
" 26	e	1	13.30	610	4	"	" "
" 27	f	2	10.00	464	—	"	" "
" 28	g	1	12.70	615	—	"	" "
" 29	h	2	13.00	676	—	"	" "
Apr. 1	i	2&3	11.00	956	10	"	" E.H. Durell
" 2	k	3	13.30	753	6	"	" "
" 3	l	3	12.00	724	—	"	" "
" 4	m	3	8.80	468	—	"	" "
" 5	n	4	12.20	576	4	"	" "
" 7	o	4	15.10	837	17	"	" "
" 8	p	4	12.00	644	14	"	" "
			170.30	9,461	85		

(over)

Hydrography:— Proj. Nº 1. (Cont'd)

Date	Letter	Number of— Sounding book	Miles Naut.	Soundings	Angles	Name of Vessel	Observers
1890							
Mch. 19	a	1	7.10	669	37	Spy's boat	Ensign S.M. Strite
" 20	b	1	8.20	919	78	"	Ensigns " & L.C. Berlolette
" 21	c	1 & 2	15.40	1738	122	"	" " "
" 22	d	2	15.70	1806	140	"	" " "
" 24	e	3	8.50	998	102	"	" " "
" 25	f	3	14.60	1201	152	"	" " "
" 26	g	4	15.50	1427	135	"	" " "
" 27	h	4 & 5	18.00	1313	144	"	" " "
" 28	i	5	15.00	1408	151	"	" " "
" 29	k	5 & 6	16.00	1466	116	"	" " "
Apr. 2	l	7	15.00	1362	123	"	" " "
" 3	m	7 & 8	14.10	1280	116	"	" " "
" 4	n	8	15.80	1168	109	"	" " "
" 5	o	8	13.60	1114	106	"	" " "
" 8	p	9	8.70	624	26	"	" " "
" 9	q	9	13.50	1097	—	"	" " "
			214.70	19,590	1,657		

Recapitulation				
	50.15	2670	16	Whale boat
	153.35	7531	268	Gig
	170.30	9461	85	Flat boat
	214.70	19590	1657	Spy's boat
Total on Sheet	588.50	39,252	2,026	

Hydrography:— Tracing; Vicinity of Knight's Key & East Bahia Honda Key, Fla.

Date	Letter	Number of — Sound'g book	Miles Naut.	Soundings	Angles	Name of Vessel	Observers
1890							
Mch. 19	a	1	23.50	892	170	Stm. launch	Ens. R.D. Tisdale & M@A. J.L. Dunn
" 20	b	1	9.50	374	85	"	" " " "
			33.00	1,266	255		
Mch. 19	a	1	12.12	865	162	Whale boat	Ensign E.H. Durell & Pay Yeo. T.S. Martin
" 20	b	1	2.60	36	34	"	Ensigns H.A. Bispham & E.H. Durell
			14.72	901	196		

Recapitulation				
	33.00	1266	255	Stm. launch
	14.72	901	196	Whale boat
Total on Sheet.	47.72	2,167	451	

Hydrography:— Proj. Nº 3(a); Approaches to Florida Bay, Fla.

Date	Letter	Number of— Sounding book	Miles Naut.	Soundings	Angles	Name of Vessel	Observers
1890							
Apr. 23	a	1	6.80	315	22	Spy's boat	Ensign R.D. Tisdale
" 24	b	1	9.00	421	34	"	" "
" 25	c	1	5.00	261	12	"	" "
May 1	d	1	14.00	682	68	"	" " & E.H. Durell
" 2	e	1	18.60	819	96	"	" " "
" 3	f	2	26.70	947	118	"	" " "
" 5	g	2	20.70	720	76	"	" " "
" 6	h	2	7.20	267	24	"	" " "
Total on Sheet.			108.00	4,432	450		

Hydrography:— Proj. Nº 6; Rogers River to Lossman's River, West coast of Florida.

Date	Letter	Number of— Soundg book	Miles Naut.	Soundings	Angles	Name of Vessel	Observers
1890 Apr. 17	A	1	14.00	890	68	Stm. launch	Ensign S.M. Strite & Pay Yeo. T.S. Martin
Apr. 15		1	6.33	417	70	Gig	Ensign S.M. Strite & Pay Yeo. T.S. Martin
" 16		1	2.50	272	15	"	" L.C. Bertolette
" 17		1	8.10	629	—	"	" "
			16.93	1,318	85		
Apr. 15	a	1	6.30	606	—	Dinghy	Ensign L.C. Bertolette

Recapitulation				
	14.00	890	68	Stm. launch
	16.93	1318	85	Gig
	6.30	606	—	Dinghy
Total on Sheet	37.23	2,814	153	

Hydrography:— Proj. Nº 7; Lossmans River to Pavilion Key, West coast of Florida.

Date	Letter	Number of— Soundg book	Miles Naut.	Soundings	Angles	Name of Vessel	Observers
1890 Apr. 22	A	1	13.70	890	43	Stm. launch	Ensign S.M. Strite & Pay Yeo. T.S. Martin
Apr. 18		1	12.08	796	48	Gig	Ensign S.M. Strite & Pay Yeo. T.S. Martin
" 19		1	14.40	850	4	"	" "
" 23		1	7.20	408	18	"	" " & " "
			33.68	2,054	70		
Apr 18	a	1	13.30	1150	8	Dinghy	Ensign L.C. Bertolette
" 19	b	1&2	15.50	960	—	"	" "
			28.80	2,110	8		

Recapitulation				
	13.70	890	43	Stm. launch
	33.68	2054	70	Gig
	28.80	2110	8	Dinghy
Total on Sheet	76.18	5,054	121	

Hydrography — Proj. No 8; Parilion Key to Tiger Key, West coast of Florida.

Date	Letter	Number of — Sound'g book	Miles Naut.	Soundings	Angles	Name of Vessel	Observers
1890							
Apr. 23	A	1	10.60	510	—	Stm. launch	Ensign S.M. Strite
24	B	1	9.60	553	—	"	" "
26	C	1	21.00	1167	10	"	" " & M@A. J.L. Dunn.
			41.20	2,230	10		
Apr. 24		1	3.75	243	6	Gig	Ensign S.M. Strite
Apr. 22	a	1	10.10	645	—	Dinghy	Ensign L.C. Bertolette
" 23	b	1	12.20	921	10	"	" "
" 24	c	2	15.10	931	14	"	" "
" 26	d	2	14.10	904	6	"	" "
" 28	e	2&3	15.30	945	—	"	" "
			66.80	4,346	30		

Recapitulation				
	41.20	2230	10	Stm. launch
	3.75	243	6	Gig
	66.80	4346	30	Dinghy
Total on Sheet	111.75	6,819	46	

Hydrography:— Proj. Nº 9; Tiger Key to Caximbas Pass, West coast of Florida.

Date	Letter	Number of— Sound'g book	Miles Naut.	Soundings	Angles	Name of Vessel	Observers
Apr 28	A	1	16.10	982	8	Stm. launch	Ensign S.M. Strite & M@A. J.L. Dunn
" 29	B	1	19.20	1055	6	"	" " " "
" 30	C	2	16.60	918	156	"	" " " "
May 1	D	2	12.40	626	—	"	" "
			64.30	3,581	170		
May 8		1	3.70	328	30	Gig	Ensign S.M. Strite & Pay Yeo. T.S. Martin
" 9		1	7.30	662	70	"	" " " "
			11.00	990	100		
Apr. 29	a	1	13.00	894	—	Dinghy	Ensign L.C. Bertolette
" 30	b	1	13.60	920	2	"	" "
			26.60	1,814	2		

Recapitulation				
	64.30	3581	170	Stm. launch
	11.00	990	100	Gig
	26.60	1,814	2	Dinghy
Total on Sheet	101.90	6,385	272	

Ans'

Hydrography. — Proj. Nº 10; Caximbas Pass to Wiggins Pass, West coast of Florida.

Date	Letter	Number of — Soundg book	Miles Naut.	Soundings	Angles	Name of Vessel	Observers
1890							
May 2		1	6.80	580	75	Gig	Ensign S.M. Strite & Pay. Yeo. T.S. Martin
" 3		1	7.50	844	66	"	" " " "
Total on Sheet			14.30	1,424	141		

Hydrography:— Examination of bar, Entrance to St. Simon's Sound, Ga.

Date	Letter	Number of— Sound'g book	Miles Naut.	Soundings	Angles	Name of Vessel	Observers
1890							
May 16	A	1	4.25	170	——	Ship	1st Lieut. J.F. Moser & Ens. H.A. Bispham
" 17	B	1	2.25	124	——	"	" " " "
			6.50	294			
May 16	a	1	7.00	1055	70	Whale boat	Ensign R.D. Tisdale & M@A. J.L. Dunn

Recapitulation				
	6.50	294	——	Ship
	7.00	1055	70	Whale boat
Total on Sheet.	13.50	1,349	70	

Hydrography:— Grand Recapitulation

Winter 1889-90.

Name of Vessel	Number of —		
	Miles (Naut.)	Soundings	Angles
Ship	6.50	294	———
Steam launch	543.55	26141	3172
Spy	175.80	8223	1095
Whale boat	212.17	15575	1851
Gig	358.51	22451	1811
Flat-boat	170.30	9461	85
Dinghy	128.50	8876	40
Spy's boat	454.60	32656	3164
Grand aggregate	2049.93	123,677	11,218

Hydrography :— Signals

Erected	Occupied	Determined
121	107	87

Number of days on Station and how employed

Number of days on Station	114
" " " " which hydro. work was done	72
" " " " " signals were built &c.	4
" " " " " hydro. work was prevented by bad weather	3
" " " " " " " " " " other causes	19
" " Sundays	16

Number of officers and men attached to Party

Lieutenant	1
Ensigns	5
P.A. Surgeon	1
Ass't Engineer	1
Master-at-Arms	1
Paymaster's Yeomen	2
Machinists	4
Ship's Writer	1
Carpenter's Mates	2
Boatswain's "	1
Quartermasters	4
Ship's Cook	1
Cabin Steward	1
" Cooks	2
2nd Class Firemen	4
Seamen	17
Landsmen	3

FORM C&GS-8352
(3-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. ____________

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
642-SC	7-15-68	A J Sunday	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
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