

U. S. COMMISSION OF FISH AND FISHERIES,
JOHN J. BRICE, Commissioner.

RECORDS OF OBSERVATIONS

MADE ON BOARD THE

UNITED STATES FISH COMMISSION STEAMER ALBATROSS

DURING THE

YEAR ENDING JUNE 30, 1896.

Extracted from U. S. Fish Commission Report for 1896. Appendix 8, Pages 357 to 386.

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8.—RECORDS OF OBSERVATIONS MADE ON BOARD THE UNITED STATES FISH COMMISSION STEAMER ALBATROSS DURING THE YEAR ENDING JUNE 30, 1896.

The operations of the steamer *Albatross* from July 1, 1895, to June 30, 1896, have already been discussed in the report of the Commissioner. At the beginning of the year the vessel was engaged in running a line of soundings across Bering Sea in the direction of the Commander Islands, Siberia, where she arrived on July 3. After a stop of three days at Nikolski Harbor, she started on the return trip to the Pribilof Islands, first making a slight detour toward the north in order to determine the position of the outer slope of the shore platform off Cape Oliutorsk, which appears to have been incorrectly located on the published charts. St. Paul Island was reached on July 9, and during the balance of the month, except while coaling at Unalaska, the vessel was occupied in connection with the investigations of the fur-seal rookeries on the Pribilofs. The greater part of August was spent in the pelagic sealing belt outside of the protected zone, making inquiries into the movements and distribution of the seals, while sounding, dredging, and physical observations were also extensively carried on.

Leaving Unalaska on August 30, the *Albatross* entered the Pacific Ocean, and proceeded to New Whatcom, Wash., where she arrived on September 18. Fishery investigations with special reference to the salmon were then taken up in the Puget Sound region and were continued until October 16, when the *Albatross* left for the south, reaching San Francisco on the 20th, and the Mare Island navy-yard on the 24th. General repairs and refitting detained the vessel at the latter place until near the end of January, 1896, after which, until April 12, she was stationed at San Diego, Cal., advantage being taken of this opportunity to make a physical and natural-history examination of San Diego Bay. On the return trip to San Francisco, Cortez and Tanner Banks were visited, but stormy weather prevented extensive operations in their vicinity, and stops were made at Santa Barbara and San Pedro.

From May 7 to 18 the *Albatross* was used in connection with the official speed trial of the battle-ship *Oregon*. On June 5 she left San Francisco and proceeded to Seattle, where arrangements were completed for a northern cruise during the summer of 1896, in conformity with an act of Congress providing for extensive scientific inquiries respecting the fur-seal. Departure was taken from that place on June 24, and at the close of the fiscal year the vessel was in the North Pacific Ocean, on the way to Unalaska.

The following tables constitute the official records of the sounding, dredging, and tow-net stations, and of physical and miscellaneous observations made during the several cruises of this year. They correspond in character and detail with those which have accompanied all former annual reports upon the operations of this vessel.

358 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Record of animal life,

ON PASSAGE FROM ST. PAUL, PRIBILOF ISLANDS, TO NIKOLSKI

Date.	Meridian positions.		Mean temperature.		Fur-seals.	Whales.	Porpoises.	Anks.	Albatrosses.
			Air. D. B.	Sea. surf.					
1895. July 1	Lat. N.	Long. E.							
	55 51 00	174 38 00	43	41					
2	58 00 00	169 24 00	43	43					Few
3	Nikolski Anchorage, Bering Island.		45	43	Several				

FROM NIKOLSKI ANCHORAGE, BERING ISLAND, KOMMANDORSKI GROUP, VIA

July 5	55 23 00	165 42 00	43	44	Two	Several orca.			One
6	57 16 00	169 41 00	44	43		One orca.			Few
7	58 22 00	174 27 00 West.	45	42					Two
7a	57 38 00	179 42 00	42	42		One			Few
8	56 55 30	174 33 00	42	41	Two		Six	Many	Many
9b	56 57 00	170 17 00	42	40	Abundant			Many	Few
10	54 11 30	166 44 00	44	43		Two			Few

FROM ILIULIUK HARBOR, UNALASKA ISLAND,

July 15	54 19 00	166 58 00	43	41	One	Many			
16	Village Cove, St. Paul Island.		45	40	Common			Many	

FROM ST. PAUL, PRIBILOF ISLANDS,

July 30	56 42 00	170 08 00	46	41	Few	Many orca			
31	54 15 00	166 51 00	52	45				Few	

CRUISING IN BERING SEA BETWEEN DUTCH

Aug. 4	54 02 00	167 05 00	45	45		One			Few
5	55 06 00	169 08 00	45	45	Seven	Many			Few
6	55 26 00	170 19 00	45	45	Six				Few
7	55 36 00	170 45 00	45	44	Sixteen	Several			Few
8	55 53 00	171 40 30	46	44	Sixteen	Two			Few
9c	50 47 00	169 41 00	43	40	Few			Many	Few
10	56 15 00	172 35 00	44	43	Twelve	Three			Few
11	55 23 00	170 31 00	45	45	Common	Many		Many	One
12	54 54 00	168 59 00	45	45					
13	55 13 00	167 40 00	45	45		Many			
14	54 03 00	166 40 00	46	45	Seven	Two			
18	54 16 00	166 58 00	48	46		Many		Few	
19	54 17 00	168 54 09	45	44	Two				Few
20	55 16 00	168 04 00	46	46	Eight				
21	55 41 00	168 34 00	47	46	Seven	Two			
22	56 13 00	167 11 00	46	46	Three				Few
23d	East Anchorage, St. Paul Island.		46	43	Common			Many	Few
24	55 31 00	168 05 30	48	46	Eleven	Two		Few	Few
25	Dutch Harbor, Unalaska.		46	45					Few

* July 17 to July 29, inclusive. Usual number of seals on and near rookeries, and usual abundance of anks, gulls, cormorants, guillemots, petrels, puffins, terns, etc.

a Crossed 160th meridian.

b Call at St. Paul Island.

c Call at St. George and St. Paul, Pribilofs.

d Call at St. Paul Island, Pribilofs.

drift, etc., observed at sea.

ANCHORAGE, BERING ISLAND, KOMMANDORSKI GROUP.

Cormorants.	Ducks.	Gulls.	Petrels.	Puffins.	Terns.	Land birds.	Drift.	Kelp.
		Many	Many	Many	Many	One Arctic Linnet.	Some	
		Many	Many				Some	

ST. PAUL, PRIBILOF ISLANDS, TO ILIULIUK HARBOR, UNALASKA ISLAND.

	Many	Many	Many	Many				
	Many		Many	Many		Three wrens.		
	Several		Several					
Few	Many	Several	Several	Many	Few			Little.
Several	Many	Many	Many	Many	Few			Much.
	Many	Many	Many	Many				Much.

TO ST. PAUL, PRIBILOF ISLANDS.

Many	Many	Few	Few	Many	Many	Several		Much.
	Many	Many	Many	Many	Many			Some.

TO DUTCH HARBOR, UNALASKA ISLAND.

	Many		Many					Some.
	Several	Few	Many	Few				Much.

HARBOR, UNALASKA, AND THE PRIBILOF ISLANDS.

		Several	Several	Many	Several			
		Several	Several	Many	Several			
		Many	Many	Many				
		Many	Several	Many				
Several		Many	Many	Many	Few	Few		Much.
		Many	Many	Many	Several			Some.
Few		Many	Many	Many	Many	Few		
		Many	Many	Many				
		Many	Many	Many	Several			Much.
		Many	Many	Many	Many			Much.
		Many	Many	Many				
		Many	Many	Many	Few			
Several	Few	Many	Many	Many	Many	Few		Some.
		Many	Many	Many	Many			Some.
Few		Many	Many	Many	Many			Much.

360 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Record of animal life, drift,

FROM DUTCH HARBOR, UNALASKA,

Date.	Meridian positions.		Mean temperature.		Fur-seals.	Whales.	Porpoises.	Auks.	Albatrosses.
			Air, D. B.	Sea, surf.					
1895.	Lat. N.	Long. W.	°	°					
Aug. 30	54 09 00	166 13 00	52	40	.....	Many.....	.....	Few.....	Few.....
31	55 17 00	161 40 00	50	49	.....	Many.....	.....	.....	Few.....

FROM PORTAGE BAY, ALASKA PENINSULA, TO SITKA.

Sept. 2	55 28 00	159 16 00	53	49	.....	Several.....	.....	.....	Few.....
3	56 29 00	153 40 00	52	49	.....	Many.....	.....	Several.....	Several.....
4a	57 57 00	151 40 00	55	49	.....	Many.....	.....	.....	Several.....
5	50 00 00	145 29 00	50	51	.....	Two.....	.....	Few.....	.....
6b	59 46 00	139 54 00	51	48	Two.....	.....	Many.....	.....	.....
7	58 55 00	138 37 00	53	52	.....	One.....	.....	.....	.....
8	Sitka Harbor, southeast Alaska.		55	53	.....	.....	.....	.....	.....

FROM SITKA, SOUTHEAST ALASKA, TO NEW WHATCOM,

Sept. 10	Sitka Harbor, southeast Alaska.		51	51	.....	.....	.....	.....	.....
11c	56 23 00	133 07 00	55	48	.....	.....	.....	.....	.....
12	55 33 00	132 09 00	59	51	.....	.....	.....	.....	.....
13	53 57 00	130 11 00	51	49	.....	.....	.....	.....	.....
14	52 37 00	128 31 00	51	49	.....	.....	.....	.....	.....
15	52 04 00	127 59 00	53	51	.....	.....	.....	.....	.....
16	50 33 00	126 49 00	52	50	.....	.....	Many.....	.....	.....
17	49 49 00	124 57 00	55	52	.....	.....	.....	.....	.....
18	New Whatcom, Wash.		56	55	.....	.....	.....	.....	.....

FROM PORT TOWNSEND, WASHINGTON, TO SAU-

Oct. 16	48 14 00	123 19 00	49	48	.....	.....	.....	.....	.....
17	46 25 00	124 58 00	55	54	.....	.....	.....	.....	Several.....
18	42 54 00	124 56 00	52	52	.....	.....	Many.....	.....	Several.....
19	40 01 00	124 14 00	54	54	.....	Many.....	Many.....	Two.....	Several.....
20	Sausalito Harbor, California.		56	56	.....	.....	.....	.....	Few.....

FROM SAN FRANCISCO TO

1896.									
Jan. 28	37 26 00	122 40 00	53	53	.....	Three.....	.....	.....	Few.....
20	34 24 00	120 25 00	58	55	Several hair seals.	.....	.....	.....	Few.....
30	San Diego Harbor, California.		61	57	.....	.....	.....	.....	.....

FROM SAN DIEGO TO SANTA BARBARA,

Apr. 12	San Diego Harbor, California.		58	60	.....	.....	.....	.....	.....
13	33 04 00	119 19 00	55	57	.....	.....	.....	.....	Few.....
14	33 26 00	119 43 00	55	55	.....	.....	.....	.....	.....
15	34 11 00	119 37 00	55	53	.....	.....	.....	.....	.....

* From September 19 to October 15, in waters of Puget Sound and vicinity.

† Anchor, Smuggler's Cove, Santa Cruz Island.

a Call at St. Paul, Kodiak Island.

b Call at Yakutat Bay.

c Anchor Fort Wrangell, southeast Alaska. Anchor Mary Island, southeast Alaska. Anchor at Promise Island, British Columbia. Anchor at Klentoo Anchorage, British Columbia. Anchor at Safety Cove, British Columbia. Anchor at Plumper Bay, British Columbia.

etc., observed at sea—Continued.

TO PORTAGE BAY, ALASKA PENINSULA.

Cormorants.	Ducks.	Gaillots.	Gulls.	Petrels.	Puffins.	Terns.	Land birds.	Drift.	Kelp.
		Many Many	Several Many	Many Many	Many Many		1 hawk Many		Some. Much.

SOUTHEAST ALASKA, VIA KADIAK AND YAKUTAT.

		Many Several	Many Many	Many Many	Several		Several Several hawks. Several snipe.		Much. Little.
			Many Several	Many Several	Several		Many	Much ice.	Little.
Many Several	Many Several		Many Many	Few Few	Few	Several	Many Several	Little Much.	Much. Much.

BELLINGHAM BAY, WASHINGTON, VIA INLAND PASSAGES.

Several			Few					Little	Much.
Several Many Many Several Few Several Few	Many Few Several Several Several Few		Many Many Many Many Many Many Several			Several Few Several Few	Few Several Many Many Several Few	Much Several Many Little Much Much Much Much	Much Little Much Little Much Some. Much Little

SALITO, SAN FRANCISCO BAY, CALIFORNIA.

			Several Many	Several			Two	Little Little	Little. Much.
		Few	Many Several	Several Few					Little.
Few		Few	Several						

SAN DIEGO, CALIFORNIA.

		Several	Many	Several			Many pelicans.		
		Several	Many	Several			Few pelicans.		Little.
Many			Several						

CALIFORNIA, VIA SANTA CRUZ ISLAND.

Many			Several				Few pelicans.		Little.
			Several Few Several	Few					Much. Much.

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Record of animal life, drift,
FROM SANTA BARBARA TO

Date.	Meridian positions.		Mean temperature.		Fur seals.	Whales.	Porpoises.	Auka.	Albatrosses.
			Air, D. B.	Sea, surf.					
1895.	Lat. N.	Long. W.	°	°					
Apr. 20	Santa Barbara, Cal.		50	51					
21	San Pedro, Cal.		56	55					

FROM SAN PEDRO TO

Apr. 26	33 45 00	118 46 00	55	58					
27	35 29 00	121 06 00	55	55					Few
28	Sausalito Harbor, California.		54	53					

FROM SAN FRANCISCO TO

May 8	San Francisco Harbor.		53	53					
9	35 17 00	121 13 00	56	52		Few			Few

FROM SANTA BARBARA TO SAN FRAN-

May 15	34 33 00	120 40 00	59	53					
16	35 26 00	121 02 00	52	48					
17	San Francisco Harbor.		52	51					

FROM SAUSALITO, CALIFORNIA, TO SEATTLE,

June 5	37 50 00	122 35 00	55	54	Several hairseals.				Several
6a	39 27 00	124 10 00	53	50					Several
7	42 21 00	124 43 00	56	52		Few			Several
8	45 27 15	124 25 45	56	55					Several
9	48 23 00	124 14 00	53	51		Many orca	Many		Few
10	Victoria Harbor, British Columbia.		63	52		One	Many		

FROM SEATTLE, WASHINGTON, TO DUTCH HARBOR

June 24	47 53 10	122 29 30	56	53					
25b	49 28 47	124 25 15	60	55		Few orca	Few	One	
26c	51 05 00	128 26 00	55	51		Two			Several
27	52 00 00	133 37 00	52	50		Two orca			Many
28	52 54 00	139 04 00	48	48					Many
29	53 29 00	144 51 00	48	47	One				Many
30	53 45 00	151 18 00	47	46		One			Many

* May 17 to June 4, at anchor, Port Harford, Cal.

a Small blackfish.

etc., observed at sea—Continued.

SAN PEDRO, CALIFORNIA.

Cormorants.	Ducks.	Gulls.	Guillemots.	Petrels.	Puffins.	Terns.	Land birds.	Drift.	Kelp.
				Several	Few				Much.
				Few					Little.

SAUSALITO, CALIFORNIA.

			Several	Few					Little.
		Few	Several	Few					Little.
		Few	Several	Few					Little.

SANTA BARBARA, CALIFORNIA.

		Few	Several	Few	Few				Little.
			Several	Few					Much.

CISCO, VIA PORT HARBOR, CALIFORNIA.

Few			Several	Few					Little.
Few			Several	Few					Little.
			Several	Several					Little.

WASHINGTON, VIA VICTORIA, BRITISH COLUMBIA.

		Several	Many	Several	Few				
			Many	Few	Few				
			Several	Several	Several			Few	Little.
			Several	Several	Many			large logs.	
Many	Few	Several	Several	Several	Few			Much.	Much.
Few			Several					Much.	

UNALASKA, VIA ALBERT BAY, BRITISH COLUMBIA.

Several			Several					Little.	Much.
Several	Few		Many		Few			Much.	Much.
Several	Several		Many	Several				Much.	Much.
			Few	Many	Few			Much.	Little.
			Several	Many	Several			Much.	Much.
			Few	Many				Little	Much.
				Many				wreckage.	

b Few blackfish.*e* Much salpae. Call at Alert Bay.

Cruising and meteorological record.

Date.	Meridian positions.		Distance run per log.	Barometer.		Temperatures.						State of the weather.	Direction and force of wind.	State of the sea.
	Lat. N.	Long. E.		Max.	Min.	Air.		Sea at surface.						
						Dry bulb.	Wet bulb.							
	Max.	Min.		Max.	Min.	Max.	Min.							
1895.	0 0 0 0	0 0 0 0	<i>Knots.</i>	0	0	0	0	0	0	0	0			
July 1	55 51 00	174 38 00	151.0	29.84	29.68	49	37	45	37	43	40	Fair and pleasant; fog at times.....	S'd and W'd, 3.....	Smooth.
2	56 00 00	169 24 00	175.0	29.87	29.74	46	41	46	41	45	42	Overcast; misty 4 to 8 a.m.....	ENE, 1-4; NE, 4; N. by E., 5.....	Smooth to moderate.
3	Nikolski Anchorage, Bering Island.		152.4	29.97	29.83	50	41	49	41	43	43	Fair and pleasant.....	N. by E. 4; N. by W. 4; W. by N., 2; SSW, 1.	Moderate to smooth.
4	do			30.09	29.99	47	44	47	44	43	43	Fair to overcast and showery.....	SSW, 2; S. by W., 2; SSE, 4.....	Do.
5	55 23 00	165 42 00	23.2	30.26	30.09	47	40	47	40	46	43	Overcast, misty, and rainy.....	W., 1; ENE, 1-3; E. by S., 3.....	Smooth.
6	57 16 00	169 41 00	174.0	30.29	30.20	46	42	46	42	45	41	Overcast and cloudy.....	N'd and W'd, 1-2.....	Do.
7	58 22 00	174 27 00	166.5	30.19	30.09	46	42	46	42	44	41	Overcast; misty at times.....	W'd, 2-3.....	Do.
		Long. W.												
7	57 38 00	179 42 00	191.0	30.11	30.04	45	40	44	41	43	41	Overcast, misty, and foggy.....	NW, 3; WNW, 3.....	Do.
8	56 53 30	174 33 00	172.0	30.05	30.01	43	41	43	40	42	41	Overcast and foggy; misty at times.....	WNW, 3; N., 2.....	Do.
9	56 57 00	170 17 00	168.9	30.02	30.00	46	39	46	40	42	37	Overcast, foggy, and misty; thick.....	Variable, 1; SSE, 2; E'd, 3.....	Do.
10	54 11 30	166 44 00	205.0	29.91	29.56	48	40	48	41	46	41	Overcast, misty, and rainy; disagreeable.	R. by S., 3; ESE, 6.....	Smooth to moderate.
11	Thlink Harbor, Unalaska.		29.1	29.74	29.53	50	47	50	47	46	45	Overcast, misty, and rainy.....	E., 2; squalls, 6; E'd, 2; calm.....	Moderate.
12	do			29.92	29.74	52	45	52	45	48	44	Fair and pleasant.....	N'y, 1; NW, 2.....	Smooth.
13	do			30.24	29.94	50	44	49	44	46	44	do	N'd and E'd, 2-4.....	
14	do			30.39	30.24	48	40	49	40	48	42	do	Calm; variable, 1.....	
15	54 19 00	166 58 00	32.6	30.46	30.39	44	41	45	42	45	42	Overcast; fog and mist in morning.....	Calm; NNE, 1; ESE, 2.....	Smooth.
16	Village Cove, St. Paul Island.		203.0	30.49	30.45	47	43	47	43	43	37	Overcast and foggy.....	ESE, 2; S., 2; E., 2.....	Do.
17	do			30.49	30.46	45	42	45	42	39	37	Overcast and foggy; drizzle at times.....	E., 2; ESE, 2.....	Do.
18	North Anchorage, St. George Island.		41.5	30.51	30.46	51	42	50	43	43	38	Overcast, to fair midday, to misty.....	SSE, 2; SW, 1.....	Do.
19	do			30.57	30.51	50	46	50	46	43	41	Overcast, fair in midday; overcast.....	S'd and W'd, 1.....	Do.
20	Village Cove, St. Paul Island.		41.5	30.55	30.40	47	44	47	44	42	37	Overcast; misty at times.....	WSW, 2; SSW, 2; SE, to ENE, 1.....	Do.
21	do			30.39	30.09	46	43	46	43	38	37	Overcast, foggy, and misty.....	ENE, 2-3.....	Do.
22	do			30.08	29.98	45	43	45	43	38	37	Overcast and rainy; thick.....	ENE, 2-2.....	Do.
23	do			30.08	30.03	48	43	48	44	39	37	Foggy; very thick.....	E'd, 1.....	Do.
24	do			30.13	30.08	53	44	53	44	43	37	Foggy; pretty clear 1 to 4 p.m.....	Calm; E'd, 1.....	Do.
25	do			30.08	29.79	45	43	45	43	38	37	Overcast and boisterous; rain in squalls.	S'd and E'd, 4; squalls, 6.....	Increasing.

26	do		30.08	29.94	46	43	46	43	39	37	Overcast and cloudy, fog at times.	SSE, 1-3	Smooth; heavy swell.
27	do		30.08	29.87	44	41	44	42	39	37	Overcast; fog, mist, and rain; very thick.	S'd and E'd, 3-2	H'vy ground swell.
28	Lukannon Bay, St. Paul Island.	6.5	29.81	29.23	43	41	43	41	38	37	Overcast and foggy; steady rain.	ESE, 3; SE, 2; S'd, 2; NNW, 2	Swell from southward.
29	do		29.86	29.23	45	43	45	43	38	37	Overcast and stormy; steady mist and rain.	N. by W. and NNW, 4; squalls, 6	Moderate, with gr'd swell.
30	56 42 00 170 08 00	33.8	30.07	29.69	50	40	50	40	45	37	Overcast and foggy	NNW, 4; squalls, 6; NNW, 3-2	Moderate; irregular.
31	54 15 00 166 51 00	185.0	30.07	29.94	60	43	60	43	47	44	Foggy; very thick.	N'd, 2; variable, 1	Smooth.
Aug. 1	Dutch Harbor, Unalaska.	21.3	29.98	29.95	51	48	51	48	48	47	Overcast, foggy, and misty to clearing.	E'd, 2	
2	do		29.93	29.30	51	47	51	47	49	47	Fair and pleasant first part; then raining.	E'd, 1-2	
3	do		30.14	29.95	50	45	50	46	49	40	Fair and pleasant.	N'd and E'd, 1; local squalls, 4	
4	54 02 00 167 05 00	37.0	30.23	30.14	47	43	47	43	46	45	Fair to overcast, with mist and rain.	Variable, 1; W'd, 3	Smooth.
5	55 06 00 169 08 00	96.0	30.21	29.90	46	44	46	44	46	44	Overcast, misty, and rainy.	S'd, 3-4	Increasing.
6	55 26 00 170 19 00	45.0	29.92	29.47	46	45	46	45	45	44	Boisterous; misty and rainy.	ESE, 6; S, 6; W, 6-7	Moderate.
7	55 38 00 170 45 00	17.5	29.86	29.59	45	44	45	44	45	42	Boisterous; overcast and misty.	W'd, 4; squalls, 5	Do.
8	55 53 00 171 40 30	35.5	29.91	29.66	48	43	48	43	45	43	Overcast and cloudy.	W'd, 5	Do.
9	56 47 00 169 41 00	113.2	30.17	29.31	45	40	45	40	43	38	Boisterous to moderating; fog and mist.	W'd, 4; squalls, 6 at times	Do.
10	56 15 00 172 35 00	92.0	30.21	30.16	46	41	46	41	45	40	Overcast; mist and drizzle from 6 to 12 p. m.	WSW, 3	Smooth to gentle.
11	53 23 00 170 31 00	87.0	30.18	30.05	46	44	46	45	45	44	Pleasant generally; showers at times.	SW. by W, 3; WNW, 2	Smooth.
12	54 54 00 168 59 00	61.0	30.32	30.06	47	44	47	44	45	44	Overcast; fog and mist 4 to 12 p. m.	W'd, 2	Do.
13	56 13 00 167 40 00	47.0	30.34	30.24	47	43	47	43	45	44	Overcast; driving fog and mist 3 to 12 p. m.	SW, 4-5	
14	54 03 00 168 40 00	76.0	30.37	30.26	48	44	48	44	46	44	Overcast and misty to clearing.	SW, 4; SSW, 2	Moderate.
15	Dutch Harbor, Unalaska.	13.6	30.37	30.23	54	46	54	46	48	45	Overcast to fair and pleasant.	SSW, 1; variable, 1	
16	do		30.18	30.04	53	45	53	45	47	46	Boisterous; overcast and misty.	S'd and E'd, 3; squalls, 7; SE, 2	
17	do		30.07	30.01	56	49	56	49	50	47	Overcast; rain and mist at times.	SE, 1; variable, 1; SSE, 2; squalls, 3	
18	54 16 00 166 58 00	31.4	29.98	29.79	52	45	52	45	47	44	Rainy and misty; disagreeable.	SSE, 2; squalls, 4; SW, 3	Light.
19	54 17 00 168 54 00	67.0	29.86	29.72	47	44	47	44	45	42	do	SW, 2-3	Smooth.
20	55 16 00 168 04 00	65.0	29.80	29.68	47	45	47	45	47	45	Overcast; foggy and misty.	SW, 1; NW, 2	Do.
21	55 41 00 168 34 00	31.0	29.98	29.81	49	46	49	46	47	45	Overcast; misty greater part.	N'd and W'd, 3-2	Do.
22	56 13 00 167 11 00	56.0	30.05	29.98	48	45	48	45	47	46	Overcast; misty until 8 a. m.	NNW, 3; S'd, 3; S. by W, 3	Irregular.
23	East Anchorage, St. Paul Island.	142.7	30.03	29.92	47	45	47	45	46	41	Thick; much fog and rain.	SSW, 3; S'd, 1	Smooth.
24	55 31 00 168 05 30	121.0	30.03	29.94	50	46	50	46	47	44	Rainy and misty; fair midday; mist and fog.	XNE, 2-4	Do.
25	Dutch Harbor, Unalaska.	156.4	29.98	29.93	47	45	47	45	46	44	Stormy; driving mist noon to midnight.	NNE and N, 6; squalls, 10	Increasing.
26	do		29.93	29.88	47	45	47	45	46	44	Stormy, moderating to pleasant.	N'd, 6-8; NW, 3; NW, 1	
27	do		29.93	29.86	46	44	46	44	46	44	Fair and pleasant.	Calm; NE, 1; calm	
28	do		29.88	29.84	50	41	50	41	47	44	do	Calm; N'd and E'd, 1; calm	
29	do		29.84	29.71	54	47	53	47	47	46	Overcast; showers at times.	SE, 3-5; NE, 2-3	
30	54 09 00 166 13 00	22.3	30.26	29.86	58	46	58	46	48	45	Fair and pleasant.	SW, 2; NW, 1	Smooth.
31	55 17 00 161 40 00	194.1	30.58	30.27	54	47	54	47	51	47	do	NW'ly, 3-5	Do.

Cruising and meteorological record—Continued.

Date.	Meridian positions.		Distance run per log.	Barometer.		Temperatures.						State of the weather.	Direction and force of wind.	State of the sea.
	Lat. N.	Long. W.		Max.	Min.	Air.				Sea at surface.				
						Dry bulb.	Wet bulb.	Max.	Min.					
											Max.				Min.	Max.	Min.
1885.	0	0	<i>Knots.</i>		0	0	0	0	0	0				
Sept. 1	Portage Bay, Alaska Peninsula.		48.4	30.56	30.44	53	47	53	47	49	47	Cloudy, but generally pleasant.....	NW., 3-5; WNW., 2-4; XNW., 2-4.	
2	55 28 00	159 16 00	58.1	30.44	30.33	60	46	60	46	52	45	Fair and pleasant.....	NW., 3; squalls, 6-7; local, 2-3; NW., 3-5.	Smooth.
3	56 29 00	153 40 00	198.0	30.31	30.03	56	48	56	48	50	48	do	N'd and W'd, 4-2	Do.
4	57 57 00	151 40 00	138.3	30.03	29.93	63	47	63	47	50	47	do	N'd and W'd, 2-4	Do.
5	59 00 00	145 29 00	204.0	30.16	29.93	54	45	54	45	53	50	Cloudy; frequent passing showers.	NE., 3; squalls, 6; E., 4; squalls, 6-8.	Moderate.
6	59 46 00	139 54 00	186.7	30.22	30.14	56	46	56	46	52	43	Showery to fair and pleasant.....	E., 3; squalls, 5-7; variable, 1.....	Smooth.
7	58 55 00	138 37 00	111.6	30.15	29.91	62	44	62	44	54	48	Clear and pleasant.....	N'd and W'd, 1-2	Do.
8	Sitka Harbor, SE. Alaska.		193.5	29.94	29.89	65	46	65	46	55	50	do	NW., 3; variable, 1; N., 1	Do.
9	do			29.93	29.83	59	41	57	41	54	50	do	Local, 1	
10	do			30.08	29.89	59	43	58	43	54	48	do	Calm; W'd, 1	
11	56 23 00	133 07 00	162.4	30.19	30.11	64	47	64	47	52	44	do	N'd, 1	Smooth.
12	55 33 00	132 09 00	94.5	30.19	29.84	72	44	71	44	55	47	do	N'd and E'd, 1-2	Do.
13	53 57 00	130 11 00	130.8	29.98	29.92	54	48	54	48	52	48	Fair to overcast and misty.....	SE'd, 2-2	Do.
14	52 37 00	128 31 00	123.9	30.06	29.96	52	50	52	50	50	48	Overcast and rainy.....	SE'd, 2; squalls, 4; SE., 2	Do.
15	52 04 00	127 50 00	53.0	30.06	29.85	56	51	56	50	52	50	do	N'd, 1; calm	Do.
16	50 33 00	126 49 00	116.6	30.20	29.90	55	49	55	50	52	43	Overcast and misty to clearing.....	E., 1-3; calm	Do.
17	49 49 00	124 57 00	111.7	30.25	30.10	57	52	57	52	55	49	Fair and pleasant; smoky.....	Calm; ESE., 2-4; E., 2-1	Do.
18	New Whatcom, Wash.		146.6	30.09	29.70	59	54	58	54	57	53	do	Variable, 1; S'd, 2-3; SE., 3-6	Do.
19	do			29.99	29.68	66	46	61	46	56	52	Cloudy; occasional showers.....	Local squalls, 4-6; ESE., 2-1	
20	do			30.36	29.90	70	44	70	44	55	49	Clear and pleasant.....	N'd, 2-1	
21	do			30.48	30.39	54	41	54	41	51	49	Fair and pleasant to overcast and rainy.	Calm; S., 2-1; calm	
22	48 42 30	122 44 30	15.3	30.39	30.10	54	48	54	49	51	49	Overcast and rainy.....	NE., 2; ENE., 1; SE., 2-4	Smooth.
23	48 59 30	122 58 00	30.4	30.09	29.91	55	53	56	54	51	51	Clear and pleasant.....	SSW., 2	Do.
24	48 38 30	122 44 00	34.8	30.27	29.99	57	50	56	50	51	48	Misty and smoky to clear and pleasant.	SSW., 1	Do.
25	New Whatcom, Wash.		55.2	30.40	30.27	58	48	58	49	56	48	Fair to overcast and drizzly.....	NNE., 1; calm; NNE., 1	
26	do			30.40	30.19	55	45	55	45	54	50	Clear and pleasant.....	NW., 1-3-1	
27	do			30.39	30.26	64	49	64	50	54	50	do	NW., 1-3-2	
28	do			30.30	30.04	64	47	61	47	53	50	do	Calm; variable, 1; calm	
29	do			30.11	30.00	60	48	60	48	54	48	Fair and pleasant.....	Calm	

	30	Fairhaven, Wash...	25.9	30.07	29.96	58	49	58	49	54	48	.....do.....	Calm; SSW, 1.....	Smooth.
Oct.	1	Seattle Harbor, Wash.	45.9	30.09	29.95	61	50	61	51	54	48	Pleasant, generally; showers at times.	N'd, 1; S'd and E'd, 3-1.....	Do.
	2	do.....		30.39	30.11	58	53	50	53	55	52	Fair and pleasant; haze and smoke.	Variable, 1; SW, 2.....	Do.
	3	48 04 30 122 26 00	66.8	30.49	30.31	56	46	56	46	54	51	.....do.....	S'd and W'd, 1-2.....	Do.
	4	Port Ludlow, Wash.	32.2	30.33	30.03	60	43	58	43	52	48	.....do.....	SW, 1; N'd and W'd, 1.....	Do.
	5	Port Townsend, Wash.	16.3	30.13	30.06	60	49	60	49	54	49	.....do.....	Calm; N, 1; WSW, 2; calm.....	Do.
	6	Port Angeles, Wash.	35.9	30.26	30.13	64	46	64	46	50	48	.....do.....	Calm; W'd, 1.....	Do.
	7	Victoria Harbor, British Columbia.	19.3	30.26	30.04	53	46	53	46	48	47	Very foggy.....	Calm; S'd, 1, and E'd, 1; calm.....	Do.
	8	do.....		30.14	29.95	54	47	54	46	49	47	Fog and rain first part; then clearing.	Calm; SE, 2-3.....	Do.
	9	Fidalgo City, Wash.	68.5	30.38	30.15	62	53	62	53	51	48	Cloudy and smoky, but generally pleasant.	WSW, 2-4; SSW, 3-2; calm.....	Do.
	10	48 42 00 122 32 00	21.1	30.42	30.33	62	53	62	52	56	49	Commenced rain, clearing to pleasant.	ESE, 1; NNE, 1-2.....	Do.
	11	New Whatcom, Wash.	2.8	30.33	30.12	55	50	55	50	54	52	Drizzling rain and fog; thick.	Variable, 1.....	Do.
	12	do.....		30.17	30.09	55	52	55	52	53	52	Cloudy; fog and smoke about horizon.	Variable, 1.....	
	13	do.....		30.36	30.15	57	48	57	49	54	51	Clear and pleasant generally.	Calm; WSW, 3-2; calm.....	
	14	do.....		30.40	30.24	55	47	55	47	55	51	.....do.....	Calm; N, 1.....	
	15	do.....		30.27	30.12	58	45	58	45	54	48	Fair and pleasant generally.	NSE, 1; SW, 2; calm.....	Smooth.
	16	48 14 00 123 19 00	78.3	30.24	30.09	51	47	51	47	50	47	.....do.....	Variable, 1; WSW, 3-2.....	Do.
	17	46 45 00 124 58 00	198.1	30.24	30.08	58	51	58	51	57	50	.....do.....	WNW, 2; NNW, 4.....	Do.
	18	42 54 00 124 56 00	221.1	30.08	29.98	55	49	55	49	56	50	Foggy and misty.	NNE, 3; variable, 2-1.....	Do.
	19	40 01 00 124 14 00	200.3	30.14	30.07	56	51	56	51	56	52	Cloudy, with fog and mist at times.	S'd, 1; NW, 3-4.....	Do.
	20	Sausalito Harbor, California.	196.0	30.12	30.05	58	54	58	54	58	54	Cloudy and misty; clearing latter part.	NW, 4-2; local, 1.....	Do.
	21	do.....		30.13	30.07	59	56	59	56	58	57	Fair and pleasant generally.	Calm; S'd and W'd, 2.....	
	22	do.....		30.17	30.09	66	55	66	55	58	56	Clear and pleasant.	Calm; SW, 2-1; squalls, 4-5.....	
	23	do.....		30.24	30.14	62	55	62	55	58	56	Fair and pleasant generally.	Calm; local, 2; calm.....	
	24	37 59 00 122 26 00	9.8	30.28	30.10	75	55	75	55	64	55	.....do.....	Calm; variable, 1-2, S, 1.....	Smooth.
	25	Navy-yard, Mare Island.	15.2	30.21	30.00	75	54	75	54	62	58	Clear and pleasant.	Calm; E, 1; NE, 2-1; calm.....	
	26	do.....		30.08	29.90	78	54	78	54	64	59	.....do.....	Calm; SE, 1; NW, 1; SW, 1.....	
	27	do.....		30.14	30.02	61	53	61	53	61	59	Fair and pleasant.	S'd and W'd, 1; WNW, 2.....	
	28	do.....		30.17	30.08	60	51	60	51	60	58	.....do.....	WNW, 1-2; SW, 2; W, 3-2.....	
	29	do.....		30.20	30.13	58	52	58	52	59	56	.....do.....	W'd, 2.....	
	30	do.....		30.23	30.12	59	51	59	51	58	57	.....do.....	W'd, 3; SW, by S, 1-2.....	
	31	do.....		30.28	30.18	63	62	63	62	60	57	Clear and pleasant.	S'd and W'd, 2-1; calm; SE, 1.....	
Nov.	1	do.....		30.24	30.02	65	65	65	65	60	57	.....do.....	Calm; SW, 1-2.....	
	2	do.....		30.07	29.81	59	53	59	53	58	57	Fair and pleasant.	S'd and W'd, 2-3.....	
	3	do.....		29.90	29.77	52	46	52	46	58	54	Cloudy to overcast and rainy.	NW, 4; SW, 1; NNE, 1-2.....	
	4	do.....		30.10	29.82	55	45	55	45	59	56	Clear and pleasant.	Calm; S'd and W'd, 1-2.....	
	5	do.....		30.12	29.99	51	46	51	46	56	54	Overcast and rainy.	WSW, 1; SSE, 2; ENE, 3; NE, 4-6; NNE, 2.....	
	6	do.....		30.18	30.09	64	48	64	48	57	54	Clear and pleasant.	Calm; E, 1; SW, 1; calm.....	
	7	do.....		30.27	30.13	65	48	65	48	57	54	.....do.....	Calm; ESE, 1-2; calm.....	
	8	do.....		30.25	30.07	83	47	83	47	57	54	.....do.....	Calm; ESE, 1; SE, 2; calm.....	
	9	do.....		30.19	30.07	79	49	79	49	57	54	.....do.....	Calm; E, 1; SE, 2; calm.....	

Cruising and meteorological record—Continued.

Date.	Meridian positions.		Distance run per log.	Barometer.		Temperatures.					State of the weather.	Direction and force of wind.	State of the sea.
	Lat. N.	Long. W.		Max.	Min.	Air.				Sea at surface.			
						Dry bulb.	Wet bulb.	Max.	Min.				
1895.			<i>Knots.</i>										
Nov. 10	Navy-yard, Maro Island, Cal.		30.10	29.96	57	49	57	49	56	54	Fair and pleasant.	Variable, 1; and calms.	
11	do		30.08	29.96	67	51	64	51	57	53	do	Calm; SW and WSW, 1-3-1	
12	do		30.24	30.08	58	48	58	48	55	54	do	W, 2-4; WNW, 2-1	
13	do		30.54	30.35	58	45	58	45	55	52	Clear and pleasant.	Calm; W'd, 1; calm	
14	do		30.57	30.42	65	50	65	48	56	54	do	Calm; variable, 1; calm	
15	do		30.45	30.29	68	55	68	55	57	54	do	E, 1-3; ESE, 2; S. by E, 1-2	
16	do		30.28	30.07	72	56	72	56	56	55	do	E'd, 2-4; calm.	
17	do		30.16	30.04	72	54	69	54	57	54	do	E, 3; SE, 3; calm.	
18	do		30.18	30.01	72	50	72	50	57	52	do	Calm; SE, 2-1; calm.	
19	do		30.10	29.99	74	54	72	54	56	53	do	Calm; ENE, 3; ESE, 3-2; E, 1...	
20	do		30.14	29.92	81	51	78	51	58	55	do	Calm; E, 1; SE, 2; calm S, 2	
21	do		29.99	29.70	60	49	60	50	56	53	do	W, 2; SW, 3; variable 1-2; NW, 2	
22	do		29.99	29.70	56	49	54	48	54	53	do	NW, 2-4; equals, 3-6; N, 3-2	
23	do		30.15	30.00	83	46	76	46	55	51	do	N'd, 2-4-1; calm.	
24	do		30.26	30.15	83	41	58	41	53	50	do	Calm; S, 2; SW, 1; calm.	
25	do		30.35	30.24	52	45	52	45	52	49	Fair and pleasant.	Calm; N'd and W'd, 1; variable, 1; calm.	
26	do		30.28	30.15	53	41	53	41	51	49	do	Calm; variable, 1	
27	do		30.25	30.14	52	48	52	48	51	50	Overcast and rainy, to clearing	SE, 2; NE, 2-1; ESE, 1	
28	do		30.25	30.06	54	48	54	48	51	50	Overcast, raining latter part	ESE, 2-3; calm	
29	do		30.37	30.12	56	47	56	47	51	50	Fair and pleasant.	W, 3; WSW, 3-1	
30	do		30.44	30.36	58	50	58	50	52	50	do	WNW, 1; calm; WSW, 1; SW, 1	
Dec. 1	do		30.46	30.36	59	50	59	50	53	51	Fair and pleasant; cloudy	Calm; SW, 2-1; S, 2-1; calm	
2	do		30.44	30.33	55	48	55	48	52	50	do	Calm; NNW, 1; E, 1	
3	do		30.31	30.21	55	45	55	46	52	49	do	Calm, ENE, 2-3	
4	do		30.24	30.15	51	45	51	45	51	50	Fair, generally; fog first part.	E'd, 3-2	
5	do		30.17	30.12	58	45	58	45	50	49	Overcast and rainy	E. by S, 3-1; SSE, 2	
6	do		30.28	30.17	67	51	63	51	53	50	Overcast and rainy, to clearing	SW, 1; calm	
7	do		30.30	30.18	75	49	70	49	56	49	Foggy, to clear and pleasant	Calm; variable, 1; calm	
8	do		30.34	30.22	72	45	69	45	54	49	Clear and pleasant	Calm; E. by S, 3-1	
9	do		30.43	30.36	52	43	52	43	51	48	Foggy, to clear and pleasant	SE, 2-3; E, 4; ENE, 2-3	
10	do		30.41	30.31	52	44	51	44	50	49	Fair and pleasant	E'd, 3-2	
11	do		30.40	30.32	48	44	48	44	49	47	do	E and N, 3-4; ENE, 3; E, 3-2	
12	do		30.38	30.24	47	42	47	42	49	47	Overcast, to fair and pleasant	ENE, 3; ESE, 3; E, 2-1	

13	do.	30.33	30.19	54	44	54	44	49	48	do	ENE, 2-1; calm
14	do.	30.20	29.96	54	41	53	41	50	48	Clear and pleasant	Calm; SE, 1; S. by W, 2; squalls, 5
15	do.	30.00	29.75	52	43	62	43	49	48	Overcast and showery, to clearing	SSW, 3; squalls, 6-7; WSW, 3-5 WNW, 3
16	do.	30.14	29.98	48	43	48	43	48	48	Pleasant, generally; showers in p.m.	Variable 1; SSW, 2-3; calm
17	do.	30.37	30.15	52	41	52	41			Dry dock.	Calm; W. by S, 2-1; calm
18	do.	30.44	30.36	51	43	51	43			Clear to overcast, and rainy	ESE, 1-2; E, 2; NE, 1
19	do.	30.38	29.92	55	46	55	46			Overcast and rainy	ENE, 1; E, 2; SE, 2-4
20	do.	30.04	29.77	54	48	54	48			Overcast and rainy; fair interval midday	SE, 4; squalls, 7; SW, 6-2; W'd, 3; SE, 2-3
21	do.	30.11	30.01	48	40	48	40			Overcast and rainy, to clearing	Calm; NE, 2-3; calm
22	do.	30.38	30.06	53	36	53	36			Clear and pleasant	Calm
23	do.	30.43	30.00	53	38	53	38			Clear; rainy in afternoon; clearing again.	Calm; S, 2-1; variable, 1
24	do.	30.48	30.00	53	40	53	40			Clear and pleasant	Calm; WNW, 2-1
25	do.	30.46	30.34	55	43	55	43			do	Calm; E, 2; ESE, 1; E, 1
26	do.	30.50	30.38	57	40	57	40			do	Calm
27	do.	30.52	30.37	56	42	56	42			do	Calm; E, 2; variable, 1
28	do.	30.54	30.37	54	45	52	45			Clear, but boisterous	NNW, 3; squalls, 6-7; NNW, 2
29	do.	30.65	30.52	55	37	54	37			Clear and pleasant	N'd and E'd, 3-1
30	do.	30.65	30.48	53	37	53	37			do	Calm; variable, 1
31	do.	30.61	30.42	56	36	56	36			do	Calm; ESE, 2-1; NE by E, 1; calm
1896.											
Jan. 1	Navy-yard, Mare Island, Cal.	30.49	30.33	53	42	53	42			Dry dock.	Fair and pleasant; fog first part
2	do.	30.47	30.32	54	44	54	44			do	Calm
3	do.	30.44	30.29	57	39	57	39			do	Calm; E. by S, 2; calm
4	do.	30.37	30.26	63	39	63	39			Fair and pleasant	Variable, 1-2
5	do.	30.35	30.20	53	39	53	39			do	E'd, 2-1; calm
6	do.	30.37	30.24	64	40	64	40			Clear and pleasant	Calm; E'd, 1-2
7	do.	30.42	30.30	60	41	59	41			do	E'd, 2
8	do.	30.43	30.30	55	45	55	45			Fair and pleasant	E, 2-3; calm; E, 2
9	do.	30.29	30.12	55	45	54	44			do	Calm; E, 2
10	do.	30.15	29.98	55	46	55	46			do	ENE, 3; E, 2
11	do.	30.09	29.98	56	49	56	49			do	E. by N, 1; calm; SW, 1
12	do.	30.14	30.07	53	48	53	48			Overcast, foggy, and drizzly	SSW, 1; calm
13	do.	30.16	30.10	52	49	52	49			Overcast; drizzling rain	Calm; E. by S, 2-1
14	do.	30.17	29.95	59	51	59	51			Cloudy; drizzling mist at times	Calm; S, 1-2
15	do.	29.93	29.69	58	56	58	56			Overcast and rainy; boisterous	SE and S. by E, 3; squalls, 5
16	do.	29.89	29.72	59	57	59	57			do	S. by E, 3; squalls, 5; SSE, 5; squalls, 8
17	do.	30.04	29.84	61	56	61	56			do	South, 3-5; calm; ENE, 2; S. by E, 3-5
18	do.	30.12	29.78	62	56	62	56			Rainy and boisterous, to clearing	SSE, 4; squalls, 6-8; SSW, 3-1
19	do.	30.13	29.88	59	55	59	55			Overcast and rainy	Calm; S'd and E'd, 2
20	do.	29.98	29.81	61	57	61	57			Overcast and rainy, to clearing	SSE, 4; squalls, 6-8; S. by E, 3; SSE, 2
21	do.	30.26	29.97	60	48	60	48			Overcast; frequent showers	SSW, 2; WSW, 2
22	San Francisco Har- bor.	26.0	29.98	52	43	52	43			Pleasant, generally; drizzle latter part.	Calm; SE, 2
23	do.	30.15	29.99	53	48	53	48			Boisterous and rainy, to clearing	W'd, 1-3

Smooth.

Cruising and meteorological record—Continued.

Date.	Meridian positions.		Distance run per log.	Barometer.		Temperatures.						State of the weather.	Direction and force of wind.	State of the sea.
	Lat. N.	Long. W.		Max.	Min.	Air.				Sea at surface.				
						Dry bulb.		Wet bulb.						
						Max.	Min.	Max.	Min.					
1896.	o	o	Knots.	o	o	o	o	o	o	o				
Jan. 24	San Francisco Har- bor.		30.12	29.91	54	44	54	44	51	50	Fair and pleasant.....	Calm; ESE, 3; variable, 1.....		
25	do.		30.08	29.86	59	59	59	50	54	51	Boisterous and rainy, to clearing....	SE, 8, dropping to 2.....		
26	do.		30.07	29.80	60	56	60	56	53	52	Overcast and unsettled; rain at times.	E'd, 2-3; S'd and E'd, 8; SE, by E, 3.		
27	do.		29.90	29.70	58	53	58	53	53	52	Unsettled and cloudy; frequent showers.	SSE, 1; squalls from E. by N, 5; W'd, 1.		
28	37 26 00 122 40 00		36.0	30.04	29.90	54	52	54	52	52	Fair and pleasant.....	S'd, 3-2; calm; N.W. by W., 3-5.....	Gentle.	
29	34 24 00 120 25 00		23.1	30.02	29.81	63	53	62	52	56	Clear and pleasant.....	NW, 6-7-4.....	Moderate.	
30	San Diego Harbor, Cal.		221.9	30.10	29.88	70	52	70	52	59	do.	NNW, 4; local, 1.....	Smooth.	
31	do.		30.22	30.13	70	50	70	50	60	54	do.	NW, 1-2.....		
Feb. 1	do.		30.25	30.12	64	48	61	48	60	56	do.	Calm; S. by W., 3; E. by N., 1.....		
2	do.		30.17	30.09	58	51	58	50	57	55	Cloudy and showery.....	E, 1-3; SE, 3-2; SW, by W., 2; W., 2.		
3	do.		30.18	30.04	59	49	59	49	58	54	Clear and pleasant.....	E, 1; ESE, 3; W., 3-2; calm.....		
4	do.		30.23	30.10	57	47	57	46	57	55	do.	E. by N., 2; calm; WNW, 3-2; N. by W., 1.		
5	do.		30.22	30.06	58	45	58	45	57	54	do.	NE, 1; calm; WNW, 2-1.....		
6	do.		30.14	29.98	59	46	59	46	57	53	do.	NE, 1; WNW, 3-2; calm.....		
7	do.		30.34	30.14	62	47	62	47	56	53	do.	Calm; W'd, 2-1; NE, 1.....		
8	do.		30.37	30.24	58	44	58	44	55	54	do.	Variable, 1; WNW, 2; calm.....		
9	do.		30.27	30.08	62	47	62	47	57	53	do.	Calm; WNW, 1-2; calm.....		
10	do.		30.14	30.01	61	49	59	47	56	54	do.	Calm; WNW, 1; calm.....		
11	do.		30.07	29.98	59	52	58	50	55	55	do.	Calm, W, 1; calm.....		
12	do.		30.27	30.08	59	46	56	46	57	55	do.	Variable, 1; NW, 2; calm.....		
13	do.		30.31	30.19	63	48	58	42	58	54	do.	Calm; WNW, 2-3; NE, 1.....		
14	do.		30.22	30.10	60	52	57	48	56	54	do.	NE, 1; calm; WNW, 2-1; calm.....		
15	do.		30.16	30.03	62	50	56	49	56	55	do.	Calm; WNW, 1-2; calm.....		
16	do.		30.18	30.02	60	51	60	48	57	56	do.	Calm; WNW, 2-3; calm.....		
17	do.		30.10	29.97	60	55	63	51	60	56	do.	Calm; NW, 2-3; calm.....		
18	do.		30.15	30.00	70	56	63	53	59	56	do.	Calm; WNW, 2-1.....		
19	do.		30.07	29.98	70	57	64	52	60	56	do.	Calm; SSW, 3-2; calm.....		
20	do.		32.16	30.02	68	58	61	56	60	58	do.	Calm; S. by W., 1-3; SSE, 2; calm.....		
21	do.		30.21	30.10	63	54	62	52	60	58	do.	ESE, 2-1; WNW, 2-1.....		

22	do.	30.22	30.10	61	54	59	52	60	57	do.	Calms: WNW, 2-3-1.
23	do.	30.23	30.10	62	53	60	52	61	58	do.	NE, 1; NW, 2; WNW, 2; calm.
24	do.	30.24	30.17	65	53	60	52	60	58	do.	Calms: WNW, 2; calm.
25	do.	30.25	30.17	69	53	62	50	60	58	do.	Calms: WNW, 1-3; variable, 1.
26	do.	30.26	30.08	65	53	61	51	61	58	do.	Calms: WNW, 1-2; calm; ESE, 1.
27	do.	30.27	30.08	66	54	62	53	63	58	do.	Calms: WNW, 2-3; calm.
28	do.	30.02	29.98	65	54	62	53	62	59	do.	Calms: WNW, 2; calm.
29	do.	30.00	29.92	64	55	61	52	61	59	do.	FW, 1; SSW, 2; calm.
30	do.	30.04	29.88	55	51	52	45	59	57	do.	SW, 1-2; W, 3.
31	do.	30.09	29.96	57	45	53	44	59	55	do.	W by S, 3; W, 4.
32	do.	29.90	29.77	55	47	52	46	57	54	do.	WNW, 3; ENE, 2; ESE, 3; S.
33	do.	30.13	29.99	64	56	62	54	59	57	do.	by E, 5; squalls, 6-8.
34	do.	30.13	29.90	55	46	53	46	55	53	do.	S and E, 3; squalls, 4-6; W, 3; squalls, 6-8.
35	do.	30.22	30.13	57	45	53	44	56	53	do.	WSW, 2; squalls, 6-8.
36	do.	30.29	30.21	59	46	55	45	56	54	do.	Variable, 2; WSW, 2; calm.
37	do.	30.30	30.13	59	45	55	45	56	54	do.	ENE, 1; S, by E, 2; WNW, 2.
38	do.	30.22	30.12	61	48	58	46	57	54	do.	Variable, 1; WNW, 2-3; calm.
39	do.	30.15	30.00	61	52	58	50	58	55	do.	ENE, 1; WNW, 2-1; calm.
40	do.	30.21	30.09	67	51	61	49	58	55	do.	Calms: WNW, 2; calm.
41	do.	30.22	30.09	62	51	59	49	58	55	do.	Calms: WNW, 3-2; calm; NE, 1.
42	do.	30.15	30.01	65	52	61	50	59	53	do.	ENE, 1; calm; W by N, 2; calm.
43	do.	30.09	29.96	61	51	59	51	59	57	do.	Calms: WNW, 1-2; calm.
44	do.	30.13	29.99	64	56	62	54	59	57	do.	Calms: SSW, 2; ESE, 1.
45	do.	30.18	30.12	63	52	59	51	59	57	do.	ESE, 3; S, by E, 2; SSW, 2-1; calm.
46	do.	30.15	30.06	61	54	59	53	59	57	do.	NE, 1; WNW, 2-3; NW, 3-2.
47	do.	30.17	30.05	66	55	63	54	63	60	do.	WNW, 2-3-1; calm.
48	do.	30.17	30.02	66	55	63	54	63	60	do.	Calms: WNW, 2-3-1; calm.
49	do.	30.15	30.08	64	55	62	55	64	61	do.	Calms: WNW, 2-4-1; calm.
50	do.	30.21	30.10	71	59	64	57	66	62	do.	Calms: WNW, 3-2; calm.
51	do.	30.19	30.07	72	61	67	59	66	62	do.	Calms: WNW, 1-2; calm.
52	do.	30.09	29.91	77	62	70	60	66	62	do.	WNW, 1; NW, 2-3; WNW, 1.
53	do.	30.04	29.92	74	58	70	58	66	62	do.	Calms: WNW, 1-3; calm.
54	do.	30.02	29.90	70	60	68	59	66	61	do.	Calms: WNW, 2; calm.
55	do.	30.01	29.95	64	58	61	56	64	60	do.	Variable, NW, calm; W, 2; WNW, 1.
56	do.	30.01	29.89	60	57	59	56	62	58	do.	Calms: NE, 2; SE, 2; SSE, 3-5; variable, 2-1; SSW, 1; SW, 2; WNW, 1.
57	do.	30.10	30.01	64	55	63	55	62	58	do.	ESE, 1; SSW, 1; SW, 2; WNW, 1; calm; W by N, 2; calm.
58	do.	30.07	29.96	62	54	61	54	62	60	do.	Calms: WNW, 2; ENE, 1.
59	do.	30.17	30.00	68	55	65	63	69	66	do.	Calms: WNW, 2; calm; WNW, 2-3; ENE, 1.
60	do.	30.19	30.04	68	54	64	52	63	61	do.	ENE, 2; calm; WNW, 2-3; ENE, 1.
61	do.	30.07	29.92	67	54	62	50	62	58	do.	WNW, 1-2; ENE, 1.
62	do.	30.13	30.01	64	52	61	51	63	59	do.	Calms: WSW, 2-1; NE, 1.
63	do.	30.23	30.10	62	53	58	51	63	60	do.	Calms: WNW, 1-2; WNW, 3-2; calm.
64	do.	30.26	30.17	61	52	58	51	62	60	do.	Calms: WNW, 3-2.
65	do.	30.25	30.17	61	52	58	51	62	60	do.	WNW, 2-3-1.
66	do.	30.25	30.17	62	56	58	54	63	61	do.	WNW, 2-3-1.

Mar.

Apr.

Cruising and meteorological record—Continued.

Date.	Meridian positions.		Distance run per log.	Barometer.		Temperature.						State of the weather.	Direction and force of wind.	State of the sea.
	Lat. N.	Long. W.		Max.	Min.	Air.				Sea at surface.				
						Dry bulb.	Wet bulb.	Max.	Min.					
	Max.	Min.		Max.	Min.					Max.	Min.			
1896.														
Apr. 7	San Diego Harbor, Cal.		Knots.	30.18	30.10	65	57	64	56	63	62	Clear and pleasant	WNW, 1; WSW, 2-1; calm	
8	do			30.11	30.00	68	54	64	54	65	62	do	NE, 2-1; SW, 1; WSW, 2; calm	
9	do			30.08	30.01	66	56	63	52	65	61	Fair generally; showers, 10 to 12 p. m.	ESE, 2; SSW, 2; WSW, 2; WNW, 3.	
10	do			30.05	29.96	57	53	52	49	62	59	Cloudy and boisterous; showery	WNW, 4; squalls, 6-7; NE, 2	
11	do			30.13	30.01	63	49	58	45	62	58	Clear and pleasant	NE, 2-1; WSW, 2; calm	
12	do			30.14	30.07	64	52	60	50	62	58	do	Variable, 1; S'd and W'd, 2-3; calm	
13	33 04 00	119 19 00	130.4	30.10	30.02	58	51	56	52	59	55	Fair, to overcast and boisterous	W. by N., 3; NW, 5; WNW, 6-9	Smooth.
14	33 26 00	119 43 00	117.5	30.07	29.91	56	51	55	46	55	53	Clear, but stormy and boisterous	WNW, 7-8; squalls, 9-10	Increasing to heavy, Rough and irregular.
15	34 11 00	119 37 00	53.3	30.00	29.89	60	49	55	45	55	52	Clear but boisterous	W., 6-8; squalls, 8-9	Heavy.
16	Santa Barbara, Cal.		14.1	30.05	29.91	60	50	56	47	53	49	do	WNW, 3; squalls, 5-7	Moderate.
17	do			30.17	30.03	64	48	63	48	53	50	do	W'd, 3; calm; W'd, 3; squalls, 6	Do.
18	do			30.12	29.96	60	44	58	44	52	47	Cloudy and pleasant; light mist in a. m.	W'd, 1-2	Do.
19	do			30.13	29.93	55	45	55	44	52	50	Clear but boisterous	WSW, 4-8; squalls, 6-8; calm	Do.
20	do			30.23	30.13	56	44	55	44	53	51	Clear and pleasant	WSW, 1	Smooth.
21	San Pedro Harbor, Cal.		94.7	30.19	30.02	61	50	60	50	57	52	Fair, generally; rain latter part	Variable, 1; SW, 3; calm	Do.
22	do			30.11	30.02	67	51	64	50	59	54	Clear and pleasant	Calm; WSW, 2-3; calm	Do.
23	do			30.13	30.06	63	48	60	47	58	53	do	Calm; SSE, 2; SSW, 1	Do.
24	do			30.19	30.09	60	54	58	52	58	55	do	ESE, 1-3; calm	Do.
25	do			30.11	30.01	68	57	65	57	62	57	Fair and pleasant; light mist at times.	Calm; S'd, 2; calm	Do.
26	33 45 00	118 46 00	27.1	30.09	30.02	57	52	56	50	62	54	Cloudy and showery to clear and pleasant.	WSW, 2	Do.
27	35 29 00	121 06 00	187.4	30.33	30.01	58	51	54	50	58	52	Clear and pleasant	WNW, 3-4; squalls, 5	Moderate.
28	Sausalito Harbor, Cal.		175.1	30.37	30.25	58	51	56	50	55	51	do	W'd, 2; local squalls, 4	Smooth.
29	do			30.32	30.20	56	49	55	48	54	52	Overcast and boisterous; rain at times.	S'd and W'd, 2; squalls, 4-6; WSW, 2	Do.
30	do			30.33	30.17	56	46	53	46	53	52	Clear and pleasant	WSW, 1-2; local squalls, 4	Do.

May	1	Sausalito Harbor, Cal.	30.20	30.11	58	51	57	51	56	52	Cloudy and unsettled; showers at times.	S'd and E'd, 1; local squalls, 4.	Smooth.
	2	Navy-yard, Mare Island.	24.0	30.20	30.11	54	52	63	51	58	Fair and pleasant.	SW, 1-2	Do.
	3	do		30.12	30.07	64	55	62	54	56	Overcast; showers in a. m.	SSW, 2-3; squalls, 4-5	Do.
	4	do		30.08	29.98	64	51	62	49	57	Cloudy and boisterous.	SW, 3; WSW, 3; squalls, 5.	Do.
	5	do		30.07	29.96	63	47	58	45	55	Fair and pleasant.	W'd, 3; squalls, 4.	Do.
	6	do		30.06	29.93	72	46	70	45	56	Clear and pleasant.	W'd, 1-2	Do.
	7	San Francisco Harbor.	28.0	30.08	30.00	58	49	54	49	54	do	S'd and W'd, 3; squalls, 6-7.	Do.
	8	do		30.27	30.04	57	50	55	48	56	Fair, but boisterous.	WSW, 4; squalls, 6-7; WNW, 3.	Moderate.
	9	35 17 00 | 121 13 00	175.1	30.26	30.05	62	50	61	48	50	Clear and pleasant.	WNW, 4-5	Long and irregular.
	10	Santa Barbara, Cal.	110.0	30.12	30.01	72	40	70	48	52	do	E'd, 1.	Smooth.
	11	34 23 00 | 119 47 00	3.4	30.18	30.08	61	52	58	51	54	do	E'd, 1; WNW, 4-5	Moderate.
	12	34 24 00 | 120 14 00	44.6	30.19	30.09	61	53	59	51	53	Clear, but boisterous.	W'd, 4; squalls, 5-7	Do.
	13	34 24 00 | 120 14 00	28.4	30.17	29.96	69	53	65	53	48	do	do	Do.
	14	34 24 00 | 120 14 00	26.8	29.98	29.74	69	58	61	51	60	Clear; boisterous in a. m.; pleasant in p. m.	W'd, 3; squalls, 5-6; variable, 2-1.	Moderating.
	15	34 33 00 | 120 40 00	84.8	30.10	29.97	62	51	56	50	57	Clear and pleasant.	W'd, 3; squalls, 6-7; calm.	Rough.
	16	35 26 00 | 121 02 00	70.2	30.22	30.09	54	40	53	48	50	do	Calm; WNW, 4; squalls, 6-7.	Heavy head.
	17	San Francisco Harbor.	192.2	30.22	30.04	58	48	53	46	54	Clear, but boisterous.	NW'd, 4-5; squalls, 6-7; WSW, 3-5.	Do.
	18	do	10.0	30.22	30.04	57	48	53	46	53	do	S'd and W'd, 2-3; squalls, 4-5.	Smooth.
	19	Navy-yard, Mare Island.	19.0	30.27	30.19	71	49	70	47	61	Clear and pleasant.	SW, 2	Do.
	20	do		30.21	30.09	63	50	60	49	60	do	S'd and W'd, 2	Do.
	21	do		30.09	30.01	61	56	61	55	60	Cloudy and showery.	Calm; S'd, 2	Do.
	22	do		30.20	30.09	65	54	62	53	61	Cloudy, to clear and pleasant.	SW, 1; W, 2	Do.
	23	do		30.24	30.12	63	54	61	53	62	Clear and pleasant.	SW, 2; squalls, 4	Do.
	24	do		30.20	30.05	83	54	76	53	66	do	Calm; SW, 1; calm	Do.
	25	do		30.11	29.92	90	58	82	58	62	do	do	Do.
	26	Sausalito Harbor, Cal.	21.0	29.99	29.84	67	64	76	62	65	do	Calm; variable, 1-2	Do.
	27	do		30.00	29.92	70	56	65	55	58	Cloudy, foggy, and boisterous.	SW, 2; local squalls, 6-9.	Do.
	28	do		29.99	29.90	59	54	57	52	55	do	SW, 2; local squalls, 6-8.	Do.
	29	do		30.11	29.91	60	54	58	53	54	Overcast, misty, and boisterous; thunder and lightning.	SW, 2; squalls, 4-5; S'd, 1.	Do.
	30	do		30.23	30.11	64	57	62	56	56	Overcast and misty, to clearing.	SW'd, 1-2	Do.
	31	do		30.14	29.97	64	54	60	53	59	Clear and pleasant.	W'd, 1-2; SW, 1-2; calm.	Do.
June	1	37 39 00 | 122 21 00	15.0	30.01	29.92	56	52	55	48	52	Fair and pleasant, to boisterous.	Calm; SW, 3; squalls, 5-7	Moderate.
	2	Sausalito Harbor, Cal.	15.0	30.09	29.96	58	50	53	48	55	Misty and foggy in a. m.; then clear and pleasant.	SW, 4; squalls, 6; SW, 2	Do.
	3	do		30.13	30.07	56	50	54	48	57	Fair and pleasant.	SW, 2; SW'd, 3; squalls, 7; S'd, 2.	Do.
	4	do		30.07	30.00	73	55	71	53	60	Cloudy, but pleasant.	Calm; S'd, 1; SW, 2-3; squalls, 5.	Do.
	5	37 50 00 | 122 35 00	9.2	30.09	29.00	58	51	58	49	59	Fair, but boisterous.	SW, 3; squalls, 6; WNW, 4-7.	Heavy head.
	6	39 27 00 | 124 10 00	150.8	30.18	30.08	55	51	55	50	52	Clear, but boisterous.	NW, 5; squalls, 3-7	Mod. head.
	7	42 21 00 | 124 43 00	180.1	30.17	30.13	60	52	59	52	55	Cloudy and foggy; clearing latter part.	Calm; S'd and E'd, veering to W. and S., 3.	W/yswell.
	8	45 27 00 | 124 25 45	200.5	30.27	30.15	59	53	56	51	56	Cloudy; showers at times.	W, 3-4, veering to SSW, 3.	Do.
	9	48 23 00 | 124 14 00	202.6	30.21	30.18	56	50	52	47	53	Cloudy; frequent showers and mists.	SSW, 3; local, 2; SW, 3-5	Do.

Record of intermediate and surface tow-net stations of the steamer Albatross.

Date.	No. of station.	Position.		Temperature.		Time of day.	Depth of net.	Length of trial.	Net used.	Result.
		Lat. N.	Long. W.	Surface.	Depth.					
1865. Aug. 5	46	0 1 0 11								
		55 06	169 08 00	46.0	38.2	1:17 p. m.	200	26	Intermediate	Abundance small crustacea, young abrimpa, and sagitta.
7	47	55 06	169 08 00			1:17 p. m.	Surface.	26	Surface	2 small fish and abundance of small crustacea.
		55 36	170 45 00	44.0		11:28 a. m.	100	23	Intermediate	Numerous small crustacea and sagitta.
48	55 36	170 45 00		44.0		11:28 a. m.	Surface.	23	Surface	Few small crustacea and sagitta.
		55 10	170 56 00	45.0	38.0	7:17 p. m.	150	27	Intermediate	Numerous small crustacea and sagitta and 4 small fish.
8	49	55 11	170 56 00	45.0		7:17 p. m.	Surface.	27	Surface	Abundance of small crustacea and sagitta.
		55 11	171 13 00	45.0		10:00 p. m.	1	20	do	Abundance of small crustacea and siphonophore.
50	55 53	171 40 00		45.0	37.4	10:43 a. m.	200	58	Intermediate	Numerous small crustacea and sagitta.
		55 53	171 40 00	45.0		11:30 a. m.	10 feet.	16	Surface	Very few crustacea and sagitta.
10	51	55 44	171 17 00	44.0	37.7	5:08 p. m.	100	20	Intermediate	2 small fish, abundance amphipod crustacea.
		55 15	172 35 00			1:40 p. m.	20 feet.	20	Surface	10 small fish, few crustacea and fish eggs.
11	53	56 15	172 35 00			1:40 p. m.	43	23	Intermediate	Abundance small crustacea of several species; numerous sagitta.
		56 15	172 35 00			1:40 p. m.	2	24	Surface	1 very small squid; few larval shells; abundance pelagic refuse.
12	54	56 13	172 20 00	45.0		4:27 p. m.	50	21	Intermediate	Minute crustacea of several species; few sagitta.
		56 13	172 20 00	45.0		4:27 p. m.	Surface.	15	Surface	Quantity of small crustacea.
13	55	55 23	170 31 00			12:43 p. m.	48	22	Intermediate	1 young gadoid; few medusæ and annelida; 1 embryo ictyops; sagitta and crustacea.
		55 23	170 31 00			12:43 p. m.	Surface.	23	Surface	Quantity brownish pelagic refuse.
14	56			45.0		2:47 p. m.	Surface.	25	do	Quantity of brownish spicules and pelagic refuse.
				45.0		10:00 p. m.	Surface.	20	do	Few small red medusæ; 1 large white medusa; many small crustacea and worms.
15	57	54 54	168 59 00	45.0	39.5	11:47 a. m.	25	30	Intermediate	Numerous small crustacea and sagitta.
		54 54	168 59 00	45.0		11:47 a. m.	Surface.	30	Surface	2 small fish; few medusæ, worms and crustacea.
16	58					9:45 p. m.	Surface.	20	do	Few large brown medusæ; few smaller medusæ; 4 young cod; few small pelagic fishes; many small crustacea, etc.
						12:53 p. m.	30	25	Intermediate	3 species small medusæ; several species minute crustacea; small cod; small invertebrates.
17	59					12:53 p. m.	Surface.	25	Surface	Abundance brownish algae and pelagic refuse; few larval squid.
						5:10 p. m.	Surface.	40	do	
18	60					5:00 p. m.	200	32	Intermediate	Few small medusæ, abundance sagitta, and minute crustacea.
						5:00 p. m.	Surface.	32	Surface	Quantity of larval shells, minute crustacea, and minute brownish algae.
19	61	54 17	168 53 30			12:00 m.	50	25	Intermediate	Abundance sagitta and minute crustacea; few larval squid.
		54 17	168 53 30			12:30 m.	Surface.	25	Surface	Small quantity sagitta and minute black crustacea; few small medusæ, larval crabs, and small pelagic fish.
20	62						575	30	Intermediate	Few sagitta, crimson prawns, small medusæ, larval ophiurans; few ascidians; crustacea.
						9:25 p. m.	Surface.	30	Surface	Quantity of larval shells, small crustacea, and medusæ.
21	63					12:01 p. m.	200	25	do	Hauled with electric light.
						12:01 p. m.	Surface.	20	Intermediate	Struck bottom; sagitta and minute pink crustacea; small ophiurus; 3 small fishes; worms.
						12:01 p. m.	Surface.	20	Surface	Few small crustacea.

OBSERVATIONS MADE ON BOARD THE ALBATROSS.

Record of intermediate and surface tow-net stations of the steamer Albatross—Continued.

Date.	No. of station.	Position.		Temperature.		Time of day.	Depth of net.	Length of trial.	Net used.	Result.
		Lat. N.	Long. W.	Surface.	Depth.					
1895. Aug. 20	59	0 1	0 1 "							
		55 19	168 11 00	9:55 a. m.	Fathoms.	Minutes.do.....	
		55 11	167 56 00	10:15 p. m.	Surface.do.....		
	60	.....	.....	.....	.....	.....	70	25 Intermediate.	Abundance of small crustacea and sagitta.
		.....	.....	.....	.....	.....	Surface.	25 Surface.....	Similar to above.
		.....	.....	.....	.....	10:35 p. m.	Surface.	20 .....do.....	Many small medusæ and abundance of small crustacea.
21	61	.....	.....	.....	.....	9:20 p. m.	50	20 Intermediate	Abundance minute pinkish crustacea of many species.
		.....	.....	.....	.....	9:20 p. m.	Surface.	20 Surface.....	Small quantity ova and larval squid; many larval crabs; few small pelagic fishes; brown algae.
	62	.....	.....	.....	.....	.....	30	20 Intermediate	Abundance small crustacea and sagitta.
		.....	.....	.....	.....	.....	Surface.	20 Surface.....	Few crustacea.
22	63	.....	.....	.....	.....	9:18 p. m.	20	25 Intermediate	Few larval <i>Gadidae</i> and squid; abundance of polychaetes with shells; few small medusæ.
		.....	.....	.....	.....	9:18 p. m.	Surface.	25 Surface.....	Usual sagitta and crustacea.

Record of dredging and trawling stations of the United States Fish Commission steamer Albatross.

Serial No.	Date.	Time.	Position.		Temperatures.			Depth.	Character of bottom.	Wind.		Drift.		Instrument used.	Remarks.
			Lat. N.	Long. W.	Air.	Sur- face.	Bot- tom.			Direction.	Force.	Direction.	Dis- tance.		
3601	1895. Aug. 5	11.10 a.m.	55 00 00	169 08 00	46	46	35.8	1,044	gn. M. fine S	S	3	SSE	1.0	L. B. T.	Surface and interme- diate nets.
3602	Aug. 10	9.43 p.m.	56 32 00	172 40 00	45	44	37.1	81	gn. M. S.	W. by S.	3	NNW	.8	do	Surface net.
3603	Aug. 11	11.38 a.m.	55 23 00	170 31 00	46	45	35.1	1,771	bn. oz.	SW. by S.	1	E. ½ S	.7	do	Surface and interme- diate nets.
3604	Aug. 12	10.25 a.m.	54 54 00	168 59 00	46	45	35.2	1,401	gn. oz.	WNW	2	SSW ¼ W.	.8	do	Do.
3605	Aug. 13	12.44 p.m.	55 17 00	167 34 00	45	44	37.1	91	gn. M. S.	SW. by W.	6	SE	1.0	do	Do.
3606	do	5.12 p.m.	55 27 00	167 47 00	46	45	38.1	87	gn. M. fine S.	SW. by S.	4-5	SE. by S.	.4	do	Do.
3607	Aug. 18	4.14 p.m.	54 11 30	167 25 00	46	45	35.9	367	gn. M. bk. lar. S.	SW. by S.	2	SE. by E.	.3	do	Do.
3608	Aug. 20	10.01 a.m.	55 19 00	168 11 00	46	45	37.8	278	gy. S.	WSW	1-2	N. ¼ W.	.6	do	Do.
3609	Aug. 21	9.12 a.m.	55 35 00	168 20 00	46	46	37.9	74	gn. M. S.	W. by N.	3	W. by S.	.7	do	Do.
3610	Aug. 22	8.11 a.m.	55 58 00	167 16 00	45	47	36.8	75	gn. M.	WNW	3	W. by N.	.7	do	Do.
3611	do	5.18 p.m.	56 45 00	167 25 00	45	46	34.6	50	gn. M. S.	W. by S.	3	E. by S.	.6	do	Do.
3612	Sept. 30	8.30 a.m.	1° west of Chuck-a- nut Island, Bel- lingham Bay, Wash.		56	52		11	gn. M.	N. by E.	2	NW. by N.	.3	S. B. T.	
3613	1896. Mar. 31	9.35 a.m.	Channel 12 ½ S. by E. of National City wharf.		70	63		5	M. Sh.	Calm	0			Boat beam trawl.	San Diego Bay.
3614	do	10.25 a.m.	Channel 11 ½ S. by E. of National City wharf.		70	63		4 ½	do	do	0			do	Do.
3615	do	12.10 p.m.	Channel 11 S. by E. of National City wharf.		70	63		5	do	do	0			do	Do.
3616	do	1.05 p.m.	Channel 1 ½ SSE. of National City wharf.		72	63		5	do	do	0			do	Do.
3617	do	1.50 p.m.	Channel abreast of National City wharf.		72	63		5 ½	do	NW	1			do	Do.
3618	do	2.35 p.m.	Channel abreast of beacon No. 9.		72	63		4 ½	do	do	1			do	Do.
3619	do	3.03 p.m.	Channel 1 ½ ESE. of beacon No. 8.		74	63		4	do	do	1			do	Do.
3620	do	3.50 p.m.	Channel 2 ½ E. by S. of beacon No. 8.		74	63		6	do	do	1			do	Do.
3621	Apr.	10.12 a.m.	Channel 2 ½ ENE. of Point Loma light- house.		72	61		6 ½	M. S.	do	0-1			do	Do.

OBSERVATIONS MADE ON BOARD THE ALBATROSS.

Record of dredging and trawling stations of the United States Fish Commission steamer Albatross—Continued.

Serial No.	Date.	Time.	Position.		Temperatures.			Depth.	Character of bottom.	Wind.		Drift.		Instrument used.	Remarks.
			Lat. N.	Long. W.	Air.	Sur- face.	Bot- tom.			Direction.	Force.	Direction.	Dis- tance.		
3622	1896. Apr. 1	10.45 a.m.	0 11	0 11	0	0	0	Fms. 7	M. S.	NW	1		Boat beam trawl.	San Diego Bay.	
3623	...do...	1.05 p.m.			73	63		6½	S	do	1		do	Do.	
3624	...do...	1.45 p.m.			70	63		5	M. S.	do	1		do	Do.	
3625	...do...	2.20 p.m.			72	63		6	M. S.	NW	1		do	Do.	
3626	...do...	3.00 p.m.			72	63		7	do	do	1		do	Do.	
3627	Apr. 13	2.37 p.m.	32 44 00	119 32 00	55	53	39.2	776 Fet.	gn. M. S.	W by N	5		S. B. T.	West of Cortez and Tanner banks.	
3628	June 1	7.07 a.m.	37 45 15	122 17 07	53	57		18	Sft. gn. M.	S	3		Oyster dredge	Lower Bay of San Francisco.	
3629	...do...	7.53 a.m.	37 41 40	122 17 50	53	57		19½	do	SW	3		do	Do.	
3630	...do...	9.15 a.m.	37 41 10	122 17 20	53	58		15	do	SSW	3		do	Do.	
3631	...do...	10.00 a.m.	37 41 55	122 19 50	53	58		25	gn. M.	SSW	3		do	Do.	
3632	...do...	11.05 a.m.	37 38 29	122 20 10	54	60		18	do	SW	3		do	Do.	
3633	...do...	11.37 a.m.	37 39 00	122 20 15	55	62		18	do	SW	3-4		do	Do.	

OBSERVATIONS MADE ON BOARD THE ALBATROSS.

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Record of ocean temperatures and specific gravities.

Date.	Time of day.	Station.	Lat. N.	Long. E.	Depth.	Temperature by attached thermometer.	Temperature of air.	Temp. of specimen at time sp. grav. was taken.	Specific gravity.	Specific gravity reduced to 15° C.	
			° ' "	° ' "	Surface.	°	°	°			
1885.											
July	1		55 48 00	175 50 00	Surface.	40	30	08	1.0244	1.024716	
	1		55 51 00	174 38 00	do	42	43	08	1.0244	1.024716	
	1		55 52 00	173 35 00	do	43	45	08	1.0244	1.024716	
	1		55 55 00	172 11 00	do	42	41	08	1.0240	1.024016	
	1		55 58 00	170 50 00	do	43	42	08	1.0240	1.024916	
	2		55 58 00	170 50 00	do	45	46	08	1.0244	1.024716	
	2		56 00 00	169 24 00	do	45	43	08	1.0244	1.024716	
	2		55 58 00	168 55 00	do	43	43	07	1.0242	1.024307	
	2		55 45 00	166 30 00	do	43	42	07	1.0242	1.024307	
	3		55 20 00	165 40 00	do	43	42	07	1.0242	1.024307	
	3	Nikolski, Bering Island	do	do	do	43	40	07	1.0242	1.024107	
	5		55 23 00	165 42 00	do	44	45	07	1.0242	1.024307	
	5		55 45 00	160 38 00	do	44	44	07	1.0244	1.024567	
	5		56 15 00	167 30 00	do	44	40	07	1.0244	1.024567	
	6		56 38 00	168 28 00	do	44	43	07	1.0244	1.024567	
	6		57 16 00	169 41 00	do	44	45	07	1.0244	1.024567	
	6		57 25 00	170 40 00	do	42	45	07	1.0244	1.024567	
	6		57 45 00	171 38 00	do	42	42	06	1.0240	1.024020	
	7		58 05 00	173 02 00	do	41	42	06	1.0240	1.024020	
	7		58 22 00	174 27 00	do	42	45	05	1.0242	1.024070	
	7		58 15 00	175 50 00	do	43	45	05	1.0240	1.023870	
	7		57 55 00	177 35 00	do	43	44	05	1.0236	1.023470	
				Long. W.							
	7		57 40 00	179 05 00	do	42	42	05	1.0238	1.023870	
	7		57 38 00	179 42 00	do	42	44	05	1.0238	1.023670	
	7		57 20 00	178 18 00	do	41	41	05	1.0230	1.023470	
	7		57 12 00	170 50 00	do	42	40	05	1.0240	1.023870	
	8		57 05 00	175 30 00	do	41	41	05	1.0240	1.023670	
	8		56 55 00	174 33 00	do	42	42	05	1.0238	1.023670	
	8		57 05 00	174 10 00	do	41	41	05	1.0234	1.023270	
	8		57 03 00	172 45 00	do	41	41	05	1.0232	1.023070	
	9		56 58 00	171 48 00	do	40	40	05	1.0232	1.023070	
	9		56 57 00	170 17 00	do	37	47	05	1.0234	1.023270	
	9		56 15 00	169 00 00	do	48	42	05	1.0242	1.024070	
	9		56 18 00	168 15 00	do	42	42	05	1.0242	1.024070	
	10		54 48 00	167 30 00	do	41	42	05	1.0244	1.024770	
	10		54 11 00	166 44 00	do	42	44	05	1.0194	1.019270	
	11	Unalaska Village	do	do	do	45	50	05	1.0194	1.019270	
	15		54 19 00	166 58 00	do	45	44	05	1.0242	1.024070	
	15		54 42 00	167 45 00	do	42	43	05	1.0242	1.024070	
	15		55 34 00	168 40 00	do	43	42	05	1.0240	1.023870	
	16		56 18 00	169 37 00	do	42	44	05	1.0234	1.023270	
	16	St. Paul Island	do	do	do	44	44	05	1.0232	1.023070	
	18	St. George Island	do	do	do	43	48	05	1.0230	1.022270	
	30		56 42 00	170 08 00	do	42	40	05	1.0232	1.023070	
Aug.	5		55 00 00	169 08 00	do	46	46	00	1.0248	1.023980	
	5		55 00 00	169 08 00	do	25	40	00	1.0250	1.024180	
	5		55 00 00	169 08 00	do	50	88	46	00	1.0252	1.024380
	5		55 00 00	169 08 00	do	100	37	46	00	1.0252	1.024380
	5		55 00 00	169 08 00	do	200	38	46	00	1.0254	1.024580
	5		55 00 00	169 08 00	do	300	40	00	1.0256	1.024780	
	5		55 00 00	169 08 00	do	400	37	46	00	1.0260	1.025180
	5		55 00 00	169 08 00	do	500	37	46	00	1.0262	1.025380
	5		55 00 00	169 08 00	do	600	37	46	00	1.0262	1.025380
	5		55 00 00	169 08 00	do	700	36	46	00	1.0264	1.025580
	5		55 00 00	169 08 00	do	800	36	46	00	1.0264	1.025580
	5		55 00 00	169 08 00	do	900	35	46	00	1.0264	1.025580
	5		55 00 00	169 08 00	do	1,000	48	00	1.0266	1.025780	
	5		55 00 00	169 08 00	do	1,000	44	45	58	1.0252	1.024140
	7		55 10 00	170 50 00	Surface.	37	45	58	1.0252	1.024140	
	7		55 10 00	170 50 00	do	25	37	45	58	1.0254	1.024340
	7		55 10 00	170 50 00	do	50	37	45	58	1.0254	1.024340
	7		55 10 00	170 50 00	do	100	37	45	58	1.0250	1.024540
	7		55 10 00	170 50 00	do	200	38	45	58	1.0256	1.024540
	7		55 10 00	170 50 00	do	300	38	45	58	1.0258	1.024740
	7		55 10 00	170 50 00	do	400	38	45	58	1.0260	1.024940
	7		55 10 00	170 50 00	do	500	37	45	58	1.0262	1.025140
	7		55 10 00	170 50 00	do	600	37	45	58	1.0264	1.025340
	7		55 10 00	170 50 00	do	700	36	45	58	1.0264	1.025340
	7		55 10 00	170 50 00	do	800	35	45	58	1.0264	1.025340
	7		55 10 00	170 50 00	do	900	30	45	58	1.0264	1.025340
	7		55 10 00	170 50 00	do	1,000	35	45	58	1.0266	1.025540
	7		55 10 00	170 50 00	do	1,000	45	46	60	1.0248	1.023980
	10	10.05 a.m.	50 15 00	172 35 00	Surface.	45	40	60	1.0250	1.024180	
	10	10.05 a.m.	50 15 00	172 35 00	do	25	41	46	60	1.0250	1.024180
	10	10.05 a.m.	50 15 00	172 35 00	do	50	37	46	60	1.0252	1.024380

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Record of ocean temperatures and specific gravities—Continued.

Date.	Time of day.	Station.	Lat. N.	Long. W.	Depth.	Temperature by attached thermometer.	Temperature of air.	Temp. of specimen at time sp. grav. was taken.	Specific gravity.	Specific gravity reduced to 15° C.
1895.			° ' "	° ' "		°	°			
Aug. 10	10.05 a. m.		56 15 00	172 35 00	100	36 ²	46	60	1.0252	1.024380
10	10.05 a. m.		56 15 00	172 35 00	200	38 ²	46	60	1.0254	1.024580
10	10.05 a. m.		56 15 00	172 35 00	300	37 ⁴	46	60	1.0256	1.024780
10	10.05 a. m.		56 15 00	172 35 00	400	38	46	60	1.0256	1.024780
10	10.05 a. m.		56 15 00	172 35 00	500	36 ⁸	46	60	1.0258	1.024980
10	10.05 a. m.		56 15 00	172 35 00	600	36 ⁷	46	60	1.0258	1.024980
10	10.05 a. m.		56 15 00	172 35 00	700		46	60	1.0258	1.024980
10	10.05 a. m.		56 15 00	172 35 00	800	36 ¹	46	60	1.0260	1.025180
10	10.05 a. m.		56 15 00	172 35 00	900	35 ⁸	46	60	1.0262	1.025380
10	10.05 a. m.		56 15 00	172 35 00	1,000	36	46	60	1.0264	1.025580
11	11.20 a. m.		55 23 00	170 31 00	Surface.	45	46	60	1.0246	1.023780
11	11.20 a. m.		55 23 00	170 31 00	25	38 ¹	46	60	1.0250	1.024180
11	11.20 a. m.		55 23 00	170 31 00	50	38 ⁴	46	60	1.0250	1.024180
11	11.20 a. m.		55 23 00	170 31 00	100	36	46	60	1.0252	1.024380
11	11.20 a. m.		55 23 00	170 31 00	200	38 ³	46	60	1.0254	1.024580
11	11.20 a. m.		55 23 00	170 31 00	300	38 ⁴	46	60	1.0254	1.024580
11	11.20 a. m.		55 23 00	170 31 00	400	38 ¹	46	60	1.0256	1.024780
11	11.20 a. m.		55 23 00	170 31 00	500	37 ⁵	46	60	1.0256	1.024780
11	11.20 a. m.		55 23 00	170 31 00	600	37 ²	46	60	1.0256	1.024780
11	11.20 a. m.		55 23 00	170 31 00	700	35 ⁹	46	60	1.0258	1.024980
11	11.20 a. m.		55 23 00	170 31 00	800	36 ¹	46	60	1.0262	1.025380
11	11.20 a. m.		55 23 00	170 31 00	900	35 ⁸	46	60	1.0262	1.025380
11	11.20 a. m.		55 23 00	170 31 00	1,000	35 ⁸	46	60	1.0264	1.025580
12	12.06 a. m.		54 54 00	168 59 00	Surface.	45	46	60	1.0250	1.024180
12	12.06 a. m.		54 54 00	168 59 00	25	39 ⁵	46	60	1.0250	1.024180
12	12.06 a. m.		54 54 00	168 59 00	50	37 ²	46	60	1.0250	1.024180
12	12.06 a. m.		54 54 00	168 59 00	100	38	46	60	1.0252	1.024380
12	12.06 a. m.		54 54 00	168 59 00	200	38 ²	46	60	1.0252	1.024380
12	12.06 a. m.		54 54 00	168 59 00	300	37 ⁵	46	60	1.0256	1.024780
12	12.06 a. m.		54 54 00	168 59 00	400	38 ³	46	60	1.0250	1.024780
12	12.06 a. m.		54 54 00	168 59 00	500	37 ¹	46	60	1.0258	1.024980
12	12.06 a. m.		54 54 00	168 59 00	600	37	46	60	1.0258	1.024980
12	12.06 a. m.		54 54 00	168 59 00	700	36 ⁸	46	60	1.0258	1.024980
12	12.06 a. m.		54 54 00	168 59 00	800	36 ²	46	60	1.0260	1.025180
12	12.06 a. m.		54 54 00	168 59 00	900	35 ⁵	46	60	1.0262	1.025380
12	12.06 a. m.		54 54 00	168 59 00	1,000	35 ⁵	46	60	1.0264	1.025580
18	4.01 p. m.		55 11 00	167 25 00	Surface.	45	46	60	1.0246	1.023780
18	4.01 p. m.		55 11 00	167 25 00	25	40 ⁴	46	60	1.0248	1.023980
18	4.01 p. m.		55 11 00	167 25 00	50	39 ⁹	46	60	1.0248	1.023980
18	4.01 p. m.		55 11 00	167 25 00	100	38 ⁷	46	60	1.0250	1.024180
18	4.01 p. m.		55 11 00	167 25 00	200	37 ⁶	46	60	1.0250	1.024180
18	4.01 p. m.		55 11 00	167 25 00	300	38	46	60	1.0254	1.024580
18	4.01 p. m.		55 11 00	167 25 00	400	38	46	60	1.0254	1.024580
18	4.01 p. m.		55 11 00	167 25 00	500	38	46	60	1.0256	1.024780
18	4.01 p. m.		55 11 00	167 25 00	600	37 ⁴	46	60	1.0256	1.024780
18	4.01 p. m.		55 11 00	167 25 00	700	36 ⁴	46	60	1.0260	1.025180
18	4.01 p. m.		55 11 00	167 25 00	800	36	46	60	1.0262	1.025380
18	4.01 p. m.		55 11 00	167 25 00	900	36	46	60	1.0262	1.025380
19	10.50 a. m.		54 17 00	168 53 00	Surface.	43	45	58	1.0250	1.024780
19	10.50 a. m.		54 17 00	168 53 00	25	43 ⁶	45	58	1.0250	1.024780
19	10.50 a. m.		54 17 00	168 53 00	50	37 ⁷	45	58	1.0252	1.024980
19	10.50 a. m.		54 17 00	168 53 00	100	37 ²	45	58	1.0254	1.025180
19	10.50 a. m.		54 17 00	168 53 00	200	38 ¹	45	58	1.0254	1.025180
19	10.50 a. m.		54 17 00	168 53 00	300	38	45	58	1.0256	1.025380
19	10.50 a. m.		54 17 00	168 53 00	400	38	45	58	1.0260	1.025780
19	10.50 a. m.		54 17 00	168 53 00	500	38 ⁴	45	58	1.0260	1.025780
19	10.50 a. m.		54 17 00	168 53 00	600	37	45	58	1.0260	1.025780
19	10.50 a. m.		54 17 00	168 53 00	700	36 ⁸	45	58	1.0260	1.025780
19	10.50 a. m.		54 17 00	168 53 00	800	36	45	58	1.0260	1.025880
19	10.50 a. m.		54 17 00	168 53 00	900	36 ⁸	45	59	1.0262	1.026080
19	10.50 a. m.		54 17 00	168 53 00	1,000	36 ⁵	45	59	1.0264	1.026280
20	8.14 a. m.		55 19 00	168 10 00	Surface.	45	46	60	1.0246	1.023780
20	8.14 a. m.		55 19 00	168 10 00	25	39	46	60	1.0246	1.023780
20	8.14 a. m.		55 19 00	168 10 00	50	39 ⁶	46	60	1.0248	1.023980
20	8.14 a. m.		55 19 00	168 10 00	100	38	46	60	1.0250	1.024180
20	8.14 a. m.		55 19 00	168 10 00	150	37 ⁵	46	60	1.0252	1.024380
20	8.14 a. m.		55 19 00	168 10 00	200	38	46	60	1.0254	1.024580
20	12.03 p. m.		55 17 00	168 01 00	Surface.	45	46	60	1.0246	1.023780
20	12.03 p. m.		55 17 00	168 01 00	25	39 ¹	46	60	1.0248	1.023980
20	12.03 p. m.		55 17 00	168 01 00	50	38 ¹	46	60	1.0250	1.024180
20	12.03 p. m.		55 17 00	168 01 00	100	38	46	60	1.0254	1.024580
20	12.03 p. m.		55 17 00	168 01 00	150	37 ⁸	46	60	1.0254	1.024580
20	12.03 p. m.		55 17 00	168 01 00	200	38 ¹	46	60	1.0256	1.024780

Record of ocean temperatures and specific gravities—Continued.

Date.	Time of day.	Station.	Lat. N.	Long. W.	Depth.	Temperature by attached thermometer.	Temperature of air.	Temp. of specimen at time sp. grav. was taken.	Specific gravity.	Specific gravity reduced to 15° C.
1895.			o | | |	o | | |		o	o	o		
Sept. 19	12 m	Bellingham Bay			Surface	53	50	62	1.0220	1.021450
22	6 p. m.	Blaine			do	51	54	62	1.0210	1.020450
23	12 m	Point Roberts			do	51	54	62	1.0170	1.019450
24	10 a. m.	Lummi Island			do	48	52	62	1.0220	1.021450
24	6 p. m.	Friday Harbor			do	49	55	62	1.0220	1.021450
Oct. 3	10 a. m.	Utsalady			do	53	52	62	1.0194	1.018850
3	8 p. m.	Port Ludlow			do	51	49	62	1.0228	1.022250
5	8 p. m.	Port Angeles			do	49	52	62	1.0240	1.023450
8	4 p. m.	San Juan Island			do	49	52	62	1.0228	1.022250
9	1 p. m.	Deception Pass			do	55	55	62	1.0220	1.021450
1896.										
May 21	a 2.30 p. m.	Navy yard, Maro Island			do	60	61	68	1.0000	1.000316
21	b 4 p. m.	do			do	60	59	68	1.0004	1.000716
21	b 5 p. m.	do			do	60	59	68	1.0004	1.000716
21	b 7 p. m.	do			do	60	57	68	1.0006	1.000916
21	c 9 p. m.	do			do	60	57	68	1.0012	1.001516
23	e 10 a. m.	Entrance to San Leandro Bay			do	63	66	63	1.0132	1.012791
23	d 11 a. m.	do			do	63	60	63	1.0126	1.012191
23	d 12 m.	do			do	63	66	63	1.0124	1.011991
23	d 1 p. m.	do			do	64	65	64	1.0122	1.011928
23	a 2 p. m.	do			do	62	60	63	1.0118	1.011391
23	b 3 p. m.	do			do	64	60	64	1.0120	1.011728
23	b 4 p. m.	do			do	64	58	61	1.0122	1.011928
23	b 5 p. m.	do			do	64	58	64	1.0126	1.012328
23	b 6 p. m.	do			do	64	56	64	1.0130	1.012828
24	b 9 a. m.	do			do	64	68	64	1.0128	1.012428
24	b 10 a. m.	do			do	65	69	65	1.0128	1.012870
24	b 11 a. m.	do			do	65	69	65	1.0128	1.012870
24	c 12 m.	do			do	66	72	66	1.0130	1.013020
24	d 1 p. m.	do			do	68	74	68	1.0124	1.012716
24	d 2 p. m.	do			do	68	74	68	1.0122	1.012516
24	d 3 p. m.	do			do	72	76	72	1.0114	1.012344
24	a 4 p. m.	do			do	72	73	72	1.0112	1.012144
24	b 5 p. m.	do			do	71	73	71	1.0116	1.012368
24	b 6 p. m.	do			do	71	73	71	1.0118	1.012568
26	e 12 m.	Dunbarton Point			do	68	84	68	1.0128	1.013116
26	c 1 p. m.	do			do	70	84	70	1.0184	1.014030
26	f 2 p. m.	do			do	70	86	70	1.0134	1.014030
26	f 3 p. m.	do			do	68	86	68	1.0134	1.013716
26	f 4 p. m.	do			do	68	86	68	1.0132	1.013516
26	f 5 p. m.	do			do	68	82	68	1.0128	1.013116
26	a 6 p. m.	do			do	60	80	60	1.0126	1.012620
26	c 7 p. m.	do			do	66	74	66	1.0126	1.012620
26	e 8 p. m.	do			do	66	72	66	1.0126	1.012620
27	a 7.30 a. m.	do			do	60	67	60	1.0120	1.012620
27	b 9 a. m.	do			do	68	68	68	1.0120	1.012916
27	b 10 a. m.	do			do	68	68	68	1.0128	1.013116
27	b 11 a. m.	do			do	68	68	68	1.0128	1.013116
27	b 12 m.	do			do	70	74	70	1.0130	1.013040
27	c 1 p. m.	do			do	70	72	70	1.0132	1.013830
27	c 2 p. m.	do			do	68	74	68	1.0134	1.013716
27	c 3 p. m.	do			do	67	74	67	1.0134	1.013567
27	f 4 p. m.	do			do	60	74	60	1.0134	1.013420
27	f 5 p. m.	do			do	66	74	66	1.0132	1.013220
27	f 6 p. m.	do			do	66	70	66	1.0120	1.012920
27	a 7 p. m.	do			do	66	65	66	1.0128	1.012620
27	a 7 p. m.	do			do	66	63	66	1.0126	1.013620
27	b 8 p. m.	do			do	66	64	66	1.0130	1.03020
28	f 8 a. m.	do			do	66	64	66	1.0130	1.013020
28	a 9 a. m.	do			do	66	66	66	1.0132	1.013220
28	b 10 a. m.	do			do	66	66	66	1.0134	1.013420
28	b 11 a. m.	do			do	67	74	67	1.0134	1.013567
28	b 12 a. m.	do			do	68	74	68	1.0134	1.013716
28	b 1 p. m.	do			do	68	74	68	1.0134	1.013716
28	b 2 p. m.	do			do	68	70	68	1.0134	1.013716
28	c 3 p. m.	do			do	68	70	68	1.0134	1.013716
28	c 4 p. m.	do			do	68	70	68	1.0134	1.013716
June 26	12 m		51 05 00	128 26 00	do	53	50	50	1.0232	1.022260
26	6 p. m.		51 22 00	129 48 00	do	54	50	59	1.0244	1.023400
26	12 p. m.		51 35 00	181 05 00	do	51	54	59	1.0244	1.023400
27	0 a. m.		51 40 00	132 21 00	do	51	53	59	1.0246	1.023660

a Low water.
d Tide oblong.

b Tide flooding.
e Flood tide.

c High water.
f Ebb tide.

OBSERVATIONS MADE ON BOARD THE ALBATROSS.

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Record of hydrographic soundings, etc.—Continued.

BERING SEA BETWEEN PRIBILOF AND ALEUTIAN ISLANDS.

Date.	Serial number.	Time of day.	Position.		Depth.	Character of bottom.	Temperatures.		
			Lat. N.	Long. W.			Air.		
							D. B.	Surf.	Bottom.
1895.			° ' "	° ' "	Fms.				
Aug. 4	Hy. 3586	7.15 a. m.	53 59 00	166 29 00	76	gn. M. S.	46	46	89.2
	Hy. 3587	7.43 a. m.	54 01 30	166 30 30	98	fne. gy. S. bk. Sp.	46	43	88.8
	Hy. 3588	8.05 a. m.	54 03 30	166 31 30	93	gy. S. G.	46	45	.....
	Hy. 3589	9.41 p. m.	54 00 30	169 20 30	1,003	gn. M. bk. S.	45	45	35.5
	Hy. 3590	1.52 a. m.	54 30 00	169 31 00	1,491	gn. M.	44	45	35.5
	Hy. 3591	5.50 a. m.	54 59 00	169 41 00	1,676	gn. M. fne. S.	46	45	35.0
	Dr. 3601	11.10 a. m.	55 06 00	169 08 00	1,044	..... do	46	46	35.8
	Hy. 3592	6.33 p. m.	55 12 00	168 47 00	1,035	br. oz.	46	44	35.2
	Hy. 3593	12.12 a. m.	55 34 00	169 22 00	1,815	..... do	46	45	34.7
	Hy. 3594	5.30 p. m.	55 10 00	170 56 00	1,064	..... do	45	44	34.7
	Hy. 3595	1.10 a. m.	55 12 00	171 48 00	1,810	..... do	44	45	35.2
	Hy. 3596	6.44 a. m.	55 32 00	172 17 00	1,901	..... do	46	43	35.5
	Hy. 3597	10.18 a. m.	50 15 00	172 35 00	1,267	gn. M. S.	46	46	36.0
	Hy. 3598	8.15 p. m.	50 28 00	172 39 00	295	..... do	45	44	38.1
	Hy. 3599	8.37 p. m.	50 29 00	172 39 00	200	..... do	45	45	38.1
	Hy. 3600	8.54 p. m.	50 30 00	172 40 00	156	..... do	46	45	37.1
	Hy. 3601	9.20 p. m.	50 31 00	172 40 00	110	..... do	45	44	37.1
	Dr. 3602	9.43 p. m.	56 32 00	172 40 00	81	..... do	45	44	37.1
	Hy. 3602	4.47 a. m.	55 53 00	171 42 00	1,496	..... do	45	44	35.1
	Dr. 3603	11.38 a. m.	55 23 00	170 31 00	1,771	br. oz.	46	45	35.1
	Hy. 3603	12.45 a. m.	54 39 00	170 19 00	1,025	gn. oz.	46	44	35.3
	Hy. 3604	4.49 a. m.	54 46 00	169 29 00	1,355	..... do	45	45	35.2
	Dr. 3604	10.25 a. m.	54 54 00	168 59 00	1,401	gn. oz.	46	45	35.2
	Hy. 3605	11.45 p. m.	55 01 00	168 33 00	1,162	gn. M. S.	44	45	35.1
	Hy. 3606	2.00 a. m.	54 54 00	168 13 00	1,132	..... do	44	44	35.5
	Hy. 3607	4.20 a. m.	54 41 00	168 01 00	823	..... do	44	45	37.1
	Hy. 3608	6.54 a. m.	54 41 00	168 25 00	1,122	..... do	44	45	35.3
	Hy. 3609	11.05 a. m.	55 09 00	167 40 00	189	..... do	45	45	37.5
	Dr. 3605	12.44 p. m.	55 17 00	167 84 00	91	..... do	45	44	37.1
	Hy. 3610	4.22 p. m.	55 32 00	167 50 00	110	fne. gy. S.	46	44	38.1
	Dr. 3606	5.12 p. m.	55 27 00	167 47 00	87	gn. M. fne. S.	46	45	38.1
	Hy. 3611	8.29 p. m.	55 32 00	168 11 00	83	fne. gy. S. bk. Sp.	45	45	38.9
	Hy. 3612	10.49 p. m.	55 42 00	168 32 00	76	bn. M. fne. S.	45	45	38.8
	Hy. 3613	11.36 a. m.	54 14 00	166 54 30	778	gn. M. bk. S.	52	46	36.3
	Hy. 3614	1.37 p. m.	54 25 00	167 13 00	334	gn. M. S.	50	46	38.1
	Dr. 3607	4.14 p. m.	54 11 30	167 25 00	987	gn. M. bk. lav. S.	46	45	35.9
	Hy. 3615	10.58 p. m.	54 25 00	167 38 00	466	gn. M. S.	45	46	37.1
	Hy. 3616	7.23 a. m.	54 11 30	167 50 00	1,048	..... do	44	42	35.2
	Hy. 3617	3.38 a. m.	54 24 00	168 02 00	538	..... do	44	42	37.1
	Hy. 3618	6.02 a. m.	54 10 00	168 14 00	1,075	gn. M. bk. S.	44	42	35.5
	Hy. 3619	8.38 a. m.	54 06 00	168 37 00	1,231	gn. M. S.	45	43	35.3
	Hy. 3620	11.02 a. m.	54 17 00	168 53 30	1,014	gn. M. bk. S.	45	43	35.6
	Hy. 3621	3.33 p. m.	54 89 00	168 52 30	975	gn. M. S.	47	44	35.5
	Hy. 3622	8.24 p. m.	54 53 00	169 19 00	1,471	..... do	46	45	35.1
	Hy. 3623	1.21 a. m.	55 11 00	168 30 30	944	gn. M.	47	45	35.9
	Hy. 3624	4.07 a. m.	55 32 00	168 36 00	273	gn. M. S.	48	47	38.1
	Hy. 3625	6.57 a. m.	55 19 30	168 09 00	229	gn. M. fne. S.	46	45	38.1
	Hy. 3626	8.18 a. m.	55 19 30	168 10 00	244	gy. S.	46	45	38.1
	Dr. 3608	10.01 a. m.	55 19 30	168 11 00	276	..... do	46	45	37.8
	Hy. 3627	12.05 p. m.	55 17 00	168 01 00	219	fne. gy. S.	46	45	38.0
	Hy. 3628	6.07 p. m.	55 23 00	167 48 00	90	fne. gy. S. bk. Sp.	47	47	37.8
	Hy. 3629	10.23 p. m.	55 11 00	167 56 00	367	gn. M. S.	46	45	37.8
	Hy. 3630	1.29 a. m.	55 04 00	167 24 00	99	bk. S.	47	45	37.6
	Hy. 3631	3.37 a. m.	55 19 00	167 27 00	78	fne. bk. S.	47	47	36.5
	Hy. 3632	5.57 a. m.	55 30 00	167 51 00	74	gn. M. S.	46	40	37.6
	Dr. 3609	9.12 a. m.	55 35 00	168 20 00	74	..... do	46	46	37.9
	Hy. 3633	11.55 a. m.	55 41 00	168 34 00	77	..... do	46	46	37.8
	Hy. 3634	12.41 p. m.	55 43 00	168 42 00	89	gy. S. M.	46	45	38.4
	Hy. 3635	1.13 p. m.	55 44 00	168 47 00	141	gy. S.	46	45	37.8
	Hy. 3636	1.39 p. m.	55 43 00	168 44 00	108	fne. gy. S.	47	45	38.0
	Hy. 3637	5.35 p. m.	55 27 00	168 01 30	104	..... do	47	46	38.8
	Hy. 3638	2.45 a. m.	55 42 00	168 09 00	68	gn. M.	47	46	37.5
	Dr. 3610	8.11 a. m.	55 58 00	167 10 00	75	..... do	45	47	36.8
	Hy. 3639	2.31 p. m.	56 31 00	166 59 00	57	gn. M. S.	48	47	35.3
	Dr. 3611	5.18 p. m.	56 45 00	167 25 00	50	..... do	45	46	34.6
	Hy. 3640	6.15 a. m.	56 02 00	169 06 30	77	..... do	47	45	37.9
	Hy. 3641	5.45 p. m.	54 57 30	167 14 00	137	..... do	48	47	37.7
	Hy. 3642	6.47 p. m.	54 56 00	167 02 30	116	..... do	47	46	37.8
	Hy. 3643	7.20 p. m.	54 55 30	168 57 00	113	..... do	46	46	37.3
	Hy. 3644	7.54 p. m.	54 57 00	168 53 00	93	..... do	46	46	37.8
	Hy. 3645	8.58 p. m.	54 52 00	168 43 30	118	gn. M.	46	46	37.5
	Hy. 3646	9.48 p. m.	54 54 00	168 35 30	90	gn. M. S.	46	40	37.5
	Hy. 3647	10.48 p. m.	54 49 30	168 26 30	106	..... do	46	46	37.3
	Hy. 3648	11.22 p. m.	54 50 30	168 21 30	95	..... do	47	46	37.8
	Hy. 3649	12.40 a. m.	54 41 00	166 15 30	171	rky.	47	45	37.7
	Hy. 3650	2.05 a. m.	54 32 00	166 09 00	264	..... do	47	45	37.8

386 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Record of hydrographic soundings, etc.—Continued.

BELLINGHAM BAY, STATE OF WASHINGTON.

Date.	Serial number.	Time of day.	Position.		Depth.	Character of bottom.	Temperatures.		
			Lat. N.	Long. W.			Air.		Bottom.
							D. B.	Surf.	
1895. Sept. 30	Dr. 3612	8.30 a. m.	0 11	0 11	Fms. 11	gn. M	56	52	.....

SAN DIEGO BAY, CALIFORNIA, IN CHANNELS. a

1896. Mar. 31	Dr. 3613	9.35 a. m.	2 1/2	S. by E. of National City Wharf.	5	M. Sh	70	63	.....
	31 Dr. 3614	10.25 a. m.	1 3/4	S. by E. of National City Wharf.	4 1/2	do	70	63	.....
	31 Dr. 3615	12.10 p. m.	1 3/4	S. by E. of National City Wharf.	5	do	70	63	.....
	31 Dr. 3616	1.05 p. m.	1/4	SSE. of National City Wharf.	5	do	72	63	.....
	31 Dr. 3617	1.50 p. m.		Abreast of National City Wharf.	5 1/2	do	72	63	.....
	31 Dr. 3618	2.35 p. m.		Abreast of Beacon No. 9.	4 1/2	do	72	63	.....
	31 Dr. 3619	3.03 p. m.	1 1/4	ESE. of Beacon No. 8.	4	do	74	63	.....
	31 Dr. 3620	3.50 p. m.	3/4	E. by S. of Beacon No. 8.	6	do	74	63	.....
Apr. 1	Dr. 3621	10.12 a. m.	3/4	ENE. of Point Loma light-house.	6 1/2	M. S.	72	61	.....
1	Dr. 3622	10.45 a. m.		Abreast (east) of Bal- last Point.	7	do	74	61	.....
1	Dr. 3623	1.05 p. m.	1/4	NW. by N. of Bal- last Point.	6 1/2	S.	73	63	.....
1	Dr. 3624	1.45 p. m.		Abreast of Beacon No. 3.	5	M. S.	70	63	.....
1	Dr. 3625	2.20 p. m.		Abreast of Beacon No. 4.	6	do	72	63	.....
1	Dr. 3626	3.00 p. m.		Abreast of Red "Dia- mond" Beacon.	7	do	72	63	.....

a Boat trawl.

OFF SOUTHERN CALIFORNIA COAST: WEST OF CORTEZ AND TANNER BANKS.

Apr. 13	Hy. 3652	10.54 a. m.	33 06 00	119 17 00	892	fine. S. M.	58	56	39.1
13	Dr. 3627	2.37 p. m.	32 44 00	119 32 00	776	gn. M. S.	55	55	39.2
13	Hy. 3653	6.24 p. m.	32 38 00	119 36 00	180	fine. gy. S.	55	55	45.4
13	Hy. 3654	8.02 p. m.	32 30 00	119 43 00	659	crs. gy. S.	55	55	38.6
13	Hy. 3655	11.24 p. m.	32 34 00	119 55 00	891	do	55	55	38.2

LOWER BAY OF SAN FRANCISCO.

June		Time of day.	Lat. N.	Long. W.	Feet.	Character of bottom.	Temperatures.		
							D. B.	Surf.	Bottom.
1	Dr. 3628	7.07 a. m.	37 45 15	122 17 07	18	sft. gn. M.	53	57	.....
1	Dr. 3629	7.53 a. m.	37 41 40	122 17 50	19 1/2	do	53	57	.....
1	Dr. 3630	9.15 a. m.	37 41 10	122 17 20	15	do	53	58	.....
1	Dr. 3631	10.00 a. m.	37 41 55	122 19 50	25	gn. M.	53	58	.....
1	Dr. 3632	11.05 a. m.	37 38 20	122 20 10	18	do	54	60
1	Dr. 3633	11.37 a. m.	37 39 00	122 20 15	18	do	55	62

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