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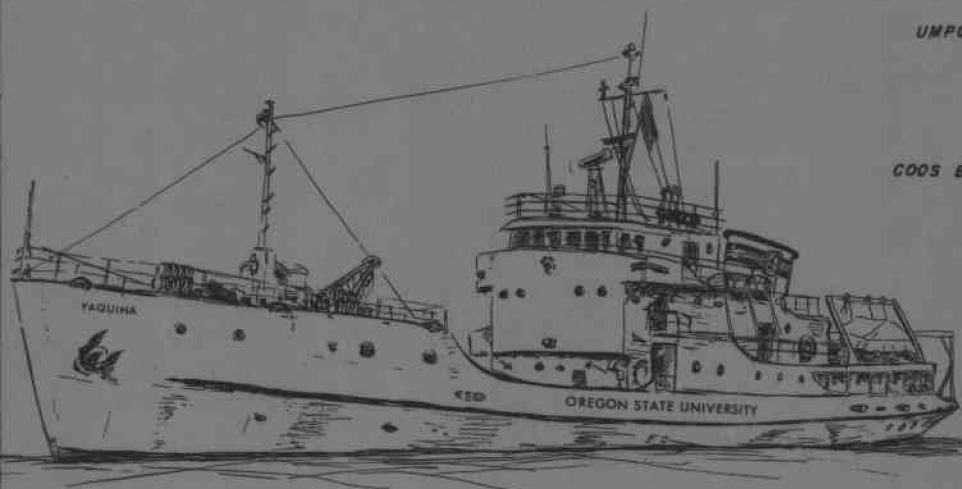
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SURFACE TEMPERATURE AND SALINITY OBSERVATIONS AT PACIFIC NORTHWEST SHORE STATIONS FOR 1963 AND 1964

by
Bruce Wyatt, Robert Still
and
Cary Haag

Office of Naval Research
Contract Nonr 1286(10)
Project NR 083-102

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Data Report No. 21

Reference 65-20

October 1965

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Wayne V. Burt
Chairman

INTRODUCTION

During 1963 and 1964 the Department of Oceanography, Oregon State University, continued its program of shore sampling of ocean temperatures and salinities along the coast of the Pacific Northwest. Observations for 1960, 1961, and 1962 are contained in three Data Reports: No. 6 (Kujala and Wyatt, 1961), No. 8 (Oliphant, Wyatt, and Kujala, 1962), and No. 11 (Still, Wyatt, and Kujala, 1963). The data in this report were collected at twelve stations in 1963 and at five stations in 1964. The locations of these stations are shown in Figure 1. Table I lists the station names, locations, and year(s) for which data are being reported. The names of the observers at each station are also listed in Table I. The assistance of these observers is greatly appreciated. Without them this program could not continue successfully.

PROCEDURE

The original goals of the shore sampling program were to obtain basic information about the distributions of temperature and salinity along the coast and to aid in monitoring offshore conditions. Detailed analyses of the early data showed that we can classify Oregon coastal waters into several types according to the major processes that affect them (Pattullo and Denner, 1965). These results led us to modify the sampling program to provide us with more detailed data.

Therefore, in 1964 data were taken daily, rather than weekly, at five of the original twelve stations. The five stations were selected so that each of the several water types would be sampled regularly. Sampling sites were located at points exposed to the open ocean where the influence of fresh water runoff was minimal. Whenever possible, observations were made at the time of high tide.

Temperatures were taken with a calibrated thermometer contained in a plastic-lined, brass, protecting bucket. The thermometers were read to the nearest 0.1°C ; temperatures are considered accurate to $\pm 0.2^{\circ}\text{C}$.

In 1963 water samples were stored in air-tight, glass-stoppered, citrate bottles and shipped to Oregon State University for salinity analysis. Salinity values were determined by the titration method of Strickland and Parsons (1960). Salinity data taken at Seaside Aquarium, Cape Arago Light Station, and Crescent City, California in 1963, and

at all stations in 1964, were determined by hydrometer readings and tables (Zerbe and Taylor, 1953). Salinity values determined by titration are believed to be accurate to $\pm 0.04\text{‰}$; the accuracy of those determined from hydrometer readings is not known, but is believed to be approximately $\pm 0.5\text{‰}$.

Table II lists chronologically all the observations taken at each coast station in 1963 and 1964. Table III is a summary of monthly means, maxima, minima, and numbers of observations for each station for both years.

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- Kujala, Norman, and Bruce Wyatt, 1961. Surface temperature and salinity observations at shore stations on the Oregon coast, Data Report No. 6, Department of Oceanography, Oregon State University, Ref. 61-4.
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TABLE I. LIST OF SHORE STATIONS

4

Station Name and Location	Sampling Site	Year	Observer
Ocean Park, Washington 46° 30.0'N, 124° 04.0' W	In the surf on a sand beach	1963	Mr. Clyde Sayce
Columbia River Lightship 46° 11.2'N, 124° 11.0' W	Five miles southwest of Columbia River South Jetty	1963 1964	U. S. Coast Guard Mr. E. N. Slater
Seaside Aquarium 45° 59.7'N, 123° 55.6' W	At pump outlet into aquarium settling tank from surf inlet pipe	1963 1964	Mr. Lawrence Smith
Arch Cape 45° 48.0'N, 123° 58.0' W	In the surf on a sand beach	1963	Mrs. Berkeley Snow Mr. Harry Sethman
Netarts Bay 45° 26.1'N, 123° 58.0' W	Boat ramp at entrance to Netarts Bay	1963	Mrs. Clair Peterson
Otter Rock 44° 44.6'N, 124° 58.0' W	Off the rocks	1963	Mr. Robert Troxel
Heceta Beach 44° 03.0'N, 124° 04.0' W	Sand beach 1.8 miles north of Siuslaw River	1963	Mr. Hod Johnson
Cape Arago Light Station 43° 20.3'N, 124° 22.5' W	Off the rocks below the Light Station	1963 1964	U. S. Coast Guard Mr. Earl W. Michael Mr. Richard Chamberlin Mr. Raymond Fink Mr. Robert Greiner
Bandon 43° 07.0'N, 124° 25.5' W	Off the rocks at Bandon Wayside	1963	Miss Lura Morgan
Port Orford 42° 44.6'N, 124° 30.6' W	Off the end of the Port Orford Pier	1964	Mr. Wayne Thomas
Humbug Mountain 42° 36.6'N, 124° 24.0' W	Off the rocks 4 miles south of Humbug	1963	Mr. E. V. Nelson
Brookings 42° 4.1'N, 124° 18.8' W	Off the rocks at Harris Beach State Park	1963	Mr. Norton W. Phillips
Crescent City, California 41° 44.6'N, 124° 11.7' W	Off the end of the Crescent City Municipal Wharf	1963 1964	Mr. Darold Richcreek

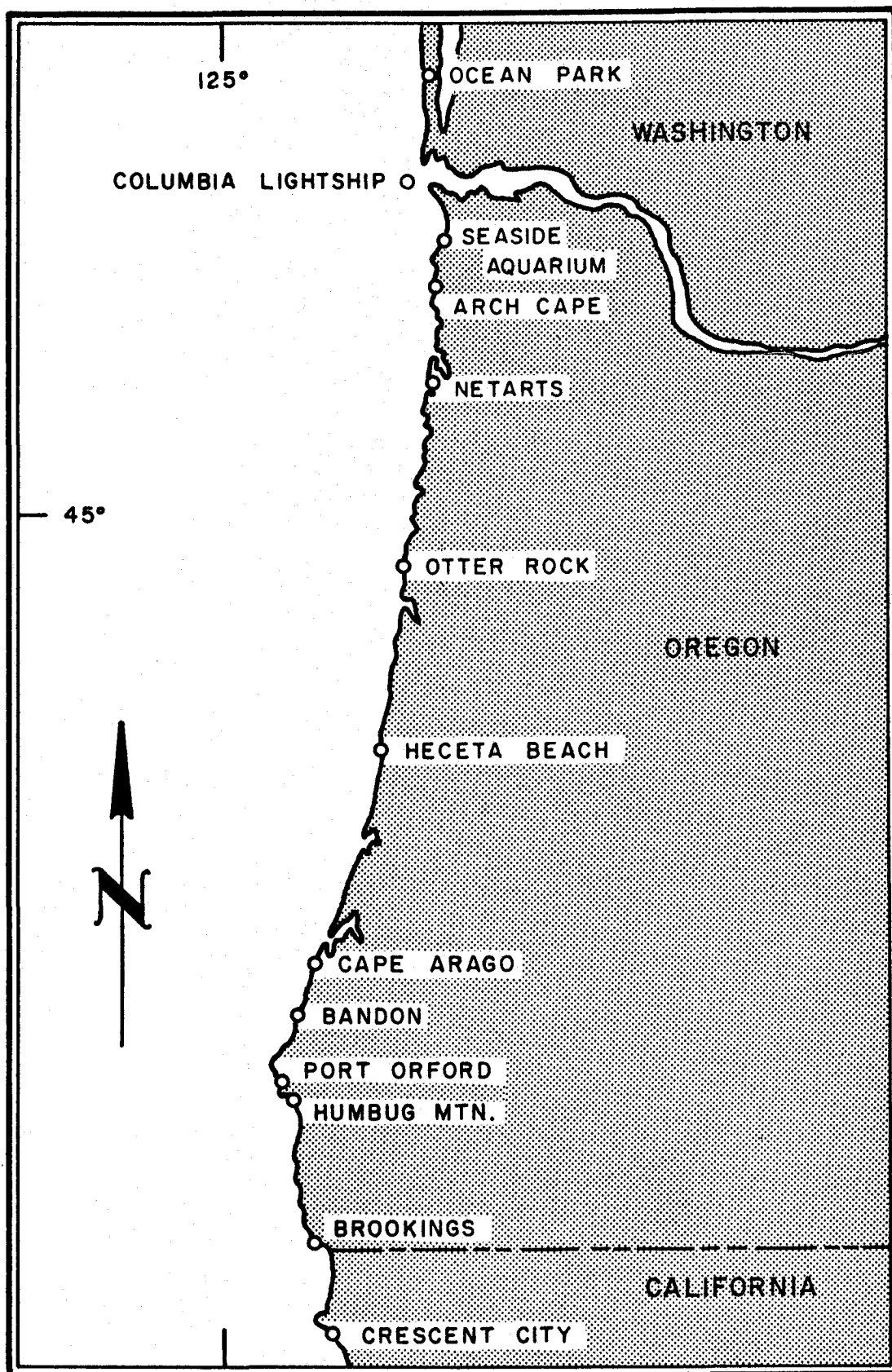


Figure 1. Location of Shore Stations.

TABLE II. TEMPERATURE AND SALINITY OBSERVATIONS

OCEAN PARK, WASHINGTON 1963											
DATE	TIME PST	T °C	S ‰	DATE	TIME PST	T °C	S ‰	DATE	TIME PST	T °C	S ‰
APR. 16	1800	7.8	26.46	JULY 10	1730	13.9	25.27	OCT. 9	830	12.1	28.60
23	1215	8.4	25.58	17	1150	14.5	27.36	16	1215	15.1	28.63
MAY 3	815	7.5	20.80	24	1515	14.8	25.53	23	1630	12.6	29.56
8	1430	12.1	25.07	31	1115	15.4	24.46	30	1330	13.1	27.25
15	1710	10.0	18.40	AUG. 8	1610	11.0	33.08	NOV. 8	815	11.6	24.38
22	1300	12.5	21.25	14	915	12.5	24.71	13	1030	11.9	27.68
29	745	10.8	24.42	22	1400	14.5	28.07	20	1415	10.8	30.14
JUNE 3	1105	10.0	30.07	28	800	11.9	30.97	27	900	10.1	27.26
13	1935	9.4	31.88	SEP. 11	730	13.2	27.15	DEC. 5	1600	9.6	25.58
19	1240	14.3		18	1430	14.2	30.00	11	910	8.4	29.14
19	1240	14.3		25	700	11.6	28.49				
26	1740	12.5	29.93	OCT. 3	1311	11.9	30.62				
JULY 3	1210	14.9		9	830	12.1	28.60				

COLUMBIA RIVER LIGHTSHIP 1963

OCT. 14	1000	15.7		NOV. 7	1700	14.7		NOV. 30	1330	11.8	
15	1015	15.8		8	645	14.4		DEC. 1	1215	12.1	
16	1100	16.8		9	745	14.1		2	1300	12.2	
17	1130	14.9		10	800	14.9		3	1345	13.1	
18	1200	14.9		11	915	14.6		4	1445	12.3	
19	1215	14.6		12	1000	14.4		5	1530	12.5	
20	1300	14.1		13	1045	14.2		6	1630	12.7	
21	1315	15.9		14	1115	13.8		7	530	10.9	
22	1400	15.7		15	1145	13.9		8	700	12.4	
23	1415	15.6		16	1218	13.8		10	915	11.8	
25	530	15.2		17	1245	13.9		11	915	11.7	
26	630	15.4		18	1315	13.6		12	930	9.7	
27	630	13.8		19	1345	13.5		14	1115	10.3	
28	815	14.0		20	1415	12.9		15	1145	10.4	
29	900	13.0		21	1500	12.7		16	1215	10.2	
30	945	15.3		22	1600	11.9		17	1300	10.7	
NOV. 31	1000	12.3		23	1700	13.3		18	1330	10.8	
1	1200	14.1		24	645	12.4		19	1400	11.1	
2	1245	13.0		25	745	11.3		20	1445	12.0	
3	1300	13.8		26	830	13.1		21	1530	11.8	
4	1415	15.6		27	915	13.4		22	1630	11.3	
4	1415	15.6		28	1000	12.6		24	700	12.5	
5	1500	15.3		29	1045	12.3		25	745	12.4	
6	1600	15.0		30	1330	11.8					

COLUMBIA RIVER LIGHTSHIP 1964

JAN. 3	1607	11.4		JUNE 21	2307	13.5		NOV. 12	1557	11.6	30.60
4	1700	10.3		22	1216	15.5		13	830	10.0	28.90
5	1758	10.8		23	1302	15.0		14	919	10.0	32.90
6	657	9.4		24	1346	13.8		15	1002	10.5	32.90
7	745	9.2		25	1427	13.1		16	1002	10.4	32.70
8	833	9.6		26	1506	13.4		17	1001	10.4	32.90
9	921	9.4		27	1544	13.5		18	1200	10.2	32.10
10	1007	9.2		28	1622	13.5		19	1238	10.1	32.80
11	1051	9.1		29	1700	13.8		20	1319	11.2	32.00
12	1132	9.4		30	1740	13.4		21	1401	10.8	30.40
13	1210	9.2		OCT. 1	1126	10.4	30.70	22	1449	10.4	33.10
14	1248	9.1		2	1217	10.3	28.20	23	1540	10.1	32.90
15	1323	9.0		3	1300	11.2	32.40	24	1638	10.8	33.10
16	1401	10.4		4	1338	10.3	32.10	25	1746	10.8	30.40
17	1443	10.2		5	1414	10.5	31.80	26	1726	10.0	32.80
18	1527	10.0		6	1448	10.6	31.80	27	823	10.4	34.20
19	1616	9.0		7	1520	10.4	31.80	28	916	10.2	33.20
20	1714	8.7		8	1552	10.4	31.60	29	1003	10.0	32.70
21	604	9.0		9	1624	12.4	32.10	30	1047	9.8	32.90
22	656	9.8		10	1658	10.5	31.50	NOV. 1	1400	10.4	
23	754	9.5		11	1736	12.5	32.10	2	1300	10.1	
24	855	9.6		12	711	10.5	31.50	3	1239	9.9	
25	957	9.5		13	816	12.8	32.70	4	800	10.0	
26	1056	9.8		14	922	12.6	32.10	5	1344	10.0	
27	1152	10.2		15	1021	13.0	32.30	6	1312	10.1	
28	1243	9.7		16	1110	12.6	32.10	7	1300	10.0	
29	1332	10.0		17	1151	13.3	31.90	8	1527	10.0	
30	1419	9.6		18	1229	13.0	32.00	9	1430	10.4	
31	1505	10.1		19	1304	12.3	32.10	10	1430	10.0	
MAY 29	2000	10.3		20	1337	13.2	32.30	11	1247	10.0	
30	2030	10.8		21	1411	13.2	32.10	12	800	9.3	
31	2100	12.9		22	1446	13.6	31.90	13	800	8.0	
JUNE 1	2200	12.0		23	1524	12.5	31.40	14	910	8.5	
2	2300	12.2		24	1606	10.0	31.50	15	800	8.4	
3	1000	12.0		25	1654	10.4	31.80	16	1043	8.0	
4	1200	11.8		26	1750	10.5	30.40	17	1129	8.0	
5	1230	12.8		27	743	11.8	31.60	18	1400	8.7	
6	1400	12.6		28	845	10.4	31.60	19	1300	8.5	
7	1500	13.0		29	1000	12.2	31.20	20	1400	9.0	
8	1600	13.0		30	1050	10.4	31.50	21	1430	9.5	
9	200	13.2		31	1126	10.3	32.00	22	1530	9.3	
10	300	12.4		NOV. 1	1126	11.2	28.90	23	1630	9.0	
11	400	12.3		2	1203	11.5	32.10	24	1730	8.5	
12	400	13.5		3	1238	11.9	31.90	25	1840	9.0	
13	500	14.1		4	1211	12.0	32.30	26	1950	9.5	
14	2130	13.3		5	1342	10.4	32.00	27	1004	9.0	
15	2230	13.8		6	1413	10.6	30.40	28	954	9.5	
16	1921	12.6		7	1444	12.0	32.40	29	1007	9.0	
17	2010	13.3		8	1517	12.5	32.50	30	1052	9.5	
18	2058	13.3		9	1557	11.5	30.60	31	1133	9.0	
18	2058	13.3		10	1553	11.4	30.60				
19	2143	13.4		11	1557	11.9	30.60				
20	2226	13.0		12	1557	11.6	30.60				

SEASIDE AQUARIUM 1963

DATE	TIME PST	T °C	S ‰	DATE	TIME PST	T °C	S ‰	DATE	TIME PST	T °C	S ‰	
JAN.	1	10.0		MAY	18	11.7	32.70	SEP.	7	13.3	32.90	
	2	10.0			19	13.4	27.10		8	13.3	33.30	
	3	10.6			20	13.9	29.50		9	15.0	31.90	
	4	10.0			21	13.9	29.30		10	14.4	30.20	
	5	9.5			22	13.4	28.60		11	14.4	30.30	
	6	8.9			23	13.9	29.30		12	14.4	31.50	
	7	10.0			24	12.2	31.00		13	15.5	31.00	
	8	10.0			25	12.2	32.80		14	16.1	30.70	
	9	8.9			26	12.8	32.80		15	15.5	30.80	
	10	8.9			27	13.4	30.20		16	14.4	33.10	
	11	7.2			28	12.8	31.00		17	13.9	31.40	
	12	6.7			29	13.4	31.00		18	14.1	32.50	
	13	7.2			30	13.4	31.40		19	13.9	33.70	
	14	8.4			31	13.4	31.80		20	13.3	32.80	
	15	8.9		JUNE	1	14.4	27.50		21	15.0	32.70	
	17	7.8			2	13.1	31.20		22	13.9	32.40	
	18	7.8			3	12.8	31.40		23	14.4	32.10	
	19	7.8			4	12.2	32.10		24	15.0	32.20	
	20	7.8			5	11.1	32.40		25	14.4	33.30	
	21	8.4			6	11.1	33.20		26	13.3	33.60	
	22	7.8			7	11.7	32.70		27	14.4	33.30	
	23	7.8			8	11.7	29.80		28	14.4	32.90	
	24	8.4			9	12.8	30.60		29	15.5	32.70	
	25	8.9			10	13.1	32.00		30	15.0	32.90	
	26	8.9			11	13.1	32.30		OCT.	1	15.0	33.10
	27	8.9			12	12.8	32.70			2	14.4	33.60
	28	7.8			13	12.2	33.80			3	15.0	32.10
	29	8.4			14	12.8	34.60			4	14.4	32.30
	30	7.8			15	10.6	34.80			5	13.9	32.70
	31	8.4			16	11.1	34.60			6	15.0	32.90
FEB.	1	8.4			17	12.2	34.40			7	14.4	32.50
	2	8.9			18	11.1	34.10			8	15.5	32.50
	3	8.9			19	12.8	34.50			9	15.0	32.50
	4	9.5			20	12.8	34.20			10	14.4	32.40
	5	10.0			21	13.3	31.20			11	14.4	32.10
	6	10.0			22	14.4	28.40		DEC.	2	10.3	32.10
MAR.	1	1700	10.0	31.80	23	13.9	29.50		OCT.	12	14.4	32.40
	2	520	10.0	31.60	24	13.9	30.30			13	15.0	32.80
	3	520	9.5	32.50	25	15.6	28.00			14	15.0	32.70
	4	630	10.0	31.80	26	13.9	28.80			15	15.0	32.90
	5	640	9.5	32.50	27	11.9	32.50			16	15.0	32.90
	6	640	9.5	31.20	28	12.0	32.10			17	14.4	32.50
	7	730	9.5	31.00	29	13.3	27.30			18	15.0	33.20
	8	840	10.0	30.40	30	13.9	24.10			19	13.9	32.90
	9	1020	10.0	30.40	JULY	1	14.1	25.10		20	15.5	32.70
	10	1100	10.0	33.10		2	14.4	25.90		21	15.0	33.60
	11	1150	9.2	33.30		3	12.2	24.40		22	14.4	31.60
	12	1230	9.5	34.10		4	16.1	25.90		23	14.4	32.00
	13	1400	9.5	32.80		5	15.5	29.40		24	14.4	32.50
	14	1410	9.7	30.40		6	15.0	29.70		25	14.4	31.90
	15		9.5	31.20		7	16.1	29.80		26	14.1	28.40
	16		10.0	31.40		8	15.5	30.30		27	13.3	30.70
	18		9.2	31.80		9	15.0	30.10		28	13.3	31.50
	19		9.5	31.50		10	15.5	30.60		29	12.8	29.80
	20		10.0	32.10		11	15.9	31.60		30	13.3	30.20
	21		9.5	32.30		12	16.6	31.90		31	13.3	30.70
	22		9.5	31.00		13	14.4	32.50	NOV.	1	13.3	31.50
	23		9.5	32.30		14	13.9	32.90		2	13.3	33.20
	24		10.0	32.00		15	14.4	32.40		3	13.3	31.80
	25		10.0	32.40		16	15.0	30.80		4	13.3	31.60
	26		10.0	32.40		17	16.1	31.00		5	12.8	31.80
	27		10.0	32.10		18	16.6	30.60		6	12.2	31.50
	28		9.5	32.30		19	15.0	32.10		7	12.2	31.00
	29		9.5	30.80		20	15.5	31.90		8	12.2	31.40
	30		9.5	31.80		21	16.1	25.10		9	12.2	31.00
	31		8.9	31.90		22	15.5	25.40		10	12.2	28.60
APR.	1		10.0	28.50		23	16.6	26.00		11	12.2	23.60
	3		10.0	30.80		24	16.6	26.80		12	12.8	31.80
	4		10.0	30.70		25	17.2	24.10		13	13.3	31.80
	5		10.6	30.60		26	16.6	27.20		14	12.8	31.20
	6		10.0	31.20		27	14.4	30.30		15	12.8	31.00
	7		10.6	31.40		28	11.6	33.60		16	12.2	31.20
	8		10.3	31.50		29	13.2	33.10		17	11.6	30.80
	9		10.0	31.60		30	15.5	30.60		18	11.1	30.30
	10		10.6	31.10		31	15.0	30.30		19	11.6	30.60
	11		11.4	31.20	AUG.	1	14.4	31.00		20	11.1	30.80
	12		10.6	32.00		2	13.9	32.40		21	11.1	30.80
	13		11.7	32.00		3	13.9	32.80		22	11.6	31.60
	14		11.1	31.90		4	12.8	34.20		23	11.1	31.00
	15		11.1	31.20		5	13.0	33.80		24	11.1	31.10
	16		10.0	30.80		6	11.6	34.90		25	11.1	31.20
	17		10.0	31.10		7	11.6	34.60		26	12.2	31.20
	18		10.6	31.20		8	13.3	33.50		27	10.5	31.10
	19		10.6	28.60		9	12.8	34.50		28	10.5	31.20
	20		10.0	31.10		10	13.9	34.20		29	11.1	31.40
	21		10.0	29.80		11	12.8	33.70		30	11.1	31.50
	22		10.6	28.40		12	12.2	33.70	DEC.	1	11.1	32.40
	23		10.6	28.10		13	11.6	33.10		3	10.5	32.30
	24		11.1	29.90		14	13.3	30.10		4	10.8	31.00
	25		11.1	29.90		15	14.4	30.30		5	10.5	31.20
	26		11.1	32.30		16	13.9	31.10		6	10.3	28.40
	27		11.1	27.60		17	13.9	31.60		7	10.5	31.20
	28		12.8	26.70		18	14.4	31.60		8	10.5	31.00
	29		12.8	25.60		19	15.0	30.40		9	10.8	31.50
	30		11.7	26.10		20	15.5	29.30		10	10.0	31.90
MAY	1		11.1	27.70		21	16.6	29.10		11	9.5	31.90
	2		10.6	28.60		22	15.5	29.30		12	9.5	32.00
	3		10.6	29.40		23	15.0	30.10		13	9.5	31.00
	4		11.1	30.10		24	15.5	29.80		14	9.5	30.70
	5		11.1	32.00		25	15.8	30.10		15	8.9	
	6		11.1	32.00		26	16.6	29.80		16	9.5	
	7		11.7	31.80		27	16.6	30.40		17	9.5	29.70
	8		12.2	31.90		28	16.1	31.50		18	10.0	29.80
	9		12.2	31.10		29	15.0	31.90		19	10.0	31.20
	10		12.2	30.40		30	15.0	31.40		26	10.5	31.20
	11		12.2	31.60		31	15.0	30.40		27	10.0	31.90
	12		13.4	30.30	SEP.	1	15.5	27.60		28	10.5	32.00
	13		13.9	26.90		2	16.6	23.00		29	10.0	32.40
	14		13.9	28.20		3	16.6	25.90		30	10.5	32.40
	15		13.4	25.50		4	16.9	27.70		31	11.1	32.10
	15		13.4	25.50		5	15.5	30.30				
	16		12.8	29.30		6	13.6	32.70				
	17		12.2	33.50		7	13.3	32.90				

SEASIDE AQUARIUM 1964											
DATE	TIME PST	T °C	S ‰	DATE	TIME PST	T °C	S ‰	DATE	TIME PST	T °C	S ‰
JAN. 1		10.6	32.10	JUNE 12		13.4	27.60	SEP. 22		14.5	31.40
2		10.6	32.50	13		13.9	28.50	23		13.9	32.10
3		10.6	32.30	14		13.9	29.00	24		12.0	33.80
6		10.0	32.10	15		12.8	31.40	25		11.1	34.10
7		10.0	31.90	16		12.8	29.00	26		10.6	33.20
8		9.5	31.20	17		12.8	27.10	27		11.1	33.60
9		8.9	31.10	18		13.4	21.00	28		11.1	34.60
10		8.9	30.60	19		13.4	22.60	29		10.3	33.70
11		9.5	28.50	20		13.9	23.70	30		11.1	31.80
12		8.9	29.80	21		13.4	25.90	OCT. 1		11.7	31.90
13		8.9	29.50	22		13.4	28.40	2		11.9	31.40
14		8.9	30.40	23		14.5	29.00	3		11.7	32.90
15		8.9	31.00	24		12.8	32.40	4		10.8	33.80
17		8.9	31.10	25		11.7	34.00	5		11.7	34.00
18		9.5	31.00	26		12.2	32.50	6		12.2	32.00
19		9.2	31.20	27		12.8	28.60	7		12.2	32.00
20		8.9	30.60	28		12.8	33.20	8		12.8	33.10
21		8.9	30.30	29		12.0	34.10	9		12.8	32.80
22		8.9	29.80	30		12.0	34.10	10		12.5	32.70
23		8.4	30.10	JULY 1		11.1	34.00	11		12.8	32.90
24		8.4	30.40	2		11.1	34.20	12		12.8	32.90
25		8.9	30.10	3		11.7	30.10	13		12.8	32.70
26		9.5	31.20	4		11.4	33.60	14		12.8	32.50
27		10.0	29.50	5		11.4	32.40	15		12.5	32.90
28		8.9	27.70	6		12.8	17.90	16		12.2	32.70
29		9.5	30.10	7		13.3	20.80	17		11.7	34.20
30		9.5	30.60	8		13.9	23.00	18		11.7	32.50
31		10.0	30.60	9		13.9	22.50	19		11.7	32.90
FEB. 1		10.6	32.70	10		15.0	22.90	20		12.2	33.30
2		10.3	31.40	11		15.6	24.70	21		12.2	32.80
3		10.0	31.00	12		14.4	27.70	22		12.2	32.80
4		9.5	31.20	13		12.8	31.20	23		12.2	32.80
5		8.6	31.10	14		13.3	30.20	24		12.2	32.50
6		8.4	31.60	15		13.9	25.20	25		11.7	32.90
7		8.9	30.60	16		13.9	23.00	26		11.7	33.60
8		8.9	30.40	17		14.4	23.10	27		11.7	33.70
9		8.9	29.10	18		14.4	23.90	28		11.1	33.50
11		8.4	28.80	19		15.6	25.20	29		11.1	33.10
12		8.9	31.80	20		15.0	25.90	30		11.4	32.70
13		8.9	30.30	21		15.6	26.00	31		11.7	32.40
14		8.9	29.80	22		15.6	26.90	NOV. 1		11.1	33.50
15		8.4	29.00	23		15.6	28.60	2		11.4	33.30
16		8.9	29.00	24		15.6	30.40	3		11.4	33.10
17		8.4	26.10	25		11.4	34.50	4		11.7	32.30
18		8.9	25.20	26		10.8	35.00	5		11.7	33.50
20		9.5	27.10	27		11.1	34.60	6		11.1	32.30
21		8.4	29.40	28		11.7	34.80	7		11.1	34.00
22		8.9	32.00	29		12.2	32.90	8		11.7	33.50
23		8.4	31.00	30		12.8	32.90	9		11.7	33.10
24		8.9	31.40	31		12.8	28.50	10		11.1	32.80
25		8.4	31.60	AUG. 1		13.3	30.40	11		11.1	32.30
26		8.9	31.80	2		12.8	30.30	12		10.6	32.70
27		8.9	32.10	3		13.3	30.20	13		10.6	32.40
28		8.9	29.50	4		13.9	30.40	14		10.0	31.90
APR. 24		10.0	29.80	5		14.7	30.20	15		10.0	32.50
25		10.0	28.10	6		15.0	30.30	16		9.4	32.50
26		10.3	28.00	7		15.3	31.10	17		10.0	30.30
27		10.3	28.20	8		15.6	31.20	18		9.4	32.50
28		10.0	28.20	9		16.1	30.80	19		9.4	31.90
29		11.1	30.20	10		16.1	31.60	20		9.4	32.30
30		10.0	29.30	11		15.6	31.90	21		9.4	32.40
MAY 1		10.5	29.90	12		15.0	30.60	22		10.0	32.70
2		9.5	29.40	13		15.0	29.80	23		10.0	33.10
3		9.5	29.90	14		13.9	31.91	24		10.3	32.80
4		10.0	30.70	15		15.6	30.40	25		9.4	32.50
5		8.4	31.90	16		15.9	30.10	26		9.4	31.90
6		8.9	31.60	17		15.0	30.20	27		8.9	29.70
7		10.0	30.10	18		15.0	30.80	28		8.9	30.70
8		10.0	28.00	19		15.0	30.80	29		9.4	31.50
10		11.1	26.10	20		15.0	28.50	30		10.0	32.00
11		11.1	27.30	21		13.3	33.30	DEC. 1		10.0	31.60
12		11.1	27.30	22		12.0	34.00	2		10.0	31.90
13		11.6	27.70	23		11.7	34.60	3		10.0	30.40
14		12.2	28.40	24		12.8	34.50	4		9.7	30.20
15		11.6	28.90	25		13.3	32.30	5		9.4	29.40
16		11.6	30.10	26		12.8	30.60	6		10.0	30.30
17		11.1	29.70	27		13.6	30.40	7		10.0	30.30
18		11.1	29.50	28		14.4	31.00	8		10.6	31.20
19		11.6	29.70	29		14.4	30.80	9		10.8	31.20
20		11.6	29.70	30		14.4	31.00	10		10.0	30.40
21		11.6	29.00	31		14.4	31.60	11		8.9	31.10
22		11.6	28.80	SEP. 1		12.2	32.90	12		9.4	31.40
23		11.1	30.70	2		13.4	31.20	13		9.4	28.00
24		11.1	31.10	3		13.4	32.80	14		8.9	30.20
25		11.1	32.30	4		12.2	33.70	15		8.9	30.40
27		11.1	32.50	5		11.7	35.30	16		8.3	30.30
28		12.2	27.20	6		12.2	34.90	17		7.2	31.60
29		12.8	28.90	7		13.4	32.80	18		7.8	31.20
30		12.2	30.20	8		13.4	30.70	19		7.8	30.70
31		11.9	30.20	9		13.9	31.50	20		8.3	32.00
JUNE 1		12.5	28.40	10		13.4	33.10	21		7.8	31.80
2		12.2	25.20	11		12.8	34.50	22		8.9	31.80
3		13.4	25.00	12		14.2	33.60	23		8.9	31.80
4		13.4	23.80	13		14.2	34.40	24		9.2	29.30
5		12.8	24.60	14		14.5	32.80	25		8.9	30.40
6		13.4	24.80	15		14.7	33.70	26		9.4	28.90
7		12.8	25.20	16		13.9	32.70	27		9.4	28.50
8		12.2	26.30	17		13.9	32.70	28		8.9	27.80
9		12.8	29.00	18		13.9	32.10	29		7.8	27.60
9		12.8	29.00	19		13.9	33.20	30		7.8	24.60
10		13.4	29.10	20		14.5	31.50	31		7.8	27.50
11		14.5	23.90	21		12.8	32.80				
				22		14.5	31.40				

ARCH CAPE	1963	T	S	DATE	TIME	T	S	DATE	TIME	T	S
DATE	TIME	°C	%		PST	°C	%		PST	°C	%
JAN.	1 1640	10.5		JUNE	1 900	14.5	27.09	AUG.	14 1600	14.4	
	2 1650	10.5			8 1430	12.4	30.50		15 940	13.2	
	3 1750	10.3			15 730	12.4	32.22		16 1041	11.5	
	4 705	10.1			20 1330	13.0	30.91		17 1132	10.9	33.90
	5 750	9.6	31.32	JULY	1 1630	16.2			18 1216	10.9	
	12 1325	8.6	32.42		2 1800	17.7			19 1256	13.9	
	19 1630	9.2	32.03		3 1900	18.3			21 1406	16.4	
	26 1700	8.2	31.32		4 1030	16.1			23 1540	14.3	
FEB.	9 1700	10.1	31.41		5 1130	15.7			24 1530	14.8	26.41
	10 1330	10.2			6 1220	16.2	29.44		26 1500	15.5	
	13 1530	10.4	30.13		7 1230	17.1			27 1620	17.0	
	15 1030	10.6			8 1330	15.6			28 1730	14.6	
	23 1630	10.9	30.38		9 1300	15.7			29 1945	13.6	
MAR.	2 1700	10.8	30.83		10 1445	16.3			30 930	12.4	
	12 1334	9.8	32.76		11 1500	16.9			31 1030	13.0	
	13 1600	9.6			12 1500	16.8		SEP.	1 1030	13.4	
	14 1515	9.4			13 1630	15.0	31.75		2 1045	15.9	
	16 1630	10.1	31.00		14 1700	13.7			3 1150	15.1	
	23 1030	9.9	31.39		16 1700	16.4			7 1500	11.8	32.90
	25 1155	9.7			17 1700	16.4			8 1530	11.7	
	26 1310	9.9			18 1015	16.5			10 1715	14.5	
	27 1400	9.6			19 1120	12.2			14 1000	14.4	30.91
	28 1445	9.4			20 1220	15.6	30.41		17 1215	14.7	
	29 1525	9.3			21 1300	16.7			21 1430	15.4	31.60
	30 1500	9.5	29.44		22 845	15.9			23 1700	15.2	
APR.	6 1050	10.4	27.40		23 1420	17.9			25 1700	15.7	
	10 1230	10.5			24 1415	17.9			26 1630	15.6	
	13 1530	11.7	30.62		25 1445	18.2			28 1645	15.7	31.75
	26 1430	11.8	28.45		26 1515	16.6		OCT.	2 1515	14.2	
	27 1530	13.3			27 1700	10.4	32.74		5 1130	13.8	31.85
	28 1645	13.5			28 1530	12.4			7 1525	15.8	
MAY	4 1030	10.8	30.22	AUG.	3 2230	12.4	32.84		19 1600	14.8	32.14
	11 1420	12.7	31.81		11 1130	11.4	33.36		9 1600	13.0	30.26
	11 1420	12.7	31.81		13 1300	10.8		NOV.	7 1645	10.9	30.63
	18 1730	13.9	28.55		14 830	11.7		28 1600	11.1	30.28	
	25 1415	12.8	31.54		14 1600	14.4					

NETARTS 1963

JAN.	6 1000	9.6	31.38	APR.	28 1800	14.9	29.63	AUG.	25 1700	15.9	25.33
	12 1400	6.3	30.57	MAY	6 1215	11.9	27.53	SEP.	6 1510	15.4	30.49
	20 1100	8.4	31.12		19 900	12.9	31.54		14 1300	15.0	32.67
	26 1330	8.7	31.94		27 1630	15.5	30.21		29 1330	16.0	32.06
FEB.	10 1230	10.1	30.66	JUNE	12 1630	16.1	30.89	OCT.	7 930	13.8	31.65
	18 930	10.4	29.92		22 1450	15.9	28.85		14 930	14.9	30.31
	24 1200	10.5	30.66		30 1000	14.3	27.00		20 1715	14.4	31.67
MAR.	4 830	7.4	30.94	JULY	9 1345	18.5	28.83		28 900	13.0	28.51
	11 1130	8.5	31.71		14 1900	16.0	31.09	NOV.	8 900	13.2	30.53
	25 1315	10.1	30.69		21 1430	16.5	25.88	DEC.	13 1200	11.5	29.66
APR.	2 810	9.2		AUG.	4 1145	12.9	32.51		1 1330	12.0	31.12
	8 845	9.3	25.56	NOV.	25 1600	11.6			9 1250	10.9	29.21
	22 1015	11.5	27.07	AUG.	19 1500	14.9	25.40		17 1715	11.6	30.73
					25 1700	15.9	25.33				

OTTER ROCK 1963

JAN.	6 900	10.2	32.15	MAY	18 2000	12.4	31.97	SEP.	22 1430	13.9	32.56
	13 1400	7.8	30.85		26 1530	12.6	32.95		29 1000	15.2	32.28
	20 800	8.2	32.28	JUNE	2 830	12.8	32.69	MAY	4 930	11.4	30.01
	27 1300	9.1	32.54		8 1400	12.0	21.45	OCT.	5 1330	14.1	32.44
FEB.	3 800	9.9	30.49		17 730	11.9	30.27		13 930	14.9	32.03
	9 1230	10.9	29.69		28 1500	12.3	33.12		20 1230	13.9	32.15
	16 1730	12.5	26.88		30 1930	14.4	31.47		27 900	13.6	31.91
	23 1130	11.8	31.07	JULY	7 1300	15.5	31.25	NOV.	3 1300	13.6	32.06
MAR.	2 1800	10.8	30.56		13 1730	12.5	33.11		10 800	12.0	30.34
	10 1200	11.0	32.55		22 1400	14.1	32.76		16 1230	12.4	30.12
	17 1730	11.4	32.46		28 1830	11.4	33.55		24 800	12.3	30.96
	23 1100	10.0	32.43	AUG.	4 1700	13.2	33.71	DEC.	1 1200	11.9	31.42
	30 1630	12.4	31.17		11 1730	13.0	33.35		9 1700	10.5	30.88
APR.	7 1200	10.9	29.82		18 1200	11.0	33.36		14 1200	10.7	31.88
	15 1700	10.5	30.63		25 1700	16.2	33.33		21 1500	10.2	
	21 1000	10.5	30.39	SEP.	1 1100	12.7	33.27		29 1200	10.4	
	21 1000	10.5	30.39		8 1630	12.2	33.25				
	28 1630	14.4	31.05		14 1000	15.2	32.66				
MAY	12 1500	14.5	31.22		22 1430	13.9	32.56				

MECETA BEACH 1963

JAN.	10 1610	8.8	31.97	FEB.	28 1420	10.9	30.68	MAR.	31 1845	9.2	27.10
	23 1630	10.4	32.32	MAR.	3 1100	12.6	31.79	APR.	4 1610	11.1	25.66
	23 1630	10.4	32.32		12 1636	10.4	32.36		25 1645	12.0	28.45
FEB.	9 1710	10.1			26 1610	10.0	30.38				
	20 1430	11.4	21.70		31 1845	9.2	27.10				

BANDON 1963

DATE	TIME PST	T °C	S %
JAN. 3	750	10.7	32.45
10	1215	9.7	33.04
7	1615	8.9	33.73
24	1340	8.1	33.73
FEB. 31	1520	10.1	31.89
7	1115	10.9	29.55
14	1715	11.8	29.25
21	945	11.8	30.65
MAR. 28	1630	11.3	31.11
7	1030	10.4	33.06
14	1615	9.4	33.15
21	820	10.3	32.00
MAR. 28	1245	10.4	20.40
APR. 4	915	11.8	27.18
11	1410	11.2	22.87
18	655	10.1	27.15
18	655	10.1	27.15
25	1310	12.6	30.12
MAY 2	800	10.6	29.40

DATE	TIME PST	T °C	S %
MAY 9	1430	12.9	26.88
16	645	11.0	32.19
23	1230	10.9	33.19
30	620	9.7	33.21
JUNE 6	1205	10.6	33.28
13	1710	10.4	33.47
20	1105	9.9	33.75
27	1730	9.6	33.63
JULY 4	1150	14.9	31.03
11	1530	13.0	33.23
18	1023	11.7	33.66
25	1545	13.4	33.40
AUG. 1	1045	11.0	33.80
8	1515	11.1	33.78
15	850	12.5	33.21
22	1445	11.3	33.61
29	905	11.1	33.49
SEP. 5	1430	11.9	33.63
12	735	14.3	32.72

DATE	TIME PST	T °C	S %
SEP. 12	735	14.3	32.72
19	1155	13.1	33.20
26	730	12.9	32.65
OCT. 3	1240	13.3	32.58
10	815	15.1	31.66
17	1130	16.2	32.83
24	1020	14.7	32.50
NOV. 1	1110	13.2	31.84
7	1625	12.6	30.81
14	950	13.1	30.35
21	945	12.0	31.21
28	1000	11.7	32.16
DEC. 5	1530	12.1	31.87
12	910	10.0	
19	1355	11.1	
26	2105	11.0	

HUMBUG MOUNTAIN 1963

DATE	TIME PST	T °C	S %
JAN. 6	1555	11.1	32.40
13	1710	9.2	32.85
20	1635	9.0	33.49
29	1535	8.9	
FEB. 9	1530	11.3	30.73
19	1700	11.8	29.65
28	1650	11.3	32.20
MAR. 14	1700	8.6	33.03
31	1340	10.6	27.47
APR. 17	1755	10.9	28.41
30	1830	11.5	29.64
MAY 16	1945	11.2	32.42
26	1940	9.8	33.39
JUNE 16	1905	10.4	33.62
26	1600	8.9	33.96
JULY 3	1600	13.0	33.68
11	900	9.8	33.80
17	1700	8.6	34.01
18	1500	8.9	
19	1630	9.2	
20	1730	8.6	
21	1830	11.7	
22	1800	11.0	
23	1900	10.7	
24	1700	11.4	33.80
25	1700	10.5	
26	1945	9.2	
27	1745	8.8	
28	1500	9.3	
29	1830	8.4	
30	1730	8.5	
31	1630	8.8	34.01
AUG. 1	1900	8.9	
2	1830	8.6	
11	1330	11.8	33.92
18	1700	11.2	33.83
18	1700	11.2	33.83
24	1600	13.7	33.80
SEP. 1	1900	12.0	33.66

DATE	TIME PST	T °C	S %
SEP. 2	1800	11.0	
3	1000	12.0	33.66
4	1000	11.0	
5	1000	10.6	
6	1000	11.5	
8	1700	13.7	33.68
9	1100	13.5	
10	1300	13.3	
11	1230	14.2	
14	1000	14.1	
15	1800	14.2	33.28
16	1100	13.8	
17	1100	13.8	
19	1200	11.6	
20	1100	12.1	
23	1100	13.2	33.23
24	1130	13.0	
25	1100	13.1	
26	1030	13.1	
27	1200	14.4	
30	1000	13.5	33.65
OCT. 1	1100	11.9	
2	1000	12.8	
3	1000	11.7	
4	1100	11.5	
6	1500	15.1	32.43
7	930	13.8	
8	1000	12.8	
9	1015	13.3	
10	1100	13.4	
11	1015	13.5	
12	930	13.5	
13	1730	14.2	
14	1100	14.1	
17	1030	14.0	
18	1100	12.0	
19	1600	11.8	
20	1230	11.9	
21	1300	13.0	

DATE	TIME PST	T °C	S %
OCT. 21	1300	13.0	
22	1230	13.6	
23	1700	13.7	
24	1230	13.4	
25	1230	13.8	
27	1500	13.7	
28	1000	13.3	
29	1230	13.2	
30	1200	13.1	
31	1115	13.1	
NOV. 1	1530	13.0	
2	1300	13.2	
3	1400	12.9	
4	1415	13.1	32.62
5	1215	12.7	
6	1200	12.9	
7	1300	12.3	
8	1330	12.8	
9	1700	13.1	
10	1345	13.1	29.97
11	1330	13.2	
12	1700	13.2	
13	1200	13.1	
14	1330	13.1	
15	1600	12.8	
16	1200	12.2	
17	1415	12.3	29.01
18	1130	12.1	
19	1230	12.2	
20	1200	12.7	
21	1145	12.4	
22	1215	12.1	
DEC. 4	1200	12.0	31.77
5	1215	12.0	
6	1145	12.1	
11	1130	10.8	
12	1130	10.3	

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DATE	TIME PST	T °C	S %
FEB. 2	1330	10.5	31.80
3	1130	10.5	31.80
4	1230	10.7	32.00
5	1130	10.4	32.80
MAR. 1	1330	8.8	33.20
2	1345	8.8	33.50
3	1730	8.9	32.90
5	1300	9.4	32.70
6	1345	9.1	32.40
7	1430	9.2	32.90
8	1445	9.1	32.70
9	1400	9.0	32.40
10	1330	9.1	31.80
11	1230	9.1	31.90
12	1300	8.9	32.40
13	1345	9.1	31.40
15	1145	9.2	30.40
16	1200	9.4	32.70
17	1515	9.5	32.40
19	1575	8.4	33.80
21	1245	8.6	32.90
24	1300	8.6	33.70
25	1145	8.5	33.70
27	1200	8.7	33.70
27	1200	8.7	33.70
28	1230	9.1	33.70
29	1630	10.0	34.00

DATE	TIME PST	T °C	S %
MAR. 30	1200	9.7	32.70
APR. 1	1200	9.5	33.10
2	1230	9.5	33.10
3	1145	9.0	33.70
4	1100	8.0	33.80
5	1800	8.0	34.10
7	1200	7.8	34.10
8	1200	7.9	33.80
11	1215	8.7	33.50
12	1215	8.7	33.70
13	1130	8.1	34.10
16	1130	7.6	34.10
18	1315	7.6	34.60
19	1430	7.1	34.60
21	1200	6.9	34.20
22	1130	6.6	33.80
25	1200	8.0	34.40
26	1415	8.5	33.70
28	1130	7.5	34.10
29	1230	7.4	34.10
30	1200	7.3	34.10
MAY 4	1200	7.9	33.80
5	1130	7.5	34.10
6	1215	8.2	33.80
8	1215	7.4	34.10
9	1100	7.5	34.10
10	1330	6.9	34.00

DATE	TIME PST	T °C	S %
MAY 10	1330	6.9	34.00
11	1200	6.9	34.40
14	1230	6.7	34.20
15	1115	7.3	34.20
16	1200	9.5	33.80
18	1130	10.2	32.70
19	1300	10.0	32.90
21	1445	10.6	32.70
23	1230	7.7	34.10
24	1730	7.7	34.40
25	1130	7.9	34.40
26	1200	8.2	34.10
JUNE 2	1115	11.2	33.20
5	1230	11.5	32.70
6	1230	11.9	32.10
7	1230	11.0	32.80
10	1145	10.6	33.30
11	1215	11.1	33.60
12	1630	10.3	33.50
14	1300	11.6	33.20
30	1130	8.6	34.00
JULY 6	1145	8.2	33.80
11	1200	8.9	34.40
12	1745	8.3	34.50
26	1745	5.6	32.70

BROOKINGS		1963	T	S
DATE	TIME	PST	°C	%
JAN.	6	1430	10.4	
	15	1700	9.2	
	25	1645	9.5	
FEB.	3	1630	10.4	29.45
	9	1530	11.0	29.33
	20	1700	11.8	29.21
	28	1200	11.6	30.35
MAR.	3	1530	11.2	33.16
	16	1400	9.2	32.74
	23	1330	9.6	32.38
APR.	3	1530	10.6	28.86
	16	1645	10.5	28.65
	16	1645	10.5	28.65
	20	1430	11.0	30.12
	28	1630	12.0	28.20

DATE	TIME	T	S	
	PST	°C	%	
MAY	7	1645	12.5	27.48
	14	1630	13.2	28.81
	22	1700	13.0	31.82
JUNE	3	1700	10.2	33.86
	10	1645	9.7	33.76
	17	1600	10.2	33.88
	26	1900	10.2	33.60
JULY	1	1800	12.0	33.70
	12	1615	11.2	33.88
	17	1900	13.6	33.39
	25	1600	13.0	33.72
AUG.	3	1600	11.8	33.55
	14	1600	13.2	33.53
	19	1615	14.2	33.31
	29	1530	13.6	33.32

DATE	TIME	T	S	
	PST	°C	%	
AUG.	29	1530	13.6	33.32
SEP.	6	1600	13.8	33.38
	14	730	14.2	33.34
	23	1530	14.6	33.17
OCT.	6	1430	14.6	33.04
	14	1620	14.2	32.71
	23	1645	14.6	32.34
NOV.	4	1630	13.0	32.30
	10	1500	13.2	30.68
	20	1630	13.0	31.77
	27	1300	12.4	31.47
DEC.	11	1720	11.2	32.15

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APR.	4	830	10.6	32.40
	5	930	10.9	31.50
	6	1020	11.2	32.00
	7	1055	10.5	32.10
	8	1140	11.0	32.50
	9	1210	10.7	32.10
	10	1315	11.3	31.80
	11	1345	11.2	31.20
	12	1430	10.9	31.80
	13	1530	12.0	31.10
	14	1630	11.0	30.40
	15	1710	10.6	31.80
	16	1900	10.2	30.70
	17	530	10.3	31.10
	18	615	10.1	30.10
	19	805	9.9	30.30
	20	900	10.3	31.60
	21		10.7	30.40
	22	1050	11.4	30.10
	23		12.5	29.50
	24		11.1	30.70
	25	1330	12.5	29.40
	26	1435	12.4	28.20
	27	1530	12.6	31.10
	28	1750	12.6	32.10
	29	1855	13.0	30.70
	30	530	11.4	31.50
MAY	1	545	11.4	31.60
	2	705	11.4	31.50
	3	830	11.4	32.10
	4	925	11.7	30.60
	5	1015	11.5	31.10
	6	1100	11.2	31.10
	7	1140	12.6	28.80
	8	1225	13.9	26.50
	9	1300	12.4	30.80
	10	1400	12.8	25.50
	11	1430	12.7	26.70
	12	1525	13.2	29.10
	13	1610	13.2	31.00
	14	1700	13.1	28.60
	15	1800	13.5	28.60
	16	1900	12.4	28.60
	17	1945	11.8	30.40
	18	725	11.1	32.70
	19	830	12.4	31.40
	20	945	11.4	32.10
	21	1055	11.8	32.30
	22	1145	12.9	30.70
	23	1235	13.0	31.50
	24	1330	12.4	31.40
	25	1430	12.0	32.50
	26	1525	12.0	32.30
	27	1626	12.1	32.40
	28	1735	12.3	32.70
	29	1820	13.8	31.80
	30	1920	13.1	32.40
	31	1954	13.2	32.30
JUNE	1	800	12.8	32.80
	2	900	12.9	32.00
	3	955	13.1	32.00
	4	1035	11.7	32.90
	5	1134	11.1	33.00
	6	1240	10.7	33.70
	7	1259	12.4	32.10
	8	1341	13.2	32.80
	9	1423	13.5	32.50
	10	1505	13.0	32.70
	11	1551	13.2	32.70
	12	1623	13.0	32.80
	13	1735	13.9	32.80
	14	1811	11.8	34.60
	15	1835	12.2	34.00
	16	1940	12.9	33.60
	16	1940	12.9	33.60
	17	727	10.3	32.00
	18	939	10.5	32.30

JUNE	20	1147	11.4	33.80
	23	1415	11.6	34.00
	24	1504	12.4	33.50
	25	1552	14.3	33.10
	26	1640	12.9	33.10
	27	1740	10.4	33.70
	28	1811	10.5	32.80
	29	1905	11.7	32.50
	30	1925	13.5	32.80
JULY	1	830	13.6	32.90
	2	935	13.4	33.10
	3	1100	14.0	33.50
	4	1130	13.9	33.70
	5	1204	14.8	32.50
	6	1250	14.2	32.30
	7	1335	14.6	31.90
	8	1350	16.0	31.90
	9	1435	16.6	31.10
	10	1515	16.5	31.10
	11	1555	15.9	31.60
	13	1726	14.9	31.20
	14	1816	15.1	32.40
	15	1907	11.3	33.20
	16	2000	11.0	34.50
	17	940	11.5	33.10
	18	1100	12.4	33.50
	19	1125	12.5	33.50
	21	1308	13.9	33.70
	22	1345	15.8	32.70
	24	1505	15.2	33.20
	25	1545	15.3	33.20
	26	1645	14.4	33.10
	27	1705	13.8	32.40
	30	1927	12.7	33.20
AUG.	1	1000	11.8	32.30
	2	1110	11.7	33.70
	3	1138	10.7	33.70
	4	1210	12.0	34.00
	5	1247	11.2	34.20
	6	1320	11.4	33.80
	7	1400	11.2	34.00
	8	1423	11.1	34.10
	9	1505	10.3	33.80
	10	1550	12.5	34.10
	11	1640	10.7	34.50
	12	1740	10.7	33.80
	13	1830	12.6	33.80
	14	1915	13.3	34.00
	15	940	12.2	33.60
	16	1035	12.6	34.00
	17	1110	13.1	33.60
	18	1215	13.4	33.50
	19	1250	13.3	33.50
	20	1320	14.7	33.10
	21	1340	15.5	34.20
	22	1405	15.8	32.90
	23	1430	14.8	33.30
	24	1615	14.2	33.70
	25	1545	13.2	33.20
	26	1644	15.2	32.90
	27	1735	14.8	33.20
	28	1825	14.5	33.10
	30	2020	14.1	32.30
	31	1030	12.8	33.30
SEP.	1	1100	12.4	32.80
	2	1135	13.7	33.10
	3	1230	13.3	33.50
	4	1235	12.0	33.70
	5	1242	11.5	33.50
	7	1400	11.7	32.20
	8	1505	12.3	33.20
	9	1535	12.2	33.50
	11	1805	14.9	33.20
	12	821	14.5	33.20
	13	925	14.3	33.30
	14	1010	14.4	32.90
	15	1050	14.1	33.10

SEP.	15	1050	14.1	33.10
	16	1150	14.5	33.20
	17	1200	14.7	33.20
	18	1235	14.5	33.20
	19	1300	12.7	33.80
	20	1322	12.7	33.60
	21	1335	13.7	33.50
	22	1420	14.0	34.60
	23	1456	13.5	33.60
	24	1540	14.1	33.80
	25	1630	13.9	33.60
	26	1720	14.3	33.20
	27	820	15.3	32.70
	28	900	15.8	32.70
	29	925	14.8	32.80
	30	1015	15.2	32.80
OCT.	1	1045	15.4	32.90
	2	1120	12.8	33.60
	3	1125	12.9	33.50
	4	1205	12.5	33.30
	5	1309	12.0	33.20
	6	1405	14.5	33.20
	8	1650	15.5	32.40
	9	1650	15.4	32.40
	10	705	15.0	32.70
	11	800	15.4	32.10
	12	900	15.3	32.40
	13	940	15.9	32.40
	14	1015	15.8	32.40
	15	1105	15.2	32.70
	16	1100	15.2	32.70
	17	1145	15.3	32.50
	18	1200	14.4	32.80
	19	1235	14.0	33.10
	20	1300	14.3	32.80
	21	1328	14.9	32.70
	22	1415	14.2	33.10
	23	1440	14.3	33.10
	24	1530	14.2	33.10
	25	800	14.2	32.80
	26	730	12.2	33.30
	27	715	13.3	33.10
	28	750	13.3	33.20
	29	823	13.3	33.30
	30	900	13.7	32.70
	31	935	13.3	32.10
NOV.	1	1040	13.5	32.70
	2	1130	14.0	32.50
	3	1300	13.5	32.50
	4	1317	13.7	32.70
	5	1405	13.5	32.50
	6	1500	13.6	32.40
	8	1715	13.6	31.60
	9	1840	13.1	32.50
	10	815	12.6	31.60
	11	850	13.4	32.40
	12	920	13.2	31.10
	13	1005	13.4	31.20
	14	1040	12.7	31.40
JULY	20	1225	12.7	32.80
	23	1415	15.5	31.10
	28	1752	11.7	34.10
	29	734	10.3	34.10
NOV.	15	1100	12.9	32.00
	16	1130	12.8	31.60
	18	1230	12.6	30.80
	19	1300	12.8	31.40
	20	1330	12.6	31.90
	21	1410	12.2	32.00
	23	1545	12.7	31.60
	24	1715	13.0	32.00
	25	715	12.2	31.50
	26	800	12.4	31.80
	28	920	11.6	32.40
	29			

CAPE ARAGO 1964														
DATE	TIME PST	T °C	S %	DATE	TIME PST	T °C	S %	DATE	TIME PST	T °C	S %			
MAR.	3	1532	9.8	33.20	JUNE	2	1910	12.7	33.20	SEP.	7	1400	11.2	34.40
	4	1640	10.2	32.80		3	1956	12.5	33.70		8	1420	12.0	34.20
	5	1745	9.4	32.30		4	710	12.0	33.30		10	1515	14.0	34.10
	6	1924	9.5	32.50		5	835	12.1	33.20		12	1730	14.4	33.80
	7	2030	9.5	32.70		6	945	12.9	33.20		13	1800	14.8	33.60
	9	815	9.5	31.10		7	1050	13.0	32.90		14	808	13.9	33.60
	10	900	9.6	31.40		9	1305	13.5	33.70		15	920	13.7	33.70
	11	950	9.5	31.40		10	1350	13.4	33.80		16	955	14.8	33.60
	12	1045	9.3	31.80		11	1445	15.6	31.80		17	1055	14.9	33.80
	13	1121	10.0	32.10		12	1541	14.7	32.10		18	1115	15.2	33.60
	15	1245	10.5	31.90		13	1635	15.7	31.60		19	1200	15.6	33.20
	16	1315	11.0	30.70		14	1730	14.5	32.50		20	1220	15.9	32.70
	17	1443	10.4	31.50		15	1825	12.0	33.50		22	1315	14.2	33.20
	18	1545	10.6	30.20		16	1915	12.2	33.50		23	1400	14.0	33.50
	19	1735	10.6	30.60		17	2000	12.4	33.50		25	1500	13.7	33.50
	20	1835	9.8	32.10		18	800	13.0	31.90		26	1545	13.7	33.70
	21	1955	9.6	32.70		20	1035	14.4	32.10		27	1700	13.8	33.60
	22	630	9.2	32.30		21	1130	14.2	32.50		28	1740	10.5	34.20
	23	745	9.3	33.10		22	1230	13.6	33.10		29	815	9.8	34.10
	24	900	9.4	32.50		23	1310	13.1	33.50		30	920	10.0	34.10
	25	1000	10.0	31.50		24	1350	11.4	34.10	OCT.	2	1050	11.3	33.70
	26	1050	10.2	30.30		25	1430	12.3	33.60		3	1139	10.7	33.70
	27	1135	10.6	30.70		26	1505	13.7	33.50		4	1200	10.7	34.00
	28	1225	10.6	31.20		27	1600	13.3	33.90		5	1250	11.3	33.70
	29	1306	11.2	30.80		28	1620	12.1	33.70		6	1345	11.0	34.10
	30	1345	11.7	30.70		29	1656	12.1	34.00		8	1355	12.3	33.70
	31	1435	10.9	31.10		30	1730	11.8	33.70		9	1445	12.1	33.80
APR.	1	1530	10.9	31.20	JULY	1	1815	11.2	34.10		10	1520	12.1	33.50
	2	1025	10.2	32.40		2	1900	12.6	33.80		11	1540	12.9	33.30
	3	1734	10.8	30.20		3	1942	12.7	33.20		13	1755	13.6	32.80
	4	1855	9.5	32.70		4	2030	11.2	34.10		14	845	13.2	33.10
	5	511	9.2	33.70		5	940	11.2	33.70		16	1010	12.8	33.20
	6	620	9.3	32.80		6	1100	11.9	34.20		17	1020	13.1	33.10
	7	730	10.0	32.10		7	1200	11.6	34.00		19	1040	12.3	33.20
	8	830	10.0	32.30		8	1250	11.8	33.80		20	1208	12.1	33.20
	9	930	9.6	33.10		9	1345	13.2	34.00		21	1240	11.9	33.30
	10	1020	10.4	33.10		11	1520	14.2	33.70		22	1310	12.0	33.60
	11	1110	10.6	32.70		12	1605	14.3	33.70		23	1350	12.1	33.30
	12	1145	10.4	32.70		13	1640	12.8	33.80		24	1435	11.9	33.50
	13	1250	10.7	31.80		14	1735	12.6	33.70		25	1517	11.7	33.30
	14	1350	12.5	30.60		15	1820	12.7	33.50		27	1555	10.2	34.10
	15	1450	11.6	30.30		16	1905	13.5	33.50		28	1720	10.8	34.20
	16	1545	10.5	32.50		17	1945	15.0	32.80		30	830	12.3	33.20
	17	1655	10.4	32.50		18	900	15.0	33.10	NOV.	3	1120	12.3	33.20
	18	1825	9.8	32.90		19	1015	15.2	32.90		4	1315	12.7	33.20
	19	1935	9.8	33.70		21	1210	15.1	33.30		6	1420	12.8	33.80
	20	625	9.4	33.30		22	1305	15.9	32.90		7	1410	11.8	33.80
	21	741	9.2	33.70		23	1305	16.1	33.50		8	1430	11.2	35.10
	22	850	9.5	33.60		24	1405	12.3	34.10		9	1410	11.3	34.20
	23	950	9.6	33.70		25	1430	10.9	34.10		13	1930	10.7	35.10
	24	1050	10.0	33.70		26	1500	11.1	34.10		14	2015	10.9	35.30
	25	1135	10.0	33.50		27	1530	10.2	34.10		17	950	11.1	33.50
	26	1320	10.7	33.30		28	1605	11.0	34.20		19	1101	11.2	33.30
	27	1420	12.1	32.40		29	1655	11.5	34.20		20	1140	11.3	33.10
	28	1450	10.8	33.50		30	1720	11.3	34.20		21	1210	11.2	33.30
	29	1530	10.2	34.80		31	1805	11.4	34.10		22	1422	12.0	33.20
	30	1620	9.6	33.70	AUG.	1	1845	13.0	33.20		23	1400	12.2	33.70
MAY	1	1715	10.4	32.50		2	810	12.8	33.10		24	1455	12.1	32.50
	2	1815	10.0	31.40		3	945	12.7	32.50		25	1605	11.9	32.70
	3	1900	10.0	33.10		5	1205	15.1	33.10		26	1700	12.1	32.90
	4	2010	10.6	31.20		6	1240	15.3	32.90		27	1918	11.9	32.50
	5	630	9.1	32.90		7	1320	15.7	32.80		28	803	12.0	32.70
	6	810	9.2	32.30		8	1400	15.5	33.20		29	840	11.9	32.40
	7	900	10.0	32.70		9	1142	15.7	32.70		30	945	12.5	31.90
	8	1010	11.1	31.40		10	1535	15.6	34.00	DEC.	3	1110	12.1	30.60
	9	1110	11.6	31.80		11	1600	15.5	33.70		4	1213	12.2	29.30
	10	1145	11.2	32.40		12	1655	15.9	33.50		5	1210	12.1	29.70
	11	1310	12.0	31.80		13	1720	15.6	33.80		6	1245	12.2	30.60
	12	1355	10.7	32.80		14	1803	15.7	34.00		7	1305	12.6	31.20
	14	1550	12.0	31.60		15	1850	15.9	33.80		8	1215	12.1	32.00
	15	1645	12.8	31.50		16	840	15.5	33.30		9	1415	12.0	31.90
	16	1758	12.5	31.20		17	940	12.5	34.00		10	1545	11.7	32.00
	17	1900	12.7	31.10		18	1050	12.8	33.70		11	1625	11.2	31.80
	18	2000	12.9	32.40		19	1645	14.5	33.70		12	1744	10.9	31.90
	19	700	12.4	32.70		20	1220	15.0	34.10		13	1910	11.1	32.00
	20	825	11.7	32.80		21	1250	14.7	34.20		14	748	11.0	31.80
	21	940	12.1	32.50		22	1320	10.0	34.40		15	910	10.2	31.80
	22	1040	12.5	32.10		23	1340	10.6	34.10		17	950	10.4	31.60
	23	1142	12.3	31.90		24	1414	10.5	33.80		19	1130	10.2	32.40
	25	1300	10.5	34.10		26	1513	12.0	34.00		20	1215	10.4	31.50
	26	1400	10.7	34.40		28	1615	11.9	34.00		24	1549	12.1	32.30
	27	1455	10.8	33.60		30	1700	12.0	33.70		25	1845	11.7	30.20
	28	1520	13.5	33.50		31	815	10.7	33.80		29	840	10.2	28.20
	29	1610	13.5	33.60	SEP.	3	1130	11.3	34.00		30	900	8.9	27.50
	30	1630	13.3	33.20		4	1200	11.6	34.00		31	955	8.7	27.50
	31	1752	11.7	33.20		5	1300	10.7	34.00					
JUNE	1	1830	13.3	33.30		6	1305	11.6	34.10					
						7	1400	11.2	34.40					

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DATE	TIME PST	T °C	S %
JAN. 2	1617	10.0	28.80
3		10.5	30.80
6		9.7	30.40
9		10.0	31.60
10		10.3	33.10
13		8.9	31.90
15		9.7	33.20
16		9.1	32.00
18		8.9	32.30
19		9.4	33.80
20		8.9	32.80
21		9.4	32.10
23		8.9	32.30
25		8.9	31.80
26	1050	8.6	31.50
27	1100	8.3	31.40
29	1330	8.3	31.10
FEB. 1	1130	10.0	29.00
3	1015	10.8	25.40
4	1950	11.4	23.50
6	1045	11.6	25.80
7	1410	11.9	28.20
9	1100	11.6	28.40
10	1115	11.6	29.80
12	1940	11.9	26.10
13	1610	12.5	28.00
14	1550	12.2	26.50
18	1700	11.6	21.80
19	915	11.4	23.90
20	1015	11.1	23.30
22	1010	11.6	25.50
23	950	11.6	30.10
24	850	11.1	29.50
27	1300	11.6	31.80
MAR. 4	855	10.5	33.50
6	845	10.5	30.80
10	1340	11.4	31.60
11	1245	10.3	33.50
12	855	8.0	33.70
13	730	6.9	34.10
16	1000	8.0	30.60
19	910	9.1	33.70
20	900	10.0	31.90
22	1445	10.8	31.20
23	1440	10.0	31.20
24	1250	9.7	31.00
26	1255	10.0	30.80
31	1010	7.8	22.70
APR. 3	1530	11.1	26.50
4	920	11.1	26.90
5	1535	12.2	22.60
6	1330	12.2	24.40
7	1340	11.9	21.20
8	1600	11.9	20.50
9	1410	10.8	23.80
12	1710	10.5	25.90
13	1255	11.6	22.60
14	935	11.6	19.90
16	1250	11.1	23.50
16	1250	11.1	23.50
18	1000	10.3	30.20
21	915	10.3	28.80

DATE	TIME PST	T °C	S %
APR. 22	1600	12.8	24.70
24	1150	10.8	29.30
26	1310	11.1	26.30
27	1210	11.6	29.50
29	1645	13.9	26.00
JUNE 3	920	9.1	34.10
5	1630	11.6	33.70
6	1910	10.3	34.00
8	1730	10.0	34.50
11	1220	9.4	34.20
12	1330	11.6	31.60
13	1805	12.2	32.80
15	1415	13.3	31.00
16	1100	12.2	31.50
17	625	10.5	32.00
18	955	11.1	32.90
19	725	12.5	30.80
20	1420	13.0	30.80
22	940	13.3	30.10
24	1725	12.8	33.20
25	1515	12.5	33.60
26	1955	12.5	34.10
28	1400	14.1	30.30
30	735	13.6	30.10
JULY 1	730	10.5	33.70
3	1340	13.9	33.60
5	1425	17.5	29.00
6	900	15.5	30.30
7	1410	16.4	30.20
9	1200	14.1	33.20
10	1855	13.6	35.50
12	1400	12.8	35.40
14	755	13.6	33.30
15	1400	15.0	32.40
17	1940	14.4	33.50
18	1825	13.9	33.10
19	1645	14.4	32.70
20	1330	14.4	31.70
22	1325	16.1	32.50
23	1415	13.0	34.20
24	1805	15.5	33.20
26	1045	10.5	34.40
27	935	10.3	34.60
29	1240	12.8	33.10
30	1255	13.9	33.50
SEP. 1	1140	15.0	30.70
2	845	12.8	33.20
3	815	13.9	32.50
5	1350	14.7	33.20
6	1330	14.4	33.30
7	1240	15.0	33.50
9	1415	14.7	32.90
12	1700	15.8	31.90
14	850	14.1	33.30
16	1400	15.0	33.20
17	1545	15.8	33.50
18	1145	15.0	33.70
19	1445	15.5	33.60
21	1450	15.3	33.20
23	1330	15.3	32.00
24	1300	15.3	32.70
26	1445	15.3	33.10

DATE	TIME PST	T °C	S %
SEP. 26	1445	15.3	33.10
28	1000	14.7	32.90
30	1805	16.1	32.70
OCT. 2	1830	14.7	32.70
3	1750	15.5	32.90
5	1440	14.7	32.50
6	900	14.4	33.20
9	1210	14.7	32.50
10	1245	15.0	33.10
11	840	14.1	32.50
13	1040	13.9	33.10
15	1045	14.1	32.70
17	1500	15.0	32.80
18	1405	14.7	33.20
21	1205	14.4	32.90
23	620	14.7	31.50
25	840	13.9	32.00
26	815	13.6	32.30
27	1030	13.6	33.30
28	1535	13.6	32.50
30	1325	13.9	32.90
NOV. 1	1010	12.9	33.30
3	1200	12.5	32.90
5	1155	12.5	31.60
10	1130	12.8	26.70
11	1505	12.5	26.00
12	1600	13.0	27.20
14	1555	13.0	26.10
16	930	11.9	27.70
17	1610	11.1	24.70
18	1700	11.6	26.90
20	1700	12.8	32.00
21	1100	12.8	32.40
22	1520	12.5	31.60
23	920	11.9	29.80
25	915	12.2	29.90
26	1600	12.5	28.60
28	1040	12.5	32.40
4	1500	11.7	29.90
5	1340	11.7	30.80
9	1230	10.8	32.30
10	1000	11.7	32.80
11	1235	11.4	33.30
12	1020	10.3	32.40
13	1105	10.3	32.40
14	1045	10.0	32.50
15	955	9.7	29.70
17	900	9.7	31.10
18	1415	9.5	31.20
19	1705	10.0	30.60
20	1150	10.6	30.80
22	1540	10.6	31.20
23	1435	10.8	31.50
24	1100	10.0	31.90
25	1330	10.6	30.70
27	1030	10.8	31.90
28	945	11.4	31.00
29	1455	11.9	30.70
31	1310	11.6	29.30

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DATE	TIME PST	T °C	S %
JAN. 2	1040	11.1	29.90
3	1310	11.4	31.90
4	1620	11.1	32.00
5	1400	11.1	32.00
6	955	9.7	30.60
10	1620	10.6	29.30
11	1200	9.7	30.70
12	1630	10.6	26.10
13	1115	9.4	27.70
14	1035	9.4	29.90
15	1045	10.0	30.60
18	1030	9.4	29.70
20	1300	9.7	23.30
23	620	5.6	25.20
26	1735	10.0	27.50
27	920	9.7	27.50
29	1255	10.0	26.70
FEB. 1	1535	10.0	28.40
2	1450	11.4	30.30
3	1120	10.3	30.70
5	1430	10.8	32.40
8	905	9.2	29.50
9	1000	9.5	31.00
10	1400	10.0	30.40
12	1615	10.3	32.80
15	1935	8.6	30.60
16	1605	10.0	31.80
19	1335	11.4	33.70
20	1600	11.7	34.20
20	1600	11.7	34.20
23	815	9.5	31.20
26	1320	9.5	31.00

DATE	TIME PST	T °C	S %
FEB. 27	1310	9.5	32.50
SEP. 1	935	10.0	33.70
2	945	11.1	32.90
3	1459	12.8	32.80
4	940	12.2	32.50
5	840	12.5	32.50
7	1110	12.2	33.60
8	950	12.8	32.30
9	1045	11.1	32.80
11	825	11.7	32.40
12	925	12.2	32.10
14	855	12.8	32.00
16	1215	11.4	33.20
19	1115	9.7	33.60
21	850	8.9	33.60
23	810	9.7	33.60
25	1045	10.0	33.60
26	1135	10.0	33.50
30	1205	11.1	31.90
OCT. 2	1150	10.3	33.50
3	710	9.7	33.60
4	1000	9.7	33.60
6	820	11.4	33.30
8	1340	13.6	32.10
9	1710	12.2	32.80
10	1340	12.2	32.90
13	1355	13.1	32.90
15	640	12.8	32.90
16	1445	12.8	32.90
18	935	10.0	32.70
19	1220	11.1	33.10
21	1420	12.2	32.80

DATE	TIME PST	T °C	S %
OCT. 21	1420	12.2	32.80
24	1430	11.4	32.40
25	1100	11.4	32.70
26	1350	11.7	32.40
27	1335	11.7	32.00
31	950	12.0	31.50
NOV. 2	1120	12.0	31.50
3	1530	12.8	31.40
7	1245	12.8	31.90
8	1025	12.5	31.80
9	1300	12.5	31.60
12	1255	11.1	29.50
14	1035	11.4	31.50
17	850	10.0	31.40
19	1255	10.6	31.60
23	1130	10.6	31.20
25	1500	11.7	30.70
26	945	10.0	28.80
28	1125	10.6	26.40
DEC. 2	1040	11.1	23.80
3	1415	11.1	24.60
4	1550	10.0	24.20
6	1000	10.0	26.10
7	1345	10.6	28.00
9	1250	10.9	27.80
11	1520	11.1	30.20
15	920	9.2	28.50
17	945	9.7	31.60
19	915	8.6	28.50

TABLE III. MONTHLY MEAN TEMPERATURE AND SALINITY

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
<u>LONG BEACH, WASHINGTON</u> 1963													
TEMPERATURE													
MEAN				8.10	10.58	11.55	14.70	12.47	13.00	12.96	11.10	9.00	11.91
MAX.				8.40	12.50	14.30	15.40	14.50	14.20	15.10	11.90	9.60	
MIN.				7.80	7.50	9.40	13.90	11.00	11.60	11.90	10.10	8.40	
RANGE				.60	5.00	4.90	1.50	3.50	2.60	3.20	1.80	1.20	
NO. OF OBS.				2	5	4	5	4	3	5	4	2	
SALINITY													
MEAN				26.02	21.98	30.62	25.65	29.20	28.54	28.93	27.36	27.36	27.11
MAX.				26.46	25.07	31.88	27.36	33.08	30.00	30.62	30.14	29.14	
MIN.				25.58	18.40	29.93	24.46	24.71	27.15	27.25	24.38	25.58	
RANGE				.88	6.67	1.95	2.90	8.37	2.85	3.37	5.76	3.56	
NO. OF OBS.				2	5	3	4	4	3	5	4	2	
<u>COLUMBIA RIVER LIGHTSHIP</u> 1963													
TEMPERATURE													
MEAN										14.88	13.61	11.58	13.28
MAX.										16.80	15.60	13.10	
MIN.										12.30	11.30	9.70	
RANGE										4.50	4.30	3.40	
NO. OF OBS.										17	30	22	
NO OBSERVATIONS													
SALINITY													
<u>COLUMBIA RIVER LIGHTSHIP</u> 1964													
TEMPERATURE													
MEAN	9.66			11.33	13.20					11.55	10.82	9.29	10.97
MAX.	11.40			12.90	15.50					13.60	12.50	10.40	
MIN.	8.70			10.30	11.80					10.00	9.80	8.00	
RANGE	2.70			2.60	3.70					3.60	2.70	2.40	
NO. OF OBS.	29			3	30					31	30	31	
SALINITY													
MEAN										31.68	31.92		31.80
MAX.										32.70	34.20		
MIN.										28.20	28.90		
RANGE										4.50	5.30		
NO. OF OBS.										31	30		
<u>SEASIDE AQUARIUM</u> 1963													
TEMPERATURE													
MEAN	8.59	9.28	9.66	10.76	12.56	12.72	15.19	14.22	14.71	14.42	11.99	10.15	12.02
MAX.	10.60	10.00	10.00	12.80	13.90	15.60	17.20	16.60	16.90	15.50	13.30	11.10	
MIN.	6.70	8.40	8.90	10.00	10.60	10.60	11.60	11.60	13.30	12.80	10.50	8.90	
RANGE	3.90	1.60	1.10	2.80	3.30	5.00	5.60	5.00	3.60	2.70	2.80	2.20	
NO. OF OBS.	30	6	30	29	31	30	31	31	30	31	30	25	
SALINITY													
MEAN			31.87	30.10	30.28	31.50	29.40	31.76	31.38	32.14	30.95	31.36	31.07
MAX.			34.10	32.30	33.50	34.80	33.60	34.90	33.70	33.60	33.20	32.40	
MIN.			30.40	25.60	25.50	24.10	24.10	29.10	23.00	28.40	23.60	28.40	
RANGE			3.70	6.70	8.00	10.70	9.50	5.80	10.70	5.20	9.60	4.00	
NO. OF OBS.			30	29	31	30	31	31	30	31	30	23	

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
<u>SEASIDE AQUARIUM 1964</u>													
TEMPERATURE													
MEAN	9.34	8.96		10.24	11.00	13.07	13.35	14.31	12.94	12.02	10.32	9.03	11.33
MAX.	10.60	10.60		11.10	12.80	14.50	15.60	16.10	14.70	12.80	11.70	10.80	
MIN.	8.40	8.40		10.00	8.40	11.70	10.80	11.70	10.30	10.80	8.90	7.20	
RANGE	2.20	2.20		1.10	4.40	2.80	4.80	4.40	4.40	2.00	2.80	3.60	
NO. OF OBS.	28	26		7	29	29	31	31	30	31	30	31	

SALINITY													
MEAN	30.61	30.19		28.82	29.52	27.70	28.27	31.14	33.04	32.86	32.39	30.11	30.42
MAX.	32.50	32.70		30.20	32.50	34.10	35.00	34.60	35.30	34.20	34.00	32.00	
MIN.	27.70	25.20		28.00	26.10	21.00	17.90	28.50	30.70	31.40	29.70	24.60	
RANGE	4.80	7.50		2.20	6.40	13.10	17.10	6.10	4.60	2.80	4.30	7.40	
NO. OF OBS.	28	26		7	29	29	31	31	30	31	30	31	

ARCH CAPE 1963

TEMPERATURE

MEAN	9.62	10.44	9.75	11.86	12.55	13.07	15.82	13.38	14.54	14.65	13.00	11.00	12.47
MAX.	10.50	10.90	10.80	13.50	13.90	14.50	18.30	17.00	15.90	15.80	13.80	11.10	
MIN.	8.20	10.10	9.30	10.40	10.80	12.40	10.40	10.80	11.70	13.80	13.00	10.90	
RANGE	2.30	.80	1.50	3.10	3.10	2.10	7.90	6.20	4.20	2.00	.80	.20	
NO. OF OBS.	8	5	12	6	4	4	27	18	13	4	1	2	

SALINITY

MEAN	31.77	30.64	31.08	28.82	30.53	30.18	31.08	31.62	31.79	31.99	30.26	30.45	30.85
MAX.	32.42	31.41	32.76	30.62	31.81	32.22	32.74	33.90	32.90	32.14	32.14	30.63	
MIN.	31.32	30.13	29.44	27.40	28.55	27.09	29.44	26.41	30.91	31.85	30.26	30.28	
RANGE	1.10	1.28	3.32	3.22	3.26	5.13	3.30	7.49	1.99	.29	1.88	.35	
NO. OF OBS.	4	3	5	3	4	4	4	4	4	2	1	2	

NETARTS 1963

TEMPERATURE

MEAN	8.25	10.33	8.66	11.27	13.43	15.43	17.00	14.56	15.46	14.02	12.10	11.50	12.67
MAX.	9.60	10.50	10.10	14.90	15.50	16.10	18.50	15.90	16.00	14.90	13.20	12.00	
MIN.	6.30	10.10	7.40	9.20	11.90	14.30	16.00	12.90	15.00	13.00	11.50	10.90	
RANGE	3.30	.40	2.70	5.70	3.60	1.80	2.50	3.00	1.00	1.90	1.70	1.10	
NO. OF OBS.	4	3	3	4	3	3	3	3	3	4	3	3	

SALINITY

MEAN	31.25	30.41	31.11	27.42	29.76	28.91	28.60	27.74	31.74	30.53	30.09	30.35	29.82
MAX.	31.94	30.66	31.71	29.63	31.54	30.89	31.09	32.51	32.67	31.67	30.53	31.12	
MIN.	30.57	29.92	30.69	25.56	27.53	27.00	25.88	25.33	30.49	28.51	29.66	29.21	
RANGE	1.37	.74	1.02	4.07	4.01	3.89	5.21	7.18	2.18	3.16	.87	1.91	
NO. OF OBS.	4	3	3	3	3	3	3	3	3	4	2	3	

OTTER ROCK 1963

TEMPERATURE

MEAN	8.82	11.27	11.12	11.57	12.72	12.68	13.37	13.35	13.84	14.12	12.57	10.74	12.18
MAX.	10.20	12.50	12.40	14.40	14.50	14.40	15.50	16.20	15.20	14.90	13.60	11.90	
MIN.	7.80	9.90	10.00	10.50	11.40	11.90	11.40	11.00	12.20	13.60	12.00	10.20	
RANGE	2.40	2.60	2.40	3.90	3.10	2.50	4.10	5.20	3.00	1.30	1.60	1.70	
NO. OF OBS.	4	4	5	4	4	5	4	4	5	4	4	5	

SALINITY

MEAN	31.95	29.53	31.83	30.47	31.53	29.80	32.66	33.43	32.80	32.13	30.87	31.39	31.53
MAX.	32.54	31.07	32.55	31.05	32.95	33.12	33.55	33.71	33.27	32.44	32.06	31.88	
MIN.	30.85	26.88	30.56	29.82	30.01	21.45	31.25	33.33	32.28	31.91	30.12	30.88	
RANGE	1.69	4.19	1.99	1.23	2.94	11.67	2.30	.38	.99	.53	1.94	1.00	
NO. OF OBS.	4	4	5	4	4	5	4	4	5	4	4	3	

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC MEAN

HECETA BEACH 1963

TEMPERATURE

MEAN	9.60	10.80	10.55	11.55									10.63
MAX.	10.40	11.40	12.60	12.00									
MIN.	8.80	10.10	9.20	11.10									
RANGE	1.60	1.30	3.40	.90									
NO. OF OBS.	2	3	4	2									

SALINITY

MEAN	32.14	26.19	30.40	27.05									29.24
MAX.	32.32	30.68	32.36	28.45									
MIN.	31.97	21.70	27.10	25.66									
RANGE	.35	8.98	5.26	2.79									
NO. OF OBS.	2	2	4	2									

CAPE ARAGO 1963

TEMPERATURE

MEAN				11.21	12.37	12.25	13.91	12.84	13.75	14.25	12.90		12.95
MAX.				13.00	13.90	14.30	16.60	15.80	15.80	15.90	14.00		
MIN.				9.90	11.10	10.30	10.30	10.30	11.50	12.00	11.60		
RANGE				3.10	2.80	4.00	6.30	5.50	4.30	3.90	2.40		
NO. OF OBS.				27	31	27	29	30	28	30	26		

SALINITY

MEAN				31.04	30.68	32.98	32.77	33.57	33.27	32.85	31.91		32.38
MAX.				32.50	32.70	34.60	34.50	34.50	34.60	33.60	32.70		
MIN.				28.20	25.50	32.00	31.10	32.30	32.30	32.10	30.80		
RANGE				4.30	7.20	2.60	3.40	2.20	2.30	1.50	1.90		
NO. OF OBS.				27	31	27	29	30	28	30	26		

CAPE ARAGO 1964

TEMPERATURE

MEAN				10.07	10.24	11.51	13.12	12.74	13.80	13.13	11.93	11.76	11.14	11.94
MAX.				11.70	12.50	13.50	15.70	16.10	15.90	15.90	13.60	12.80	12.60	
MIN.				9.20	9.20	9.10	11.40	10.20	10.00	9.80	10.20	10.70	8.70	
RANGE				2.50	3.30	4.40	4.30	5.90	5.90	6.10	3.40	2.10	3.90	
NO. OF OBS.				27	30	29	28	29	27	24	23	21	21	

SALINITY

MEAN				31.67	32.75	32.47	33.14	33.73	33.59	33.76	33.50	33.40	30.84	32.88
MAX.				33.20	34.80	34.40	34.10	34.20	34.40	34.40	34.20	35.30	32.40	
MIN.				30.20	30.20	31.10	31.60	32.80	32.50	32.70	32.80	31.90	27.50	
RANGE				3.00	4.60	3.30	2.50	1.40	1.90	1.70	1.40	3.40	4.90	
NO. OF OBS.				27	30	29	28	29	27	24	23	21	21	

BANDON 1963

TEMPERATURE

MEAN	9.50	11.45	10.12	11.42	11.02	10.12	13.25	11.40	13.05	14.82	12.52	11.05	11.64
MAX.	10.70	11.80	10.40	12.60	12.90	10.60	14.90	12.50	14.30	16.20	13.20	12.10	
MIN.	8.10	10.90	9.40	10.10	9.70	9.60	11.70	11.00	11.90	13.30	11.70	10.00	
RANGE	2.60	.90	1.00	2.50	3.20	1.00	3.20	1.50	2.40	2.90	1.50	2.10	
NO. OF OBS.	5	4	4	4	5	4	4	5	4	4	5	4	

SALINITY

MEAN	32.96	30.14	29.65	26.83	30.97	33.53	32.83	33.57	33.05	32.39	31.27	31.87	31.59
MAX.	33.73	31.11	33.15	30.12	33.21	33.75	33.66	33.80	33.63	32.83	32.16	31.87	
MIN.	31.89	29.25	20.40	22.87	26.88	33.28	31.03	33.21	32.65	31.66	30.35	30.81	
RANGE	1.84	1.86	12.75	7.25	6.33	.47	2.63	.59	.98	1.17	1.81	1.06	
NO. OF OBS.	5	4	4	4	5	4	4	5	4	4	5	1	

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
<u>HUMBURG MOUNTAIN 1963</u>													
TEMPERATURE													
MEAN	9.55	11.46	9.60	11.20	10.50	9.65	9.78	10.84	12.85	13.13	12.75	11.44	11.06
MAX.	11.10	11.80	10.60	11.50	11.20	10.40	13.00	13.70	14.40	15.10	13.20	12.10	
MIN.	8.90	11.30	8.60	10.90	9.80	8.90	8.40	8.60	10.60	11.50	12.10	10.30	
RANGE	2.20	.50	2.00	.60	1.40	1.50	4.60	5.10	3.80	3.60	1.10	1.80	
NO. OF OBS.	4	3	2	2	2	2	17	5	22	27	22	5	

SALINITY													
MEAN	32.91	30.86	30.25	29.02	32.90	33.79	33.86	33.85	33.52	32.43	30.53	31.77	32.14
MAX.	33.49	32.20	33.03	29.64	33.39	33.96	34.01	33.92	33.68	33.66	32.62	31.77	
MIN.	32.40	29.65	27.47	28.41	32.42	33.62	33.68	33.80	33.23	32.43	29.01	29.97	
RANGE	1.09	2.55	5.56	1.23	.97	.34	.33	.12	.45	1.23	3.61	1.80	
NO. OF OBS.	3	3	2	2	2	2	5	3	6	1	3	1	

PORT ORFORD 1964

TEMPERATURE													
MEAN		10.52	9.05	7.98	8.12	10.86	7.75						9.05
MAX.		10.70	10.00	9.50	10.60	11.90	8.90						
MIN.		10.40	8.40	6.60	6.70	8.60	5.60						
RANGE		.30	1.60	2.90	3.90	3.30	3.30						
NO. OF OBS.		4	23	20	17	9	4						

SALINITY													
MEAN		32.10	32.77	33.93	33.87	33.15	33.85						33.28
MAX.		32.80	34.00	34.60	34.40	34.00	34.50						
MIN.		31.80	30.40	33.10	32.70	32.10	32.70						
RANGE		1.00	3.60	1.50	1.70	1.90	1.80						
NO. OF OBS.		4	23	20	17	9	4						

BROOKINGS 1963

TEMPERATURE													
MEAN	9.70	11.20	10.00	11.02	12.90	10.07	12.45	13.20	14.20	14.46	12.90	11.20	11.94
MAX.	10.40	11.80	11.20	12.00	13.20	10.20	13.60	14.20	14.60	14.60	13.20	13.20	
MIN.	9.20	10.40	9.20	10.50	12.50	9.70	11.20	11.80	13.80	14.20	12.40	11.20	
RANGE	1.20	1.40	2.00	1.50	.70	.50	2.40	2.40	.80	.40	.80	2.00	
NO. OF OBS.	3	4	3	4	3	4	4	4	3	3	4	1	

SALINITY													
MEAN		29.58	32.76	28.95	29.37	33.77	33.67	33.42	33.29	32.69	31.55	32.15	31.90
MAX.		30.35	33.16	30.12	31.82	33.88	33.88	33.95	33.38	33.04	32.30	32.15	
MIN.		29.21	32.38	28.20	27.48	33.60	33.39	33.31	33.17	32.34	30.68	30.68	
RANGE		1.14	.78	1.92	4.34	.28	.49	.24	.21	.70	1.62	1.47	
NO. OF OBS.		4	3	4	3	4	4	4	3	3	4	1	

CRESCENT CITY, CALIFORNIA 1963

TEMPERATURE													
MEAN	9.28	11.50	9.50	11.48		11.87	13.90		14.93	14.36	11.06		12.07
MAX.	10.50	12.50	11.40	13.90		14.10	17.50		16.10	15.50	12.90		
MIN.	8.30	10.00	6.90	10.30		9.10	10.30		12.80	13.60	9.50		
RANGE	2.20	2.50	4.50	3.60		5.00	7.20		3.30	1.90	3.40		
NO. OF OBS.	17	17	14	18		19	21		19	18	26		

SALINITY													
MEAN	31.81	26.85	31.45	25.14		32.38	33.00		32.90	32.70	31.26		30.92
MAX.	33.80	31.80	34.10	30.20		34.50	35.50		33.70	33.30	33.30		
MIN.	28.80	21.80	22.70	19.90		30.10	29.00		30.70	31.50	27.70		
RANGE	5.00	10.00	11.40	10.30		4.40	6.50		3.00	1.80	5.60		
NO. OF OBS.	17	17	14	18		19	21		19	18	26		

CRESCENT CITY, CALIFORNIA 1964

TEMPERATURE													
MEAN	9.91	10.11							11.23	11.62	11.43	10.23	10.75
MAX.	11.40	11.70							12.80	13.60	12.80	11.10	
MIN.	5.60	8.60							8.90	9.70	10.00	8.60	
RANGE	5.80	3.10							3.90	3.90	2.80	2.50	
NO. OF OBS.	17	15							18	18	13	10	

SALINITY													
MEAN	28.85	31.36							32.92	32.78	30.71	27.33	30.66
MAX.	32.00	34.20							33.70	33.60	31.90	31.60	
MIN.	23.30	28.40							31.90	31.50	26.40	23.80	
RANGE	8.70	5.80							1.80	2.10	5.50	7.80	
NO. OF OBS.	17	15							18	18	13	10	