

*Oceans and Climate Branch CTD Data Report*  
*CTD\_REPORT\_2022003RB*

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DATE: 9 February 2023

# Oceanography Branch CTD Data Report

## CTD\_REPORT\_2022003RB

NOAA Fisheries Service  
Northeast Fisheries Science Center  
Woods Hole, MA 02543

RB 2203  
ECOA-3 Cruise  
Data Coverage: August 7 – September 23, 2022  
US Eastern Continental Shelf

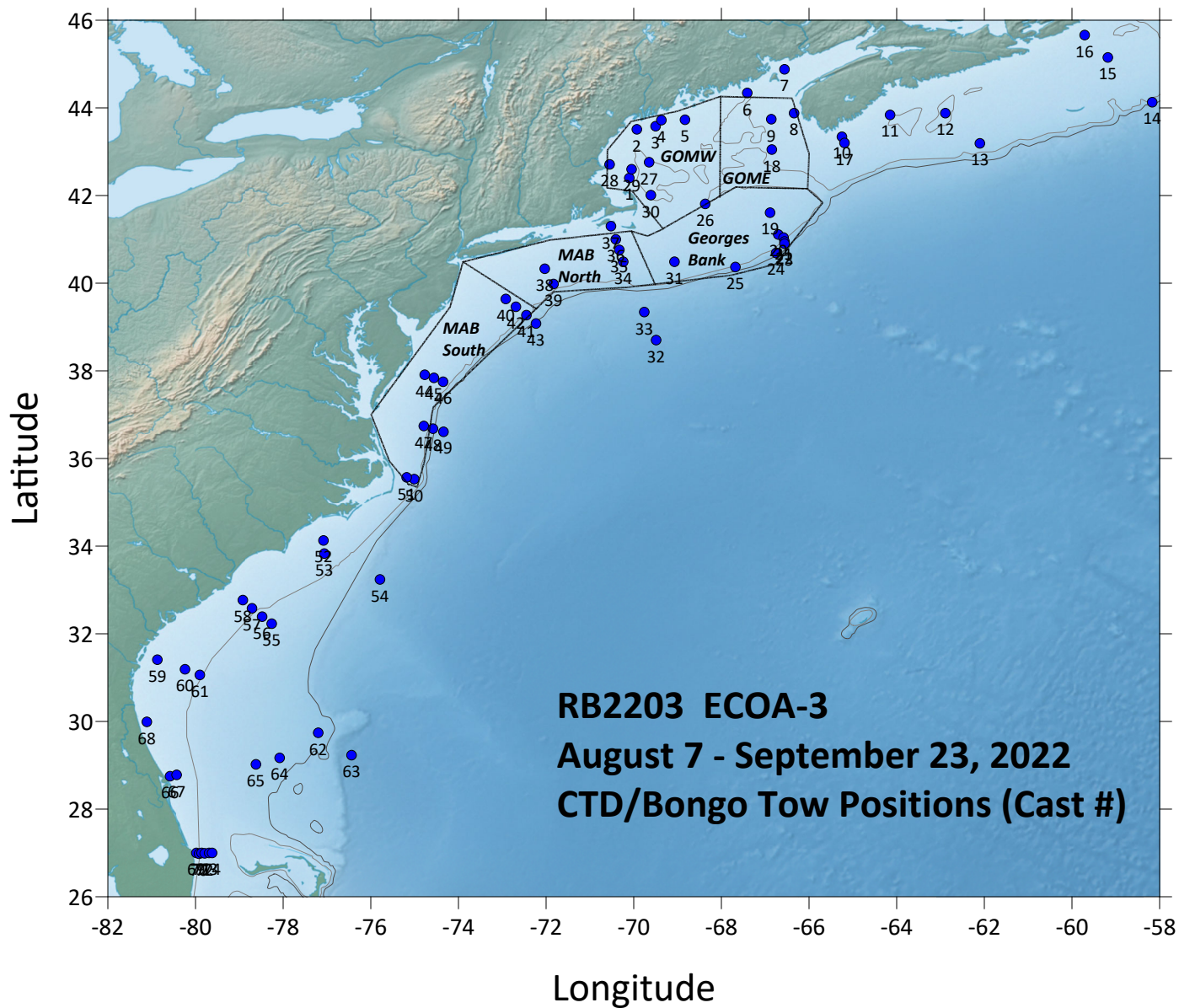
This report presents a summary of surface and bottom temperature and salinity data collected during the NOAA Ocean Acidification Program supported RB2203 East Coast Ocean Acidification Cruise aboard the NOAA R/V *Ron Brown*. All data was obtained with a Sea-Bird Electronics SBE Model 19+V2 profiling CTD (s/n 4759).

The SBE19+V2 was successfully deployed on 47 double oblique bongo casts

Data presented here have been audited, however, corrections and/or updates may be applied at a later time.

The most recent and complete station data can be found by contacting [Dr. Chris Melrose](#)

Revised: February 9, 2023



**Areal average surface and bottom temperature/salinity and temperature/salinity anomalies for the  
RB2203 ECOA-3  
August 7 - September 23, 2022**

|        |     | SURFACE TEMPERATURE |            |         |      |      |      | BOTTOM TEMPERATURE |            |         |      |      |      |
|--------|-----|---------------------|------------|---------|------|------|------|--------------------|------------|---------|------|------|------|
| Region | CD  | #obs                | Temp ( °C) | Anomaly | SDV1 | SDV2 | Flag | #obs               | Temp ( °C) | Anomaly | SDV1 | SDV2 | Flag |
| WGOM   | 227 | 9                   | 19.26      | 2.81    | 0.37 | 1.76 | 0    | 8                  | 8.11       | 1.86    | 0.38 | 0.68 | 0    |
| EGOM   | 227 | 2                   | 16.08      | 3.85    | 0.76 | NaN  | 1    | 2                  | 9.96       | 1.36    | 0.99 | NaN  | 1    |
| GB     | 232 | 7                   | 20.60      | 2.96    | 0.93 | 0.54 | 0    | 4                  | 12.97      | 1.65    | 0.98 | 2.51 | 1    |
| MABN   | 238 | 5                   | 23.22      | 3.57    | 1.77 | 0.80 | 1    | 5                  | 12.48      | 2.08    | 1.80 | 1.49 | 1    |
| MABS   | 250 | 8                   | 24.64      | 1.75    | 0.64 | 1.93 | 0    | 8                  | 13.09      | 1.84    | 2.22 | 1.45 | 0    |

|        |     | SURFACE SALINITY |          |         |      |      |      | BOTTOM SALINITY |          |         |      |      |      |
|--------|-----|------------------|----------|---------|------|------|------|-----------------|----------|---------|------|------|------|
| Region | CD  | #obs             | Salinity | Anomaly | SDV1 | SDV2 | Flag | #obs            | Salinity | Anomaly | SDV1 | SDV2 | Flag |
| WGOM   | 227 | 9                | 32.10    | 0.26    | 0.15 | 0.22 | 0    | 8               | 33.32    | 0.23    | 0.12 | 0.38 | 0    |
| EGOM   | 227 | 2                | 32.52    | -0.06   | 0.40 | NaN  | 1    | 2               | 34.19    | 0.15    | 0.31 | NaN  | 1    |
| GB     | 232 | 7                | 32.65    | -0.50   | 0.27 | 0.42 | 0    | 4               | 33.61    | 0.00    | 0.45 | 0.28 | 1    |
| MABN   | 238 | 5                | 33.10    | 0.20    | 0.70 | 0.19 | 1    | 5               | 33.80    | 0.37    | 0.57 | 0.32 | 1    |
| MABS   | 250 | 8                | 32.86    | 0.19    | 0.34 | 0.70 | 0    | 8               | 33.53    | -0.24   | 0.72 | 0.70 | 0    |

"Region"; WGOM is the Western Gulf of Maine; EGOM is the Eastern Gulf of Maine; GB is Georges Bank; MABN is the northern Mid-Atlantic Bight; MABS is the southern Mid-Atlantic Bight;

"CD": the calendar mid-date of all the stations within a region for a cruise;

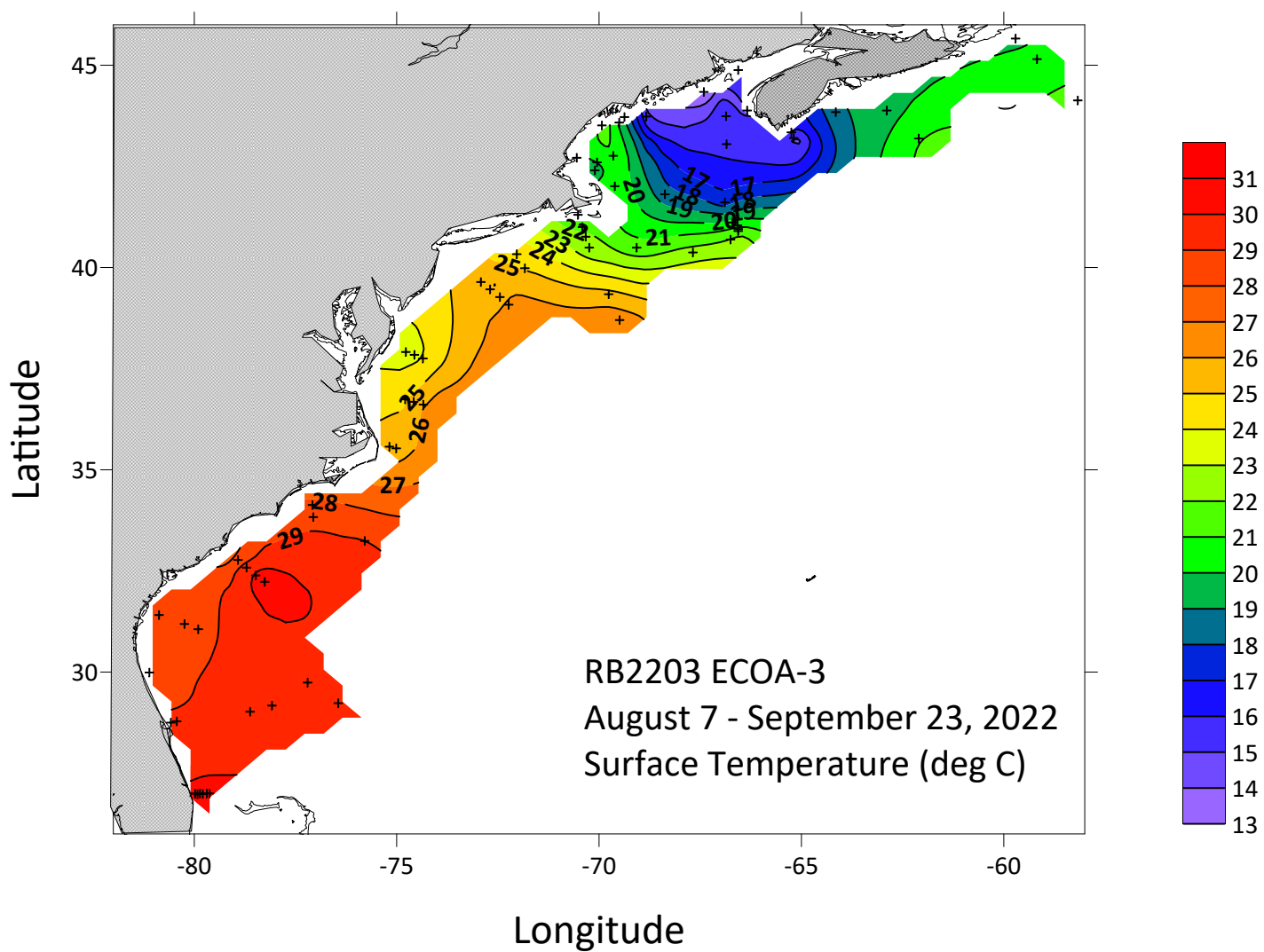
"#obs": the number of observations include in each average;

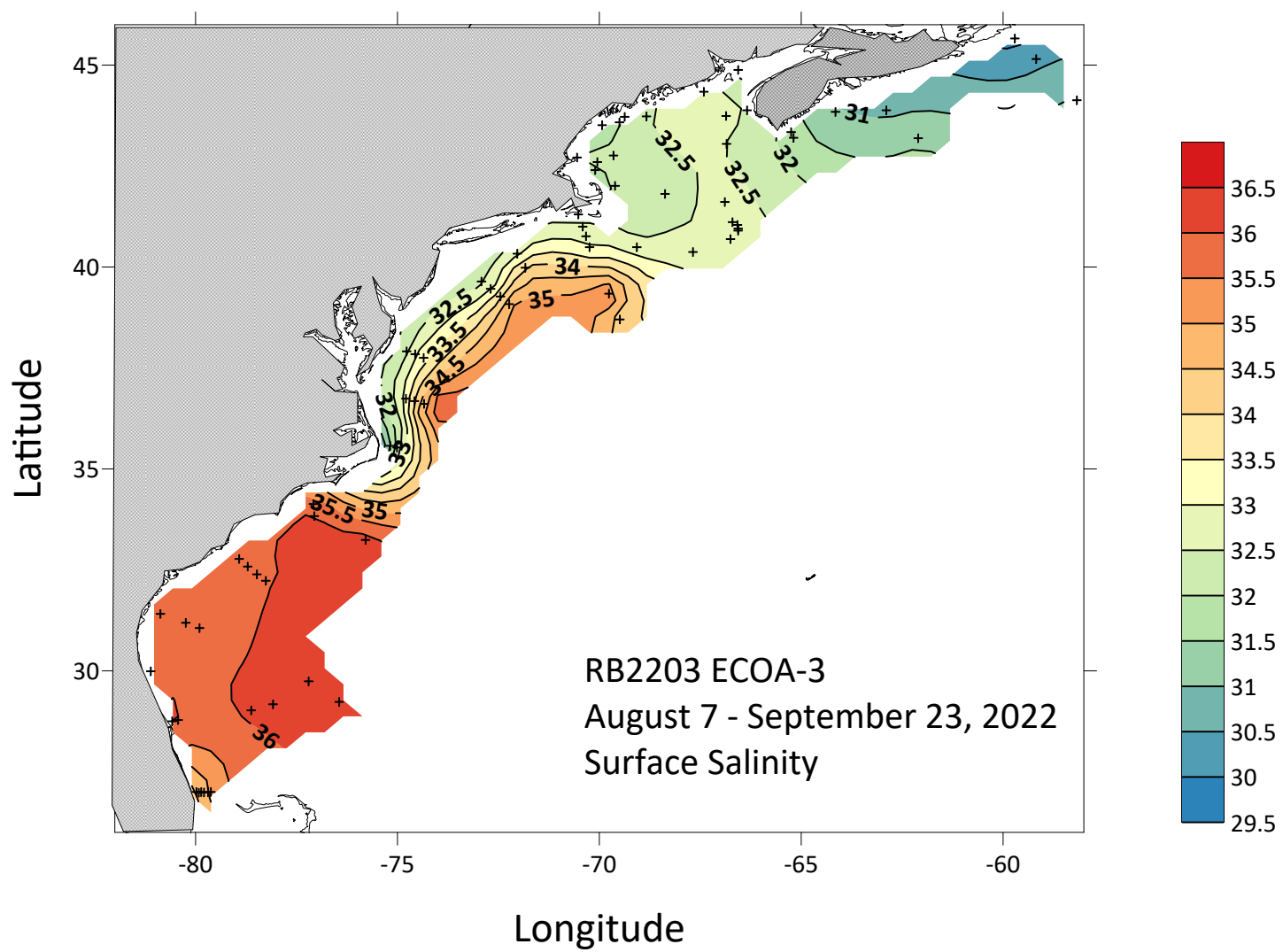
"Temp ( °C)" and "Salinity": the areal averaged temperature or salinity; "Anomaly": the areal averaged temp/salt anomaly;

"SDV1": the standard deviation associated with the average temp/salt anomaly;

"SDV2": the standard deviation of the individual anomalies from which the average anomaly was derived;

"Flag": a value of "1" indicates that a true areal average could not be calculated due to poor station coverage. The areal averages listed were derived from a simple average of the observations within the region.





**RB2203 ECOA-3**  
**August 7 - September 23, 2022**

| Cast | Station | Lat      | Long     | Day | Mo | Year | Time  | Btm       | Sfc        | Sfc   | Deepest<br>Observed | Deepest<br>Observed | Meters<br>from | Method<br>of |
|------|---------|----------|----------|-----|----|------|-------|-----------|------------|-------|---------------------|---------------------|----------------|--------------|
| #    | #       | (DDMM.M) | (DDMM.M) |     |    |      | (GMT) | Depth (m) | Temp (° C) | Salt  | Temp (° C)          | Salt                | Bottom         | Deployment   |
| 1    | 8888    | 4224.1   | 7006.2   | 7   | 8  | 2022 | 14:45 | 80        | 19.15      | 31.88 | 7.11                | 32.46               | 9              | B            |
| 2    | 1       | 4330.7   | 6955.6   | 8   | 8  | 2022 | 23:22 | 115       | 21.36      | 31.57 | 7.57                | 32.73               | 9              | B            |
| 3    | 2       | 4335.0   | 6930.0   | 9   | 8  | 2022 | 2:48  | 140       | 20.74      | 32.09 | 7.16                | 33.13               | 8              | B            |
| 4    | 3       | 4343.2   | 6922.3   | 9   | 8  | 2022 | 5:55  | 87        | 18.31      | 31.99 | 8.90                | 32.51               | 6              | B            |
| 5    | 4       | 4343.6   | 6849.6   | 9   | 8  | 2022 | 10:10 | 105       | 14.85      | 32.50 | 9.42                | 33.23               | 8              | B            |
| 6    | 6       | 4420.1   | 6724.8   | 9   | 8  | 2022 | 23:46 | 70        | 12.98      | 32.82 | 10.78               | 33.14               | 9              | B            |
| 7    | 9       | 4452.7   | 6633.3   | 10  | 8  | 2022 | 9:01  | 100       | 16.24      | 31.83 | 9.37                | 32.92               | 8              | B            |
| 8    | 13      | 4352.5   | 6620.6   | 11  | 8  | 2022 | 0:02  | 60        | 14.38      | 32.50 | 12.44               | 32.64               | 9              | B            |
| 9    | 16      | 4344.3   | 6651.4   | 11  | 8  | 2022 | 5:51  | 150       | 16.39      | 32.56 | 9.09                | 34.04               | 8              | B            |
| 10   | 23      | 4320.4   | 6515.1   | 12  | 8  | 2022 | 5:40  | 100       | 16.41      | 31.74 | 6.11                | 32.98               | 9              | B            |
| 11   | 24      | 4350.7   | 6409.2   | 12  | 8  | 2022 | 11:13 | 145       | 18.90      | 31.02 | 10.21               | 34.68               | 2              | B            |
| 12   | 27      | 4353.0   | 6253.1   | 13  | 8  | 2022 | 1:21  | 268       | 19.50      | 30.88 | 10.53               | 35.13               | 67             | B            |
| 13   | 29      | 4311.3   | 6205.8   | 13  | 8  | 2022 | 8:44  | 95        | 21.05      | 31.44 | 9.08                | 33.94               | 9              | B            |
| 14   | 32      | 4407.5   | 5810.4   | 14  | 8  | 2022 | 11:12 | 730       | 21.39      | 31.06 | 10.16               | 35.21               | 528            | B            |
| 15   | 35      | 4509.2   | 5911.0   | 15  | 8  | 2022 | 0:11  | 100       | 20.23      | 30.37 | 2.66                | 32.16               | 9              | B            |
| 16   | 37      | 4539.4   | 5942.4   | 15  | 8  | 2022 | 5:31  | 125       | 19.85      | 29.80 | 4.65                | 33.46               | 9              | B            |
| 17   | 39      | 4311.8   | 6511.1   | 16  | 8  | 2022 | 9:14  | 150       | 14.22      | 31.67 | 8.07                | 33.81               | 8              | B            |
| 18   | 54      | 4303.3   | 6650.9   | 18  | 8  | 2022 | 3:39  | 155       | 15.77      | 32.49 | 10.83               | 34.35               | 8              | B            |
| 19   | 59      | 4136.7   | 6653.7   | 18  | 8  | 2022 | 23:56 | 60        | 17.48      | 32.72 | 17.25               | 32.72               | 9              | B            |
| 20   | 60      | 4106.6   | 6642.1   | 19  | 8  | 2022 | 3:17  | 80        | 20.29      | 32.50 | 10.92               | 33.05               | 14             | B            |
| 21   | 61      | 4102.2   | 6634.7   | 19  | 8  | 2022 | 5:17  | 80        | 20.97      | 32.63 | 10.17               | 33.19               | 9              | B            |
| 22   | 62      | 4056.8   | 6633.8   | 19  | 8  | 2022 | 7:12  | 115       | 21.47      | 32.63 | 13.08               | 35.21               | 8              | B            |
| 23   | 63      | 4054.0   | 6633.3   | 19  | 8  | 2022 | 8:59  | 310       | 21.84      | 32.61 | 12.82               | 35.60               | 108            | B            |
| 24   | 67      | 4041.6   | 6644.8   | 20  | 8  | 2022 | 0:43  | 630       | 22.19      | 32.60 | 12.67               | 35.60               | 427            | B            |
| 25   | 69      | 4022.4   | 6740.6   | 20  | 8  | 2022 | 7:31  | 530       | 22.59      | 32.73 | 10.85               | 35.38               | 328            | B            |
| 26   | 73      | 4148.7   | 6822.2   | 21  | 8  | 2022 | 2:43  | 200       | 18.37      | 32.22 | 9.44                | 34.85               | 5              | B            |
| 27   | 74      | 4245.5   | 6939.0   | 21  | 8  | 2022 | 9:59  | 265       | 21.17      | 32.09 | 8.30                | 34.11               | 63             | B            |
| 28   | 81      | 4242.9   | 7033.2   | 22  | 8  | 2022 | 2:25  | 80        | 20.41      | 31.94 | 8.23                | 32.38               | 8              | B            |
| 29   | 82      | 4236.2   | 7002.9   | 22  | 8  | 2022 | 5:15  | 120       | 19.58      | 32.26 | 7.23                | 32.88               | 9              | B            |

**RB2203 ECOA-3**  
**August 7 - September 23, 2022**

| Cast | Station | Lat      | Long     | Day | Mo | Year | Time  | Btm       | Sfc        | Sfc   | Deepest<br>Observed | Deepest<br>Observed | Meters<br>from | Method<br>of |
|------|---------|----------|----------|-----|----|------|-------|-----------|------------|-------|---------------------|---------------------|----------------|--------------|
| #    | #       | (DDMM.M) | (DDMM.M) |     |    |      | (GMT) | Depth (m) | Temp (° C) | Salt  | Temp (° C)          | Salt                | Bottom         | Deployment   |
| 30   | 83      | 4200.9   | 6936.4   | 22  | 8  | 2022 | 9:08  | 200       | 20.83      | 31.99 | 7.37                | 33.60               | 8              | B            |
| 31   | 85      | 4029.3   | 6904.4   | 22  | 8  | 2022 | 23:43 | 75        | 21.24      | 32.64 | 11.36               | 33.32               | 8              | B            |
| 32   | 87      | 3841.8   | 6929.4   | 23  | 8  | 2022 | 23:43 | 3300      | 26.63      | 34.06 | 11.53               | 35.45               | 3097           | B            |
| 33   | 89      | 3920.6   | 6945.3   | 24  | 8  | 2022 | 8:40  | 2510      | 25.37      | 35.61 | 18.13               | 36.59               | 2308           | B            |
| 34   | 93      | 4029.2   | 7014.3   | 25  | 8  | 2022 | 0:11  | 67        | 22.26      | 32.90 | 10.67               | 33.59               | 8              | B            |
| 35   | 94      | 4045.3   | 7019.5   | 25  | 8  | 2022 | 2:27  | 48        | 22.45      | 32.85 | 12.61               | 32.90               | 8              | B            |
| 36   | 95      | 4100.2   | 7024.5   | 25  | 8  | 2022 | 4:39  | 35        | 21.63      | 32.71 | 13.12               | 32.97               | 7              | B            |
| 37   | 96      | 4118.1   | 7031.3   | 25  | 8  | 2022 | 7:24  | 12        | 20.77      | 32.18 | 20.53               | 32.18               | 5              | B            |
| 38   | 113     | 4019.7   | 7201.6   | 27  | 8  | 2022 | 1:23  | 63        | 24.79      | 32.85 | 11.66               | 33.84               | 8              | B            |
| 39   | 115     | 3958.8   | 7149.7   | 27  | 8  | 2022 | 4:38  | 90        | 24.94      | 34.17 | 14.32               | 35.71               | 8              | B            |
| 40   | 123     | 3938.2   | 7255.2   | 28  | 8  | 2022 | 1:38  | 65        | 25.91      | 32.31 | 10.79               | 33.83               | 8              | B            |
| 41   | 126     | 3916.4   | 7227.0   | 28  | 8  | 2022 | 6:50  | 150       | 25.54      | 33.88 | 13.13               | 35.65               | 8              | B            |
| 42   | 124     | 3927.3   | 7241.3   | 7   | 9  | 2022 | 6:18  | 84        | 24.62      | 32.79 | 13.57               | 34.71               | 5              | B            |
| 43   | 127     | 3904.9   | 7213.9   | 7   | 9  | 2022 | 10:41 | 1515      | 26.49      | 35.04 | 10.41               | 35.33               | 1312           | B            |
| 44   | 150     | 3754.6   | 7446.4   | 10  | 9  | 2022 | 1:38  | 31        | 23.68      | 32.21 | 19.77               | 32.46               | 6              | B            |
| 45   | 151     | 3750.1   | 7433.9   | 10  | 9  | 2022 | 3:36  | 53        | 23.63      | 33.17 | 11.81               | 32.73               | 5              | B            |
| 46   | 152     | 3745.0   | 7420.9   | 10  | 9  | 2022 | 5:39  | 71        | 23.99      | 33.17 | 9.37                | 33.02               | 4              | B            |
| 47   | 157     | 3644.4   | 7447.5   | 11  | 9  | 2022 | 3:15  | 63        | 24.77      | 33.13 | 11.03               | 32.99               | 4              | B            |
| 48   | 158     | 3640.7   | 7434.8   | 11  | 9  | 2022 | 6:04  | 1260      | 24.89      | 33.17 | 12.19               | 35.55               | 1058           | B            |
| 49   | 159     | 3636.8   | 7420.5   | 11  | 9  | 2022 | 9:33  | 1900      | 26.44      | 35.95 | 10.69               | 35.37               | 1698           | B            |
| 50   | 164     | 3532.0   | 7500.8   | 12  | 9  | 2022 | 8:28  | 42        | 25.32      | 32.34 | 17.78               | 33.36               | 4              | B            |
| 51   | 165     | 3534.1   | 7511.0   | 12  | 9  | 2022 | 9:56  | 34        | 25.48      | 30.25 | 21.75               | 33.22               | 4              | B            |
| 52   | 169     | 3408.0   | 7704.5   | 13  | 9  | 2022 | 6:30  | 30        | 28.27      | 35.98 | 27.21               | 36.11               | 4              | B            |
| 53   | 170     | 3349.7   | 7703.9   | 13  | 9  | 2022 | 8:55  | 34        | 28.69      | 36.01 | 27.59               | 36.06               | 4              | B            |
| 54   | 175     | 3314.7   | 7547.1   | 14  | 9  | 2022 | 0:27  | 3032      | 29.03      | 36.23 | 19.93               | 36.72               | 2829           | B            |
| 55   | 178     | 3214.0   | 7815.5   | 15  | 9  | 2022 | 3:48  | 374       | 30.30      | 35.95 | 21.04               | 36.58               | 171            | B            |
| 56   | 179     | 3223.5   | 7829.0   | 15  | 9  | 2022 | 6:16  | 264       | 30.50      | 35.51 | 9.94                | 35.23               | 60             | B            |
| 57   | 180     | 3234.8   | 7842.4   | 15  | 9  | 2022 | 8:27  | 43        | 29.58      | 35.99 | 26.88               | 36.14               | 10             | B            |
| 58   | 181     | 3246.5   | 7855.2   | 15  | 9  | 2022 | 10:21 | 31        | 27.80      | 36.08 | 27.83               | 36.08               | 5              | B            |

**RB2203 ECOA-3**  
**August 7 - September 23, 2022**

| Cast | Station | Lat      | Long     | Day | Mo | Year | Time  | Btm       | Sfc        | Sfc   | Deepest<br>Observed | Deepest<br>Observed | Meters<br>from | Method<br>of |
|------|---------|----------|----------|-----|----|------|-------|-----------|------------|-------|---------------------|---------------------|----------------|--------------|
| #    | #       | (DDMM.M) | (DDMM.M) |     |    |      | (GMT) | Depth (m) | Temp (° C) | Salt  | Temp (° C)          | Salt                | Bottom         | Deployment   |
| 59   | 186     | 3124.5   | 8052.0   | 16  | 9  | 2022 | 2:13  | 21        | 28.61      | 35.59 | 28.67               | 35.66               | 5              | B            |
| 60   | 190     | 3111.7   | 8014.7   | 17  | 9  | 2022 | 22:53 | 38        | 28.56      | 36.13 | 28.31               | 36.20               | 4              | B            |
| 61   | 191     | 3103.5   | 7953.8   | 18  | 9  | 2022 | 1:22  | 125       | 28.56      | 35.59 | 17.72               | 36.17               | 3              | B            |
| 62   | 197     | 2944.2   | 7712.1   | 18  | 9  | 2022 | 23:51 | 919       | 29.68      | 36.32 | 20.59               | 36.78               | 716            | B            |
| 63   | 199     | 2913.6   | 7626.1   | 19  | 9  | 2022 | 8:10  | 5000      | 29.50      | 36.32 | 20.01               | 36.72               | 4798           | B            |
| 64   | 201     | 2910.2   | 7804.7   | 20  | 9  | 2022 | 2:18  | 892       | 29.35      | 36.10 | 20.58               | 36.77               | 690            | B            |
| 65   | 202     | 2901.0   | 7837.4   | 20  | 9  | 2022 | 6:34  | 866       | 29.76      | 36.08 | 20.42               | 36.76               | 665            | B            |
| 66   | 209     | 2845.1   | 8034.8   | 21  | 9  | 2022 | 1:19  | 18        | 29.23      | 36.15 | 28.82               | 36.11               | 5              | B            |
| 67   | 208     | 2846.6   | 8026.0   | 21  | 9  | 2022 | 2:55  | 22        | 28.92      | 35.87 | 28.83               | 36.11               | 6              | B            |
| 68   | 222     | 2959.6   | 8106.6   | 22  | 9  | 2022 | 0:39  | 17        | 28.65      | 35.90 | 28.67               | 35.91               | 4              | B            |
| 69   | 210     | 2659.9   | 7958.8   | 22  | 9  | 2022 | 22:04 | 76        | 30.19      | 34.26 | 23.77               | 36.30               | 4              | B            |
| 70   | 211     | 2658.8   | 7955.2   | 22  | 9  | 2022 | 23:31 | 175       | 30.15      | 34.16 | 16.69               | 36.19               | 3              | B            |
| 71   | 212     | 2700.1   | 7951.6   | 23  | 9  | 2022 | 1:19  | 279       | 30.10      | 34.17 | 15.56               | 36.05               | 76             | B            |
| 72   | 213     | 2659.5   | 7947.1   | 23  | 9  | 2022 | 3:32  | 386       | 30.39      | 34.55 | 17.53               | 36.34               | 184            | B            |
| 73   | 213     | 2659.9   | 7941.7   | 23  | 9  | 2022 | 6:10  | 527       | 30.32      | 34.74 | 18.03               | 36.43               | 325            | B            |
| 74   | 214     | 2659.9   | 7937.3   | 23  | 9  | 2022 | 8:28  | 633       | 30.19      | 35.33 | 18.36               | 36.47               | 431            | B            |

Deployment code: B=bongo cast