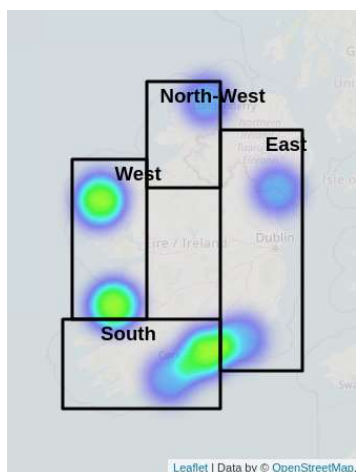
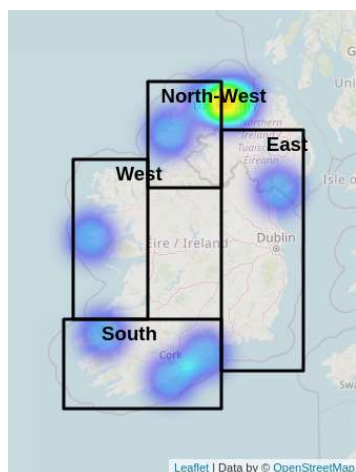


Diarrhetic Shellfish Toxins



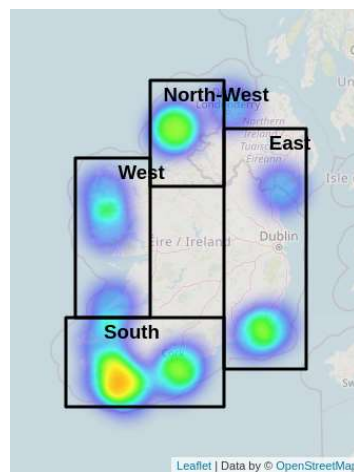
Toxic Sites	0
Analysed Sites	51

Azspiracid Shellfish Toxins



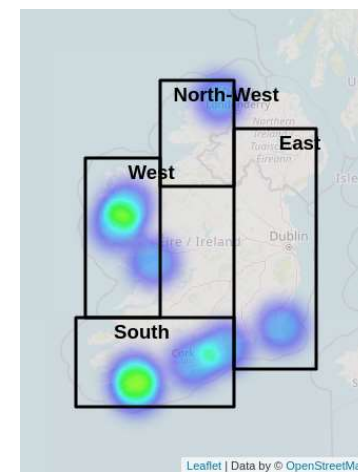
Toxic Sites	0
Analysed Sites	51

Amnesic Shellfish Toxins



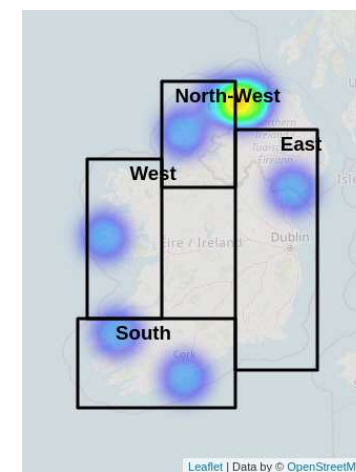
Toxic Sites	0
Analysed Sites	45

Paralytic Shellfish Toxins



Toxic Sites	0
Analysed Sites	11

Yessotoxins



Toxic Sites	0
Analysed Sites	51

AST: (Amnesic shellfish toxin) Low toxin levels in general and currently no immediate indications of sudden increases.

AZA: (Azspiracid toxin) Low risk on all shorelines, but there is a constant low fluctuating phytoplankton presence Basic caution advised as we are in a historical risk period also. This species has caused sudden acute issues in the past, rarely presents any reliable trends.

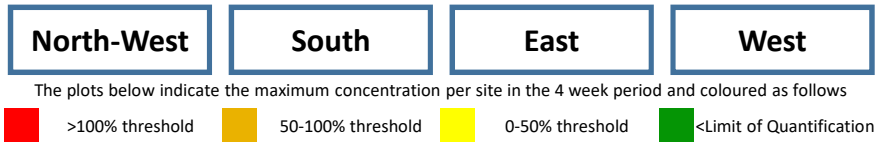
DST: (Dinophysis shellfish toxin) Low risk generally. In historical period of occurrence and weather, transportation and environmental conditions are suitable, highest caution advised in historically prone sites.

PST: (Paralytic shellfish toxins) Low risk as environmental conditions expected to be suitable for bloom establishment. Alexandrium cells can occur in both toxic and nontoxic forms.

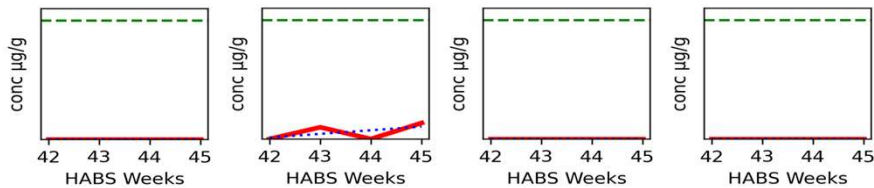
Diarhetic Shellfish Toxins & *Dinophysis* species

Regional 4-Week Trends 13/10/24 - 09/11/24

In this 4 week period there were 178 Samples tested for DST. These samples were collected at 70 Sites around the country. Resulting in 0 Site(s) with values above the regulatory limit of 0.16 µg/g



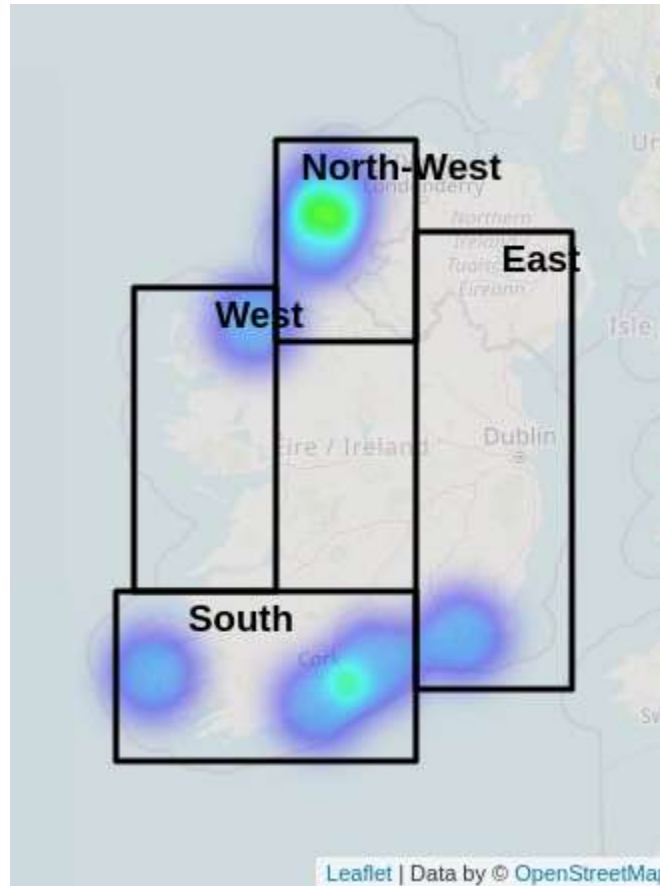
--- indicates the regulatory threshold. These plots show the max value per week for the previous 4 weeks.



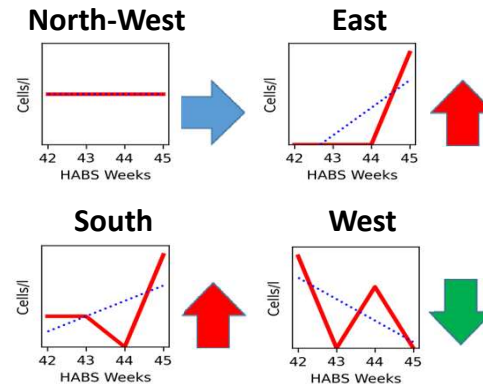
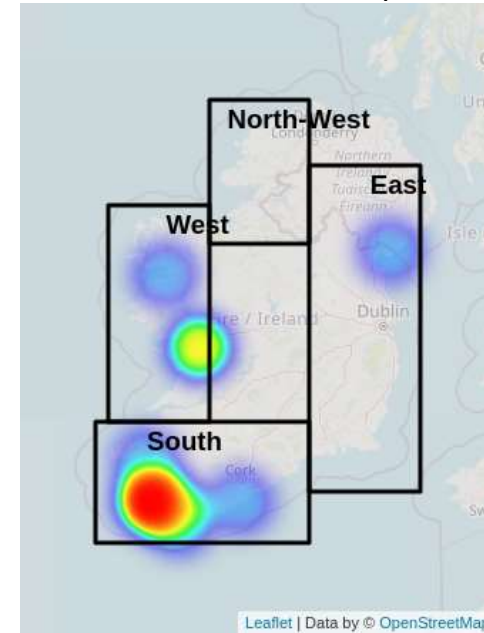
Risk: **Low** **Low** **Low** **Low**
 Trend:

Risk:
 Low levels of cells present and quantifiable levels of toxins detected in the Southwest. Unlikely to increase dramatically at this time.

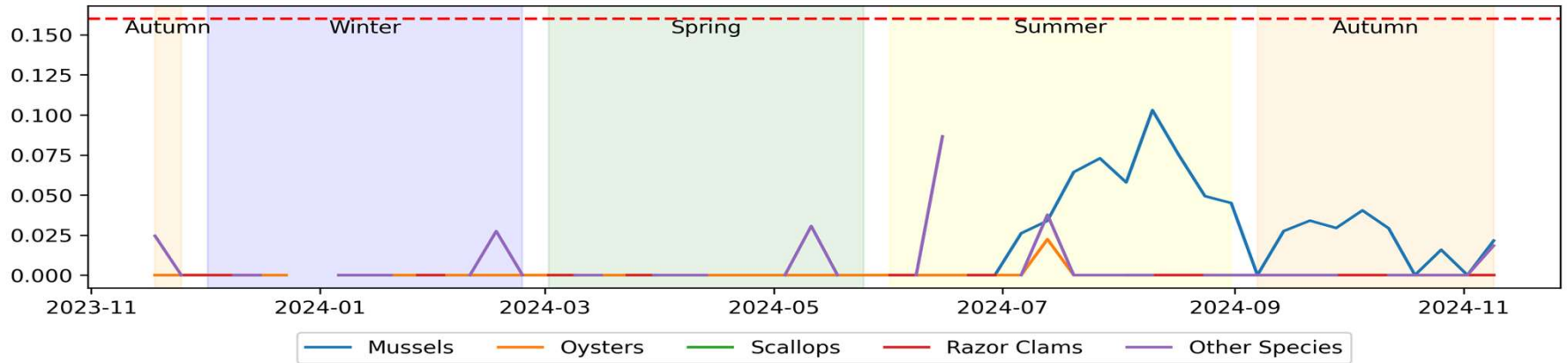
Diarhetic Shellfish Toxins National 4-Week Heatmap



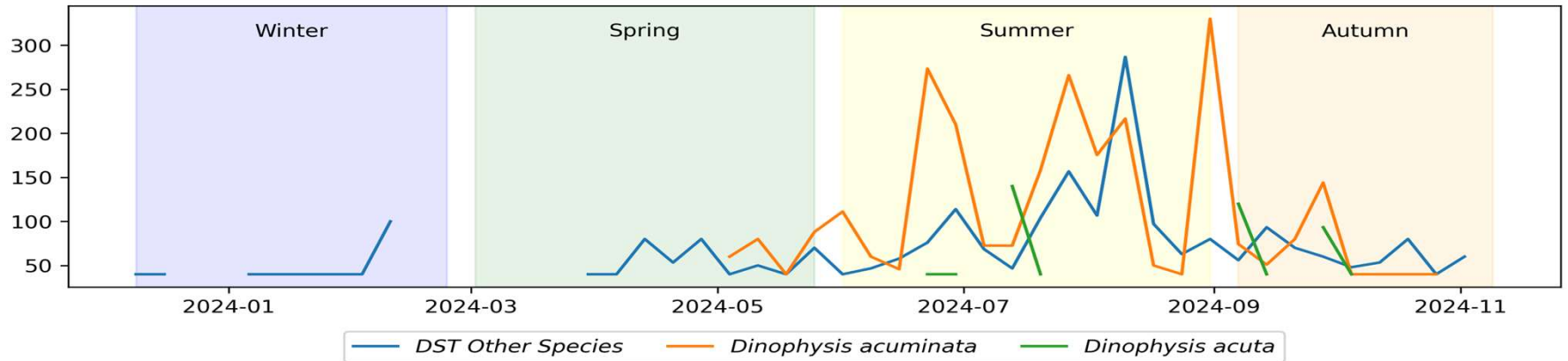
Phytoplankton *Dinophysis* spp. 4 Week Heatmap



Trend of Maximum Toxin concentrations in Shellfish Species (measured in $\mu\text{g/g}$)



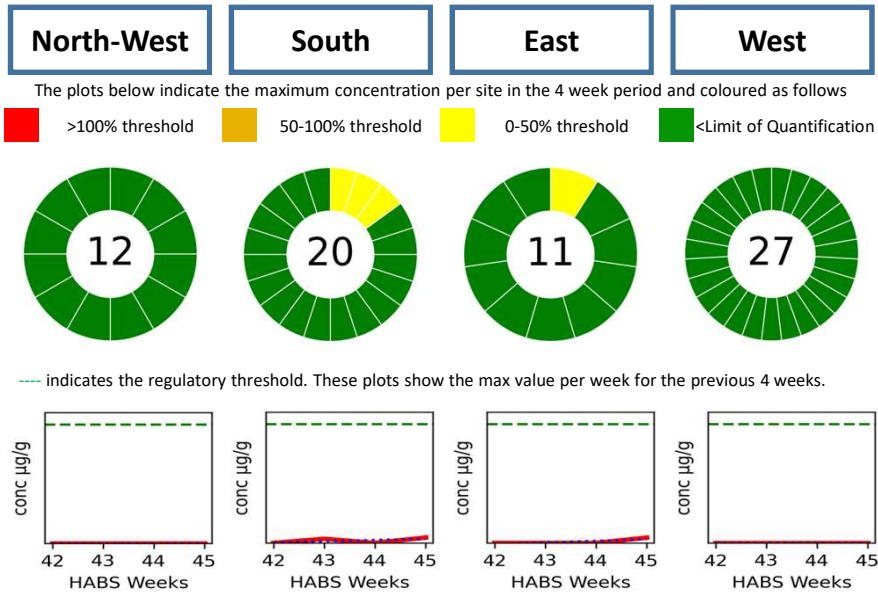
Trend of Average Counts of Toxin Causing PhytoPlankton Species Per Week (measured in Cells per Litre)



Azspiracid Shellfish Toxins & *Azadinium* species

Regional 4-Week Trends 13/10/24 - 09/11/24

In this 4 week period there were 178 Samples tested for AZT. These samples were collected at 70 Sites around the country. Resulting in 0 Site(s) with values above the regulatory limit of 0.16 µg/g



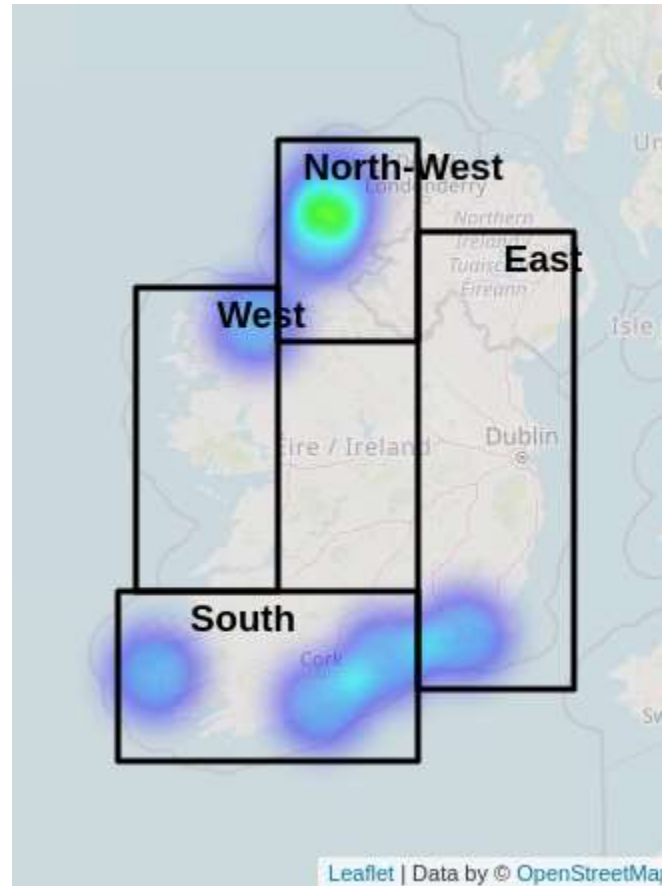
Risk: **Low** **Low** **Low** **Low**

Trend:

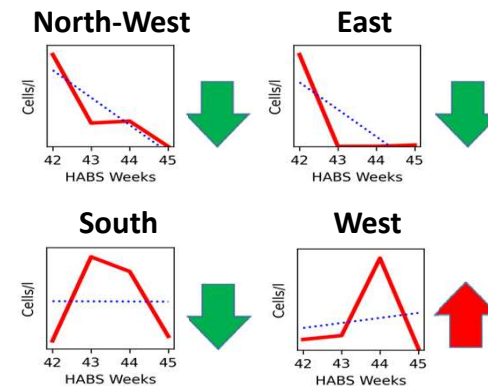
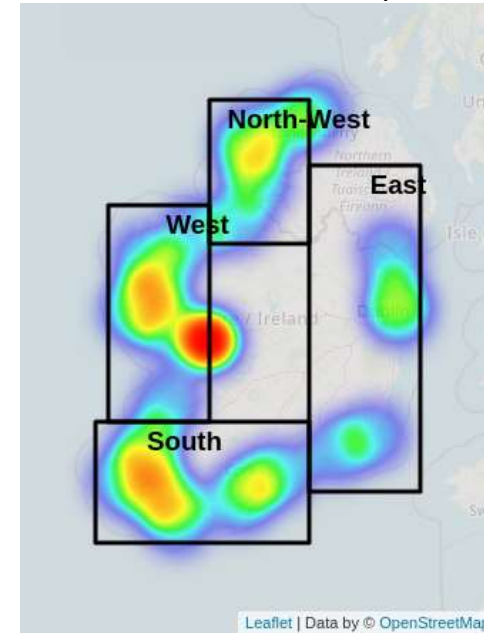
Risk:

Low levels of cells present on all coasts. This group could increase dramatically at this time.

Azspiracid Shellfish Toxins National 4-Week Heatmap



Phytoplankton *Azadinium* spp. 4 Week Heatmap

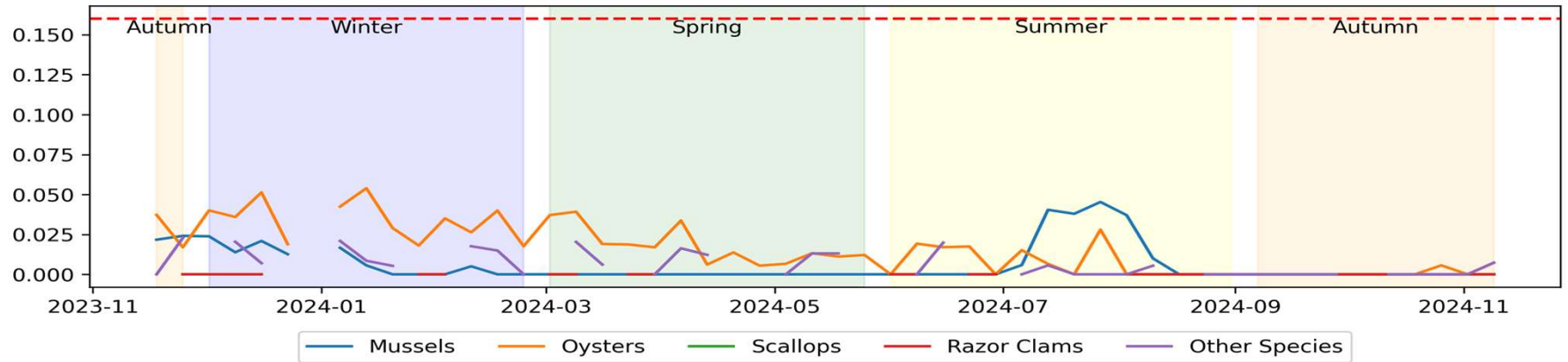


Azaspiracid Shellfish Toxins & Azadinium species

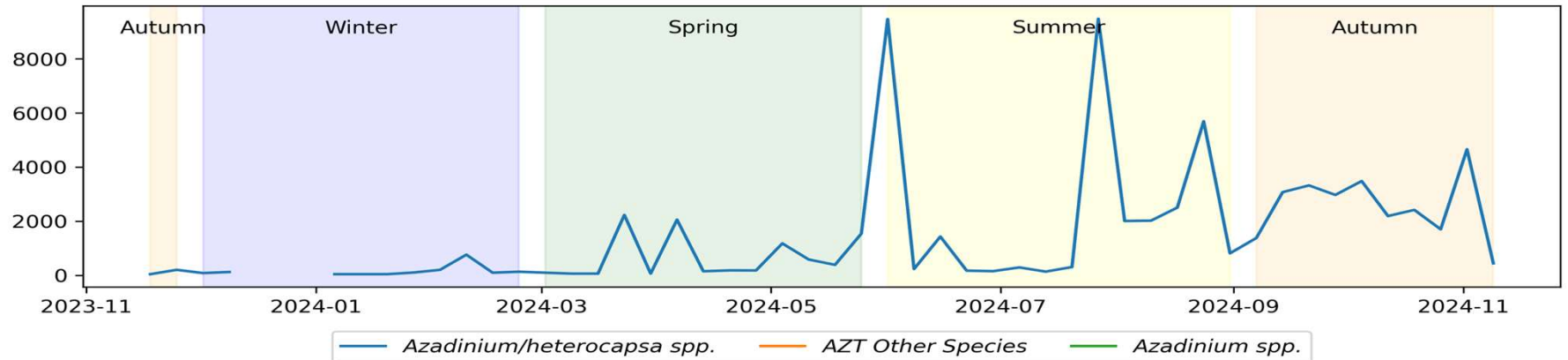
National Yearly Trend 10/11/23 - 09/11/24



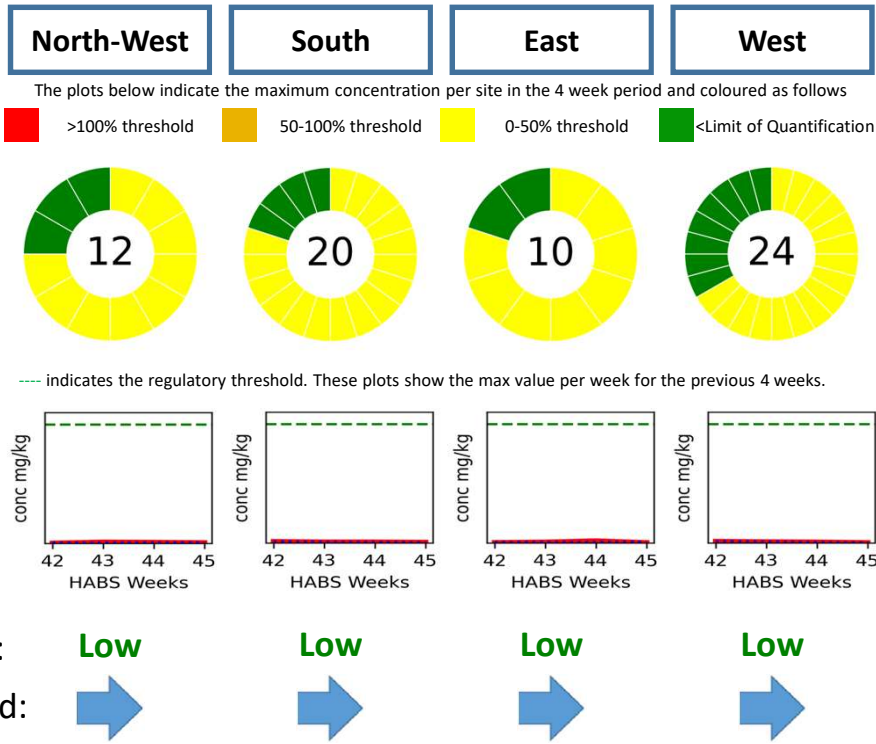
Trend of Maximum Toxin concentrations in Shellfish Species (measured in $\mu\text{g/g}$)



Trend of Average Counts of Toxin Causing PhytoPlankton Species Per Week (measured in Cells per Litre)

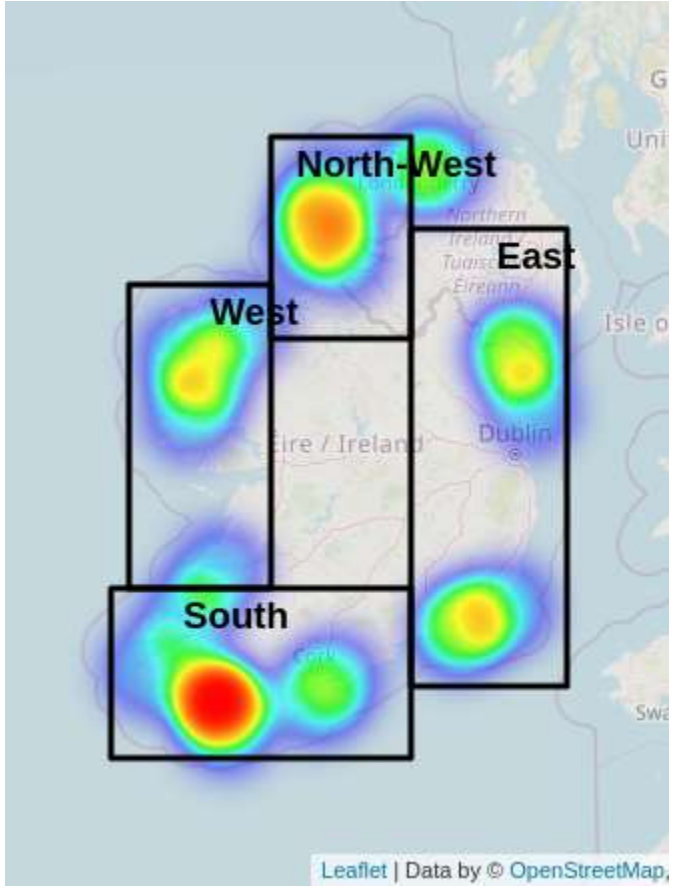


In this 4 week period there were 172 Samples tested for AST. These samples were collected at 66 Sites around the country. Resulting in 0 Site(s) with values above the regulatory limit of 20.0 mg/kg

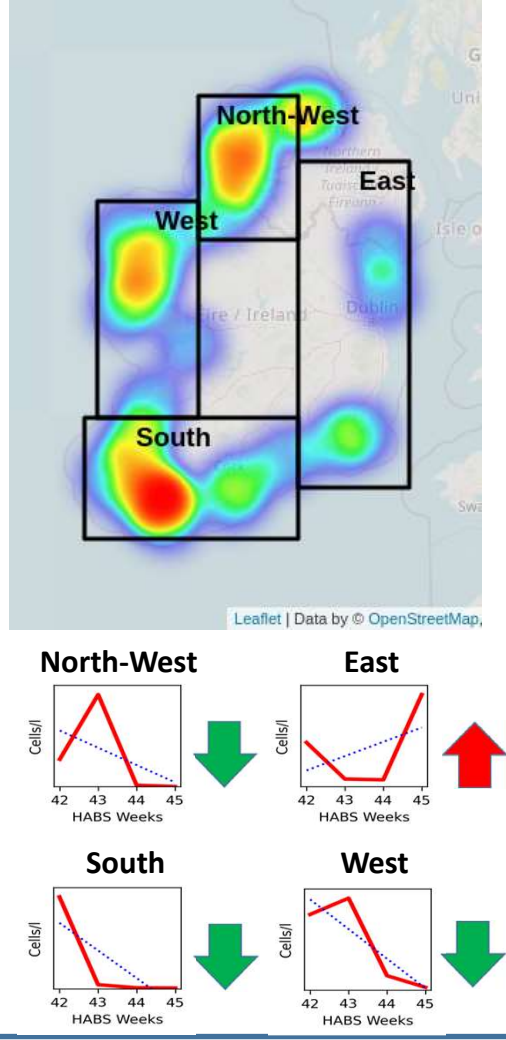


Low risk:
Risk levels are on the decrease on all coasts

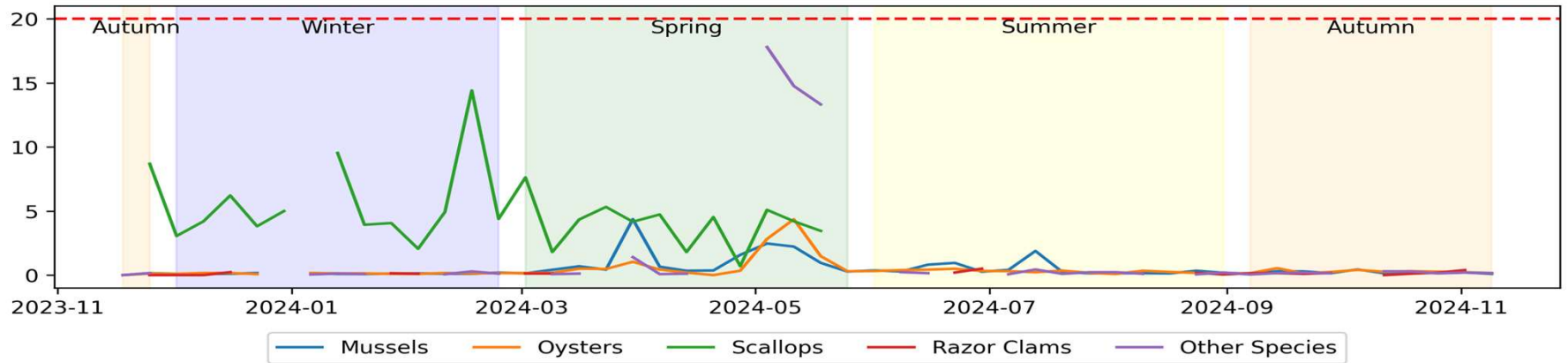
Amnesic Shellfish Toxins National 4-Week Heatmap



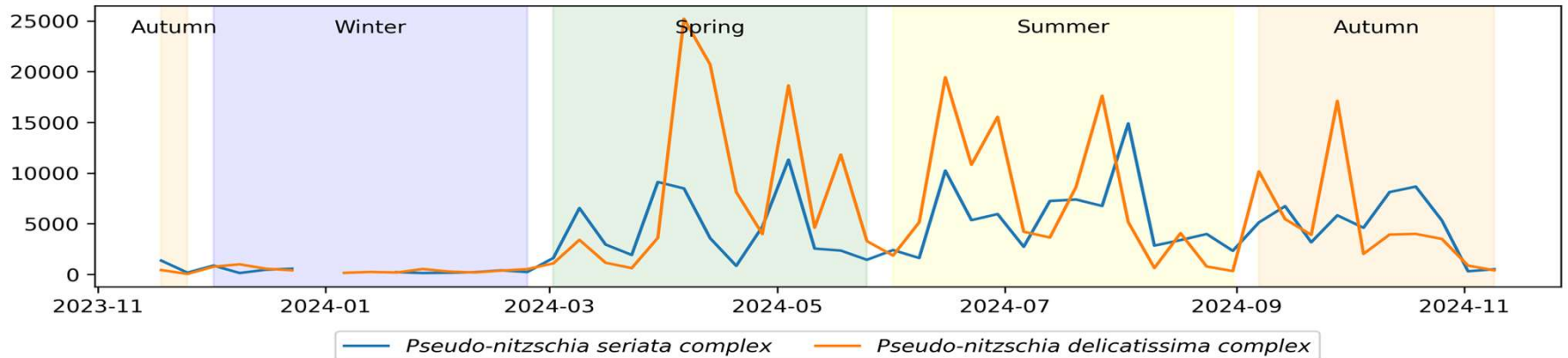
Phytoplankton *Pseudo-nitzschia* spp. 4 Week Heatmap



Trend of Maximum Toxin concentrations in Shellfish Species (measured in mg/kg)



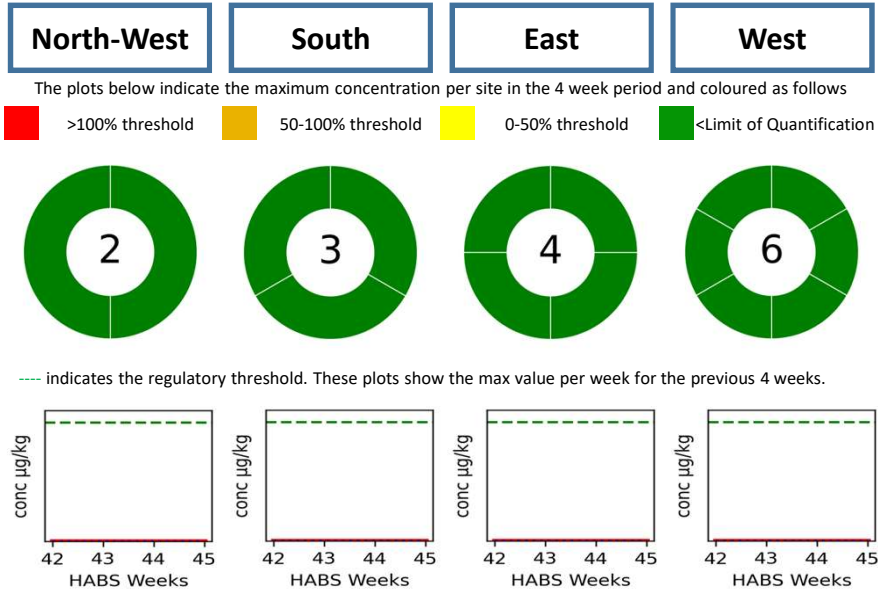
Trend of Average Counts of Toxin Causing PhytoPlankton Species Per Week (measured in Cells per Litre)



Paralytic Shellfish Toxins & *Alexandrium* species

Regional 4-Week Trends 13/10/24 - 09/11/24

In this 4 week period there were 23 Samples tested for PST. These samples were collected at 15 Sites around the country. Resulting in 0 Site(s) with values above the regulatory limit of 800.0 µg/kg

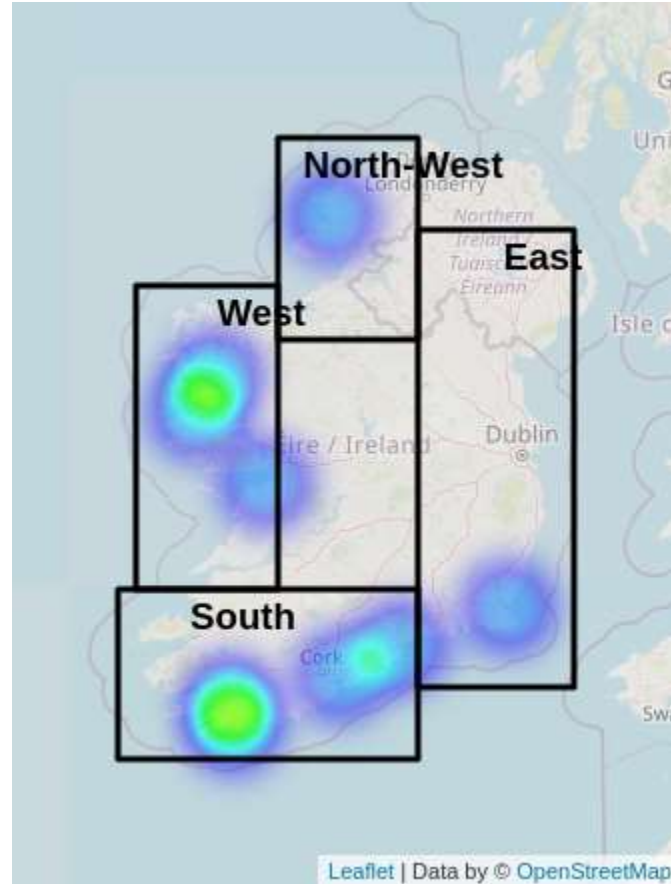


Risk: **Low** **Low** **Low** **Low**

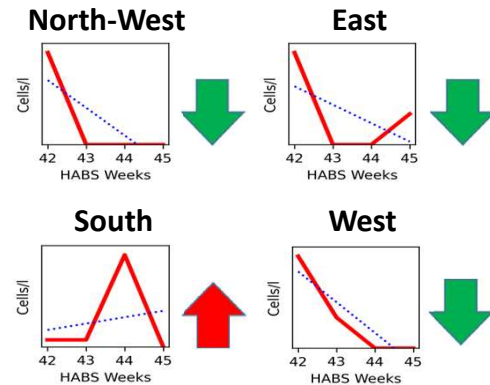
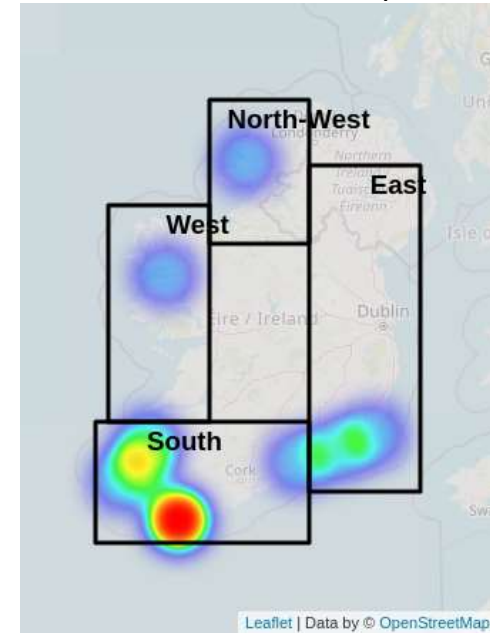
Trend:

Low Risk.
Risk levels low on all coasts.

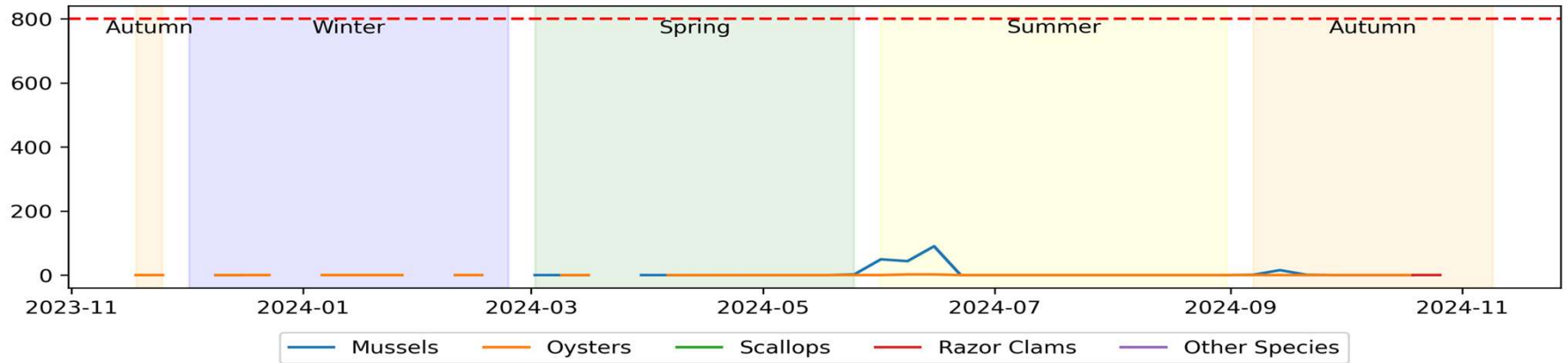
Paralytic Shellfish Toxins National 4-Week Heatmap



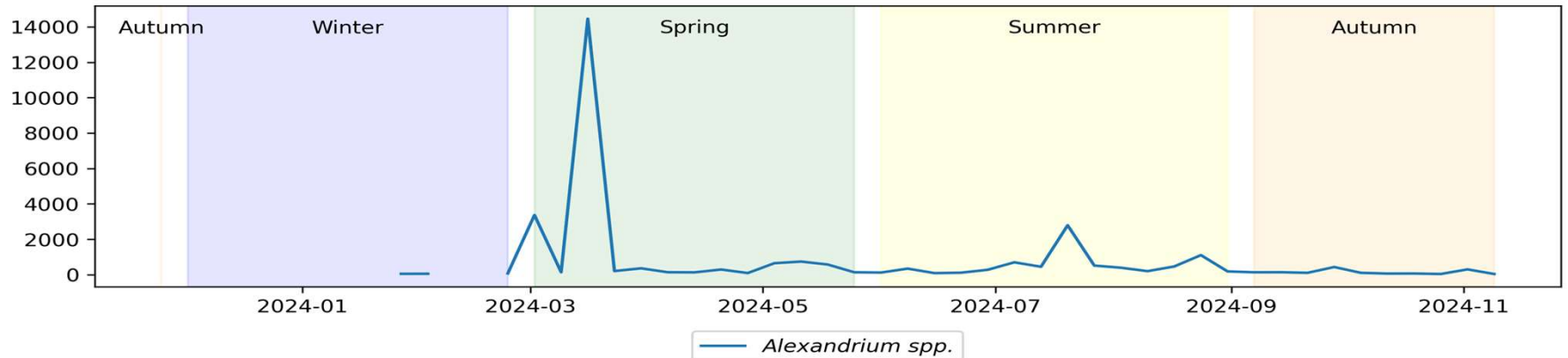
Phytoplankton *Alexandrium* spp. 4 Week Heatmap



Trend of Maximum Toxin concentrations in Shellfish Species (measured in $\mu\text{g}/\text{kg}$)

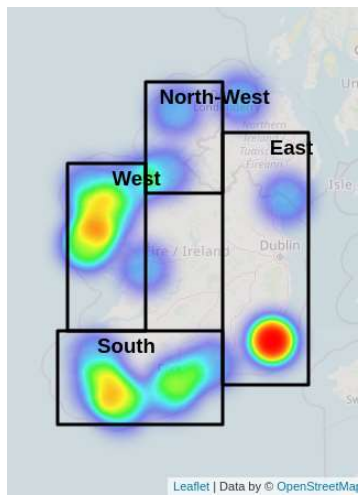


Trend of Average Counts of Toxin Causing PhytoPlankton Species Per Week (measured in Cells per Litre)

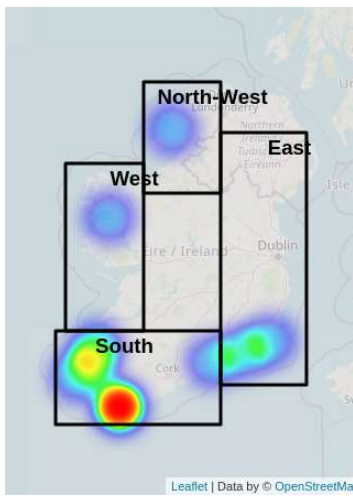


Fish Harming Phytoplankton

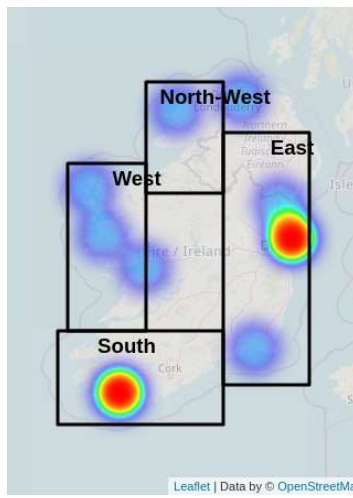
National 4-Week Analysis: 13/10/24 to 09/11/24



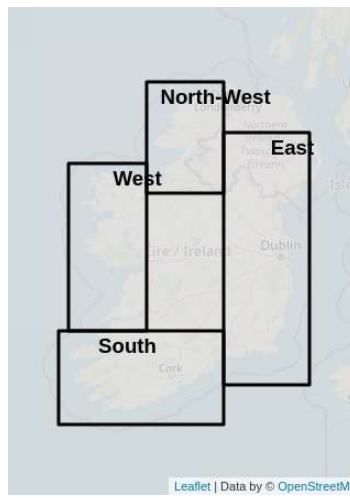
Heterocapsa sp.



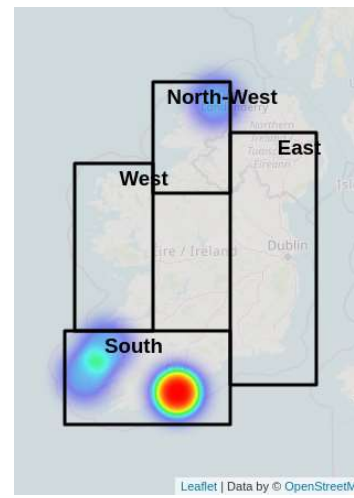
Alexandrium sp.



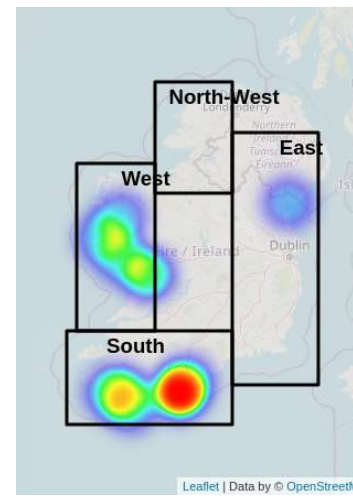
Coscinodiscus sp.



Phaeocystis sp.

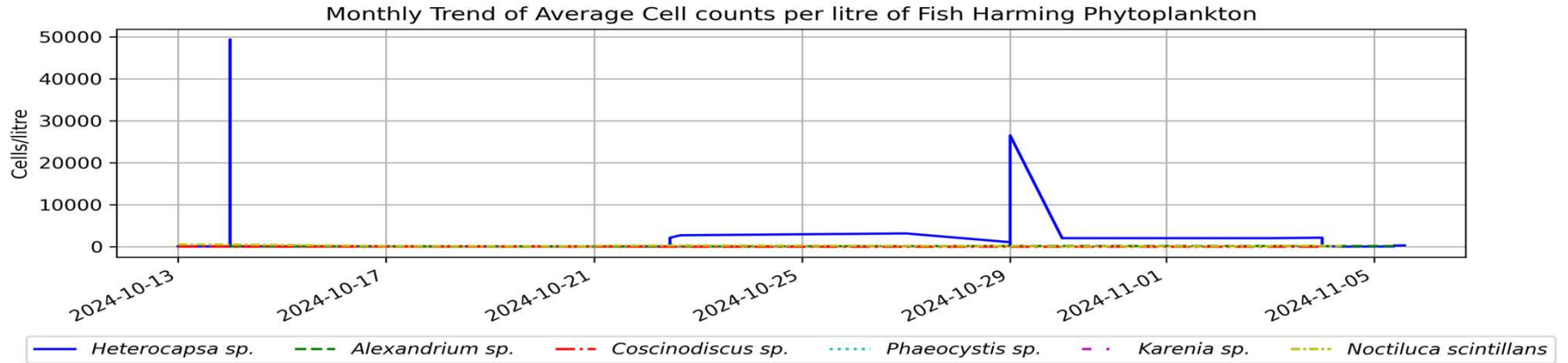


Karenia sp.

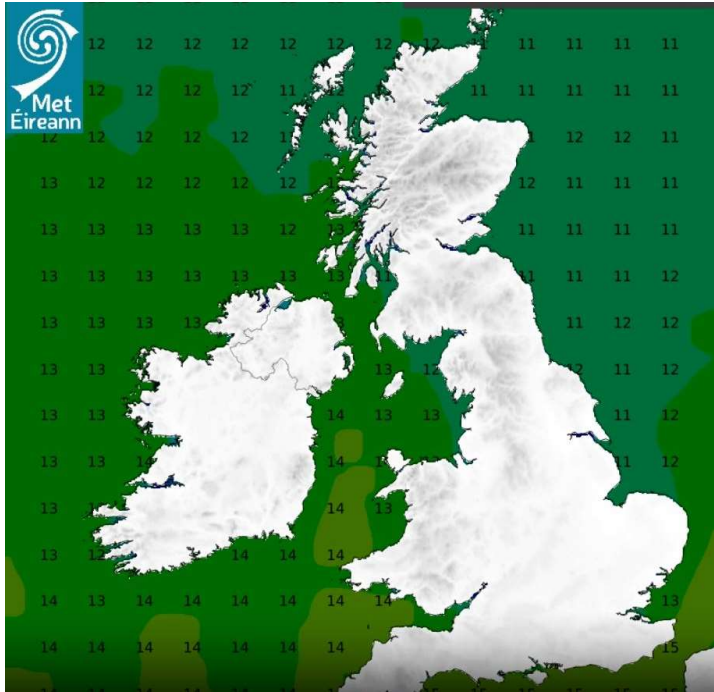


Noctiluca Scintillans

Generally phytoplankton cell levels continuing at low levels consistent into the autumnal cycle. Sea water temperatures starting to cool, light levels decreasing and cloud cover fluctuates. Offshore transportation potential higher likelihood of occurrence as insitu risk levels of HABs growth decrease significantly. Any Phytoplankton species at sufficient numbers may cause temporary issues in water quality which could impact specific areas over the course of a tidal cycle or for a period of days while specific suitable conditions prevail. Please note some blooms can occur rapidly and acutely. If concerned about a problematic or toxic species level please check specific site information updates at www.marine.ie.



Sea Surface Temperature (°C)



Chlorophyll Concentrations (mg/m3)



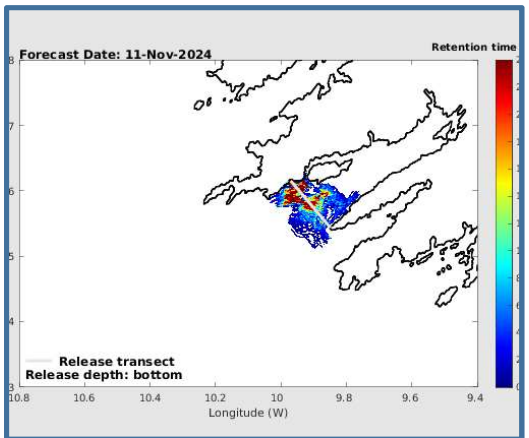
Sea water temperatures decreasing steadily. Decreasing light levels and increasing water turbulence in general. High mixed diatom and dinoflagellates dominance in most coastal areas. Please check specific area information for local activity. Localised temporary blooms becoming less likely.

Marine Institute Data Buoy – Temperature Data

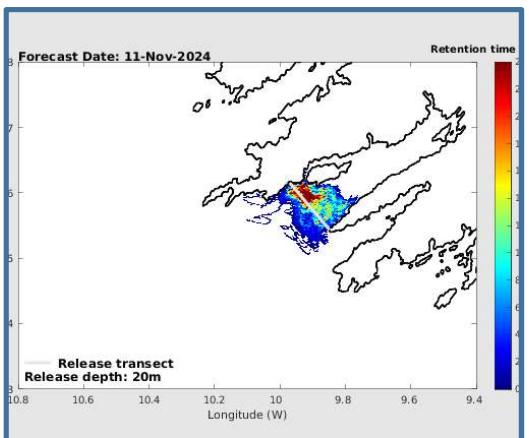


- NW Coast (M4) Average SST of 13.25 Celcius: Increase of 0.94 Celcius over the historic Weekly Average
- SW Coast (M3) Average SST of 13.51 Celcius: Increase of 0.72 Celcius over the historic Weekly Average
- SE Coast (M5) Average SST of 14.07 Celcius: Increase of 0.81 Celcius over the historic Weekly Average

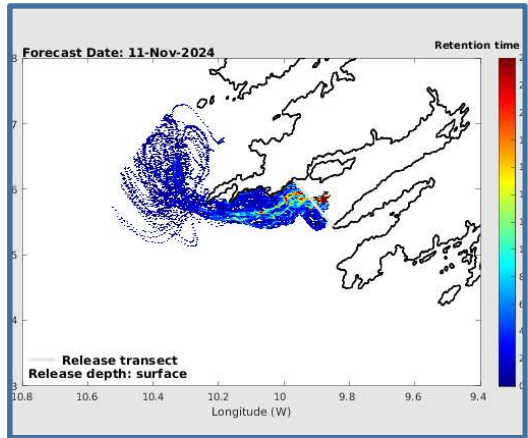
The maps show the **most likely transport pathways for the next 3 days of phytoplankton** found along the **presented transects** (black lines off Mizen Head and the Mouth of Bantry Bay) and **water depths** (bottom, 20 metres and surface).
Reddish colours represent areas where phytoplankton remain longest. **Cooler colours represent areas where phytoplankton remain for shorter periods**



Bottom water

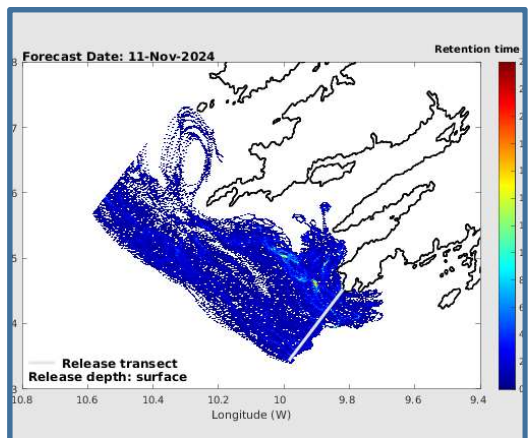
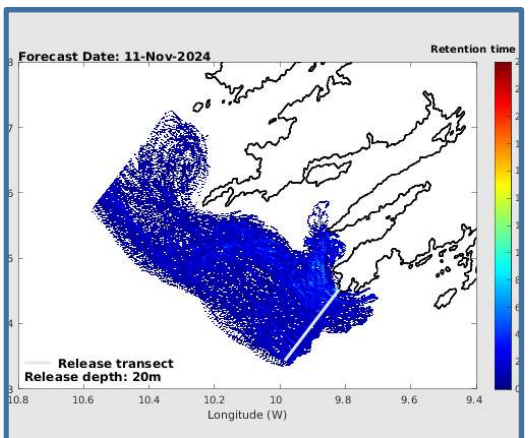
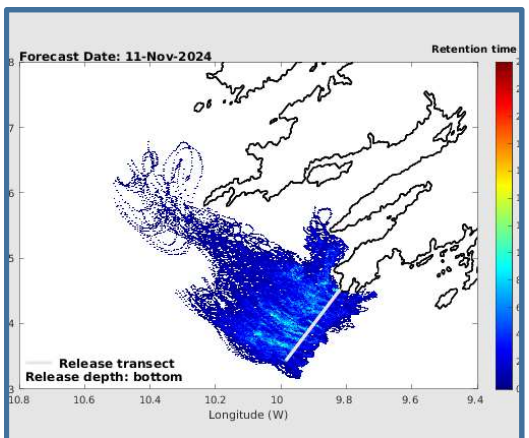


Water @ 20 metres

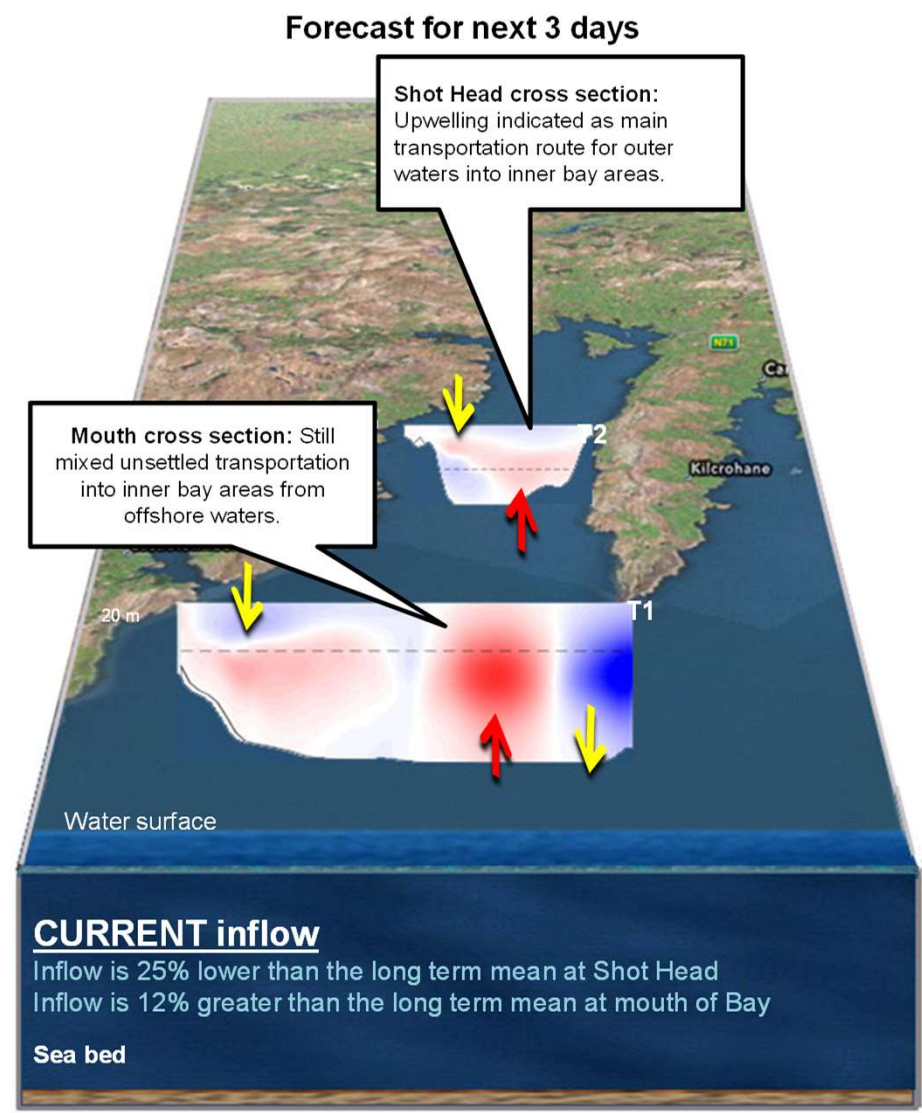
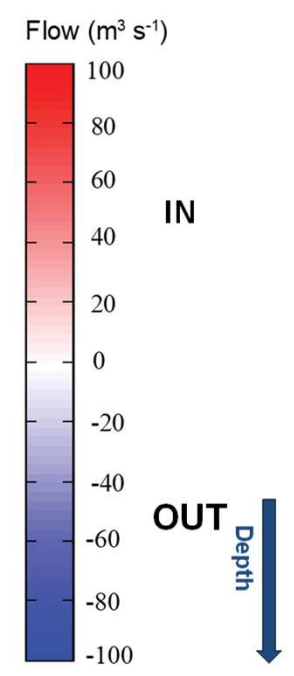


Surface water

Moderate upwelling possible as inshore water transportation into inner bay areas.

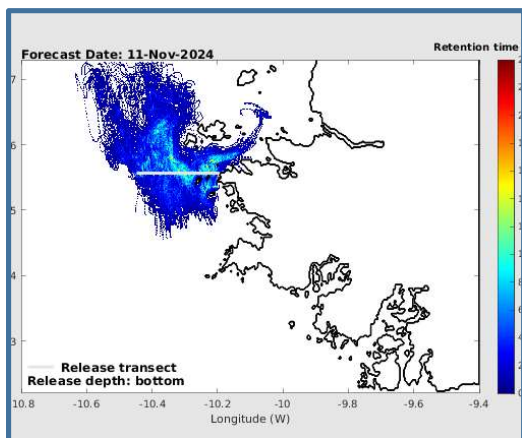


Continuing Northerly at Surface waters but more mixed directional movement dominance at bottom & middle depths.

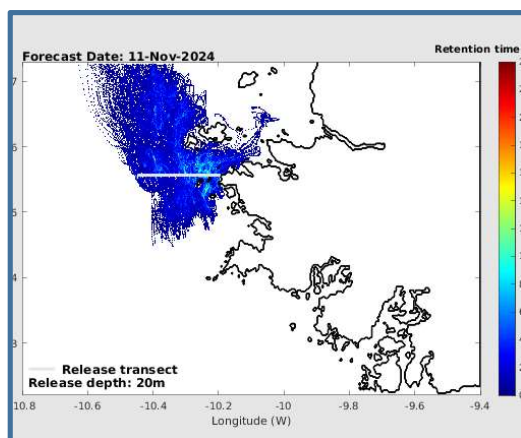


The maps show the **most likely transport pathways for the next 3 days of phytoplankton** found along the **presented transects** i.e. white lines off Aughrus Point and the Mouth of Killary Harbour, and **water depths** (bottom, 20 metres and surface).

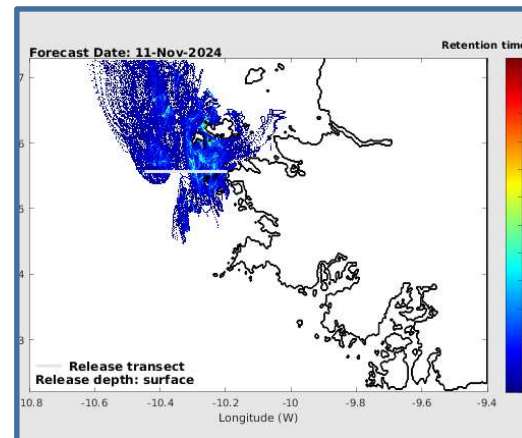
Reddish colours represent areas where phytoplankton remain longest. **Cooler colours represent areas where phytoplankton remain for shorter periods**



Bottom water



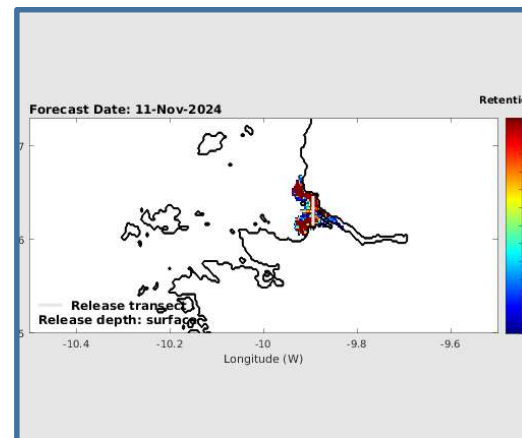
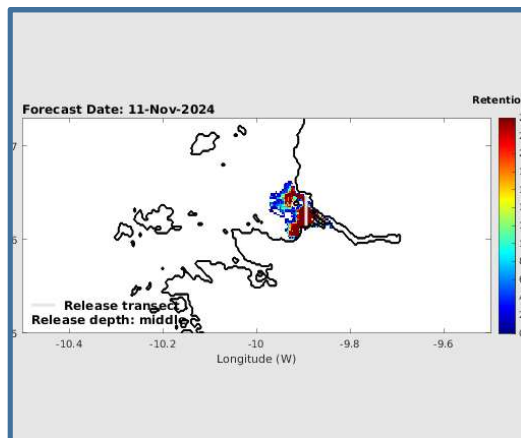
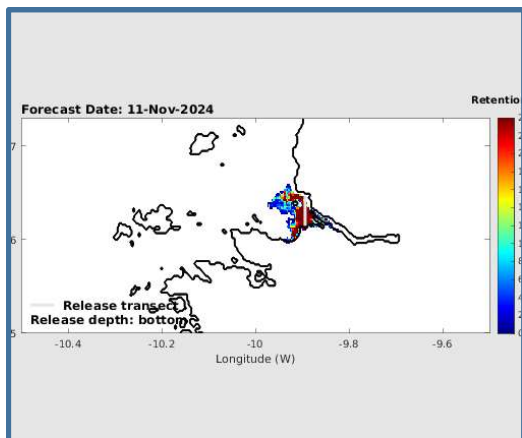
Water @ 20 metres



Surface water

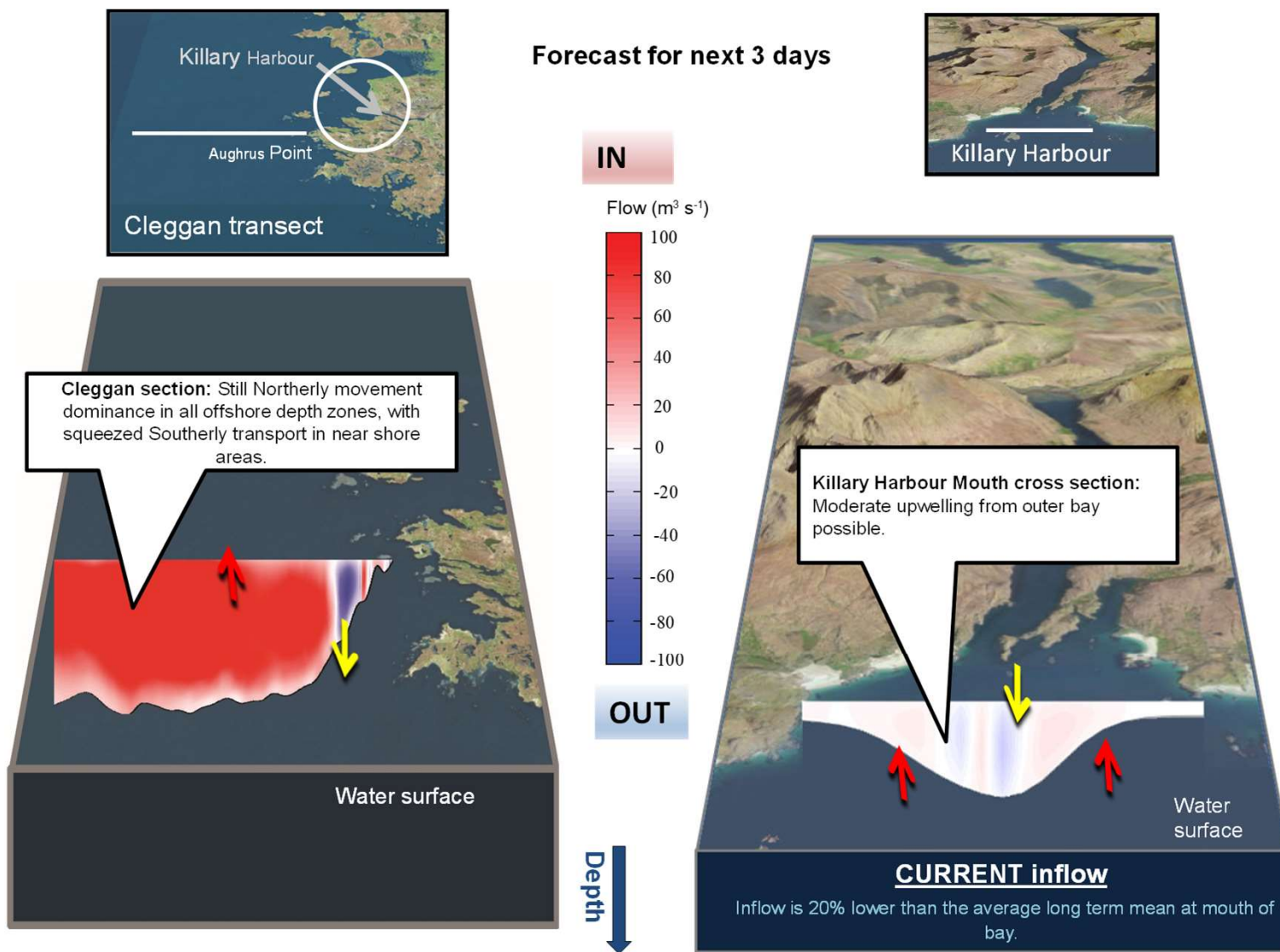
Cleggan

- Still Northerly transportation remains as dominant direction at surface water and mixed dominance at depths. Developing Southerly counter movement.



Killary

- Northerly transport dominant offshore, with inshore transportation through low levels upwelling.



This Harmful Algal Blooms (HAB) Bulletin aims to provide a short (3-5 day) predictive forecast on the likelihood of the onset of a HAB event occurring/continuing in a region. The data provided for the compilation of this report is derived from a number of sources comprising of in-situ, remote sensing and hydrodynamic modelling datasets. For the latest and historical biotoxin and phytoplankton results for aquaculture production areas please visit <https://webapps.marine.ie/habs>

In-situ Data

- Biotoxin and Phytoplankton data is provided by National Monitoring Programmes from the HABs database (Marine Institute)
- Heat map images – Leaflet.

Remote Sensing Data

- Sea Surface Temperature Data Product: SST_NWS_SST_L4_NRT_OBSERVATIONS_010_003 (ODYESSA L4 SST from Copernicus CMEMS MCS).
- Chlorophyll image data is provided by:EUR-L4-CHL-ATL-v01 (IFREMER/ DYNECO and CERSAT).
- Sea Surface Temperature observations: Irish weather buoy network (Marine Institute).

Hydrodynamic modelled data

- Particle Tracking Simulation data: The downscale models of areas of particular interest (Bantry Bay, Killary Harbour and Cleggan Bay) incorporate online particle tracking with virtual particles released at pre-defined transects at the start of each model. The operational model produces an estimate of the ocean state once a week and a daily 3-day forecast of the dominant regional physical processes that result in water exchange events between the bay and its adjacent shelf (Marine Institute).
- Hydrodynamic model data: Hydrodynamic nowcast/forecast models show the latest 3-day volumetric flux forecast for vertical transects at the mouth and mid-bay. The results are plotted graphically on a map of the area.

Definitions

- A toxic site is defined as a site that had at least 1 result in the time period indicated greater than the regulatory limit.
- Heat maps represent relative distribution and patterns, and should not be interpreted as indicative of the maximum or absolute concentrations of a toxin in a region.
- Risk levels are calculated based on internal logic applied to measurements captured over the period, along with any additional information available to the evaluator. These risk levels are to be regarded as advisory only.
- Trends are calculated based on average or maximum values per week over the period of time and the slope of the line connecting these points.

Disclaimers

The predictions and comments produced within this bulletin are based on our expert opinion on the datasets and sources as outlined above. The Marine Institute cannot accept any responsibility for business and risk management decisions on harvesting and husbandry based on this report.

Acknowledgements

Funding for the development of this bulletin version has been provided by Interreg Atlantic Area Project: PRIMROSE (Predicting the Impact of Regional Scale events on the Aquaculture Sector) EPA 182/2106