data report

PHYSICAL AND CHEMICAL DATA
CCOFI CRUISE 5808
6-21 August 1958

SIO Reference 59-48
11 March 1959
UNIVERSITY OF CALIFORNIA
SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL AND CHEMICAL DATA

CCOFI CRUISE 5808

6-21 August 1958

Sponsored by

Marine Research Committee

SIO Reference 59-48
11 March 1959

Approved for distribution:

Roger Revelle, Director
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FIGURES

1. CCOFI Cruise 5808, station positions
2. Horizontal distribution of temperature at 10 meters
3. Horizontal distribution of salinity at 10 meters
INTRODUCTION

The data presented in this report were collected on the one hundred and eleventh consecutive cruise of the California Cooperative Oceanic Fisheries Investigations program. The R/V Black Douglas of the U. S. Bureau of Commercial Fisheries participated in this cruise.

The data are tabulated at observed depths; the interpolated and computed values are tabulated at standard depths and are accompanied by charts of horizontal distribution. The presentation of data in this report does not constitute publication; however, the data contained in this report have been carefully edited and no modifications should be necessary before final publication.

STANDARD PROCEDURES

Processing of the data was carried out using the method described by Klein. Certain approximations have been introduced for the determination of the integrated pressure terms which may result in errors whose maximum values are less than 0.5 dynamic centimeter at 0 over 200 decibars, 1.0 dynamic centimeter at 0 over 500 decibars, and 2.0 dynamic centimeters at 0 over 1000 decibars. The 125-meter level was introduced into the integration to obtain greater accuracy in the determination of ΔD. The interpolated values at 125 meters are not tabulated.

To indicate degree of accuracy, temperatures are recorded in tenths of a degree when obtained by bucket thermometer, thermograph, or bathythermograph, while temperatures from reversing thermometers are recorded in hundredths of a degree. Extrapolated values and values interpolated between remote observations are entered within parentheses. A hyphen is used to indicate a missing observed value. The time is the time of messenger release. When more than one cast was made on a station, messenger times and wire angles are given in the order of increasing depth. A line is left blank between the observed data of each cast.

1/Klein, Hans T. A new technique for processing physical oceanographic data. MS.
FOOTNOTES

Footnotes which appear frequently are "loose bottle cap" and "possible evaporation." To avoid any confusion as to their meaning the following explanation is included.

Laboratory personnel, before titrating the salinity samples, note any possible imperfections in the sealing of the bottles as follows:

**Loose bottle cap:** The cap is definitely loose so that it could be moved with very little applied pressure. The salinity values obtained from these samples may be usable depending on time and/or conditions of storage.

**Possible evaporation:** Either the cap was sealed with less than usual pressure, the bottle edge chipped, the rubber washer cracked, or the bale broke on opening, etc.

Use of the above values in interpolation depends upon consistency with other values of salinity and other properties, and these footnotes are supplemented with "falls on property curve" or "does not fall on property curve," depending upon whether the property curve was drawn through the value or not.

In addition to footnotes, three special notations are used without footnotes because their meaning is always the same.

To indicate a premature or a delayed reversal of the water-sampling device which results in certain depth and property errors, the following notation is used.

*p:* pretrip or posttrip.

Values which are not drawn through because they seem to be in error without apparent reason are indicated by one of the following notations.

*r:* rejected value (value seems to be definitely wrong),

*u:* uncertain value (value may be correct; occasionally it can influence the drawing of the property curve).

FORMAT

These data are typed in the format of the University of California Press publication, "Oceanic Observations of the Pacific." So that these pages can be used as copy for the 1958 volume, the first page of the Cruise 5808 data is numbered 245. iv
VELOCITY OF GEOSTROPHIC FLOW

VELOCITY (CM/SEC) FOR A DIFFERENCE IN ΔD OF 1 DYN. CM.
CCOFI CRUISE 5808
6-21 AUGUST 1958
STATION POSITIONS
DIRECTION OF TRAVEL

- NET TOW STATION
- HYDROGRAPHIC STATION

SPECIAL NET TOW STATIONS
1. 129.28
2. 127.32
3. 126.34
4. 119.37
5. 119.40
6. 119°.29
7. 120°.37
8. 121.34
9. 121.30
10. 120°.27
11. 120.31
12. 120.33
13. 118.36
14. 118.33
15. 117.34
16. 116.25
17. 112.30

BLACK DOUGLAS
6-21 AUGUST
CCOFI CRUISE 5808
6-21 AUGUST 1958
10 METER TEMPERATURE
CONTOUR INTERVAL 1.0°C

FIGURE 2
CCOFI CRUISE 5808
6-21 AUGUST 1958
10 METER SALINITY
CONTOUR INTERVAL 0.20%
PERSONNEL

SHIP'S CAPTAIN

Forster, Charles W., R/V Black Douglas

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

R/V Black Douglas

Wolf, Robert S., Fishery Research Biologist, Bureau of Commercial Fisheries
Casey, Harold D., Fishery Aid, Bureau of Commercial Fisheries
Claussen, Leighton G., Fishery Research Biologist, Bureau of Commercial Fisheries
Goffman, Jackson E., Marine Technician
Wolf, Richard L., observer, Bureau of Commercial Fisheries
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<th>Computed</th>
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<td>$S$ (%)</td>
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**BLACK DOUGLAS; August 7, 1958; 0315 GCT; 29°22'5"N, 115°17.5"W; sounding, 30 fm; wind, 280°, force 2; weather, partly cloudy; sea, slight; wire angle, 02°.**

**BLACK DOUGLAS; August 7, 1958; 0623 GCT; 29°12'N, 115°39'W; sounding, 650 fm; wind, 280°, force 3; weather, clear; sea, slight; wire angle, 08°.**

**BLACK DOUGLAS; August 7, 1958; 0925 GCT; 29°02'N, 115°58.5°W; sounding, 950 fm; wind, 290°, force 2; weather, clear; sea, slight; wire angle, 12°.**

**BLACK DOUGLAS; August 7, 1958; 1135 GCT; 29°11'N, 114°55'W; sounding, 41 fm; wind, 300°, force 3; weather, clear; sea, slight; wire angle, 03°.**

245
### Observed Data

<table>
<thead>
<tr>
<th>Z (m)</th>
<th>T (°C)</th>
<th>S (%)</th>
<th>O₂ (ml/L)</th>
<th>δ₇₀⁺²⁻ (10⁻⁵ cm³/g)</th>
<th>Z (m)</th>
<th>T (°C)</th>
<th>S (%)</th>
<th>O₂ (ml/L)</th>
<th>δ₇₀⁺²⁻ (10⁻⁵ cm³/g)</th>
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#### 115.30
BLACK DOUGLAS; August 7, 1958; 1949 GCT; 28°04'N, 115°08'W; sounding, 50 fm; wind, 300°, force 3; weather, partly cloudy; sea, slight; wire angle, 02°.

- 0: 16.65 33.58 6.24 388
- 9: 17.74 33.57 6.09 367
- 23: 15.45 33.51 5.77 321
- 41: 14.03 33.57 4.85 288
- 60: 11.72 33.57 3.82 244
- 78: 11.51 33.69 3.31 232

#### 115.35
BLACK DOUGLAS; August 7, 1958; 1608 GCT; 28°55'N, 115°27.5'W; sounding, 500 fm; wind, 310°, force 3; weather, partly cloudy; sea, moderate; wire angle, 11°.

- 0: 20.74 33.72 5.49 429
- 9: 20.72 33.74 5.50 427
- 28: 16.74 33.55 6.06 346
- 37: 15.90 33.51 5.93 330
- 46: 14.22 33.46 5.39 300
- 55: 13.09 33.68 4.73 272
- 64: 12.78 33.68 3.86 255
- 78: 12.69 33.86 3.71 240
- 91: 11.87 33.86 2.71 225
- 104: 12.18 34.03 1.84 218
- 126: 11.63 34.05 2.00 208
- 152: 11.76 34.32 1.10 190
- 182: 11.40 34.34 1.04 182
- 226: 10.63 34.32 1.03 170
- 299: 9.90 34.46 0.66 148
- 389: 8.58 34.34 0.72 136
- 509: 7.08 34.37 0.50 114

#### 115.40
BLACK DOUGLAS; August 7, 1958; 1228 GCT; 28°45'N, 115°47'W; sounding, 750 fm; wind, 320°, force 2; weather, clear; sea, slight; wire angle, 13°.

- 0: 20.28 33.71 5.58 418
- 9: 18.66 33.59 6.07 387
- 28: 15.80 33.61 5.90 321
- 37: 14.29 33.53 5.36 296
- 46: 13.35 33.58 4.96 274
- 55: 13.26 33.87 2.61 250
- 64: 12.68 33.95 2.12 234
- 77: 12.94 34.14 1.31 225
- 90: 12.92 34.16 1.08 223
- 102: 12.86 34.21 1.06 218
- 123: 12.32 34.17 1.24 211
- 148: 12.24 34.25 1.03 203
- 176: 11.80 34.29 1.34 192
- 219: 11.60 34.50 0.92 174
- 289: 9.23 34.37 1.64 144
- 380: 8.70 34.36 0.85 136
- 500: 6.92 34.33 0.40 114

#### 117.26
BLACK DOUGLAS; August 8, 1958; 0042 GCT; 28°56'N, 114°41'W; sounding, 42 fm; wind, 280°, force 3; weather, partly cloudy; sea, slight; wire angle, 05°.

- 0: 18.58 33.56 6.10 387
- 9: 16.77 33.60 6.34 343
- 18: 15.18 33.53 6.19 314
- 32: 14.48 33.54 4.64 279
- 55: 11.29 33.64 3.03 232

---

a) Loose bottle cap; value falls on property curve.
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<th>S %</th>
<th>O₂ ml/L</th>
<th>δT °C 10 cm/g</th>
<th>Z</th>
<th>T °C</th>
<th>S %</th>
<th>O₂ ml/L</th>
<th>δT °C 10 cm/g</th>
<th>ΔD dyn.m</th>
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Black Douglas; August 8, 1958; 0305 GCT; 28°48'N, 114°56.5'W; sounding, 55 fm; wind, 280°, force 3; weather, partly cloudy; sea, moderate; wire angle, 11°.

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Black Douglas; August 8, 1958; 0617 GCT; 28°38'N, 115°16'W; sounding, 100 fm; wind, 300°, force 3; weather, partly cloudy; sea, moderate; wire angle, 15°.

Black Douglas; August 8, 1958; 0910 GCT; 28°28'N, 115°35.5'W; sounding, 400 fm; wind, 320°, force 2; weather, partly cloudy; sea, slight; wire angle, 12°.

Black Douglas; August 8, 1958; 1936 GCT; 28°40.5'N, 114°25.5'W; sounding, 45 fm; wind, 290°, force 3; weather, partly cloudy; sea, slight; wire angle, 0°.

Black Douglas; August 8, 1958; 1700 GCT; 28°30.5'N, 114°45.5'W; sounding, 60 fm; wind, 300°, force 3; weather, partly cloudy; sea, slight; wire angle, 10°.

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a) Salinity samples at 59 and 77 meters appear to have been reversed; they are assumed to be in the order listed.
### Observed Data

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<th>Z (m)</th>
<th>T (°C)</th>
<th>S (%)</th>
<th>O_2 (ml/L)</th>
<th>( \delta T ) (°)</th>
<th>( \delta T ) (cm/L)</th>
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### Computed Data

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### Observations

- **8°53.5**: BLACK DOUGLAS; August 8, 1958; 1912 GCT; 28°20.51N, 115°05'1W; sounding, 65 fm; wind, 320°, force 4; weather, partly cloudy; sea, moderate; wire angle, 00°.
- **9°33**: BLACK DOUGLAS; August 8, 1958; 1500 GCT; 28°19'1N, 114°53'1W; sounding, 62 fm; wind, 320°, force 3; weather, partly cloudy; sea, slight; wire angle, 00°.
- **12°25**: BLACK DOUGLAS; August 8, 1958; 2210 GCT; 28°23'1N, 114°14'5W; sounding, 28 fm; wind, 270°, force 3; weather, partly cloudy; sea, slight; wire angle, 00°.
- **12°30**: BLACK DOUGLAS; August 9, 1958; 0057 GCT; 28°13'1N, 114°34'1W; sounding, 52 fm; wind, 320°, force 3; weather, partly cloudy; sea, moderate; wire angle, 10°.
- **12°35**: BLACK DOUGLAS; August 9, 1958; 0333 GCT; 28°03'1N, 114°54'1W; sounding, 47 fm; wind, 330°, force 4; weather, partly cloudy; sea, moderate; wire angle, 04°.

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**Source:** BLACK DOUGLAS; BLACK DOUGLAS; BLACK DOUGLAS; BLACK DOUGLAS; BLACK DOUGLAS; BLACK DOUGLAS.
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BLACK DOUGLAS; August 9, 1958; 0839 GCT; 27°43'N, 115°33'W; sounding, 1150 fm; wind, 290°, force 2; weather, clear; sea, slight; wire angle, 05°.

BLACK DOUGLAS; August 10, 1958; 0235 GCT; 26°29'N, 113°29'W; sounding, 44 fm; wind, 300°, force 2; weather, overcast; sea, moderate; wire angle, 02°.

BLACK DOUGLAS; August 10, 1958; 1735 GCT; 26°17'5'N, 113°47'W; sounding, 200 fm; wind, 250°, force 2; weather, rain; sea, moderate; wire angle, 03°.

BLACK DOUGLAS; August 10, 1958; 1410 GCT; 26°09'N, 114°07'5"W; sounding, 1150 fm; wind, 320°, force 3; weather, overcast; sea, moderate; wire angle, 14°.

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120.45

130.30

130.35

130.40

249
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