Dataset name: **Dissolved amino acids**

|  |  |
| --- | --- |
| Parameters: | * **concentrations of individual amino acid species** |

PROJECT TITLE: **MOBYDICK**

Oceanographic cruise: **MOBYDICK**

Start date: **18/02/2018**

End date: **27/03/2018**

Project manager: **Bernard Quéguiner** [bernard.queguiner@mio.osupytheas.fr](mailto:bernard.queguiner@mio.osupytheas.fr)

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**Observatoire Océanologique de Banyuls sur mer**

**66650 Banyuls sur mer, France**

Geographic information: **Indian sector of the Southern Ocean**

Latitude: **49.5°S – 52.5°S**

Longitude: **67,0°E – 74.5°E**

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# OPERATIONS

## Sampling device(s)

Water samples were collected from the rosette bottles at every station.

## List of stations sampled

**Table 1 : Sampling details**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample ID #** | **Station** | **Cast #** | **Bottle #** | **Depth** |  | **Sample ID #** | **Station** | **Cast #** | **Bottle #** | **Depth** |
| 1 | M2\_1 | CTD\_005 | 22 | 10 m |  | 27 | M4\_1 | CTD\_017 | 6 | 1000 m |
| 2 | M2\_1 | CTD\_005 | 22 | 10 m |  | 28 | M4\_1 | CTD\_017 | 6 | 1000 m |
| 3 | M2\_1 | CTD\_005 | 21 | 50 m |  | 29 | M4\_1 | CTD\_017 | 3 | 1900 m |
| 4 | M2\_1 | CTD\_005 | 21 | 50 m |  | 30 | M4\_1 | CTD\_017 | 3 | 1900 m |
| 5 | M2\_1 | CTD\_005 | 18 | 100 m |  | 31 | M4\_1 | CTD\_018 | 21 | 3000 m |
| 6 | M2\_1 | CTD\_005 | 18 | 100 m |  | 32 | M4\_1 | CTD\_018 | 21 | 3000 m |
| 7 | M2\_1 | CTD\_005 | 15 | 200 m |  | 33 | M4\_1 | CTD\_018 | 19 | 4000 m |
| 8 | M2\_1 | CTD\_005 | 15 | 200 m |  | 34 | M4\_1 | CTD\_018 | 19 | 4000 m |
| 9 | M2\_1 | CTD\_005 | 14 | 250 m |  | 35 | M3\_1 | CTD\_026 | 22 | 50 m |
| 10 | M2\_1 | CTD\_005 | 14 | 250 m |  | 36 | M3\_1 | CTD\_026 | 22 | 50 m |
| 11 | M2\_1 | CTD\_005 | 13 | 350 m |  | 37 | M3\_1 | CTD\_026 | 18 | 100 m |
| 12 | M2\_1 | CTD\_005 | 13 | 350 m |  | 38 | M3\_1 | CTD\_026 | 18 | 100 m |
| 13 | M2\_1 | CTD\_005 | 1 | 450 m |  | 39 | M3\_1 | CTD\_026 | 15 | 200 m |
| 14 | M2\_1 | CTD\_005 | 1 | 450 m |  | 40 | M3\_1 | CTD\_026 | 15 | 200 m |
| 15 | M4\_1 | CTD\_017 | 21 | 25 m |  | 41 | M3\_1 | CTD\_025 | 1-22 | 350 m |
| 16 | M4\_1 | CTD\_017 | 21 | 25 m |  | 42 | M3\_1 | CTD\_025 | 1-22 | 350 m |
| 17 | M4\_1 | CTD\_017 | 18 | 100 m |  | 43 | M3\_1 | CTD\_026 | 10 | 500 m |
| 18 | M4\_1 | CTD\_017 | 18 | 100 m |  | 44 | M3\_1 | CTD\_026 | 10 | 500 m |
| 19 | M4\_1 | CTD\_014 | 12-22 | 150 m |  | 45 | M3\_1 | CTD\_026 | 6 | 1000 m |
| 20 | M4\_1 | CTD\_014 | 12-22 | 150 m |  | 46 | M3\_1 | CTD\_026 | 6 | 1000 m |
| 21 | M4\_1 | CTD\_017 | 14 | 200 m |  | 47 | M3\_1 | CTD\_026 | 1 | 1500 m |
| 22 | M4\_1 | CTD\_017 | 14 | 200 m |  | 48 | M3\_1 | CTD\_026 | 1 | 1500 m |
| 23 | M4\_1 | CTD\_017 | 1-11 | 350 m |  | 49 | M2\_2 | CTD\_029 | 22 | 15 m |
| 24 | M4\_1 | CTD\_017 | 1-11 | 350 m |  | 50 | M2\_2 | CTD\_029 | 22 | 15 m |
| 25 | M4\_1 | CTD\_017 | 9 | 500 m |  | 51 | M2\_2 | CTD\_029 | 21 | 25 m |
| 26 | M4\_1 | CTD\_017 | 9 | 500 m |  | 52 | M2\_2 | CTD\_029 | 21 | 25 m |

**Table 1 : Sampling details (cont'd)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample ID #** | **Station** | **Cast #** | **Bottle #** | **Depth** |  | **Sample ID #** | **Station** | **Cast #** | **Bottle #** | **Depth** |
| 53 | M2\_2 | CTD\_029 | 17 | 150 m |  | 85 | M4\_2 | CTD\_041 | 1-13 | 350 m |
| 54 | M2\_2 | CTD\_029 | 17 | 150 m |  | 86 | M4\_2 | CTD\_044 | 11 | 2500 m |
| 55 | M2\_2 | CTD\_029 | 10 | 350 m |  | 87 | M4\_2 | CTD\_044 | 11 | 2500 m |
| 56 | M2\_2 | CTD\_029 | 10 | 350 m |  | 88 | M4\_2 | CTD\_044 | 7 | 3500 m |
| 57 | M2\_2 | CTD\_029 | 4 | 400 m |  | 89 | M4\_2 | CTD\_044 | 7 | 3500 m |
| 58 | M2\_2 | CTD\_029 | 4 | 400 m |  | 90 | M4\_2 | CTD\_044 | 2 | 4000 m |
| 59 | M2\_2 | CTD\_029 | 1 | 500 m |  | 91 | M4\_2 | CTD\_044 | 2 | 4000 m |
| 60 | M2\_2 | CTD\_029 | 1 | 500 m |  | 92 | M2\_3 | CTD\_052 | 20 | 25 m |
| 61 | M1 | CTD\_035 | 22 | 15 m |  | 93 | M2\_3 | CTD\_052 | 20 | 25 m |
| 62 | M1 | CTD\_035 | 22 | 15 m |  | 94 | M2\_3 | CTD\_052 | 14 | 175 m |
| 63 | M1 | CTD\_035 | 21 | 50 m |  | 95 | M2\_3 | CTD\_052 | 14 | 175 m |
| 64 | M1 | CTD\_035 | 21 | 50 m |  | 96 | M2\_3 | CTD\_052 | 11 | 300 m |
| 65 | M1 | CTD\_035 | 18 | 100 m |  | 97 | M2\_3 | CTD\_052 | 11 | 300 m |
| 66 | M1 | CTD\_035 | 18 | 100 m |  | 98 | M2\_3 | CTD\_052 | 6 | 350 m |
| 67 | M1 | CTD\_035 | 15 | 200 m |  | 99 | M2\_3 | CTD\_052 | 6 | 350 m |
| 68 | M1 | CTD\_035 | 15 | 200 m |  | 100 | M2\_3 | CTD\_052 | 4 | 400 m |
| 69 | M1 | CTD\_035 | 11 | 500 m |  | 101 | M2\_3 | CTD\_052 | 4 | 400 m |
| 70 | M1 | CTD\_035 | 11 | 500 m |  | 102 | M2\_3 | CTD\_052 | 1 | 500 m |
| 71 | M1 | CTD\_035 | 8 | 1000 m |  | 103 | M2\_3 | CTD\_052 | 1 | 500 m |
| 72 | M1 | CTD\_035 | 8 | 1000 m |  | 104 | M3\_3 | CTD\_057 | 20 | 100 m |
| 73 | M1 | CTD\_035 | 5 | 2000 m |  | 105 | M3\_3 | CTD\_057 | 20 | 100 m |
| 74 | M1 | CTD\_035 | 5 | 2000 m |  | 106 | M3\_3 | CTD\_057 | 17 | 200 m |
| 75 | M1 | CTD\_035 | 1 | 2500 m |  | 107 | M3\_3 | CTD\_057 | 17 | 200 m |
| 76 | M1 | CTD\_035 | 1 | 2500 m |  | 108 | M3\_3 | CTD\_057 | 13 | 500 m |
| 77 | M1 | CTD\_035 | TEST | DW |  | 109 | M3\_3 | CTD\_057 | 13 | 500 m |
| 78 | M1 | CTD\_035 | TEST | SW1 |  | 110 | M3\_3 | CTD\_057 | 10 | 800 m |
| 79 | M1 | CTD\_035 | TEST | SW2 |  | 111 | M3\_3 | CTD\_057 | 10 | 800 m |
| 80 | M4\_2 | CTD\_044 | 22 | 50 m |  | 112 | M3\_3 | CTD\_057 | 7 | 1000 m |
| 81 | M4\_2 | CTD\_044 | 22 | 50 m |  | 113 | M3\_3 | CTD\_057 | 7 | 1000 m |
| 82 | M4\_2 | CTD\_041 | 14-22 | 150 m |  | 114 | M3\_3 | CTD\_057 | 1 | 1500 m |
| 83 | M4\_2 | CTD\_041 | 14-22 | 150 m |  | 115 | M3\_3 | CTD\_057 | 1 | 1500 m |
| 84 | M4\_2 | CTD\_041 | 1-13 | 350 m |  | 116 | M3\_3 | CTD\_057 | TEST | mix |

# INSTRUMENTS

Instrument Type: **High Performance Liquid Chromatography**

Manufacturer: **Agilent**

Model: **1260 Infinity II Bio-Inert LC System**

Instrument Features / Calibration: see below, § 3.4

# DESCRIPTION of PARAMETERS

## Measurement details

Seawater samples were collected from the rosette bottles into small polycarbonate bottles. Duplicate samples of 1 mL seawater were filtered through 0.2 µm syringe Acrodisc filters (25 mm diameter, Pall, Supor membrane) into pre–combusted 2 mL amber glass vials and then frozen at –20˚C for highpressure liquid chromatography (HPLC) analysis back in Vienna's lab.

## Analytical procedure

Samples will be run on a HPLC with a fluorescence detection after pre–column ortho–phthaldialdehyde (OPA) derivatization (Jones *et al.,* 1981). For the analysis, an Agilent 1260 Infinity Bioinert HPLC System will be used, consisting of an autosampler, a quaternary pump, a column oven, and a fluorescence detector. Test samples will be run to verify the buffer and check if the gradient settings need to be optimized, otherwise the analysis will be carried out as previously for seawater samples in our working group (Clifford *et al.,* 2017).

## Units

* total DFAA concentration nmol L–1
* individual amino acid concentrations nmol L–1

## Sensor precision

A standard amino acid mix with 18 amino acids will be utilized and chromatograms will be analyzed with ChemStation by Agilent to calculate each amino acid concentration.

## Post-cruise data analysis/treatment required

N/A

## Estimated Date of Delivery

6 months after cruise end,

# BIBLIOGRAPHY

Clifford E.L., Sintes E., Hansell D.A., Varela M.M., Nieto-cid M., Herndl G.J., 2017. Crustacean zooplankton release copious amounts of dissolved organic matter as taurine in the ocean. *Limnology & Oceanography*, **62**, 2745–2758

Jones B.N., Pääbo S., Stein S., 1981. Amino acid analysis and enzymatic sequence determination of peptides by an improved o-phthaldialdehyde precolumn labelling procedure. *Journal of Liquid Chromatography*, **4**, 565-5868.