

UNIVERSITY OF CALIFORNIA    SCRIPPS INSTITUTION OF OCEANOGRAPHY

# data report

PHYSICAL AND CHEMICAL DATA

CalCOFI Cruise 6901  
7-30 January 1969

and

CalCOFI Cruise 6902  
26 January - 11 March 1969

SIO Reference 76-14  
1 September 1976

27437403

UNIVERSITY OF CALIFORNIA  
SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

CalCOFI Cruise 6901  
7-30 January 1969

and

CalCOFI Cruise 6902  
26 January - 11 March 1969

Sponsored by  
Marine Research Committee

SIO Reference 76-14

Approved for distribution:

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

## CONTENTS

Introduction. . . . .	3
References. . . . .	8
Cruise 6901	
List of Figures. . . . .	10
Personnel. . . . .	20
Tabulated Data . . . . .	21
Cruise 6902	
List of Figures. . . . .	79
Personnel. . . . .	99
Tabulated Data . . . . .	100
Distribution List . . . . .	197

## INTRODUCTION

The data in this report was collected during cruises 6901\* and 6902 of the California Cooperative Fisheries Investigations (CalCOFI) program aboard the RV David Starr Jordan, the RV Miller Freeman, both of the Bureau of Commercial Fisheries (now National Marine Fisheries Service), and the RV Alexander Agassiz, of the Scripps Institution of Oceanography. The RV Professor Deryugin, of the U.S.S.R., participated in cruise 6902, but data collected aboard this ship has not been received for inclusion in this report. The report preceding this one in the series was SIO Ref. 71-3, which included all data for 1968.

This data was collected in part and processed completely by personnel of the Data Collection and Processing Group (DCPG, MLR), Scripps Institution of Oceanography.

## STANDARD PROCEDURES

### Hydrographic Cast Data

Most of the hydrographic casts consisted of 18 bottles. At most stations the maximum sampling depth was 600 meters, bottom depth permitting. Temperature, oxygen, and nutrients were determined for all depths on each station, but samples from only five selected depths were used to determine salinity for comparison with the STD.

On STD lowerings where hydrographic casts were not made, a single Nansen bottle was lowered to a depth of approximately 10 meters. Temperature, salinity, oxygen, and nutrients were determined for most of these samples. On the RV David Starr Jordan water samples at some stations were collected with a Niskin rosette lowered on the STD cable.

In general, paired protected reversing thermometers were used to determine temperatures which were recorded in hundredths of a Celsius degree. Temperatures determined using unprotected (pressure) thermometers or surface "bucket" thermometers were recorded to tenths of a degree. Sample bottles used below 100 meters were equipped with unprotected thermometers.

---

\*The first two digits represent the year and the second two digits the month of the cruise. The CalCOFI station designations have been in use for over twenty years. The first part specifies a line normal to the general trend of the coast line (CalCOFI line). The second part specifies a station position relative to the coast on the CalCOFI line.

Salinities were determined with three types of salinometers:

1. Australian Autolab inductive
2. Washington bridge conductive, and
3. Hytech (now Plessey Environmental Systems) inductive.

The Autolab was used to analyze the samples returned from the RV Miller Freeman. The Washington bridge was used to analyze samples from the 3660 meter cast lowered on station 90.65 during 6902-Alexander Agassiz. Four different Hytech instruments were used for all other samples. With the exception of the samples from the RV Miller Freeman, all samples were analyzed at sea.

The salinity values were recorded and are reported to three decimal places, provided accepted standards were met. If only one determination per sample was obtained, or there was doubt concerning the accuracy of the analytical results, the salinities are reported to two decimal places. All STD salinities are tabulated to hundredths.

Dissolved oxygen was determined by the Winkler method as modified by Carpenter (1965), using the equipment and procedure outlined by Anderson (1971). On 6902-Alexander Agassiz, problems with the microburet necessitated running most of the samples with a 10-ml buret.

Phosphate, silicate, nitrite, and nitrate were determined using a first generation Technicon AutoAnalyzer<sup>R</sup> and methodologies developed at the National Marine Fisheries Service based on the methods of Strickland (1968).

The observed data could not be evaluated using standard DCPG techniques (Klein, 1973) due to the sparsity of salinity data. Temperatures and salinities were compared with the STD values while oxygen and nutrient values were plotted against depth.

#### In Situ Salinity/Temperature/Depth Recorder (STD) Data

A digital data logger was used for recording the data from the STD on the RV Alexander Agassiz and the RV David Starr Jordan. The data taken aboard the RV Miller Freeman during cruise 6902 was tabulated at standard depths from the analog recordings.

The manufacturer of the Hytech Model 9006 STD (now Plessey Environmental Systems) claims an accuracy of  $\pm 0.05^{\circ}\text{C}$  on all temperature ranges with repeatability of  $\pm 0.01^{\circ}\text{C}$ , and an accuracy of  $\pm 0.03\text{‰}$  on all salinity ranges with repeatability of  $\pm 0.01\text{‰}$ .

Comparisons of the sample bottle observations with the STD data from the corresponding depths resulted in the application of the following corrections to the tabulated STD data:

Cruise 6901:

RV Alexander Agassiz: No correction was applied to the temperature. A correction of  $0.03^{\circ}/\text{‰}$  was applied to the salinity data for most lowerings. Because the salinity circuits appeared to drift, they required occasional adjustment and, consequently, larger corrections were applied to a few lowerings with the correction indicated by footnote.

RV David Starr Jordan: No correction was applied to the temperature. The salinity sensor had apparently not been tested before it was used for this cruise and the data required a correction varying linearly from  $-0.65^{\circ}/\text{‰}$  at the surface to  $-0.74^{\circ}/\text{‰}$  at 500 meters.

Cruise 6902:

RV Alexander Agassiz: A temperature correction of  $-0.029^{\circ}\text{C}$  and a salinity correction of  $0.036^{\circ}/\text{‰}$  were applied over the entire depth range (0 - 500 meters).

RV David Starr Jordan: A temperature correction of  $-0.016^{\circ}\text{C}$  and a salinity correction of  $-0.054^{\circ}/\text{‰}$  were applied over the entire depth range (0 - 500 meters).

RV Miller Freeman: Only the 10-meter samples were available for comparison, but these agreed so well with most of the corresponding STD data that no corrections were applied to either temperature or salinity.

#### TABULATED DATA

The time reported is Greenwich Mean Time. For STD lowerings it is the "start down" time and for bottle casts it is the time of messenger release. When more than one cast was lowered on a station, the messenger times for the first and last casts are given. Multiple casts, excluding the surface cast, are indicated by a footnote letter following the observed depth.

Bottom depths, determined acoustically, have been corrected using Matthews (1939) tables and are reported in meters. The weather and dominant waves are coded using the National Oceanographic Data Center (NODC) method.

During cruise 6902 the RV Alexander Agassiz occupied some stations previously occupied by the other two ships. These included special stations on lines 90 and 120 for extensive 24-hour day/night net tow studies and other biological work. For this reason the times of the Nansen bottle cast and the STD lowering may have differed by as much as 10 hours. It will be noticed that when some stations were occupied by different ships the reported bottom depths were considerably different, the result of irregular bottom topography, differences in position resulting from uncertainties in dead reckoning navigation, or the rounding of position data to the half minute.

Data for all cruises presented in this report was obtained by bottle casts and by the STD, and appears in two forms:

1. Data from the sample bottle casts is tabulated with the observed levels of depth on the left of a page, and standard depth values of temperature and oxygen interpolated from these observations on the right.
2. For each STD lowering, temperature and salinity values are read only at standard levels of depth and appear with computed values of DT and DD (see page 7) on the right of the page. Corrections have been applied to the temperature and salinity values as discussed previously in this report. Nutrient data from samples collected with a Niskin rosette is tabulated at observed levels of depth to the left of the STD data.

The same parameters have been tabulated in this report as in previous reports. The decimal has been omitted from the CalCOFI station number so station 90.65 appears in the tabulated data as 90065. The column headings are to be interpreted as follows:

Z	Depth	Meters
T	Temperature	°C
S	Salinity	‰
O2	Dissolved oxygen	ml/L
P04	"Reactive" inorganic phosphate-phosphorous	µg at/L
Si03	"Reactive" inorganic silicate-silicon	µg at/L
N02	"Reactive" nitrite-nitrogen	µg at/L
N03	"Reactive" nitrate-nitrogen	µg at/L
DT	$\delta_T$ Thermosteric anomaly	cl/ton
SIGT	$\sigma_t = (\rho_{s,t,0} - 1)10^3$ where $\rho_{s,t,0}$ is the density the parcel would have if moved isothermally to the sea surface.	g/L
DD	Geopotential anomaly, referred to the sea surface.	dyn. meters

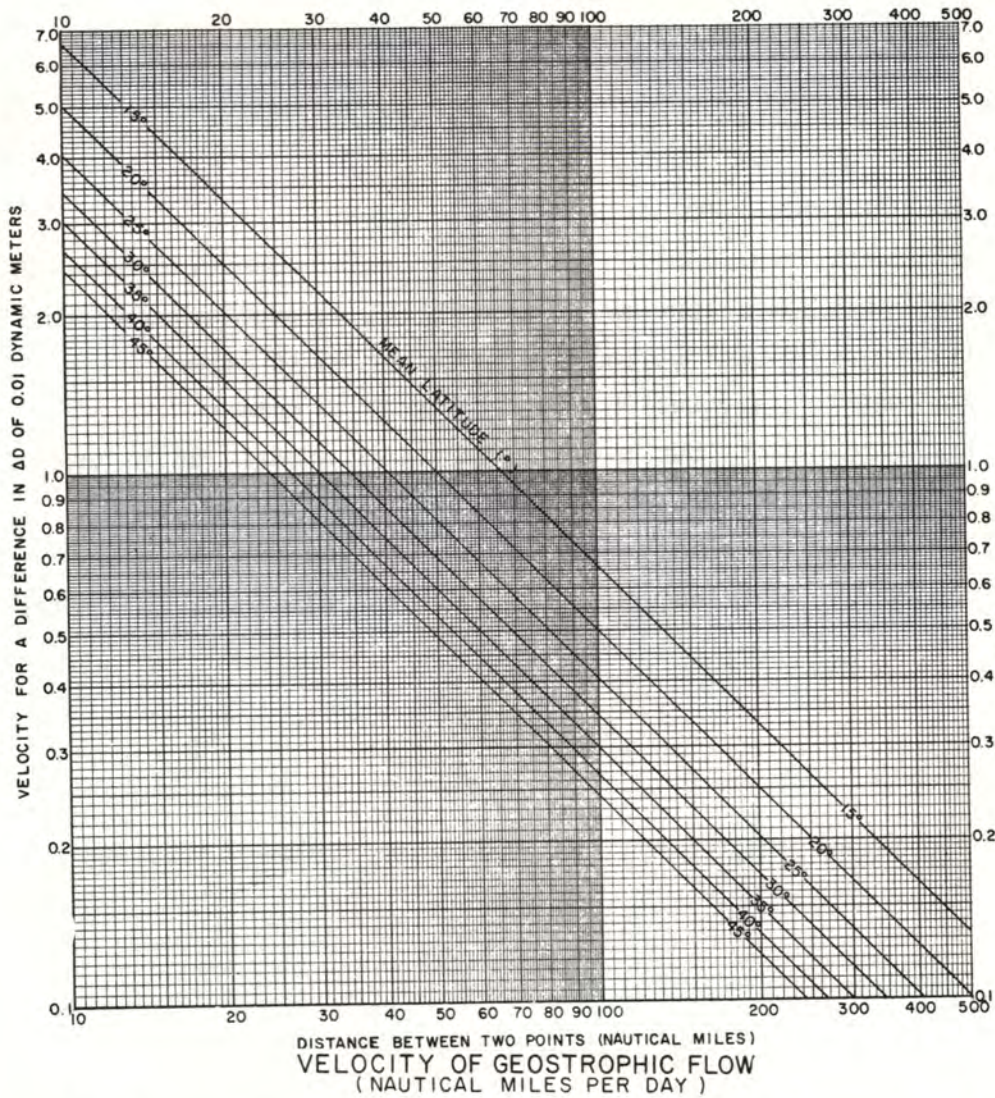
#### FOOTNOTES

Data which appears to be in error without obvious reason is reported, but flagged uncertain with a U. Such data was not used in the determination of data at standard depths. Footnotes are used to indicate data which has required special processing.



## REFERENCES

- Anderson, G.C., compiler, 1971. "Oxygen Analysis", Marine Technician's Handbook, SIO Ref. No. 71-10, Sea Grant Pub. No. 11.
- Autolab Ind. Pty. Ltd., Sydney, 1960. Inductively Coupled Salinometer MK 111, Model 601, Operating Inst. and Ills. Parts List.
- Bissett Berman Marine Division, 1967. Operation and Maintenance Manual, Laboratory Salinometer Model 6220.
- Brown, N.L., and B.V. Hamon, 1961. An Inductive Salinometer. Deep Sea Research, 8 (1), 65-75.
- Carpenter, J.H., 1965. The Chesapeake Bay Institute technique for Winkler dissolved oxygen method. Limnol. and Oceanogr., 10, 141-143.
- In situ Salinity/Temperature/Depth Monitoring and Recording System, Model 9006, Tech. Rep. No. 102, Hytech Marine Products, The Bissett Berman Corporation (now Plessey Environmental Systems).
- Klein, Hans T., 1973. A new technique for processing physical oceanographic data. SIO Ref. No. 73-14.
- Matthews, D.J., 1939. Tables of the velocity of sound in pure water and seawater for use in echo-sounding and sound-ranging. Second Edition. Hydrographic Department, Admiralty, H.D. 282:pp 52.
- Strickland, J.D.H., and T.R. Parsons, 1968. A practical handbook of seawater analysis. Fish. Res. Board of Canada, Bull. No. 167:pp 311.
- University of Washington, 1960. Univ. of Wash. Dept. of Oceanography, Oct. 1960. Tech. Rep. UW Ref. No. 60-18.



cm/sec	0	1	2	3	4	5	6	7	8	9
0	<i>KNOTS</i> 0.02 NM/DAY	0.04 0.47	0.06 0.93	0.08 1.40	0.10 1.86	0.12 2.33	0.14 2.80	0.16 3.26	0.17 3.73	0.19 4.20
10	0.19 4.66	0.21 5.13	0.23 5.59	0.25 6.06	0.27 6.53	0.29 6.99	0.31 7.46	0.33 7.93	0.35 8.39	0.37 8.86
20	0.39 9.32	0.41 9.79	0.43 10.26	0.45 10.72	0.47 11.19	0.49 11.66	0.51 12.12	0.52 12.59	0.54 13.05	0.56 13.52
30	0.58 13.99	0.60 14.45	0.62 14.92	0.64 15.38	0.66 15.85	0.68 16.32	0.70 16.78	0.72 17.25	0.74 17.72	0.76 18.18
40	0.78 18.65	0.80 19.11	0.82 19.58	0.84 20.05	0.85 20.51	0.87 20.98	0.89 21.45	0.91 21.91	0.93 22.38	0.95 22.84
50	0.97 23.31	0.99 23.78	1.01 24.24	1.03 24.71	1.05 25.17	1.07 25.64	1.09 26.11	1.11 26.57	1.13 27.04	1.15 27.51
60	1.17 27.98	1.18 28.44	1.20 28.90	1.22 29.37	1.24 29.84	1.26 30.30	1.28 30.77	1.30 31.24	1.32 31.70	1.34 32.17
70	1.36 32.63	1.38 33.10	1.40 33.57	1.42 34.03	1.44 34.50	1.46 34.96	1.48 35.43	1.50 35.90	1.52 36.36	1.53 36.83
80	1.55 37.30	1.57 37.76	1.59 38.23	1.61 38.69	1.63 39.16	1.65 39.63	1.67 40.09	1.69 40.56	1.71 41.03	1.73 41.49
90	1.75 41.96	1.77 42.42	1.79 42.89	1.81 43.36	1.83 43.82	1.85 44.29	1.86 44.76	1.88 45.22	1.90 45.69	1.92 46.15
100	1.94 46.62	1.96 47.09	1.98 47.55	2.00 48.02	2.02 48.48	2.04 48.95	2.06 49.42	2.08 49.88	2.10 50.35	2.12 50.82

CONVERSION TABLE  
(CENTIMETERS / SECOND - KNOTS - NAUTICAL MILES / DAY)

1 cm/sec = 0.019 kts = 0.466 NAUTICAL MILES / DAY  
 1 kt = 24 NAUTICAL MILES / DAY = 51.48 cm/sec  
 1 NAUTICAL MILE / DAY = 0.042 kts = 2.14 cm/sec

FIGURES  
Cruise 6901

1. CalCOFI Cruise 6901, station positions
2. Horizontal distribution of dynamic height anomaly (0 over 500 d-bar)
3. Horizontal distribution of dynamic height anomaly (200 over 500 d-bar)
4. Horizontal distribution of temperature at 10 meters
5. Horizontal distribution of salinity at 10 meters
6. Horizontal distribution of thermosteric anomaly at 10 meters
7. Horizontal distribution of temperature at 200 meters
8. Horizontal distribution of salinity at 200 meters
9. Horizontal distribution of thermosteric anomaly at 200 meters.

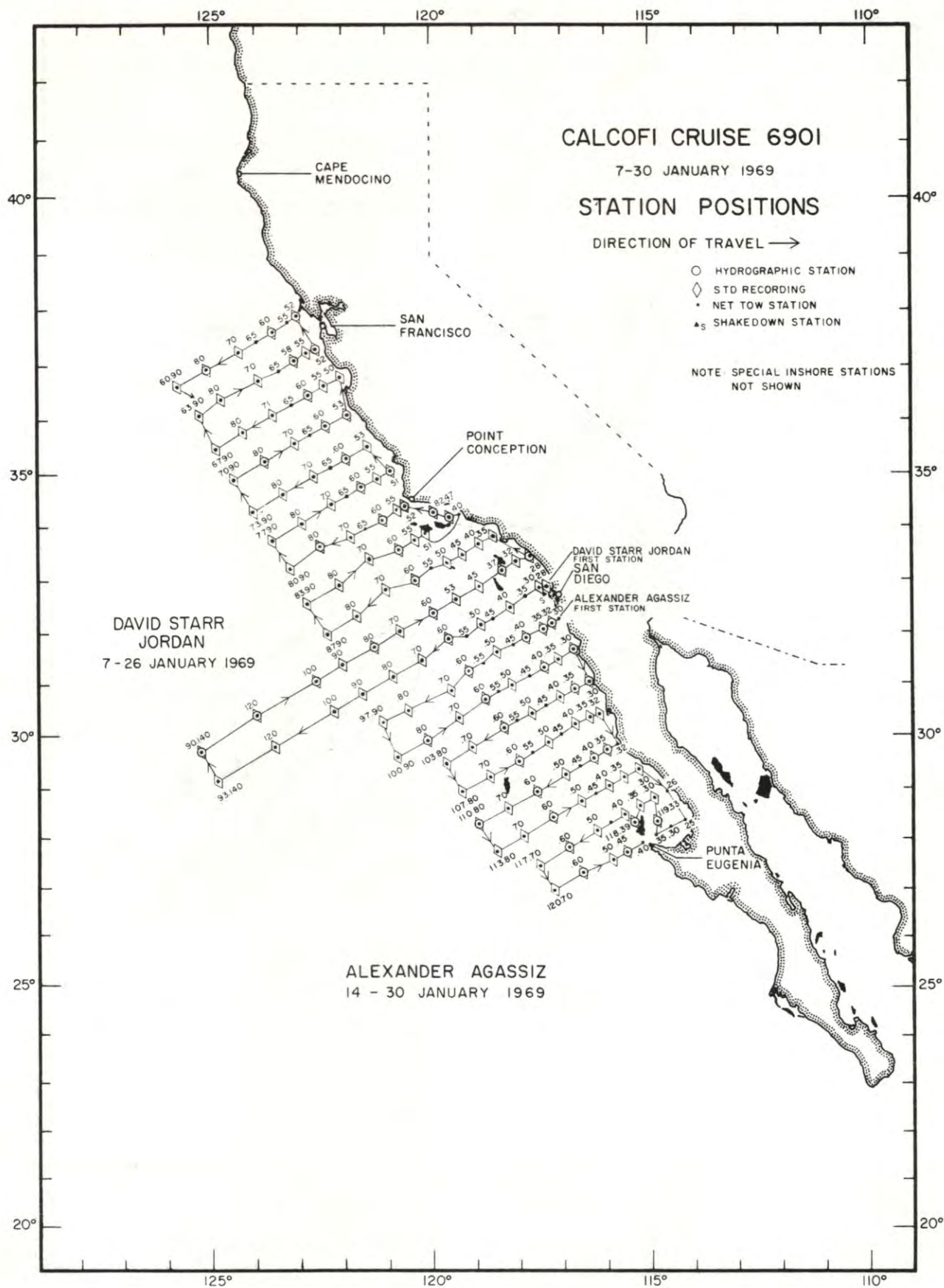


FIGURE I

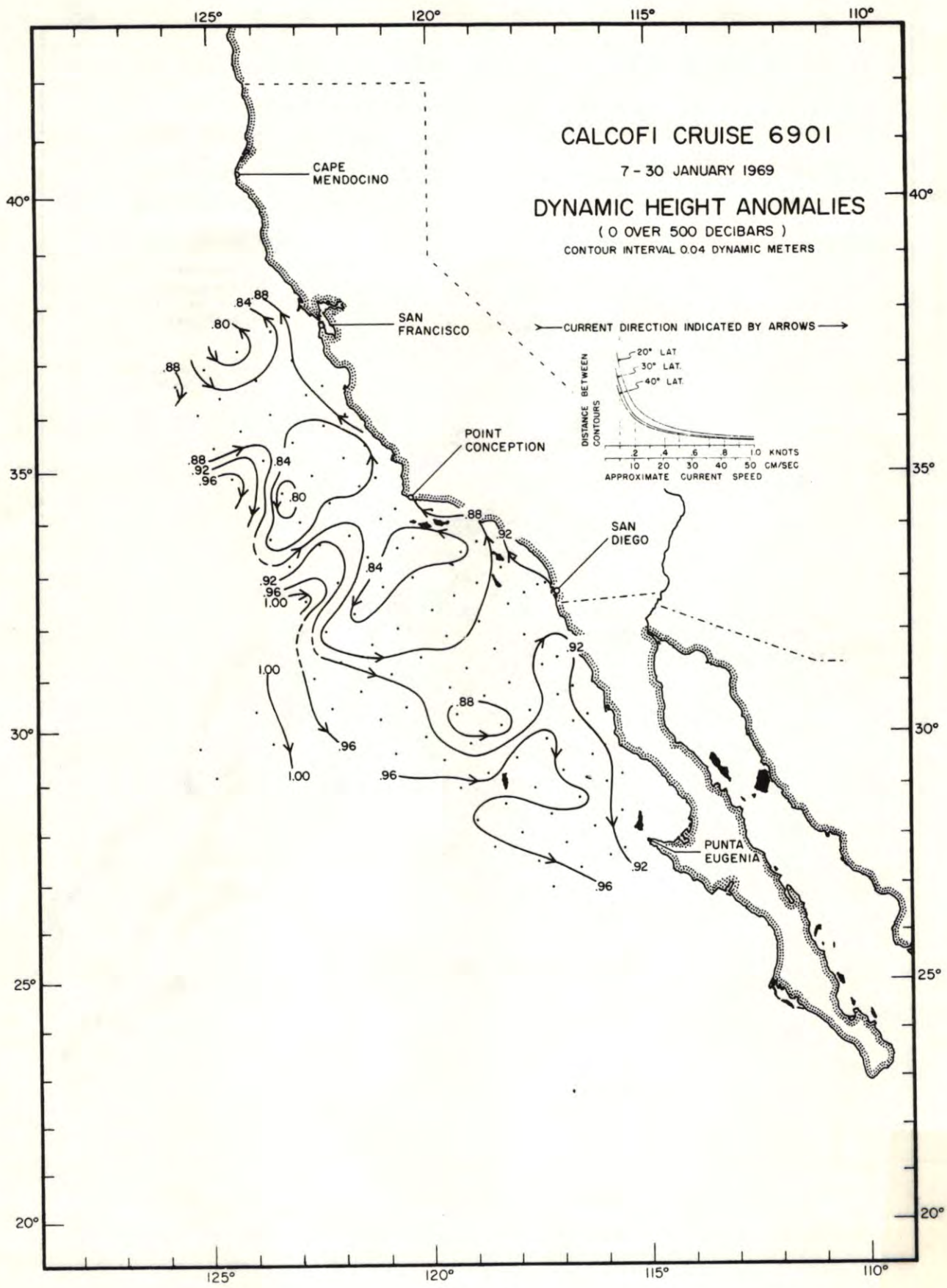


FIGURE 2

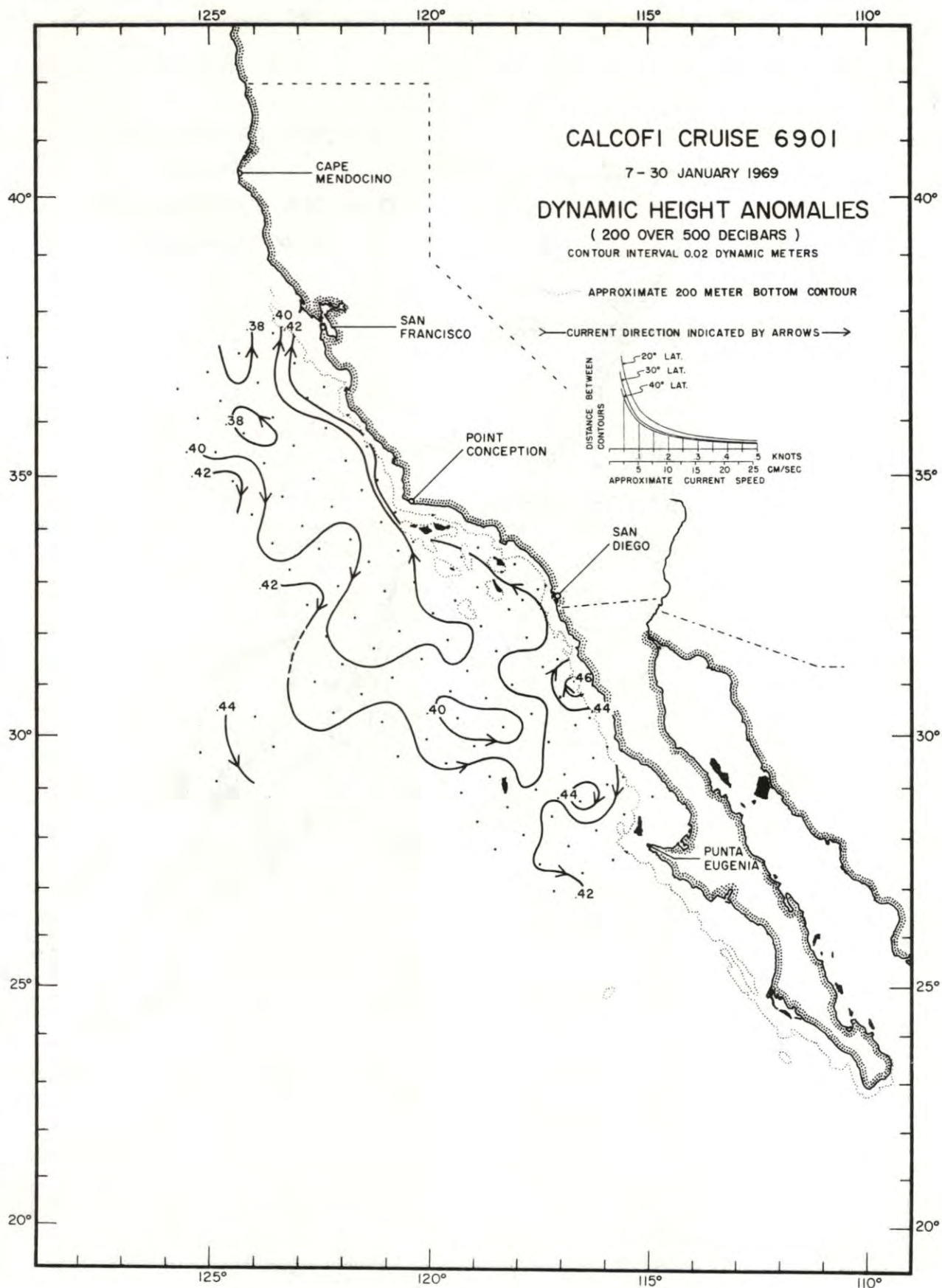


FIGURE 3

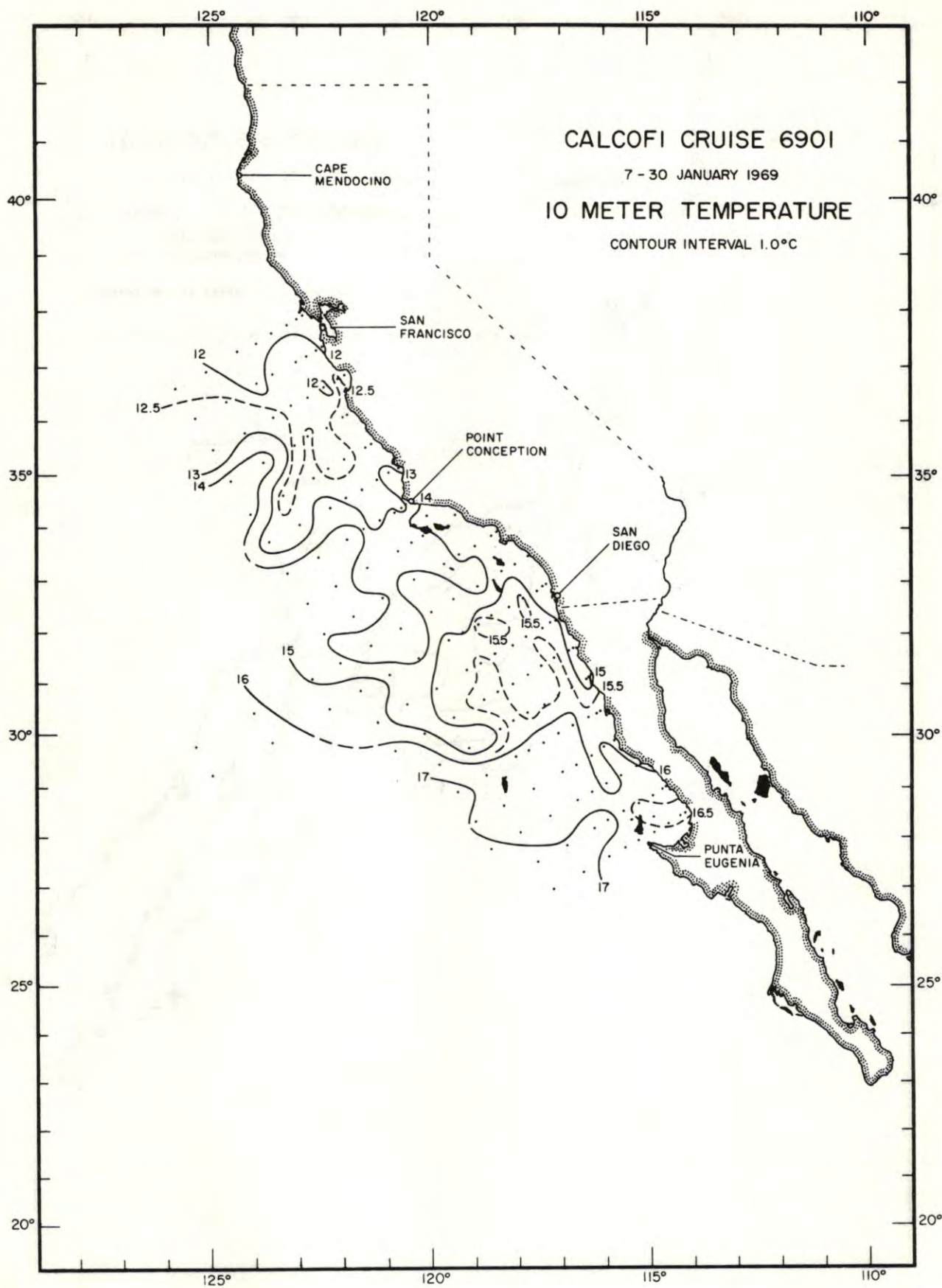


FIGURE 4

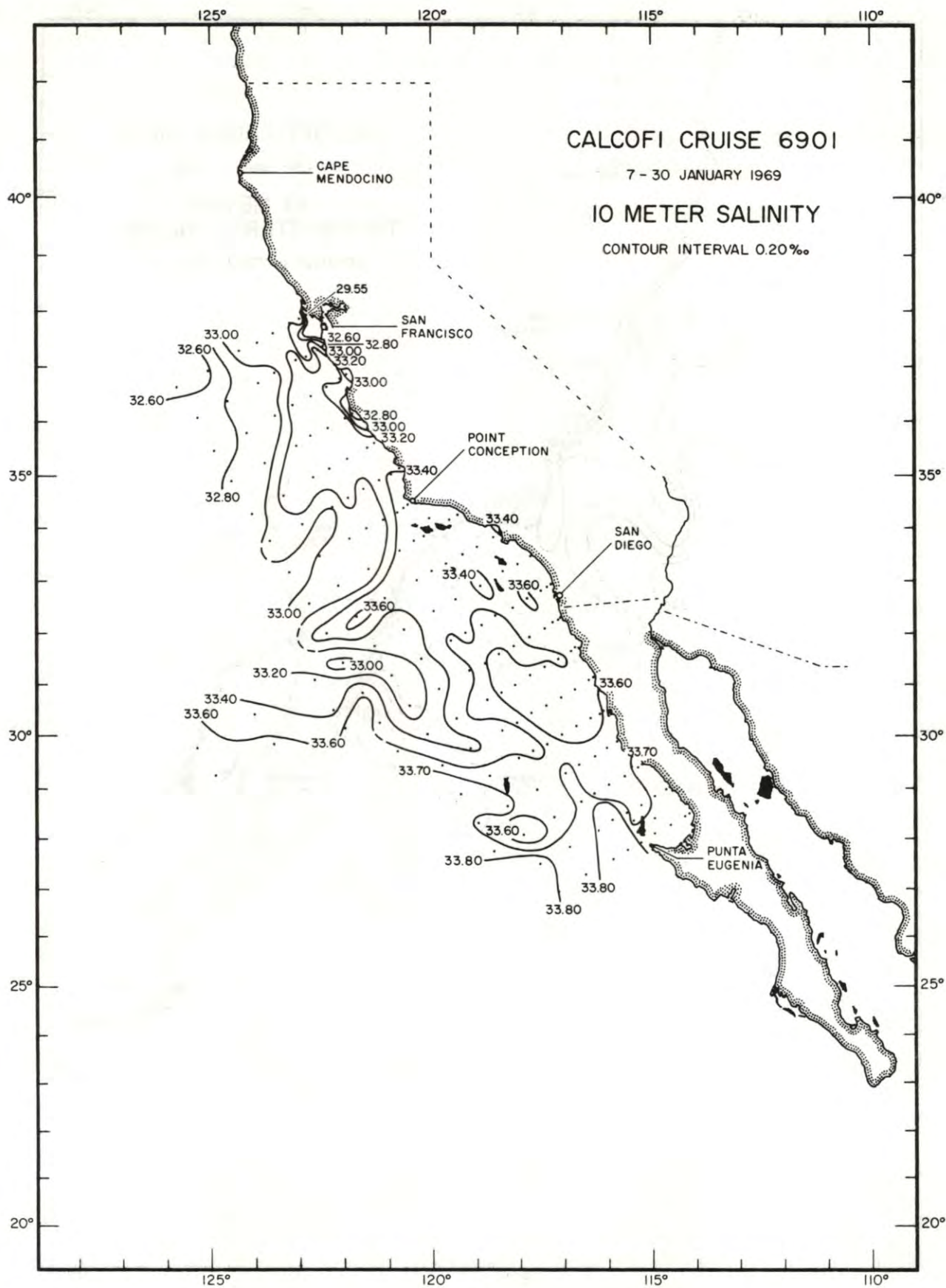


FIGURE 5



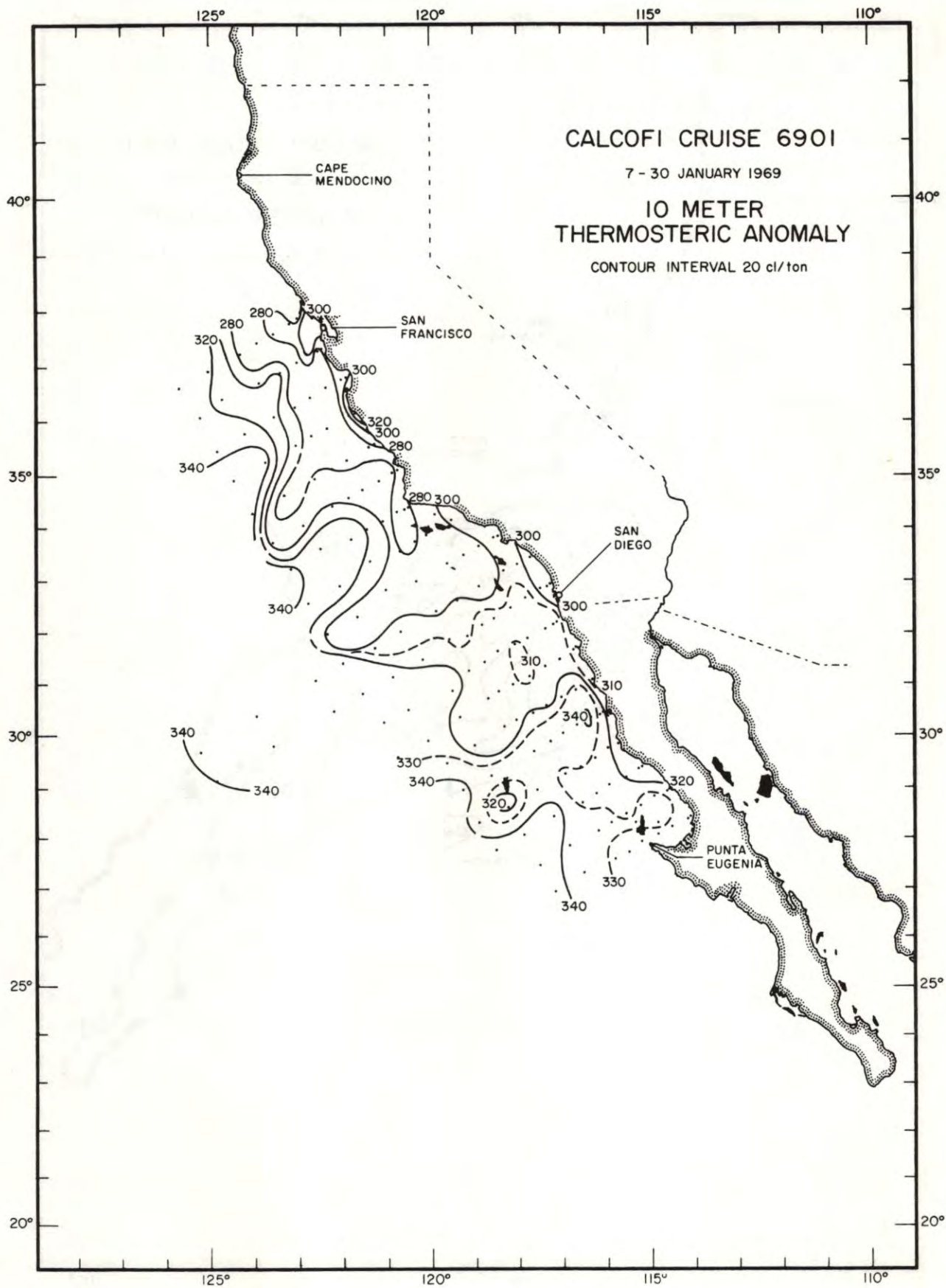


FIGURE 6

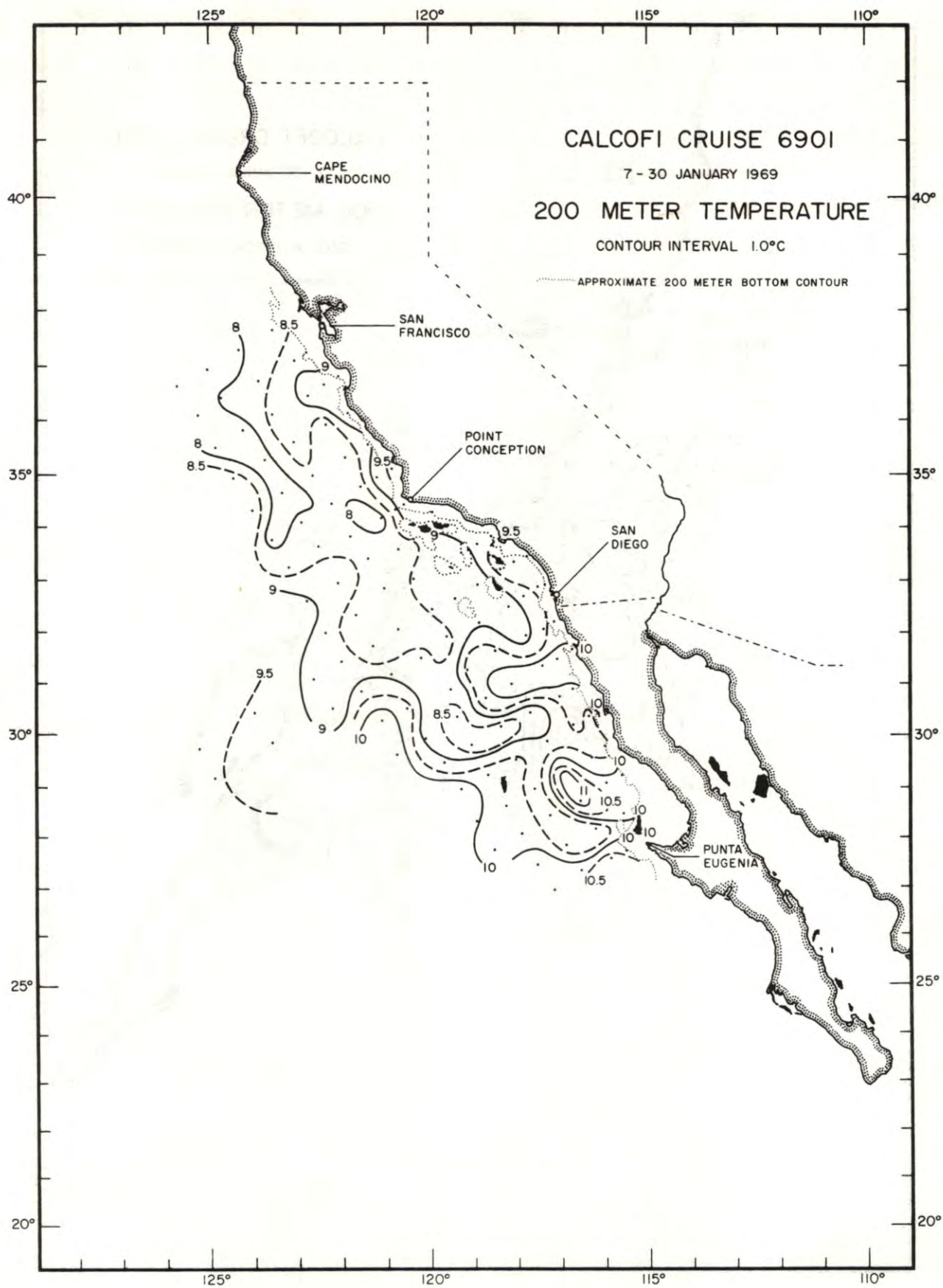


FIGURE 7

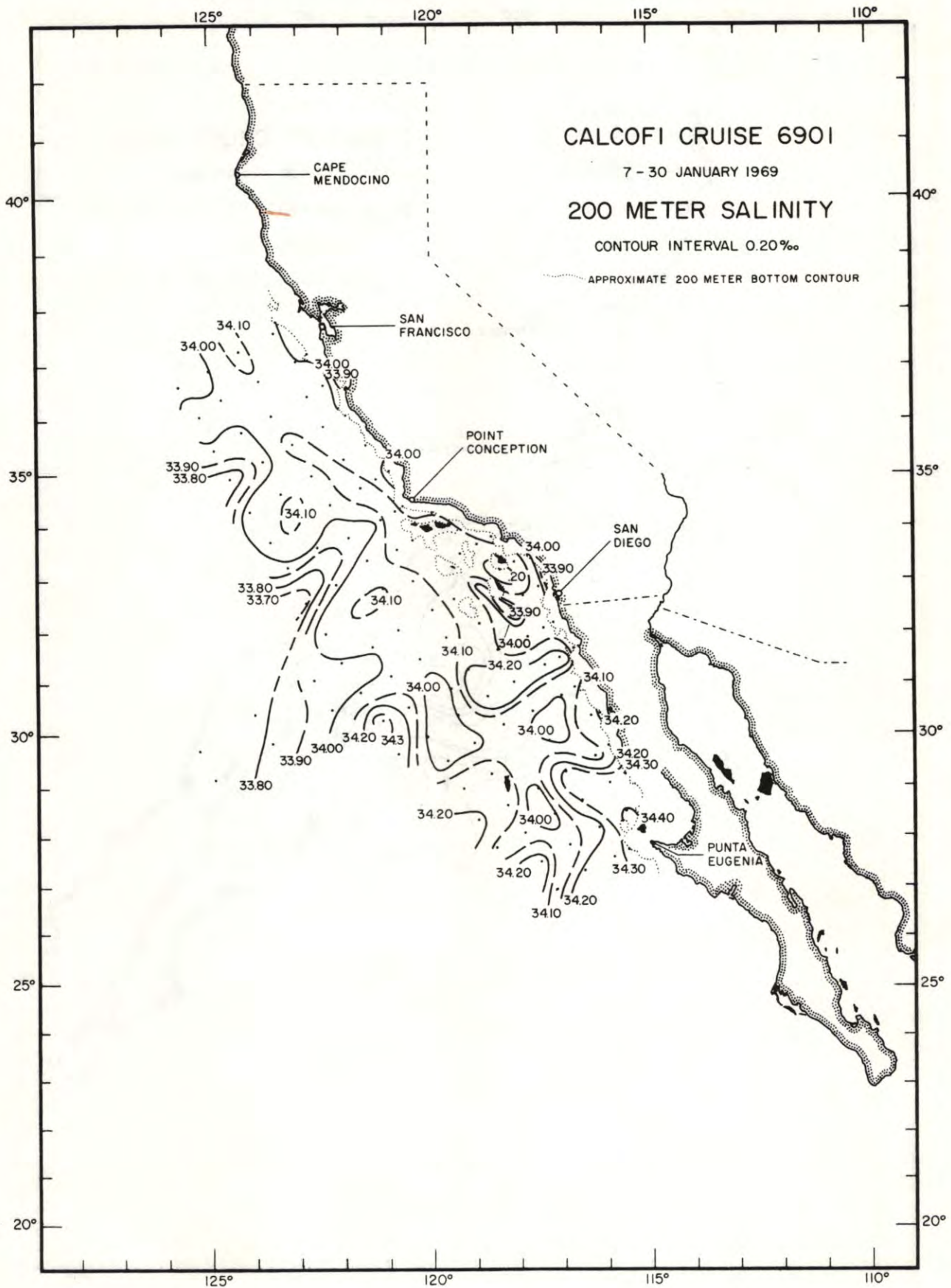


FIGURE 8

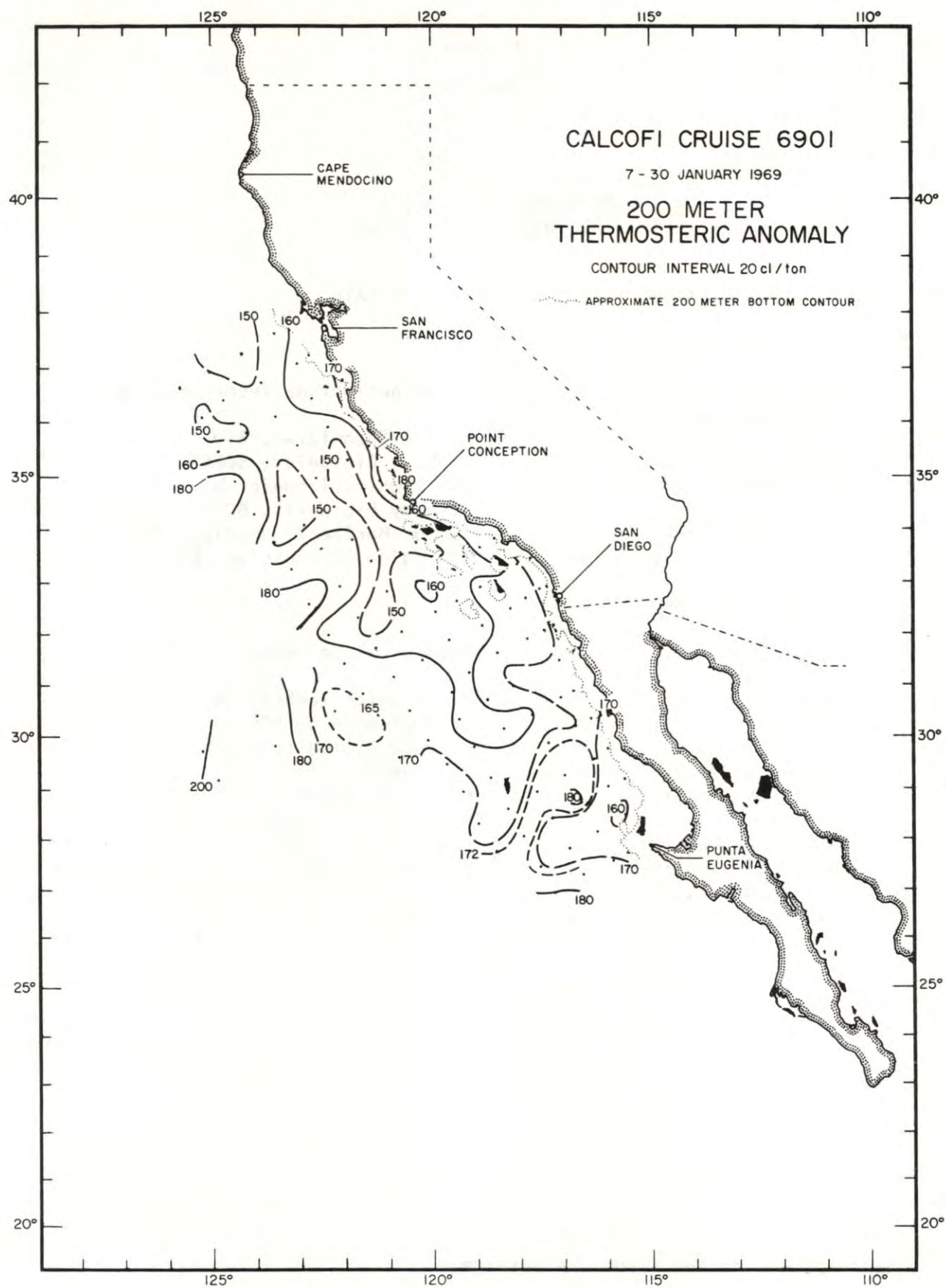


FIGURE 9

PERSONNEL  
Cruise 6901

SHIP'S CAPTAINS

Davis, Laurence E., RV Alexander Agassiz  
Forster, Charles W., RV David Starr Jordan

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

RV Alexander Agassiz:

Mead, Richard V. (in charge)	Principal Marine Technician, S10
Ballard, Edward N.	Marine Technician, S10
Counts, Robert C.	Fishery Biologist, BCF*
Kaye, Hugh R.	Electronics Technician, S10
Kimura, Makoto	Fishery Biologist, BCF
Mauck, William W.	Senior Marine Technician, S10
Mulitauaopele, Tapuni S.	Biological Technician, BCF

RV David Starr Jordan:

Metoyer, Jack D. (in charge)	Biological Technician, BCF
Brown, Jack	Electronics Technician, BCF
Kramer, S.	Biological Aid, BCF
Kruse, Michael	Fishery Biologist, BCF
Conway, Carol B.	Engineering Aid, S10
Robertson, Scott B.	Marine Technician, S10
Lambert, D.	Electronics Technician, S10
Lasker, Reuben, Dr.	Physiologist, BCF
Rosendahl, Donald V.	Senior Electronics Technician, S10
Smith, Paul E., Dr.	Fishery Biologist, Research, BCF
Wyllie, John G.	Laboratory Technician, S10

\*Bureau of Commercial Fisheries  
now National Marine Fisheries Service  
Southwest Fisheries Center

RV DAVID STARR JORDAN CALCOFI CRUISE 6901 60052

LATITUDE		LONGITUDE		MC/DAY/YR	MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
37 54.0N		123 01.5W		01/25/69	0254	GMT		75M	110	16KT	5	03			
Z	T	S	C2	PC4	SI03	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	DD
									0	11.67	33.15		25.237	274.1	0
									10	11.67	33.15		25.237	274.1	.027
									20	11.67	33.15		25.237	274.1	.055
									30	11.67	33.15		25.237	274.1	.082
									50	11.60	33.19		25.281	269.9	.137

RV DAVID STARR JORDAN CALCOFI CRUISE 6901 60052

LATITUDE		LONGITUDE		MC/DAY/YR	MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
37 54.0N		123 01.5W		01/25/69	0310	GMT		75M	110	16KT	2	03			
Z	T	S	O2	PC4	SI03	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	DD
0	11.53	U		6.18	.73	25.	.05	3.8	0				6.18		
10	11.62	33.031		6.18	.70A	17.4	.31A	3.8A	10	11.62			6.18		
20	11.64	33.047		6.23	.57	21.	.03	3.3	20	11.64			6.23		
30	11.64			6.14	.90U	8.0	.00	3.3	30	11.64			6.14		
50	11.61			6.12	.65	20.	.00	4.0	50	11.61			6.12		

RV DAVID STARR JORDAN CALCOFI CRUISE 6901 60060

LATITUDE		LONGITUDE		MC/DAY/YR	MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
37 37.0N		123 37.0W		01/25/69	0723	GMT		3447M	180	16KT	5	03			
Z	T	S	O2	PC4	SI03	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	DD
									0	11.97	33.04		25.096	287.5	0
									10	11.97	33.04		25.096	287.5	.029
									20	11.97	33.04		25.096	287.5	.058
									30	11.94	33.10		25.148	282.6	.086
									50	11.87	33.32		25.331	265.1	.141
									75	10.82	33.40		25.584	241.1	.205
									100	9.50	33.51		25.894	211.6	.262
									125	8.97	33.78		26.190	183.6	.312
									150	8.61	33.88		26.324	170.8	.357
									200	8.22	34.02		26.493	154.7	.440
									250	7.83	34.12		26.630	141.8	.516
									300	7.29	34.14		26.723	132.9	.587
									400	6.43	34.21		26.895	116.6	.717
									500	5.81	34.23		26.990	107.6	.835

RV DAVID STARR JORDAN CALCOFI CRUISE 6901 60060

LATITUDE		LONGITUDE		MC/DAY/YR	MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
37 37.0N		123 37.0W		01/25/69	0810	0825	GMT	3447M	180	16KT	5	03			
Z	T	S	O2	PC4	SI03	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	DD
1	11.96			6.18	.53	7.	.06	2.0	0	11.96			6.18		
11	11.96	33.057		6.20	.53	6.	.07	1.8	10	11.96			6.20		
32	11.92	33.138		6.20	.61	8.	.17	2.9	20	11.94			6.20		
60	11.22			5.29	1.14	13.	.00	9.9	30	11.92			6.20		
70	10.67			4.66	1.31	16.	.00	13.4	50	11.58			5.75		
85B	10.37			4.27	1.51	17.	.00	16.0	75	10.58			4.46		
98B	9.44			4.38	1.59	22.	.00	18.0	100	9.38			4.34		
114B	9.13	33.665		4.01	1.75	28.	.00	20.9	125	8.91			3.94		
137B	8.70			3.88	1.80	30.	.00	22.6	150	8.58			3.58		
157B	8.53			3.42	1.92	33.	.00	25.3	200	8.03			3.22		
186B	8.24			3.23	2.00	44.	.00	27.6	250	7.82			2.31		
215B	7.85			3.20	2.00	39.	.00	28.4	300	7.26			1.71		
244B	7.85			2.44	2.16	47.	.00	31.0	400	6.32			1.22		
293B	7.40			1.70	2.45	55.	.00	35.9	500	5.60			.65		
347B	6.38	34.069		1.77	2.49	63.	.00	38.8							
430B	6.28	34.210		.86	2.69	73.	.00	42.1	126.5						
514B	5.46			.64	2.82	80.	.00	45.5	114.7						
599B	5.17			.48	2.90	90.	.00	46.2							

- A) THE NUTRIENT SAMPLES FROM THE NANSEN BOTTLE AT 10 METERS WERE ANALYZED AFTER THE CRUISE HAD BEEN COMPLETED WITH THE SAMPLES FROM NANSEN BOTTLES LOWERED FOR STD CALIBRATION.  
 B) CAST II.



## RV DAVID STARR JORDAN

## CALCOFI CRUISE 6901

63052

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
37 19.0N		122 36.0W		01/24/69		2102 GMT			86M	150	09KT	4	150 03		
Z	T	S	O2	PC4	S103	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
									0	12.26	33.32		25.258	272.1	0
									10	12.24	33.32		25.262	271.8	.027
									20	12.24	33.33		25.269	271.0	.054
									30	12.25	33.33		25.267	271.2	.082
									50	12.26	33.34		25.273	270.7	.136

## RV DAVID STARR JORDAN

## CALCOFI CRUISE 6901

63052

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
37 19.0N		122 36.0W		01/24/69		2119 GMT			86M	150	09KT	4	150 03		
Z	T	S	O2	PC4	S103	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	12.26		6.02	.61	15.	.00	3.4		0	12.26		6.02			
10	12.26	33.319	6.01	.57	12.	.02	2.9	272.2	10	12.26		6.01			
20	12.25		6.11	.57	12.	.06	3.4		20	12.25		6.11			
30	12.25		5.97	.61	13.	.06	3.1		30	12.25		5.97			
50	12.25	33.320	6.00	.65	10.	.05	3.1	272.0	50	12.25		6.00			

## RV DAVID STARR JORDAN

## CALCOFI CRUISE 6901

63055

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
37 13.0N		122 50.0W		01/24/69		1905 GMT			260M	190	10KT	2	150 03		
Z	T	S	O2	PC4	S103	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
									0	12.38	32.93		24.933	303.0	0
									10	12.35	32.94		24.947	301.7	.030
									20	12.21	33.00		25.020	294.8	.060
									30	11.97	33.14		25.173	280.2	.089
									50	11.82	33.19		25.240	273.8	.144
									75	10.29	33.24		25.552	244.2	.210
									100	10.40	33.53		25.758	224.5	.269
									125	10.11	33.64		25.894	211.7	.324
									150	9.84	33.71		25.994	202.2	.376
									200	8.87	33.99		26.370	166.5	.470

## RV DAVID STARR JORDAN

## CALCOFI CRUISE 6901

63058

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
37 05.5N		123 04.5W		01/24/69		1615 GMT			1387M	210	10KT	2	130 04		
Z	T	S	O2	PC4	S103	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
									0	12.22	33.32		25.265	271.4	0
									10	12.23	33.32		25.263	271.6	.027
									20	12.23	33.32		25.263	271.6	.054
									30	12.23	33.32		25.263	271.6	.082
									50	12.24	33.33		25.269	271.0	.136
									75	11.02	33.39		25.541	245.2	.201
									100	10.55	33.61		25.795	221.1	.260
									125	10.14	33.69		25.927	208.5	.314
									150	9.48	33.77		26.100	192.1	.365
									200	8.95	34.00		26.365	166.9	.456
									250	8.20	34.08		26.543	150.0	.537
									300	7.82	34.13		26.639	140.9	.613
									400	6.68	34.09		26.768	128.7	.753
									500	6.43	34.25		26.927	113.6	.880

## RV DAVID STARR JORDAN

## CALCOFI CRUISE 6901

63058

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
37 05.5N		123 04.5W		01/24/69		1654 GMT			1387M	210	10KT	2	130 04		
Z	T	S	O2	PC4	S103	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
0	12.24		6.22	.41	8.	.01	3.5		0	12.24		6.22			
10	12.21	33.305	6.28	.65U	10.	.12	3.2	272.3	10	12.21		6.28			
30	12.23	33.306	6.13	.53	12.	.11	3.3	272.6	20	12.22		6.20			
54	11.73		5.49	.78	17.	.01	7.4		30	12.23		6.13			
63	11.19		4.97	1.10	16.	.00	11.1		50	11.88		5.65			
73	10.87		4.79	1.22	16.	.00	13.0		75	10.83		4.74			
87	10.62		4.45	1.39	22.	.00	16.8		100	10.40		4.19			
102	10.37	33.595	4.15	1.35	21.	.00	18.0	219.2	125	10.00		3.82			
126	9.98		3.81	1.59	24.	.00	20.6		150	9.38		3.66			
146	9.47		3.71	1.67	26.	.00	20.0		200	8.80		3.03			
169	9.05		3.41	1.75	31.	.00	27.1		250	8.17		2.58			
198	8.82		3.06	2.08	42.	.00	29.2		300	7.58		2.40			
227	8.46		2.73	2.04	42.	.00	32.3		400	6.65		1.71			
265	7.98		2.52	2.20	46.	.00	35.9								
323	7.33	34.059	2.31	2.20	51.	.00	39.4	139.5							
396	6.65														
470	6.57	34.229	.85	2.57	73.	.00	41.7	116.9							



RV DAVID STARR JORDAN

CALCOFI CRUISE 6901

63070

LATITUDE			LONGITUDE			MO/DAY/YR	MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
36 42.5N			123 55.0W			01/24/69	1123 GMT			3976M	120	03KT	2	130 06		
Z	T	S	C2	PC4	SIG3	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	CD	
									0	11.91	32.90		24.999	296.8	0	
									10	11.87	32.90		25.006	296.1	.030	
									20	11.79	32.90		25.021	294.6	.059	
									30	11.78	32.90		25.023	294.5	.089	
									50	11.17	33.10		25.289	269.2	.145	
									75	10.50	33.21		25.493	249.8	.210	
									100	9.35	33.63		26.012	200.4	.267	
									125	8.98	33.77		26.180	184.4	.316	
									150	8.63	33.89		26.329	170.3	.361	
									200	8.27	34.08		26.533	151.0	.443	
									250	7.89	34.11		26.613	143.4	.518	
									300	7.33	34.15		26.725	132.7	.590	
									400	6.48	34.19		26.873	118.7	.721	
									500	5.89	34.22		26.973	109.3	.841	

RV DAVID STARR JORDAN

CALCOFI CRUISE 6901

63080

LATITUDE			LONGITUDE			MO/DAY/YR	MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
36 23.0N			124 38.5W			01/24/69	0634 GMT			4206M	120	06KT	1			
Z	T	S	C2	PC4	SIG3	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	CD	
									0	12.67	32.81		24.785	317.1	0	
									10	12.67	32.81		24.785	317.1	.032	
									20	12.67	32.82		24.793	316.4	.063	
									30	12.67	32.82		24.793	316.4	.095	
									50	12.70	32.86		24.819	314.0	.158	
									75	11.23	33.21		25.364	262.1	.231	
									100	9.32	33.51		25.923	208.9	.290	
									125	8.13	33.83		26.203	182.3	.339	
									150	8.73	33.94		26.352	168.1	.384	
									200	8.10	34.01		26.504	153.8	.466	
									250	7.52	34.05		26.620	142.7	.542	
									300	6.97	34.08		26.720	133.2	.613	
									400	5.97	34.14		26.899	116.2	.743	
									500	5.31	34.20		27.028	104.1	.858	

RV DAVID STARR JORDAN

CALCOFI CRUISE 6901

63090

LATITUDE			LONGITUDE			MO/DAY/YR	MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
36 03.0N			125 19.0W			01/24/69	0204 GMT			4688M	130	20KT	1	110 10		
Z	T	S	O2	PC4	SIG3	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	CD	
									0	12.62	32.75		24.748	320.6	0	
									10	12.62	32.75		24.748	320.6	.032	
									20	12.63	32.75		24.746	320.8	.064	
									30	12.63	32.75		24.746	320.8	.096	
									50	12.55	32.79		24.793	316.4	.160	
									75	10.50	33.13		25.430	255.7	.232	
									100	9.44	33.62		25.990	202.6	.290	
									125	8.85	33.79		26.217	181.0	.338	
									150	8.56	33.94		26.379	165.6	.382	
									200	7.83	34.04		26.567	147.7	.462	
									250	7.28	34.08		26.677	137.3	.535	
									300	6.65	34.11		26.782	127.3	.603	
									400	5.59	34.11		26.923	114.0	.729	
									500	5.12	34.19		27.042	102.7	.842	

RV DAVID STARR JORDAN

CALCOFI CRUISE 6901

67050

LATITUDE			LONGITUDE			MO/DAY/YR	MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
36 48.0N			122 05.0W			01/23/69	0209 GMT			279M	320	06KT	0	220 06		
Z	T	S	O2	PC4	SIG3	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	CD	
									0	12.48	33.23		25.146	282.8	0	
									10	12.51	33.25		25.156	281.8	.028	
									20	12.50	33.30		25.196	278.0	.056	
									30	12.53	33.34		25.221	275.6	.084	
									50	12.53	33.36		25.237	274.1	.139	
									75	12.50	33.37		25.250	272.8	.208	
									100	12.30	33.39		25.304	267.7	.276	
									125	11.96	33.40		25.376	260.9	.343	
									150	11.29	33.47		25.554	243.9	.407	
									200	9.12	33.87		26.236	179.1	.514	
									250	8.24	34.08		26.537	150.6	.599	











RV DAVID STARR JORDAN

CALCOFI CRUISE 6901

73090

LATITUDE		LONGITUDE		MO/DAY/YR	MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
34 18.5N		124 04.0W		01/21/69	0451	GMT		3926M	180	18KT	2	06			
Z	T	S	C2	PC4	S103	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	CD
0	14.23								0	14.23	32.81		24.471	347.0	0
10	14.22								10	14.22	32.81		24.473	346.8	.035
20	14.21								20	14.21	32.80		24.468	347.4	.069
30	13.04								30	13.04	32.84		24.736	321.8	.103
50	12.72								50	12.72	32.90		24.845	311.4	.166
75	12.24								75	12.24	33.02		25.030	293.8	.243
100	11.05								100	11.05	33.16		25.357	262.7	.313
125	10.00								125	10.00	33.34		25.679	232.1	.375
150	9.24								150	9.24	33.61		26.014	200.2	.430
200	8.88								200	8.88	34.03		26.399	163.7	.522
250	8.26								250	8.26	34.08		26.534	150.9	.603
300	7.64								300	7.64	34.14		26.673	137.7	.678
400	6.41								400	6.41	34.18		26.874	118.6	.811
500	5.53								500	5.53	34.21		27.009	105.8	.929

RV DAVID STARR JORDAN

CALCOFI CRUISE 6901

77051

LATITUDE		LONGITUDE		MO/DAY/YR	MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
35 02.0N		120 56.5W		01/20/69	0135	GMT		288M	200	18KT	6	220 09			
Z	T	S	C2	PC4	S103	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	CD
0	13.30								0	13.30	33.40		25.116	285.6	0
10	13.30								10	13.30	33.40		25.116	285.6	.029
20	13.28								20	13.28	33.44		25.151	282.3	.057
30	13.23								30	13.23	33.43		25.153	282.1	.085
50	12.82								50	12.82	33.47		25.265	271.4	.141
75	12.37								75	12.37	33.47		25.353	263.1	.208
100	11.35								100	11.35	33.50		25.559	243.4	.272
125	10.42								125	10.42	33.58		25.794	221.2	.331
150	10.01								150	10.01	33.72		25.973	204.2	.384
200	9.55								200	9.55	33.95		26.229	179.9	.482
250	8.96								250	8.96	34.07		26.418	161.9	.570

RV DAVID STARR JORDAN

CALCOFI CRUISE 6901

77051

LATITUDE		LONGITUDE		MO/DAY/YR	MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
35 02.0N		120 56.5W		01/20/69	0203	GMT		288M	200	18KT	6	220 09			
Z	T	S	C2	PC4	S103	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	CD
0	13.31		5.88	A	A	A	A		0	13.31		5.88			
10	13.29	33.397	5.93					285.7	10	13.29		5.93			
29	13.23	33.421	5.92					282.8	20	13.26		5.92			
43	12.92		5.76						30	13.21		5.91			
52	12.75		5.61						50	12.79		5.65			
66	12.49	33.461	5.37					266.0	75	12.15		4.98			
80	11.96		4.77						100	11.60		4.62			
100	11.60		4.62						125	10.65		4.07			
124	10.69		4.08						150	9.89		3.63			
143	10.03		3.84						200	9.48		2.94			
177	9.61	33.891	2.91					185.2							
206	9.45		2.95												
245	9.04	34.040	2.42					165.3							

RV DAVID STARR JORDAN

CALCOFI CRUISE 6901

77055

LATITUDE		LONGITUDE		MO/DAY/YR	MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
34 54.5N		121 13.0W		01/19/69	2316	GMT		556M	190	20KT	6	220 09			
Z	T	S	C2	PC4	S103	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	CD
0	12.80								0	12.80	33.31		25.146	282.8	0
10	12.80								10	12.80	33.31		25.146	282.8	.028
20	12.75								20	12.75	33.34		25.171	280.4	.056
30	12.82								30	12.82	33.39		25.204	277.3	.084
50	12.76								50	12.76	33.47		25.277	270.3	.139
75	11.68								75	11.68	33.51		25.514	247.8	.205
100	10.15								100	10.15	33.78		25.996	202.0	.261
125	9.85								125	9.85	33.88		26.124	189.8	.311
150	9.69								150	9.69	33.94		26.198	182.8	.358
200	9.37								200	9.37	34.03		26.321	171.1	.448
250	8.99								250	8.99	34.14		26.468	157.2	.533
300	8.30								300	8.30	34.15		26.583	146.2	.611
400	6.61								400	6.61	34.18		26.848	121.1	.750
500	6.12								500	6.12	34.27		26.983	108.3	.871

A) ALTHOUGH 13 NANSEN BOTTLES WERE LOWERED ON THIS STATION, 14 SAMPLES WERE INDICATED ON THE AUTOANALYZER RECORDING WITHOUT ACTION.





RV DAVID STARR JORDAN

CALCOFI CRUISE 6901

77090

LATITUDE		LONGITUDE		PC/DAY/YR	MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
33 43.0N		123 39.0W		01/19/69	0604	GMT		4212M	200	14KT	R	180 06			
Z	T	S	O2	PC4	SI03	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	CD
									0	12.59	33.07		25.001	296.6	0
									10	12.58	33.06		24.995	297.1	.030
									20	12.58	33.06		24.995	297.1	.059
									30	12.57	33.17		25.082	288.8	.089
									50	12.15	33.27		25.240	273.8	.145
									75	11.12	33.36		25.500	249.1	.211
									100	9.70	33.69		26.001	201.4	.268
									125	9.32	33.83		26.173	185.2	.317
									150	8.95	33.94		26.318	171.4	.362
									200	7.93	34.04		26.552	149.1	.444
									250	7.52	34.10		26.659	139.0	.517
									300	7.06	34.12		26.740	131.4	.587
									400	5.99	34.13		26.889	117.2	.716
									500	5.64	34.25		27.027	104.1	.833

RV DAVID STARR JORDAN

CALCOFI CRUISE 6901

80052

LATITUDE		LONGITUDE		PC/DAY/YR	MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
34 24.5N		120 36.5W		01/18/69	0225	GMT		297M	360	08KT	1	330 03			
Z	T	S	O2	PC4	SI03	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	CD
									0	12.95	33.48		25.239	273.9	0
									10	12.98	33.48		25.241	273.7	.027
									20	12.87	33.48		25.263	271.6	.055
									30	12.72	33.47		25.285	269.6	.082
									50	11.79	33.54		25.517	247.5	.134
									75	10.54	33.67		25.843	216.5	.192
									100	10.42	33.70		25.887	212.3	.246
									125	9.96	33.86		26.090	193.0	.297
									150	9.85	33.88		26.118	190.4	.346
									200	9.29	34.05		26.349	168.4	.437
									250	8.78	34.15		26.509	153.3	.520

RV DAVID STARR JORDAN

CALCOFI CRUISE 6901

80052

LATITUDE		LONGITUDE		PC/DAY/YR	MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
34 24.5N		120 36.5W		01/18/69	0313	GMT		297M	360	08KT	1	330 03 08			
Z	T	S	O2	PC4	SI03	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	CD
									0	13.06			6.07		
11	13.02		6.06					275.6	10	13.03			6.06		
31	12.79	33.452	6.07					272.2	20	12.92			6.06		
46	11.90								30	12.80			6.07		
55	11.16		4.47						50	11.55			4.82		
69	10.89		4.18						75	10.75			4.09		
84	10.54		3.94						100	10.27			3.54		
104	10.21	33.763	3.45					204.2	125	9.98			3.25		
129	9.95		3.23						150	9.79			3.04		
149	9.80		3.05						200	9.27			2.55		
183	9.42		2.70						250	8.68			1.88		
213	9.15	34.035	2.43					167.4							
253	8.64	34.119	1.82					153.5							

RV DAVID STARR JORDAN

CALCOFI CRUISE 6901

80055

LATITUDE		LONGITUDE		PC/DAY/YR	MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
34 19.0N		120 48.0W		01/18/69	0526	GMT		815M	320	04KT	0	00			
Z	T	S	O2	PC4	SI03	NO2	NO3	DT	Z	T	S	O2	SIGT	DT	CD
									0	13.33	33.49		25.179	279.6	0
									10	13.24	33.49		25.197	277.9	.028
									20	13.14	33.49		25.217	276.0	.056
									30	13.01	33.50		25.251	272.8	.083
									50	12.80	33.49		25.285	269.6	.138
									75	11.82	33.47		25.457	253.2	.203
									100	10.10	33.69		25.934	207.8	.261
									125	9.79	33.91		26.158	186.6	.311
									150	9.53	34.01		26.279	175.1	.357
									200	8.93	34.17		26.501	154.0	.441
									250	8.77	34.21		26.557	148.7	.519
									300	8.57	34.23		26.604	144.2	.595
									400	7.59	34.28		26.790	126.6	.736
									500	6.29	34.22		26.921	114.1	.863

A) ALTHOUGH 13 NANSEN BOTTLES WERE LOWERED ON THIS STATION, 11 SAMPLES WERE INDICATED ON THE AUTOMANALYZER RECORDING WITHOUT NOTATION.

RV DAVID STARR JORDAN CALCOFI CRUISE 6901 R0060

Table with columns: LATITUDE, LONGITUDE, MC/DAY/YR, MESSENGER TIME, BOTTOM, WIND, SPEED, WEATHER, DOMINANT WAVES. Includes depth data from 0 to 500 meters.

RV DAVID STARR JORDAN CALCOFI CRUISE 6901 R0060

Table with columns: LATITUDE, LONGITUDE, MC/DAY/YR, MESSENGER TIME, BOTTOM, WIND, SPEED, WEATHER, DOMINANT WAVES. Includes depth data from 0 to 561 meters.

RV DAVID STARR JORDAN CALCOFI CRUISE 6901 R0070

Table with columns: LATITUDE, LONGITUDE, MC/DAY/YR, MESSENGER TIME, BOTTOM, WIND, SPEED, WEATHER, DOMINANT WAVES. Includes depth data from 0 to 500 meters.

RV DAVID STARR JORDAN CALCOFI CRUISE 6901 R0080

Table with columns: LATITUDE, LONGITUDE, MC/DAY/YR, MESSENGER TIME, BOTTOM, WIND, SPEED, WEATHER, DOMINANT WAVES. Includes depth data from 0 to 500 meters.



## RV DAVID STARR JORDAN

## CALCOFI CRUISE 6901

83043

LATITUDE		LONGITUDE		MC/DAY/YR	MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
34 11.0N		119 34.0W		01/17/69	1800 GMT				214M	270	06KT	1	00		
Z	T	S	C2	PC4	SI03	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	CD
									0	14.54	33.48		24.921	304.2	0
									10	14.46	33.48		24.938	302.6	.030
									20	14.44	33.48		24.942	302.2	.061
									30	14.16	33.46		24.986	298.0	.091
									50	13.38	33.44		25.131	284.2	.149
									75	12.09	33.51		25.437	255.1	.217
									100	11.44	33.60		25.628	236.9	.279
									125	10.94	33.75		25.835	217.3	.336
									150	10.37	33.83		25.997	201.9	.389

## RV DAVID STARR JORDAN

## CALCOFI CRUISE 6901

P3043

LATITUDE		LONGITUDE		MC/DAY/YR	MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
34 11.0N		119 34.0W		01/17/69	1832 GMT				214M	270	06KT	1	00			
Z	T	S	C2	PC4	SI03	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	DD	
									0	14.46	33.466		6.02	24.912	305.1	0
									10	14.43	33.466		6.07	24.918	304.4	.030
									30	13.98	33.474		6.04	24.968	299.7	.061
									41	13.65	33.474		5.95	25.034	293.4	.090
									55	12.99	33.440		5.62	25.149	282.5	.148
									69	12.39	33.461		4.64	25.406	258.0	.216
									83	11.65	33.610		3.77	25.658	234.0	.278
									102	11.29	33.629		3.38	25.864	214.5	.335
									127	10.58	33.826		3.13	26.023	199.4	.387
									152	10.18	33.835					

## RV DAVID STARR JORDAN

## CALCOFI CRUISE 6901

83051

LATITUDE		LONGITUDE		MC/DAY/YR	MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
33 52.0N		120 08.5W		01/17/69	1155 GMT				131M	310	01KT	0	310		
Z	T	S	C2	PC4	SI03	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	DD
									0	13.56	33.48		25.125	284.8	0
									10	13.46	33.46		25.130	284.3	.028
									20	12.95	33.49		25.255	272.4	.056
									30	12.83	33.49		25.279	270.1	.084
									50	12.28	33.47		25.370	261.5	.137
									75	11.11	33.59		25.680	232.0	.199
									100	10.22	33.75		25.960	205.3	.254

## RV DAVID STARR JORDAN

## CALCOFI CRUISE 6901

83055

LATITUDE		LONGITUDE		MC/DAY/YR	MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
33 45.0N		120 08.5W		01/17/69	0903 GMT				888M	310	02KT	0	310		
Z	T	S	C2	PC4	SI03	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	DD
									0	13.25	33.47		25.180	279.5	0
									10	13.25	33.47		25.180	279.5	.028
									20	13.25	33.47		25.180	279.5	.056
									30	13.22	33.45		25.171	280.4	.084
									50	11.64	33.39		25.428	255.9	.138
									75	10.47	33.59		25.793	221.2	.198
									100	9.64	33.84		26.128	189.4	.250
									125	9.28	33.94		26.265	176.4	.296
									150	8.86	34.03		26.402	163.4	.339
									200	8.50	34.17		26.568	147.7	.418
									250	8.38	34.24		26.641	140.7	.493
									300	8.11	34.27		26.706	134.6	.564
									400	7.40	34.29		26.825	123.3	.699
									500	6.62	34.30		26.941	112.3	.823

RV DAVID STARR JORDAN

CALCOFI CRUISE 6901

83060

LATITUDE		LONGITUDE		MC/DAY/YR	MESSENGER TIME					BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
33 34.0N		120 45.0W		01/17/69	0539 GMT					556M	C60	08KT	0	270		
Z	T	S	O2	PC4	SI03	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	DD	
									0	13.29	33.47		25.172	200.3	0	
									10	13.26	33.47		25.178	279.7	.028	
									20	13.27	33.47		25.176	279.9	.056	
									30	13.27	33.47		25.176	279.9	.084	
									50	12.81	33.37		25.190	278.6	.140	
									75	11.29	33.38		25.485	250.6	.207	
									100	9.92	33.62		25.910	210.1	.265	
									125	9.25	33.88		26.223	180.4	.314	
									150	8.90	34.03		26.396	164.0	.358	
									200	8.28	34.15		26.586	145.9	.437	
									250	7.88	34.20		26.685	136.6	.509	
									300	7.55	34.28		26.790	126.6	.578	
									400	6.81	34.29		26.907	115.5	.704	
									500	6.36	34.32		26.991	107.5	.822	

RV DAVID STARR JORDAN

CALCOFI CRUISE 6901

83060

LATITUDE		LONGITUDE		MC/DAY/YR	MESSENGER TIME					BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
33 34.0N		120 45.0W		01/17/69	0614 GMT					556M	C60	08KT	0	270		
Z	T	S	O2	PC4	SI03	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	DD	
0	13.35		5.98	.53	11.0	.12	1.7		0	13.35		5.98				
10	13.27	33.453	6.07	.45	6.	.09	1.8	281.2	10	13.27		6.07				
30	13.26	33.442	6.15	.41	6.	.11	3.0	281.8	20	13.26		6.11				
40	13.15		5.98	.37	6.	.12	2.7		30	13.26		6.15				
49	12.61		5.61	.69	8.	.21	5.5		50	12.50		5.54				
63	11.01		4.66	1.26	15.	.07	13.9		75	10.35		4.41				
79	10.22		4.37	1.35	18.	.03	17.5		100	9.80		3.88				
98	9.85	33.660	3.93	1.51	26.	.06	21.7	206.0	125	9.25		3.41				
122	9.28		3.43	1.84	34.	.06	24.8		150	9.01		3.16				
142	9.11		3.29	1.88	35.	.02	26.6		200	8.34		2.61				
171	8.72		2.80	2.08	44.	.03	28.8		250	7.91		1.69				
200	8.34		2.61	2.20	44.	.06	31.8		300	7.56		1.29				
230	8.11		1.95	2.33	53.	.04	32.8		400	6.78		.80				
269	7.73		1.52	2.53	59.	.04	35.4		500	6.23		.57				
327	7.42	34.272	1.13	2.73	60.	.06	37.2	124.7								
401	6.77	34.292	.80	2.77	68.	.00	39.0	114.8								
475	6.38		.62	2.82	73.	.00	40.5									
553	5.89		.47	2.90	81.	.01	42.3									

RV DAVID STARR JORDAN

CALCOFI CRUISE 6901

83070

LATITUDE		LONGITUDE		MC/DAY/YR	MESSENGER TIME					BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
33 14.5N		121 26.0W		01/17/69	0050 GMT					3737M	320	06KT	2	310 03		
Z	T	S	O2	PC4	SI03	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	DD	
									0A	13.54	33.10		24.836	312.3	0	
									10A	13.53	33.10		24.838	312.1	.031	
									20A	13.40	33.08		24.849	311.0	.062	
									30A	13.10	33.15		24.963	300.2	.093	
									50	12.90	33.14		24.995	297.2	.153	
									75	11.04	33.06		25.281	269.9	.224	
									100	9.73	33.45		25.809	219.7	.286	
									125	9.26	33.65		26.042	197.6	.339	
									150	8.87	33.85		26.260	176.9	.386	
									200	8.42	34.08		26.510	153.2	.470	
									250	7.99	34.24		26.700	135.1	.544	
									300	7.54	34.25		26.774	128.1	.612	
									400	6.81	34.32		26.931	113.2	.738	
									500	6.33	34.33		27.003	106.4	.855	

A) THE VALUES ABOVE 50 METERS HAVE BEEN DIGITIZED FROM THE ANALOG RECORDING.









## RV DAVID STARR JORDAN

## CALCOFI CRUISE 6901

90028

LATITUDE		LONGITUDE		MC/DAY/YR	MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
33 28.5N		117 46.5W		01/12/69	1930 GMT				400M		00KT	2	060 01		
Z	T	S	C2	PC4	SI03	NC2	NC3	DT	Z	T	S	02	SIGT	DT	DD
0	14.52	33.495	6.01	A	A	A	A	302.7	0	14.52			6.01		
10	14.49	33.495	6.04					302.1	10	14.49			6.04		
29	14.36		6.17						20	14.45			6.13		
44	14.02		5.97						30	14.34			6.16		
58	13.51		5.75						50	13.81			5.90		
72	12.98		5.18						75	12.92			5.09		
86	12.70		4.78						100	12.25			4.43		
105	12.07		4.30						125	11.35			3.62		
130	11.16		3.46						150	10.29			3.12		
158	9.99	33.879	3.04					192.1	200	9.49			2.73		
192	9.59		2.87						250	8.92			2.24		
226	9.16		2.30												
260	8.84	34.131	2.22					155.6							
298	8.60	34.184	1.71					148.1							

## RV DAVID STARR JORDAN

## CALCOFI CRUISE 6901

90032

LATITUDE		LONGITUDE		MC/DAY/YR	MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
33 20.5N		118 03.0W		01/12/69	1619 GMT				741M		00KT	2	030 01		
Z	T	S	C2	PC4	SI03	NC2	NC3	DT	Z	T	S	02	SIGT	DT	DD
10				.41	2.	.02	.0		0	14.79	33.54		24.914	304.9	0
20				.53	3.	.10	.0		10	14.75	33.54		24.914	304.9	.031
30				.53	4.	.16	.2		20	14.78	33.54		24.916	304.7	.061
50				.32	6.	.43	2.8		30	14.58	33.54		24.959	300.6	.091
70				1.63U	9.	.11	6.8		50	14.11	33.50		25.027	294.1	.151
100				1.63	13.	.06	12.4		75	13.15	33.51		25.231	274.7	.223
130				1.96	22.	.05	18.7		100	11.52	33.46		25.505	248.7	.288
170				2.16	31.	.00	23.6		125	11.04	33.71		25.786	221.9	.348
200				2.41	36.	.02	25.3		150	10.59	33.89		26.005	201.1	.402
230				2.61	37.	.00	26.5		200	9.81	34.17		26.357	167.7	.496
260				2.73	41.	.03	28.6		250	9.21	34.22		26.495	154.6	.578
300				2.73	44.	.00	29.5		300	8.53	34.22		26.602	144.4	.656
									400	7.63	34.30		26.800	125.6	.797
									500	6.74	34.32		26.940	112.3	.923

## RV DAVID STARR JORDAN

## CALCOFI CRUISE 6901

90037

LATITUDE		LONGITUDE		MC/DAY/YR	MESSENGER TIME				BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
33 11.0N		118 22.5W		01/12/69	1210 GMT				1202M	360	00KT	0	070 01		
Z	T	S	02	PC4	SI03	NC2	NC3	DT	Z	T	S	02	SIGT	DT	DD
									0	14.98	33.55		24.880	308.1	0
									10	14.98	33.54		24.873	308.8	.031
									20	14.98	33.54		24.873	308.8	.062
									30	14.95	33.53		24.871	308.9	.093
									50	14.16	33.50		25.017	295.1	.153
									75	12.00	33.45		25.408	257.9	.223
									100	10.82	33.53		25.685	231.5	.285
									125	10.18	33.81		26.014	200.2	.339
									150	9.96	34.01		26.207	181.9	.388
									200	9.77	34.26		26.434	160.4	.475
									250	9.32	34.33		26.563	148.1	.554
									300	8.83	34.29		26.610	143.6	.630
									400	7.46	34.28		26.809	124.8	.770
									500	6.67	34.31		26.942	112.2	.896

A) ALTHOUGH 14 NANSEN BOTTLES WERE LOWERED ON THIS STATION, 18 SAMPLES WERE INDICATED ON THE AUTOANALYZER RECORDING WITHOUT NOTATION.



RV DAVID STARR JORDAN

CALCOFI CRUISE 6901

90060

Table with columns: LATITUDE, LONGITUDE, MC/DAY/YR, MESSENGER TIME, BOTTOM, WIND, SPEED, WEATHER, DOMINANT WAVES. Includes depth profile data from 0 to 565 meters.

RV DAVID STARR JORDAN

CALCOFI CRUISE 6901

90070

Table with columns: LATITUDE, LONGITUDE, MC/DAY/YR, MESSENGER TIME, BOTTOM, WIND, SPEED, WEATHER, DOMINANT WAVES. Includes depth profile data from 0 to 500 meters.

RV DAVID STARR JORDAN

CALCOFI CRUISE 6901

90080

Table with columns: LATITUDE, LONGITUDE, MC/DAY/YR, MESSENGER TIME, BOTTOM, WIND, SPEED, WEATHER, DOMINANT WAVES. Includes depth profile data from 0 to 500 meters.

RV DAVID STARR JORDAN

CALCOFI CRUISE 6901

90080

Table with columns: LATITUDE, LONGITUDE, MC/DAY/YR, MESSENGER TIME, BOTTOM, WIND, SPEED, WEATHER, DOMINANT WAVES. Includes depth profile data from 0 to 569 meters.

















## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

97060

LATITUDE		LONGITUDE		MC/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
31 15.5N		119 10.0W		01/15/69		2037 GMT			3699M	310	12KT	1	320 04 10		
Z	T	S	C2	PC4	S103	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	CD
									0A	15.39	33.57		24.806	315.1	0
									10	15.36	33.58		24.820	313.8	.031
									20	15.33	33.58		24.827	313.1	.063
									30	15.15	33.55		24.843	311.6	.094
									50	14.48	33.54		24.980	298.6	.155
									75	11.91	33.53		25.486	250.4	.224
									100	11.20	33.68		25.734	226.9	.285
									125	10.48	33.86		26.001	201.5	.339
									150	10.02	34.03		26.212	181.4	.387
									200	9.53	34.21		26.435	160.3	.475
									250	8.47	34.13		26.541	150.2	.554
									300	8.12	34.22		26.665	138.5	.629
									400	7.24	34.30		26.856	120.4	.764
									500	6.18	34.31		27.007	106.0	.884

## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

97060

LATITUDE		LONGITUDE		MC/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
31 15.5N		119 10.0W		01/15/69		2156 GMT			3699M	310	12KT	1	320 04 10		
Z	T	S	O2	PC4	S103	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	CD
1	15.44	33.581	5.88	.74U	2.	.10	.0	315.4	0	15.44		5.88			
11	15.38	33.581	5.87	.6CU	2.	.00	.0	314.1	10	15.39		5.87			
31	15.18		5.90	.46	2.	.00	.0		20	15.34		5.89			
41	14.84		5.86	.38	2.	.03	.0		30	15.20		5.90			
56	13.60		5.37	.74	5.	.14	4.3		50	14.17		5.62			
71	11.92	33.516	4.55	1.08	11.	.05	11.6	251.6	75	11.74		4.38			
96	11.29		3.64	2.22U	19.	.01	18.0		100	11.12		3.52			
116	10.45			2.32U	27.	.00	23.6		125	10.23		2.94			
135	10.07		2.78	2.36U	30.	.00	25.3		150	9.94		2.63			
155	9.91		2.58	2.16	33.	.01	26.5		200	9.37		2.19			
185	9.69		2.16	2.50	36.	.00	28.2		250	8.36		2.33			
220	8.88		2.45U	2.20	40.	.01	29.4		300	8.19		1.58			
250	8.36		2.33	2.42	44.	.00	30.6		400	7.27		.84			
302	8.18		1.54	2.66	51.	.00	33.6		500	6.24		.57			
356	7.83		1.03	2.96	57.	.04	35.3		600	5.55		.43			
440	6.73		.75	3.16	69.	.00	39.4								
526	6.07	34.301	.51	3.34	77.	.00	41.2	105.4							
609	5.49	34.330	.43	3.42	84.	.01	43.4	96.4							

## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

97070

LATITUDE		LONGITUDE		MC/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
30 52.0N		119 33.0W		01/16/69		0318 GMT			3641M	350	06KT	2	320 04 10		
Z	T	S	C2	PC4	S103	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	CD
									0	15.04	33.32		24.691	326.1	0
									10	15.04	33.32		24.691	326.1	.033
									20	15.06	33.43		24.771	318.5	.065
									30	15.42	33.53		24.769	318.7	.097
									50	15.05	33.46		24.796	316.1	.161
									75	11.82	33.22		25.263	271.6	.234
									100	10.90	33.50		25.648	235.1	.298
									125	9.32	33.52		25.931	208.1	.354
									150	9.17	33.84		26.205	182.1	.404
									200	8.55	33.98		26.412	162.5	.491
									250	8.02	34.15		26.625	142.2	.570
									300	7.65	34.17		26.689	136.1	.641
									400	6.74	34.23		26.870	119.0	.775
									500	5.97	34.29		27.018	105.0	.893

A) THE DATA FOR THIS LOWERING WERE NOT RECORDED BY THE DIGITAL DATA LOGGER. THE TABULATED VALUES WERE DIGITIZED FROM THE ANALOG RECORDING AND THE SAME CALIBRATION CORRECTION APPLIED.







## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

100080

LATITUDE		LONGITUDE		MC/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
29 56.0N		120 07.5W		01/17/69		0321 GMT			3992M	310	07KT	2			
Z	T	S	O2	PC4	SIG3	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	DD
1	15.04	33.330	5.94	.90	1.	.11	.1	325.4	C	15.04		5.94			
11	15.01	33.326	5.99	.36	1.	.02	.0	325.1	10	15.01		5.99			
31	15.27		6.01	.54	1.	.03	.0		20	15.17		6.00			
41	14.97		5.97	.32	1.	.03	.0		30	15.27		6.01			
50	14.35	33.250	5.99	.40	1.	.05	.5	317.2	50	14.35		5.99			
65	13.23		5.80	.74	3.	.09	2.2		75	12.28		5.77			
80	11.86		5.76	.66	4.	.05	4.6		100	11.35		4.69			
100	11.39		4.69	1.04	10.	.04	11.3		125	10.50		4.12			
124	10.54		4.14	1.62	17.	.01	16.5		150	9.65		3.70			
144	9.83		3.80	1.74	22.	.01	20.4		200	8.74		3.18			
174	9.09		3.36	1.92	29.	.00	24.1		250	7.92		2.92			
203	8.71		3.17	1.74	34.	.03	25.7		300	7.18		2.35			
234	8.20		3.02	2.14	38.	.04	27.0		400	6.47		1.21			
274	7.52		2.71	2.30	46.	.06	29.5		500	5.87		.64			
333	6.85	34.075	1.86	2.68	56.	.00	33.0	132.0							
407	6.44	34.182		3.02	65.	.04	36.0	118.8							
482	5.97		.72	3.22	72.	.01	37.3								
561	5.54		.46	3.28	79.	.04	38.2								

## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

100090

LATITUDE		LONGITUDE		MC/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
29 36.0N		120 48.5W		01/16/69		1936 GMT			3926M	330	06KT	2	350 03 07		
Z	T	S	O2	PC4	SIG3	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	DD
									C	16.63	33.71		24.632	331.7	0
									10	16.56	33.71		24.649	330.1	.033
									20	16.45	33.70		24.657	329.3	.066
									30	16.44	33.69		24.661	328.9	.099
									50	15.53	33.47		24.678	325.4	.165
									75	14.42	33.40		24.885	307.6	.244
									100	11.46	33.09		25.229	274.9	.318
									125	11.02	33.55		25.665	233.4	.382
									150	10.53	33.88		26.008	220.8	.437
									200	10.07	34.24		26.367	166.7	.531
									250	9.57	34.31		26.506	153.5	.613
									300	7.72	34.29		26.678	142.0	.690
									400	7.47	34.30		26.823	123.5	.828
									500	6.74	34.33		26.948	111.6	.953

## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

103030

LATITUDE		LONGITUDE		MC/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
31 06.0N		116 24.5W		01/19/69		1655 GMT			65M	260	05KT	1			
Z	T	S	O2	PC4	SIG3	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	DD
									0	14.90	33.55		24.898	306.4	0
									10	14.85	33.55		24.900	306.2	.031
									20	14.87	33.56		24.912	305.1	.061
									30	14.84	33.56		24.918	304.4	.092
									50	14.15	33.58		25.080	289.0	.151

## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

103030

LATITUDE		LONGITUDE		MC/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
31 06.0N		116 24.5W		01/19/69		1735 GMT			65M	260	05KT	1			
Z	T	S	O2	PC4	SIG3	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	DD
1	14.98	33.571	5.96	.44	5.	.01	.0	306.5	0	14.98	33.571	5.96	24.896	306.5	0
11	14.86	33.570	5.92	.42	5.	.02	.0	304.1	10	14.87	33.571	5.92	24.920	304.2	.031
21	14.85	33.565	5.88	.38	5.	.01	.0	304.3	20	14.85	33.566	5.88	24.920	304.3	.061
31	14.82	33.571	5.92	.36	5.	.08	.3	303.2	30	14.82	33.571	5.92	24.930	303.3	.091
51	14.11	33.590	4.80	.76	14.	.72	4.8	287.5	50	14.17	33.589	4.89	25.084	288.7	.151

## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

103035

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
30 56.5N		116 45.0W		01/19/69		2018 GMT			1821M	160	05KT	1	190 02 12		
Z	T	S	C2	PC4	SI03	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	DD
0									0	15.85	33.644		24.757	319.8	0
10									10	15.76	33.64		24.777	317.9	.032
20									20	15.74	33.64		24.782	317.4	.064
30									30	15.70	33.64		24.791	316.6	.095
50									50	15.01	33.48		24.820	313.8	.159
75									75	12.97	33.67		25.390	259.6	.231
100									100	12.06	33.81		25.675	232.5	.293
125									125	11.43	33.94		25.893	211.7	.349
150									150	11.04	34.11		26.096	192.5	.400
200									200	9.79	34.27		26.438	160.0	.490
250									250	9.33	34.30		26.538	150.5	.570
300									300	8.96	34.36		26.644	140.4	.646
400									400	7.93	34.35		26.795	126.1	.785
500									500	7.13	34.39		26.942	112.2	.912

## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

103035

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
30 56.5N		116 45.0W		01/19/69		2104 GMT			1821M	160	05KT	1	190 02 12		
Z	T	S	C2	PC4	SI03	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	DD
0	16.11	33.663	5.76	.46	2.	.02	.0	323.7	0	16.11			5.76		
10	15.77	33.661	5.72	.30	2.	.03	.0	316.5	10	15.77			5.72		
30	15.75		5.74	.30	2.	.03	.1		20	15.76			5.73		
39	15.56		5.64	.34	2.	.16	.1		30	15.75			5.74		
63	13.50	33.65	4.18	1.00	12.	.08	9.1	271.4	50	14.66			5.01		
78	13.03		3.84	1.16	14.	.05	11.4		75	13.11			3.90		
97	12.13		2.97	1.58	21.	.04	15.9		100	12.03			2.89		
122	11.45		2.46	1.92	26.	.04	20.1		125	11.39			2.40		
141	11.10		2.11	2.12	30.	.06	23.3		150	10.94			1.99		
171	10.56		1.79	2.32	34.	.05	25.3		200	10.06			1.72		
200	10.06		1.72	2.38	37.	.07	26.5		250	9.32			1.52		
229	9.49		1.77	2.42	33.	.04	27.1		300	9.03			.98		
269	9.23		1.24	2.60	44.	.04	28.4		400	7.71			.85		
328	8.79		.85	2.76	49.	.05	30.1		500	7.05			.51		
401	7.70		.85	2.94	57.	.03	33.0								
475	7.37	34.366	.54	3.10	62.	.04	34.5	117.2							
551	6.25	34.329	.45	3.22	72.	.03	38.9	105.5							

## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

103040

LATITUDE		LONGITUDE		MO/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
30 46.0N		117 04.5W		01/20/69		0021 GMT			1781M	170	08KT	1	190 02 07		
Z	T	S	O2	PC4	SI03	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	DD
0									0	15.50	33.588		24.789	316.7	0
10									10	15.45	33.58		24.800	315.7	.032
20									20	15.32	33.56		24.814	314.4	.063
30									30	15.26	33.55		24.819	313.9	.095
50									50	15.06	33.55		24.863	309.7	.157
75									75	13.49	33.48		25.139	283.4	.232
100									100	11.36	33.73		25.743	226.0	.296
125									125	10.56	33.76		25.909	210.2	.351
150									150	10.27	33.89		26.061	195.8	.403
200									200	9.75	34.09		26.305	172.6	.497
250									250	9.15	34.19		26.475	156.5	.581
300									300	8.44	34.19		26.593	145.3	.659
400									400	6.98	34.21		26.821	123.6	.799
500									500	6.50	34.32		26.973	109.3	.922

- A) A CORRECTION OF 0.23‰ HAS BEEN APPLIED TO THE SALINITY VALUES AT ALL DEPTHS FOR THIS LOWERING. NOTE THE STANDARD PROCEDURES IN THE INTRODUCTION PAGE 5.
- B) A CORRECTION OF 0.12‰ HAS BEEN APPLIED TO THE SALINITY VALUES AT ALL DEPTHS FOR THIS LOWERING. NOTE THE STANDARD PROCEDURES IN THE INTRODUCTION PAGE 5.





RV ALEXANDER AGASSIZ

CALCOFI CRUISE 6901

103080

Z	T	S	C2	PC4	S103	NC2	NO3	DT	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES				
									3737M	180	15KT	5	SIGT	DT	CD		
									0	16.74	33.69		24.592	335.6		0	
									10	16.74	33.69		24.592	335.6		.034	
									20	16.65	33.69		24.612	333.6		.067	
									30	15.72	33.48		24.664	328.7		.100	
									50	15.46	33.56		24.783	317.3		.165	
									75	14.98	33.49		24.834	312.4		.244	
									100	11.77	33.42		25.427	256.0		.316	
									125	10.46	33.67		25.857	215.2		.375	
									150	9.78	33.77		26.050	196.8		.428	
									200	9.08	33.97		26.321	171.1		.521	
									250	8.37	34.04		26.486	155.4		.605	
									300	7.73	34.13		26.652	139.7		.681	
									400	6.71	34.20		26.850	120.9		.817	
									500	6.30	34.31		26.991	107.5		.937	

RV ALEXANDER AGASSIZ

CALCOFI CRUISE 6901

107032

Z	T	S	C2	PC4	S103	NC2	NO3	DT	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES				
									408M	310	08KT	1	280 08 09	DT	CD		
									0	15.87	33.57		24.699	325.3		0	
									10	15.79	33.58		24.725	322.9		.032	
									20	15.73	33.58		24.738	321.6		.065	
									30	15.54	33.58		24.780	317.6		.097	
									50	15.00	33.50		24.838	312.1		.160	
									75	13.05	33.53		25.266	271.3		.233	
									100	11.91	33.64		25.572	242.3		.298	
									125	10.40	33.78		25.953	206.1		.355	
									150	10.47	34.08		26.174	185.1		.404	
									200	10.27	34.24		26.333	170.0		.495	
									250	9.87	34.32		26.464	157.6		.579	

RV ALEXANDER AGASSIZ

CALCOFI CRUISE 6901

107035

Z	T	S	C2	PC4	S103	NC2	NO3	DT	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES				
									1720M	C20	07KT	1	290 08 06	DT	CD		
									0	15.57	33.54		24.743	321.1		0	
									10	15.57	33.55		24.751	320.4		.032	
									20	15.57	33.55		24.751	320.4		.064	
									30	15.53	33.55		24.760	319.5		.096	
									50	14.83	33.40		24.738	315.9		.160	
									75	12.16	33.47		25.393	259.3		.232	
									100	11.24	33.59		25.656	234.2		.295	
									125	10.52	33.78		25.932	208.0		.350	
									150	10.15	33.96		26.136	188.7		.401	
									200	9.72	34.16		26.364	167.0		.491	
									250	9.09	34.20		26.499	154.2		.574	
									300	8.80	34.29		26.615	143.2		.651	
									400	7.64	34.32		26.814	124.3		.791	
									500	6.88	34.32		26.921	114.1		.917	

RV ALEXANDER AGASSIZ

CALCOFI CRUISE 6901

107040

Z	T	S	C2	PC4	S103	NC2	NO3	DT	BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES				
									1931M	340	16KT		SIGT	DT	CD		
									0	16.07	33.54		24.631	331.8		0	
									10	16.05	33.54		24.635	331.4		.033	
									20	15.93	33.56		24.678	327.3		.066	
									30	15.35	33.44		24.730	322.3		.099	
									50	14.48	33.41		24.880	308.1		.162	
									75	12.98	33.38		25.164	281.0		.236	
									100	11.43	33.47		25.529	246.4		.302	
									125	10.33	33.63		25.848	216.0		.361	
									150	10.25	33.89		26.064	195.5		.413	
									200	9.70	34.12		26.336	169.6		.506	
									250	9.05	34.23		26.528	151.4		.589	
									300	8.55	34.27		26.638	141.0		.664	
									400	7.60	34.29		26.796	126.0		.804	
									500	6.76	34.31		26.930	113.3		.931	















## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

117035

LATITUDE		LONGITUDE		MO/DAY/YR	MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
28 38.0N		115 16.5W		01/27/69	1707 GMT			205M	330	16KT	1	330 02 04			
Z	T	S	C2	PC4	S103	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	CD
									0	16.62	33.64		24.581	336.5	0
									10	16.61	33.64		24.584	336.3	.034
									20	16.57	33.65		24.600	334.7	.067
									30	16.41	33.66		24.645	330.5	.101
									50	16.05	33.65		24.711	324.2	.166
									75	14.00	33.65		25.165	280.9	.242
									100	12.12	33.90		25.733	226.9	.306
									125	11.35	34.08		26.009	200.7	.361
									150	10.85	34.18		26.185	184.1	.409

## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

117040

LATITUDE		LONGITUDE		MO/DAY/YR	MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
28 28.0N		115 35.5W		01/28/69	0312 GMT			929M	320	13KT		310 04 07			
Z	T	S	C2	PC4	S103	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	CD
									0	16.30	33.71		24.709	324.4	0
									10	16.28	33.71		24.713	324.0	.032
									20	15.03	33.70		24.762	319.3	.065
									30	15.94	33.73		24.806	315.2	.096
									50	15.56	33.73		24.891	307.0	.159
									75	13.57	33.72		25.308	267.4	.231
									100	11.70	33.81		25.743	226.0	.293
									125	11.21	34.08		26.042	197.6	.347
									150	11.14	34.31		26.233	179.4	.395
									200	10.37	34.40		26.440	159.8	.482
									250	9.73	34.43		26.573	147.2	.561
									300	9.15	34.45		26.684	136.6	.635
									400	8.24	34.42		26.803	125.3	.772
									500	7.04	34.40		26.962	110.3	.897

## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

117050

LATITUDE		LONGITUDE		MO/DAY/YR	MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
28 08.0N		116 15.0W		01/28/69	1000 GMT			4135M	320	06KT					
Z	T	S	C2	PC4	S103	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	CD
									0	17.08	33.80		24.596	335.1	0
									10	17.05	33.80		24.594	335.4	.034
									20	17.10	33.80		24.591	335.6	.067
									30	17.25	33.92		24.647	330.3	.101
									50	16.94	33.90		24.705	324.7	.166
									75	13.86	33.49		25.071	289.9	.244
									100	12.13	33.63		25.522	247.0	.311
									125	10.83	33.72		25.831	217.6	.370
									150	10.46	33.97		26.090	193.0	.422
									200	9.46	34.17		26.415	162.2	.513
									250	9.32	34.33		26.563	148.1	.592
									300	8.94	34.39		26.671	137.9	.667
									400	8.23	34.44		26.821	123.7	.804
									500	6.98	34.41		26.978	108.7	.928

## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

117060

LATITUDE		LONGITUDE		MO/DAY/YR	MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES			
27 47.5N		116 53.5W		01/28/69	1535 GMT			3319M	330	11KT	2	300 04 10			
Z	T	S	C2	PC4	S103	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	CD
									0	17.00	33.74		24.569	337.7	0
									10	17.01	33.74		24.567	337.9	.034
									20	17.00	33.74		24.569	337.7	.068
									30	16.81	33.73		24.606	334.2	.101
									50	16.36	33.69		24.679	327.2	.168
									75	14.47	33.50		24.951	301.3	.247
									100	12.38	33.49		25.366	261.8	.318
									125	11.17	33.69		25.747	225.6	.379
									150	10.49	33.84		25.984	203.1	.434
									200	9.39	34.07		26.369	168.5	.528
									250	9.60	34.37		26.548	149.6	.610
									300	8.99	34.42		26.686	136.4	.684
									400	7.90	34.43		26.862	119.7	.819
									500	6.80	34.43		27.019	104.9	.938

## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

117060

LATITUDE	LONGITUDE	MC/DAY/YR	MESSENGER TIME		BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES						
27 47.5N	116 53.5W	01/28/69	1635 GMT		3319M	330	11KT	2	300 04 10						
Z	T	S	C2	PC4	SI03	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	17.08	33.727	5.64	.32	2.	.02	.0	340.5	0	17.08			5.64		
10	17.08	33.726	5.62	.24	2.	.01	.0	340.5	10	17.08			5.62		
30	16.83		5.62	.22	2.	.01	.0		20	16.98			5.62		
39	16.70	33.687	5.65	.20	2.	.00	.0	334.9	30	16.83			5.62		
52	16.37		5.65	.22	2.	.01	.0		50	16.44			5.65		
66	15.61		5.59	.14	2.	.00	.0		75	14.81			5.50		
90	13.29		5.19	.46	6.	.00	2.8		100	12.29			4.86		
109	11.55		4.47	.54	13.	.00	6.6		125	11.11			3.53		
127	11.08		3.43	.96	22.	.00	10.4		150	10.34			3.28		
146	10.44		3.29	1.26	26.	.00	13.9		200	9.62			2.70		
175	9.87		3.24	1.40	29.	.00	16.9		250	9.17			1.75		
208	9.55		2.50	1.80	37.	.00	20.3		300	9.01			.75		
236	9.17		2.12	1.96	42.	.00	22.0		400	7.97			.40		
283	9.17		.91	2.02	50.	2.05	25.4		500	6.90			.26		
334	8.61		.61	2.56	56.	1.40	29.6								
414	7.83		.37	2.94	63.	.05	33.4								
495	6.95	34.402	.26	3.06	72.	.00	36.9	108.9							
575	6.36	34.412	.22	3.14	77.	.38	40.4	100.7							

## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

117070

LATITUDE	LONGITUDE	MC/DAY/YR	MESSENGER TIME		BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES						
27 28.0N	117 32.0W	01/28/69	2201 GMT		3926M	350	06KT	5	340 03 06						
Z	T	S	C2	PC4	SI03	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
									0	17.90	33.89		24.468	347.3	0
									10	17.90	33.89		24.468	347.3	.035
									20	17.90	33.89		24.468	347.3	.070
									30	17.88	33.89		24.473	346.9	.104
									50	17.71	33.88		24.506	343.7	.174
									75	16.36	33.70		24.687	326.5	.258
									100	13.97	33.54		25.087	288.4	.335
									125	12.05	33.53		25.460	252.9	.404
									150	10.91	33.75		25.840	216.8	.463
									200	10.25	34.23		26.329	170.4	.562
									250	9.97	34.43		26.532	151.0	.645
									300	9.41	34.46		26.649	139.9	.720
									400	8.19	34.45		26.834	122.4	.858
									500	7.15	34.44		26.978	108.7	.981

## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

118039

LATITUDE	LONGITUDE	MC/DAY/YR	MESSENGER TIME		BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES						
28 19.0N	115 24.0W	01/27/69	2031 GMT		270M	310	12KT	1	310 03 07						
Z	T	S	C2	PC4	SI03	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
									0	16.50	33.74A		24.686	326.6	0
									10	16.48	33.75		24.698	325.4	.033
									20	16.48	33.81		24.744	321.1	.065
									30	16.64	33.92		24.791	316.6	.097
									50	15.01	33.66		24.974	299.2	.159
									75	12.82	33.66		25.412	257.5	.229
									100	12.12	33.98		25.795	221.1	.289
									125	11.77	34.15		25.993	202.3	.343
									150	11.18	34.26		26.187	183.8	.392
									200	10.36	34.39		26.434	160.4	.480

## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

118039

LATITUDE	LONGITUDE	MC/DAY/YR	MESSENGER TIME		BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES						
28 19.0N	115 24.0W	01/27/69	2100 GMT		270M	310	12KT	1	310 03 07						
Z	T	S	O2	PC4	SI03	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	16.60	33.744	5.66	.34	3.	.00	.0	328.5	0	16.60			5.66		
11	16.55	33.752	5.68	.26	3.	.00	.0	326.8	10	16.56			5.68		
30	16.30		5.22	.40	4.	.11	.0		20	16.43			5.49		
45	15.05	33.682	4.99	.50	6.	.82	2.8	299.9	30	16.30			5.22		
53	14.37		4.53	.76	9.	.06	6.6		50	14.62			4.71		
69	13.18		3.89	.62	14.	.04	11.4		75	12.73			3.83		
84	12.18		3.69	1.18	17.	.15	13.8		100	11.99			2.57		
103	11.95		2.35	1.40	27.	.01	19.5		125	11.61			1.88		
127	11.57		1.87	1.98	32.	.00	21.4		150	11.11			1.59		
147	11.18		1.64	2.22	35.	.01	23.9		200	10.22			1.01		
181	10.46		1.15	2.44	42.	.02	26.4		250	10.01					
211	10.13	34.384	.97	2.50	45.	.06	26.4	157.0							
251	10.01	34.396		2.52	46.	.02	24.9	154.2							

A) A CORRECTION OF 0.17‰ HAS BEEN APPLIED TO THE SALINITY VALUES AT ALL DEPTHS FOR THIS LOWERING. NOTE THE STANDARD PROCEDURES IN THE INTRODUCTION PAGE 5.

## RV ALEXANDR AGASSIZ

## CALCOFI CRUISE 6901

119033

LATITUDE		LONGITUDE		MC/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
28 19.0N		114 53.0W		01/27/69		0829 GMT			104M	300	10KT	4	320 02 05		
Z	T	S	O2	PC4	SIC3	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	DD
									0	16.80	33.69		24.578	336.9	0
									10	16.66	33.73		24.641	330.9	.033
									20	16.57	33.73		24.662	328.9	.066
									30	16.55	33.74		24.674	327.7	.099
									50	16.13	33.70		24.740	321.4	.164
									75	14.30	33.67		25.118	285.4	.241

## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

119033

LATITUDE		LONGITUDE		MC/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
28 19.0N		114 53.0W		01/27/69		0907 GMT			104M	300	10KT	4	320 02 05		
Z	T	S	O2	PC4	SIC3	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	DD
1	16.67	33.764	5.73	.42	3.	.00	.0	328.6	0	16.67	33.764	5.73	24.654	328.6	0
11	16.58	33.762	5.67	.28	3.	.00	.0	326.8	10	16.58	33.761	5.67	24.682	327.0	.033
21	16.58	33.793	5.65	.30	3.	.00	.0	324.5	20	16.58	33.791	5.65	24.705	324.7	.065
31	16.56		5.59	.28	3.	.00	.1		30	16.56	33.799	5.60	24.716	323.7	.098
50	16.06	33.764	5.17	.42	8.	.24	1.6	315.3	50	16.06	33.764	5.17	24.805	315.3	.162
72	14.14	33.693	4.24	.92	11.	.00	8.2	280.6							

## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

120045

LATITUDE		LONGITUDE		MC/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
27 42.5N		115 33.0W		01/27/69		2145 GMT			2190M	340	24KT	1	340 10 06		
Z	T	S	O2	PC4	SIC3	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	DD
									0	16.85	33.90		24.726	322.7	0
									10	16.85	33.90		24.726	322.7	.032
									20	16.85	33.90		24.726	322.7	.065
									30	16.84	33.90		24.729	322.5	.097
									50	16.85	33.90		24.726	322.7	.162
									75	13.27	33.42		25.137	283.6	.238
									100	12.66	33.93		25.652	234.7	.303
									125	11.63	33.93		25.849	216.0	.360
									150	11.15	34.14		26.099	197.1	.412
									200	10.29	34.32		26.392	164.4	.503
									250	9.71	34.40		26.553	149.1	.584
									300	9.32	34.45		26.656	139.3	.659
									400	8.12	34.45		26.845	121.4	.796
									500	7.04	34.42		26.978	108.8	.918

## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

120045

LATITUDE		LONGITUDE		MC/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES		
27 42.5N		115 33.0W		01/27/69		2248 GMT			2190M	340	24KT	1	340 10 06		
Z	T	S	O2	PC4	SIC3	NC2	NC3	DT	Z	T	S	O2	SIGT	DT	DD
1	16.84	33.873	5.56	.36	3.	.03	.0	324.5	0	16.84		5.56			
10	16.83	33.869	5.59	.30	3.	.01	.0	324.5	10	16.83		5.59			
31	16.83		5.57	.30	3.	.04	.0		20	16.83		5.58			
59	16.42	33.772	5.50	.26	3.	.09	.2	322.5	30	16.83		5.57			
70	13.92		5.32	.44	5.	.03	2.9		50	16.55		5.52			
84	13.04		3.78	1.04	14.	.02	12.2		75	13.43		4.81			
99	12.62		3.01	1.44	21.	.00	17.8		100	12.58		3.00			
115	12.00		2.92	1.50	24.	.01	19.6		125	11.50		2.90			
139	10.98		2.88	1.70	27.	.01	21.8		150	11.03		2.37			
159	11.12		1.94	2.12	33.	.01	26.4		200	10.27		1.63			
189	10.44		1.74	2.18	37.	.00	26.7		250	9.74		1.06			
219	10.05		1.41	2.42	42.	.05	29.0		300	9.33		.72			
249	9.75		1.07	2.56	45.	.06	28.9		400	8.07		.39			
299	9.34		.73	2.42	50.	.81	27.9		500	7.06		.28			
355	8.64		.48	2.94	56.	.17	33.0		600	6.08		.24			
438	7.62		.35	3.04	66.	.01	38.7								
523	6.86	34.395	.26	3.14	73.	.00	40.6	108.3							
605	6.03	34.413	.24	3.18	80.	.20	45.8	96.5							

## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

120050

LATITUDE	LONGITUDE	MC/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES				
27 32.5N	115 53.0W	01/29/69		1707	GMT		3907M	360	19KT	2	350 06 06				
Z	T	S	O2	PC4	SI03	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
	0									16.85	33.81		24.658	329.3	0
	10									16.85	33.81		24.658	329.3	.033
	20									16.85	33.81		24.658	329.3	.066
	30									16.86	33.81		24.655	329.5	.099
	50									16.85	33.81		24.658	329.3	.165
	75									16.08	33.74		24.782	317.4	.246
	100									13.01	33.59		25.320	266.2	.320
	125									11.59	33.76		25.724	227.8	.382
	150									11.02	33.96		25.983	203.2	.437
	200									10.53	34.28		26.319	171.3	.533
	250									10.01	34.43		26.526	151.7	.616
	300									9.50	34.51		26.674	137.6	.691
	400									7.75	34.40		26.855	120.4	.826
	500									6.84	34.42		27.006	106.2	.947

## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

120060

LATITUDE	LONGITUDE	MC/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES				
27 19.0N	116 34.0W	01/29/69		0901	GMT		3689M	350	16KT	2					
Z	T	S	O2	PC4	SI03	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
	0									17.11	33.78		24.573	337.3	0
	10									17.12	33.79		24.579	336.8	.034
	20									17.13	33.79		24.576	337.0	.067
	30									16.95	33.75		24.588	335.9	.101
	50									16.73	33.74		24.632	331.7	.168
	75									16.15	33.76		24.772	318.4	.250
	100									13.38	33.53		25.200	277.6	.325
	125									11.74	33.73		25.673	232.6	.389
	150									11.20	34.04		26.013	200.4	.444
	200									10.37	34.22		26.300	173.1	.540
	250									9.15	34.22		26.505	153.7	.624
	300									8.07	34.19		26.649	140.0	.700
	400									7.11	34.26		26.843	121.6	.836
	500									6.91	34.44		27.012	105.6	.957

## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

120060

LATITUDE	LONGITUDE	MC/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES				
27 19.0N	116 34.0W	01/29/69		1012	GMT		3689M	350	16KT	2					
Z	T	S	O2	PC4	SI03	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
1	17.13	33.780	5.55	.50	2.	.04	.0	337.7	0	17.13			5.55		
11	17.14	33.782	5.60	.26	2.	.02	.0	337.8	10	17.14			5.60		
30	17.09		5.62	.28	2.	.02	.0		20	17.12			5.61		
40	16.78		5.63	.28	2.	.02	.0		30	17.09			5.62		
54	16.87	33.774	5.67	.30	2.	.02	.0	332.3	50	16.85			5.66		
68	16.28		5.63	.30	2.	.05	.0		75	15.72			5.47		
93	14.23		4.73	.68	7.	.14	5.1		100	13.92			4.23		
112	13.36		3.48	1.10	15.	.06	9.5		125	12.17			3.41		
132	11.57		3.38	1.38	20.	.06	17.3		150	11.26			2.58		
152	11.23		2.48	1.66	28.	.06	22.5		200	10.04			2.26		
181	10.79		2.18	2.04	33.	.05	25.2		250	8.99			1.93		
215	9.46		2.32	1.92	39.	.05	23.8		300	8.03			1.48		
244	9.11		1.99	2.32	43.	.07	27.4		400	7.13			.65		
293	8.14		1.55	2.56	52.	.09	32.0		500	6.85			.21		
347	7.46		1.04	2.72	60.	.06	34.2								
431	7.02		.48	2.86	68.	.09	34.7								
515	6.80	34.442	.18	2.82	73.	.07	35.5	104.0							
598	6.07	34.412	.25	2.68	81.	.18	29.60	97.1							

## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

120070

LATITUDE	LONGITUDE	MC/DAY/YR		MESSENGER TIME			BOTTOM	WIND	SPEED	WEATHER	DOMINANT WAVES				
26 56.5N	117 13.0W	01/29/69		0244	GMT		3926M	360	12KT	2					
Z	T	S	O2	PC4	SI03	NC2	NO3	DT	Z	T	S	O2	SIGT	DT	DD
	0									17.40	33.80		24.520	342.4	0
	10									17.40	33.80		24.520	342.4	.034
	20									17.41	33.80		24.517	342.6	.069
	30									17.41	33.80		24.517	342.6	.103
	50									17.22	33.76		24.532	341.2	.172
	75									15.99	33.64		24.726	322.8	.255
	100									13.48	33.55		25.195	278.1	.331
	125									11.77	33.56		25.536	245.7	.397
	150									10.69	33.72		25.856	215.3	.455
	200									10.15	34.07		26.221	180.6	.556
	250									9.96	34.13		26.465	157.5	.643
	300									8.96	34.32		26.613	143.4	.721
	400									8.28	34.44		26.813	124.4	.861
	500									7.06	34.41		26.967	109.8	.986

## RV DAVID STARR JORDAN

## CALCOFI CRUISE 69C1

## TEN METER DATA

	Z	T	S	02	PO4	SI03	NO2	NO3	DT
60.050 01/25/69 0158GMT 37 57.5N 122 53.0W BOTTOM 45M WIND 14C 12KT WEATHER 5 DOMINANT WAVES 150 03	10A	11.06	29.553	6.28	1.518	41.8	.478	8.68	529.7
60.055 01/25/69 0522GMT 37 47.0N 123 15.0W BOTTOM 131M WIND 100 11KT WEATHER 5 DOMINANT WAVES 03	10	11.81	33.005	6.16	.67	14.	.24	3.5	287.4
60.065 01/25/69 1110GMT 37 27.0N 123 58.5W BOTTOM 3636M WIND 19C 16KT WEATHER 5 DOMINANT WAVES 170 04	10	11.46	33.157	6.15	.70	10.	.27	4.5	270.1
60.070 01/25/69 1345GMT 37 17.0N 124 21.0W BOTTOM 4014M WIND 21C 11KT WEATHER 5 DOMINANT WAVES 180 04	10	11.35	33.182	6.18	.73	22.	.28	4.6	266.3
60.090 01/25/69 2350GMT 36 37.0N 125 47.0W BOTTOM 4588M WIND 20C 25KT WEATHER 1 DOMINANT WAVES 200 07	10	12.29	32.625	6.17	.12	3.	.00	.6	324.0
63.050 01/24/69 2225GMT 37 23.5N 122 28.0W BOTTOM 30M WIND 14C 14KT WEATHER 4 DOMINANT WAVES 150 03	10	11.74	32.867	6.15	.79	8.	.32	3.4	296.3
63.055 01/24/69 1920GMT 37 13.0N 122 50.0W BOTTOM 260M WIND 19C 10KT WEATHER 2 DOMINANT WAVES 15C 03	10	12.26	32.986	6.18	.45	7.	.12	1.8	296.8
63.065 01/24/69 1404GMT 36 55.0N 123 28.5W BOTTOM 3069M WIND 20C 02KT WEATHER 1 DOMINANT WAVES	10	12.44	32.898	6.10	.42	5.	.05	.6	306.6
63.070 01/24/69 1140GMT 36 42.5N 123 55.0W BOTTOM 3976M WIND 12C 03KT WEATHER 2 DOMINANT WAVES 13C 06	10	11.99	32.927	6.12	.58	5.	.13	2.0	296.3
63.080 01/24/69 0650GMT 36 23.0N 124 38.5W BOTTOM 4206M WIND 12C 06KT WEATHER 1 DOMINANT WAVES	10	12.64	32.837	6.14	.58	4.	.02	.3	314.7
63.090 01/24/69 0222GMT 36 03.0N 125 19.0W BOTTOM 4688M WIND 13C 20KT WEATHER 2 DOMINANT WAVES 110 10	10	12.62	32.790	6.14	.42	4.	.07	.3	317.8

- A) THE TEN METER DATA FOR THE CRUISES IN THIS REPORT WILL INCLUDE THE VALUES FROM THE NANSEN BOTTLE LOWERED WITH THE STD TOGETHER WITH THOSE FROM THE CBLIQUE TOWS.
- B) ON THE RV DAVID STARR JORDAN THE NUTRIENT SAMPLES FROM THE TEN METER NANSEN BOTTLES WERE FROZEN IMMEDIATELY AFTER COLLECTION AND ANALYZED ASHORE AFTER THE CRUISE WAS COMPLETED.

## RV DAVID STARR JORDAN

## CALCOFI CRUISE 6901

## TEN METER DATA

			Z	T	S	02	PO4	SIO3	NO2	NO3	DT				
67.048	01/22/69	1305GMT	36	53.0N	121	56.0W	10	12.13	32.948	6.07	.76	9.	.34	3.6	297.3
	BOTTOM	41M													
	DOMINANT WAVES 220 05														
67.050	01/23/69	0320GMT	36	48.0N	122	05.0W	10	12.48	33.281	5.92	.73	13.	.31	3.3	279.1
	BOTTOM	279M													
	DOMINANT WAVES 220 06														
67.055	01/23/69	0603GMT	36	39.0N	122	26.0W	10	11.95	33.181	6.22	.61	7.	.21	3.0	276.9
	BOTTOM	2083M													
	DOMINANT WAVES 250 04														
67.065	01/23/69	1142GMT	36	18.0N	123	09.0W	10	12.30	33.314	6.08	.64	8.	.19	2.6	273.4
	BOTTOM	3259M													
	DOMINANT WAVES														
67.071	01/23/69	1415GMT	36	05.0N	123	36.0W	10	12.62	32.834	6.20	.39	4.	.01	.3	314.6
	BOTTOM	3683M													
	DOMINANT WAVES														
67.080	01/23/69	1805GMT	35	48.0N	124	17.0W	10	12.93	32.845	6.16	.45	3.	.02	.3	319.5
	BOTTOM	4014M													
	DOMINANT WAVES														
67.090	01/23/69	2140GMT	35	28.0N	124	53.5W	10	12.56	32.743	6.17	.45	4.	.06	.4	320.2
	BOTTOM	4593M													
	DOMINANT WAVES 990 08														
70.051	01/22/69	0800GMT	36	11.5N	121	44.0W	10	12.71	32.773	6.08	.76	12.	.30	3.4	320.7
	BOTTOM	159M													
	DOMINANT WAVES														
70.065	01/21/69	2216GMT	35	43.0N	122	45.0W	10	12.59	33.288	6.11	.52	5.	.20	2.0	280.6
	BOTTOM	1553M													
	DOMINANT WAVES 210 05														
70.070	01/21/69	1920GMT	35	33.0N	123	06.0W	10	12.38	33.237	6.14	.58	5.	.22	2.5	280.5
	BOTTOM	4014M													
	DOMINANT WAVES 240 05														
70.090	01/21/69	0944GMT	34	53.0N	124	30.0W	10	14.38	32.929	5.95	.36	3.	.05	.4	341.4
	BOTTOM	4308M													
	DOMINANT WAVES 07														
73.050	01/20/69	0808GMT	35	37.0N	121	17.0W	10	12.68	33.324	5.92	.64	5.	.21	3.0	279.7
	BOTTOM	93M													
	DOMINANT WAVES 220 06														
73.065	01/20/69	1655GMT	35	08.0N	122	19.0W	10	12.27	33.216	6.08	.61	6.	.15	2.8	280.1
	BOTTOM	4015M													
	DOMINANT WAVES 160 03														



## RV DAVID STARR JORDAN

## CALCOFI CRUISE 6901

## TEN METER DATA

			Z	T	S	02	P04	S103	NO2	NO3	DT
80.090	01/19/69 0139GMT 33 14.0N 123 13.0W BOTTOM 4308M WIND 20KT WEATHER 6 DOMINANT WAVES 230 06		10	14.44		5.92	.33	5.	.01	.3	
83.040	01/17/69 1640GMT 34 14.0N 119 22.0W BOTTOM 22M WIND 070 03KT WEATHER 6 DOMINANT WAVES		10		33.458	6.09	.15	4.	.00	.5	
83.051	01/17/69 1200GMT 33 52.0N 120 08.5W BOTTOM 131M WIND 310 01KT WEATHER 0 DOMINANT WAVES 310		10		33.466	5.76					
83.055	01/17/69 0915GMT 33 45.0N 120 22.0W BOTTOM 888M WIND 310 02KT WEATHER 0 DOMINANT WAVES 310		10	13.29	33.441	6.17					282.5
83.070	01/17/69 0117GMT 33 14.5N 121 26.0W BOTTOM 3737M WIND 320 06KT WEATHER 2 DOMINANT WAVES 310 03		10	13.32	33.096	6.26	.12	4.	.00	.3	308.4
83.080	01/16/69 2045GMT 32 54.0N 122 08.0W BOTTOM 4403M WIND 330 06KT WEATHER 1 DOMINANT WAVES 330 04		10	14.75	33.115	5.89	.12	8.	.03	1.2	335.3
83.090	01/16/69 1604GMT 32 34.5N 122 30.0W BOTTOM 4308M WIND 320 08KT WEATHER 2 DOMINANT WAVES 320		10	14.66	33.129	6.14					332.4
87.033	01/15/69 0538GMT 33 54.0N 118 29.5W BOTTOM 50M WIND 310 13KT WEATHER 1 DOMINANT WAVES 270 02		10	14.20	33.377	5.89	.58	2.	.05	.3	305.0
87.035	01/15/69 0645GMT 33 50.0N 118 37.5W BOTTOM 501M WIND 330 06KT WEATHER 1 DOMINANT WAVES 290 02		20		33.463	5.85					
87.040	01/15/69 1005GMT 33 40.0N 118 58.0W BOTTOM 879M WIND 230 04KT WEATHER 2 DOMINANT WAVES 250 02		20		33.415	6.08					
87.045	01/15/69 1255GMT 33 30.0N 119 19.0W BOTTOM 1701M WIND 320 06KT WEATHER 2 DOMINANT WAVES 320 02		20		33.452	6.04					
87.050	01/15/69 1547GMT 33 20.0N 119 39.5W BOTTOM 75M WIND 330 11KT WEATHER 2 DOMINANT WAVES 330		10	13.44	33.440						285.5
87.055	01/15/69 1755GMT 33 14.0N 120 00.0W BOTTOM 925M WIND 050 10KT WEATHER 2 DOMINANT WAVES 280		10		33.498	6.03					



## RV DAVID STARR JORDAN

## CALCOFI CRUISE 6901

## TEN METER DATA

			Z	T	S	02	P04	S103	NO2	NO3	DT
87.070	01/16/69	0250GMT	32	39.5N	121	02.0W					
	BOTTOM	3545M				WIND 31C	14KT	WEATHER 1			
						DOMINANT WAVES	280				
87.080	01/16/69	0700GMT	32	19.5N	121	43.0W					
	BOTTOM	4116M				WIND 36C	07KT	WEATHER 1			
						DOMINANT WAVES	300				
87.090	01/16/69	1111GMT	31	59.0N	122	24.0W					
	BOTTOM	4403M				WIND C1C	04KT	WEATHER 1			
						DOMINANT WAVES	300				292.7
9C.032	01/12/69	1605GMT	33	20.5N	118	03.0W					
	BOTTOM	741M				WIND		CCKT WEATHER 2			
						DOMINANT WAVES	030 01				
9C.045	01/12/69	0800GMT	32	54.5N	118	55.5W					
	BOTTOM	1756M				WIND 34C	07KT	WEATHER 0			
						DOMINANT WAVES	070 01				
9C.053	01/12/69	0400GMT	32	39.0N	119	28.5W					
	BOTTOM	1202M				WIND 300	C3KT	WEATHER 0			
						DOMINANT WAVES	030 01				
90.070	01/11/69	1830GMT	32	02.0N	120	43.0W					
	BOTTOM	3737M				WIND		00KT WEATHER 2			
						DOMINANT WAVES	320 04				
9C.090	01/11/69	0830GMT	31	24.0N	122	01.0W					
	BOTTOM	4021M				WIND		C0KT WEATHER 1			
						DOMINANT WAVES	300 02				
93.027	01/07/69	1715GMT	32	56.0N	117	19.0W					
	BOTTOM	127M				WIND		00KT WEATHER 4			
						DOMINANT WAVES	310 01 12				
93.028	01/07/69	1905GMT	32	54.5N	117	22.0W					
	BOTTOM	593M				WIND		00KT WEATHER 4			
						DOMINANT WAVES	310 01				
93.030	01/07/69	2100GMT	32	50.5N	117	31.0W					
	BOTTOM	815M				WIND 320	04KT	WEATHER 4			
						DOMINANT WAVES	310 01				
93.035	01/07/69	2350GMT	32	40.5N	117	51.5W					
	BOTTOM	722M				WIND 330	07KT	WEATHER 4			
						DOMINANT WAVES	270 01				
93.045	01/08/69	0608GMT	32	18.0N	118	37.0W					
	BOTTOM	1664M				WIND 320	08KT	WEATHER 2			
						DOMINANT WAVES	280 03				

## RV DAVID STARR JORDAN

## CALCOFI CRUISE 6901

## TEN METER DATA

			Z	T	S	02	PO4	SI03	NO2	NO3	DT
93.050	01/08/69 0905GMT 32 10.0N 118 52.5W BOTTOM 1442M WIND 32C 08KT WEATHER 2 DOMINANT WAVES 280 03 05		10	15.56	33.599	5.64	.30	2.	.03	.0	316.7
93.055	01/08/69 1200GMT 31 57.5N 119 10.5W BOTTOM 1664M WIND 31C 10KT WEATHER 2 DOMINANT WAVES 340 04 05		10	14.67	33.499	5.96	.33	2.	.01	.0	305.5
93.070	01/08/69 2035GMT 31 30.0N 120 14.0W BOTTOM 3737M WIND 330 18KT WEATHER 2 DOMINANT WAVES 310 10		10	13.92	33.238	5.81	.27	2.	.03	.0	309.6
93.080	01/09/69 0135GMT 31 10.0N 120 54.0W BOTTOM 3737M WIND 34C 20KT WEATHER 2 DOMINANT WAVES 300 10		10	14.56	33.090	5.89	.30	2.	.02	.0	333.3
93.090	01/09/69 0625GMT 30 50.0N 121 34.5W BOTTOM 4212M WIND 360 15KT WEATHER 2 DOMINANT WAVES 350 06 06		10	15.79	33.535	5.86	1.180	2.	.00	.9	326.3
93.100	01/09/69 1048GMT 30 30.0N 122 14.5W BOTTOM 3737M WIND 320 10KT WEATHER 2 DOMINANT WAVES 300 06		10	15.16	33.370	5.76	.49	2.	.02	.8	325.0
93.120	01/09/69 1905GMT 29 49.0N 123 35.0W BOTTOM 4212M WIND 350 06KT WEATHER 2 DOMINANT WAVES 340 05 08		10	16.79	33.456	5.66	1.960	2.	.03	.7	353.8
93.140	01/10/69 0315GMT 29 09.0N 124 53.0W BOTTOM 4313M WIND 340 10KT WEATHER 0 DOMINANT WAVES 330 05		10	16.93	33.655	5.64	.61	2.	.02	.4	342.4



## RV ALEXANDER AGASSIZ

## CALCOFI CRUISE 6901

## TEN METER DATA

				Z	T	S	02	PO4	SI03	NO2	NO3	DT	
100.070	01/17/69	1010GMT	30 22.0N	119 24.0W	10	15.25	33.567	5.85	.26	2.	.00	.0	312.5
	BOTTOM	3850M	WIND 320 07KT	WEATHER 2									
	DOMINANT WAVES												
100.090	01/16/69	2010GMT	29 36.0N	120 48.5W	10	16.57	33.705	5.71	.28	1.	.02	.0	330.8
	BOTTOM	3926M	WIND 330 06KT	WEATHER 2									
	DOMINANT WAVES 350 03 C7												
103.029	01/19/69	1610GMT	31 06.5N	116 22.0W	10	15.00	33.570	5.92	.34	5.	.01	.0	307.1
	BOTTOM	37M	WIND 260 07KT	WEATHER 1									
	DOMINANT WAVES												
103.040	01/20/69	0105GMT	30 46.0N	117 04.5W	10	14.99	33.576	5.78	.28	2.	.01	.0	306.5
	BOTTOM	1775M	WIND 170 08KT	WEATHER 1									
	DOMINANT WAVES 190 02 C7												
103.045	01/20/69	0415GMT	30 37.0N	117 25.0W	10	15.49	33.552	5.82	.24	2.	.01	.0	318.6
	BOTTOM	2191M	WIND 160 10KT	WEATHER 6									
	DOMINANT WAVES												
103.050	01/20/69	0745GMT	30 28.5N	117 45.0W	10	15.34	33.407	5.85	.28	1.	.01	.0	326.1
	BOTTOM	2061M	WIND 160 15KT	WEATHER 1									
	DOMINANT WAVES												
103.055	01/20/69	1105GMT	30 20.0N	118 05.0W	10	15.52	33.622	5.78	.28	3.	.01	.0	314.2
	BOTTOM	2172M	WIND 210 06KT	WEATHER 4									
	DOMINANT WAVES												
103.070	01/20/69	2244GMT	29 46.0N	119 04.0W	10	14.58	33.306		.26	2.	.00	.0	317.8
	BOTTOM	3584M	WIND 180 08KT	WEATHER 4									
	DOMINANT WAVES 160 03 C7												
103.080	01/21/69	0535GMT	29 29.0N	119 40.0W	10	16.71	33.688	5.62	.20	1.	.00	.1	335.1
	BOTTOM	3737M	WIND 180 15KT	WEATHER									
	DOMINANT WAVES												
107.031	01/22/69	2025GMT	30 28.0N	116 07.0W	10	15.69	33.596	5.82	.28	3.	.01	.1	319.7
	BOTTOM	47M	WIND 320 05KT	WEATHER 1									
	DOMINANT WAVES 280 08 C9												
107.032	01/22/69	1845GMT	30 26.0N	116 11.5W	10	15.81	33.599	5.76	.20	2.	.00	.0	322.0
	BOTTOM	408M	WIND 310 08KT	WEATHER 1									
	DOMINANT WAVES 280 08 C9												
107.035	01/22/69	1620GMT	30 21.5N	116 23.0W	10	15.62	33.557	5.78	.22	2.	.00	.0	321.0
	BOTTOM	1720M	WIND 020 07KT	WEATHER 1									
	DOMINANT WAVES 290 08 C6												
107.040	01/22/69	1207GMT	30 15.0N	116 44.5W	10	15.95	33.526	5.72	.26	1.	.00	.1	330.3
	BOTTOM	1931M	WIND 340 16KT	WEATHER									
	DOMINANT WAVES												

RV ALEXANDER AGASSIZ				CALCOFF CRUISE 6901				TEN METER DATA				
				Z	T	S	02	PO4	SI03	NO2	NO3	DT
107.045	01/22/69	0831GMT	30 04.0N 117 03.0W BOTTOM 1598M WIND 31C 07KT WEATHER 0 DOMINANT WAVES	10	16.12	33.564	5.73	.24	1.	.00	.0	331.2
107.050	01/22/69	0425GMT	29 53.0N 117 21.5W BOTTOM 2415M WIND 31C 07KT WEATHER 1 DOMINANT WAVES	10	16.62	33.662	5.64	.26	2.	.00	.0	335.0
107.055	01/22/69	0140GMT	29 40.5N 117 42.5W BOTTOM 3245M WIND 320 07KT WEATHER 0 DOMINANT WAVES 250 06 C5	10	16.10	33.525	5.81	.20	2.	.00	.0	333.7
107.070	01/21/69	1600GMT	29 12.5N 118 41.0W BOTTOM 2790M WIND 20C 20KT WEATHER 2 DOMINANT WAVES 21C 06 C6	10	16.65	33.670	5.57	.20	2.	.00	.0	335.1
107.080	01/21/69	1033GMT	28 65.0N 119 19.5W BOTTOM 3651M WIND 19C 13KT WEATHER DOMINANT WAVES	10	17.23	33.759	5.60	.16	2.	.00	.1	341.6
110.032	01/23/69	0130GMT	29 52.0N 115 47.5W BOTTOM 22M WIND 320 13KT WEATHER 1 DOMINANT WAVES 29C 04 08	10	15.64	33.665	5.74	.38	3.	.05	.4	313.6
110.045	01/23/69	1230GMT	29 26.0N 116 39.5W BOTTOM 1503M WIND 31C 10KT WEATHER DOMINANT WAVES	10	16.52	33.659	5.68	.24	2.	.06	.0	333.0
110.050	01/23/69	1610GMT	29 16.5N 116 59.0W BOTTOM 3680M WIND 330 08KT WEATHER 1 DOMINANT WAVES 27C 06 C6	10	16.45	33.659	5.72	.24	2.	.04	.0	328.6
110.070	01/24/69	0512GMT	28 36.5N 118 18.5W BOTTOM 3357M WIND 20C 08KT WEATHER DOMINANT WAVES	10	16.85	33.689	5.53	.22	2.	.00	.0	338.2
113.029	01/26/69	0225GMT	29 24.0N 115 13.0W BOTTOM 19M WIND 260 06KT WEATHER 4 DOMINANT WAVES 22C 05 10	10	15.89	33.711	5.49	.46	7.	.24	.7	315.5
113.030	01/26/69	0115GMT	29 22.0N 115 18.0W BOTTOM 56M WIND 18C 05KT WEATHER 2 DOMINANT WAVES 22C 05 10	10	16.08	33.719	5.74	.30	5.	.02	.0	319.1
113.035	01/25/69	2210GMT	29 13.5N 115 39.0W BOTTOM 1298M WIND 180 05KT WEATHER 4 DOMINANT WAVES 22C 02 08	10	16.06	33.674	7.59	.22	2.	.03	.0	321.9
113.040	01/25/69	1800GMT	29 03.5N 115 58.0W BOTTOM 2415M WIND 210 04KT WEATHER 2 DOMINANT WAVES 25C 02 05	10	15.86	33.573	5.70	.22	2.	.00	.0	325.0

## RV ALEXANDER AGASSIZ

## CALCOFT CRUISE 6901

## TEN METER DATA

			Z	T	S	02	PO4	SI03	NO2	NO3	DT
113.045	01/25/69	1420GMT	28	52.5N	116	18.0W					
	BOTTOM	1981M									
	DOMINANT WAVES	270	04	10							
113.050	01/25/69	1115GMT	28	42.5N	116	38.0W					
	BOTTOM	3461M									
	DOMINANT WAVES										
113.070	01/24/69	2255GMT	28	02.0N	117	55.5W					
	BOTTOM	3112M									
	DOMINANT WAVES	250	03	07							
113.080	01/24/69	1739GMT	27	44.5N	118	32.5W					
	BOTTOM	3860M									
	DOMINANT WAVES	350	03	12							
117.025	01/26/69	0715GMT	28	58.0N	114	38.0W					
	BOTTOM	56M									
	DOMINANT WAVES										
117.026	01/26/69	0810GMT	28	56.0N	114	41.5W					
	BOTTOM	75M									
	DOMINANT WAVES										
117.030	01/27/69	1415GMT	28	49.0N	114	57.0W					
	BOTTOM	97M									
	DOMINANT WAVES	300	03	04							
117.035	01/27/69	1720GMT	28	36.0N	115	16.5W					
	BOTTOM	205M									
	DOMINANT WAVES	330	02	04							
117.040	01/28/69	0345GMT	28	28.0N	115	35.5W					
	BOTTOM	929M									
	DOMINANT WAVES	310	04	07							
117.045	01/28/69	0653GMT	28	18.0N	115	55.5W					
	BOTTOM	1336M									
	DOMINANT WAVES	340									
117.050	01/28/69	1030GMT	28	08.0N	116	15.0W					
	BOTTOM	4135M									
	DOMINANT WAVES										
117.070	01/28/69	2226GMT	27	28.0N	117	32.0W					
	BOTTOM	3926M									
	DOMINANT WAVES	340	03	06							
120.024	01/26/69	1328GMT	28	25.0N	114	11.0W					
	BOTTOM	28M									
	DOMINANT WAVES										



DISTRIBUTION LIST

Inter-American Tropical Tuna Commission  
(c/o Scripps Institution of Oceanography)

Dr. James Joseph  
Dr. Merritt Stevenson

National Marine Fisheries Service  
(c/o Scripps Institution of Oceanography)

~~Dr. E. H. Ahlstrom~~  
Dr. Alvariño de Leira  
Dr. Ronald Lynn  
Dr. Robert W. Owen, Jr.  
Mr. Nelson C. Ross, Jr.  
~~Mr. J. F. T. Saur~~  
Director's Office  
Library

*retired*  
(2)

*be sure  
to type ~  
on this name!*

Scripps Institution of Oceanography

Mr. Arnold E. Bainbridge  
~~Dr. Maurice Blackburn~~  
Dr. Edward Brinton  
~~Dr. T. J. Chow~~  
Mr. Edward H. Coughran  
Dr. Richard W. Eppley  
Dr. Abraham Fleminger  
~~Dr. Theodore R. Folsom~~  
~~Mr. Jeffery D. Frautschy~~  
Mr. Richard H. Greenbaum  
~~Prof. John D. Isaacs~~  
Miss Margaret D. Knight  
Mr. Arnold W. Mantyla  
Dr. John A. McGowan  
~~Dr. Fred B. Phleger~~  
Prof. Joseph L. Reid  
Dr. Richard H. Rosenblatt  
Mr. George H. Snyder  
Dr. Mizuki Tsuchiya  
Director's Office  
Library, SIO, Archives  
Library, SIO, (Chris Scott)

(2) *retired*

*retired*

*retired*

*ms. Richard A  
Schwartzlose*

(3)



CalCOFI Distribution List

✓ Director  
 Institute of Marine Science  
 University of Alaska  
 College, Alaska 99701

Biblioteca  
 ✓ Unidad de Ciencias Marinas  
 Universidad Autonoma de  
 Baja Calif.  
 Apartado de Correos 453  
 Ensenada, B. C. Mexico

✓ Mr. William E. Batzler  
 Code 0101  
 Naval Undersea Center  
 San Diego, Calif. 92132

✓ British Museum  
 Dept. of Printed Books-SB  
 Stechert-Hafner, Inc.  
 London, W. C. 1, England

✓ British Navy Staff  
 British Embassy  
 3100 Massachusetts Ave. N. W.  
 Washington, D. C. 20008  
 Attn: Scientific Info. Offer.

✓ Library  
 California Academy of  
 Sciences  
 Golden Gate Park  
 San Francisco, Calif. 94118

✓ Librarian  
 Geology-Oceanography Dept.  
 Calif. State University  
 Northridge, Calif. 91324

Mr. Charles R. Carry  
 Tuna Research Foundation  
 215 Cannery Street  
 Terminal Island, Calif. 90731

✓ Dr. Alfred J. Carsola  
 Lockheed Marine Laboratory  
 3380 N. Harbor Drive  
 San Diego, Calif. 92101

✓ Secretary for Publications  
 Chesapeake Bay Institute  
 The Johns Hopkins University  
 Baltimore, Md. 21218

✓ Officer in Charge (Code L31)  
 Civil Engineering Laboratory  
 Naval Construction Battalion Center  
 Port Hueneme, Calif. 93043

Mr. Harold B. Clemens  
 California State Fisheries Lab.  
 350 Golden Shore  
 Long Beach, Calif. 90802

✓ Dr. Daniel M. Cohen  
 National Center for Systematics  
 Ichthyological Laboratory  
 U. S. National Museum  
 Washington, D. C. 20560

Dr. G. M. Cresswell  
 Tiburon Oceanographic Institute  
 Tiburon, Calif. 94920

Dalhousie University Library  
 Science Services  
 Halifax, Nova Scotia  
 Canada

✓ Deutsches-Hydrographisches Institut  
 Tauschstelle,  
 Bernhard-Nocht-Str. 78  
 2 Hamburg 4,  
 Bundesrepublik Deutschland  
 (West Germany)

Mr. Robert L. Eberhardt  
 Marine Occupations Program  
 7250 College Drive  
 San Diego, Calif. 92111

✓ Environmental Prediction Research  
 Facility  
 U. S. Naval Postgraduate  
 School  
 Monterey, Calif. 93940

✓ Director  
 Estacion De Investigacion  
 Pesquera  
 Apartado Postal 396  
 Mazatlan, Sinaloa, Mexico

✓ Estacion de Investigacion  
 Pesquera  
 Seccion de Hidrologia  
 Apartado Postal 396  
 Mazatlan, Sinaloa, Mexico

✓ Falconer Biology Library  
 Stanford University  
 Stanford, Calif. 94305

✓ Dr. David Farris  
 Department of Biology  
 San Diego State University  
 San Diego, Calif. 92182

Marine Technical Information  
 Center  
 ✓ Department of Fish & Game  
 350 Golden Shore  
 Long Beach, Calif. 90802

✓ Librarian  
 Ministry of Agriculture, Fisheries  
 and Food  
 Fisheries Laboratory  
 Lowestoft, Suffolk, England

✓ Director  
 Biological Station  
 Fisheries Research Board  
 of Canada  
 P. O. Box 100  
 Nanaimo, British Columbia,  
 Canada

✓ Library  
 Fisheries Research &  
 Development Agency  
 16-2ka, Namhang dong,  
 Youngdo-ku  
 Busan 606, Korea

Mr. Herbert W. Frey  
 Calif. State Fisheries Laboratory  
 350 Golden Shore  
 Long Beach, Calif. 90802

✓ Prof. James A. Gast  
 Division of Natural Resources  
 Humboldt State College  
 Arcata, Calif. 95521

✓ Dr. Robert H. Gibbs, Jr.  
 Division of Fisheries  
 U. S. National Museum  
 Washington, D. C. 20560

✓ Dr. Malvern Gilmartin, Director  
 Australian Institute of Marine  
 Science  
 P. O. Box 1104  
 Townsville, Queensland 4810  
 Australia

✓ Dr. Donn S. Gorsline  
 Department of Geology  
 University of Southern  
 California  
 Los Angeles, Calif. 90007

✓ Hancock Library of Biology  
 and Oceanography  
 University of Southern California  
 Los Angeles, Calif. 90007

✓ Biblioteca, Instituto del Mar  
 Apartado Postal 3734  
 Lima, Peru

✓ Intersea Research Corp.  
 P. O. Box 2389  
 La Jolla, Calif. 92037

✓ Oceanography Division  
 Japan Meteorological Agency  
 Tokyo, Japan

✓ Japan Oceanographic Data Center  
 Hydrographic Department  
 Maritime Safety Agency  
 No. 3-1, 5-Chome, Tsukiji, Chuo-ku  
 Tokyo, 104 Japan

Mr. Larry Kimi, Director  
Environ. Resources Group  
Calif. State Chamber of  
Commerce  
455 Capitol Mall, Suite 300  
Sacramento, Calif. 95814

Environmental Science  
Institution of Hyogo  
Arata 2, Hyogo,  
Kobe, 652 Japan

Mr. Owen S. Lee  
Code 503  
Naval Undersea Center  
San Diego, Calif. 92132

Librarian  
Institute of Marine Science  
University of Miami  
4600 Rickenbacker Causeway  
Miami, Fla. 33149

Library  
Moss Landing Marine  
Laboratories  
P. O. Box 223  
Moss Landing, Calif. 95039

Dr. Keith B. Macdonald  
Department of Geology  
University of California  
Santa Barbara, Calif. 93106

Akademie der Wissenschaften der DDR  
Institut für Meereskunde  
Bibliothek  
253 Warnemünde  
Deutsche Demokratische Republik  
(East Germany)

Director, Inst. de Geofisica  
Torre de Ciencias, 3er Piso  
Universidad Nacional Autonoma  
de Mexico  
Villa Obregon, Mexico D. F.

Librarian  
Southwest Fisheries Center  
NMFS, NOAA  
P. O. Box 3830  
Honolulu, Hawaii 96812

Librarian  
Southeast Fisheries Center,  
NMFS, NOAA  
75 Virginia Beach Drive  
Miami, Fla. 33149

NMFS, NOAA  
Tiburon Laboratory  
P. O. Box 98  
Tiburon, Calif. 94920

Director, U. S. Dept. of Commerce  
Natl. Oceanic and Atmospheric  
Administration  
National Oceanographic Data Center  
Washington, D. C. 20235

Commander  
Naval Undersea Center  
Attn: Technical Library, Code 6565  
San Diego, Calif. 92132

Library of N.S.W.  
Subscription Dept.  
New South Wales Government  
Offices, 66 Strand  
London, WC2N 5LZ, England

Dr. Kenneth S. Norris,  
Director  
Coastal Marine Laboratory  
University of California  
Santa Cruz, Calif. 95064

Oceanographic Research Institute  
Centenary Aquarium Bldgs.  
2 West Street  
Durban, Natal. South Africa

Library, Research Laboratory  
Oregon Fish Commission  
17330 S. E. Evelyn Street  
Clackamas, Ore. 97015

Pacific Marine Fish. Commission  
342 State Office Building  
1400 S. W. Fifth Avenue  
Portland, Ore. 97201

Dr. Robert G. Paquette  
Dept. of Oceanography  
U. S. Naval Postgraduate  
School  
Monterey, Calif. 93940

Pattullo Study  
Department of Oceanography  
Oregon State University  
Corvallis, Ore. 97331

Pell Marine Science Library  
University of Rhode Island  
Narragansett Bay Campus  
Narragansett, R. I. 02882

Dr. G. L. Pickard  
Institution of Oceanography  
University of British  
Columbia  
Vancouver, B. C., Canada V6T 1W5

Mr. D. W. Privett, Librarian  
Inst. of Oceanographic Science  
Wormley, Near Godalming  
Surrey, England

Dr. Ricardo M. Pytkowicz  
Department of Oceanography  
Oregon State University  
Corvallis, Ore. 97331

Mr. John Radovich, Head  
Operations Research Branch  
Department of Fish & Game  
1416 Ninth Street  
Sacramento, Calif. 95814

Mr. George H. Rees  
Regional Fishery Attache  
American Embassy  
Apartado Postal 88-bis  
Mexico 1, D. F.

Mr. Gunnar I. Roden  
Department of Oceanography  
University of Washington  
Seattle, Wash. 98195

Dean  
Rosenstiel School of Marine  
and Atmospheric Science  
University of Miami  
4600 Rickenbacker Causeway  
Miami, Fla. 33149

Director  
San Diego Society of Natural  
History  
P. O. Box 1390  
San Diego, Calif. 92112

Librarian  
Serials Department  
San Diego State University  
Library  
San Diego, Calif. 92115

Phillip Seelinger  
Code 3144, Bldg. 514  
Pacific Missile Range  
Point Magu, Calif. 93042

Dr. Daitaro Shoji, Counsellor  
Japanese Hydrographic Office  
5-Chome, Tsukiji, Chuo-ku  
Tokyo, Japan

Dr. Reimer Simonsen  
Institut für Meeresforschung  
285 Bremerhaven  
Am Handelshafen 12  
Bundesrepublik  
Deutschland (West Germany)

Mr. Edmund H. Smith, Director  
Pacific Marine Station  
Dillon Beach, Calif. 94929

Prof. Henry M. Stommel  
Mass. Institute of Technology  
Bldg. 54, Room 1416  
Cambridge, Mass. 02139

Dr. Bruce A. Taft  
Department of Oceanography  
University of Washington  
Seattle, Wash. 98195

Dr. Norman Tebble, Director  
The Royal Scottish Museum  
Chambers Street  
Edinburgh, Scotland

Technical Processes Branch-D823  
NOAA, Libraries Division  
8060 13th Street - Room 806  
Silver Spring, Maryland 20910

Librarian  
Department of Oceanography  
Texas A. and M. University  
College Station, Texas 77843

Dr. M. Uda  
College of Marine Science and  
Technology  
Tokai University  
1000 Orido, Shimizu-shi  
Shizuoka-ken, Japan

Library  
U. S. Naval Electronics  
Laboratory Center  
San Diego, California 92152

Pacific Support Group  
U. S. Naval Oceanographic Office  
San Diego, Calif. 92152

Commander (2)  
U. S. Naval Oceanographic Office  
Library Code 3330  
Washington, D. C. 20373

Commanding Officer  
USCG Oceanographic Unit  
Bldg. 159-E, Navy Yard Annex  
Washington, D. C. 20590

Library  
Virginia Inst. of Marine Sciences  
Gloucester Point, Va. 23062

Dr. Bruce A. Warren  
Woods Hole Oceanographic  
Institution  
Woods Hole, Mass. 02643

University of Washington  
Fisheries-Oceanography Library  
151 Oceanography Teaching Bldg.  
Seattle, Washington 98195

Dr. C. S. Wong, Head  
Ocean Chemistry Division,  
Pacific Region Mar. Sci. Branch  
Dept. of the Environment  
211 Harbour Road  
Victoria, B. C., Canada V9A 352

Woods Hole Oceanographic Inst.  
Document Library S-206  
Woods Hole, Mass. 02543

Director (6)  
World Data Center A,  
Oceanography  
Natl. Oceanic & Atmospheric  
Administration  
Washington, D. C. 20235

Mr. Hajime Yamanaka  
Far Seas Fisheries Research Lab.  
Orido 1000, Shimizu-shi  
Shizuoka-ken, Japan

Dr. Kozo Yoshida  
Geophysical Inst.  
University of Tokyo  
Hongo, Tokyo, Japan