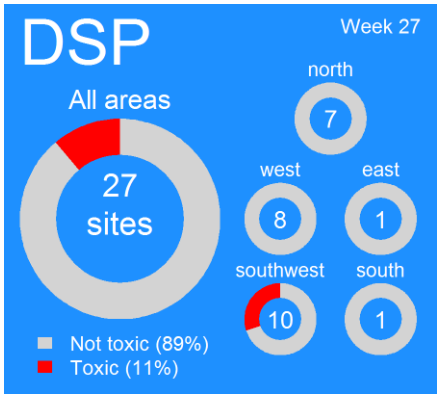
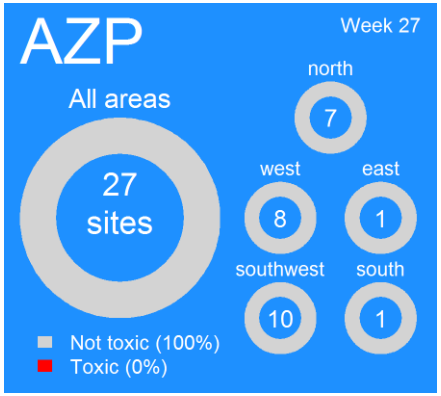
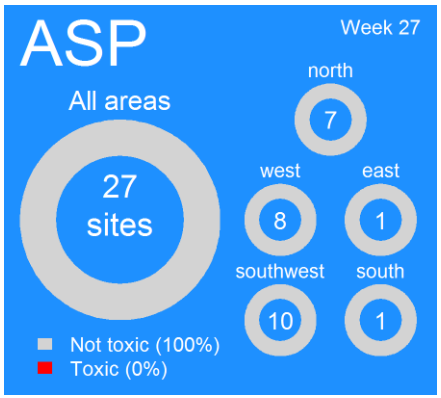
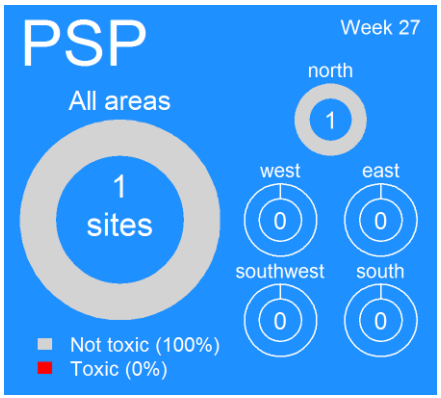
Ireland: **Current Conditions**

Shellfish biotoxin report (last week)





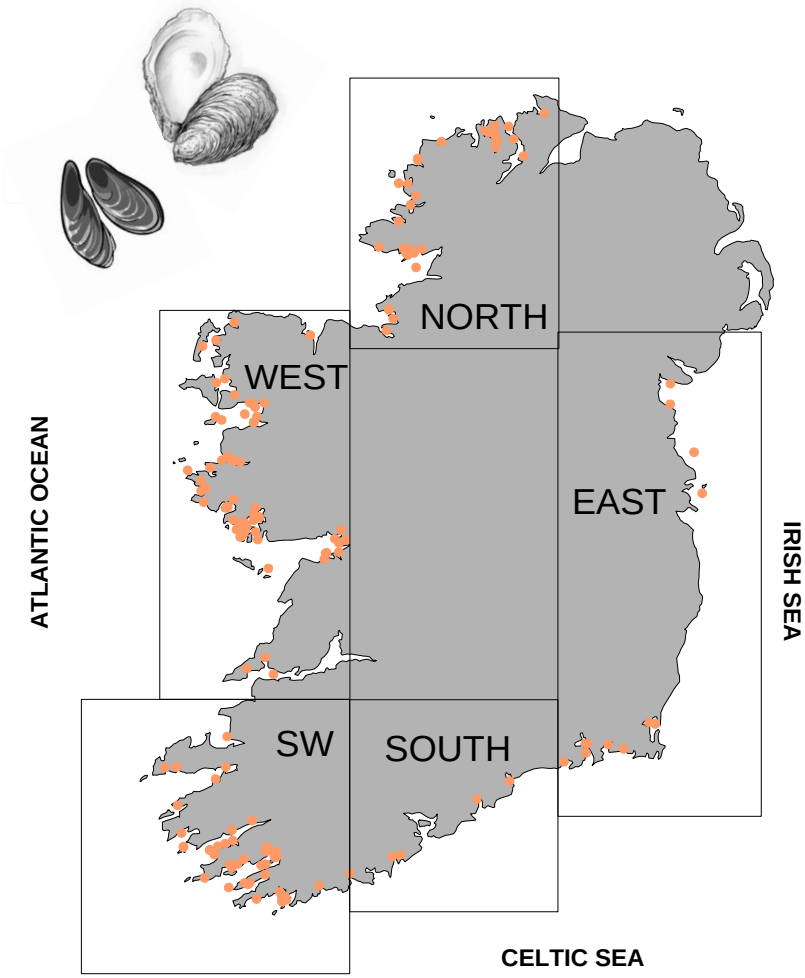




EU Regulatory Limit:
ASP 20 µg/g; AZP 0.16 µg/g; DSP 0.16 µg/g; PSP 800 µg/kg

Toxin groups
ASP = **A**mnesic **S**hellfish **P**oisoning; AZP = **AZ**aspiracid **P**oisoning;
DSP = **D**iarrhetic **S**hellfish **P**oisoning; PSP = **P**aralytic **S**hellfish **P**oisoning

National Monitoring Programme
Designated Sampling Sites



= aquaculture site

Ireland: **Predictions**

Prediction for this week:

ASP event: Low
AZP event: Low - Moderate
DSP event: High (region specific)
PSP event: Low – Moderate (site specific)

Why do we think this?

ASP: Low cell levels of *Pseudo nitzschia* species continue to be observed in many sites around the coast . Corresponding biotoxin levels continue to remain well below regulatory limits. Toxin issues from this species would not historically be expected at this time.

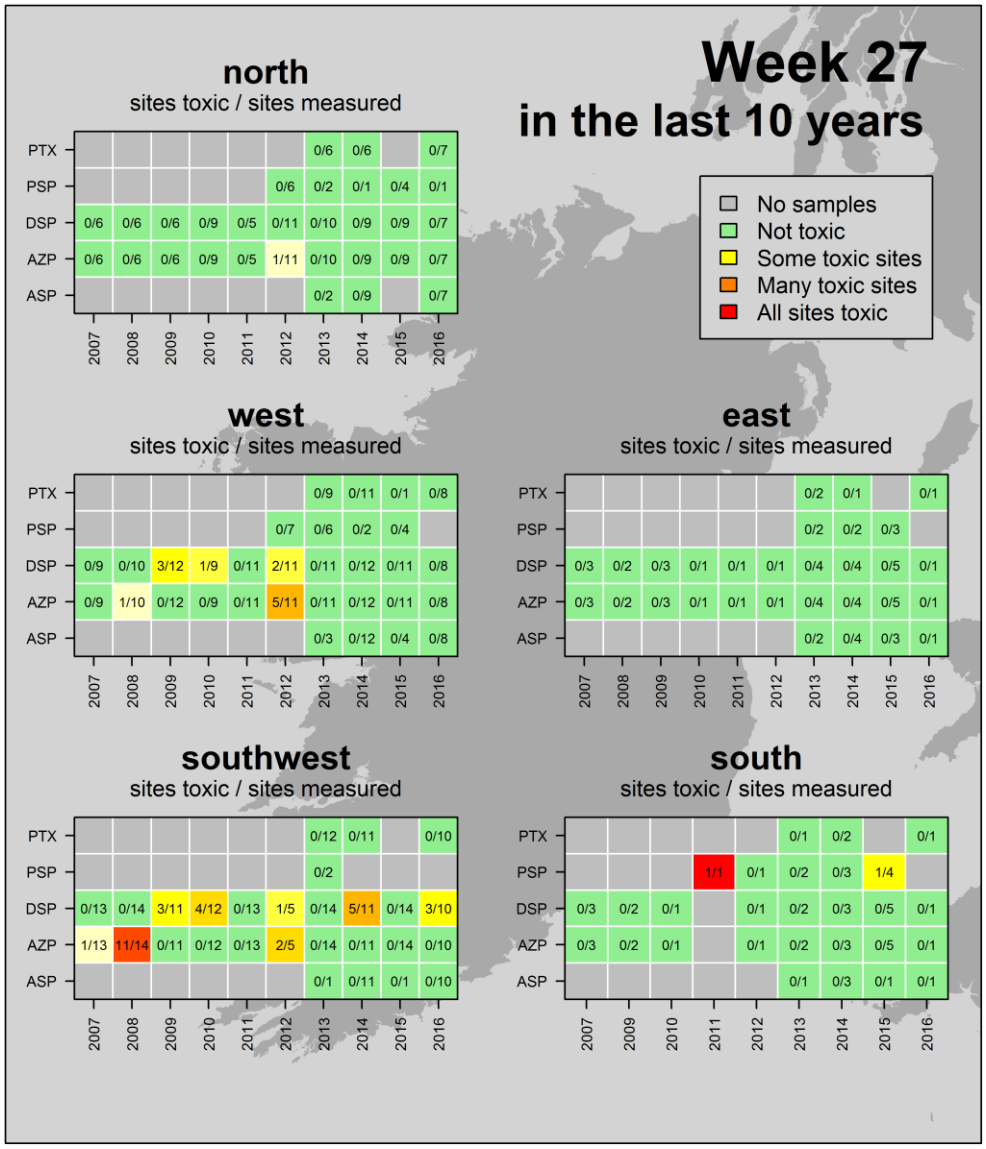
AZP: Fluctuating levels of *Azadinium* type species continue to be observed in multiple areas throughout the coastline. Biotoxin levels currently remain well below the regulatory limit in all sites. This is historically within the period of occurrence so vigilance is encouraged .

DSP: This is historically the main risk period . The presence, magnitude and spread ,of these species is increasing in general and has already 'jumped' in SW sites. Western sites are currently exhibiting a potential trend for slowly increasing biotoxin levels corresponding with increased cell levels. *Dinophysis* cells are also now present in some NE sites. All areas should exercise caution and adjacent regions to closed areas should take all precautions necessary.

PSP: Biotoxin issues related to the presence and abundance of specific *Alexandrium* species have historically occurred in very localised areas in the south only. *Alexandrium* levels can increase dramatically in suitable conditions .Increased levels of preparedness is advised in previously affected site areas as this is the beginning of the historical risk period and environmental conditions may be becoming suitable for growth. While *Alexandrium sp* cells have been observed in low levels throughout the coastline only 1 site in the SW has had related biotoxin levels, at well below regulatory limit.

Ireland: **Historic Conditions**

A look back at how last weeks biotoxin results compares to other years



Ireland HISTORIC TRENDS

Likely times for Shellfish Toxicity: does not include winter carry over of biotoxins

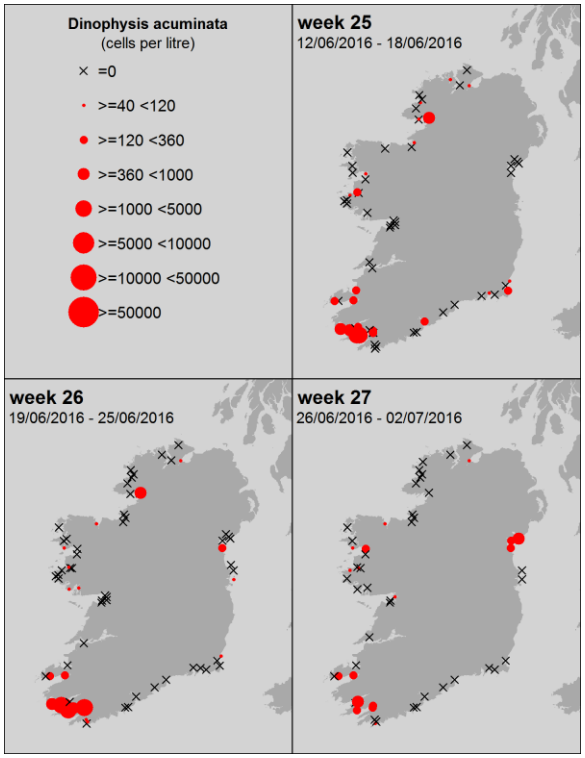
ASP events: mid-March to early May
AZP events: April to December
DSP events: May to December
PSP events: June to mid-July and end September; only in Cork Harbour

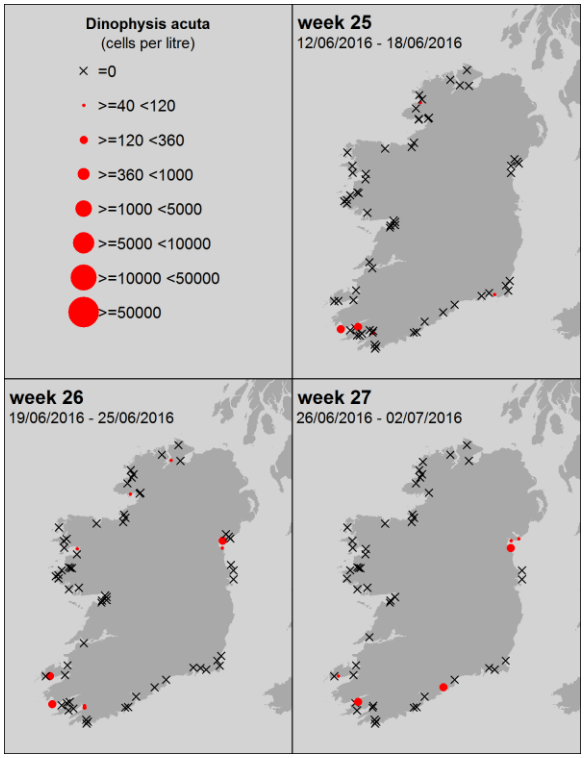
Ireland: **Last 3 weeks of available National Monitoring Programme data**

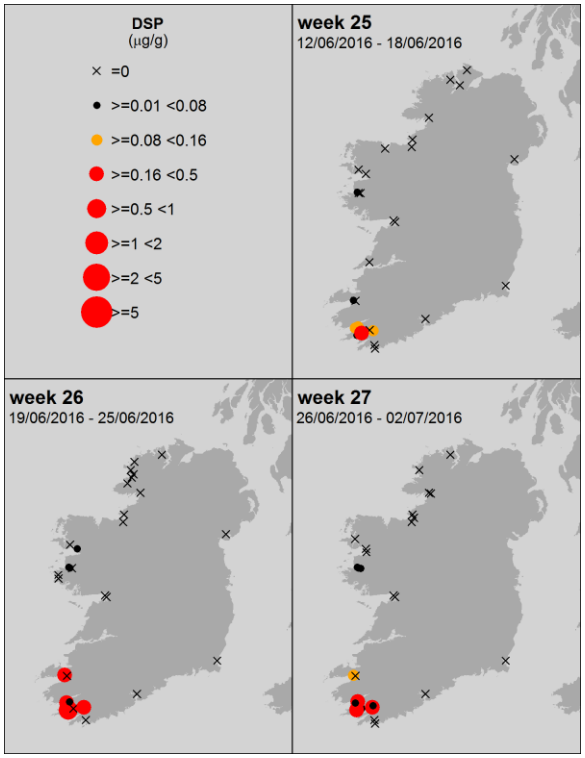
Dinophysis acuminata

Dinophysis acuta

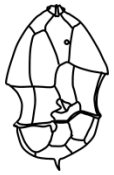
DSP





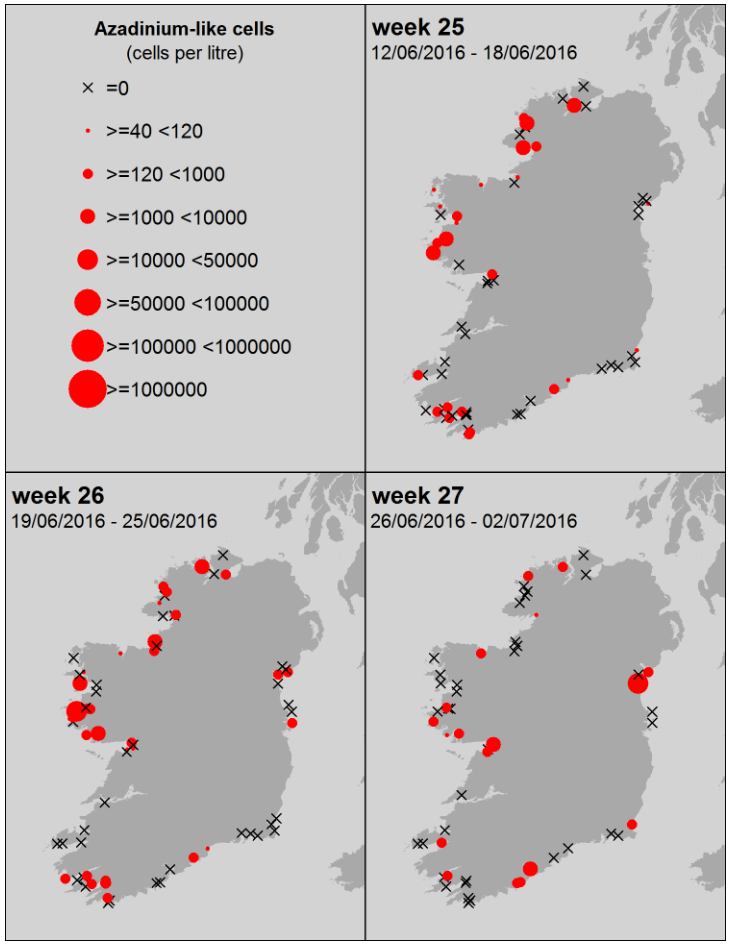


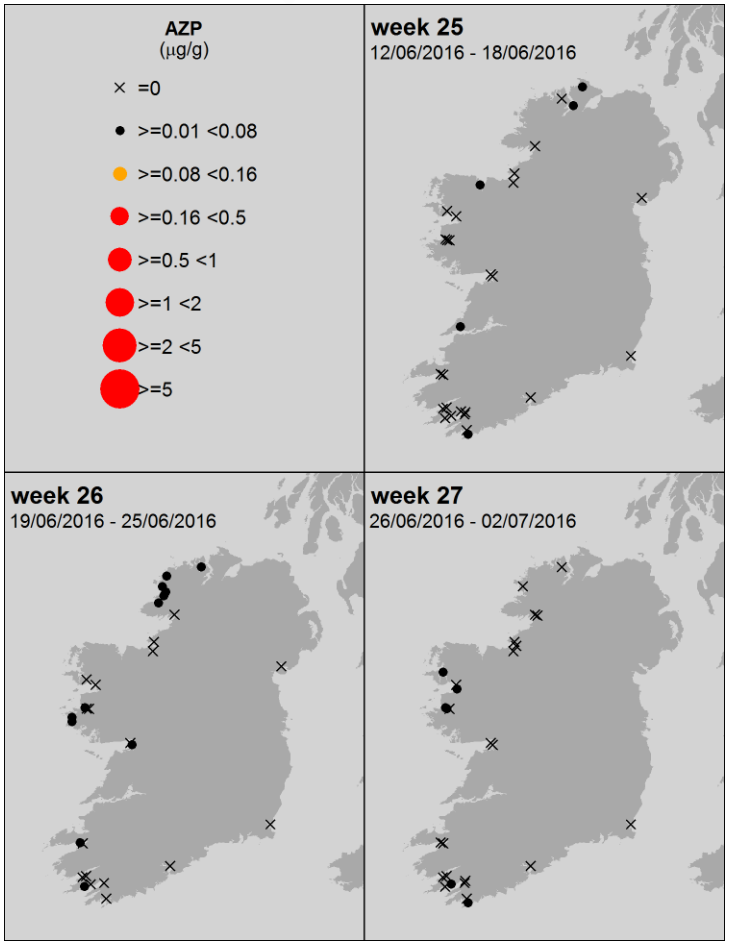
Ireland: **Last 3 weeks of available National Monitoring Programme data**



Azadinium – like spp.

AZP





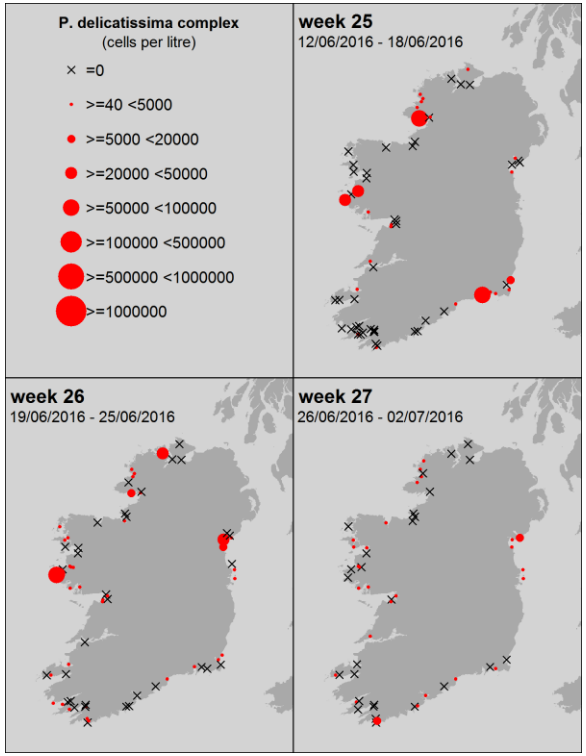
Ireland: **Last 3 weeks of available National Monitoring Programme data**

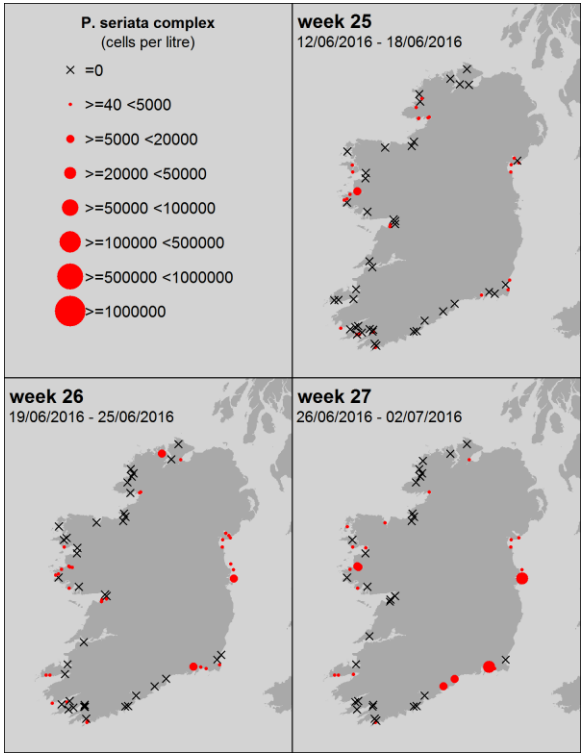
Pseudo-nitzschia spp.

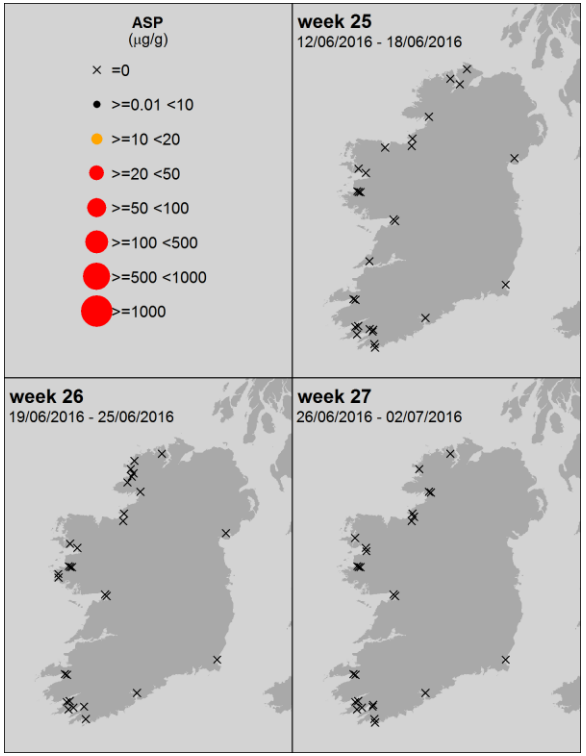
ASP

"*P. delicatissima*" complex = small cells
Taken from the literature:
3 species confirmed in Irish waters

"P. *seriata*" complex = large cells
Taken from the literature:
7 species confirmed in Irish waters

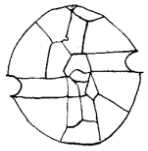






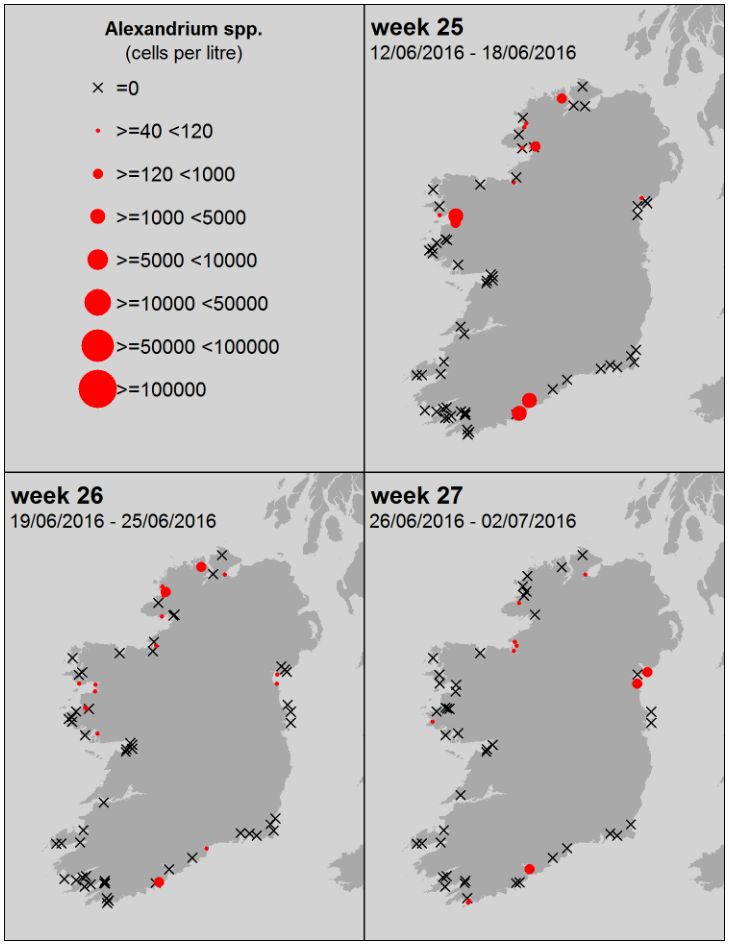
Taken from the literature: Of the 4 species (*P. fraudulenta*, *P. australis*, *P. pungens* and *P. delicatissima*) from Irish waters, tested for ASP toxins in culture work, only one, *P. australis* (from the "*P. seriata*" group) was toxic.

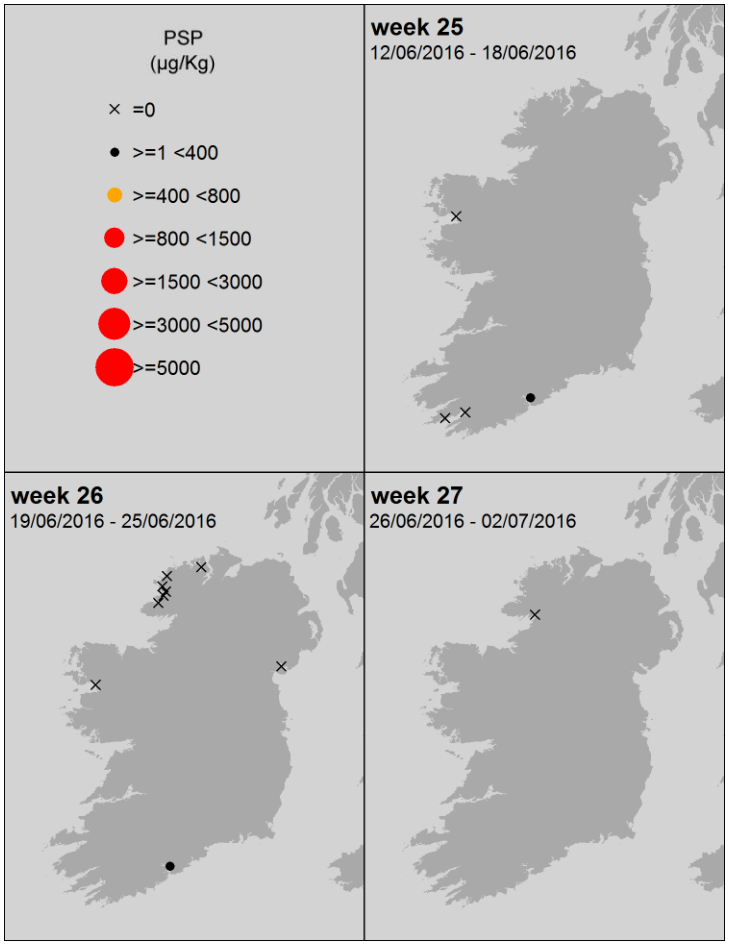
Ireland: **Last 3 weeks of available National Monitoring Programme data**



Alexandrium spp.

PSP

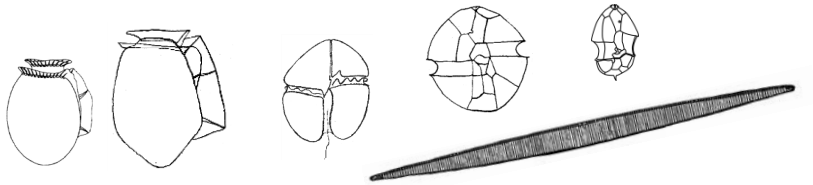


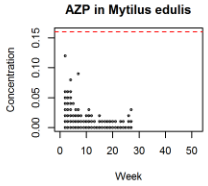
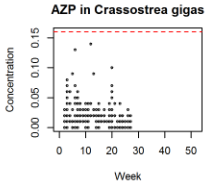
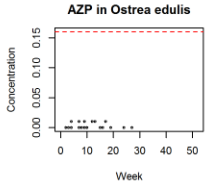
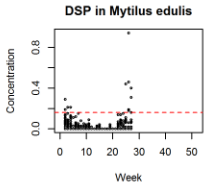
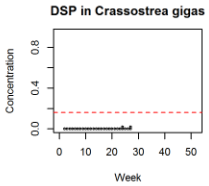
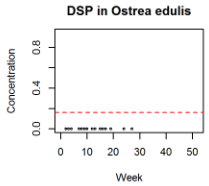
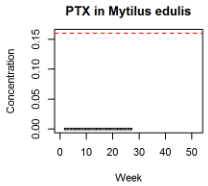
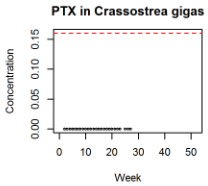
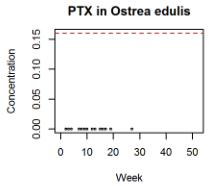
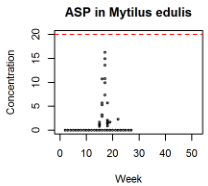
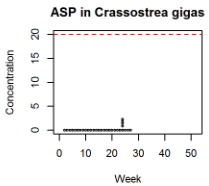
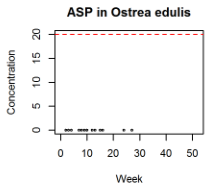
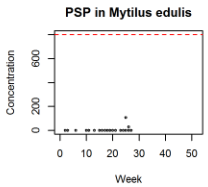
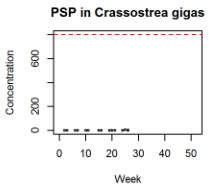
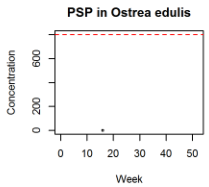


Ireland HAB & Biotoxin temporal trends

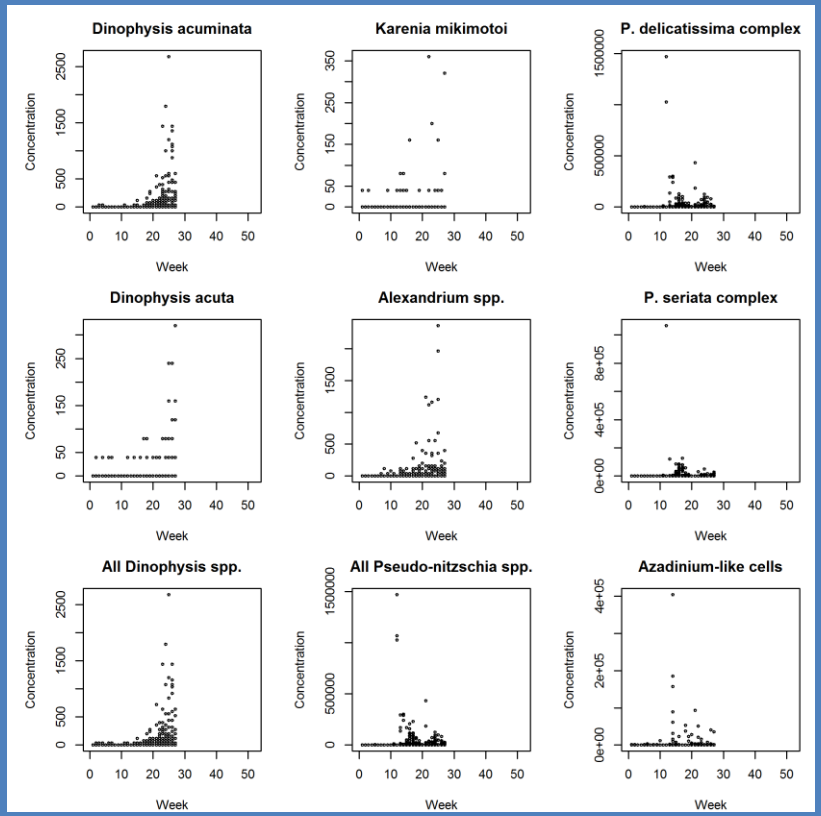
Ireland: **HABs and biotoxins** Levels from week 1 to present

Ireland: **Biotoxins**



Toxin groups	mussels	oysters	oysters
AZP AZaspiracid Poisoning			
DSP Diarrhetic Shellfish Poisoning			
PTX Pectenotoxin			
ASP Amnesic Shellfish Poisoning			
PSP Paralytic Shellfish Poisoning			

Ireland: **HABs**

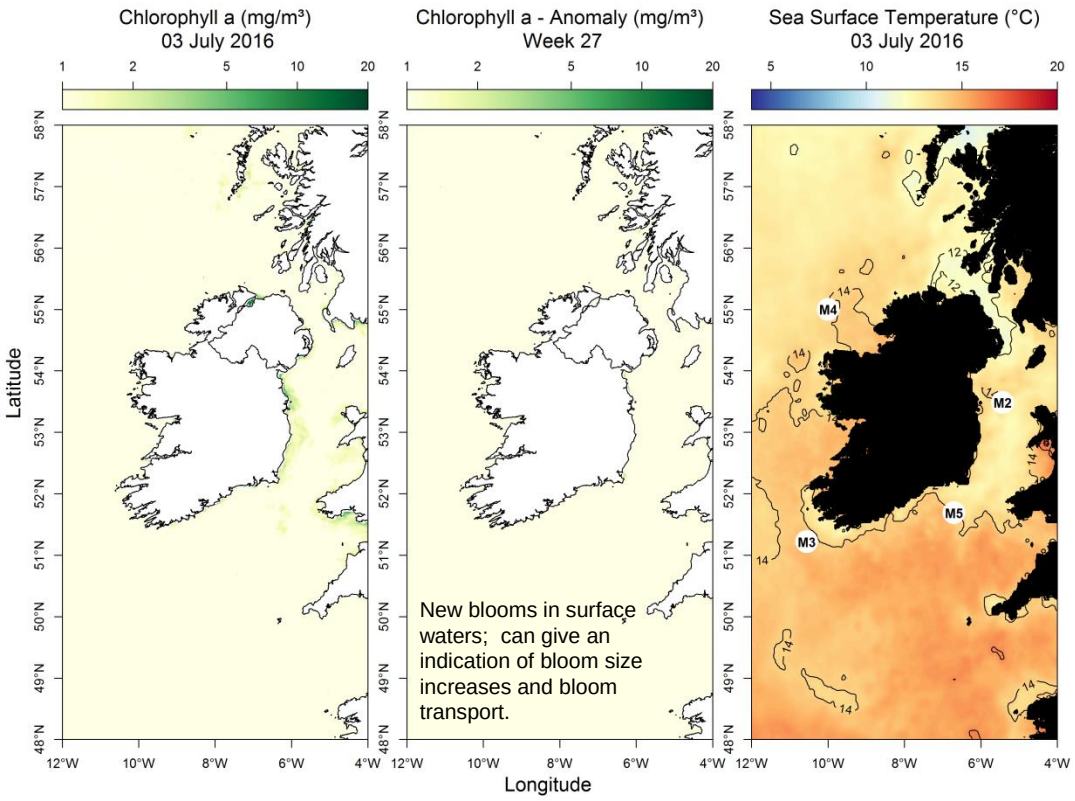


EU Regulatory Limit: ASP 20 µg/g; AZP 0.16 µg/g; DSP 0.16 µg/g; PSP 800 µg/kg

Regulatory limit =

Ireland Satellite data: surface chlorophyll and temperature maps

Most up to date available satellite data

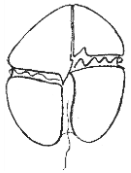


SST (ºC) anomaly for last week:
Data taken from the Irish data buoy network where the anomaly is the weekly difference in SST compared to the long term mean (~ 10 yrs)

NW coast (M4)	Offline
SW coast (M3)	Below average by 0.35ºC
SE coast (M5)	Below average by 0.65ºC

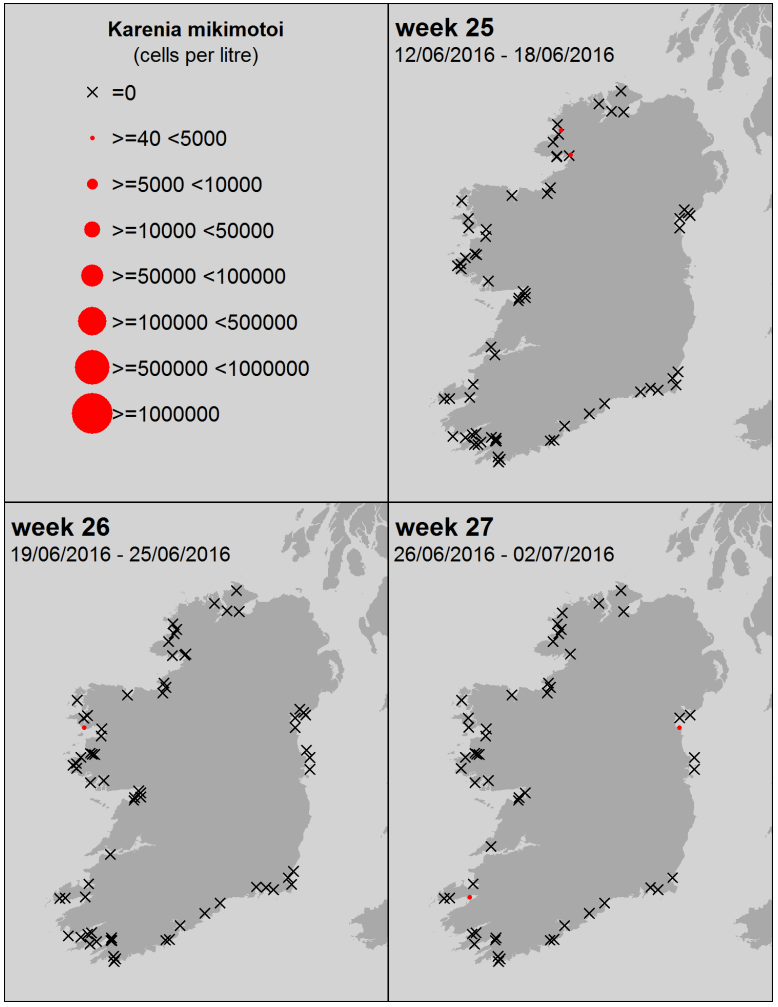
What phytoplankton were blooming at inshore coastal sites last week?

Region	Predominant Phytoplankton (most abundant taxa)	Cells/L (rounded)
North:	**Diatoms:**	
	Chaetoceros socialis	3,164,000
	Chaetoceros (Hyalochaete) spp.	2,073,000
	Skeletonema spp.	95,000
	Leptocylindrus minimus	57,000
	Dinoflagellates:	
	Glenodinium spp.	23,000
	Scrippsiella spp.	15,000
	Others:	
	Microflagellate sp.	22,000
West:	**Diatoms:**	
	Skeletonema spp.	1,840,000
	Chaetoceros (Hyalochaete) spp.	295,000
	Leptocylindrus danicus	43,000
	Pennate diatom	30,000
	Others:	
	Microflagellate sp.	4,476,000
SW:	**Diatoms:**	
	Lauderia / Detonula sp	279,000
	Cerataulina pelagica	78,000
	Leptocylindrus danicus	77,000
	Thalassiosira <20um	73,000
	Detonula confervacaea	35,000
	Dinoflagellates:	
	Ceratium fusus	78,000
South:	**Diatoms:**	
	Thalassiosira <20um	117,000
	Centric diatoms <20um	110,000
	Lauderia / Detonula sp	100,000
	Licmophora spp.	68,000
	Thalassiosira nordenskioeldii	67,000
	Others:	
	Prymnesiophytes	131,000
East:	**Diatoms:**	
	Chaetoceros (Hyalochaete) spp.	4,102,000
	Pennate diatom <20um	78,000
	Centric diatoms <20um	45,000
	Dinoflagellates:	
	Azadinium/heterocapsa spp.	35,000
	Others:	
	Prasinophytes	4,911,000
	Prymnesiophytes	77,000



Karenia mikimotoi
(old name: *Gyrodinium aureolum*)

A *Karenia mikimotoi* bloom is NOT expected this week

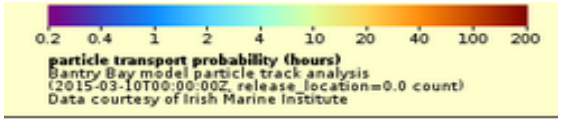


SOUTHWEST: Bantry Bay

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

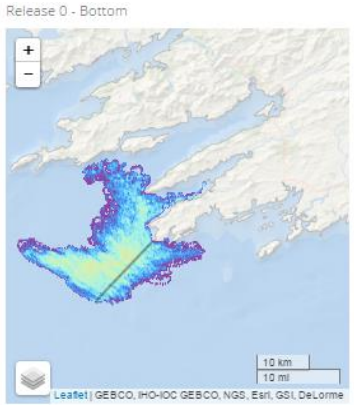
Cooler colours represent areas where phytoplankton remain for shorter periods

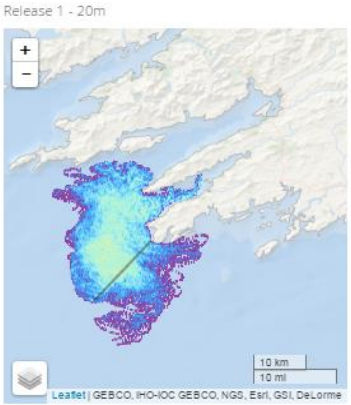


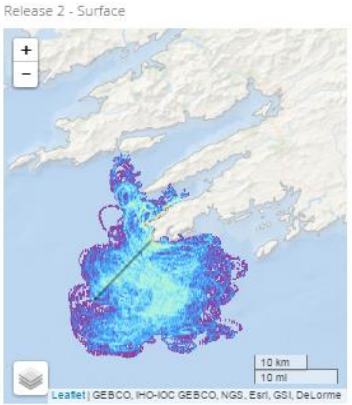
Go to http://vis.marine.ie/particles/ to view daily forecasts

Forecast for the next 3 days

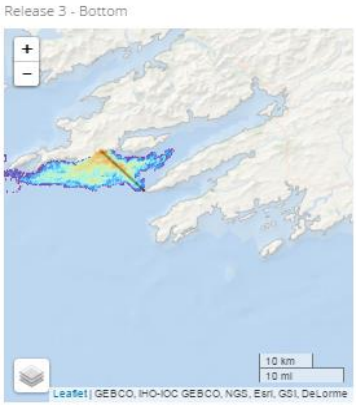
Bottom water	Water @ 20 metres	Surface water

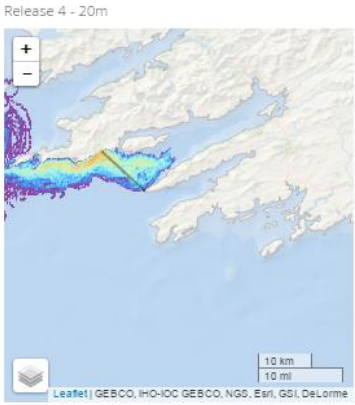


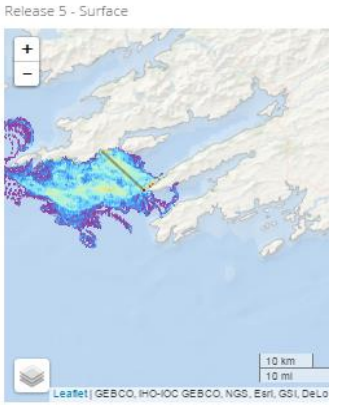




Outer bay waters at bottom and deeper depths moving in broadly northerly dominant directions allowing for transport of outer waters into inner bay areas. Surface water movement in a more south south-easterly direction.





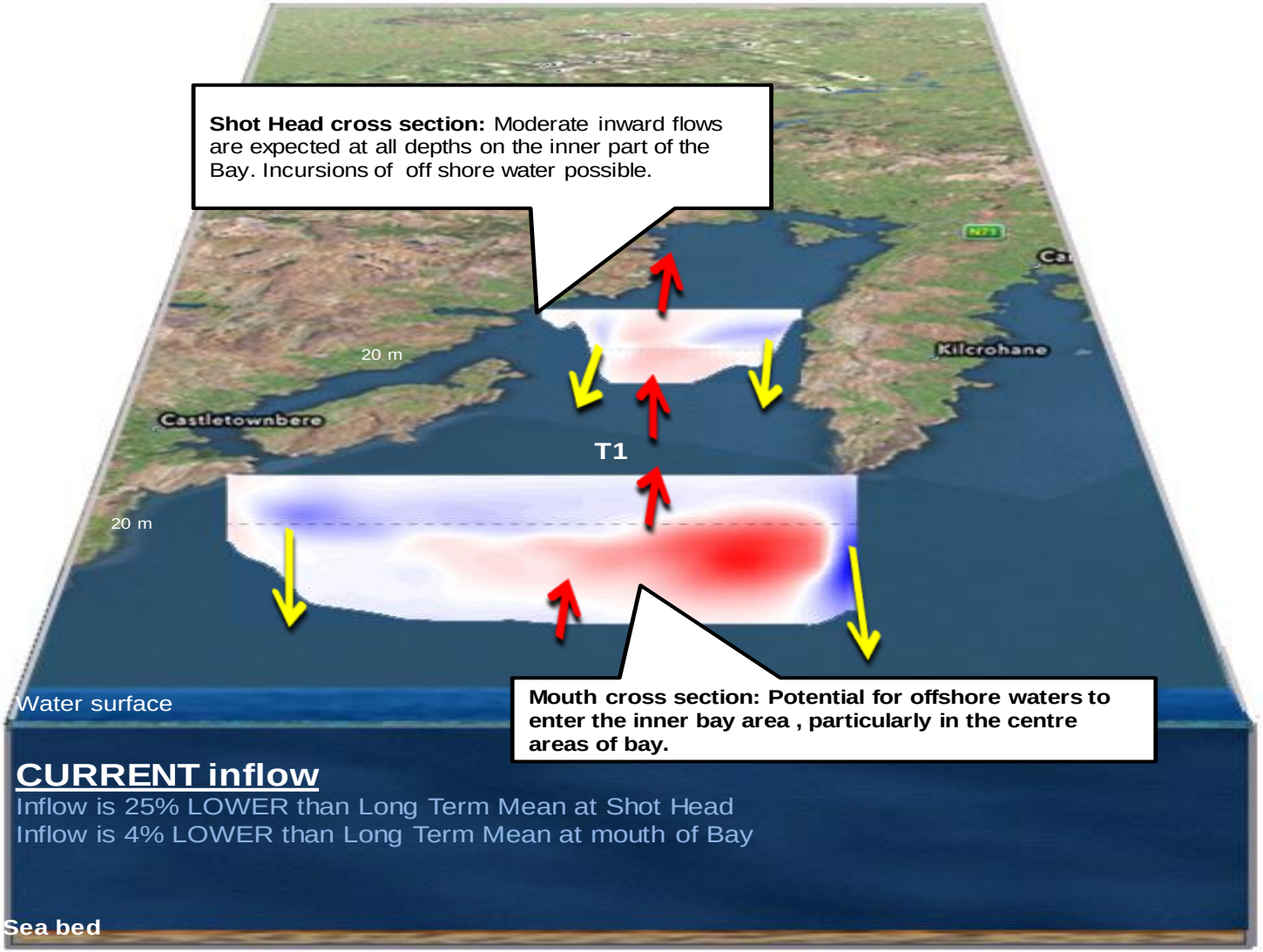


Mixed water movement at all depths allowing for the possibility of inner bay incursions from off shore waters.

Bantry Bay

3 day estimated water flows at the mouth and mid-bay sections of Bantry Bay

Forecast for next 3 days



Flow ($m^3 s^{-1}$)

100
80
60
40
20
0
-20
-40
-60
-80
-100

IN

OUT

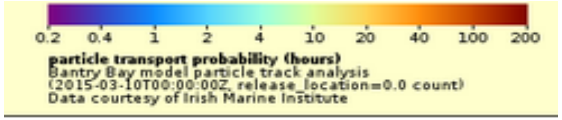
Depth

WEST: Killary Harbour

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)

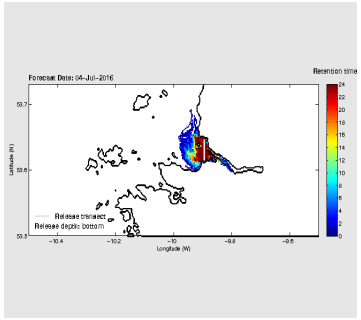
Reddish colours represent areas where phytoplankton remain longest

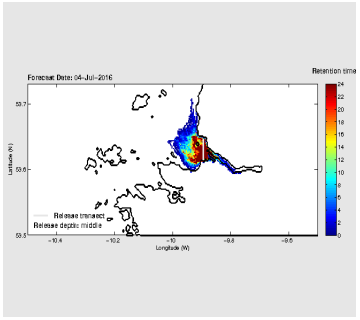
Cooler colours represent areas where phytoplankton remain for shorter periods

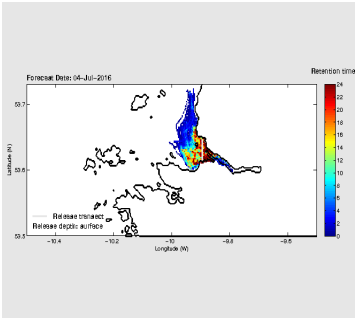


Forecast for the next 3 days

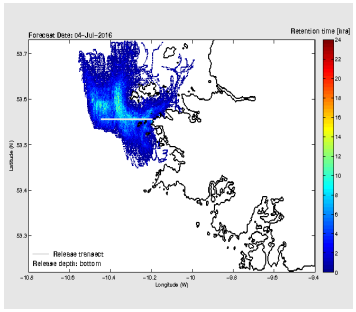
Bottom water	Water @ 20 metres	Surface water

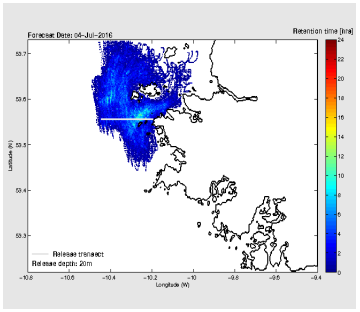


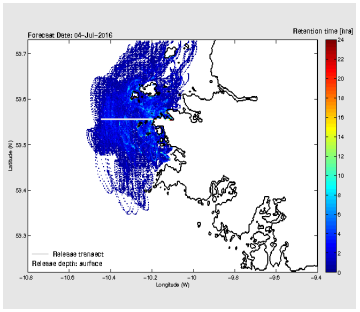




Waters at all depths showing mixed directional movement , allowing for possibility of outer bay waters entering into inner bay areas.



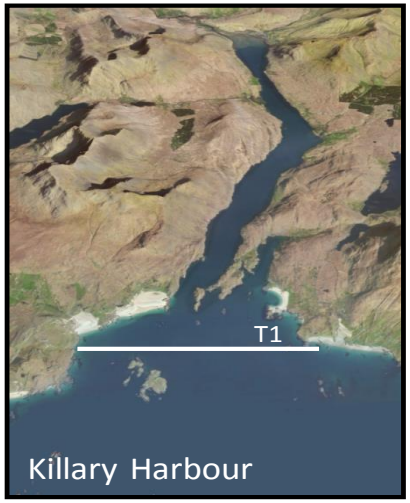




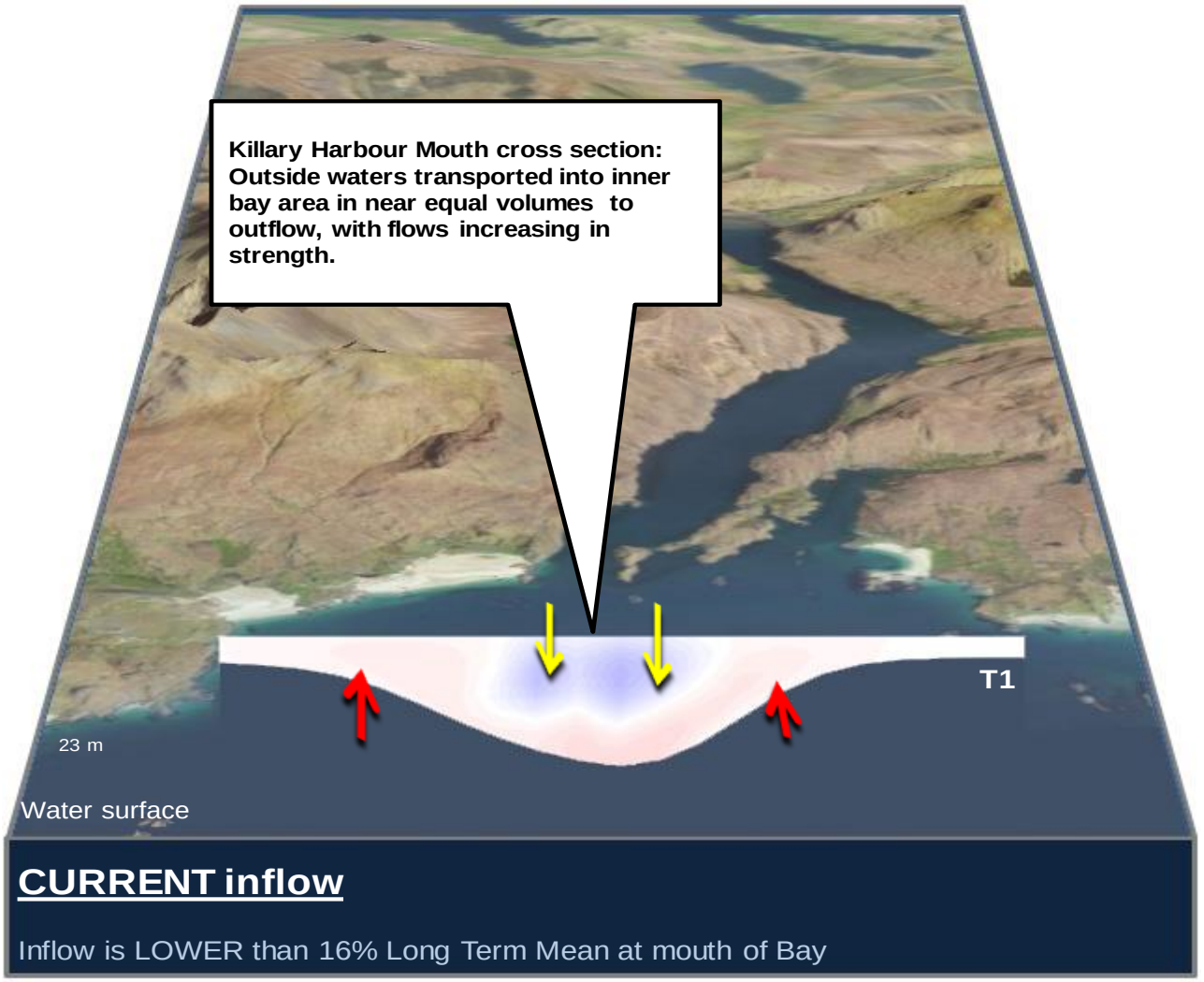
Bottom and deeper water movement predominantly, but not solely, in a northerly direction .Surface water movement mixed. Potential for well mixed outer bay water to enter inner bay areas.

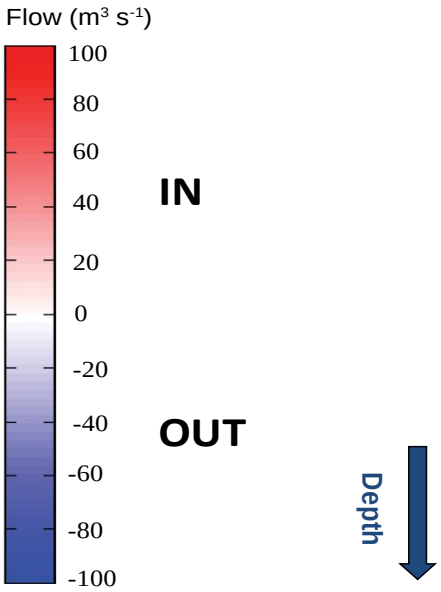
Killary Harbour

3 day estimated water flows at the mouth of Killary Harbour

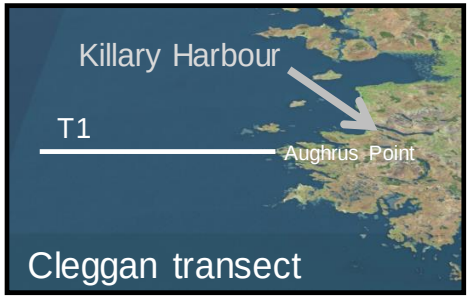


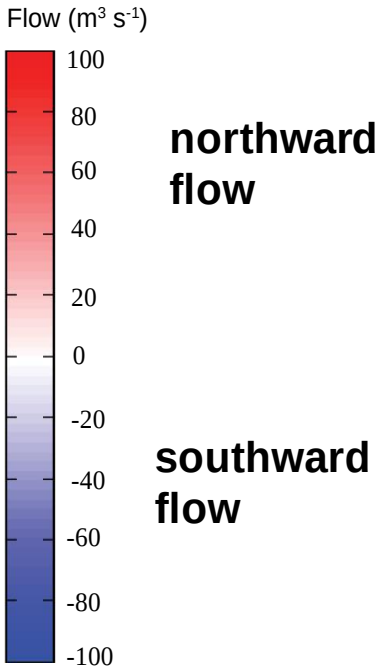
Forecast for next 3 days



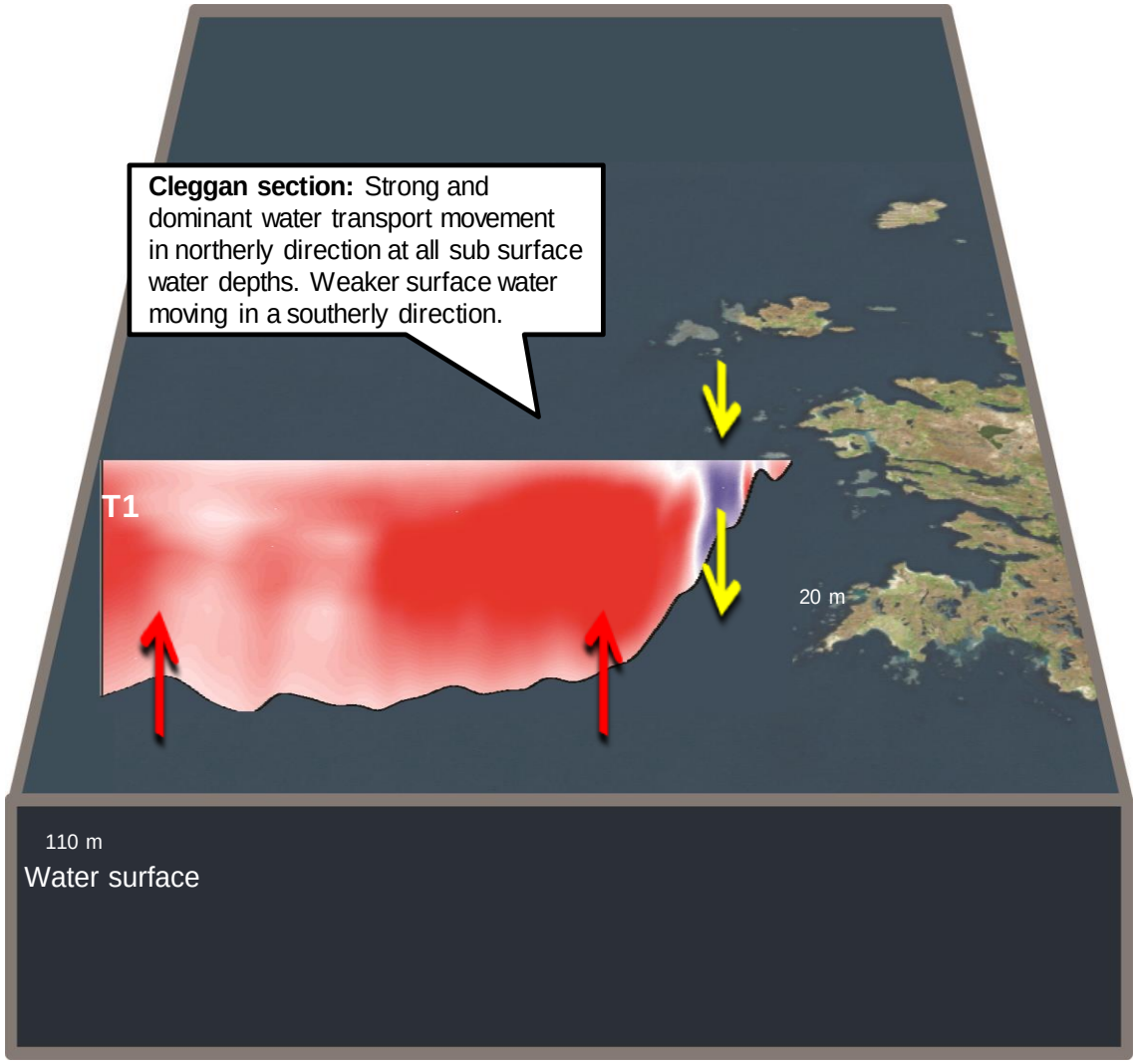


West Coast - 3 day estimated water flows along a transect off Aughrus Point





northward flow

southward flow

Forecast for next 3 days