

OCEANOGRAPHIC OBSERVATIONS
ON THE
"E. W. SCRIPPS" CRUISES OF 1941

BY
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OF THE
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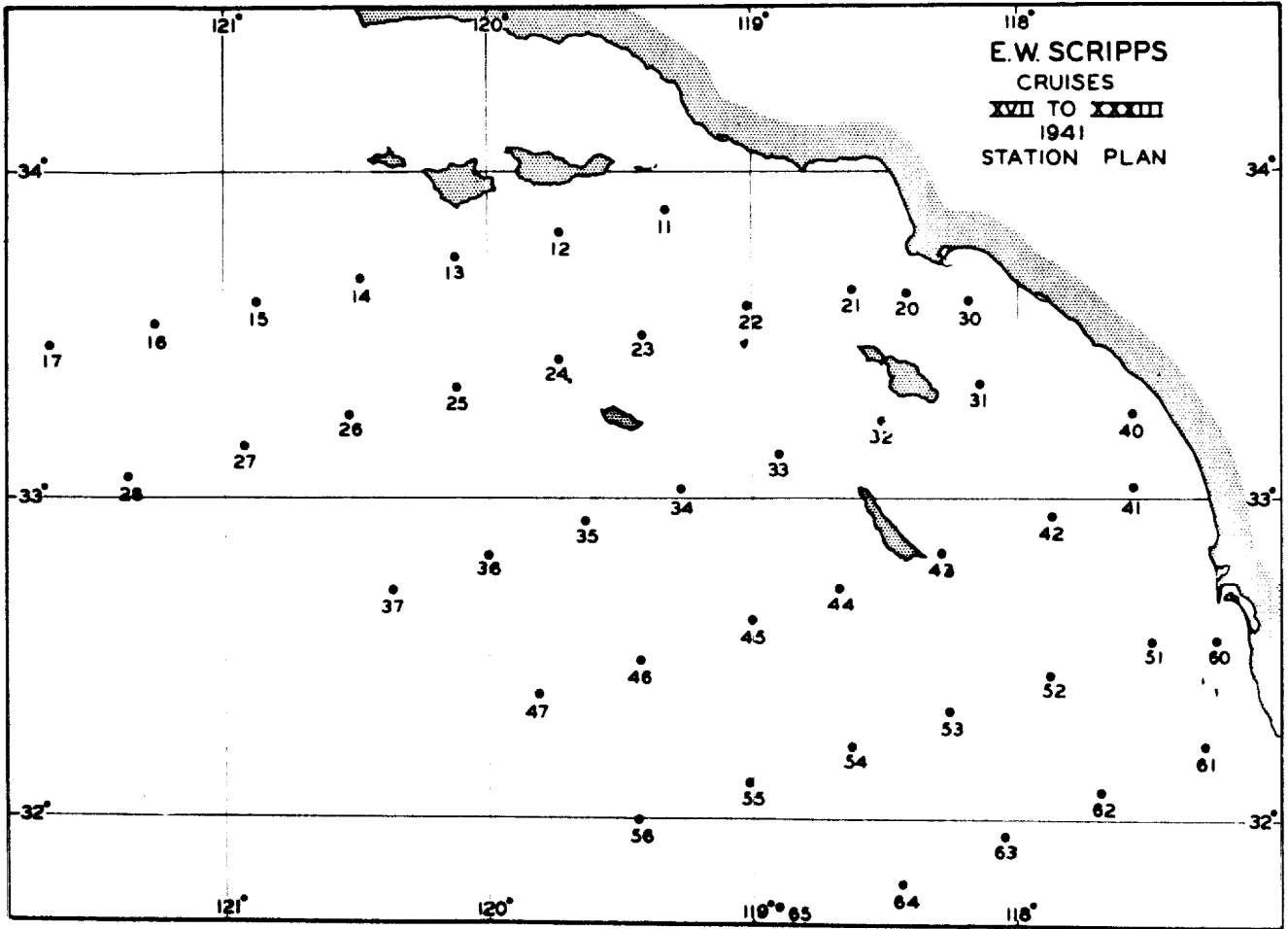


Fig. 1.--Station plan of the "E. W. Scripps" cruises, 1941.

OCEANOGRAPHIC OBSERVATIONS ON THE "E. W. SCRIPPS" CRUISES OF 1941

CRUISES XVII-XXXIII

By

H. U. SVERDRUP and STAFF

In 1941 ten cruises, numbered XVII to XXXIII, were made in cooperation with the U. S. Fish and Wildlife Service to study hydrographic conditions and the distribution of sardine eggs and larvae off southern California. The area investigated in 1940 (see fig. 1) was again selected for 1941; the stations were close enough together to be occupied within a period of about a week, thus yielding a nearly simultaneous picture of distributions for each cruise. As before, cruises were repeated at intervals of about three weeks in order to obtain a succession of distribution schemes, showing the changes with respect to time. Most of the 54 stations (see fig. 1) were occupied on each cruise. The first cruise began on March 21 and the last ended on November 22.

The hydrographic observations were made approximately at the 1940 standard depths: 0, 10, 20, 30, 40, 50, 75, 100, 150, 200, 250, 300, 400, 500, and 600 meters. With the aid of observations of the wire angle and unprotected thermometer, readings of the actual depths of the observations were determined. The observations of temperature, salinity, and oxygen content reported in table 1 were corrected to the accompanying standard depths by interpolation. The table also contains computed values of σ_t , anomalies of specific volume and dynamic depth.

Observations of plankton diatoms are listed in table 2. Five-liter water samples obtained from different depths, 0, 10, 20, 30, 40, 50, 60 meters, by means of the Allen closing-bottle, were filtered through a small net no. 25 bolting silk, and the concentrated sample preserved in a small glass bottle for microscopic examination in the laboratory. The table contains the number of diatoms per liter in good condition, in poor condition, and the total number as well as the percentage of diatoms in poor condition.

CHARTS

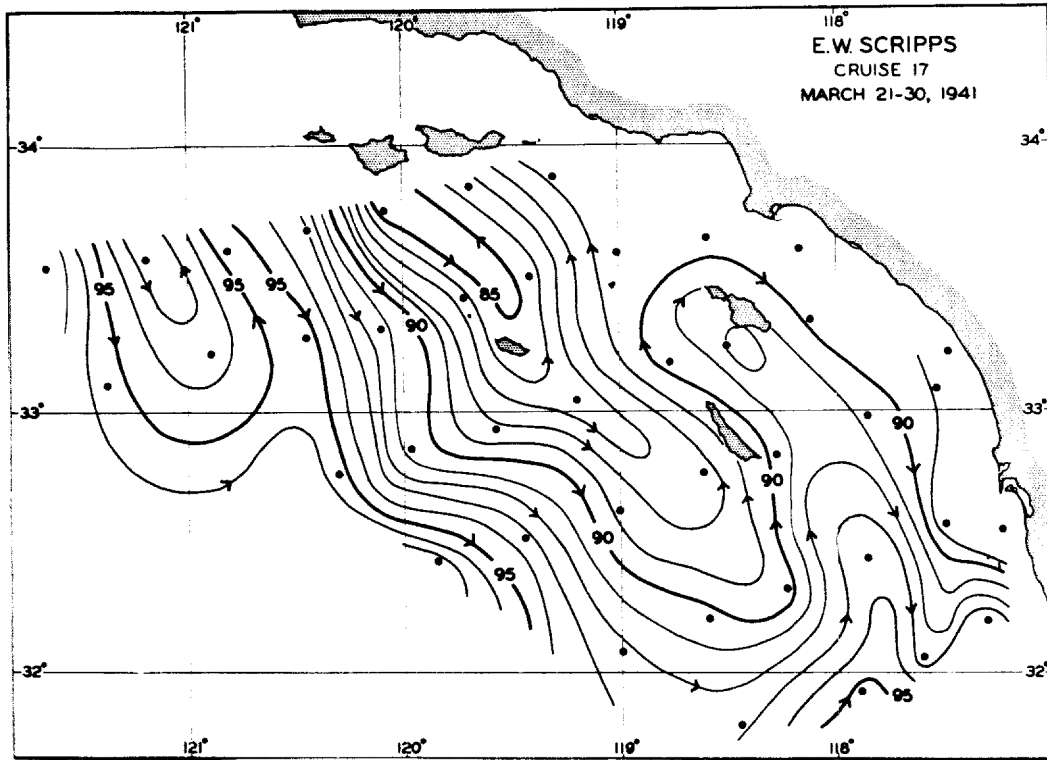


Chart 1.--Topography of the sea surface (dyn cm) relative to the 500 decibar surface. Cruise XVII.

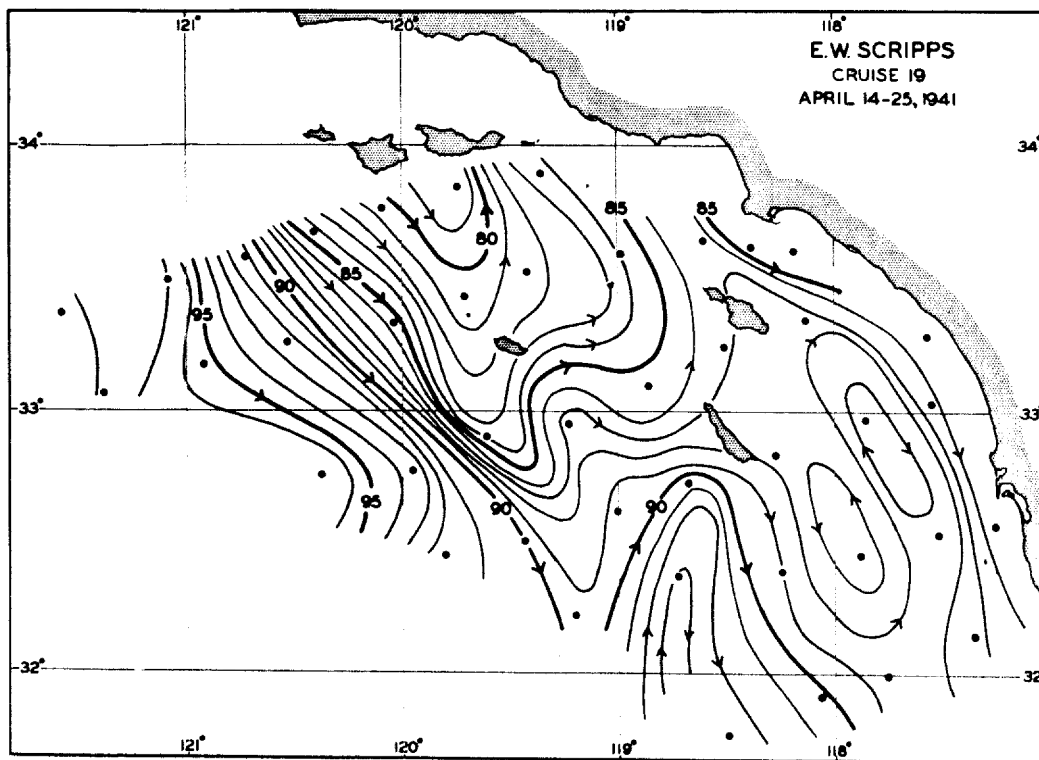


Chart 2.--Topography of the sea surface (dyn cm) relative to the 500 decibar surface. Cruise XIX.

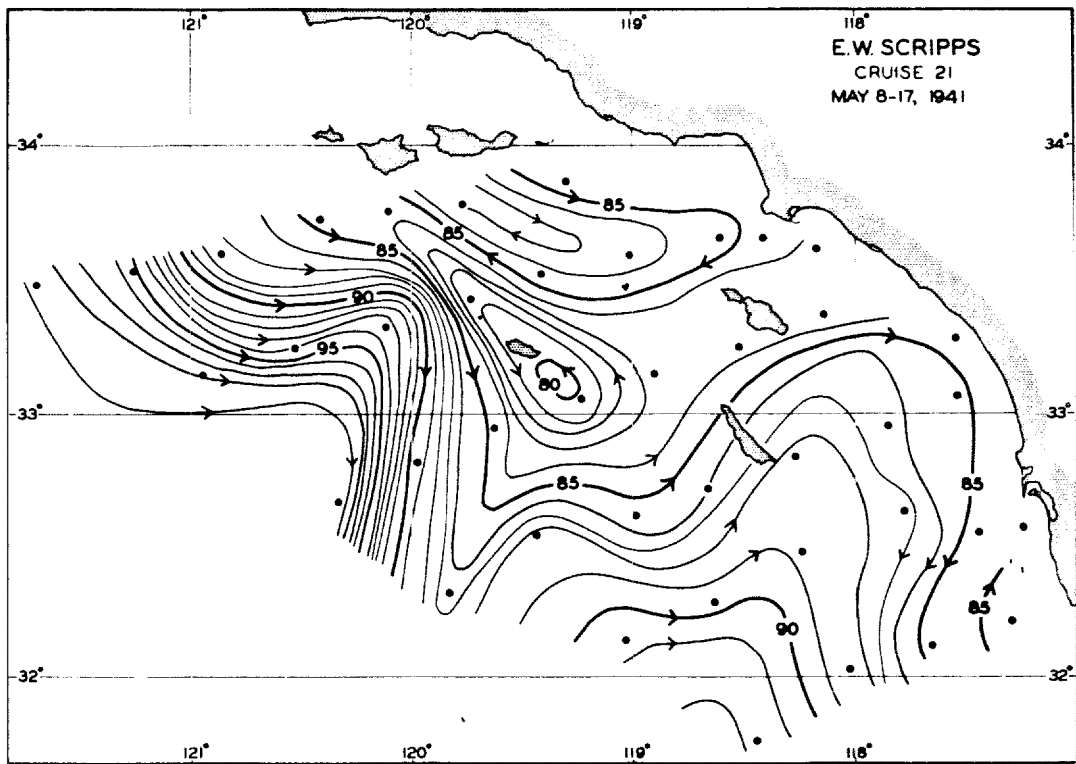


Chart 3.--Topography of the sea surface (dyn cm) relative to the 500 decibar surface.
Cruise XXI.

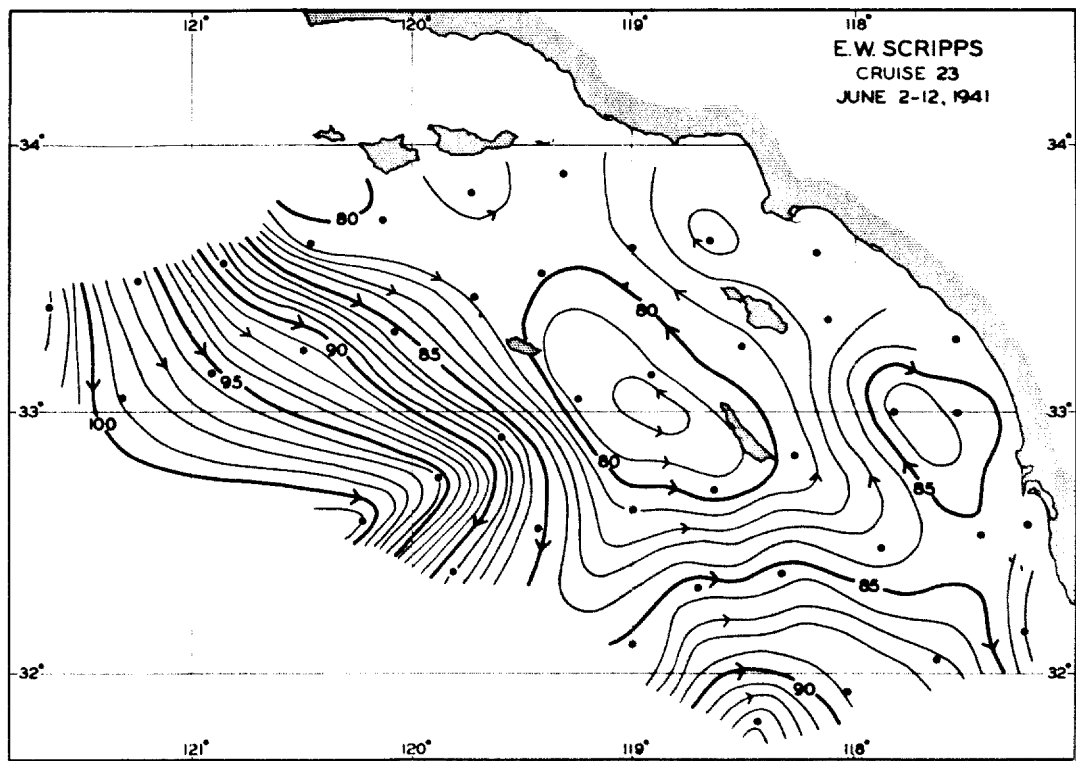


Chart 4.--Topography of the sea surface (dyn cm) relative to the 500 decibar surface.
Cruise XXIII.

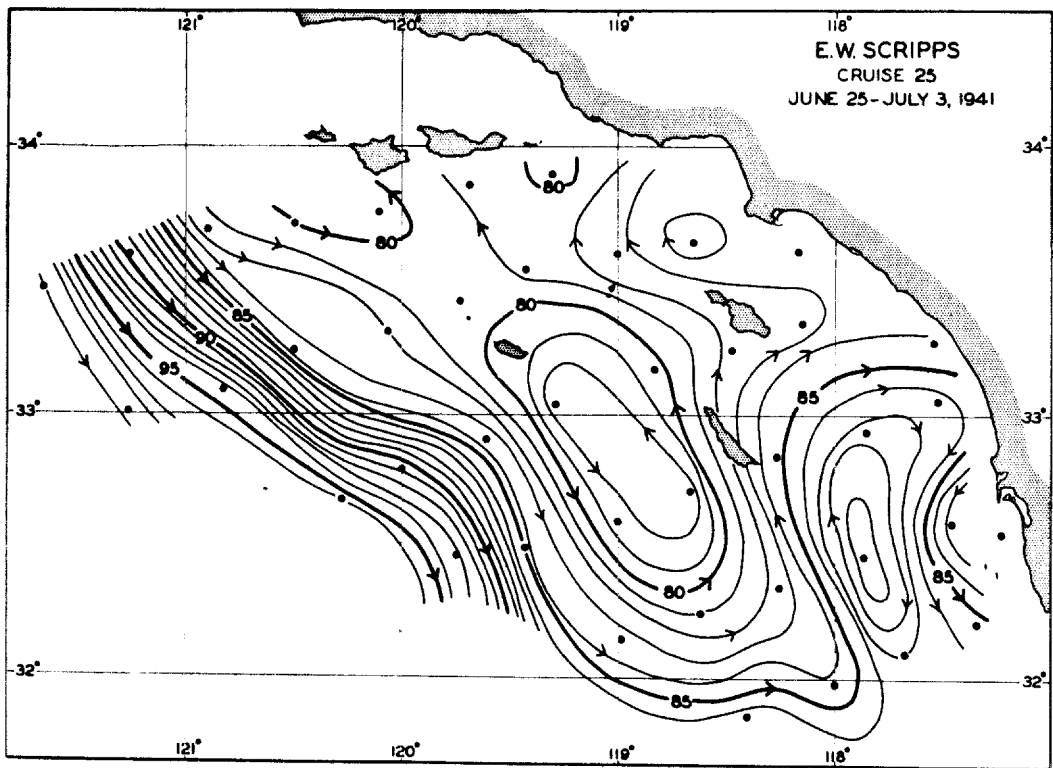


Chart 5.--Topography of the sea surface (dyn cm) relative to the 500 decibar surface.
Cruise XXV.

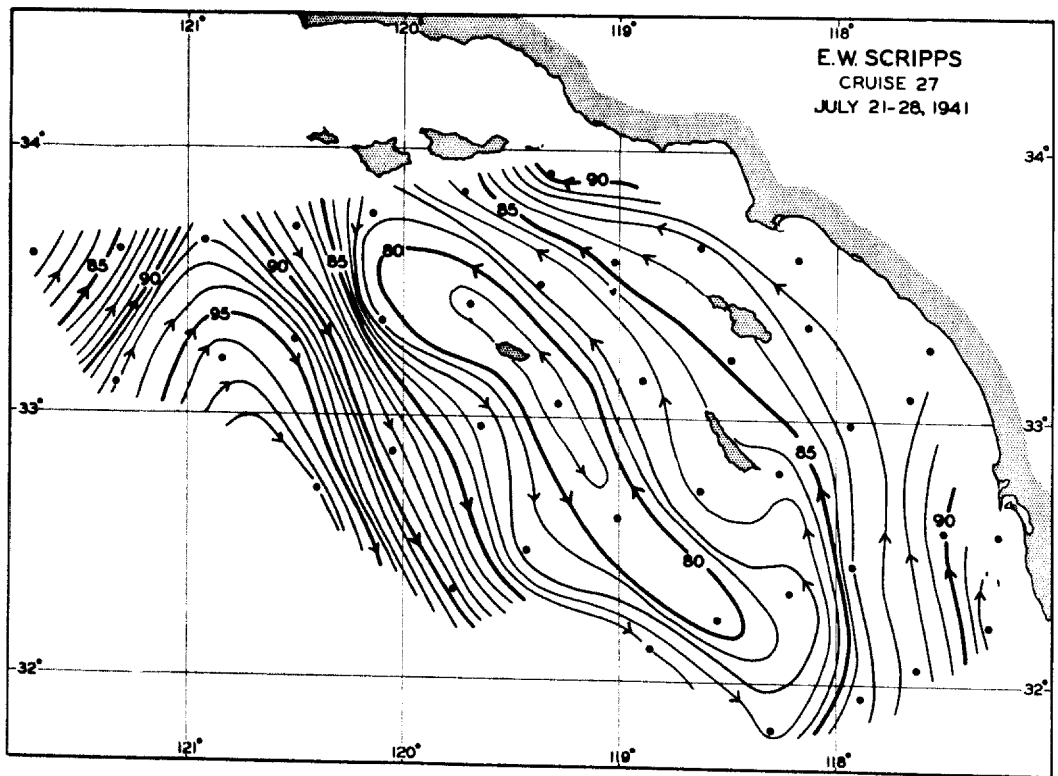


Chart 6.--Topography of the sea surface (dyn cm) relative to the 500 decibar surface.
Cruise XXVII.

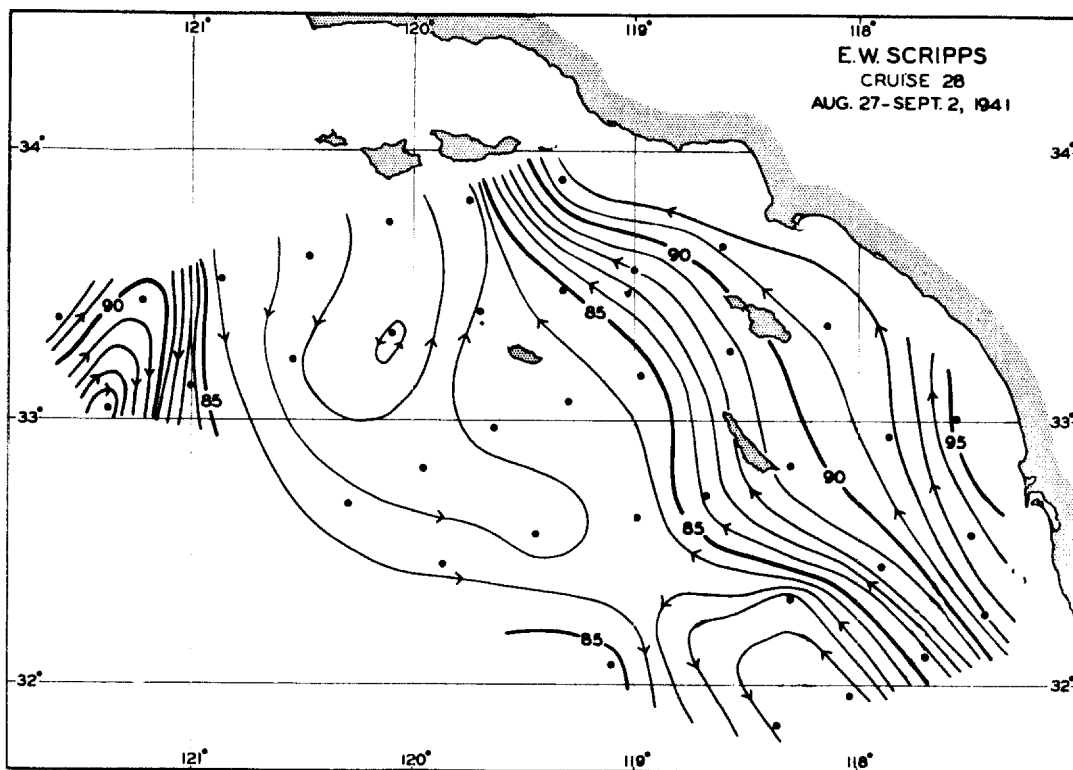


Chart 7.--Topography of the sea surface (dyn cm) relative to the 500 decibar surface, Cruise XXVIII.

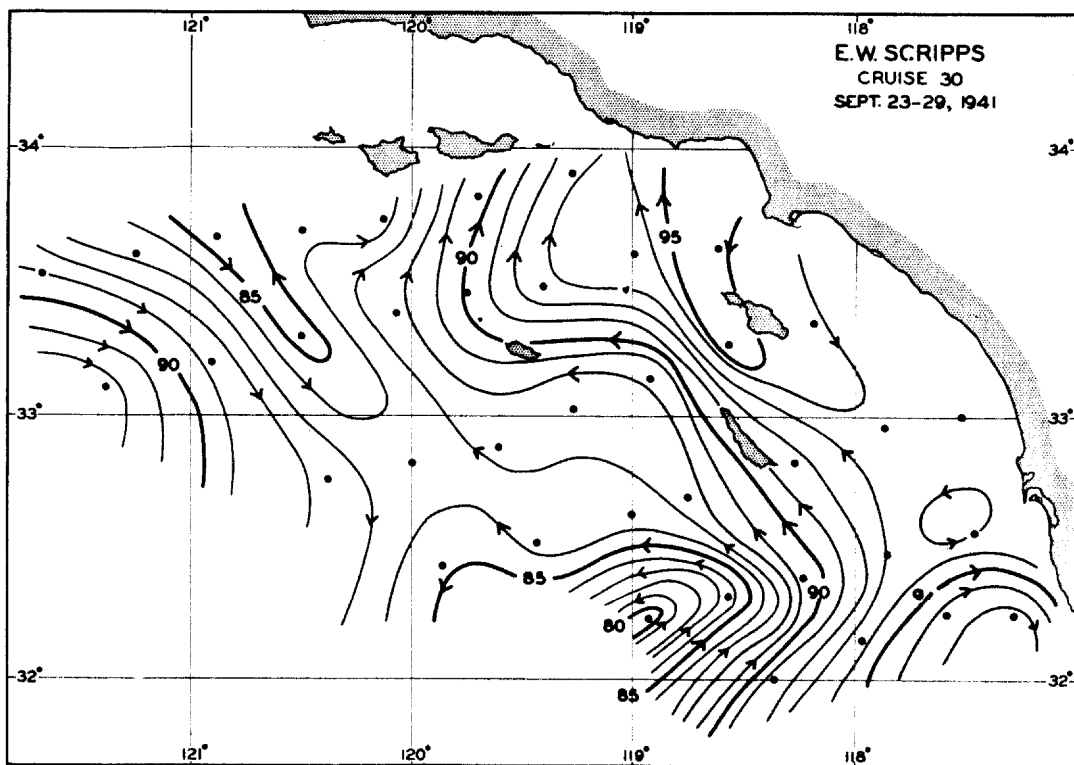


Chart 8.--Topography of the sea surface (dyn cm) relative to the 500 decibar surface, Cruise XXX.

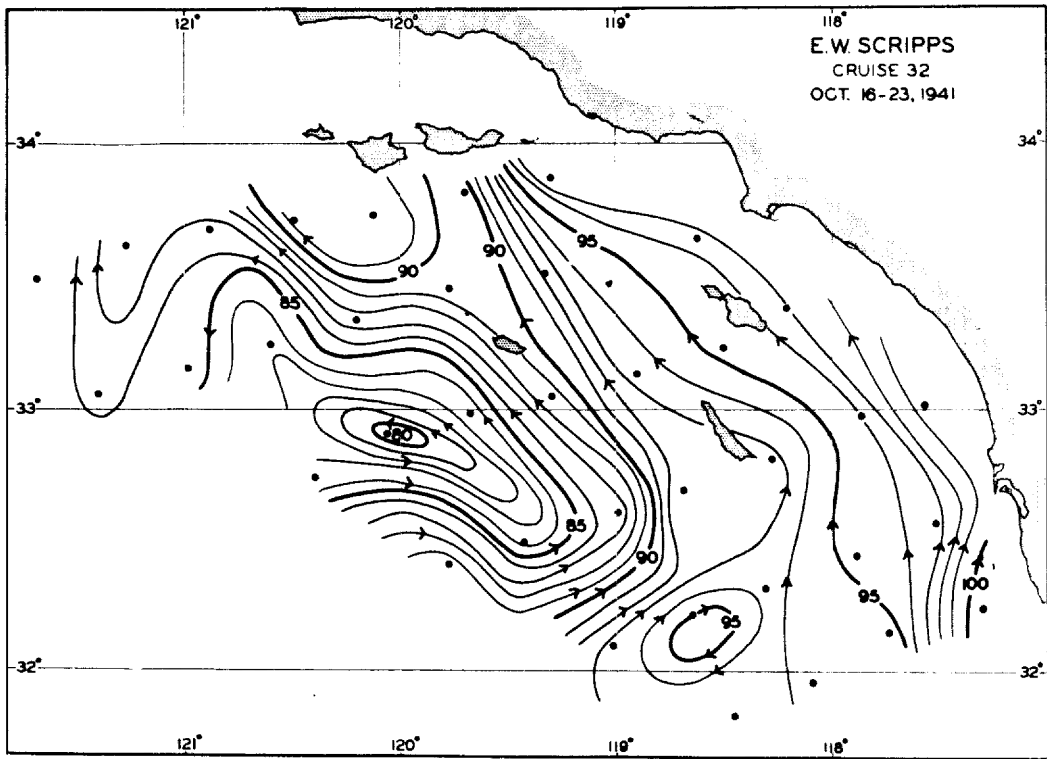


Chart 9.--Topography of the sea surface (dyn cm) relative to the 500 decibar surface.
Cruise XXXII.

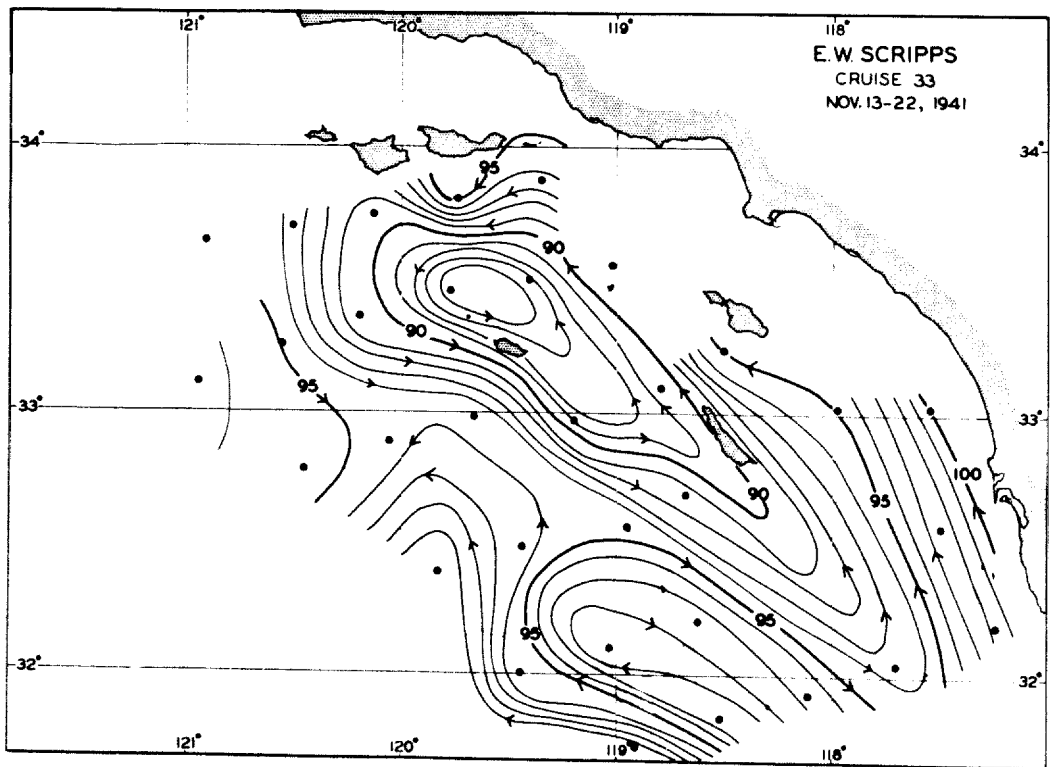


Chart 10.--Topography of the sea surface (dyn cm) relative to the 500 decibar surface.
Cruise XXXIII.

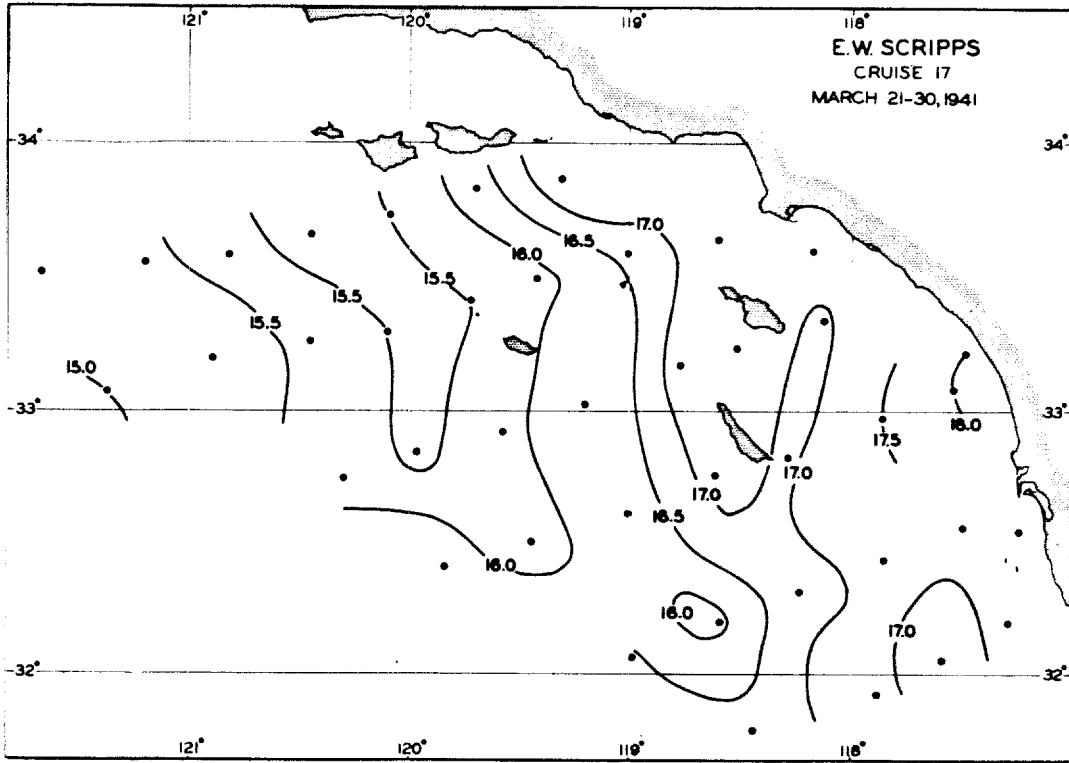


Chart 11.--Sea Surface temperature ($^{\circ}$ C)
Cruise XVII.

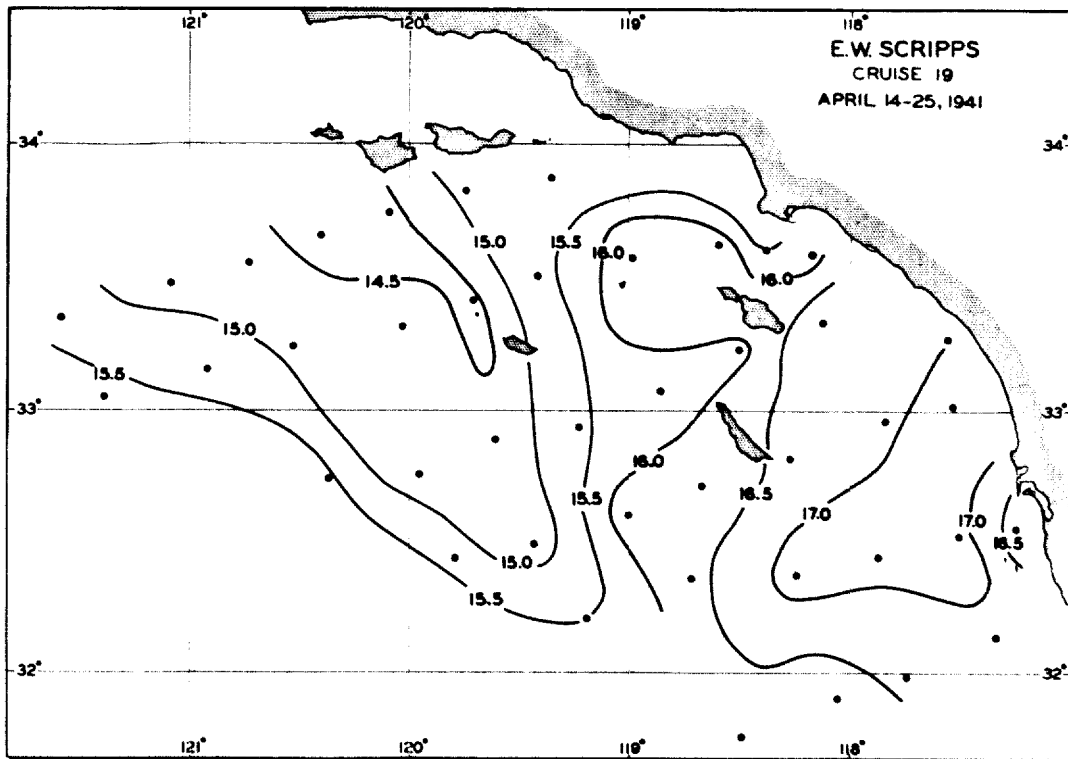


Chart 12.--Sea surface temperature ($^{\circ}$ C)
Cruise XIX.

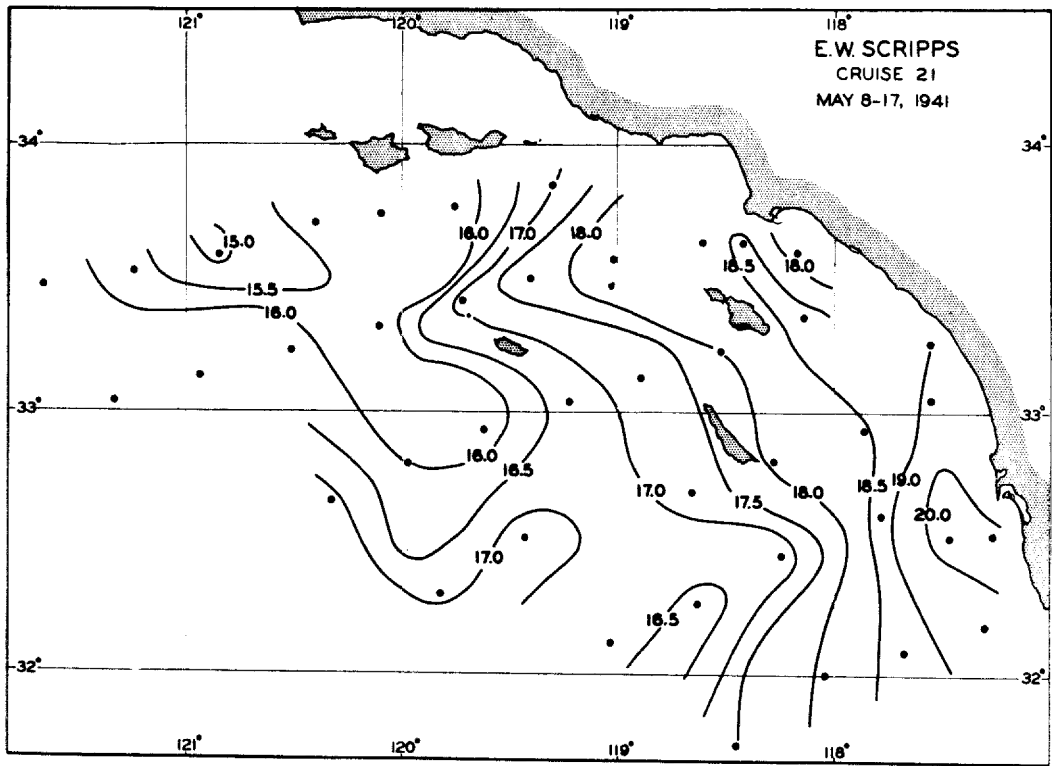


Chart 13.--Sea Surface temperature (°C)
Cruise XXI.

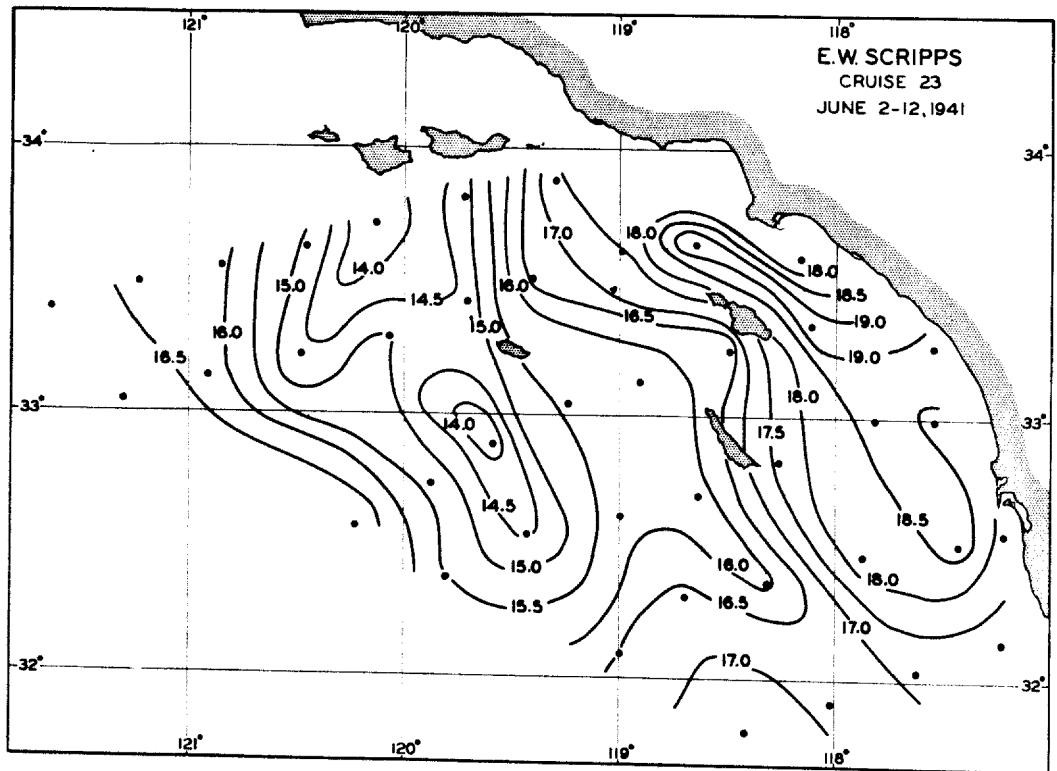


Chart 14.--Sea surface temperature (°C)
Cruise XXIII.

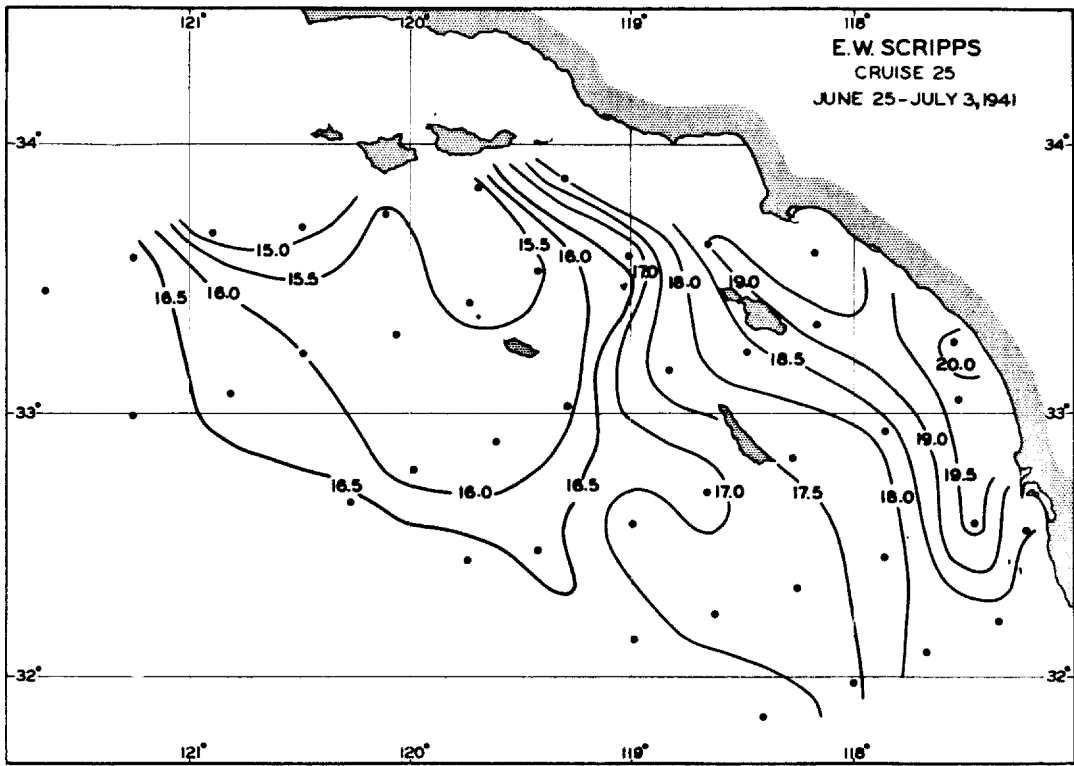


Chart 15.--Sea surface temperature ($^{\circ}$ C)
Cruise XXV.

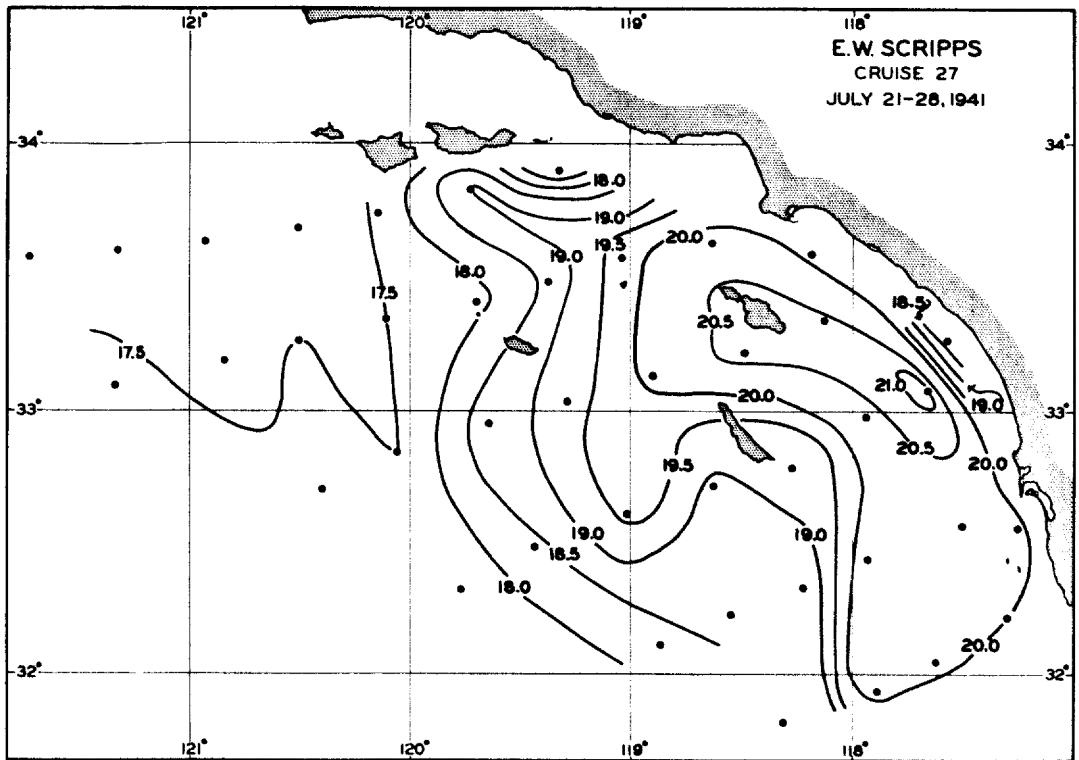


Chart 16.--Sea surface temperature ($^{\circ}$ C)
Cruise XXVII.

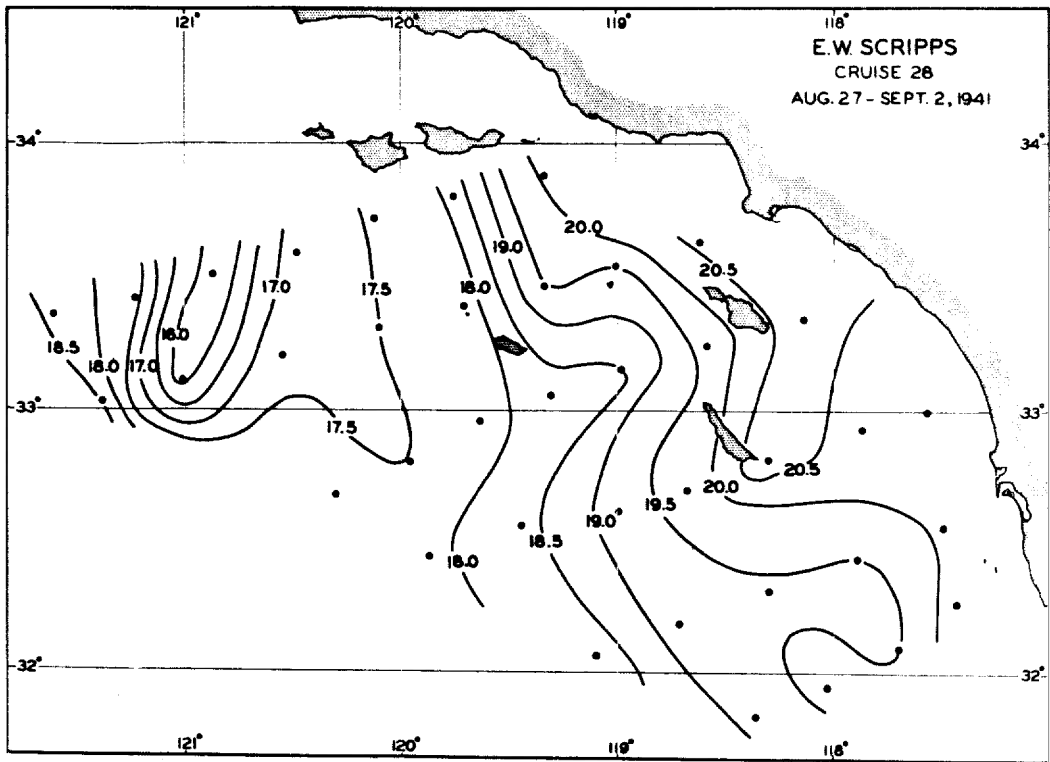


Chart 17.--Sea surface temperature ($^{\circ}$ C)
Cruise XXVIII.

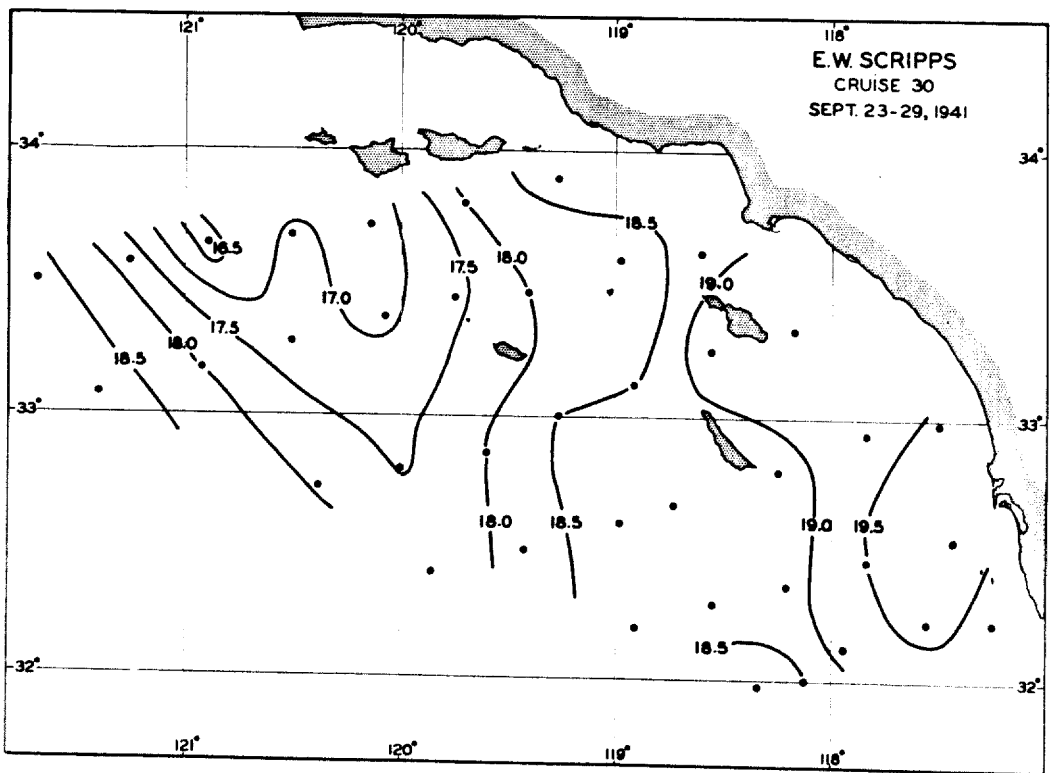


Chart 18.--Sea surface temperature ($^{\circ}$ C)
Cruise XXX.

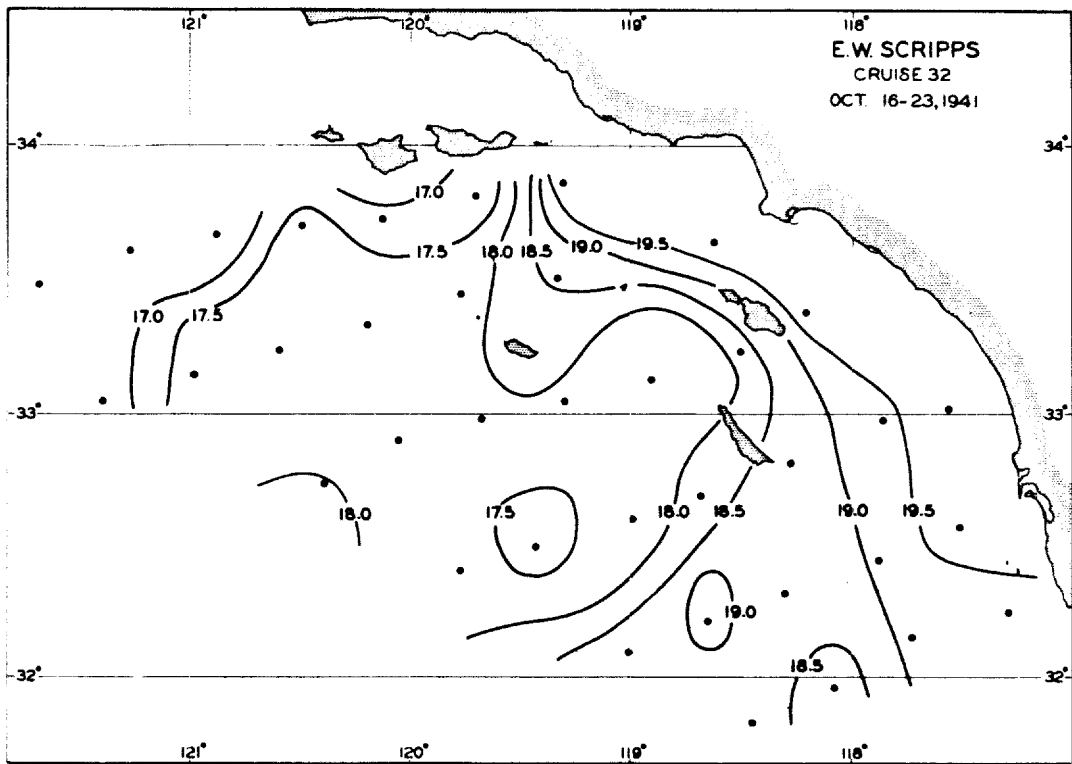


Chart 19.--Sea surface temperature ($^{\circ}$ C)
Cruise XXXII.

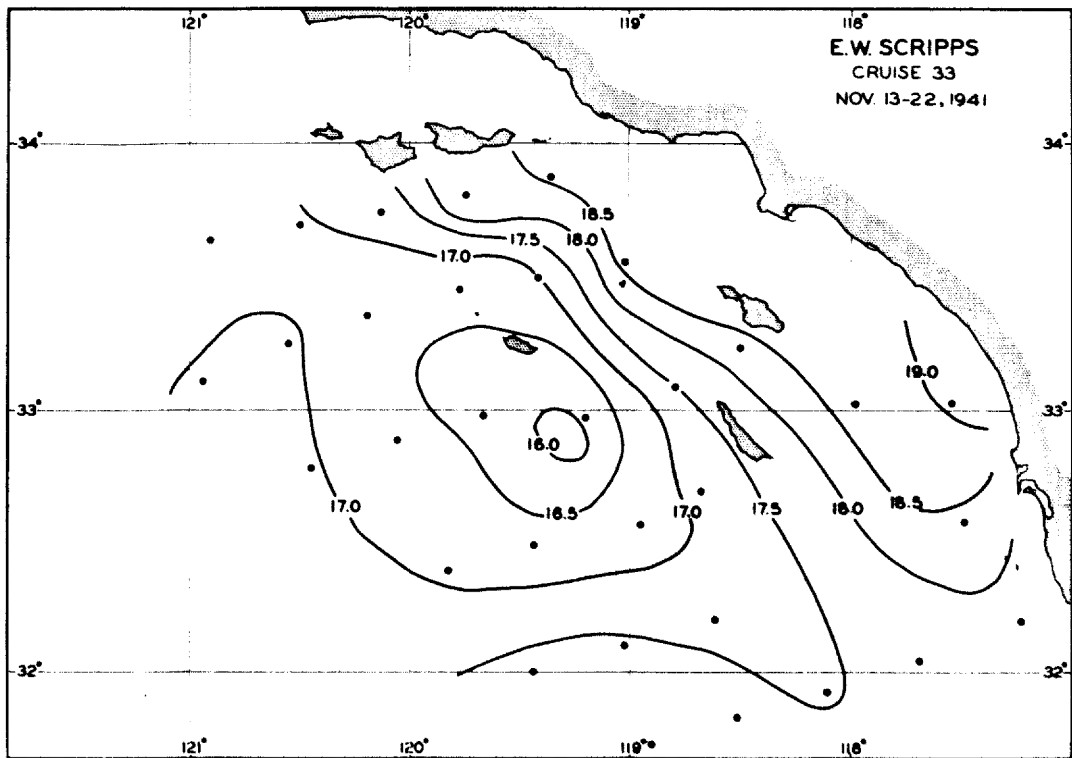


Chart 20.--Sea surface temperature ($^{\circ}$ C)
Cruise XXXIII.

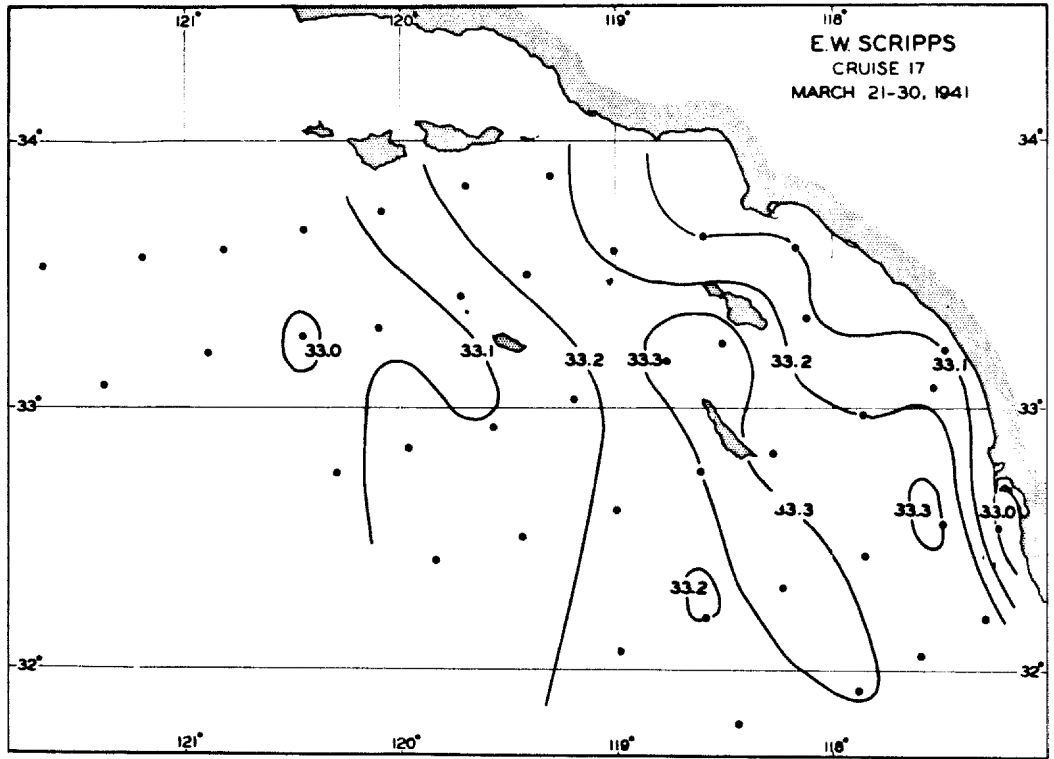


Chart 21.--Surface salinity (‰)
Cruise XVII.

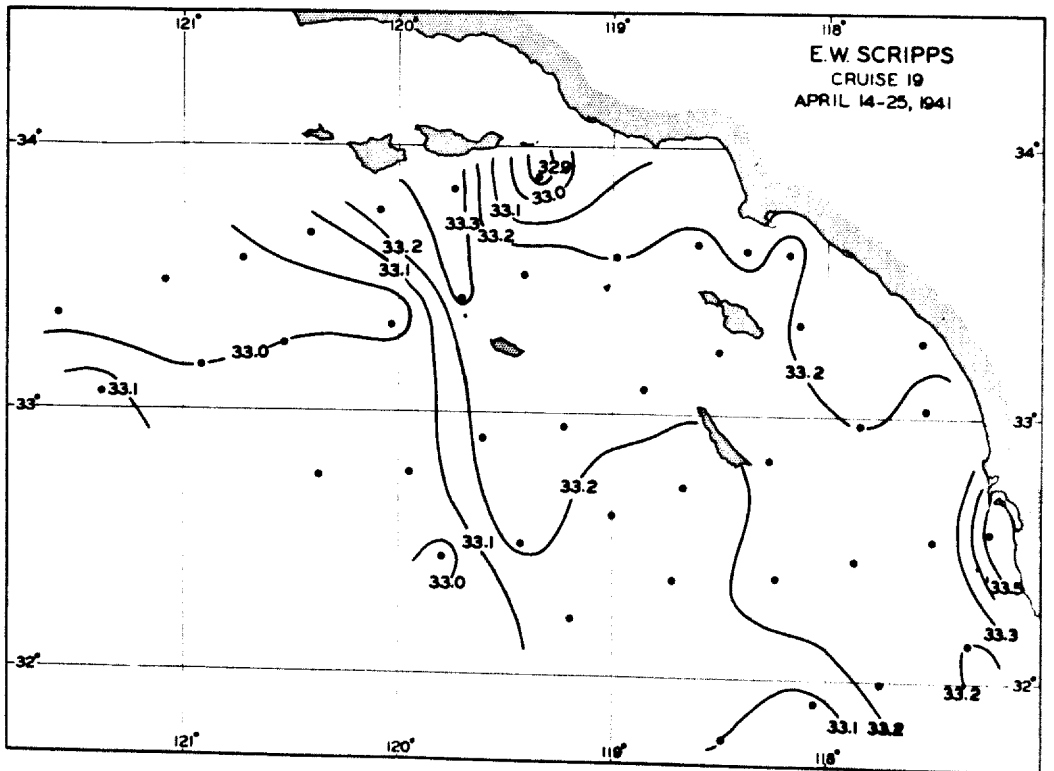


Chart 22.--Surface salinity (‰)
Cruise XIX.

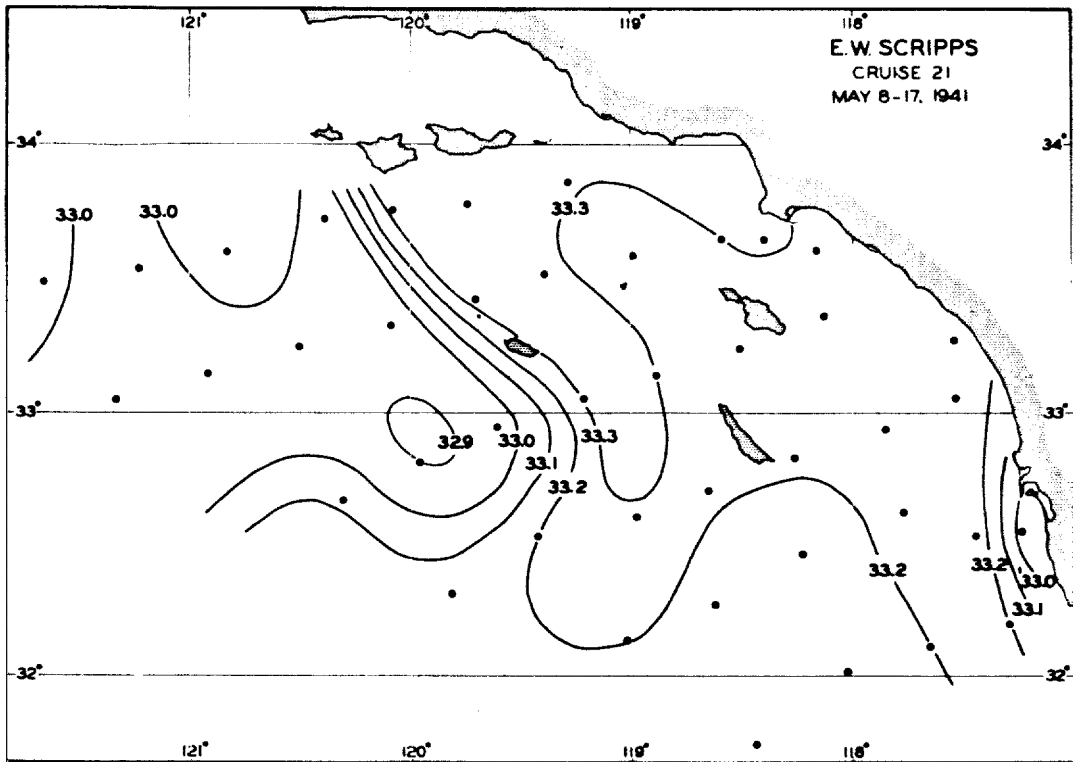


Chart 23.--Surface salinity (‰)
Cruise XXI.

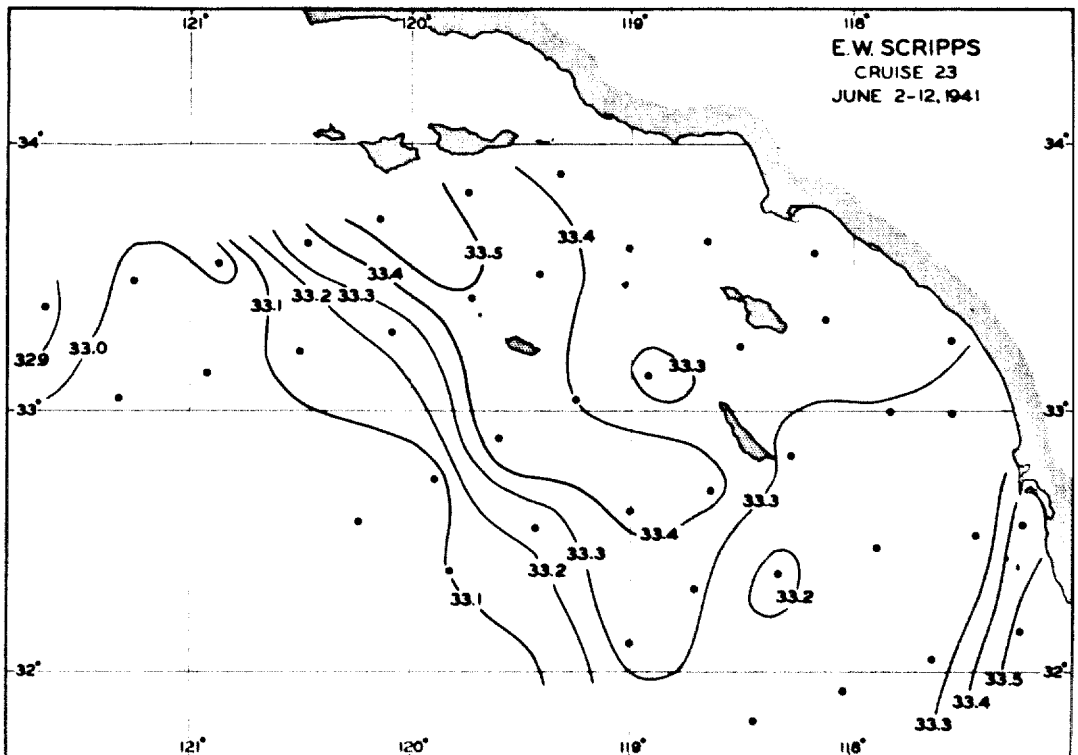


Chart 24.--Surface salinity (‰)
Cruise XXIII.

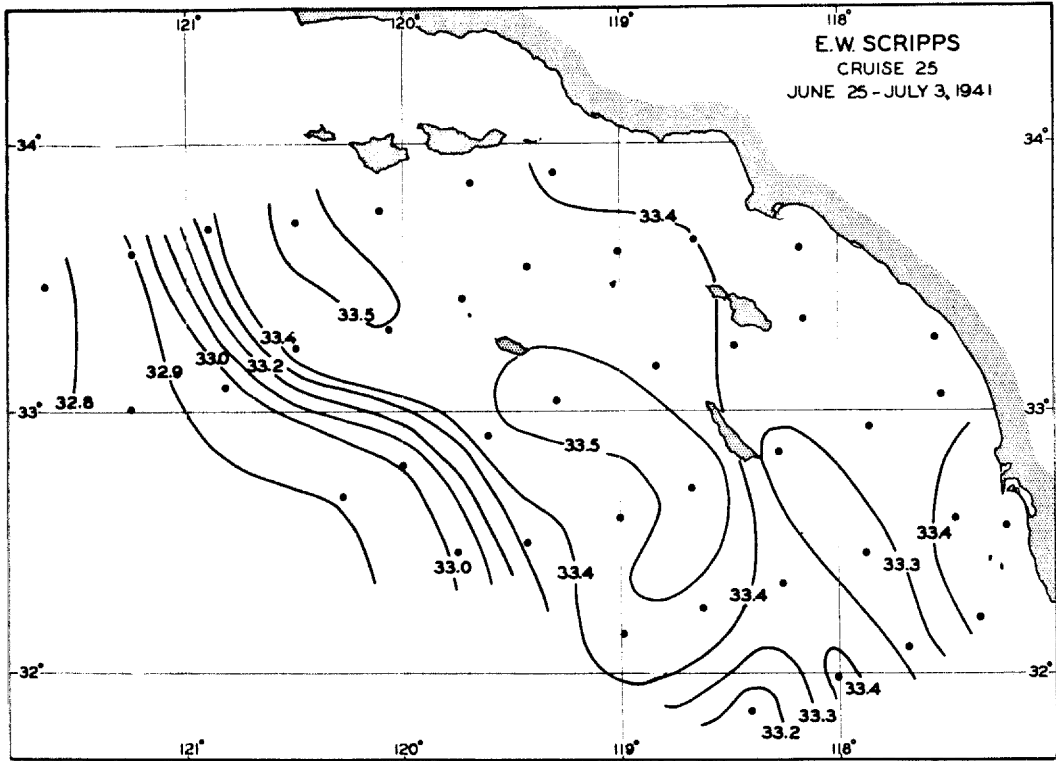


Chart 25.--Surface salinity (‰)
Cruise XXV.

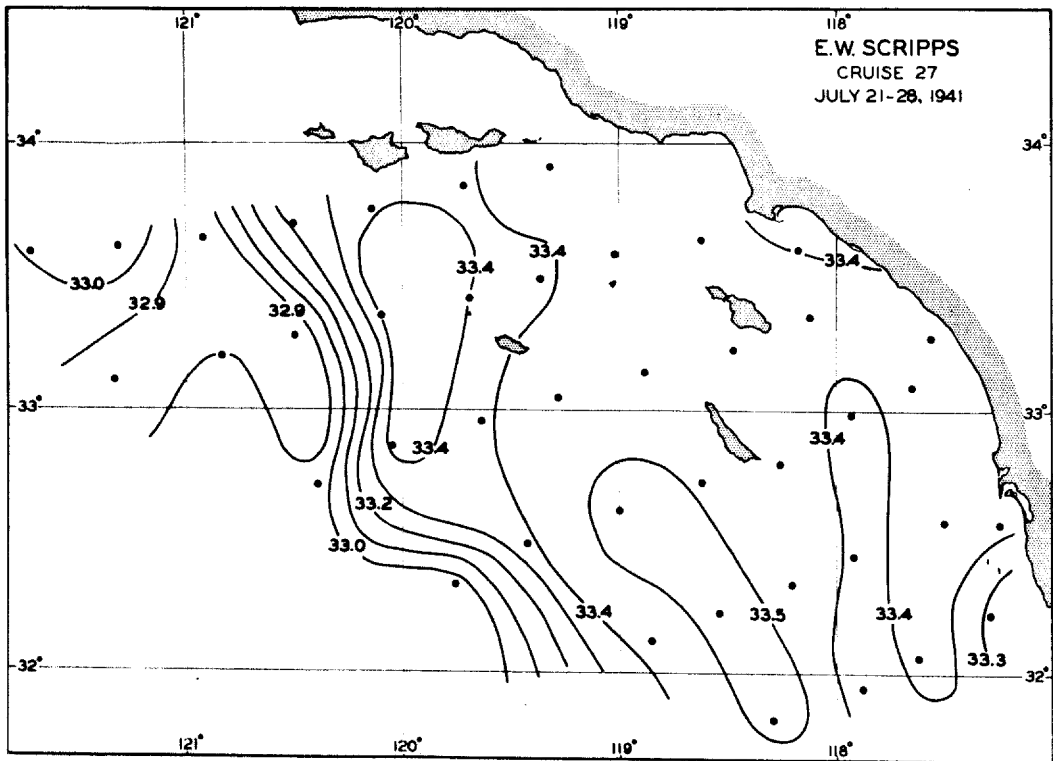


Chart 26.--Surface salinity (‰)
Cruise XXVII.

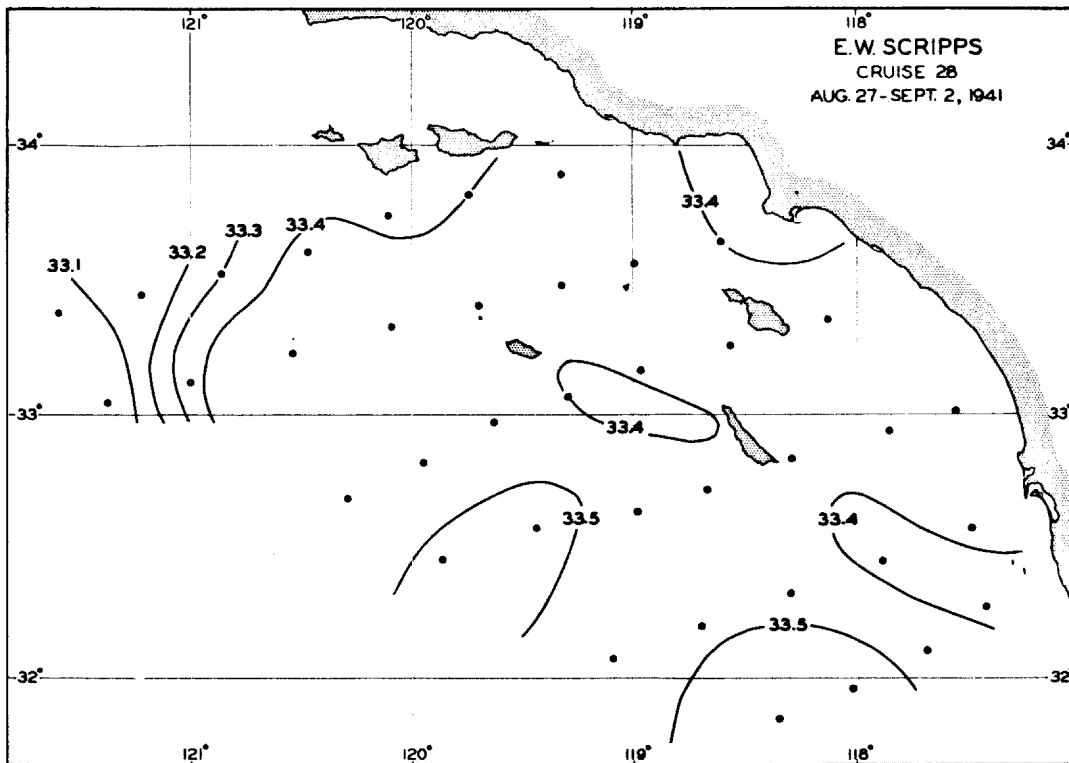


Chart 27.--Surface salinity (°/oo)
Cruise XXVIII.

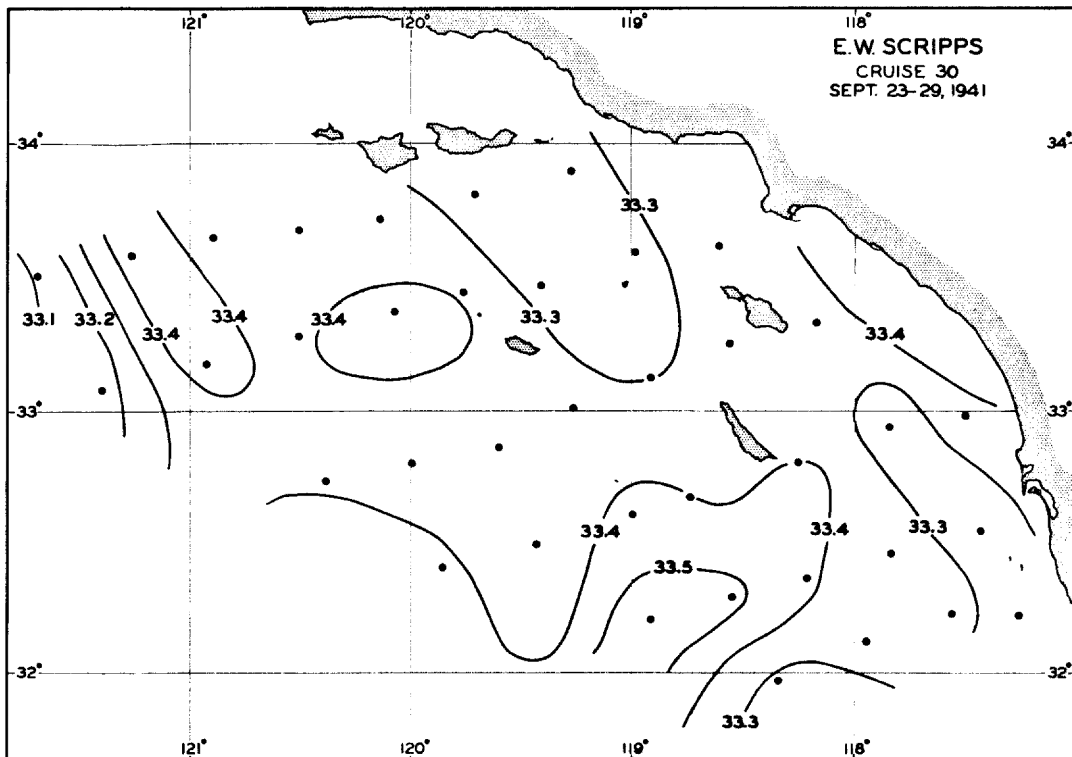


Chart 28.--Surface salinity (°/oo)
Cruise XXX.

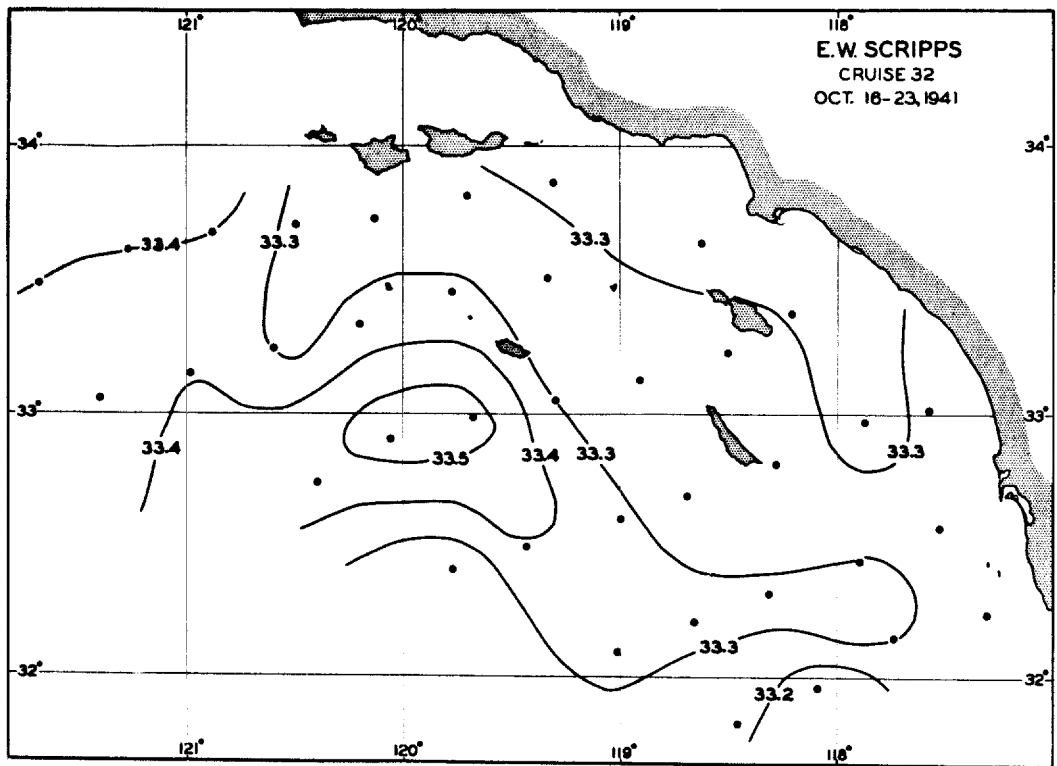


Chart 29.--Surface salinity (°/oo)
Cruise XXXII.

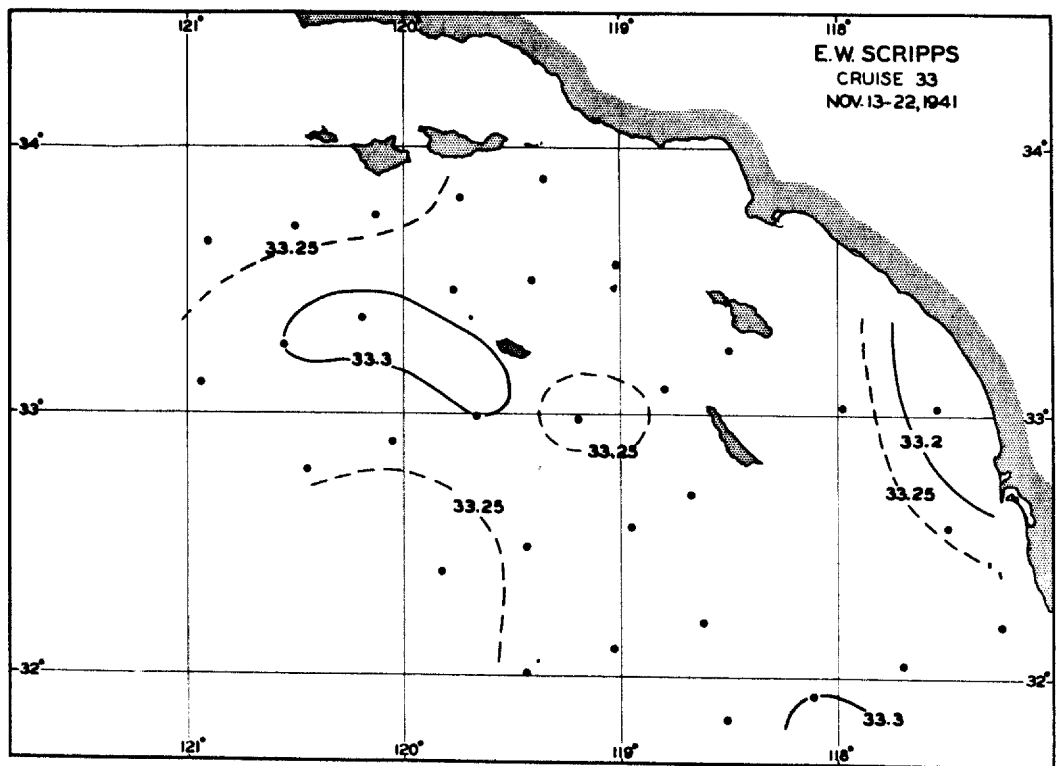


Chart 30.--Surface salinity (°/oo)
Cruise XXXIII.

OCEANOGRAPHIC OBSERVATIONS, 1941

TABLE 1

Interpolated values of temperature, salinity, and oxygen at standard depths, and computed values of σ_t , specific volume anomaly, δ , and anomaly of dynamic depth, ΔD . 120 Meridian time.

Cruise XVII

Depth (m. or dbar)	Temperature (°C.)	Salinity (‰)	σ_t	$10^5 \delta$	ΔD (dyn. m.)	O_2 (ml/L)
Station 11. Mar. 26, 1941. Time: 1735. Lat. 33°52'5N, long. 119°18'7W. Depth: 860 m. Wind: W2.						
0	17.62	33.22	24.02	390	5.71
10	16.10	.21	24.37	357	.0373	5.96
20	15.63	.21	24.47	347	.0725	6.00
30	15.34	.19	24.51	343	.1070	6.00
40	13.75	.24	24.89	307	.1395	4.95
50	11.54	.44	25.47	252	.1674	4.28
75	10.90	.65	25.74	226	.2271	3.50
100	10.43	.78	25.92	209	.2814	3.03
150	10.10	.90	26.06	196	.3825	2.66
200	9.50	34.03	26.26	177	.4756	2.30
250	8.96	.17	26.45	159	.5597	1.73
300	8.20	.25	26.62	143	.6352	1.18
400	7.07	.28	26.80	126	.7693	0.70
500	6.51	.26	26.85	121	.8925	0.68

Station 12. Mar. 26, 1941. Time: 2119. Lat. 33°50'N, long. 119°42'W. Depth: 1737 m. Wind: WSW1.						
0	16.21	33.24	24.37	357	6.23
10	15.71	.18	24.43	351	.0354	6.17
20	14.89	.19	24.62	333	.0696	6.10
30	13.92	.22	24.84	312	.1018	5.55
40	12.58	.35	25.21	277	.1312	4.71
50	11.67	.42	25.44	255	.1578	4.32
75	11.14	.52	25.61	239	.2196	3.98
100	10.72	.63	25.75	225	.2776	3.59
150	9.43	.96	26.23	180	.3788	2.52
200	8.86	34.13	26.44	160	.4638	1.89
250	8.58	.20	26.53	151	.5415	1.49
300	7.93	.21	26.63	142	.6147	1.20
400	6.82	.29	26.84	122	.7463	0.50
500	6.44	.28	26.88	118	.8663	0.55

Station 13. Mar. 27, 1941. Time: 0128. Lat. 33°44'5N, long. 120°05'7W. Depth: - m. Wind: SE0.						
0	15.47	33.13	24.45	349	6.37
10	14.99	.12	24.54	340	.0345	6.42
20	14.52	.12	24.64	331	.0680	5.62
30	14.00	.17	24.79	317	.1004	5.55
40	12.12	.25	25.22	276	.1300	4.64
50	11.53	.25	25.32	266	.1571	4.60
75	10.42	.58	25.78	223	.2181	3.72
100	9.78	.77	26.03	199	.2708	3.34
150	9.28	.96	26.25	178	.3650	2.51
200	8.28	34.05	26.47	157	.4486	2.20
250	7.76	.14	26.61	144	.5236	1.51
300	7.24	.18	26.71	134	.5929	1.15
400	6.58	.21	26.82	124	.7219	0.90
500	6.09*	.23*	26.88	118	.8428	0.80*

*Extrapolated.