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Surface Water Temperatures At Shore Stations, United States West Coast 1970

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SURFACE WATER TEMPERATURES  
AT SHORE STATIONS  
United States West Coast

1970

Including surface salinities from  
several stations and live-meter  
temperatures and salinities at  
Scripps Pier

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Approved for distribution:

W. A. Nierenberg  
W. A. Nierenberg, Director

## CONTENTS

	Page
Introduction . . . . .	1
Surface-Temperature Stations in Geographical Order . . . . .	3
Alphabetical List of Surface-Temperature Stations . . . . .	5
Shoreline Surface Water-Temperature Data	
Station Location Chart . . . . .	7
Summary of Daily Observations . . . . .	10

## INTRODUCTION

This report presents temperature and salinity data observed during 1970 at shoreline stations along the west coast of North America from the Strait of Juan de Fuca, Washington, to La Jolla, California, including data from shore stations reporting to Oregon State University. The data consist of monthly means, ranges and standard deviations based on daily observations. Daily temperature and salinity values from which the means were derived are reproduced by computer for limited distribution and are available, upon request, for the cost of reproduction.

Various agencies and volunteers have participated in the collection of these data. The agencies are: Hopkins Marine Station, National Oceanic and Atmospheric Administration/National Ocean Survey (NOAA/NOS), U. S. Coast Guard, the California State Park System, Mendocino County, Oregon State University, Pacific Gas and Electric Company and Scripps Institution of Oceanography of the University of California, San Diego. We are also indebted to all volunteer observers and to staff members of Scripps who have tabulated the data and compiled the statistics.

Temperature readings and water samples are obtained from surf and sandy beaches, off rocky cliffs and ledges, over the sides of lightships and off piers, depending upon the station location. Temperatures have been listed as reported with no attempt to screen or eliminate observers' errors. Thermometer accuracies are assumed to be equivalent to the reading accuracies noted below.

All stations, excluding those of NOAA/NOS and those reporting to Oregon State University, are maintained in cooperation with Scripps Institution of Oceanography. At these cooperative stations, temperatures are taken by obtaining a sample of water in a container then measuring the temperature of the sample by immersion of a high-grade mercury thermometer supplied and calibrated by Scripps. At Scripps Pier and San Clemente, temperature readings are listed to 0.01°C. At Blunts Reef (March, April, May and November) and Shelter Cove, temperatures were reported to 1.0°F; Ventura Marina, to 0.5°F, and Blunts Reef (June, August, September and October), Bodega Bay and Yerba Buena, to 0.1°F. The Fahrenheit temperatures were converted and listed to the nearest 0.1°C. At all other stations and Blunts Reef (January, February and July), temperatures were reported to 0.1°C.

Salinities for Scripps Pier, Balboa, Blunts Reef, S. E. Farallon Island, Pacific Grove, San Clemente and Ventura Marina are obtained from sea-water samples in special salinity bottles supplied by Scripps. Water samples are forwarded to Scripps once a month for determination by salinometer. Salinities are listed in hundredths of a part per thousand. Values of maximum salinities may possibly be in error, due to evaporation or contamination of the samples in the bottles.

Each month, NOAA/NOS sends to Scripps Institution daily temperature and density values from four tide stations, located at Neah Bay, Washington, and Avila, Crescent City and Santa Monica, California. Temperature readings for Avila and Santa Monica are listed to 1.0°F; for Neah Bay and Crescent City, to 0.5°F. These Fahrenheit readings have been converted and are listed to the nearest 0.1°C. The density values are obtained by hydrometer and are converted at Scripps to salinity values listed in tenths of a part per thousand. Reported salinities exceeding 34‰ may be due to faulty sampling techniques. Salinities less than 30‰ are due to local precipitation or fresh water runoff. Neither are representative of offshore oceanic waters.

Temperature data from stations reporting to Oregon State University were taken with calibrated thermometers contained in plastic-lined, brass, protecting enclosures. The thermometers were calibrated against a standard and read to the nearest 0.1°C. The observations are considered accurate to approximately ±0.2°C.

Most salinity data from Oregon State University were determined by hydrometer readings and tables. Hydrometers were calibrated against an inductive salinometer which has an accuracy of about ±0.003‰. The accuracy of salinity determined by a corrected hydrometer is believed to be ±0.2‰. At Newport Marine Science Center, salinities were run on an inductive salinometer. Salinities reported in excess of 34.4‰ are doubtful values and possibly are due to salt residue accumulating on the measuring equipment.

SURFACE-TEMPERATURE STATIONS  
IN GEOGRAPHICAL ORDER

<u>Station Name</u>	<u>Position</u>	<u>Location</u>	<u>Page</u>
<u>Washington</u>			
Neah Bay	48°22.0'N, 124°37.0'W	NOAA/NOS Tide Gauge Station Strait of Juan de Fuca	10
Umatilla Lightship	48°10.0'N, 124°50.0'W	Off Cape Flattery	10
<u>Oregon</u>			
Columbia River Lightship	46°11.2'N, 124°11.0'W	Mouth of Columbia River	11
Seaside Aquarium	45°59.7'N, 123°55.6'W	At pump outlet into Aquarium settling tank from surf inlet pipe	11
Newport Marine Science Center	44°37.2'N, 124°01.5'W	At pump outlet into Laboratory from bottom of Yaquina Bay	12
Charleston	43°21.0'N, 124°19.0'W	From surface of bay	12
Port Orford	42°44.6'N, 124°30.6'W	Off east side of Port Orford River	13
<u>California</u>			
Crescent City	41°44.6'N, 124°11.7'W	NOAA/NOS Tide Gauge Station Crescent City	13
Blunts Reef Lightship	40°26.0'N, 124°30.0'W	Off Cape Mendocino	14
Shelter Cove	40°01.4'N, 124°03.9'W	Mendocino County	14
Mendocino	39°18.2'N, 123°48.2'W	Russian Gulch State Park near Mendocino	14
Fort Ross	38°30.7'N, 123°14.5'W	Fort Ross Historical Monument Sonoma County	15
Bodega Bay	38°19.0'N, 123°04.2'W	University of California Marine Laboratory	15
Yerba Buena Lightship	37°45.0'N, 122°41.5'W	U. S. Coast Guard Yerba Buena Island, San Francisco	15
Farallon Island, S. E.	37°42.0'N, 123°00.0'W	SE Farallon Island Light Station off San Francisco	16
Santa Cruz	36°57.8'N, 122°00.0'W	Twin Lakes Beach State Park	16
Pacific Grove	36°37.2'N, 121°54.2'W	Hopkins Marine Station Pacific Grove	17
Point Lobos: north side	36°31.3'N, 121°56.3'W	Point Lobos Reserve State Park Whalers Cove	17
Point Lobos: south side	36°30.8'N, 121°56.6'W	Point Lobos Reserve State Park Carmel	17
Piedras Blancas Lighthouse	35°40.0'N, 121°16.9'W	U. S. Coast Guard	18
Morro Bay	35°22.2'N, 120°51.3'W	Pacific Gas and Electric Plant	18

<u>Station Name</u>	<u>Position</u>	<u>Location</u>	<u>Page</u>
<u>California (cont.)</u> Avila	35°10.0'N, 120°44.0'W	NOAA/NOS Tide Gauge Station Port San Luis Obispo	18
Santa Barbara	34°24.3'N, 119°41.5'W	Harbor Department Santa Barbara	19
Ventura Marina	34°14.7'N, 119°15.8'W	Ventura County Small Boat Harbor	19
Point Dume: west of	34°01.4'N, 118°50.0'W	Zuma Beach County Park near Malibu	19
Santa Monica	34°00.0'N, 118°30.0'W	NOAA/NOS Tide Gauge Station Santa Monica	20
Balboa	33°36.0'N, 117°54.0'W	Newport Beach Pier Newport Beach	20
Dana Point: east of	33°27.7'N, 117°41.1'W	Doheny Beach State Park	21
San Clemente	33°25.0'N, 117°37.0'W	San Clemente Beach State Park	21
Oceanside	33°11.6'N, 117°23.1'W	Oceanside Pier Oceanside	21
La Jolla: Scripps Pier, surface	32°52.0'N, 117°15.3'W	Scripps Institution of Oceanography La Jolla	22
La Jolla: Scripps Pier, bottom	32°52.0'N, 117°15.3'W	Scripps Institution of Oceanography La Jolla	22

ALPHABETICAL LIST OF  
SURFACE-TEMPERATURE STATIONS

<u>Station Name</u>	<u>Type of Data Collected</u>	<u>Agency</u>	<u>Page</u>
	1970		
Avila	TS <sup>1/</sup> d <sup>2/</sup>	NOAA/NOS	18
Balboa	TS d	SIO	20
Blunts Reef Lightship	TS d	USCG	14
Bodega Bay	T <sup>3/</sup> d	UCML	15
Charleston	TS d	OSU	12
Columbia River Lightship	TS d	USCG	11
Crescent City	TS d	NOAA/NOS	13
Dana Point: east of	T d	CSP	21
Farallon Island, S. E.	TS d	USCG	16
Fort Ross	T d	CSP	15
La Jolla: Scripps Pier, surface	TS d	SIO	22
La Jolla: Scripps Pier, bottom	TS d	SIO	22
Mendocino	T d	CSP	14
Morro Bay	T d	PG and E	18
Neah Bay	TS d	NOAA/NOS	10
Newport Marine Science Center	TS d	OSU	12
Oceanside	T d	SIO	21
Pacific Grove	TS d	HMS	17
Piedras Blancas Lighthouse	T d	USCG	18
Point Dume: west of	T d	SIO	19
Point Lobos: north side	T d	CSP	17
Point Lobos: south side	T d	CSP	17

<sup>1/</sup>S: Surface salinities  
<sup>3/</sup>T: Surface temperatures

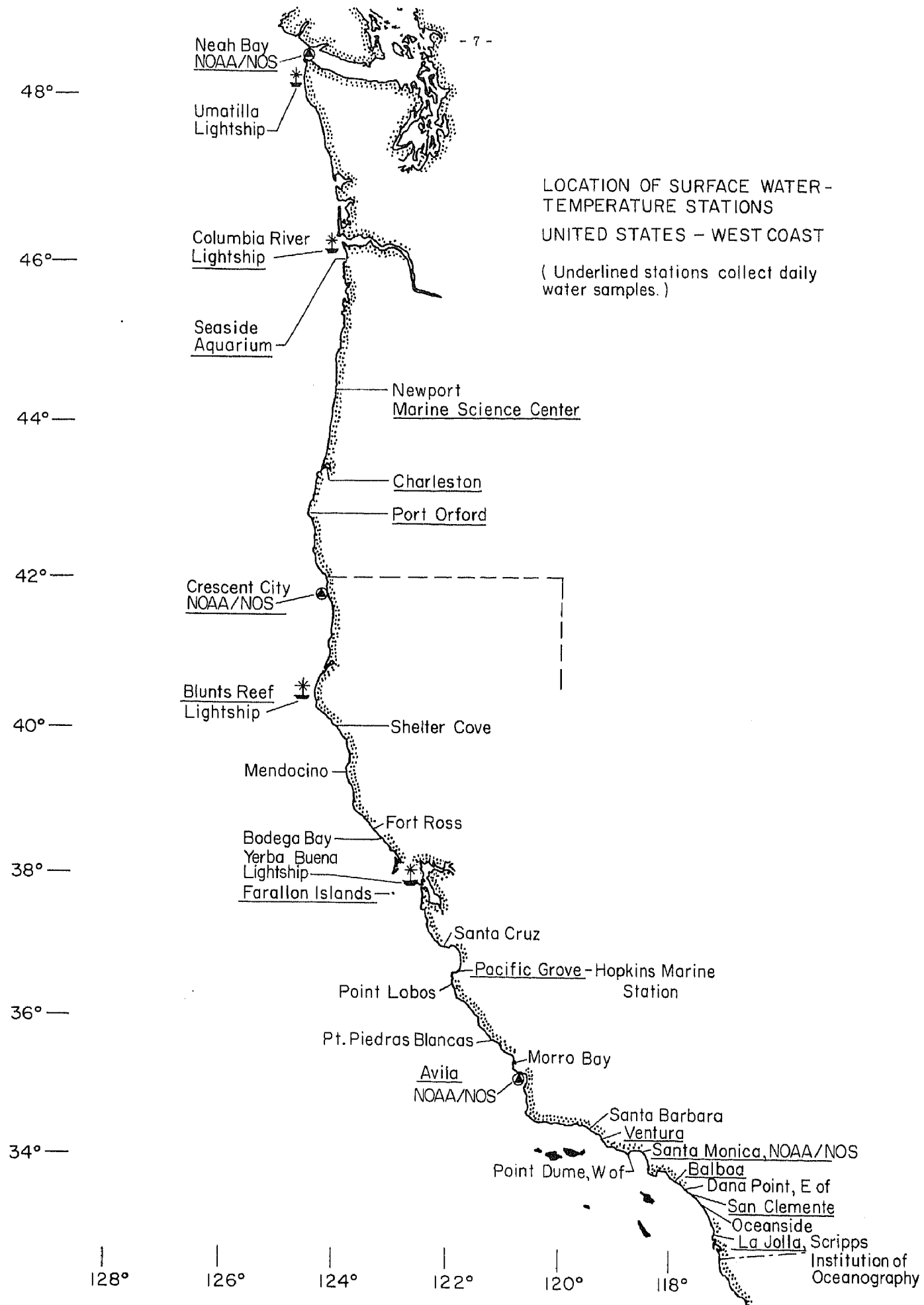
<sup>2/</sup>d: Values taken daily  
<sup>4/</sup>i: Values taken at irregular intervals

<u>Station Name</u>	<u>Type of Data Collected</u>	<u>Agency</u>	<u>Page</u>
	1970		
Port Orford	TS d	OSU	13
San Clemente	TS d	SIO	21
Santa Barbara	T d	SIO	19
Santa Cruz	T d	CSP	16
Santa Monica	TS d	NOAA/NOS	20
Seaside Aquarium	TS d	OSU	11
Sheiter Cove	T i <u>4</u> /	MC	14
Umatilla Lightship	TS d	USCG	10
Ventura Marina	TS d	SIO	19
Yerba Buena Lightship	T d	USCG	15

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SIO: University of California, Scripps Institution of Oceanography, La Jolla, California  
 MC: Mendocino County  
 CSP: California State Park System  
 OSU: Oregon State University, Corvallis, Oregon  
 HMS: Hopkins Marine Station, Pacific Grove, California  
 USCG: United States Coast Guard  
 UCML: University of California Marine Laboratory  
 PG and E: Pacific Gas and Electric Company  
 NOAA/NOS: National Oceanic and Atmospheric Administration/National Ocean Survey





SHORELINE SURFACE WATER-TEMPERATURE DATA

For the daily stations, the data presented show the monthly means, ranges, and standard deviations. A code designates the number of observations from which the averages were computed. This code is as follows:

No Designation	25 or more observations in a month, or 23 or more in February.
S Scattered	Minimum of 5 observations per month with at least one in any 7-day period. Exception is Shelter Cove, where data are difficult to obtain and are shown even though only 1 to 3 observations per month.
A-B-C	Minimum of 6 or more observations in any group during a 10-day period. These periods are: A, 1 to 10; B, 11 to 20; C, 21 to 30 or 31.

Means, maxima, minima, ranges and standard deviations are included for those months marked "S" but the values are listed in parentheses.

For values designated "A," "B," "C," or any combination of these letters, means, maxima and minima are listed in parentheses. Ranges and standard deviations are omitted.

Standard deviations included in this report were computed from the following formula:

$$\text{Standard Deviation} = \sqrt{\frac{\sum (x - \bar{x})^2}{N-1}}$$

## T AND S DATA NEAH BAY

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	7.27	8.16	8.68	8.90	10.05	10.71	10.92	10.98	10.13	9.06	8.33	7.54	9.23		
Max.		8.4	8.9	10.3	10.6	11.6	12.8	13.0	13.0	11.4	9.7	10.0	8.4		13.0	
Min.	T	5.6	7.2	7.0	8.0	8.6	8.4	9.4	8.9	8.9	8.0	5.8	6.6			5.6
Range		2.8	1.7	3.3	2.6	3.0	4.4	3.6	4.1	2.5	1.7	4.2	1.8			
Std. Dev.		0.65	0.60	0.83	0.55	0.91	0.95	0.91	0.99	0.67	0.39	1.27	0.41			
No. Obs.		31	27	28	28	31	29	30	28	27	28	29	30			
Mean	1970	30.22	28.71	30.63	31.67	32.18	32.48	32.25	32.55	32.44	32.17	31.21	30.34	31.4		
Max.		31.6	30.7	31.6	32.4	32.7	33.3	33.3	33.4	33.3	33.0	32.4	31.6		33.4	
Min.	S	27.8	26.7	29.4	31.0	31.5	31.4	31.4	32.1	31.8	31.0	29.9	29.1			26.7
Range		3.8	4.0	2.2	1.4	1.2	1.9	1.9	1.3	1.5	2.0	2.5	2.5			
Std. Dev.		1.15	1.18	0.61	0.41	0.32	0.44	0.41	0.31	0.39	0.69	0.60	0.71			
No. Obs.		31	27	28	28	31	29	30	28	27	28	29	30			

## T DATA UMATILLA LIGHTSHIP

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	8.50	9.50	9.40	9.06	10.18	(10.93)	11.52	12.41	11.78	10.57	10.18	8.58	(10.22)		
Max.		9.5	10.0	10.0	9.9	11.7	(12.8)	13.4	14.0	13.0	12.0	11.0	9.5		(14.0)	
Min.	T	7.3	8.5	8.5	8.0	9.0	(9.9)	10.0	11.0	10.1	9.5	8.5	6.5			(6.5)
Range		2.2	1.5	1.5	1.9	2.7	(2.9)	3.4	3.0	2.9	2.5	2.5	3.0			
Std. Dev.		0.53	0.52	0.51	0.52	0.68	(0.76)	0.84	0.75	0.61	0.71	0.88	0.53			
No. Obs.		31	28	31	28	31	16S	31	31	30	30	30	31			

T AND S DATA COLUMBIA RIVER LIGHTSHIP

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	9.58	10.30	10.16	10.31	11.57	12.41	13.87	13.40	13.80	12.04	11.26	10.33	11.59		
Max.		13.8	11.0	10.8	12.0	14.5	13.8	16.2	17.0	15.0	14.1	12.2	11.1		17.0	
Min.	T	6.5	9.0	9.6	9.5	9.5	11.2	11.0	10.0	11.9	10.2	9.8	8.8			6.5
Range		7.3	2.0	1.2	2.5	5.0	2.6	5.2	7.0	3.1	3.9	2.4	2.3			
Std. Dev.		1.82	0.49	0.34	0.64	0.94	0.71	1.25	1.52	0.90	1.01	0.61	0.66			
No. Obs.		30	28	30	28	29	30 <sup>a</sup>	31	31	30	30	30	30			
Mean	1970	26.81	29.53	(24.04)	25.82	23.36	25.55	23.46	28.11	(25.94)	(30.99)	31.17	31.36	(27.18)		
Max.		32.2	32.8	(28.2)	31.3	29.4	29.4	31.1	32.7	(33.2)	(33.0)	34.5	34.2		(34.5)	
Min.	S	13.9	26.8	(21.6)	16.4	12.3	18.8	19.0	22.6	(14.1)	(28.8)	21.8	23.2			(12.3)
Range		18.8	6.0	-	14.9	17.1	10.6	12.1	10.1	(19.1)	(4.2)	12.7	11.0			
Std. Dev.		4.53	1.46	-	3.69	3.91	3.19	3.27	3.05	(5.49)	(0.98)	3.54	2.24			
No. Obs.		29	24	11C	28	27	26	22S	29	23S	22S	28	28			

T AND S DATA SEASIDE AQUARIUM

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970		(11.11)	(10.73)	(10.52)	(11.32)	(13.50)	(13.38)	(13.67)	(14.10)	(12.69)	(11.35)	(9.76)	-		
Max.			(11.9)	(11.3)	(11.1)	(12.2)	(15.1)	(15.2)	(18.6)	(15.8)	(14.4)	(12.9)	(11.9)		(18.6)	
Min.	T		(10.3)	(10.2)	(9.8)	(10.8)	(11.5)	(11.9)	(10.6)	(11.5)	(11.0)	(9.8)	(8.6)			(8.6)
Range			(1.6)	(1.1)	(1.3)	(1.4)	(3.6)	(3.3)	(8.0)	(4.3)	(3.4)	(3.1)	(3.3)			
Std. Dev.			(0.50)	(0.34)	(0.42)	(0.45)	(1.38)	(1.05)	(2.06)	(1.14)	(1.28)	(1.18)	(0.96)			
No. Obs.			18S	18S	10S	8S	7S	19S	22S	15S	9S	8S	9S			
Mean	1970		(29.59)	(30.64)	(28.78)	(29.88)	(31.99)	(32.06)	(31.49)	(30.57)	(31.52)	(31.00)	(29.17)	-		
Max.			(30.8)	(31.3)	(31.0)	(31.3)	(33.4)	(33.3)	(33.4)	(32.2)	(33.4)	(31.6)	(30.5)		(33.4)	
Min.	S		(28.5)	(29.2)	(27.3)	(27.3)	(29.3)	(29.3)	(27.2)	(28.7)	(29.8)	(29.0)	(26.6)			(26.6)
Range			(2.3)	(2.1)	(3.7)	(4.0)	(4.1)	(4.0)	(6.2)	(3.5)	(3.6)	(2.6)	(3.9)			
Std. Dev.			(0.66)	(0.58)	(1.32)	(1.46)	(1.58)	(1.15)	(1.64)	(0.78)	(1.18)	(0.88)	(1.18)			
No. Obs.			18S	17S	10S	8S	7S	19S	22S	15S	9S	8S	9S			

T AND S DATA NEWPORT MARINE SCIENCE CENTER

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	(10.54)	(10.43)	(9.83)	(11.13)	(12.32)	(11.86)	(11.15)	(10.68)	(10.72)	(11.59)	(10.88)	-			
Max.		(11.2)	(11.5)	(10.6)	(13.5)	(14.9)	(15.0)	(13.6)	(12.0)	(12.2)	(12.1)	(11.8)		(15.0)		
Min.	T	(10.0)	(10.0)	(8.8)	(9.2)	(10.0)	(8.3)	(9.0)	(9.0)	(9.1)	(10.1)	(9.8)				(8.3)
Range		(1.2)	(1.5)	(1.8)	(4.3)	(4.9)	(6.7)	(4.6)	(3.0)	(3.1)	(2.0)	(2.0)				
Std. Dev.		(0.40)	(0.56)	(0.55)	(1.14)	(1.53)	(1.94)	(1.41)	(0.97)	(0.71)	(0.44)	(0.6)				
No. Obs.		14S	18S	18S	21S	20S	21S	20S	10S	21S	17S	11S				
Mean	1970	(26.05)	(28.79)	(30.48)	(29.21)	(31.98)	(33.04)	(33.42)	(33.33)	(33.10)	(31.75)	(28.43)	-			
Max.		(29.56)	(31.67)	(33.51)	(33.54)	(33.75)	(33.88)	(33.84)	(33.70)	(33.53)	(32.63)	(31.18)		(33.88)		
Min.	S	(22.51)	(24.98)	(24.34)	(23.10)	(28.99)	(31.48)	(32.82)	(32.96)	(32.28)	(30.48)	(25.66)				(22.51)
Range		(7.05)	(6.69)	(9.17)	(10.44)	(4.76)	(2.40)	(1.02)	(0.74)	(1.25)	(2.15)	(5.52)				
Std. Dev.		(2.96)	(2.74)	(3.24)	(3.22)	(1.39)	(0.78)	(0.34)	(0.29)	(0.38)	(0.74)	(1.55)				
No. Obs.		14S	17S	18S	21S	20S	21S	20S	10S	21S	17S	11S				

T AND S DATA CHARLESTON

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	(10.26)	(10.40)	(10.92)	(10.15)	(10.80)	(11.52)	(11.82)	(11.36)	(10.78)	(9.79)	(11.44)	(9.79)	(10.75)		
Max.		(11.6)	(10.9)	(11.5)	(11.3)	(12.0)	(13.8)	(13.9)	(13.4)	(12.5)	(10.9)	(11.9)	(10.8)		(13.9)	
Min.	T	(9.2)	(9.8)	(10.2)	(8.7)	(8.8)	(8.6)	(9.5)	(9.5)	(8.9)	(8.1)	(10.4)	(8.9)			(8.1)
Range		(2.4)	(1.1)	(1.3)	(2.6)	(3.2)	(5.2)	(4.4)	(3.9)	(3.6)	(2.8)	(1.5)	(1.9)			
Std. Dev.		(0.78)	(0.33)	(0.37)	(0.67)	(0.97)	(1.62)	(1.50)	(1.08)	(1.04)	(0.58)	(0.46)	(0.65)			
No. Obs.		19S	16S	22S	22S	22S	22S	22S	20S	20S	20S	17S	20S			
Mean	1970	(28.71)	(27.92)	(29.12)	(29.25)	(27.81)	(30.85)	(31.68)	(32.47)	(32.46)	(32.33)	(31.08)	(28.02)	(30.14)		
Max.		(32.2)	(30.3)	(32.0)	(32.3)	(34.1)	(33.2)	(33.4)	(33.2)	(33.6)	(33.4)	(32.2)	(30.5)		(34.1)	
Min.	S	(17.4)	(20.8)	(26.1)	(25.6)	(23.6)	(27.8)	(29.9)	(31.3)	(31.3)	(31.1)	(27.0)	(19.3)			(17.4)
Range		(14.8)	(9.5)	(5.9)	(6.7)	(10.5)	(5.4)	(3.5)	(1.9)	(2.3)	(2.3)	(5.2)	(11.2)			
Std. Dev.		(4.38)	(2.29)	(1.79)	(2.27)	(3.16)	(1.76)	(1.03)	(0.55)	(0.65)	(0.64)	(1.34)	(2.83)			
No. Obs.		15S	16S	22S	22S	22S	22S	22S	20S	20S	20S	17S	20S			

T AND S DATA PORT ORFORD

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970			(11.44)	(9.85)	(10.48)	(11.14)	(10.41)	(10.40)	(10.35)	(9.92)	(12.20)	(10.29)	-		
Max.				(13.1)	(12.0)	(14.0)	(13.0)	(14.0)	(13.0)	(12.0)	(11.0)	(13.0)	(11.0)		(14.0)	
Min.	T			(9.0)	(8.1)	(9.0)	(9.0)	(9.0)	(8.5)	(9.0)	(8.8)	(11.0)	(10.0)			(8.1)
Range				-	(3.9)	(5.0)	(4.0)	(5.0)	(4.5)	(3.0)	(2.2)	(2.0)	-			
Std. Dev.				-	(1.03)	(1.20)	(1.13)	(1.83)	(1.20)	(0.88)	(0.78)	(0.59)	-			
No. Obs.				14BC	21S	22S	19S	9S	20S	19S	17S	15S	10C			
Mean	1970			(30.65)	(33.05)	(32.16)	(32.98)	(33.04)	(33.33)	(33.40)	(33.52)	(31.16)	(29.99)	-		
Max.				(33.6)	(34.0)	(34.0)	(34.2)	(34.3)	(34.2)	(34.0)	(34.4)	(33.0)	(31.0)		(34.4)	
Min.	S			(24.9)	(31.6)	(26.5)	(32.3)	(32.1)	(31.0)	(31.9)	(32.5)	(27.4)	(28.4)			(24.9)
Range				-	(2.4)	(7.5)	(1.9)	(2.2)	(3.2)	(2.1)	(1.9)	(5.6)	-			
Std. Dev.				-	(0.70)	(1.80)	(0.55)	(0.68)	(0.81)	(0.54)	(0.48)	(1.27)	-			
No. Obs.				14BC	21S	23S	19S	9S	20S	19S	17S	15S	10C			

T AND S DATA CRESCENT CITY

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	(11.06)	(11.26)	(10.46)	(8.70)	(10.99)	(12.09)	(13.85)	(13.38)	(11.09)	(10.66)	(12.06)	(9.81)	(11.28)		
Max.		(12.5)	(12.5)	(11.6)	(9.7)	(12.2)	(15.0)	(15.0)	(14.7)	(13.0)	(11.6)	(12.5)	(11.1)		(15.0)	
Min.	T	(9.7)	(10.8)	(7.8)	(7.8)	(9.2)	(8.9)	(12.2)	(11.4)	(9.2)	(9.4)	(10.6)	(8.4)			(7.8)
Range		(2.8)	(1.7)	(3.8)	(1.9)	(3.0)	(6.1)	(2.8)	(3.3)	(3.8)	(2.2)	(1.9)	(2.7)			
Std. Dev.		(0.89)	(0.48)	(1.38)	(0.70)	(1.10)	(2.14)	(0.72)	(1.09)	(1.33)	(0.64)	(0.49)	(0.86)			
No. Obs.		11S	13S	10S	9S	8S	12S	12S	13S	15S	15S	13S	14S			
Mean	1970	(25.42)	(27.98)	(29.68)	(33.44)	(31.76)	(32.52)	(33.12)	(33.44)	(34.43)	(33.78)	(30.98)	(26.82)	(31.12)		
Max.		(32.3)	(30.4)	(34.4)	(34.1)	(34.1)	(34.5)	(34.0)	(34.7)	(34.9)	(34.6)	(33.0)	(31.1)		(34.9)	
Min.	S	(17.4)	(24.6)	(25.2)	(31.2)	(28.6)	(30.0)	(32.1)	(32.7)	(33.0)	(31.9)	(28.0)	(22.6)			(17.4)
Range		(14.9)	(5.8)	(9.2)	(2.9)	(5.5)	(4.5)	(1.9)	(2.0)	(1.9)	(2.7)	(5.0)	(8.5)			
Std. Dev.		(5.89)	(1.85)	(3.73)	(0.87)	(2.00)	(1.30)	(0.52)	(0.63)	(0.51)	(0.73)	(1.81)	(2.95)			
No. Obs.		11S	13S	10S	9S	8S	12S	11S	13S	15S	15S	12S	14S			

T AND S DATA BLUNTS REEF LIGHTSHIP

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	11.87	(12.04)	10.85	10.10	10.30	10.62	10.36	10.57	10.59		(11.42)		-		
Max.		13.0	(13.0)	12.0	10.6	13.0	13.0	11.2	11.1	11.1		(13.4)			(13.4)	
Min.	T	9.9	(11.0)	10.6	10.0	10.0	10.0	10.0	10.0	9.4		(10.6)				(9.4)
Range		3.1	(2.0)	1.4	0.6	3.0	3.0	1.2	1.1	1.7		-				
Std. Dev.		0.64	(0.34)	0.35	0.23	0.59	0.69	0.37	0.39	0.37		-				
No. Obs.		27	19S	30	29	29	28	31	31	30		17AB				
Mean	1970	32.88	(32.44)	32.80	34.21	34.10	33.89	34.11	33.87	33.65	33.69	(32.88)		-		
Max.		33.49	(33.25)	34.68	34.73	34.69	34.87	34.40	34.26	33.97	34.33	(33.25)			(34.87)	
Min.	S	31.88	(31.64)	31.34	33.89	33.54	33.26	33.79	33.41	33.38	33.01	(32.32)				(31.34)
Range		1.61	(1.61)	3.34	0.84	1.15	1.61	0.61	0.85	0.59	1.32	-				
Std. Dev.		0.39	(0.36)	0.94	0.20	0.27	0.28	0.17	0.21	0.17	0.35	-				
No. Obs.		27	19S	25	26	25	28	31	25	29	27	16AB				

T DATA SHELTER COVE

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	(12.00)	(12.25)	(10.75)	(9.20)	(9.88)	(11.25)							-		
Max.		-	(12.8)	(11.5)	(11.0)	(10.5)	(12.0)								(12.8)	
Min.	T	-	(11.7)	(10.0)	(8.5)	(9.0)	(10.0)									(8.5)
Range		-	(1.1)	(1.5)	(2.5)	(1.5)	(2.0)									
Std. Dev.		-	(0.78)	(1.06)	(1.04)	(0.63)	(0.87)									
No. Obs.		(1)	2S	2S	5S	4S	4S									

T DATA MENDOCINO

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	(11.82)	11.23	(11.39)	(9.53)									-		
Max.		(13.0)	12.9	(12.5)	(9.9)										(13.0)	
Min.	T	(10.0)	9.0	(9.0)	(9.0)											(9.0)
Range		-	3.9	(3.5)	-											
Std. Dev.		-	1.00	(0.93)	-											
No. Obs.		15BC	23	16S	9A											

## T DATA FORT ROSS

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	(12.12)	12.28	11.41	8.81	(9.13)	10.04	10.57			(12.44)	(13.45)	12.19	-		
Max.		(13.0)	13.0	13.1	10.0	(10.7)	11.8	12.7			(13.2)	(14.6)	13.3		(14.6)	
Min.	T	(11.2)	11.5	9.8	7.9	(8.0)	8.8	8.9			(11.2)	(12.5)	10.9			(7.9)
Range		(1.8)	1.5	3.3	2.1	(2.7)	3.0	3.8			(2.0)	(2.1)	2.4			
Std. Dev.		(0.49)	0.40	1.07	0.67	(0.75)	0.77	1.00			(0.55)	(0.63)	0.69			
No. Obs.		24S	25	28	25	24S	30	30			23S	15S	29			

## T DATA BODEGA BAY

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	(12.26)	(12.61)	(11.44)	(8.78)	(9.21)	(10.51)	(10.70)	(10.73)	(10.98)	(11.64)	(13.07)	(11.88)	(11.15)		
Max.		(13.1)	(13.2)	(12.8)	(10.1)	(10.6)	(11.8)	(14.5)	(11.5)	(12.8)	(12.8)	(13.5)	(12.9)		(14.5)	
Min.	T	(10.8)	(12.2)	(9.6)	(7.9)	(7.8)	(9.0)	(9.3)	(9.4)	(9.9)	(9.7)	(12.5)	(10.8)			(7.8)
Range		(2.3)	(1.0)	(3.2)	(2.2)	(2.8)	(2.8)	(5.2)	(2.1)	(2.9)	(3.1)	(1.0)	(2.1)			
Std. Dev.		(0.69)	(0.28)	(1.09)	(0.67)	(0.83)	(0.80)	(1.27)	(0.68)	(0.81)	(0.83)	(0.30)	(0.61)			
No. Obs.		18S	19S	20S	22S	17S	17S	22S	21S	19S	22S	14S	17S			

## T DATA YERBA BUENA LIGHTSHIP

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	12.82	12.71	13.24	11.21	11.64	12.49	13.00	12.86	13.22	13.80	13.92	12.09	12.75		
Max.		13.4	13.9	15.0	12.8	13.9	14.2	14.7	14.4	15.0	15.0	16.6	13.0		16.6	
Min.	T	12.2	12.2	12.2	9.4	10.0	10.8	12.0	11.1	10.6	13.0	12.8	11.0			9.4
Range		1.2	1.7	2.8	3.4	3.9	3.4	2.7	3.3	4.4	2.0	3.8	2.0			
Std. Dev.		0.31	0.38	0.76	1.14	0.90	0.77	0.64	0.66	0.95	0.46	0.71	0.80			
No. Obs.		30	28	30	30	31	30	31	31	29	31	30	31			



T AND S DATA FARALLON ISLAND, S. E.

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	13.80	14.46	13.85	12.22	12.83		(13.24)	13.05	13.03	13.91	(13.78)	(12.34)	-		
Max.		15.5	17.1	15.0	14.5	14.1		(16.5)	16.0	15.0	15.5	(14.5)	(16.0)		(17.1)	
Min.	T	12.2	12.4	12.0	10.0	10.6		(11.6)	11.8	11.6	13.0	(13.3)	(9.7)			(9.7)
Range		3.3	4.7	3.0	4.5	3.5		-	4.2	3.4	2.5	-	-			
Std. Dev.		0.81	1.06	0.99	1.20	0.88		-	1.20	0.82	0.73	-	-			
No. Obs.		31	28	31	28	31		22BC	31	30	31	8A	16BC			
Mean	1970	32.49	31.41	32.46	33.66	33.85	33.98	33.88	33.82	33.94	(33.63)	33.32	32.79	(33.27)		
Max.		33.36	32.70	33.19	34.36	34.31	34.48	34.78	34.64	34.23	(33.87)	33.67	33.62		(34.78)	
Min.	S	28.98	29.46	30.34	27.80	32.41	33.45	32.75	33.50	33.72	(33.30)	32.92	31.53			(27.80)
Range		4.38	3.24	2.85	6.56	1.90	1.03	2.03	1.14	0.51	(0.57)	0.75	2.09			
Std. Dev.		1.27	0.93	0.67	1.14	0.37	0.23	0.35	0.22	0.13	(0.15)	0.19	0.57			
No. Obs.		31	28	29	30	31	30	31	31	29	24S	30	31			

T DATA SANTA CRUZ

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970		12.87	13.39	(12.08)	13.26	14.29	15.28	14.97	14.45	(13.71)	(13.38)	(11.68)	-		
Max.			13.9	14.4	(13.6)	15.6	15.3	16.8	16.1	15.0	(14.4)	(14.3)	(13.3)		(16.8)	
Min.	T		12.4	12.5	(10.0)	10.7	13.3	14.2	13.9	13.8	(13.3)	(12.3)	(10.0)			(10.0)
Range			1.5	1.9	(3.6)	4.9	2.0	2.6	2.2	1.2	(1.1)	(2.0)	(3.3)			
Std. Dev.			0.34	0.51	(1.01)	1.22	0.54	0.74	0.64	0.28	(0.33)	(0.55)	(0.95)			
No. Obs.			26	29	21S	27	28	27	27	26	19S	19S	23S			

T AND S DATA PACIFIC GROVE

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	12.83	12.85	13.21	12.07	12.48	13.26	13.63	13.38	13.07	13.34	13.28	12.98			
Max.		13.8	13.6	14.4	13.6	15.5	14.8	15.1	14.9	14.3	14.4	14.4	13.4		15.5	
Min.	T	11.8	11.9	11.8	9.9	11.2	12.5	12.5	12.0	11.8	12.5	12.3	11.0			9.9
Range		2.0	1.7	2.6	3.7	4.3	2.3	2.6	2.9	2.5	1.9	2.1	2.4			
Std. Dev.		0.55	0.39	0.61	0.83	1.00	0.57	0.67	0.61	0.58	0.48	0.67	0.62			
No. Obs.		31	28	31	30	31	30	31	31	30	31	30	31			
Mean	1970	33.21	32.96	33.23	33.83	34.10	33.95	34.00	33.99	33.92	33.63	33.32	33.30	33.62		
Max.		33.63	33.59	34.31	34.25	34.67	34.33	34.43	34.32	34.07	33.78	33.66	33.47		34.67	
Min.	S	31.81	32.29	31.53	33.51	33.34	33.73	33.78	33.79	33.70	33.41	32.85	33.01			31.53
Range		1.82	1.30	2.78	0.74	1.33	0.60	0.65	0.53	0.37	0.37	0.81	0.46			
Std. Dev.		0.33	0.33	0.60	0.17	0.23	0.13	0.16	0.12	0.10	0.09	0.24	0.11			
No. Obs.		30	26	28	30	30	30	31	31	30	31	29	31			

T DATA POINT LOBOS: north side

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	12.65	11.95	11.95	10.62	11.51	12.29	13.07	12.75	12.79	13.01	12.92	11.90	12.28		
Max.		13.5	13.1	12.8	11.7	12.5	13.3	15.0	14.0	15.0	14.6	14.6	12.8		15.0	
Min.	T	11.4	10.8	11.0	9.7	10.7	11.1	12.0	11.7	11.5	12.0	11.9	11.2			9.7
Range		2.1	2.3	1.8	2.0	1.8	2.2	3.0	2.3	3.5	2.6	2.7	1.6			
Std. Dev.		0.67	0.68	0.55	0.60	0.48	0.50	0.71	0.59	0.77	0.73	0.74	0.51			
No. Obs.		30	28	31	30	31	30	31	31	30	31	30	31			

T DATA POINT LOBOS: south side

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	12.56	12.01	11.63	9.83	10.30	11.18	12.05	11.70	11.81	12.53	13.09	11.99	11.73		
Max.		13.3	13.1	12.5	11.0	11.6	12.0	13.2	13.5	13.4	14.0	14.7	12.9		14.7	
Min.	T	10.4	10.9	10.5	9.3	9.6	10.5	10.5	10.7	10.8	11.5	12.2	11.0			9.3
Range		2.9	2.2	2.0	1.7	2.0	1.5	2.7	2.8	2.6	2.5	2.5	1.9			
Std. Dev.		0.77	0.75	0.57	0.42	0.53	0.41	0.75	0.64	0.71	0.66	0.79	0.52			
No. Obs.		30	28	31	30	31	30	31	31	30	31	30	31			

## T DATA    PIEDRAS BLANCAS LIGHTHOUSE

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	(10.15)	(10.14)	(10.16)	(10.14)	(10.10)	(10.15)							-		
Max.		(10.2)	(10.2)	(10.2)	(10.2)	(10.1)	(10.2)								(10.2)	
Min.	T	(10.1)	(10.1)	(10.1)	(10.1)	(10.1)	(10.1)									(10.1)
Range		(0.1)	(0.1)	(0.1)	(0.1)	(0.0)	-									
Std. Dev.		(0.05)	(0.05)	(0.05)	(0.05)	(0.00)	-									
No. Obs.		22S	20S	12S	22S	21S	15AB									

## T DATA    MORRO BAY

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	12.32	11.94	12.29	11.50	11.61	12.68	13.33	12.28	12.63	13.10	12.67	12.13	12.46		
Max.		13.3	12.8	13.3	12.2	13.3	14.4	16.7	15.6	13.3	13.3	13.8	13.3		16.7	
Min.	T	10.6	10.0	11.1	10.6	10.0	10.6	10.0	11.7	11.7	11.7	11.7	11.1			10.0
Range		2.7	2.8	2.2	1.6	3.3	3.8	6.7	3.9	1.6	1.6	2.1	2.2			
Std. Dev.		0.80	0.65	0.59	0.61	1.07	1.05	1.33	0.93	0.48	0.35	0.60	0.76			
No. Obs.		31	28	31	30	31	30	31	31	30	31	30	31			

## T AND S DATA    AVILA

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	(15.42)	14.04	14.15	12.45	13.81	15.13	16.06	16.36	15.71	15.40	14.28	13.28	(14.68)		
Max.		(16.1)	15.0	16.1	15.6	16.6	17.2	18.9	18.4	18.4	17.2	15.6	14.4		(18.9)	
Min.	T	(14.4)	13.4	12.8	10.0	11.6	13.4	13.9	15.0	13.9	13.4	12.8	12.2			(10.0)
Range		-	1.6	3.3	5.6	5.0	3.8	5.0	3.4	4.5	3.8	2.8	2.2			
Std. Dev.		-	0.54	0.73	1.48	1.39	1.02	1.27	0.91	1.09	1.08	0.67	0.77			
No. Obs.		22BC	25	30	28	31	29	30	31	29	29	27	30			
Mean	1970	(33.31)	33.41	33.19	34.03	34.33	(34.26)	34.47	34.43	34.39	34.28	33.66	32.88	(33.89)		
Max.		(34.1)	34.0	34.4	34.9	34.9	(34.9)	34.9	34.9	34.7	34.9	34.1	34.2		(34.9)	
Min.	S	(31.2)	31.1	32.1	33.2	33.6	(33.8)	34.2	34.1	33.8	33.7	33.2	26.8			(26.8)
Range		-	2.9	2.3	1.7	1.3	(1.1)	0.7	0.8	0.9	1.2	0.9	7.4			
Std. Dev.		-	0.59	0.59	0.48	0.32	(0.31)	0.16	0.19	0.24	0.27	0.27	1.64			
No. Obs.		21BC	25	30	26	27	19S	29	30	27	28	27	29			

T DATA SANTA BARBARA

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	13.94	13.37	13.88	(13.14)	14.91	16.13	16.68	16.46	16.88	16.85	14.91	13.27	(15.03)		
Max.		15.0	15.0	14.7	(16.1)	16.5	18.2	17.9	17.4	18.0	18.4	15.9	14.6		(18.4)	
Min.	T	13.3	13.0	13.2	(11.1)	11.7	15.1	15.1	15.6	16.2	15.4	11.7	10.8			(10.8)
Range		1.7	2.0	1.5	-	4.8	3.1	2.8	1.8	1.8	3.0	4.2	3.8			
Std. Dev.		0.50	0.37	0.44	-	1.37	0.80	0.82	0.55	0.41	0.87	1.12	0.90			
No. Obs.		31	28	29	18BC	31	30	31	31	30	31	30	31			

T AND S DATA VENTURA MARINA

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	12.88	13.49	14.24	15.02	15.68	16.88	17.98	17.35	17.16	17.13	14.94	12.79	15.46		
Max.		14.2	14.4	15.6	16.6	17.2	17.8	18.6	18.4	18.4	19.2	15.8	14.4		19.2	
Min.	T	11.1	12.2	11.1	13.4	13.9	16.1	17.5	15.8	16.6	13.9	12.8	10.6			10.6
Range		3.1	2.2	4.5	3.2	3.3	1.7	1.1	2.6	1.8	5.3	3.0	3.8			
Std. Dev.		0.91	0.51	1.02	1.03	1.06	0.58	0.33	0.61	0.50	1.64	0.62	1.08			
No. Obs.		31	28	31	30	31	30	31	31	30	31	30	31			
Mean	1970	32.98	33.14	29.81	33.60	33.65	33.49	33.42	33.36	33.39	33.44	32.18	30.40	32.74		
Max.		33.58	33.72	33.30	34.03	33.98	33.82	33.70	33.66	33.60	33.74	33.87	33.18		34.03	
Min.	S	31.83	31.06	11.38	33.27	32.82	33.35	33.14	33.24	33.20	33.33	12.41	20.96			11.38
Range		1.75	2.66	21.92	0.76	1.16	0.47	0.56	0.42	0.40	0.41	21.46	12.22			
Std. Dev.		0.48	0.64	5.98	0.20	0.22	0.10	0.15	0.09	0.08	0.10	4.80	3.54			
No. Obs.		31	27	31	30	31	29	31	31	30	31	30	31			

- 19 -

T DATA POINT DUME: west of

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	13.67	13.96	13.87	14.11	14.47	15.88	(17.72)	(17.49)	15.84	16.52	15.33	14.00	(15.24)		
Max.		15.0	16.0	16.5	16.8	16.1	18.0	(19.2)	(19.6)	19.1	19.4	16.5	15.0		(19.6)	
Min.	T	12.7	13.0	13.0	10.2	12.3	13.2	(14.9)	(15.2)	13.9	13.7	13.9	13.0			(10.2)
Range		2.3	3.0	3.5	6.6	3.8	4.8	-	-	5.2	5.7	2.6	2.0			
Std. Dev.		0.65	0.79	0.79	1.55	1.17	1.33	-	-	1.60	1.63	0.68	0.80			
No. Obs.		31	27	30	29	31	30	19AB	8C	30	31	30	31			

## T AND S DATA SANTA MONICA

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	13.57	14.02	15.13	14.73	15.91	17.76	18.72	18.68	17.65	17.51	15.96	14.44	16.17		
Max.		15.0	15.0	16.1	16.6	18.4	18.9	20.6	21.1	20.0	20.6	17.2	16.1		21.1	
Min.	T	12.2	12.2	13.9	11.6	13.4	16.1	15.6	16.1	15.0	15.6	15.0	13.4			11.6
Range		2.8	2.8	2.2	5.0	5.0	2.8	5.0	5.0	5.0	5.0	2.2	2.7			
Std. Dev.		0.86	0.62	0.64	1.65	1.33	0.86	1.38	1.10	1.17	1.69	0.49	0.89			
No. Obs.		31	28	31	30	31	30	31	31	30	31	30	31			
Mean	1970	34.07	34.29	34.20	34.22	34.49	34.38	34.30	34.31	34.33	34.34	34.01	(33.84)	(34.23)		
Max.		34.9	34.9	34.7	34.9	34.9	34.9	34.9	34.9	34.7	34.7	34.4	(34.6)		(34.9)	
Min.	S	32.5	29.7	33.7	33.6	34.0	33.6	33.8	33.7	33.8	33.8	31.2	(33.2)			(29.7)
Range		2.4	5.2	1.0	1.3	0.9	1.3	1.1	1.2	0.9	0.9	3.2	(1.4)			
Std. Dev.		0.42	0.95	0.22	0.30	0.28	0.34	0.35	0.28	0.24	0.27	0.57	(0.39)			
No. Obs.		31	28	28	27	25	27	29	30	26	27	30	22S			

## T AND S DATA BALBOA

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	14.05	13.86	15.06	14.81	15.42	17.46	17.48	17.99	17.85	17.81	15.91	14.76	16.04		
Max.		14.8	14.5	16.3	16.9	17.8	18.8	20.8	21.5	21.0	20.7	17.0	15.7		21.5	
Min.	T	11.7	12.0	14.2	11.6	11.9	16.0	13.5	15.2	16.1	16.1	14.8	13.8			11.6
Range		3.1	2.5	2.1	5.3	5.9	2.8	7.3	6.3	4.9	4.6	2.2	1.9			
Std. Dev.		0.80	0.48	0.57	1.43	1.77	0.93	1.83	1.64	1.11	1.51	0.45	0.67			
No. Obs.		31	28	31	30	31	30	31	31	30	31	30	31			
Mean	1970	33.30	33.48	33.40	33.64	33.76	33.73	33.64	33.57	33.59	33.59	33.58	33.29	33.55		
Max.		33.59	33.75	33.72	33.96	33.91	34.07	33.83	33.72	33.76	33.76	33.78	33.51		34.07	
Min.	S	33.08	33.25	31.72	33.02	33.63	33.60	33.51	33.49	33.47	33.41	33.26	33.09			31.72
Range		0.51	0.50	2.00	0.94	0.28	0.47	0.32	0.23	0.29	0.35	0.52	0.42			
Std. Dev.		0.16	0.11	0.37	0.17	0.09	0.10	0.08	0.05	0.08	0.10	0.13	0.11			
No. Obs.		31	27	28	30	31	30	31	30	30	31	29	30			

## T DATA DANA POINT: east of

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	13.57	(14.13)											-		
Max.		15.5	(14.5)												(15.5)	
Min.	T	10.3	(13.8)													(10.3)
Range		5.2	-													
Std. Dev.		1.40	-													
No. Obs.		28	12A													

## T AND S DATA SAN CLEMENTE

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	13.77	14.09	15.13	14.81	16.11	17.64	18.93	19.45	(19.12)	18.24	15.45	14.01	(16.40)		
Max.		15.17	14.72	15.83	17.22	17.94	19.00	21.17	23.89	(20.56)	20.94	16.72	14.50		(23.89)	
Min.	T	11.06	12.94	14.44	11.17	13.30	13.89	16.17	16.10	(18.06)	16.11	15.00	12.90			(11.06)
Range		4.11	1.78	1.39	6.05	4.64	5.11	5.00	7.79	(2.50)	4.83	1.72	1.60			
Std. Dev.		1.18	0.46	0.38	1.40	1.40	1.13	1.40	2.32	(0.81)	1.37	0.46	0.53			
No. Obs.		30	28	31	29	30	29	31	29	18S	28	29	30			
Mean	1970	33.46	33.52	(33.58)	(33.62)	33.78	33.80	33.79	33.98	33.81	33.74	33.65	33.54	(33.69)		
Max.		33.95	33.90	(34.31)	(33.90)	34.11	34.20	34.10	34.89	34.36	33.93	34.00	34.08		(34.89)	
Min.	S	33.26	33.27	(33.18)	(33.46)	33.63	33.62	33.57	33.57	33.60	33.57	32.69	33.33			(32.69)
Range		0.69	0.63	(1.13)	(0.44)	0.48	0.58	0.53	1.32	0.76	0.36	1.31	0.75			
Std. Dev.		0.16	0.14	(0.29)	(0.13)	0.14	0.15	0.16	0.27	0.19	0.09	0.22	0.14			
No. Obs.		31	28	22S	21S	25	29	30	29	25	27	30	29			

## T DATA OCEANSIDE

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	13.72	13.90	15.02	14.90	15.97	18.13	18.71	19.32	18.38	17.22	14.97	13.39	16.14		
Max.		15.0	15.0	16.0	17.0	18.4	20.1	21.2	23.4	20.0	18.9	15.9	15.3		23.4	
Min.	T	11.4	13.0	14.0	11.5	13.0	14.7	15.6	15.0	16.7	15.6	13.9	12.2			11.4
Range		3.6	2.0	2.0	5.5	5.4	5.4	5.6	8.4	3.3	3.3	2.0	3.1			
Std. Dev.		1.10	0.52	0.58	1.39	1.76	1.29	1.76	2.66	1.01	1.18	0.51	0.91			
No. Obs.		31	28	31	30	31	30	31	31	30	31	30	31			

T AND S DATA LA JOLLA: end of Scripps Pier, surface

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	13.41	13.82	15.18	15.18	16.07	18.06	19.18	20.58	18.65	18.32	16.43	14.62	16.62		
Max.		14.69	14.80	16.15	18.95	18.00	19.12	21.40	24.00	20.40	20.50	17.32	15.80		24.00	
Min.	T	11.40	12.62	14.40	13.23	13.10	15.90	15.60	15.17	15.40	16.45	15.20	13.75			11.40
Range		3.29	2.18	1.75	5.72	4.90	3.22	5.80	8.83	5.00	4.05	2.12	2.05			
Std. Dev.		0.96	0.62	0.44	1.05	1.62	0.70	1.32	2.16	1.30	1.09	0.43	0.62			
No. Obs.		31	27	31	30	31	30	31	31	30	31	30	31			
Mean	1970	33.51	33.52	33.45	33.57	33.70	33.72	33.67	33.68	33.69	33.69	33.61	33.49	33.61	33.96	
Max.		33.80	33.75	33.77	33.74	33.79	33.80	33.84	33.81	33.90	33.96	33.84	33.83		33.96	
Min.	S	33.23	33.45	33.35	33.45	33.59	33.66	33.56	33.57	33.58	33.59	33.47	33.35			33.23
Range		0.57	0.30	0.42	0.29	0.20	0.14	0.28	0.24	0.32	0.37	0.37	0.48			
Std. Dev.		0.12	0.07	0.08	0.08	0.04	0.04	0.06	0.07	0.07	0.08	0.09	0.09			
No. Obs.		31	27	30	30	30	30	31	31	30	31	30	31			

T AND S DATA LA JOLLA: end of Scripps Pier, 5-meter bottom

	YEAR	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	MEAN	MAX.	MIN.
Mean	1970	13.54	13.85	15.19	14.83	15.80	17.65	17.04	18.65	16.71	17.71	16.29	14.62	15.99		
Max.		15.90	14.80	16.20	16.48	17.80	19.00	20.00	23.43	20.35	19.65	16.91	15.90		23.43	
Min.	T	11.62	12.50	14.41	13.30	12.00	15.20	13.15	13.10	13.90	15.48	14.70	13.80			11.62
Range		4.28	2.30	1.79	3.18	5.80	3.80	6.85	10.33	6.45	4.17	2.21	2.10			
Std. Dev.		1.03	0.67	0.44	0.91	1.80	1.01	2.11	2.63	1.88	1.23	0.49	0.62			
No. Obs.		31	27	31	30	31	30	31	31	30	31	30	31			
Mean	1970	33.55	33.57	33.49	33.65	33.77	33.76	33.70	33.72	33.72	33.73	33.68	33.56	33.66	33.97	
Max.		33.97	33.75	33.59	33.93	33.87	33.93	33.86	33.91	33.96	33.92	33.86	33.67		33.97	
Min.	S	33.34	33.45	33.40	33.47	33.65	33.65	33.55	33.60	33.54	33.59	33.51	33.39			33.34
Range		0.63	0.30	0.19	0.46	0.22	0.28	0.31	0.31	0.42	0.33	0.35	0.28			
Std. Dev.		0.14	0.08	0.06	0.10	0.06	0.06	0.08	0.07	0.09	0.09	0.08	0.07			
No. Obs.		31	27	31	30	30	30	31	31	30	31	30	31			