

Supplementary material

Table S1: Dataset of the seawater physical parameters measured through the SeaBird 32 Water Carousel CTD rosette (Salinity.PSU, potT.degC, Turbidity.NTU, Fluorescence.RFU). The SA.g.kg (absolute salinity) and CT.degC (conservative temperature) were calculated through the Gibbs 'SeaWater' functions from the R library "oce", using Sal and potT at pressure 0.

| CTD | Date | Niskin | Depth.m | Lat.deg | Lon.deg | Salinity.PSU | SA.g.kg | potT.degC | CT.degC | Turbidity.NTU | Fluorescence.RFU |
|-----|-----------|--------|---------|---------|---------|--------------|---------|-----------|---------|---------------|------------------|
| 1 | 7/18/2019 | 14 | -101 | 76.093 | -80.760 | 33.19 | 33.35 | -0.99 | -0.99 | 0 | 0 |
| 2 | 7/18/2019 | 1 | -661 | 76.015 | -80.779 | 34.37 | 34.54 | 0.26 | 0.26 | 0.04 | 0 |
| 2 | 7/18/2019 | 23 | -12 | 76.014 | -80.812 | 32.13 | 32.29 | -0.33 | -0.32 | 0.04 | 0.4 |
| 2 | 7/18/2019 | 15 | -102 | 76.014 | -80.807 | 33.34 | 33.5 | -0.88 | -0.87 | 0 | 0 |
| 2 | 7/18/2019 | 19 | -41 | 76.014 | -80.810 | 32.48 | 32.64 | -1.43 | -1.43 | 0 | 0.03 |
| 3 | 7/18/2019 | 2 | -610 | 75.949 | -80.832 | 34.37 | 34.54 | 0.26 | 0.26 | 0.03 | 0 |
| 3 | 7/18/2019 | 11 | -150 | 75.948 | -80.835 | 33.72 | 33.88 | -0.54 | -0.53 | 0 | 0 |
| 3 | 7/18/2019 | 24 | -7 | 75.948 | -80.836 | 32.03 | 32.18 | -0.18 | -0.17 | 0.02 | 0.3 |
| 3 | 7/18/2019 | 13 | -71 | 75.948 | -80.836 | 32.82 | 32.98 | -1.25 | -1.24 | 0 | 0 |
| 3 | 7/18/2019 | 17 | -40 | 75.948 | -80.836 | 32.58 | 32.74 | -1.5 | -1.49 | 0 | 0 |
| 4 | 7/19/2019 | 2 | -553 | 75.844 | -80.922 | 34.36 | 34.53 | 0.25 | 0.26 | 0.04 | 0 |
| 4 | 7/19/2019 | 16 | -150 | 75.844 | -80.922 | 33.58 | 33.74 | -0.67 | -0.66 | 0 | 0 |
| 4 | 7/19/2019 | 20 | -50 | 75.844 | -80.921 | 32.47 | 32.62 | -1.21 | -1.2 | 0.01 | 0.05 |
| 5 | 7/20/2019 | 9 | -382 | 72.783 | -78.263 | 34.24 | 34.41 | 0.71 | 0.71 | 0 | 0 |
| 5 | 7/20/2019 | 1 | -746 | 72.785 | -78.258 | 34.41 | 34.58 | 0.95 | 0.95 | 0 | 0 |
| 5 | 7/20/2019 | 3 | -601 | 72.784 | -78.260 | 34.39 | 34.56 | 0.94 | 0.95 | 0 | 0 |
| 5 | 7/20/2019 | 22 | -21 | 72.782 | -78.269 | 31.8 | 31.95 | -1.27 | -1.26 | 0 | 0.05 |
| 5 | 7/20/2019 | 11 | -175 | 72.782 | -78.265 | 33.26 | 33.42 | -1.04 | -1.03 | 0 | 0 |
| 5 | 7/20/2019 | 14 | -61 | 72.782 | -78.268 | 32.34 | 32.49 | -1.38 | -1.37 | 0 | 0.02 |
| 6 | 7/22/2019 | 9 | -402 | 73.808 | -81.571 | 34.28 | 34.45 | 0.5 | 0.5 | 0 | 0 |
| 6 | 7/22/2019 | 1 | -596 | 73.806 | -81.572 | 34.44 | 34.61 | 0.73 | 0.73 | 0 | 0 |
| 6 | 7/22/2019 | 16 | -47 | 73.811 | -81.572 | 32.24 | 32.39 | -0.42 | -0.41 | 0 | 0.16 |
| 6 | 7/22/2019 | 13 | -201 | 73.810 | -81.573 | 33.57 | 33.73 | -1.45 | -1.44 | 0 | 0 |
| 6 | 7/22/2019 | 14 | -102 | 73.811 | -81.572 | 32.72 | 32.88 | -1.43 | -1.42 | 0 | 0.01 |
| 8 | 7/22/2019 | 1 | -561 | 73.923 | -81.562 | 34.42 | 34.59 | 0.7 | 0.7 | 0 | 0 |
| 8 | 7/22/2019 | 8 | -390 | 73.923 | -81.561 | 34.34 | 34.5 | 1.5 | 1.5 | 0 | 0 |
| 8 | 7/22/2019 | 14 | -101 | 73.921 | -81.560 | 32.74 | 32.9 | -1.49 | -1.49 | 0 | 0 |
| 8 | 7/22/2019 | 16 | -70 | 73.921 | -81.559 | 32.41 | 32.56 | -1.47 | -1.46 | 0 | 0 |
| 8 | 7/22/2019 | 20 | -15 | 73.921 | -81.559 | 30.88 | 31.03 | -0.45 | -0.44 | 0 | 0.1 |

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|----|-----------|----|------|--------|---------|-------|-------|-------|-------|------|------|
| 10 | 7/22/2019 | 1 | -710 | 74.053 | -81.547 | 34.43 | 34.6 | 0.66 | 0.66 | 0.03 | 0 |
| 10 | 7/22/2019 | 3 | -551 | 74.053 | -81.543 | 34.38 | 34.55 | 0.59 | 0.59 | 0 | 0 |
| 10 | 7/22/2019 | 5 | -472 | 74.053 | -81.542 | 34.34 | 34.51 | 0.78 | 0.78 | 0 | 0 |
| 10 | 7/22/2019 | 9 | -201 | 74.052 | -81.537 | 33.47 | 33.63 | -1.39 | -1.38 | 0 | 0 |
| 10 | 7/22/2019 | 11 | -101 | 74.052 | -81.535 | 32.63 | 32.79 | -1.52 | -1.52 | 0 | 0.01 |
| 12 | 7/23/2019 | 1 | -742 | 74.173 | -81.540 | 34.47 | 34.65 | 0.96 | 0.96 | 0 | 0 |
| 12 | 7/23/2019 | 5 | -524 | 74.171 | -81.530 | 34.41 | 34.58 | 1.03 | 1.03 | 0 | 0 |
| 12 | 7/23/2019 | 18 | -20 | 74.167 | -81.510 | 30.94 | 31.09 | 0.5 | 0.52 | 0 | 0.19 |
| 12 | 7/23/2019 | 9 | -402 | 74.170 | -81.526 | 34.38 | 34.55 | 1.59 | 1.6 | 0 | 0 |
| 12 | 7/23/2019 | 11 | -107 | 74.168 | -81.515 | 32.73 | 32.89 | -1.48 | -1.47 | 0 | 0 |
| 14 | 7/23/2019 | 1 | -700 | 74.301 | -81.566 | 34.46 | 34.64 | 0.75 | 0.75 | 0 | 0 |
| 14 | 7/23/2019 | 3 | -502 | 74.301 | -81.567 | 34.44 | 34.61 | 1.24 | 1.24 | 0 | 0 |
| 14 | 7/23/2019 | 9 | -33 | 74.299 | -81.568 | 31.54 | 31.69 | 1.44 | 1.46 | 0 | 0.05 |
| 14 | 7/23/2019 | 11 | -19 | 74.299 | -81.568 | 30.62 | 30.77 | 0.98 | 1.01 | 0 | 0.1 |
| 14 | 7/23/2019 | 5 | -110 | 74.300 | -81.568 | 32.96 | 33.11 | -1.55 | -1.54 | 0 | 0 |
| 16 | 7/23/2019 | 1 | -690 | 74.427 | -81.549 | 34.47 | 34.65 | 1.01 | 1.01 | 0.01 | 0 |
| 16 | 7/23/2019 | 3 | -502 | 74.427 | -81.547 | 34.38 | 34.56 | 0.7 | 0.7 | 0 | 0 |
| 16 | 7/23/2019 | 16 | -30 | 74.424 | -81.537 | 32.23 | 32.38 | -0.75 | -0.74 | 0 | 0.11 |
| 16 | 7/23/2019 | 12 | -101 | 74.425 | -81.539 | 32.73 | 32.88 | -1.41 | -1.41 | 0 | 0 |
| 17 | 7/24/2019 | 1 | -113 | 74.651 | -91.994 | 32.9 | 33.06 | -1.29 | -1.28 | 0 | 0 |
| 17 | 7/24/2019 | 9 | -37 | 74.651 | -91.994 | 32.03 | 32.18 | -1.43 | -1.42 | 0 | 0.01 |
| 17 | 7/24/2019 | 4 | -75 | 74.651 | -91.994 | 32.57 | 32.73 | -1.43 | -1.43 | 0 | 0 |
| 17 | 7/24/2019 | 12 | -22 | 74.651 | -91.994 | 31.57 | 31.72 | -1.37 | -1.36 | 0 | 0.57 |
| 17 | 7/24/2019 | 15 | -15 | 74.651 | -91.994 | 29.04 | 29.18 | -1.35 | -1.34 | 0 | 0.18 |
| 17 | 7/24/2019 | 18 | -5 | 74.651 | -91.994 | 27.48 | 27.61 | -1.27 | -1.26 | 0 | 0.01 |
| 17 | 7/24/2019 | 21 | -1 | 74.651 | -91.994 | 27.06 | 27.19 | -1.2 | -1.19 | 0 | 0 |
| 18 | 7/24/2019 | 12 | -28 | 74.656 | -92.229 | 31.84 | 32 | -1.39 | -1.38 | 0 | 0.11 |
| 18 | 7/24/2019 | 1 | -100 | 74.656 | -92.229 | 32.64 | 32.8 | -1.35 | -1.34 | 0 | 0 |
| 18 | 7/24/2019 | 9 | -40 | 74.656 | -92.229 | 32.23 | 32.38 | -1.43 | -1.42 | 0 | 0 |
| 18 | 7/24/2019 | 4 | -75 | 74.656 | -92.229 | 32.57 | 32.73 | -1.42 | -1.42 | 0 | 0 |
| 18 | 7/24/2019 | 15 | -18 | 74.656 | -92.229 | 30.54 | 30.69 | -1.19 | -1.18 | 0.02 | 0.31 |
| 18 | 7/24/2019 | 15 | -18 | 74.656 | -92.229 | 30.54 | 30.69 | -1.19 | -1.18 | 0.02 | 0.31 |
| 18 | 7/24/2019 | 18 | -5 | 74.656 | -92.229 | 28.17 | 28.3 | -1.36 | -1.35 | 0 | 0.02 |
| 19 | 7/25/2019 | 2 | -124 | 74.658 | -92.497 | 33.23 | 33.39 | -1.16 | -1.15 | 0 | 0 |
| 19 | 7/25/2019 | 8 | -50 | 74.657 | -92.498 | 32.19 | 32.35 | -1.43 | -1.43 | 0 | 0.01 |

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|----|-----------|----|------|--------|---------|-------|-------|-------|-------|---|------|
| 19 | 7/25/2019 | 4 | -80 | 74.658 | -92.498 | 32.54 | 32.7 | -1.43 | -1.42 | 0 | 0 |
| 19 | 7/25/2019 | 10 | -25 | 74.657 | -92.498 | 30.86 | 31.01 | -1.26 | -1.25 | 0 | 0.13 |
| 19 | 7/25/2019 | 12 | -5 | 74.657 | -92.499 | 27.96 | 28.09 | -1.33 | -1.31 | 0 | 0.01 |
| 20 | 7/25/2019 | 12 | -28 | 74.661 | -92.783 | 31.66 | 31.81 | -1.33 | -1.32 | 0 | 0.12 |
| 20 | 7/25/2019 | 1 | -144 | 74.660 | -92.783 | 33.17 | 33.33 | -1.18 | -1.17 | 0 | 0 |
| 20 | 7/25/2019 | 9 | -50 | 74.661 | -92.783 | 32.26 | 32.42 | -1.32 | -1.32 | 0 | 0 |
| 20 | 7/25/2019 | 3 | -110 | 74.660 | -92.783 | 32.51 | 32.67 | -1.46 | -1.46 | 0 | 0 |
| 20 | 7/25/2019 | 5 | -81 | 74.660 | -92.783 | 32.44 | 32.6 | -1.53 | -1.52 | 0 | 0 |
| 20 | 7/25/2019 | 13 | -19 | 74.661 | -92.783 | 30.95 | 31.1 | -1.41 | -1.4 | 0 | 0.02 |
| 21 | 7/25/2019 | 4 | -75 | 74.663 | -93.107 | 32.42 | 32.58 | -1.19 | -1.18 | 0 | 0 |
| 21 | 7/25/2019 | 8 | -45 | 74.663 | -93.107 | 32.34 | 32.5 | -1.19 | -1.19 | 0 | 0.05 |
| 21 | 7/25/2019 | 12 | -25 | 74.663 | -93.107 | 31.95 | 32.11 | -1.12 | -1.11 | 0 | 0.34 |
| 21 | 7/25/2019 | 15 | -15 | 74.663 | -93.107 | 31.55 | 31.7 | -0.97 | -0.96 | 0 | 0.54 |
| 21 | 7/25/2019 | 1 | -136 | 74.663 | -93.107 | 32.67 | 32.82 | -1.3 | -1.29 | 0 | 0 |
| 21 | 7/25/2019 | 16 | -10 | 74.663 | -93.107 | 30.63 | 30.78 | -1.14 | -1.13 | 0 | 0.55 |
| 21 | 7/25/2019 | 23 | -1 | 74.663 | -93.107 | 27.98 | 28.12 | -0.98 | -0.96 | 0 | 0.06 |
| 22 | 7/25/2019 | 10 | -20 | 74.667 | -93.262 | 31.78 | 31.94 | -1.34 | -1.33 | 0 | 0.06 |
| 22 | 7/25/2019 | 8 | -40 | 74.668 | -93.261 | 32.2 | 32.36 | -1.37 | -1.36 | 0 | 0.01 |
| 22 | 7/26/2019 | 1 | -125 | 74.668 | -93.260 | 32.52 | 32.68 | -1.43 | -1.42 | 0 | 0 |
| 22 | 7/25/2019 | 4 | -80 | 74.668 | -93.261 | 32.42 | 32.58 | -1.47 | -1.46 | 0 | 0 |
| 22 | 7/25/2019 | 13 | -5 | 74.667 | -93.262 | 29.67 | 29.82 | -0.92 | -0.9 | 0 | 0.23 |
| 23 | 7/27/2019 | 4 | -101 | 74.433 | -99.277 | 33.02 | 33.18 | -1.22 | -1.21 | 0 | 0 |
| 23 | 7/27/2019 | 9 | -45 | 74.432 | -99.277 | 31.82 | 31.97 | -1.55 | -1.54 | 0 | 0.08 |
| 23 | 7/27/2019 | 12 | -26 | 74.432 | -99.276 | 31.41 | 31.56 | -1.6 | -1.59 | 0 | 0.14 |
| 23 | 7/27/2019 | 16 | -5 | 74.432 | -99.276 | 29.66 | 29.8 | -1.39 | -1.38 | 0 | 0 |
| 23 | 7/27/2019 | 18 | -2 | 74.432 | -99.276 | 29.13 | 29.27 | -1.38 | -1.37 | 0 | 0 |
| 24 | 7/28/2019 | 9 | -60 | 73.753 | -96.808 | 31.99 | 32.15 | -1.39 | -1.38 | 0 | 0 |
| 24 | 7/28/2019 | 1 | -209 | 73.751 | -96.808 | 33.09 | 33.25 | -1.12 | -1.12 | 0 | 0 |
| 24 | 7/28/2019 | 4 | -151 | 73.752 | -96.808 | 32.83 | 32.99 | -1.19 | -1.19 | 0 | 0 |
| 24 | 7/28/2019 | 5 | -103 | 73.753 | -96.808 | 32.58 | 32.74 | -1.29 | -1.28 | 0 | 0 |
| 24 | 7/28/2019 | 17 | -30 | 73.754 | -96.807 | 31.08 | 31.23 | -1.41 | -1.4 | 0 | 0.29 |
| 25 | 7/28/2019 | 8 | -90 | 73.760 | -96.594 | 32.34 | 32.5 | -1.26 | -1.25 | 0 | 0 |
| 25 | 7/28/2019 | 10 | -50 | 73.760 | -96.594 | 31.63 | 31.79 | -1.28 | -1.27 | 0 | 0.01 |
| 25 | 7/28/2019 | 1 | -198 | 73.760 | -96.594 | 33.1 | 33.26 | -1.12 | -1.11 | 0 | 0 |
| 25 | 7/28/2019 | 13 | -25 | 73.760 | -96.594 | 31.02 | 31.16 | -1.4 | -1.39 | 0 | 0.26 |

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|----|-----------|----|------|--------|---------|-------|-------|-------|-------|---|------|
| 25 | 7/28/2019 | 18 | -7 | 73.760 | -96.595 | 27.68 | 27.81 | -0.31 | -0.29 | 0 | 0.02 |
| 26 | 7/28/2019 | 1 | -208 | 73.751 | -96.432 | 33.07 | 33.23 | -1.13 | -1.12 | 0 | 0 |
| 26 | 7/28/2019 | 3 | -150 | 73.751 | -96.431 | 32.82 | 32.98 | -1.21 | -1.2 | 0 | 0 |
| 26 | 7/28/2019 | 9 | -75 | 73.751 | -96.431 | 32.15 | 32.31 | -1.42 | -1.41 | 0 | 0 |
| 26 | 7/28/2019 | 6 | -25 | 73.752 | -96.431 | 30.67 | 30.82 | -0.97 | -0.96 | 0 | 0.08 |
| 27 | 7/28/2019 | 9 | -60 | 73.750 | -96.249 | 31.8 | 31.95 | -1.25 | -1.24 | 0 | 0 |
| 27 | 7/28/2019 | 1 | -222 | 73.750 | -96.249 | 33.14 | 33.3 | -1.1 | -1.1 | 0 | 0 |
| 27 | 7/28/2019 | 3 | -150 | 73.750 | -96.249 | 32.86 | 33.02 | -1.19 | -1.18 | 0 | 0 |
| 27 | 7/28/2019 | 5 | -90 | 73.750 | -96.249 | 32.31 | 32.47 | -1.28 | -1.28 | 0 | 0 |
| 27 | 7/28/2019 | 6 | -26 | 73.750 | -96.250 | 30.38 | 30.53 | -0.79 | -0.78 | 0 | 0.05 |
| 27 | 7/28/2019 | 14 | -1 | 73.750 | -96.250 | 26.71 | 26.84 | -0.39 | -0.37 | 0 | 0 |
| 28 | 7/28/2019 | 5 | -71 | 73.748 | -96.030 | 31.89 | 32.04 | -1.24 | -1.23 | 0 | 0 |
| 28 | 7/28/2019 | 1 | -237 | 73.748 | -96.031 | 33.06 | 33.22 | -1.13 | -1.13 | 0 | 0 |
| 28 | 7/28/2019 | 9 | -26 | 73.748 | -96.029 | 30.61 | 30.76 | -0.95 | -0.93 | 0 | 0.11 |
| 29 | 7/28/2019 | 5 | -71 | 73.754 | -95.926 | 31.85 | 32 | -1.23 | -1.22 | 0 | 0 |
| 29 | 7/28/2019 | 1 | -210 | 73.753 | -95.927 | 32.95 | 33.11 | -1.16 | -1.16 | 0 | 0 |
| 29 | 7/28/2019 | 3 | -151 | 73.754 | -95.927 | 32.74 | 32.9 | -1.2 | -1.19 | 0 | 0 |
| 29 | 7/28/2019 | 9 | -26 | 73.754 | -95.926 | 30.64 | 30.79 | -0.98 | -0.97 | 0 | 0.07 |
| 30 | 7/29/2019 | 1 | -251 | 74.469 | -90.511 | 33.97 | 34.14 | -0.17 | -0.16 | 0 | 0 |
| 30 | 7/29/2019 | 4 | -151 | 74.469 | -90.513 | 33.18 | 33.35 | -1.21 | -1.21 | 0 | 0 |
| 30 | 7/29/2019 | 8 | -76 | 74.469 | -90.515 | 32.49 | 32.64 | -1.44 | -1.44 | 0 | 0 |
| 30 | 7/29/2019 | 19 | -28 | 74.469 | -90.516 | 30.66 | 30.8 | -1.22 | -1.21 | 0 | 0.09 |
| 30 | 7/29/2019 | 20 | -2 | 74.470 | -90.517 | 28.09 | 28.23 | -1.46 | -1.45 | 0 | 0 |
| 31 | 7/29/2019 | 9 | -61 | 74.525 | -90.379 | 32.21 | 32.37 | -1.17 | -1.16 | 0 | 0 |
| 31 | 7/29/2019 | 4 | -131 | 74.525 | -90.378 | 32.96 | 33.12 | -1.24 | -1.24 | 0 | 0 |
| 31 | 7/29/2019 | 13 | -36 | 74.526 | -90.382 | 30.91 | 31.06 | -1.3 | -1.29 | 0 | 0.19 |
| 31 | 7/29/2019 | 16 | -2 | 74.526 | -90.384 | 27.77 | 27.9 | -1.36 | -1.35 | 0 | 0 |
| 32 | 7/29/2019 | 15 | -41 | 74.403 | -90.585 | 31.8 | 31.96 | -1.38 | -1.37 | 0 | 0.25 |
| 32 | 7/29/2019 | 4 | -151 | 74.403 | -90.582 | 33.27 | 33.43 | -1.19 | -1.19 | 0 | 0 |
| 32 | 7/29/2019 | 9 | -101 | 74.403 | -90.583 | 32.61 | 32.77 | -1.39 | -1.39 | 0 | 0 |
| 32 | 7/29/2019 | 12 | -60 | 74.403 | -90.584 | 32.29 | 32.45 | -1.37 | -1.37 | 0 | 0 |
| 32 | 7/29/2019 | 19 | -21 | 74.404 | -90.585 | 30.26 | 30.41 | -1.21 | -1.2 | 0 | 0.03 |
| 32 | 7/29/2019 | 22 | -1 | 74.404 | -90.586 | 28.1 | 28.24 | -1.45 | -1.43 | 0 | 0 |
| 34 | 7/29/2019 | 15 | -33 | 74.343 | -90.728 | 31.79 | 31.94 | -1.2 | -1.19 | 0 | 0.57 |
| 34 | 7/29/2019 | 1 | -203 | 74.343 | -90.725 | 33.75 | 33.91 | -0.61 | -0.6 | 0 | 0 |

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| 34 | 7/29/2019 | 4 | -150 | 74.343 | -90.726 | 33.13 | 33.29 | -1.25 | -1.24 | 0 | 0 |
| 34 | 7/29/2019 | 12 | -50 | 74.343 | -90.728 | 32.18 | 32.34 | -1.35 | -1.35 | 0 | 0 |
| 34 | 7/29/2019 | 9 | -88 | 74.343 | -90.727 | 32.5 | 32.66 | -1.46 | -1.46 | 0 | 0 |
| 34 | 7/29/2019 | 18 | -2 | 74.343 | -90.729 | 28.08 | 28.21 | -1.38 | -1.36 | 0 | 0 |
| 35 | 7/29/2019 | 1 | -222 | 74.287 | -90.768 | 33.77 | 33.94 | -0.6 | -0.6 | 0 | 0 |
| 35 | 7/29/2019 | 4 | -151 | 74.287 | -90.769 | 33.05 | 33.21 | -1.25 | -1.25 | 0 | 0 |
| 35 | 7/29/2019 | 10 | -41 | 74.287 | -90.771 | 32.16 | 32.31 | -1.42 | -1.41 | 0 | 0 |
| 35 | 7/29/2019 | 8 | -82 | 74.287 | -90.770 | 32.42 | 32.57 | -1.5 | -1.49 | 0 | 0 |
| 35 | 7/29/2019 | 12 | -18 | 74.287 | -90.772 | 31.31 | 31.46 | -1.28 | -1.27 | 0 | 0.28 |
| 35 | 7/29/2019 | 18 | -2 | 74.288 | -90.774 | 28.39 | 28.53 | -1.12 | -1.11 | 0 | 0 |
| 36 | 7/29/2019 | 10 | -46 | 74.215 | -90.889 | 32.08 | 32.24 | -1.38 | -1.37 | 0 | 0 |
| 36 | 7/29/2019 | 8 | -77 | 74.215 | -90.888 | 32.35 | 32.51 | -1.53 | -1.52 | 0 | 0 |
| 36 | 7/29/2019 | 13 | -29 | 74.215 | -90.890 | 31.57 | 31.72 | -1.43 | -1.42 | 0 | 0.18 |
| 36 | 7/29/2019 | 17 | -15 | 74.215 | -90.891 | 30.75 | 30.89 | -1.07 | -1.06 | 0 | 0.13 |
| 36 | 7/29/2019 | 21 | -2 | 74.215 | -90.893 | 28.81 | 28.95 | -1.02 | -1 | 0 | 0 |
| 39 | 7/31/2019 | 1 | -190 | 73.484 | -88.656 | 33.3 | 33.46 | -1.04 | -1.03 | 0 | 0 |
| 39 | 7/31/2019 | 4 | -139 | 73.485 | -88.655 | 32.23 | 32.38 | -1.39 | -1.39 | 0 | 0 |
| 39 | 7/31/2019 | 8 | -46 | 73.488 | -88.651 | 31.47 | 31.62 | -1.63 | -1.62 | 0 | 0 |
| 39 | 7/31/2019 | 10 | -34 | 73.490 | -88.649 | 31.38 | 31.53 | -1.51 | -1.51 | 0 | 0.66 |
| 39 | 7/31/2019 | 16 | -2 | 73.494 | -88.644 | 27.64 | 27.77 | -0.17 | -0.14 | 0 | 0 |
| 40 | 7/31/2019 | 3 | -310 | 73.483 | -88.917 | 34.02 | 34.18 | 0.1 | 0.1 | 0 | 0 |
| 40 | 7/31/2019 | 9 | -151 | 73.484 | -88.915 | 32.64 | 32.79 | -1.27 | -1.26 | 0 | 0 |
| 40 | 7/31/2019 | 5 | -151 | 73.484 | -88.915 | 32.64 | 32.79 | -1.27 | -1.26 | 0 | 0 |
| 40 | 7/31/2019 | 17 | -21 | 73.486 | -88.913 | 31.4 | 31.55 | -1.51 | -1.51 | 0 | 0.96 |
| 40 | 7/31/2019 | 22 | -2 | 73.486 | -88.913 | 27.67 | 27.8 | -0.52 | -0.5 | 0 | 0 |
| 41 | 7/31/2019 | 2 | -380 | 73.485 | -89.216 | 34.23 | 34.39 | 0.57 | 0.58 | 0 | 0 |
| 41 | 7/31/2019 | 5 | -316 | 73.486 | -89.215 | 34.06 | 34.22 | 0.18 | 0.19 | 0 | 0 |
| 41 | 7/31/2019 | 9 | -200 | 73.486 | -89.214 | 33.38 | 33.54 | -0.8 | -0.8 | 0 | 0 |
| 41 | 7/31/2019 | 12 | -173 | 73.486 | -89.214 | 33.03 | 33.19 | -1.04 | -1.03 | 0 | 0 |
| 41 | 7/31/2019 | 14 | -90 | 73.487 | -89.214 | 32.01 | 32.16 | -1.48 | -1.47 | 0 | 0 |
| 41 | 7/31/2019 | 17 | -45 | 73.487 | -89.213 | 31.59 | 31.75 | -1.64 | -1.63 | 0 | 0 |
| 41 | 7/31/2019 | 20 | -25 | 73.487 | -89.213 | 31.4 | 31.55 | -1.54 | -1.53 | 0 | 1.76 |
| 41 | 7/31/2019 | 22 | -1 | 73.487 | -89.213 | 28.86 | 29 | -0.88 | -0.86 | 0 | 0 |
| 43 | 7/31/2019 | 1 | -413 | 73.481 | -89.862 | 34.28 | 34.45 | 0.49 | 0.49 | 0 | 0 |
| 43 | 7/31/2019 | 5 | -271 | 73.482 | -89.862 | 34.01 | 34.17 | -0.02 | -0.02 | 0 | 0 |

| | | | | | | | | | | | |
|----|-----------|----|------|--------|---------|-------|-------|-------|-------|---|------|
| 43 | 7/31/2019 | 9 | -182 | 73.482 | -89.862 | 33.34 | 33.5 | -0.88 | -0.87 | 0 | 0 |
| 43 | 7/31/2019 | 12 | -92 | 73.483 | -89.862 | 32.33 | 32.49 | -1.41 | -1.4 | 0 | 0 |
| 43 | 7/31/2019 | 14 | -45 | 73.483 | -89.862 | 31.63 | 31.78 | -1.63 | -1.63 | 0 | 0 |
| 43 | 7/31/2019 | 16 | -28 | 73.484 | -89.862 | 31.26 | 31.41 | -1.41 | -1.4 | 0 | 0.08 |
| 43 | 7/31/2019 | 20 | -1 | 73.484 | -89.862 | 28.78 | 28.92 | -0.74 | -0.72 | 0 | 0 |
| 45 | 7/31/2019 | 1 | -298 | 73.477 | -90.469 | 34.15 | 34.31 | 0.32 | 0.33 | 0 | 0 |
| 45 | 7/31/2019 | 3 | -220 | 73.477 | -90.470 | 33.68 | 33.85 | -0.69 | -0.68 | 0 | 0 |
| 45 | 7/31/2019 | 5 | -120 | 73.476 | -90.470 | 32.61 | 32.76 | -1.32 | -1.32 | 0 | 0 |
| 45 | 7/31/2019 | 9 | -70 | 73.476 | -90.471 | 32.23 | 32.38 | -1.44 | -1.43 | 0 | 0 |
| 45 | 7/31/2019 | 11 | -25 | 73.476 | -90.471 | 31.04 | 31.19 | -1.26 | -1.25 | 0 | 0.12 |
| 46 | 7/31/2019 | 10 | -42 | 73.478 | -90.767 | 31.84 | 32 | -1.45 | -1.45 | 0 | 0 |
| 46 | 7/31/2019 | 1 | -192 | 73.478 | -90.767 | 33.08 | 33.24 | -1.18 | -1.17 | 0 | 0 |
| 46 | 7/31/2019 | 4 | -115 | 73.478 | -90.767 | 32.45 | 32.61 | -1.37 | -1.36 | 0 | 0 |
| 46 | 7/31/2019 | 13 | -21 | 73.478 | -90.767 | 31.37 | 31.52 | -1.39 | -1.38 | 0 | 0.05 |
| 46 | 7/31/2019 | 18 | -10 | 73.478 | -90.767 | 30.71 | 30.85 | -0.98 | -0.97 | 0 | 0.13 |
| 46 | 7/31/2019 | 21 | -1 | 73.478 | -90.767 | 29.93 | 30.08 | -0.02 | 0 | 0 | 0.05 |
| 50 | 8/1/2019 | 3 | -82 | 74.074 | -91.051 | 31.95 | 32.1 | -1.37 | -1.37 | 0 | 0 |
| 50 | 8/1/2019 | 5 | -57 | 74.074 | -91.051 | 31.67 | 31.83 | -1.44 | -1.43 | 0 | 0 |
| 50 | 8/1/2019 | 1 | -124 | 74.075 | -91.051 | 32.27 | 32.43 | -1.32 | -1.31 | 0 | 0 |
| 50 | 8/1/2019 | 9 | -32 | 74.074 | -91.051 | 31.14 | 31.29 | -0.96 | -0.95 | 0 | 0.09 |
| 50 | 8/1/2019 | 12 | -5 | 74.074 | -91.051 | 30.94 | 31.09 | -0.88 | -0.87 | 0 | 0.07 |
| 51 | 8/3/2019 | 5 | -316 | 74.482 | -83.174 | 34.21 | 34.38 | 0.5 | 0.5 | 0 | 0 |
| 51 | 8/3/2019 | 18 | -31 | 74.482 | -83.173 | 30.92 | 31.06 | 1.17 | 1.19 | 0 | 0.18 |
| 51 | 8/3/2019 | 13 | -75 | 74.482 | -83.173 | 32.55 | 32.7 | -1.44 | -1.44 | 0 | 0 |
| 52 | 8/3/2019 | 2 | -242 | 74.524 | -83.196 | 33.96 | 34.13 | -0.18 | -0.17 | 0 | 0 |
| 52 | 8/3/2019 | 10 | -76 | 74.524 | -83.196 | 32.6 | 32.75 | -1.42 | -1.42 | 0 | 0 |

Table S2: Dataset of the seawater chemical parameters. The nutrients were measured through Quik Chem Series 8500 Lachat analyzer (see paragraph 2.1.1). The ANP (Arctic Nitrate:Phosphate tracer) parameter was assessed through the Euclidean geometry, by calculating the distance between the sample and the Pacific and Atlantic trendlines (see paragraph 2.1.1). The Oxygen (μM) was measured through the CTD with dissolved oxygen sensor, while the $\delta^{18}\text{O}$ (‰) was measured using a Picarro I2130-I CRDS water isotope analyzer (see paragraph 2.1.2).

| CTD | Date | Niskin | Depth.m | Lat.deg | Lon.deg | Phosphate.uM | Silicate.uM | Nitrate.Nitrite.uM | ANP | Oxygen.uM | d18O.permil |
|-----|-----------|--------|---------|---------|---------|--------------|-------------|--------------------|------|-----------|-------------|
| 1 | 7/18/2019 | 14 | -101 | 76.093 | -80.760 | 1.33 | 21.31 | 13.08 | 0.42 | 285 | -2 |
| 2 | 7/18/2019 | 1 | -661 | 76.015 | -80.779 | 1.34 | 34.29 | 15.97 | 0.24 | 225 | 0.25 |

| | | | | | | | | | | | |
|----|-----------|----|------|--------|---------|------|-------|-------|------|-----|-------|
| 2 | 7/18/2019 | 23 | -12 | 76.014 | -80.812 | 1 | 13.74 | 4.94 | 0.68 | 367 | -1.87 |
| 2 | 7/18/2019 | 15 | -102 | 76.014 | -80.807 | 1.32 | 21.97 | 13.88 | 0.35 | 280 | -1.89 |
| 2 | 7/18/2019 | 19 | -41 | 76.014 | -80.810 | 1.24 | 20.59 | 10.09 | 0.53 | 320 | -2.33 |
| 3 | 7/18/2019 | 2 | -610 | 75.949 | -80.832 | 1.34 | 35.18 | 16.87 | 0.19 | 224 | -0.85 |
| 3 | 7/18/2019 | 11 | -150 | 75.948 | -80.835 | 1.26 | 21.03 | 14.28 | 0.27 | 266 | -1.75 |
| 3 | 7/18/2019 | 24 | -7 | 75.948 | -80.836 | 0.97 | 10.69 | 4.14 | 0.72 | 374 | -1.94 |
| 3 | 7/18/2019 | 13 | -71 | 75.948 | -80.836 | 1.29 | 19.48 | 11.03 | 0.52 | 298 | -2.21 |
| 3 | 7/18/2019 | 17 | -40 | 75.948 | -80.836 | 1.23 | 15.84 | 8.77 | 0.63 | 307 | -2.42 |
| 4 | 7/19/2019 | 2 | -553 | 75.844 | -80.922 | 1.3 | 35.1 | 16 | 0.2 | 225 | -0.85 |
| 4 | 7/19/2019 | 16 | -150 | 75.844 | -80.922 | 1.32 | 21.25 | 14.19 | 0.33 | 271 | -1.74 |
| 4 | 7/19/2019 | 20 | -50 | 75.844 | -80.921 | 1.32 | 21.58 | 14.46 | 0.31 | 326 | -1.77 |
| 5 | 7/20/2019 | 9 | -382 | 72.783 | -78.263 | 1.33 | 24.95 | 17.31 | 0.15 | 220 | -0.61 |
| 5 | 7/20/2019 | 1 | -746 | 72.785 | -78.258 | 0.49 | 1.99 | 0.26 | 0.44 | 218 | -0.58 |
| 5 | 7/20/2019 | 3 | -601 | 72.784 | -78.260 | 1.33 | 29.43 | 17.84 | 0.13 | 217 | -0.58 |
| 5 | 7/20/2019 | 22 | -21 | 72.782 | -78.269 | 1.11 | 11.75 | 6.68 | 0.66 | 355 | -2.35 |
| 5 | 7/20/2019 | 11 | -175 | 72.782 | -78.265 | 1.12 | 12.19 | 7.61 | 0.6 | 276 | -2.09 |
| 5 | 7/20/2019 | 14 | -61 | 72.782 | -78.268 | 1.25 | 16.78 | 9.52 | 0.59 | 323 | -2.31 |
| 6 | 7/22/2019 | 9 | -402 | 73.808 | -81.571 | 1.2 | 20.15 | 21.14 | 0.12 | 247 | -0.64 |
| 6 | 7/22/2019 | 1 | -596 | 73.806 | -81.572 | 1.34 | 32.25 | 18.02 | 0.12 | 223 | -0.61 |
| 6 | 7/22/2019 | 16 | -47 | 73.811 | -81.572 | 0.84 | 3.2 | 0.4 | 0.93 | 424 | -2.01 |
| 6 | 7/22/2019 | 13 | -201 | 73.810 | -81.573 | 1.15 | 14.68 | 11.92 | 0.31 | 303 | -1.37 |
| 6 | 7/22/2019 | 14 | -102 | 73.811 | -81.572 | 1.25 | 16.22 | 10.05 | 0.55 | 322 | -1.91 |
| 8 | 7/22/2019 | 1 | -561 | 73.923 | -81.562 | 0.9 | 11.27 | 7.97 | 0.32 | 234 | -0.3 |
| 8 | 7/22/2019 | 8 | -390 | 73.923 | -81.561 | 1.21 | 19.1 | 17.09 | 0.05 | 230 | -0.5 |
| 8 | 7/22/2019 | 14 | -101 | 73.921 | -81.560 | 1.32 | 19.73 | 11.3 | 0.52 | 309 | -1.7 |
| 8 | 7/22/2019 | 16 | -70 | 73.921 | -81.559 | 1.27 | 18.99 | 12.41 | 0.4 | 302 | -1.84 |
| 8 | 7/22/2019 | 20 | -15 | 73.921 | -81.559 | 0.83 | 8.88 | 1.63 | 0.79 | 392 | -2.88 |
| 10 | 7/22/2019 | 1 | -710 | 74.053 | -81.547 | 1.25 | 28.2 | 17.01 | 0.09 | 226 | -0.64 |
| 10 | 7/22/2019 | 3 | -551 | 74.053 | -81.543 | 1.19 | 20.79 | 16.21 | 0.08 | 244 | -0.75 |
| 10 | 7/22/2019 | 5 | -472 | 74.053 | -81.542 | 1.12 | 18.68 | 17.42 | 0.05 | 245 | -0.88 |
| 10 | 7/22/2019 | 9 | -201 | 74.052 | -81.537 | 0.89 | 7.26 | 6.49 | 0.41 | 305 | -2.02 |
| 10 | 7/22/2019 | 11 | -101 | 74.052 | -81.535 | 1.05 | 16.91 | 9.93 | 0.34 | 318 | -2 |
| 12 | 7/23/2019 | 1 | -742 | 74.173 | -81.540 | 1.32 | 32.43 | 19.93 | 0.01 | 205 | -0.79 |
| 12 | 7/23/2019 | 5 | -524 | 74.171 | -81.530 | 1.16 | 20.9 | 16.51 | 0.04 | 236 | -0.75 |
| 12 | 7/23/2019 | 18 | -20 | 74.167 | -81.510 | 0.75 | 6.43 | 1.05 | 0.74 | 378 | -2.09 |

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|----|-----------|----|------|--------|---------|------|-------|-------|------|-----|-------|
| 12 | 7/23/2019 | 9 | -402 | 74.170 | -81.526 | 1.21 | 20.21 | 17.51 | 0.03 | 228 | -0.5 |
| 12 | 7/23/2019 | 11 | -107 | 74.168 | -81.515 | 1.18 | 16.45 | 15.09 | 0.14 | 317 | -1.71 |
| 14 | 7/23/2019 | 1 | -700 | 74.301 | -81.566 | 1.35 | 35.4 | 18.01 | 0.13 | 209 | -0.61 |
| 14 | 7/23/2019 | 3 | -502 | 74.301 | -81.567 | 1.21 | 22.96 | 30.2 | 0.25 | 228 | -0.54 |
| 14 | 7/23/2019 | 9 | -33 | 74.299 | -81.568 | 0.69 | 3.34 | 1.67 | 0.58 | 382 | -1.59 |
| 14 | 7/23/2019 | 11 | -19 | 74.299 | -81.568 | 0.61 | 3.24 | 0.45 | 0.6 | 377 | -2.26 |
| 14 | 7/23/2019 | 5 | -110 | 74.300 | -81.568 | 1.2 | 17.41 | 11.24 | 0.41 | 313 | -2.1 |
| 16 | 7/23/2019 | 1 | -690 | 74.427 | -81.549 | 1.32 | 33.39 | 18.93 | 0.06 | 206 | -0.71 |
| 16 | 7/23/2019 | 3 | -502 | 74.427 | -81.547 | 1.15 | 19.84 | 16.21 | 0.05 | 246 | -0.92 |
| 16 | 7/23/2019 | 16 | -30 | 74.424 | -81.537 | 0.98 | 9.07 | 3.83 | 0.76 | 389 | -2.17 |
| 16 | 7/23/2019 | 12 | -101 | 74.425 | -81.539 | 1.24 | 19.42 | 11.45 | 0.44 | 306 | -2.06 |
| 17 | 7/24/2019 | 1 | -113 | 74.651 | -91.994 | 1.32 | 23.44 | 14 | 0.34 | 278 | -1.82 |
| 17 | 7/24/2019 | 9 | -37 | 74.651 | -91.994 | 1.17 | 17.99 | 9.7 | 0.49 | 336 | -2.21 |
| 17 | 7/24/2019 | 4 | -75 | 74.651 | -91.994 | 1.3 | 22.06 | 12.25 | 0.44 | 291 | -2.05 |
| 17 | 7/24/2019 | 12 | -22 | 74.651 | -91.994 | 0.92 | 10.95 | 4 | 0.67 | 383 | -2.3 |
| 17 | 7/24/2019 | 15 | -15 | 74.651 | -91.994 | 0.58 | 3.82 | 1.05 | 0.48 | 454 | -2.75 |
| 17 | 7/24/2019 | 18 | -5 | 74.651 | -91.994 | 0.6 | 3.8 | 3.56 | 0.29 | 434 | -2.85 |
| 17 | 7/24/2019 | 21 | -1 | 74.651 | -91.994 | 0.63 | 4.29 | 0.53 | 0.61 | 432 | -3.01 |
| 18 | 7/24/2019 | 12 | -28 | 74.656 | -92.229 | 1.07 | 15.29 | 7.48 | 0.55 | 350 | -2.31 |
| 18 | 7/24/2019 | 1 | -100 | 74.656 | -92.229 | 1.37 | 24.6 | 12.91 | 0.46 | 279 | -1.64 |
| 18 | 7/24/2019 | 9 | -40 | 74.656 | -92.229 | 1.22 | 19.63 | 10.16 | 0.5 | 311 | -2.15 |
| 18 | 7/24/2019 | 4 | -75 | 74.656 | -92.229 | 1.32 | 23.65 | 12.25 | 0.46 | 288 | -1.28 |
| 18 | 7/24/2019 | 15 | -18 | 74.656 | -92.229 | 0.74 | 7.37 | 2.23 | 0.6 | 451 | -2.42 |
| 18 | 7/24/2019 | 15 | -18 | 74.656 | -92.229 | 0.74 | 7.37 | 2.23 | 0.6 | 451 | -2.45 |
| 18 | 7/24/2019 | 18 | -5 | 74.656 | -92.229 | 0.59 | 3.91 | 0.44 | 0.57 | 430 | -2.83 |
| 19 | 7/25/2019 | 2 | -124 | 74.658 | -92.497 | 0.93 | 9.62 | 6.21 | 0.48 | 270 | -2.14 |
| 19 | 7/25/2019 | 8 | -50 | 74.657 | -92.498 | 1.21 | 18.75 | 9.86 | 0.51 | 313 | -2.3 |
| 19 | 7/25/2019 | 4 | -80 | 74.658 | -92.498 | 0.95 | 12.37 | 6.87 | 0.46 | 289 | -2.12 |
| 19 | 7/25/2019 | 10 | -25 | 74.657 | -92.498 | 0.83 | 8.1 | 1.96 | 0.75 | 431 | -2.66 |
| 19 | 7/25/2019 | 12 | -5 | 74.657 | -92.499 | 0.65 | 3.8 | 1.39 | 0.55 | 424 | -3.02 |
| 20 | 7/25/2019 | 12 | -28 | 74.661 | -92.783 | 1.05 | 14.75 | 7.07 | 0.56 | 368 | -2.29 |
| 20 | 7/25/2019 | 1 | -144 | 74.660 | -92.783 | 1.35 | 23.29 | 13.44 | 0.4 | 269 | -2.12 |
| 20 | 7/25/2019 | 9 | -50 | 74.661 | -92.783 | 1.03 | 10.9 | 6.93 | 0.55 | 318 | -2.25 |
| 20 | 7/25/2019 | 3 | -110 | 74.660 | -92.783 | 0.91 | 9.03 | 5.43 | 0.52 | 297 | -2.31 |
| 20 | 7/25/2019 | 5 | -81 | 74.660 | -92.783 | 0.96 | 10.63 | 6.06 | 0.53 | 305 | -2.3 |

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|----|-----------|----|------|--------|---------|------|-------|-------|------|-----|-------|
| 20 | 7/25/2019 | 13 | -19 | 74.661 | -92.783 | 0.71 | 5.5 | 1.51 | 0.63 | 403 | -2.6 |
| 21 | 7/25/2019 | 4 | -75 | 74.663 | -93.107 | 1.27 | 18.48 | 12.84 | 0.37 | 309 | -2.09 |
| 21 | 7/25/2019 | 8 | -45 | 74.663 | -93.107 | 1.13 | 15.94 | 9.31 | 0.47 | 319 | -2.17 |
| 21 | 7/25/2019 | 12 | -25 | 74.663 | -93.107 | 1.05 | 14.86 | 6.97 | 0.57 | 344 | -2.22 |
| 21 | 7/25/2019 | 15 | -15 | 74.663 | -93.107 | 0.73 | 9.8 | 0.84 | 0.72 | 410 | -2.21 |
| 21 | 7/25/2019 | 1 | -136 | 74.663 | -93.107 | 1.16 | 15.29 | 8.44 | 0.57 | 271 | -2.26 |
| 21 | 7/25/2019 | 16 | -10 | 74.663 | -93.107 | 0.61 | 6.39 | 0.24 | 0.62 | 456 | -2.69 |
| 21 | 7/25/2019 | 23 | -1 | 74.663 | -93.107 | 0.54 | 3.8 | 0.9 | 0.45 | 423 | -2.37 |
| 22 | 7/25/2019 | 10 | -20 | 74.667 | -93.262 | 0.95 | 12.1 | 5.59 | 0.56 | 360 | -2.3 |
| 22 | 7/25/2019 | 8 | -40 | 74.668 | -93.261 | 0.99 | 10.91 | 5.95 | 0.58 | 324 | -2.29 |
| 22 | 7/26/2019 | 1 | -125 | 74.668 | -93.260 | 1.26 | 20.1 | 11.74 | 0.44 | 300 | -2.04 |
| 22 | 7/25/2019 | 4 | -80 | 74.668 | -93.261 | 0 | 14.42 | 9.4 | 0.31 | 311 | -1.89 |
| 22 | 7/25/2019 | 13 | -5 | 74.667 | -93.262 | 0.71 | 7.37 | 1.24 | 0.66 | 437 | -2.84 |
| 23 | 7/27/2019 | 4 | -101 | 74.433 | -99.277 | 1.45 | 15.61 | 9.22 | 0.83 | 268 | -1.3 |
| 23 | 7/27/2019 | 9 | -45 | 74.432 | -99.277 | 0.87 | 5.33 | 2.56 | 0.74 | 334 | -2.24 |
| 23 | 7/27/2019 | 12 | -26 | 74.432 | -99.276 | 0.91 | 10.75 | 4.4 | 0.62 | 363 | -2.72 |
| 23 | 7/27/2019 | 16 | -5 | 74.432 | -99.276 | 0.51 | 1.66 | 0 | 0.49 | 415 | -3.56 |
| 23 | 7/27/2019 | 18 | -2 | 74.432 | -99.276 | 0.55 | 1.95 | 0.14 | 0.53 | 417 | -3.41 |
| 24 | 7/28/2019 | 9 | -60 | 73.753 | -96.808 | 1.25 | 16.15 | 9.04 | 0.63 | 315 | -2.3 |
| 24 | 7/28/2019 | 1 | -209 | 73.751 | -96.808 | 1.35 | 20.8 | 11.05 | 0.57 | 258 | -1.63 |
| 24 | 7/28/2019 | 4 | -151 | 73.752 | -96.808 | 1.43 | 15.83 | 8.85 | 0.84 | 267 | -2.28 |
| 24 | 7/28/2019 | 5 | -103 | 73.753 | -96.808 | 1.47 | 21.99 | 14.12 | 0.48 | 284 | -2.03 |
| 24 | 7/28/2019 | 17 | -30 | 73.754 | -96.807 | 0.76 | 6.32 | 1.77 | 0.67 | 383 | -3.15 |
| 25 | 7/28/2019 | 8 | -90 | 73.760 | -96.594 | 1.55 | 23.18 | 12.79 | 0.65 | 288 | -1.83 |
| 25 | 7/28/2019 | 10 | -50 | 73.760 | -96.594 | 1.28 | 15.61 | 8.73 | 0.68 | 319 | -2.64 |
| 25 | 7/28/2019 | 1 | -198 | 73.760 | -96.594 | 1.65 | 28.48 | 15.68 | 0.55 | 255 | -2.13 |
| 25 | 7/28/2019 | 13 | -25 | 73.760 | -96.594 | 1.08 | 8.32 | 2.2 | 0.94 | 399 | -2.76 |
| 25 | 7/28/2019 | 18 | -7 | 73.760 | -96.595 | 0.62 | 3 | 0.06 | 0.65 | 417 | -3.26 |
| 26 | 7/28/2019 | 1 | -208 | 73.751 | -96.432 | 1.67 | 28.43 | 15.91 | 0.55 | 255 | -2.14 |
| 26 | 7/28/2019 | 3 | -150 | 73.751 | -96.431 | 1.61 | 26.86 | 15.18 | 0.54 | 269 | -2.18 |
| 26 | 7/28/2019 | 9 | -75 | 73.751 | -96.431 | 1.35 | 19.88 | 11.1 | 0.58 | 305 | -2.33 |
| 26 | 7/28/2019 | 6 | -25 | 73.752 | -96.431 | 0.96 | 10.68 | 2.91 | 0.82 | 394 | -2.76 |
| 27 | 7/28/2019 | 9 | -60 | 73.750 | -96.249 | 1.47 | 21 | 10.62 | 0.73 | 310 | -2.34 |
| 27 | 7/28/2019 | 1 | -222 | 73.750 | -96.249 | 1.53 | 28.16 | 15.77 | 0.43 | 252 | -2.08 |
| 27 | 7/28/2019 | 3 | -150 | 73.750 | -96.249 | 1.41 | 18.2 | 10.95 | 0.65 | 264 | -2.2 |

| | | | | | | | | | | | |
|----|-----------|----|------|--------|---------|------|-------|-------|------|-----|-------|
| 27 | 7/28/2019 | 5 | -90 | 73.750 | -96.249 | 1.49 | 22.9 | 12.56 | 0.61 | 291 | -2.24 |
| 27 | 7/28/2019 | 6 | -26 | 73.750 | -96.250 | 0.8 | 9.14 | 1.58 | 0.75 | 407 | -2.82 |
| 27 | 7/28/2019 | 14 | -1 | 73.750 | -96.250 | 0.62 | 5.53 | 0.49 | 0.61 | 402 | -3.4 |
| 28 | 7/28/2019 | 5 | -71 | 73.748 | -96.030 | 1.43 | 21.06 | 11.04 | 0.67 | 307 | -2.34 |
| 28 | 7/28/2019 | 1 | -237 | 73.748 | -96.031 | 1.58 | 29.33 | 16 | 0.46 | 257 | -2.11 |
| 28 | 7/28/2019 | 9 | -26 | 73.748 | -96.029 | 0.87 | 10.4 | 2.15 | 0.78 | 370 | -2.77 |
| 29 | 7/28/2019 | 5 | -71 | 73.754 | -95.926 | 1.41 | 21.34 | 11.18 | 0.63 | 308 | -2.33 |
| 29 | 7/28/2019 | 1 | -210 | 73.753 | -95.927 | 1.68 | 29.44 | 16.32 | 0.54 | 259 | -2.15 |
| 29 | 7/28/2019 | 3 | -151 | 73.754 | -95.927 | 1.66 | 28.83 | 15.04 | 0.61 | 266 | -2.19 |
| 29 | 7/28/2019 | 9 | -26 | 73.754 | -95.926 | 0.95 | 10.05 | 1.96 | 0.92 | 379 | -2.77 |
| 30 | 7/29/2019 | 1 | -251 | 74.469 | -90.511 | 1.15 | 19.88 | 14.95 | 0.12 | 250 | -1.23 |
| 30 | 7/29/2019 | 4 | -151 | 74.469 | -90.513 | 1.28 | 17.64 | 13.2 | 0.36 | 279 | -1.97 |
| 30 | 7/29/2019 | 8 | -76 | 74.469 | -90.515 | 1.24 | 20.33 | 12.28 | 0.37 | 298 | -1.94 |
| 30 | 7/29/2019 | 19 | -28 | 74.469 | -90.516 | 0.75 | 5.59 | 1.35 | 0.71 | 441 | -2.34 |
| 30 | 7/29/2019 | 20 | -2 | 74.470 | -90.517 | 0.63 | 3.02 | 0.43 | 0.63 | 431 | -2.82 |
| 31 | 7/29/2019 | 9 | -61 | 74.525 | -90.379 | 1.17 | 17.59 | 9.43 | 0.51 | 322 | -1.96 |
| 31 | 7/29/2019 | 4 | -131 | 74.525 | -90.378 | 1.33 | 19.94 | 13.52 | 0.39 | 276 | -2.03 |
| 31 | 7/29/2019 | 13 | -36 | 74.526 | -90.382 | 0.67 | 4.87 | 1.18 | 0.61 | 434 | -2.63 |
| 31 | 7/29/2019 | 16 | -2 | 74.526 | -90.384 | 0.63 | 3.94 | 0.24 | 0.64 | 424 | -2.79 |
| 32 | 7/29/2019 | 15 | -41 | 74.403 | -90.585 | 1.05 | 13.73 | 6.93 | 0.57 | 355 | -2.33 |
| 32 | 7/29/2019 | 4 | -151 | 74.403 | -90.582 | 1.25 | 20.89 | 13.2 | 0.33 | 281 | -1.88 |
| 32 | 7/29/2019 | 9 | -101 | 74.403 | -90.583 | 1.32 | 22.85 | 12.19 | 0.46 | 285 | -2.16 |
| 32 | 7/29/2019 | 12 | -60 | 74.403 | -90.584 | 1.24 | 18.54 | 10.44 | 0.51 | 314 | -2.27 |
| 32 | 7/29/2019 | 19 | -21 | 74.404 | -90.585 | 0.7 | 4.19 | 0.68 | 0.7 | 440 | -2.71 |
| 32 | 7/29/2019 | 22 | -1 | 74.404 | -90.586 | 0.59 | 2.63 | 0.91 | 0.52 | 428 | -2.8 |
| 34 | 7/29/2019 | 15 | -33 | 74.343 | -90.728 | 1.01 | 12.67 | 5.33 | 0.66 | 369 | -2.32 |
| 34 | 7/29/2019 | 1 | -203 | 74.343 | -90.725 | 1.21 | 19.99 | 14.07 | 0.22 | 261 | -1.3 |
| 34 | 7/29/2019 | 4 | -150 | 74.343 | -90.726 | 1.35 | 21.73 | 13.06 | 0.44 | 281 | -1.79 |
| 34 | 7/29/2019 | 12 | -50 | 74.343 | -90.728 | 1.22 | 18.99 | 10.03 | 0.52 | 319 | -2.02 |
| 34 | 7/29/2019 | 9 | -88 | 74.343 | -90.727 | 1.33 | 20.44 | 11.45 | 0.53 | 296 | -1.26 |
| 34 | 7/29/2019 | 18 | -2 | 74.343 | -90.729 | 0.59 | 3.49 | 0.49 | 0.57 | 413 | -3 |
| 35 | 7/29/2019 | 1 | -222 | 74.287 | -90.768 | 1.16 | 18.32 | 13.84 | 0.2 | 264 | -1.66 |
| 35 | 7/29/2019 | 4 | -151 | 74.287 | -90.769 | 1.31 | 20.44 | 12.19 | 0.45 | 279 | -2.19 |
| 35 | 7/29/2019 | 10 | -41 | 74.287 | -90.771 | 1.12 | 16.53 | 8.84 | 0.49 | 318 | -2.54 |
| 35 | 7/29/2019 | 8 | -82 | 74.287 | -90.770 | 1.28 | 19.55 | 10.99 | 0.51 | 305 | -2.33 |

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|----|-----------|----|------|--------|---------|------|-------|-------|------|-----|-------|
| 35 | 7/29/2019 | 12 | -18 | 74.287 | -90.772 | 0.72 | 4.85 | 0.37 | 0.76 | 425 | -2.24 |
| 35 | 7/29/2019 | 18 | -2 | 74.288 | -90.774 | 0.64 | 3.82 | 0.28 | 0.65 | 410 | -3.05 |
| 36 | 7/29/2019 | 10 | -46 | 74.215 | -90.889 | 1.18 | 17.76 | 9.02 | 0.55 | 325 | -2.21 |
| 36 | 7/29/2019 | 8 | -77 | 74.215 | -90.888 | 1.26 | 19.55 | 10.99 | 0.49 | 306 | -1.77 |
| 36 | 7/29/2019 | 13 | -29 | 74.215 | -90.890 | 0.99 | 11.44 | 4.37 | 0.73 | 364 | -2.24 |
| 36 | 7/29/2019 | 17 | -15 | 74.215 | -90.891 | 0.71 | 4.23 | 0.53 | 0.74 | 438 | -2.57 |
| 36 | 7/29/2019 | 21 | -2 | 74.215 | -90.893 | 0.53 | 1.74 | 0.21 | 0.5 | 409 | -3.5 |
| 39 | 7/31/2019 | 1 | -190 | 73.484 | -88.656 | 1.25 | 23.15 | 13.97 | 0.27 | 266 | -1.69 |
| 39 | 7/31/2019 | 4 | -139 | 73.485 | -88.655 | 1.29 | 21.21 | 10.93 | 0.53 | 288 | -1.04 |
| 39 | 7/31/2019 | 8 | -46 | 73.488 | -88.651 | 1.02 | 11.75 | 6.11 | 0.6 | 330 | -2.61 |
| 39 | 7/31/2019 | 10 | -34 | 73.490 | -88.649 | 0.76 | 4.33 | 0.71 | 0.78 | 379 | -2.93 |
| 39 | 7/31/2019 | 16 | -2 | 73.494 | -88.644 | 0.5 | 3.02 | 0.32 | 0.44 | 401 | -3.39 |
| 40 | 7/31/2019 | 3 | -310 | 73.483 | -88.917 | 1.25 | 26.57 | 16.32 | 0.13 | 222 | -0.99 |
| 40 | 7/31/2019 | 9 | -151 | 73.484 | -88.915 | 0.94 | 8.62 | 4.61 | 0.64 | 275 | -2.25 |
| 40 | 7/31/2019 | 5 | -151 | 73.484 | -88.915 | 0.89 | 7.12 | 3.42 | 0.68 | 275 | -2.27 |
| 40 | 7/31/2019 | 17 | -21 | 73.486 | -88.913 | 0.92 | 9.04 | 3.92 | 0.67 | 386 | -2.54 |
| 40 | 7/31/2019 | 22 | -2 | 73.486 | -88.913 | 0.64 | 3.79 | 0.68 | 0.61 | 401 | -2.64 |
| 41 | 7/31/2019 | 2 | -380 | 73.485 | -89.216 | 1.28 | 30.11 | 16.77 | 0.13 | 210 | -0.63 |
| 41 | 7/31/2019 | 5 | -316 | 73.486 | -89.215 | 1.22 | 26.17 | 16.47 | 0.09 | 222 | -0.91 |
| 41 | 7/31/2019 | 9 | -200 | 73.486 | -89.214 | 1.09 | 16.31 | 9.63 | 0.4 | 247 | -1.86 |
| 41 | 7/31/2019 | 12 | -173 | 73.486 | -89.214 | 1.42 | 25.89 | 14.56 | 0.4 | 256 | -2.02 |
| 41 | 7/31/2019 | 14 | -90 | 73.487 | -89.214 | 1.26 | 19.39 | 10.14 | 0.55 | 298 | -2.35 |
| 41 | 7/31/2019 | 17 | -45 | 73.487 | -89.213 | 1.09 | 15.17 | 7.19 | 0.59 | 318 | -2.45 |
| 41 | 7/31/2019 | 20 | -25 | 73.487 | -89.213 | 0.91 | 9.69 | 4.45 | 0.62 | 338 | -2.52 |
| 41 | 7/31/2019 | 22 | -1 | 73.487 | -89.213 | 0.6 | 4.07 | 0.33 | 0.59 | 397 | -2.76 |
| 43 | 7/31/2019 | 1 | -413 | 73.481 | -89.862 | 1.21 | 26.29 | 16.08 | 0.1 | 226 | -0.64 |
| 43 | 7/31/2019 | 5 | -271 | 73.482 | -89.862 | 0.88 | 10.05 | 7.3 | 0.33 | 242 | -1.09 |
| 43 | 7/31/2019 | 9 | -182 | 73.482 | -89.862 | 1.39 | 24.52 | 14.9 | 0.35 | 253 | -1.9 |
| 43 | 7/31/2019 | 12 | -92 | 73.483 | -89.862 | 1.34 | 20.64 | 11.42 | 0.54 | 291 | -2.03 |
| 43 | 7/31/2019 | 14 | -45 | 73.483 | -89.862 | 0.92 | 7.28 | 3.79 | 0.69 | 317 | -2.48 |
| 43 | 7/31/2019 | 16 | -28 | 73.484 | -89.862 | 0.91 | 9.62 | 3.85 | 0.67 | 378 | -2.52 |
| 43 | 7/31/2019 | 20 | -1 | 73.484 | -89.862 | 0.62 | 4.35 | 0.37 | 0.62 | 409 | -3.05 |
| 45 | 7/31/2019 | 1 | -298 | 73.477 | -90.469 | 1.06 | 22.47 | 13.87 | 0.09 | 223 | -0.81 |
| 45 | 7/31/2019 | 3 | -220 | 73.477 | -90.470 | 0.91 | 9.51 | 6.47 | 0.44 | 258 | -1.8 |
| 45 | 7/31/2019 | 5 | -120 | 73.476 | -90.470 | 1.38 | 23.84 | 12.79 | 0.48 | 282 | -2.24 |

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|----|-----------|----|------|--------|---------|------|-------|-------|------|-----|-------|
| 45 | 7/31/2019 | 9 | -70 | 73.476 | -90.471 | 0.98 | 11.01 | 6.16 | 0.55 | 308 | -2.33 |
| 45 | 7/31/2019 | 11 | -25 | 73.476 | -90.471 | 0.63 | 3.67 | 1.14 | 0.56 | 402 | -2.62 |
| 46 | 7/31/2019 | 10 | -42 | 73.478 | -90.767 | 0.82 | 9.99 | 4.73 | 0.48 | 328 | -2.6 |
| 46 | 7/31/2019 | 1 | -192 | 73.478 | -90.767 | 1.05 | 16.09 | 8.68 | 0.43 | 277 | -2.13 |
| 46 | 7/31/2019 | 4 | -115 | 73.478 | -90.767 | 1.34 | 22.91 | 12.13 | 0.49 | 291 | -1.69 |
| 46 | 7/31/2019 | 13 | -21 | 73.478 | -90.767 | 0.59 | 6.22 | 2.45 | 0.37 | 360 | -2.7 |
| 46 | 7/31/2019 | 18 | -10 | 73.478 | -90.767 | 0.66 | 6.96 | 0.96 | 0.62 | 410 | -2.85 |
| 46 | 7/31/2019 | 21 | -1 | 73.478 | -90.767 | 0.58 | 5.69 | 0.52 | 0.55 | 397 | -3.05 |
| 50 | 8/1/2019 | 3 | -82 | 74.074 | -91.051 | 1.26 | 19.66 | 9.67 | 0.59 | 315 | -2.35 |
| 50 | 8/1/2019 | 5 | -57 | 74.074 | -91.051 | 1.07 | 16.25 | 7.68 | 0.53 | 338 | -2.32 |
| 50 | 8/1/2019 | 1 | -124 | 74.075 | -91.051 | 0.94 | 12.19 | 6.36 | 0.48 | 297 | -2.23 |
| 50 | 8/1/2019 | 9 | -32 | 74.074 | -91.051 | 0.57 | 6.06 | 2.32 | 0.36 | 363 | -2.68 |
| 50 | 8/1/2019 | 12 | -5 | 74.074 | -91.051 | 0.52 | 4.9 | 0.96 | 0.41 | 397 | -2.71 |
| 51 | 8/3/2019 | 5 | -316 | 74.482 | -83.174 | 1.08 | 17.82 | 15.48 | 0.02 | 248 | -0.76 |
| 51 | 8/3/2019 | 18 | -31 | 74.482 | -83.173 | 0.71 | 8.02 | 2.09 | 0.58 | 377 | -2.74 |
| 51 | 8/3/2019 | 13 | -75 | 74.482 | -83.173 | 1.2 | 21.29 | 11.59 | 0.38 | 295 | -2.17 |
| 52 | 8/3/2019 | 2 | -242 | 74.524 | -83.196 | 0.94 | 17.71 | 14.36 | 0.05 | 263 | -0.74 |
| 52 | 8/3/2019 | 10 | -76 | 74.524 | -83.196 | 1.06 | 17.12 | 9.49 | 0.38 | 300 | -1.64 |

Table S3: Dataset of the water fractions calculated through the OMP analysis (Optimal MultiParameter, see paragraph 2.1.3). The tracers were standardized (suffix “std”) for the analysis, as: $(\text{data}-\text{mean}(\text{data}))/\text{SD}(\text{data})$. The OMP residuals were calculated to assess the error, as the system was over-determined.

| CTD | Date | Niskin | Depth.m | Lat.deg | Lon.deg | SA.std | ANP.std | d18O.std | AW.fraction | PW.fraction | MW.fraction | SIM.fraction | OMP.Residuals |
|-----|-----------|--------|---------|---------|----------|--------|---------|----------|-------------|-------------|-------------|--------------|---------------|
| 1 | 7/18/2019 | 14 | -101 | 76.0927 | -80.76 | 0.66 | -0.34 | 0.09 | 0.56 | 0.44 | 0.04 | -0.04 | 0 |
| 2 | 7/18/2019 | 1 | -661 | 76.0147 | -80.7787 | 1.35 | -1.22 | 3.22 | 0.79 | 0.22 | -0.04 | 0.03 | 0 |
| 2 | 7/18/2019 | 23 | -12 | 76.0141 | -80.812 | 0.04 | 0.95 | 0.26 | 0.31 | 0.67 | 0.01 | 0.02 | 0 |
| 2 | 7/18/2019 | 15 | -102 | 76.0143 | -80.8065 | 0.74 | -0.69 | 0.23 | 0.62 | 0.38 | 0.05 | -0.05 | 0 |
| 2 | 7/18/2019 | 19 | -41 | 76.0142 | -80.8099 | 0.25 | 0.23 | -0.38 | 0.43 | 0.55 | 0.05 | -0.03 | 0 |
| 3 | 7/18/2019 | 2 | -610 | 75.9493 | -80.8315 | 1.35 | -1.48 | 1.69 | 0.81 | 0.21 | 0.02 | -0.03 | 0 |
| 3 | 7/18/2019 | 11 | -150 | 75.9481 | -80.8353 | 0.96 | -1.08 | 0.43 | 0.7 | 0.3 | 0.05 | -0.06 | 0 |
| 3 | 7/18/2019 | 24 | -7 | 75.9476 | -80.8364 | -0.02 | 1.17 | 0.17 | 0.26 | 0.71 | 0.01 | 0.02 | 0 |
| 3 | 7/18/2019 | 13 | -71 | 75.9479 | -80.8357 | 0.44 | 0.18 | -0.21 | 0.45 | 0.54 | 0.04 | -0.03 | 0 |
| 3 | 7/18/2019 | 17 | -40 | 75.9478 | -80.8361 | 0.3 | 0.7 | -0.5 | 0.34 | 0.65 | 0.04 | -0.03 | 0 |
| 4 | 7/19/2019 | 2 | -553 | 75.8436 | -80.9218 | 1.34 | -1.42 | 1.69 | 0.8 | 0.22 | 0.02 | -0.03 | 0 |
| 4 | 7/19/2019 | 16 | -150 | 75.8437 | -80.9215 | 0.88 | -0.79 | 0.44 | 0.65 | 0.36 | 0.04 | -0.05 | 0 |

| | | | | | | | | | | | | | |
|----|-----------|----|------|---------|----------|-------|-------|-------|------|------|-------|-------|---|
| 4 | 7/19/2019 | 20 | -50 | 75.8437 | -80.9213 | 0.24 | -0.87 | 0.4 | 0.65 | 0.32 | 0.05 | -0.01 | 0 |
| 5 | 7/20/2019 | 9 | -382 | 72.7827 | -78.2625 | 1.27 | -1.65 | 2.03 | 0.85 | 0.16 | 0.01 | -0.02 | 0 |
| 5 | 7/20/2019 | 1 | -746 | 72.7849 | -78.2579 | 1.37 | -0.22 | 2.06 | 0.59 | 0.44 | -0.03 | 0 | 0 |
| 5 | 7/20/2019 | 3 | -601 | 72.784 | -78.2595 | 1.36 | -1.78 | 2.07 | 0.87 | 0.14 | 0.01 | -0.02 | 0 |
| 5 | 7/20/2019 | 22 | -21 | 72.7815 | -78.2687 | -0.15 | 0.85 | -0.4 | 0.31 | 0.66 | 0.04 | 0 | 0 |
| 5 | 7/20/2019 | 11 | -175 | 72.7819 | -78.2653 | 0.7 | 0.55 | -0.05 | 0.39 | 0.62 | 0.03 | -0.04 | 0 |
| 5 | 7/20/2019 | 14 | -61 | 72.7816 | -78.2675 | 0.16 | 0.52 | -0.35 | 0.38 | 0.6 | 0.04 | -0.02 | 0 |
| 6 | 7/22/2019 | 9 | -402 | 73.8082 | -81.571 | 1.29 | -1.81 | 1.99 | 0.87 | 0.13 | 0.01 | -0.02 | 0 |
| 6 | 7/22/2019 | 1 | -596 | 73.8061 | -81.5723 | 1.39 | -1.8 | 2.03 | 0.87 | 0.14 | 0.01 | -0.03 | 0 |
| 6 | 7/22/2019 | 16 | -47 | 73.8111 | -81.5716 | 0.1 | 2.22 | 0.06 | 0.07 | 0.92 | -0.01 | 0.02 | 0 |
| 6 | 7/22/2019 | 13 | -201 | 73.8098 | -81.5725 | 0.87 | -0.88 | 0.96 | 0.67 | 0.33 | 0.03 | -0.03 | 0 |
| 6 | 7/22/2019 | 14 | -102 | 73.8106 | -81.5722 | 0.38 | 0.31 | 0.21 | 0.43 | 0.56 | 0.03 | -0.01 | 0 |
| 8 | 7/22/2019 | 1 | -561 | 73.9232 | -81.5615 | 1.37 | -0.84 | 2.46 | 0.71 | 0.31 | -0.02 | 0 | 0 |
| 8 | 7/22/2019 | 8 | -390 | 73.9225 | -81.5609 | 1.32 | -2.14 | 2.17 | 0.94 | 0.07 | 0.02 | -0.02 | 0 |
| 8 | 7/22/2019 | 14 | -101 | 73.9213 | -81.5596 | 0.39 | 0.19 | 0.5 | 0.46 | 0.53 | 0.02 | 0 | 0 |
| 8 | 7/22/2019 | 16 | -70 | 73.9211 | -81.5594 | 0.2 | -0.44 | 0.31 | 0.57 | 0.4 | 0.04 | -0.01 | 0 |
| 8 | 7/22/2019 | 20 | -15 | 73.9209 | -81.559 | -0.69 | 1.51 | -1.15 | 0.16 | 0.78 | 0.05 | 0.01 | 0 |
| 10 | 7/22/2019 | 1 | -710 | 74.0534 | -81.5468 | 1.38 | -1.95 | 1.97 | 0.9 | 0.11 | 0.02 | -0.03 | 0 |
| 10 | 7/22/2019 | 3 | -551 | 74.053 | -81.5434 | 1.35 | -2 | 1.82 | 0.91 | 0.1 | 0.02 | -0.04 | 0 |
| 10 | 7/22/2019 | 5 | -472 | 74.0528 | -81.5415 | 1.33 | -2.18 | 1.65 | 0.94 | 0.07 | 0.03 | -0.04 | 0 |
| 10 | 7/22/2019 | 9 | -201 | 74.0523 | -81.537 | 0.82 | -0.36 | 0.05 | 0.56 | 0.45 | 0.05 | -0.05 | 0 |
| 10 | 7/22/2019 | 11 | -101 | 74.052 | -81.5351 | 0.33 | -0.73 | 0.08 | 0.62 | 0.36 | 0.06 | -0.03 | 0 |
| 12 | 7/23/2019 | 1 | -742 | 74.173 | -81.5397 | 1.4 | -2.37 | 1.77 | 0.97 | 0.04 | 0.03 | -0.05 | 0 |
| 12 | 7/23/2019 | 5 | -524 | 74.1712 | -81.5301 | 1.37 | -2.2 | 1.83 | 0.94 | 0.07 | 0.03 | -0.04 | 0 |
| 12 | 7/23/2019 | 18 | -20 | 74.1667 | -81.5098 | -0.65 | 1.24 | -0.04 | 0.23 | 0.71 | 0.02 | 0.05 | 0 |
| 12 | 7/23/2019 | 9 | -402 | 74.1703 | -81.5262 | 1.35 | -2.24 | 2.17 | 0.96 | 0.05 | 0.02 | -0.03 | 0 |
| 12 | 7/23/2019 | 11 | -107 | 74.168 | -81.5152 | 0.39 | -1.73 | 0.49 | 0.81 | 0.16 | 0.07 | -0.03 | 0 |
| 14 | 7/23/2019 | 1 | -700 | 74.3011 | -81.5659 | 1.4 | -1.77 | 2.03 | 0.87 | 0.15 | 0.01 | -0.03 | 0 |
| 14 | 7/23/2019 | 3 | -502 | 74.3005 | -81.5667 | 1.39 | -1.17 | 2.12 | 0.76 | 0.26 | -0.01 | -0.01 | 0 |
| 14 | 7/23/2019 | 9 | -33 | 74.2991 | -81.5682 | -0.3 | 0.47 | 0.65 | 0.39 | 0.55 | 0.01 | 0.04 | 0 |
| 14 | 7/23/2019 | 11 | -19 | 74.299 | -81.5684 | -0.84 | 0.57 | -0.29 | 0.34 | 0.58 | 0.04 | 0.04 | 0 |
| 14 | 7/23/2019 | 5 | -110 | 74.2995 | -81.5679 | 0.52 | -0.39 | -0.07 | 0.56 | 0.43 | 0.05 | -0.04 | 0 |
| 16 | 7/23/2019 | 1 | -690 | 74.4273 | -81.5492 | 1.4 | -2.11 | 1.88 | 0.93 | 0.08 | 0.03 | -0.04 | 0 |
| 16 | 7/23/2019 | 3 | -502 | 74.4265 | -81.5466 | 1.35 | -2.18 | 1.59 | 0.94 | 0.08 | 0.04 | -0.05 | 0 |
| 16 | 7/23/2019 | 16 | -30 | 74.4239 | -81.5371 | 0.1 | 1.35 | -0.15 | 0.23 | 0.75 | 0.01 | 0 | 0 |

| | | | | | | | | | | | | | |
|----|-----------|----|------|---------|----------|-------|-------|-------|------|------|------|-------|---|
| 16 | 7/23/2019 | 12 | -101 | 74.4246 | -81.5391 | 0.39 | -0.24 | 0 | 0.53 | 0.45 | 0.05 | -0.03 | 0 |
| 17 | 7/24/2019 | 1 | -113 | 74.6507 | -91.9936 | 0.49 | -0.73 | 0.34 | 0.63 | 0.35 | 0.05 | -0.03 | 0 |
| 17 | 7/24/2019 | 9 | -37 | 74.6509 | -91.9936 | -0.02 | 0.03 | -0.22 | 0.47 | 0.5 | 0.05 | -0.01 | 0 |
| 17 | 7/24/2019 | 4 | -75 | 74.6508 | -91.9936 | 0.3 | -0.23 | 0.01 | 0.52 | 0.45 | 0.05 | -0.02 | 0 |
| 17 | 7/24/2019 | 12 | -22 | 74.651 | -91.9936 | -0.29 | 0.93 | -0.34 | 0.29 | 0.67 | 0.03 | 0.01 | 0 |
| 17 | 7/24/2019 | 15 | -15 | 74.6511 | -91.9936 | -1.76 | -0.01 | -0.97 | 0.42 | 0.45 | 0.08 | 0.05 | 0 |
| 17 | 7/24/2019 | 18 | -5 | 74.6512 | -91.9936 | -2.66 | -0.96 | -1.11 | 0.57 | 0.24 | 0.11 | 0.08 | 0 |
| 17 | 7/24/2019 | 21 | -1 | 74.6513 | -91.9937 | -2.9 | 0.63 | -1.33 | 0.26 | 0.54 | 0.08 | 0.11 | 0 |
| 18 | 7/24/2019 | 12 | -28 | 74.6561 | -92.2288 | -0.12 | 0.31 | -0.36 | 0.41 | 0.55 | 0.05 | -0.01 | 0 |
| 18 | 7/24/2019 | 1 | -100 | 74.656 | -92.2289 | 0.34 | -0.11 | 0.58 | 0.51 | 0.46 | 0.02 | 0 | 0 |
| 18 | 7/24/2019 | 9 | -40 | 74.6561 | -92.2288 | 0.1 | 0.08 | -0.13 | 0.46 | 0.51 | 0.04 | -0.01 | 0 |
| 18 | 7/24/2019 | 4 | -75 | 74.6561 | -92.2289 | 0.3 | -0.11 | 1.08 | 0.52 | 0.45 | 0.01 | 0.02 | 0 |
| 18 | 7/24/2019 | 15 | -18 | 74.6561 | -92.2288 | -0.88 | 0.57 | -0.51 | 0.34 | 0.58 | 0.05 | 0.03 | 0 |
| 18 | 7/24/2019 | 15 | -18 | 74.6561 | -92.2288 | -0.88 | 0.57 | -0.55 | 0.34 | 0.58 | 0.05 | 0.03 | 0 |
| 18 | 7/24/2019 | 18 | -5 | 74.6561 | -92.2287 | -2.26 | 0.41 | -1.08 | 0.32 | 0.52 | 0.08 | 0.08 | 0 |
| 19 | 7/25/2019 | 2 | -124 | 74.6576 | -92.497 | 0.68 | -0.01 | -0.11 | 0.49 | 0.51 | 0.04 | -0.05 | 0 |
| 19 | 7/25/2019 | 8 | -50 | 74.6574 | -92.498 | 0.08 | 0.14 | -0.33 | 0.45 | 0.53 | 0.05 | -0.02 | 0 |
| 19 | 7/25/2019 | 4 | -80 | 74.6575 | -92.4977 | 0.28 | -0.14 | -0.08 | 0.51 | 0.47 | 0.05 | -0.02 | 0 |
| 19 | 7/25/2019 | 10 | -25 | 74.6574 | -92.4983 | -0.7 | 1.3 | -0.84 | 0.2 | 0.73 | 0.04 | 0.02 | 0 |
| 19 | 7/25/2019 | 12 | -5 | 74.6573 | -92.4985 | -2.38 | 0.34 | -1.35 | 0.33 | 0.5 | 0.09 | 0.08 | 0 |
| 20 | 7/25/2019 | 12 | -28 | 74.6606 | -92.7833 | -0.23 | 0.37 | -0.33 | 0.4 | 0.56 | 0.04 | 0 | 0 |
| 20 | 7/25/2019 | 1 | -144 | 74.6602 | -92.7831 | 0.64 | -0.4 | -0.09 | 0.56 | 0.43 | 0.05 | -0.05 | 0 |
| 20 | 7/25/2019 | 9 | -50 | 74.6605 | -92.7833 | 0.12 | 0.31 | -0.27 | 0.42 | 0.56 | 0.04 | -0.02 | 0 |
| 20 | 7/25/2019 | 3 | -110 | 74.6603 | -92.7832 | 0.26 | 0.17 | -0.35 | 0.44 | 0.54 | 0.05 | -0.03 | 0 |
| 20 | 7/25/2019 | 5 | -81 | 74.6604 | -92.7832 | 0.22 | 0.24 | -0.34 | 0.43 | 0.55 | 0.05 | -0.03 | 0 |
| 20 | 7/25/2019 | 13 | -19 | 74.6606 | -92.7834 | -0.65 | 0.71 | -0.75 | 0.31 | 0.62 | 0.05 | 0.01 | 0 |
| 21 | 7/25/2019 | 4 | -75 | 74.6631 | -93.107 | 0.21 | -0.59 | -0.05 | 0.59 | 0.38 | 0.06 | -0.03 | 0 |
| 21 | 7/25/2019 | 8 | -45 | 74.6631 | -93.107 | 0.16 | -0.08 | -0.16 | 0.49 | 0.48 | 0.05 | -0.02 | 0 |
| 21 | 7/25/2019 | 12 | -25 | 74.6631 | -93.107 | -0.06 | 0.41 | -0.23 | 0.39 | 0.57 | 0.04 | 0 | 0 |
| 21 | 7/25/2019 | 15 | -15 | 74.6631 | -93.107 | -0.3 | 1.17 | -0.22 | 0.25 | 0.71 | 0.02 | 0.02 | 0 |
| 21 | 7/25/2019 | 1 | -136 | 74.6632 | -93.1071 | 0.35 | 0.43 | -0.28 | 0.4 | 0.59 | 0.04 | -0.03 | 0 |
| 21 | 7/25/2019 | 16 | -10 | 74.663 | -93.1071 | -0.83 | 0.66 | -0.89 | 0.32 | 0.61 | 0.06 | 0.02 | 0 |
| 21 | 7/25/2019 | 23 | -1 | 74.663 | -93.1071 | -2.37 | -0.15 | -0.44 | 0.44 | 0.39 | 0.07 | 0.1 | 0 |
| 22 | 7/25/2019 | 10 | -20 | 74.6674 | -93.2616 | -0.16 | 0.37 | -0.35 | 0.4 | 0.56 | 0.04 | 0 | 0 |
| 22 | 7/25/2019 | 8 | -40 | 74.6675 | -93.2612 | 0.08 | 0.47 | -0.33 | 0.38 | 0.59 | 0.04 | -0.01 | 0 |

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|----|-----------|----|------|---------|----------|-------|-------|-------|------|------|-------|-------|---|
| 22 | 7/26/2019 | 1 | -125 | 74.6678 | -93.2602 | 0.27 | -0.24 | 0.02 | 0.52 | 0.45 | 0.05 | -0.02 | 0 |
| 22 | 7/25/2019 | 4 | -80 | 74.6676 | -93.2608 | 0.21 | -0.88 | 0.23 | 0.65 | 0.32 | 0.05 | -0.02 | 0 |
| 22 | 7/25/2019 | 13 | -5 | 74.6673 | -93.2618 | -1.39 | 0.86 | -1.09 | 0.26 | 0.63 | 0.06 | 0.04 | 0 |
| 23 | 7/27/2019 | 4 | -101 | 74.4325 | -99.2768 | 0.56 | 1.71 | 1.06 | 0.2 | 0.81 | -0.04 | 0.03 | 0 |
| 23 | 7/27/2019 | 9 | -45 | 74.4324 | -99.2767 | -0.14 | 1.26 | -0.25 | 0.24 | 0.73 | 0.02 | 0.01 | 0 |
| 23 | 7/27/2019 | 12 | -26 | 74.4322 | -99.2764 | -0.38 | 0.66 | -0.93 | 0.33 | 0.62 | 0.06 | -0.01 | 0 |
| 23 | 7/27/2019 | 16 | -5 | 74.4321 | -99.2764 | -1.4 | 0.02 | -2.1 | 0.4 | 0.49 | 0.12 | -0.01 | 0 |
| 23 | 7/27/2019 | 18 | -2 | 74.4321 | -99.2763 | -1.7 | 0.24 | -1.89 | 0.35 | 0.52 | 0.11 | 0.02 | 0 |
| 24 | 7/28/2019 | 9 | -60 | 73.7529 | -96.8077 | -0.04 | 0.71 | -0.34 | 0.34 | 0.63 | 0.04 | -0.01 | 0 |
| 24 | 7/28/2019 | 1 | -209 | 73.7513 | -96.8076 | 0.6 | 0.44 | 0.59 | 0.42 | 0.58 | 0.01 | -0.01 | 0 |
| 24 | 7/28/2019 | 4 | -151 | 73.7519 | -96.8078 | 0.45 | 1.78 | -0.31 | 0.15 | 0.85 | 0.01 | -0.01 | 0 |
| 24 | 7/28/2019 | 5 | -103 | 73.7525 | -96.8077 | 0.3 | -0.02 | 0.04 | 0.49 | 0.49 | 0.04 | -0.02 | 0 |
| 24 | 7/28/2019 | 17 | -30 | 73.7538 | -96.8074 | -0.57 | 0.91 | -1.52 | 0.27 | 0.68 | 0.07 | -0.02 | 0 |
| 25 | 7/28/2019 | 8 | -90 | 73.7599 | -96.5944 | 0.16 | 0.82 | 0.32 | 0.33 | 0.64 | 0.01 | 0.01 | 0 |
| 25 | 7/28/2019 | 10 | -50 | 73.76 | -96.5944 | -0.25 | 0.96 | -0.82 | 0.28 | 0.68 | 0.05 | -0.01 | 0 |
| 25 | 7/28/2019 | 1 | -198 | 73.7596 | -96.5944 | 0.6 | 0.31 | -0.1 | 0.43 | 0.57 | 0.04 | -0.04 | 0 |
| 25 | 7/28/2019 | 13 | -25 | 73.7601 | -96.5944 | -0.61 | 2.24 | -0.98 | 0.03 | 0.92 | 0.02 | 0.02 | 0 |
| 25 | 7/28/2019 | 18 | -7 | 73.7602 | -96.5945 | -2.54 | 0.84 | -1.68 | 0.23 | 0.6 | 0.09 | 0.08 | 0 |
| 26 | 7/28/2019 | 1 | -208 | 73.751 | -96.4315 | 0.59 | 0.34 | -0.11 | 0.42 | 0.58 | 0.03 | -0.04 | 0 |
| 26 | 7/28/2019 | 3 | -150 | 73.7511 | -96.4314 | 0.44 | 0.29 | -0.18 | 0.43 | 0.56 | 0.04 | -0.03 | 0 |
| 26 | 7/28/2019 | 9 | -75 | 73.7513 | -96.4312 | 0.05 | 0.46 | -0.38 | 0.38 | 0.59 | 0.04 | -0.02 | 0 |
| 26 | 7/28/2019 | 6 | -25 | 73.7515 | -96.4311 | -0.81 | 1.67 | -0.99 | 0.13 | 0.81 | 0.04 | 0.03 | 0 |
| 27 | 7/28/2019 | 9 | -60 | 73.75 | -96.2493 | -0.15 | 1.24 | -0.39 | 0.24 | 0.73 | 0.03 | 0.01 | 0 |
| 27 | 7/28/2019 | 1 | -222 | 73.7495 | -96.2487 | 0.63 | -0.29 | -0.03 | 0.54 | 0.45 | 0.05 | -0.04 | 0 |
| 27 | 7/28/2019 | 3 | -150 | 73.7497 | -96.2489 | 0.46 | 0.81 | -0.2 | 0.33 | 0.66 | 0.03 | -0.03 | 0 |
| 27 | 7/28/2019 | 5 | -90 | 73.7499 | -96.2492 | 0.15 | 0.62 | -0.26 | 0.36 | 0.62 | 0.03 | -0.01 | 0 |
| 27 | 7/28/2019 | 6 | -26 | 73.7501 | -96.2495 | -0.97 | 1.3 | -1.07 | 0.19 | 0.73 | 0.05 | 0.03 | 0 |
| 27 | 7/28/2019 | 14 | -1 | 73.7502 | -96.2497 | -3.11 | 0.6 | -1.88 | 0.26 | 0.54 | 0.1 | 0.1 | 0 |
| 28 | 7/28/2019 | 5 | -71 | 73.7482 | -96.0298 | -0.1 | 0.9 | -0.39 | 0.3 | 0.67 | 0.03 | 0 | 0 |
| 28 | 7/28/2019 | 1 | -237 | 73.7478 | -96.0312 | 0.58 | -0.11 | -0.07 | 0.51 | 0.49 | 0.04 | -0.04 | 0 |
| 28 | 7/28/2019 | 9 | -26 | 73.7483 | -96.0294 | -0.84 | 1.47 | -0.99 | 0.17 | 0.77 | 0.04 | 0.02 | 0 |
| 29 | 7/28/2019 | 5 | -71 | 73.7539 | -95.9264 | -0.12 | 0.74 | -0.39 | 0.33 | 0.64 | 0.04 | 0 | 0 |
| 29 | 7/28/2019 | 1 | -210 | 73.7533 | -95.9272 | 0.52 | 0.27 | -0.13 | 0.43 | 0.56 | 0.04 | -0.03 | 0 |
| 29 | 7/28/2019 | 3 | -151 | 73.7535 | -95.927 | 0.4 | 0.6 | -0.19 | 0.37 | 0.62 | 0.03 | -0.02 | 0 |
| 29 | 7/28/2019 | 9 | -26 | 73.7541 | -95.926 | -0.82 | 2.13 | -1 | 0.05 | 0.89 | 0.03 | 0.03 | 0 |

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|----|-----------|----|------|---------|----------|-------|-------|-------|------|------|-------|-------|---|
| 30 | 7/29/2019 | 1 | -251 | 74.4687 | -90.5105 | 1.11 | -1.83 | 1.15 | 0.86 | 0.15 | 0.04 | -0.05 | 0 |
| 30 | 7/29/2019 | 4 | -151 | 74.469 | -90.5128 | 0.65 | -0.63 | 0.13 | 0.61 | 0.39 | 0.05 | -0.04 | 0 |
| 30 | 7/29/2019 | 8 | -76 | 74.4692 | -90.5146 | 0.25 | -0.55 | 0.16 | 0.58 | 0.39 | 0.05 | -0.02 | 0 |
| 30 | 7/29/2019 | 19 | -28 | 74.4694 | -90.5159 | -0.82 | 1.1 | -0.39 | 0.25 | 0.68 | 0.03 | 0.04 | 0 |
| 30 | 7/29/2019 | 20 | -2 | 74.4696 | -90.5174 | -2.3 | 0.7 | -1.07 | 0.27 | 0.57 | 0.07 | 0.09 | 0 |
| 31 | 7/29/2019 | 9 | -61 | 74.5254 | -90.3794 | 0.09 | 0.11 | 0.14 | 0.46 | 0.51 | 0.03 | 0 | 0 |
| 31 | 7/29/2019 | 4 | -131 | 74.5252 | -90.378 | 0.52 | -0.49 | 0.04 | 0.58 | 0.41 | 0.05 | -0.04 | 0 |
| 31 | 7/29/2019 | 13 | -36 | 74.5256 | -90.3821 | -0.67 | 0.62 | -0.79 | 0.33 | 0.6 | 0.06 | 0.01 | 0 |
| 31 | 7/29/2019 | 16 | -2 | 74.5258 | -90.3843 | -2.49 | 0.76 | -1.02 | 0.26 | 0.57 | 0.07 | 0.1 | 0 |
| 32 | 7/29/2019 | 15 | -41 | 74.4034 | -90.5848 | -0.15 | 0.42 | -0.38 | 0.39 | 0.57 | 0.04 | 0 | 0 |
| 32 | 7/29/2019 | 4 | -151 | 74.4031 | -90.5823 | 0.7 | -0.78 | 0.25 | 0.64 | 0.36 | 0.05 | -0.04 | 0 |
| 32 | 7/29/2019 | 9 | -101 | 74.4032 | -90.5834 | 0.32 | -0.11 | -0.15 | 0.5 | 0.48 | 0.05 | -0.03 | 0 |
| 32 | 7/29/2019 | 12 | -60 | 74.4033 | -90.5841 | 0.14 | 0.1 | -0.3 | 0.45 | 0.52 | 0.05 | -0.02 | 0 |
| 32 | 7/29/2019 | 19 | -21 | 74.4035 | -90.5853 | -1.04 | 1.09 | -0.92 | 0.23 | 0.68 | 0.05 | 0.03 | 0 |
| 32 | 7/29/2019 | 22 | -1 | 74.4036 | -90.586 | -2.3 | 0.2 | -1.04 | 0.36 | 0.47 | 0.08 | 0.08 | 0 |
| 34 | 7/29/2019 | 15 | -33 | 74.3429 | -90.7279 | -0.16 | 0.89 | -0.36 | 0.3 | 0.66 | 0.03 | 0 | 0 |
| 34 | 7/29/2019 | 1 | -203 | 74.3426 | -90.725 | 0.98 | -1.3 | 1.06 | 0.76 | 0.25 | 0.03 | -0.04 | 0 |
| 34 | 7/29/2019 | 4 | -150 | 74.3427 | -90.7255 | 0.62 | -0.24 | 0.38 | 0.54 | 0.45 | 0.03 | -0.03 | 0 |
| 34 | 7/29/2019 | 12 | -50 | 74.3429 | -90.7275 | 0.07 | 0.15 | 0.05 | 0.45 | 0.52 | 0.04 | 0 | 0 |
| 34 | 7/29/2019 | 9 | -88 | 74.3428 | -90.7269 | 0.26 | 0.21 | 1.12 | 0.46 | 0.51 | 0 | 0.03 | 0 |
| 34 | 7/29/2019 | 18 | -2 | 74.343 | -90.7287 | -2.31 | 0.4 | -1.32 | 0.32 | 0.52 | 0.09 | 0.08 | 0 |
| 35 | 7/29/2019 | 1 | -222 | 74.2865 | -90.7675 | 1 | -1.43 | 0.56 | 0.77 | 0.23 | 0.05 | -0.06 | 0 |
| 35 | 7/29/2019 | 4 | -151 | 74.2867 | -90.7688 | 0.57 | -0.17 | -0.19 | 0.52 | 0.48 | 0.05 | -0.05 | 0 |
| 35 | 7/29/2019 | 10 | -41 | 74.2871 | -90.7712 | 0.06 | 0.05 | -0.68 | 0.45 | 0.52 | 0.06 | -0.03 | 0 |
| 35 | 7/29/2019 | 8 | -82 | 74.2869 | -90.7703 | 0.21 | 0.12 | -0.38 | 0.45 | 0.53 | 0.05 | -0.03 | 0 |
| 35 | 7/29/2019 | 12 | -18 | 74.2872 | -90.772 | -0.44 | 1.34 | -0.26 | 0.21 | 0.74 | 0.02 | 0.03 | 0 |
| 35 | 7/29/2019 | 18 | -2 | 74.2875 | -90.7737 | -2.13 | 0.84 | -1.38 | 0.24 | 0.61 | 0.08 | 0.07 | 0 |
| 36 | 7/29/2019 | 10 | -46 | 74.2151 | -90.8893 | 0.01 | 0.31 | -0.22 | 0.41 | 0.55 | 0.04 | -0.01 | 0 |
| 36 | 7/29/2019 | 8 | -77 | 74.2151 | -90.8875 | 0.17 | 0.02 | 0.4 | 0.48 | 0.49 | 0.03 | 0 | 0 |
| 36 | 7/29/2019 | 13 | -29 | 74.2151 | -90.8902 | -0.28 | 1.19 | -0.26 | 0.25 | 0.71 | 0.02 | 0.02 | 0 |
| 36 | 7/29/2019 | 17 | -15 | 74.2151 | -90.8911 | -0.76 | 1.24 | -0.71 | 0.22 | 0.72 | 0.04 | 0.03 | 0 |
| 36 | 7/29/2019 | 21 | -2 | 74.2151 | -90.8932 | -1.89 | 0.06 | -2.02 | 0.38 | 0.48 | 0.11 | 0.02 | 0 |
| 39 | 7/31/2019 | 1 | -190 | 73.4841 | -88.6559 | 0.72 | -1.06 | 0.52 | 0.7 | 0.29 | 0.05 | -0.04 | 0 |
| 39 | 7/31/2019 | 4 | -139 | 73.4853 | -88.6545 | 0.1 | 0.21 | 1.42 | 0.46 | 0.5 | -0.01 | 0.05 | 0 |
| 39 | 7/31/2019 | 8 | -46 | 73.4882 | -88.6505 | -0.34 | 0.59 | -0.77 | 0.35 | 0.61 | 0.05 | -0.01 | 0 |

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|----|-----------|----|------|---------|----------|-------|-------|-------|------|------|------|-------|---|
| 39 | 7/31/2019 | 10 | -34 | 73.4902 | -88.6487 | -0.4 | 1.48 | -1.22 | 0.17 | 0.79 | 0.05 | -0.01 | 0 |
| 39 | 7/31/2019 | 16 | -2 | 73.4939 | -88.6435 | -2.57 | -0.2 | -1.86 | 0.41 | 0.41 | 0.12 | 0.06 | 0 |
| 40 | 7/31/2019 | 3 | -310 | 73.4828 | -88.9165 | 1.14 | -1.76 | 1.5 | 0.85 | 0.15 | 0.03 | -0.03 | 0 |
| 40 | 7/31/2019 | 9 | -151 | 73.4843 | -88.915 | 0.33 | 0.75 | -0.27 | 0.34 | 0.65 | 0.03 | -0.02 | 0 |
| 40 | 7/31/2019 | 5 | -151 | 73.4843 | -88.915 | 0.33 | 0.98 | -0.29 | 0.3 | 0.7 | 0.03 | -0.02 | 0 |
| 40 | 7/31/2019 | 17 | -21 | 73.4858 | -88.9131 | -0.38 | 0.94 | -0.67 | 0.28 | 0.67 | 0.04 | 0 | 0 |
| 40 | 7/31/2019 | 22 | -2 | 73.4862 | -88.9125 | -2.55 | 0.61 | -0.81 | 0.29 | 0.54 | 0.07 | 0.11 | 0 |
| 41 | 7/31/2019 | 2 | -380 | 73.4848 | -89.2163 | 1.26 | -1.74 | 2 | 0.86 | 0.15 | 0.01 | -0.02 | 0 |
| 41 | 7/31/2019 | 5 | -316 | 73.4858 | -89.2149 | 1.16 | -1.93 | 1.6 | 0.89 | 0.12 | 0.03 | -0.03 | 0 |
| 41 | 7/31/2019 | 9 | -200 | 73.4862 | -89.2143 | 0.76 | -0.44 | 0.28 | 0.58 | 0.42 | 0.04 | -0.04 | 0 |
| 41 | 7/31/2019 | 12 | -173 | 73.4864 | -89.214 | 0.56 | -0.43 | 0.06 | 0.57 | 0.42 | 0.05 | -0.04 | 0 |
| 41 | 7/31/2019 | 14 | -90 | 73.4868 | -89.2135 | -0.03 | 0.34 | -0.41 | 0.4 | 0.56 | 0.05 | -0.01 | 0 |
| 41 | 7/31/2019 | 17 | -45 | 73.4871 | -89.2131 | -0.27 | 0.51 | -0.54 | 0.36 | 0.59 | 0.05 | 0 | 0 |
| 41 | 7/31/2019 | 20 | -25 | 73.4872 | -89.2128 | -0.39 | 0.65 | -0.65 | 0.33 | 0.62 | 0.05 | 0 | 0 |
| 41 | 7/31/2019 | 22 | -1 | 73.4874 | -89.2126 | -1.86 | 0.5 | -0.98 | 0.32 | 0.55 | 0.07 | 0.07 | 0 |
| 43 | 7/31/2019 | 1 | -413 | 73.4808 | -89.8615 | 1.29 | -1.89 | 1.98 | 0.89 | 0.12 | 0.02 | -0.03 | 0 |
| 43 | 7/31/2019 | 5 | -271 | 73.4816 | -89.8616 | 1.13 | -0.76 | 1.36 | 0.67 | 0.35 | 0.01 | -0.02 | 0 |
| 43 | 7/31/2019 | 9 | -182 | 73.4824 | -89.8618 | 0.75 | -0.65 | 0.23 | 0.62 | 0.38 | 0.05 | -0.05 | 0 |
| 43 | 7/31/2019 | 12 | -92 | 73.4829 | -89.8618 | 0.16 | 0.27 | 0.03 | 0.43 | 0.54 | 0.03 | -0.01 | 0 |
| 43 | 7/31/2019 | 14 | -45 | 73.4832 | -89.8618 | -0.25 | 1 | -0.59 | 0.28 | 0.68 | 0.04 | 0 | 0 |
| 43 | 7/31/2019 | 16 | -28 | 73.4835 | -89.8618 | -0.46 | 0.94 | -0.65 | 0.28 | 0.67 | 0.04 | 0.01 | 0 |
| 43 | 7/31/2019 | 20 | -1 | 73.4837 | -89.8619 | -1.9 | 0.68 | -1.39 | 0.28 | 0.59 | 0.08 | 0.05 | 0 |
| 45 | 7/31/2019 | 1 | -298 | 73.4769 | -90.4686 | 1.21 | -1.95 | 1.74 | 0.89 | 0.11 | 0.03 | -0.03 | 0 |
| 45 | 7/31/2019 | 3 | -220 | 73.4766 | -90.4696 | 0.94 | -0.21 | 0.36 | 0.54 | 0.47 | 0.03 | -0.04 | 0 |
| 45 | 7/31/2019 | 5 | -120 | 73.4764 | -90.4702 | 0.32 | -0.03 | -0.25 | 0.48 | 0.5 | 0.05 | -0.03 | 0 |
| 45 | 7/31/2019 | 9 | -70 | 73.4763 | -90.4708 | 0.1 | 0.32 | -0.38 | 0.41 | 0.56 | 0.05 | -0.02 | 0 |
| 45 | 7/31/2019 | 11 | -25 | 73.4761 | -90.4714 | -0.59 | 0.37 | -0.78 | 0.38 | 0.56 | 0.06 | 0 | 0 |
| 46 | 7/31/2019 | 10 | -42 | 73.4778 | -90.7669 | -0.12 | -0.04 | -0.76 | 0.46 | 0.49 | 0.07 | -0.03 | 0 |
| 46 | 7/31/2019 | 1 | -192 | 73.4781 | -90.7668 | 0.59 | -0.29 | -0.1 | 0.54 | 0.45 | 0.05 | -0.04 | 0 |
| 46 | 7/31/2019 | 4 | -115 | 73.4779 | -90.7668 | 0.23 | 0.03 | 0.51 | 0.48 | 0.49 | 0.02 | 0 | 0 |
| 46 | 7/31/2019 | 13 | -21 | 73.4777 | -90.7669 | -0.4 | -0.58 | -0.89 | 0.55 | 0.38 | 0.09 | -0.03 | 0 |
| 46 | 7/31/2019 | 18 | -10 | 73.4776 | -90.7668 | -0.79 | 0.66 | -1.11 | 0.31 | 0.61 | 0.07 | 0 | 0 |
| 46 | 7/31/2019 | 21 | -1 | 73.4775 | -90.7666 | -1.23 | 0.32 | -1.38 | 0.36 | 0.54 | 0.08 | 0.01 | 0 |
| 50 | 8/1/2019 | 3 | -82 | 74.0744 | -91.0512 | -0.06 | 0.5 | -0.41 | 0.37 | 0.59 | 0.04 | -0.01 | 0 |
| 50 | 8/1/2019 | 5 | -57 | 74.0744 | -91.051 | -0.22 | 0.24 | -0.36 | 0.42 | 0.54 | 0.05 | 0 | 0 |

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|----|----------|----|------|---------|----------|-------|-------|-------|------|------|------|-------|---|
| 50 | 8/1/2019 | 1 | -124 | 74.0745 | -91.0513 | 0.12 | 0 | -0.23 | 0.47 | 0.5 | 0.05 | -0.02 | 0 |
| 50 | 8/1/2019 | 9 | -32 | 74.0743 | -91.0509 | -0.54 | -0.62 | -0.87 | 0.56 | 0.37 | 0.09 | -0.02 | 0 |
| 50 | 8/1/2019 | 12 | -5 | 74.0743 | -91.0507 | -0.65 | -0.39 | -0.91 | 0.51 | 0.41 | 0.08 | -0.01 | 0 |
| 51 | 8/3/2019 | 5 | -316 | 74.4818 | -83.1736 | 1.25 | -2.31 | 1.81 | 0.96 | 0.04 | 0.03 | -0.04 | 0 |
| 51 | 8/3/2019 | 18 | -31 | 74.4815 | -83.1726 | -0.67 | 0.46 | -0.96 | 0.36 | 0.58 | 0.07 | 0 | 0 |
| 51 | 8/3/2019 | 13 | -75 | 74.4816 | -83.1727 | 0.28 | -0.53 | -0.15 | 0.58 | 0.4 | 0.06 | -0.03 | 0 |
| 52 | 8/3/2019 | 2 | -242 | 74.5236 | -83.1957 | 1.1 | -2.16 | 1.84 | 0.93 | 0.07 | 0.03 | -0.02 | 0 |
| 52 | 8/3/2019 | 10 | -76 | 74.5236 | -83.1956 | 0.31 | -0.52 | 0.59 | 0.59 | 0.38 | 0.03 | -0.01 | 0 |

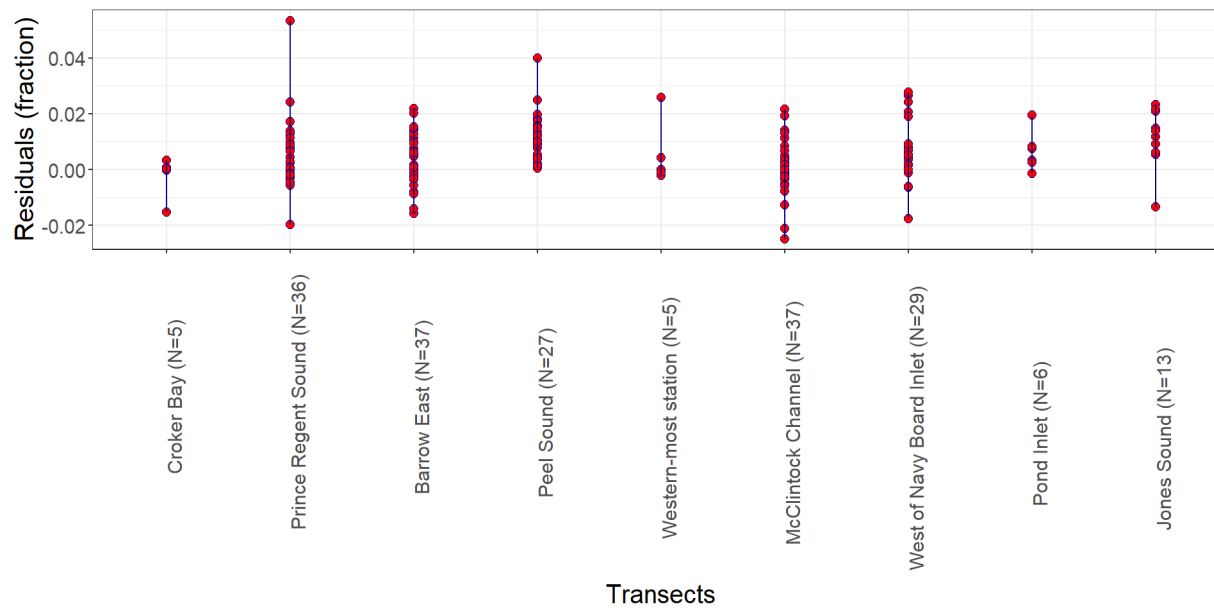


Figure S1: Residuals (fractions) of the Beard interpolation at each location. The residuals were less than 5% at every location, showing high reproducibility of the model.