**E1 metadata for WCO monthly time-series 1903- 2021 v 2023.03.01**

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| **Data type**  **Column headings** | **Sampling and Analysis method** | **Data coverage**  **Availability of full data** |
| **E1: Water temperature**  E1\_Temp\_0m\_DegC  E1\_Temp\_10m\_DegC  E1\_Temp\_20m\_DegC  E1\_Temp\_30m\_DegC  E1\_Temp\_40m\_DegC  E1\_Temp\_50m\_DegC  E1\_Temp\_60m\_DegC  E1\_Temp\_70m\_DegC  Columns 3-10 | For the early period of the E1 time-series reversing thermometers were used. Values are derived from Niskin bottles and CTD except for the period December 1985 to April 2002 when no in situ sampling was undertaken and satellite sea surface temperature data pertaining to the middle of each month were used instead . Where multiple sampling timepoints existed for a calendar month we used the arithmetic mean value. Post 2002 a SeaBird SBE19+ was used. | 1903 data begins  1910 to 1920 no data  1939 to 1945 no data  Surface data are most extensive.  For each depth, number of sampling timepoints were 1146, 954, 892, 609, 740, 908, 262, and 815 respectively.  Source dataset was produced for the ICES Report on Ocean by Tim Smyth  <https://ocean.ices.dk/core/iroc>  <https://www.westernchannelobservatory.org.uk/data.php> |
| **E1: Nutrients**  E1\_Nitrite\_0m\_µm  E1\_Nitrite\_10m\_µm  E1\_Nitrite\_20m\_µm  E1\_Nitrite\_30m\_µm  E1\_Nitrite\_40m\_µm  E1\_Nitrite\_60m\_µm  E1\_Nitrite+Nitrate\_0m\_µm  E1\_Nitrite+Nitrate\_10m\_µm  E1\_Nitrite+Nitrate\_20m\_µm  E1\_Nitrite+Nitrate\_30m\_µm  E1\_Nitrite+Nitrate\_40m\_µm  E1\_Nitrite+Nitrate\_60m\_µm  E1\_Ammonia\_0m\_µm  E1\_Ammonia\_10m\_µm  E1\_Ammonia\_20m\_µm  E1 Ammonia\_30m\_µm  E1\_Ammonia\_40m\_µm  E1\_Ammonia\_60m\_µm  E1\_Silicate\_0m\_µm  E1\_Silicate\_10m\_µm  E1\_Silicate\_20m\_µm  E1\_Silicate\_30m\_µm  E1\_Silicate\_40m\_µm  E1\_Silicate\_60m\_µm  E1\_Phosphate\_0m\_µm  E1\_Phosphate\_10m\_µm  E1\_Phosphate\_20m\_µm  E1\_Phosphate\_30m\_µm  E1\_Phosphate\_40m\_µm  E1\_Phosphate\_60m\_µm  Columns 11-40 | Taken fortnightly where conditions allow.  **Data from 2002:**  Samples returned in the cool and dark to the laboratory in Plymouth.  Samples are stored for 2-3 hours before returning for analysis and sometimes frozen.  Triplicate samples are analysed using 0.2µm Millipore Fluoropore filtered and non-filtered water.  Analyser is a 5-channel Bran+Luebbe segmented flow system.  Methodology standardised according to PML protocols.  Due to storage method concentrations of Ammonia should be treated with care. More appropriate to consider trends rather than accurate concentrations.  Quality control procedures carried out using KANSO certified reference material.  Scientists participate in QUASIMEME programme  **Data from last century:**  Data obtained from the link on the data page of the Western Channel Observatory website and extracted from the NOWESP (North West European Shelf Program) database for the period 1934-1987.  Source data includes profile data from 0-80m.  This monthly data uses depths 0, 10 and 20m because these are compatible with post 2002 records.  Nitrite+Nitrate column header describes post 2002 records. It is unclear if the last century values refer strictly to Nitrate only or Nitrite+Nitrate.  This summary data set provides a mean value of all available determinations within any given calendar month.  In the original data set the symbol “<” refers to concentrations below detection limit. These have been assigned a value of zero before averaging. | Jan 1934 a few records for Phosphate  April 1948 records begin again for Phosphate  Jan 1951 records begin for Silicate  Jan 1966 records begin again for Nitrite+Nitrate  Jan 1986 to Dec 2001 no data  Jan 2002 to Oct 2021 all covered  Full data lists individual replicate measurements from the weekly resolution sampling  Publicly-accessible nutrient data accessed on 14 Jul 2022 from  <https://www.westernchannelobservatory.org.uk/data.php> |
| **E1: Carbonate chemistry DIC (dissolved inorganic carbon) and TA (total alkalinity)**  E1\_DIC\_0m\_micromol/kg  E1\_DIC\_60m\_micromol/kg  E1\_TA\_0m\_micromol/kg  E1\_TA\_60m\_micromol/kg  Columns 41-44 | Taken fortnightly where conditions allow.  Borosilicate glass bottles with ground glass stoppers were used to collect seawater from the Niskin bottles. Sample bottles were rinsed, filled and poisoned with mercuric chloride according to standard procedures detailed in Dickson et al. (2007).  Samples were returned to PML for analysis.  DIC was measured using a Dissolved Inorganic Carbon Analyser (Apollo SciTech, Model AS-C3). The analyser adds a strong acid (10% H3PO4 plus 10% NaCl solution) causing carbon species within the seawater to be converted to CO2 gas, which is purged from the sample by pure nitrogen (N2) carrier gas, is dried and cooled to reduce water vapour. The concentration of the dried CO2 gas is measured with a LICOR LI-7000 CO2 analyser. The total amount of CO2 is quantified as the integrated area under the concentration-time curve and converted to DIC using a standard curve created by analysing known concentrations of the Certified Reference Materials (Dickson CO2 CRMs). A measurement volume of 0.75 mL was used, with up to 5 measurements made from each sample. Values outside a 0.1 % range were excluded from the final result.  Duplicate measurements provided an estimate of measurement error < 0.1 %. DIC was corrected for the addition of mercuric chloride.  TA was measured using the open-cell potentiometric titration method (Dickson et al. 2007) on 12 mL sample volumes using an automated titrator (Apollo SciTech Alkalinity Titrator Model AS-ALK2). Calibration was made using Certified Reference Materials (Dickson CO2 CRMs). Duplicate measurements were made for each sample, and the estimate of measurement error < 0.5 %. TA was corrected for the addition of mercuric chloride. | Surface 0m and 60 m depth coverage from October 2008 to December 2020.  Source data set available via  <https://www.westernchannelobservatory.org.uk/C_chem.php> |
| **E1: Plankton abundance profiles measured by flow cytometry**  E1\_Syn\_0m\_FCM\_cells mL 1  E1\_Picoeuk\_0m\_FCM\_cells mL-1  E1\_Nanoeuk\_0m\_FCM\_cells mL-1  E1\_Cocco\_0m\_FCM\_cells mL-1  E1\_Crypto\_0m\_FCM\_cells mL-1  E1\_HNAbacteria\_0m\_FCM\_cells mL-1  E1\_LNAbacteria\_0m\_FCM\_cells mL-1  E1\_Syn\_10m\_FCM\_cells mL-1  E1\_Picoeuk\_10m\_FCM\_cells mL-1  E1\_Nanoeuk\_10m\_FCM\_cells mL-1  E1\_Cocco\_10m\_FCM\_cells mL-1  E1\_Crypto\_10m\_FCM\_cells mL-1  E1\_HNAbacteria\_10m\_FCM\_cells mL-1  E1\_LNAbacteria\_10m\_FCM\_cells mL-1  E1\_Syn\_20m\_FCM\_cells mL-1  E1\_Picoeuk\_20m\_FCM\_cells mL-1  E1\_Nanoeuk\_20m\_FCM\_cells mL-1  E1\_Cocco\_20m\_FCM\_cells mL-1  E1\_Crypto\_20m\_FCM\_cells mL-1  E1\_HNAbacteria\_20m\_FCM\_cells mL-1  E1\_LNAbacteria\_20m\_FCM\_cells mL-1  E1\_Syn\_30m\_FCM\_cells mL-1  E1\_Picoeuk\_30m\_FCM\_cells mL-1  E1\_Nanoeuk\_30m\_FCM\_cells mL-1  E1\_Cocco\_30m\_FCM\_cells mL-1  E1\_Crypto\_30m\_FCM\_cells mL-1  E1\_HNAbacteria\_30m\_FCM\_cells mL-1  E1\_LNAbacteria\_30m\_FCM\_cells mL-1  E1\_Syn\_40m\_FCM\_cells mL-1  E1\_Picoeuk\_40m\_FCM\_cells mL-1  E1\_Nanoeuk\_40m\_FCM\_cells mL-1  E1\_Cocco\_40m\_FCM\_cells mL-1  E1\_Crypto\_40m\_FCM\_cells mL-1  E1\_HNAbacteria\_40m\_FCM\_cells mL-1  E1\_LNAbacteria\_40m\_FCM\_cells mL-1  E1\_Syn\_60m\_FCM\_cells mL-1  E1\_Picoeuk\_60m\_FCM\_cells mL-1  E1\_Nanoeuk\_60m\_FCM\_cells mL-1  E1\_Cocco\_60m\_FCM\_cells mL-1  E1\_Crypto\_60m\_FCM\_cells mL-1  E1\_HNAbacteria\_60m\_FCM\_cells mL-1  E1\_LNAbacteria\_60m\_FCM\_cells mL-1  Columns 45-86 | Taken fortnightly where conditions allow  Most analysed in triplicate (phytoplankton and bacteria) for surface (0m) and single samples for all other depths.  Vertical profiles of the mean abundance of groups of microbial plankton as cells per millilitre, measured using flow cytometry. (BD Accuri C6 flow cytometer)  The groups quantified are divided into phytoplankton and heterotrophs.  Phytoplankton groups quantified are:  **Syn** Synechococcus sp. (cyanobacteria)  **Picoeuk** Picoeukaryotes (smaller than 3 μm)  **Crypto** Cryptophytes  **Cocco** Coccolithophores  **Nanoeuk** Nanoeukaryotes not already mentioned (2-20 μm).  Heterotrophs quantified are:  **HNAbacteria** heterotrophic bacteria with relatively high nucleic acid content  **LNAbacteria** heterotrophic bacteria with relatively low nucleic acid content. | March 2014 to Oct 2021  Source data set available via  <https://www.westernchannelobservatory.org.uk/data.php> |
| **E1+L5: combined Young Fish Trawl (YFT)**  E1+L5\_ Calanus sp\_YFT\_No.4000m-3  E1+L5\_ Pilchard eggs\_YFT\_No.4000m-3  E1+L5\_ Other fish eggs\_YFT\_No.4000m-3  E1+L5\_ Clupeidae larvae\_YFT\_No.4000m-3  E1+L5\_Other fish larvae\_No.4000m-3  Columns 87-91 | Although net design and methods of deployment have changed on several occasions, care has been taken to ensure that sampling characteristics have not altered appreciably. The 1m2 Young Fish Trawl (YFT) fitted with a 700µm knitted mesh is hauled for 20 min in an oblique profile to an ideal depth of∼5m above the seabed.(Ostle et al., 2021)  The samples are preserved in 4% buffered formalin and analysed as soon as possible after collection using a WILD M5 binocular microscope.  The volume of filtered water is calculated using flow data recorded by a flowmeter fitted across the net mouth.  Results are standardised to the number of individuals per 4000m3 in order to mitigate historical changes in sampling gear and deployment.  A comprehensive summary of these macroplankton sampling methods and analysis is given in Southward et al. (2005)  **Note: Please be aware of zero values within this dataset, generally these are true zeros but not necessarily for all. This is being checked and will be addressed in future versions of the dataset.** | 1924–1940  1945–1987  2001–2013  Source data available  <https://doi.mba.ac.uk/data/1536> |
| **E1: Recreational captures of blue shark (*Prionace glauca*)**  E1\_Prionace glauca captures\_recreational anglers out of Looe\_individuals  E1\_Prionace glauca catch per unit effort\_recreational anglers out of Looe\_captures.trip^-1  Columns 92-93 | The Pat Smith database is a collaboration between the Shark Angling Club of Great Britain (SACGB) and the Sportfishing Club of the British Isles (SCBI).  It is a collation of information records kept by the SACGB.  Recreational angling trips from the port of Looe, Cornwall, within 10nm radius of E1.  The data presented here are for years when monthly log-book information is currently available.  The data record 64287 captures from 32906 trips from the port in 200 monthly periods between 1958 and 2021.  Since 1998 all captures have been released.  Data presented are the total number of captures in a given month, and the average catch per unit effort (as captures per trip). | 1958- 1971  1997-2021  Annual data are available for all years 1953-2022 via pre-print  Simon Thomas et al(2023) |

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*(15) (PDF) SUMMARY OF DATA FROM THE SOUTHWEST OF ENGLAND BLUE SHARK FISHERY FROM 1953-2021*. Available from: <https://www.researchgate.net/publication/361942355_SUMMARY_OF_DATA_FROM_THE_SOUTHWEST_OF_ENGLAND_BLUE_SHARK_FISHERY_FROM_1953-2021>

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