Supplementary Material

# Supplementary Tables

**Table S1**. The following table describes the inventory of biological and chemical monitoring, satellite, hydrodynamic and historical monitoring data sets and data products that cover the Atlantic coasts for use within the regional bulletins.

Monitoring status options for table:

* **Inactive** (completed dataset, studies, demos, selected periods, no longer monitored)
* **Active** (routinely, e.g. weekly during summer, daily satellite processing)

| **Region** | **Dataset Description** | **Data Type** | **Spatial Coverage** | **Temporal Coverage** | **Status \*** |
| --- | --- | --- | --- | --- | --- |
| West Scotland waters | WeStCOMS-FVCOM hourly 3D hydrodynamic model outputs. Variables include ocean temperature, salinity, surface elevation, U and V components among others. | FVCOM model output | Western Isles and mainland Scottish coastline unstructured grid. | 2013-present | Active |
| Scotland | WeStCOMS-WRF 3-hourly 3D atmospheric model outputs. Variables include heat flux, wind, precipitation, temperature (soil and air) amongst (93) others. | WRF model output file | 18, 6, 2 km grids | 2013-present | Active |
| Scotland | HAB Traffic lights risk index - weekly updated | National monitoring programme | Scottish coast and islands | 2017-present | Active |
| Scotland | Harmful phytoplankton counts | National monitoring programme | ~40 sites on Scottish coast and Islands | All year, weekly March-October 1996-present | Active |
| Scotland | Shellfish biotoxin concentrations | National monitoring programme | ~80 sites on Scottish coast and Islands | All year, weekly March-October 1990-present | Active |
| Scotland | Forecasted Sea Surface Currents | Mercator NEATL-PHY-1/36°-AF-D-PGS (IBI36QV4R1-PGS) Model output | 590 – 610 N; 0.50 – 5.50 W | All year, weekly, 2014 - present | Active |
| Scotland | Sea Surface Temperatures | Jet Propulsion Laboratory, NASA, GHRSST Level 4 GAMSSA Global Foundation Sea Surface Temperature Analysis | 580 – 620 N; 00 – 80 W | All year, weekly 2014 – present. | Active |
| Scotland | Mass Concentration of Chlorophyll a in sea water | Copernicus, [NORTHWESTSHELF\_ANALYSIS\_FORECAST\_BIO\_004\_002\_B](https://resources.marine.copernicus.eu/?option=com_csw&view=details&product_id=NORTHWESTSHELF_ANALYSIS_FORECAST_BIO_004_002_b) | 590 – 610 N; 0.50 – 5.50 W | March to October, weekly, 2014 – present. | Active |
| Scotland | Wind direction and speed | ASOS-AWOS-METAR Data provided by Iowa State University, Iowa Environmental Mesonet | Sumburgh and Scatsa, Shetland Islands, UK | All year, weekly | Active |
| Global | OC-CCI 4km Chlorophyll archive | EO data | -180, -90,180,90 | 1997-2017 | Inactive |
| South West England | HAB *Karenia mikimotoi* bloom Likelihood | EO data | -7,49, -2.5,51.5 | 2007-2016 | Inactive |
| North-west European Shelf | HAB risk maps for *K. mikimotoi*, *Pseudo-nitzschia* and *Phaeocystis* sp. (Sentinel-3 OLCI ocean colour, 300m) | EO data | 47 to 63 N, -15 to 13 E | 2016  -present | Active |
| North-west European Shelf | Ocean colour and temperature EO data, at 1km resolution, daily and 7-day composites (VIIRS, AVHRR) | EO data | 47 to 63 N, -15 to 13 E | 2015-present | Active |
| North-West England shelf | Hourly 3D hydrodynamic model outputs. Variables include temperature, salinity, surface elevation, U and V components among others. | FVCOM model output | Unstructured grid. Covers western channel, Celtic sea, Irish Sea and west Scotland. | 2013-present | Active |
| North-West England shelf | Daily 3D ecosystem model outputs. Variables include carbon and chl-a concentrations of 4 phytoplankton groups, 3 zooplankton groups, bacteria, all nutrients, carbonate system variables and oxygen and some rates such as primary production | FVCOM-ERSEM model output | Unstructured grid. Loch Ewe subdomain and west Scotland. | 2013-2015 | Inactive |
| North-west European Shelf | Daily and 3-hourly 3D atmospheric model outputs. Variables include heat flux, wind, precipitation, temperature (soil and air) amongst others. | WRF model output file | -14,3, 51,63 | 2013-present | Active |
| South West England | Daily remote sensing reflectance | In situ data | Around the Plymouth coastal area | 2016-present | Active |
| Ireland | Classification of shellfish production areas | National monitoring programme | Irish Coastline (excl. N. Ireland) | 2007 - present | Active |
| Ireland | Biotoxin concentrations in shellfish (ASP, PSP, DSP (OA/DTX), YTX & PTX)) | National monitoring programme | Irish Coastline (excl. N. Ireland) | 2001 - present | Active |
| Ireland | Phytoplankton species identification and enumeration focusing on toxigenic and harmful/bloom forming species | National monitoring programme | Irish Coastline (excl. N. Ireland) | 2001 - present | Active |
| Ireland – three bays  case study | Bantry Bay, Killary harbour & Cleggan bay Hydrodynamic models (water flow in m3/s-1) | Model output | Two high-resolution model domains | 2012-present | Active |
| Ireland case study | Particle transport probability (hours) | Model output | Two high-resolution model domains | 2012-present | Active |
| Ireland | Satellite images (Chl a, chl a anomaly in chl a: mg/m3 and SST in degree C) | EO data | European Shelf seas | 2012-present | Active |
| Iberia (pt-sp) | 3-hours 3D hydrodynamic model outputs (temperature, salinity, surface elevation, U and V components, …). | MOHID model output | 34.4 - 45.0 N; 5.5 - 12.6 W | 2010 - present | Active |
| Iberia (pt-sp) | 3-hours 3D biogeochemical model outputs (phytoplankton, nutrients, oxygen, organic matter,…). | MOHID model output | 34.4 - 45.0 N; 5.5 - 12.6 W | 2011 - present | Active |
| Portuguese coast | Phytoplankton species | Portuguese monitoring programme | 37.0 - 41.8 N; 6.2 - 8.9 W | 2014 - present | Active |
| Portuguese coast | Biotoxins levels in several mollusc species | Portuguese monitoring programme | 37.0 - 41.8 N; 6.2 - 8.9 W | 2014 - present | Active |
| France | *Phytoplankton species (Dinophysis spp., Pseudo nitzschia sp., Alexandrium sp., Karenia mikimotoi... in cells/L)* and toxins levels (PTXs ...) | French monitoring programme | French Atlantic and channel | 1988-present | Active |
| France | 1-hour 3D hydrodynamic model outputs (temperature, salinity, surface elevation, U and V components among others). | MARS3D model output | 43 - 53.0 N; 8W- 5E | 2018 - present (2.5 km) | Active  (not in bulletins) |
| Bay of Biscay and Channel | RGB (Bands 4-3-2) composite from Sentinel-2. Treatment using ACOLITE atmospheric correction combined with the normalized difference chlorophyll index (NDCI) | EO data | 33 to 38 N, -10 to -5 W | 23/06/2003-15/07/2003 | Inactive |
| SE Bay of Biscay | 1-hourly and 670-m resolutions, and 3D physical model outputs (temperature, salinity, surface elevation, U and V components) | ROMS model output | 43.24 - 44 ºN; 3.4 - 1.3 ºW | 96-hour forecast, daily | Active |
| Mendexa area (pilot farm) | EU legislated biotoxins; toxic phytoplankton and physicochemical variables (transparency, inorganic nutrients and CTD profiles) in the water column. | In situ data | Mendexa station (~2.5 km off the Basque coast). 43º 21.411' N, 2º 26.918' W. | 2014-present  (bi-weekly summers; monthly winter) | Active |
| Western & northern Iberian Peninsula | ROMS model output (IEO and Meteogalicia) | ROMS model output | 37ºN - 45ºN 13ºW - 0ºW | Periods from 2005 (IEO), 72-hour forecast (Meteogalicia) | Active |
| Western & northern Iberian Peninsula | Lagrangian particle model output; forced offline with ROMS model output | IEO model simulations | 37ºN - 45ºN 13ºW - 0ºW | Weekly | Active |
| Western & northern Iberian Peninsula | CTD data | IEO Radiales monitoring programme | Shelf transects in Vigo, Coruña, Cudillero, Gijón and Santander | Monthly | Active |
| Galicia | Phytoplankton species counts | IEO Radiales monitoring programme | Shelf transects in Vigo and A Coruña | Monthly | Active |
| Galicia | HAB Phytoplankton species | Galician monitoring programme- INTECMAR | 42ºN - 43.3ºN 9ºW - 7ºW | Weekly | Active |
| Galicia | Biotoxin concentrations (http://www.intecmar.gal/Intecmar/Biotoxinas.aspx?sm=f) | Galician monitoring programme- INTECMAR | 42ºN - 43.3ºN 9ºW - 7ºW | Weekly | Active |
| Galicia | Near-Real Time Surface Ocean Velocity | HF Radar | 41.4N to 44.8N, -7.8W to -11.4 W | Last 5 days | Active |
| Gulf of Cádiz & Gibraltar Strait | Phytoplankton species counts | Andalusian monitoring programme | 35º50'N - 37º15'N; 4º30'W - 7º30'W | 1999 - present | Active |
| Biotoxins concentration in several mollusc species | Andalusian monitoring programme | 35º50'N - 37º15'N; 4º30'W - 7º30'W | 1999 - present | Active |
| CTD data | IEO Stoca monitoring programme | 35º50'N - 37º15'N, 4º30'W - 7º30'W | Quarterly | Active |
|  | RGB (Bands 4-3-2) composite from Sentinel-2. Treatment using ACOLITE atmospheric correction combined with the normalized difference chlorophyll index (NDCI) | EO data | 33 to 38 N, -10 to -5 W | July 2019 | Inactive |