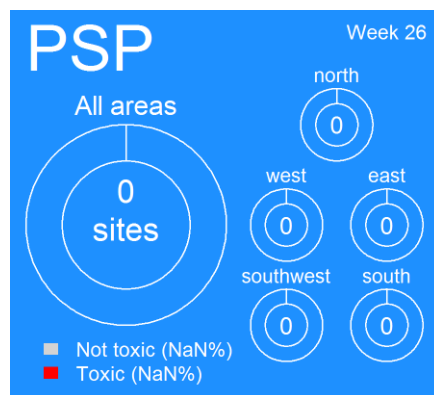
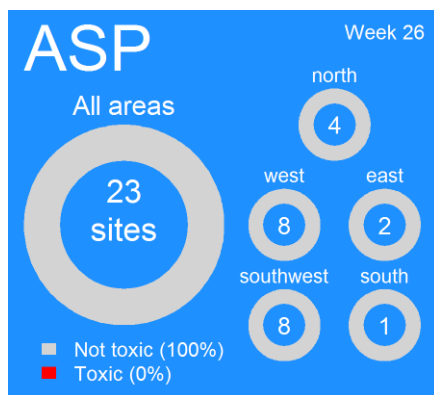
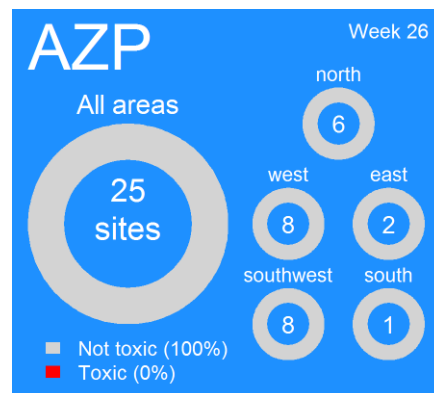
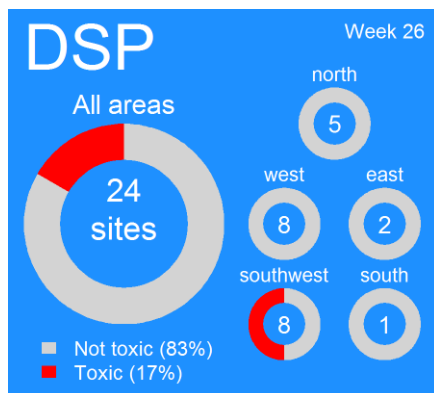


Ireland: Current Conditions

Shellfish biotoxin report (last week)



EU Regulatory Limit:

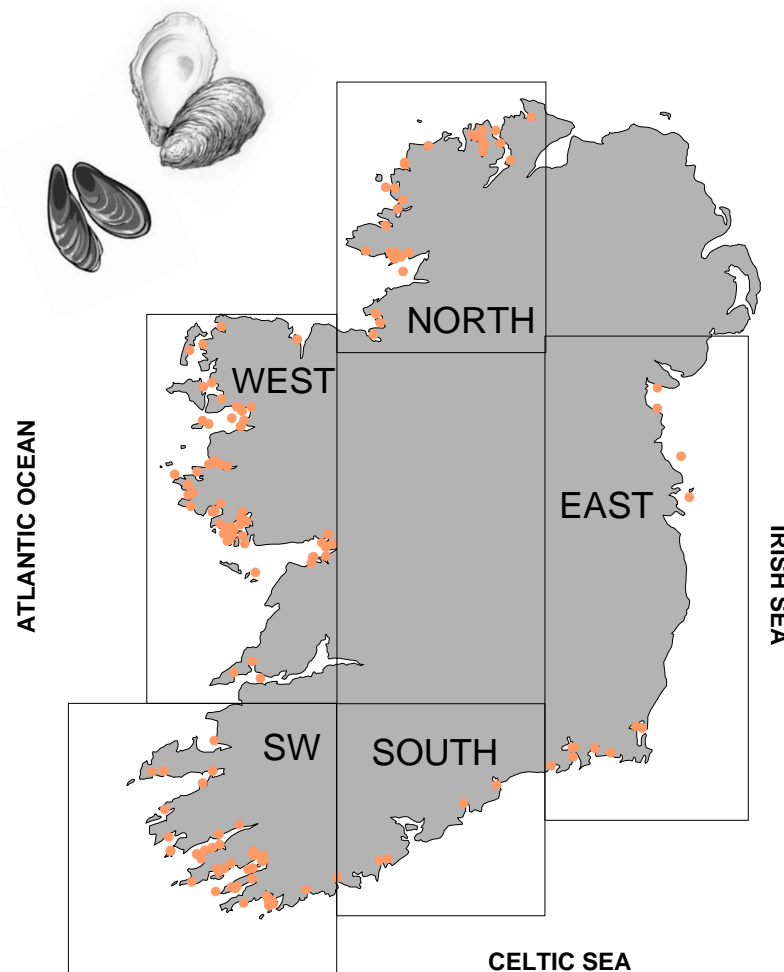
ASP 20 µg/g; AZP 0.16 µg/g; DSP 0.16 µg/g; PSP 800 µg/kg

Toxin groups

ASP = Amnesic Shellfish Poisoning; AZP = AZaspiracid Poisoning;

DSP = Diarrhetic Shellfish Poisoning; PSP = Paralytic Shellfish Poisoning

National Monitoring Programme Designated Sampling Sites



Ireland: Predictions

Prediction for this week:

ASP event: Low

AZP event: Low - Moderate

DSP event: Moderate – High (currently region specific)

PSP event: Low – Moderate (site specific)

Why do we think this?

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

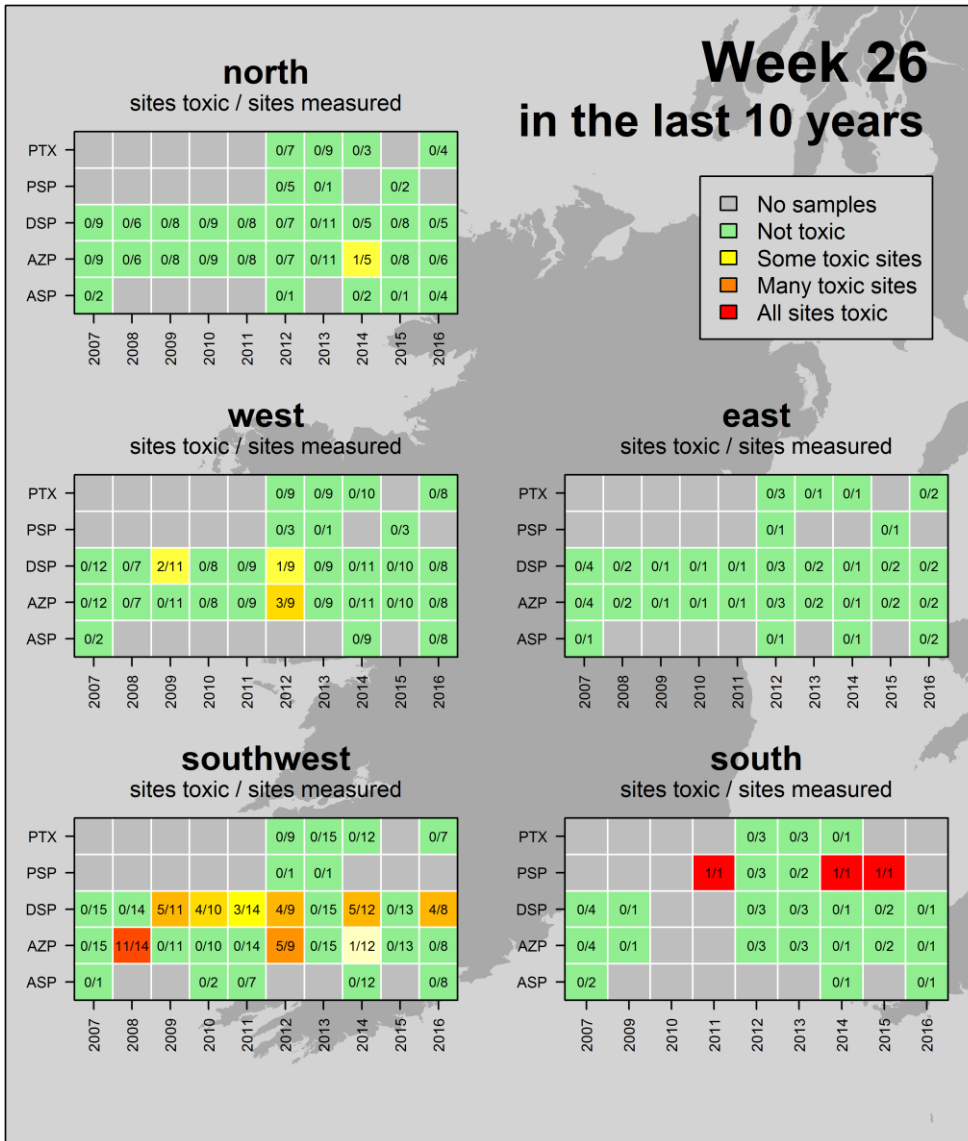
AZP: *Azadinium* type species continue to be observed in multiple area throughout the coastline. While biotoxin levels continue to fluctuate, they remain well below the regulatory limit in all sites. This is historically within the period of occurrence and vigilance is encouraged .

DSP: This is historically the main risk period and the presence, magnitude and spread of these species is s increasing in general and has already ‘jumped’ in SW 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.

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 HAB & Biotoxin Distribution maps

[current status of harmful and toxic algae]

Ireland: Last 3 weeks of available National Monitoring Programme data



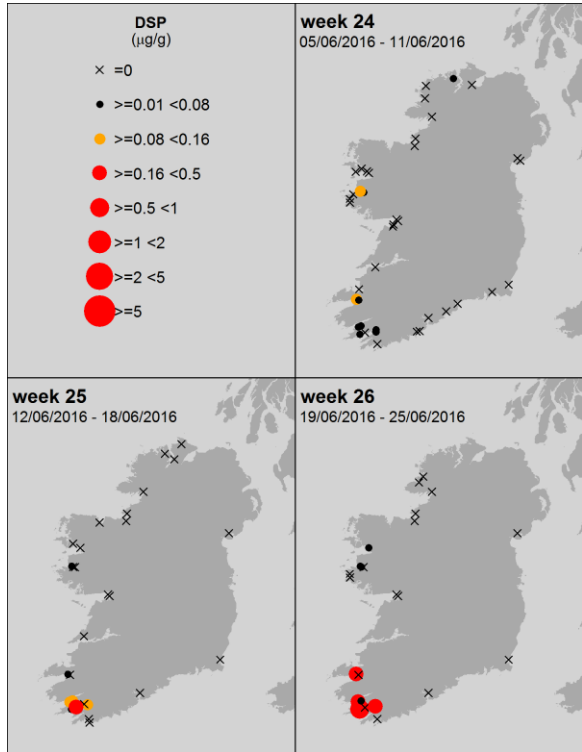
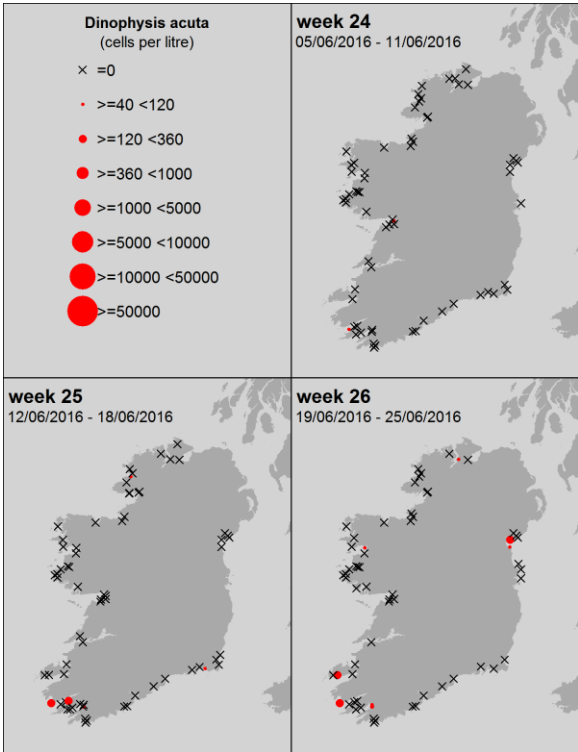
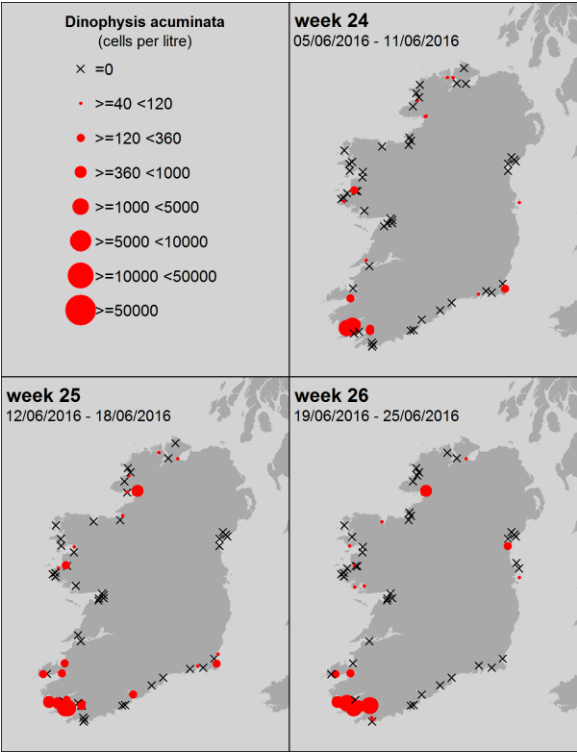
Dinophysis acuminata



Dinophysis acuta



DSP



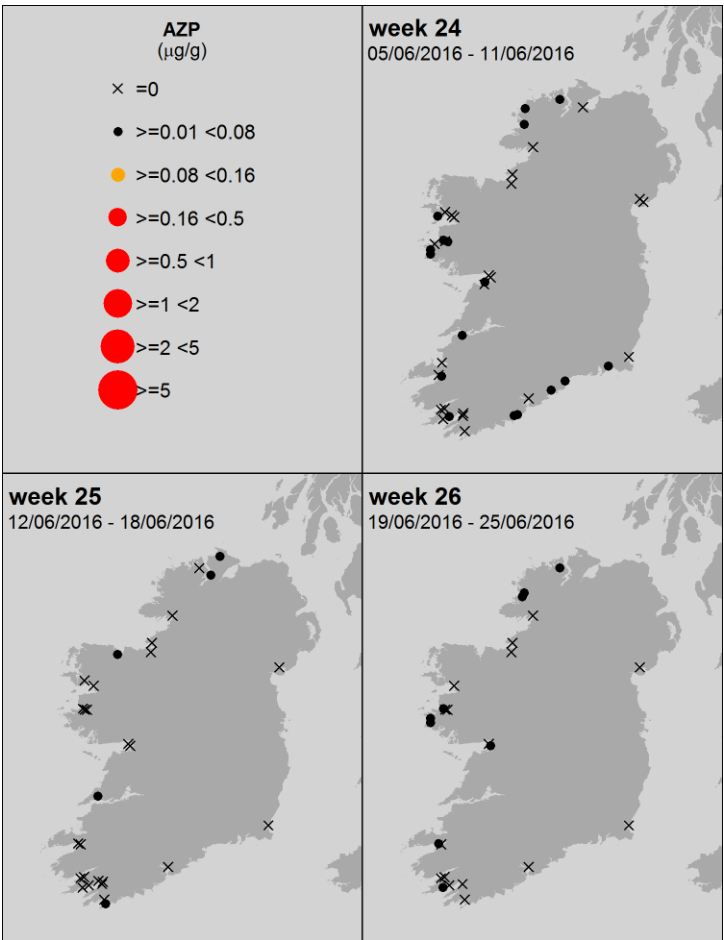
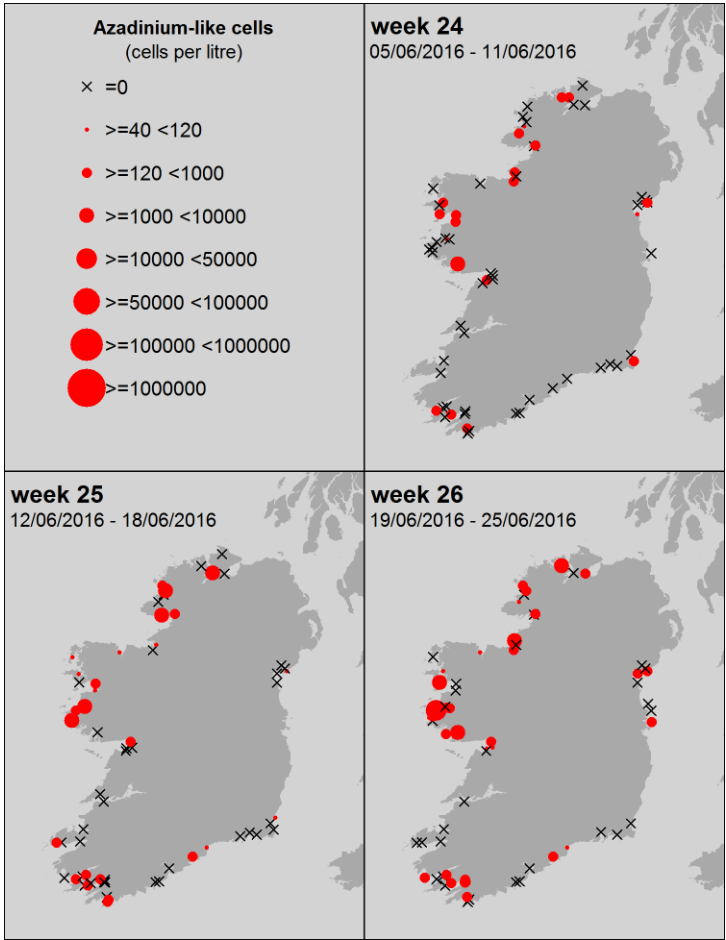
Ireland: Last 3 weeks of available National Monitoring Programme data



Azadinium – like spp.



AZP



Ireland: Last 3 weeks of available National Monitoring Programme data

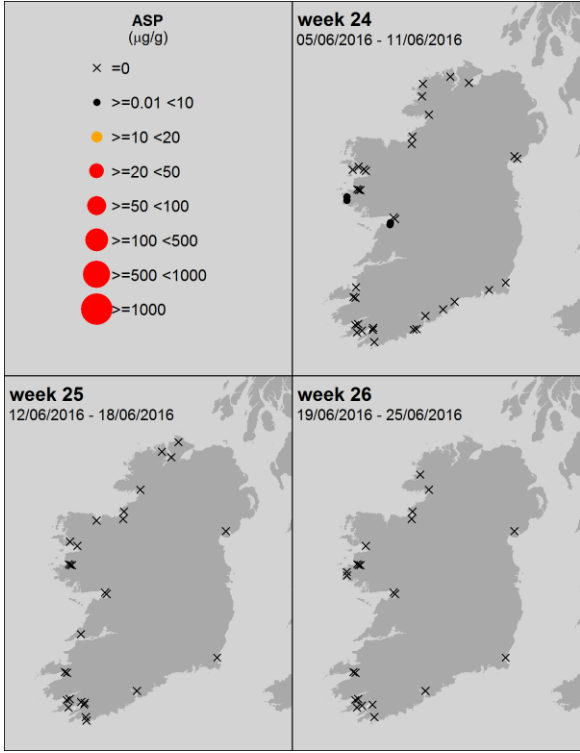
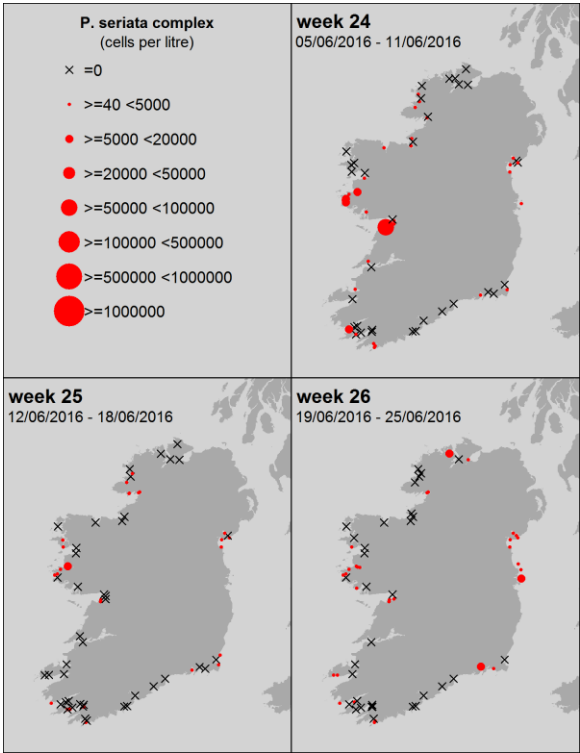
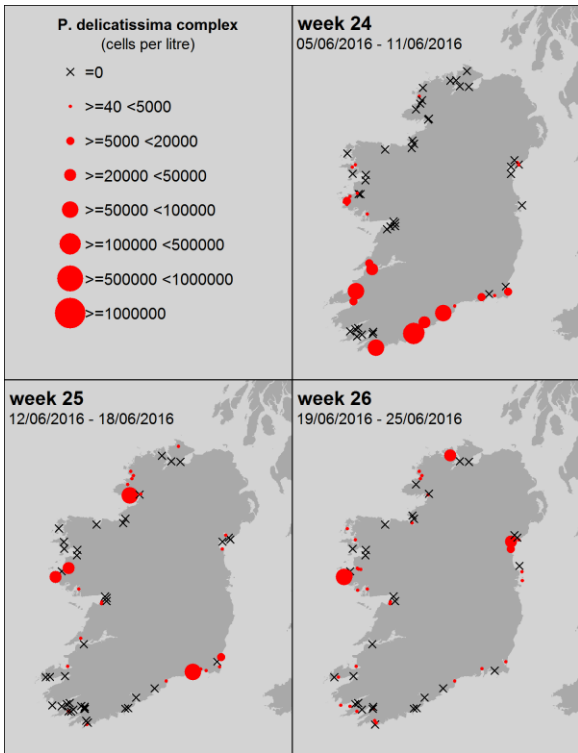
Pseudo-nitzschia spp.



ASP

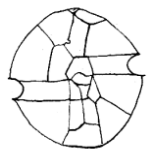
“*P. delicatissima*” complex = small cells
Taken from the literature:
3 species confirmed in Irish waters

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

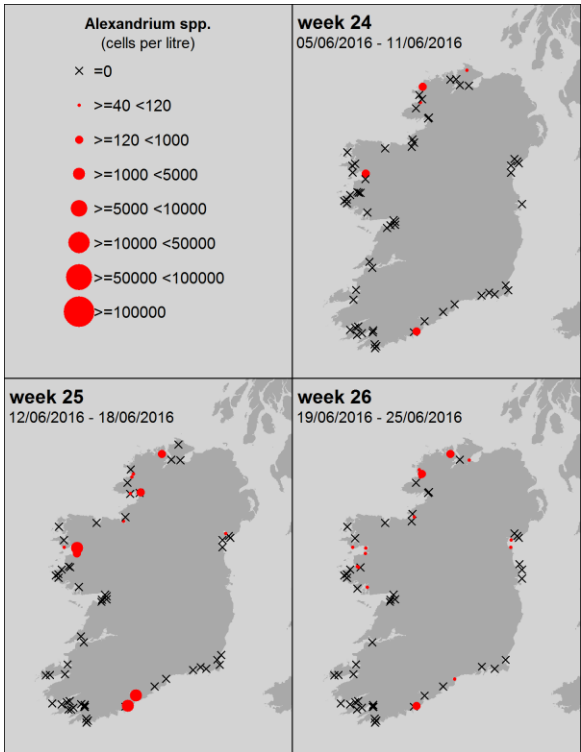


Taken from the literature: Of the 4 species (*P. fraudulenta*, *P. australis*, *P. pungens* and *P. delicatissima*) from Irish waters, tested for ASP toxins in culture work, only one, *P. australis* (from the “*P. seriata*” group) was toxic.

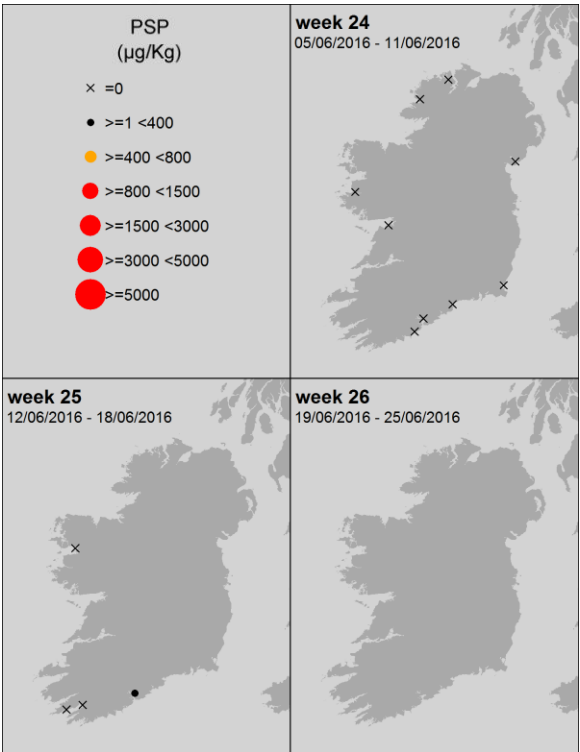
Ireland: Last 3 weeks of available National Monitoring Programme data



Alexandrium spp.



PSP



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

Ireland: **Biotoxins**



Toxin groups

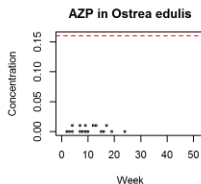
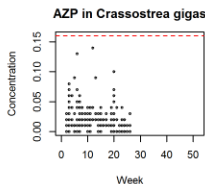
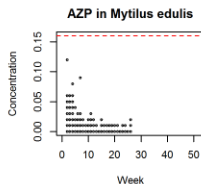
mussels

oysters

oysters

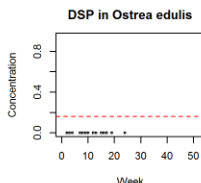
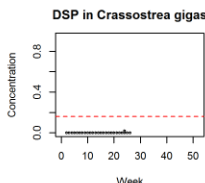
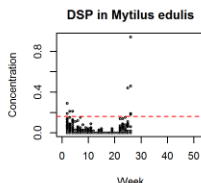
AZP

AZaspiracid
Poisoning



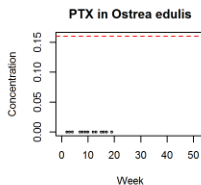
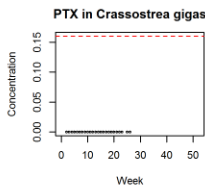
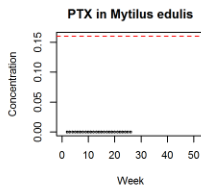
DSP

Diarrhetic
Shellfish
Poisoning



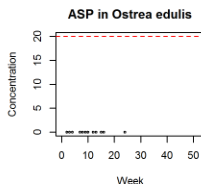
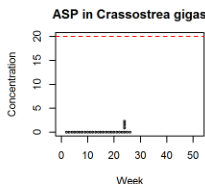
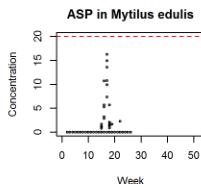
PTX

Pectenotoxin



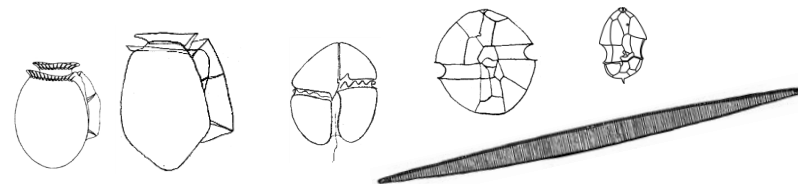
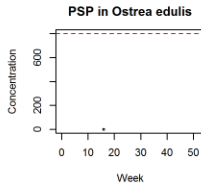
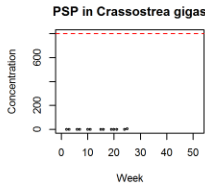
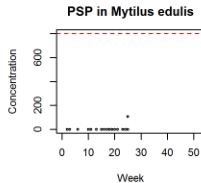
ASP

Amnesic
Shellfish
Poisoning

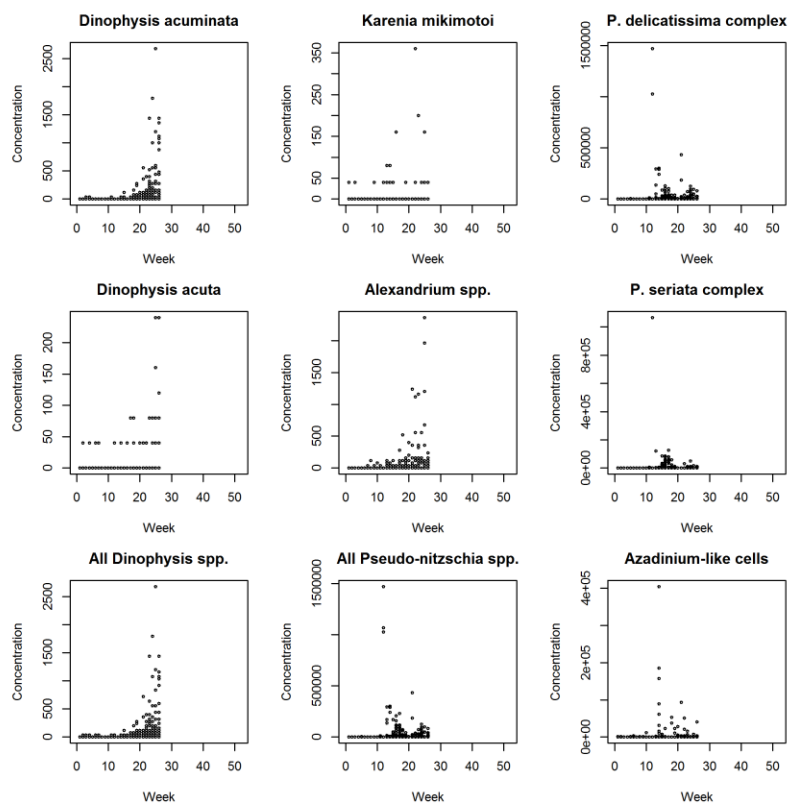


PSP

Paralytic
Shellfish
Poisoning



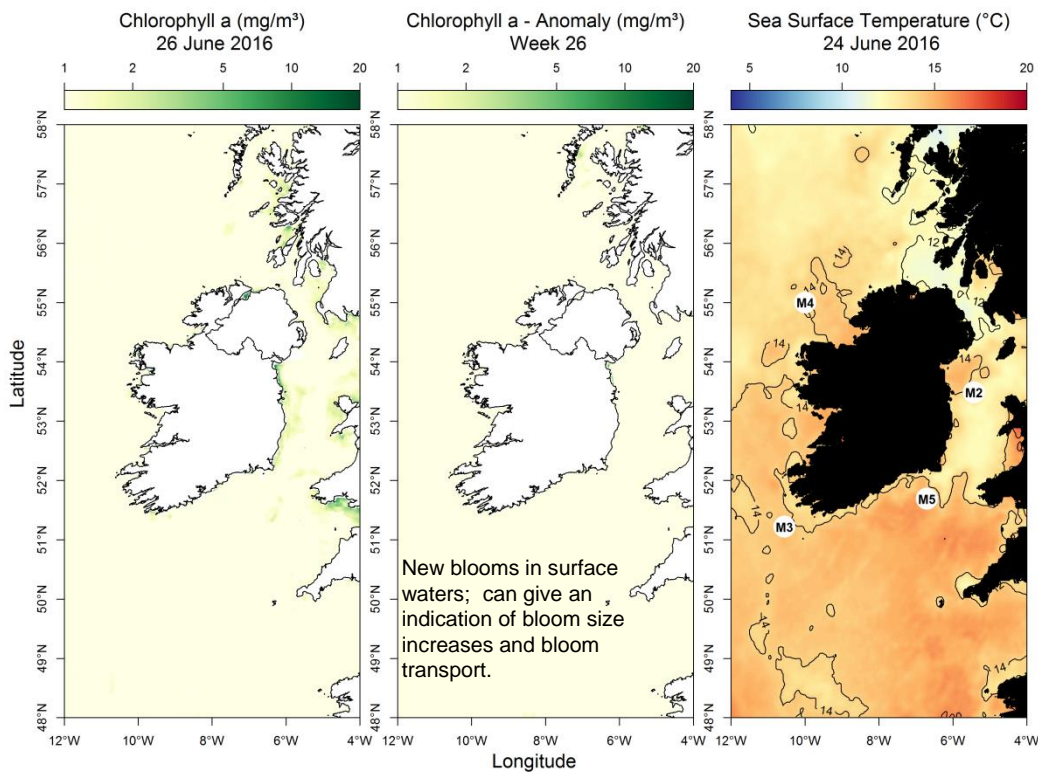
Ireland: **HABs**



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

Regulatory limit = ■■■■■

Most up to date available satellite data

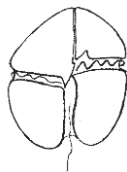


SST (°C) anomaly for last week:
Data taken from the Irish data buoy network where the anomaly is the weekly difference in SST compared to the long term mean (~ 10 yrs)

- NW coast (M4) Offline
- SW coast (M3) Below average by 0.55°C
- SE coast (M5) Above average by 0.14 °C

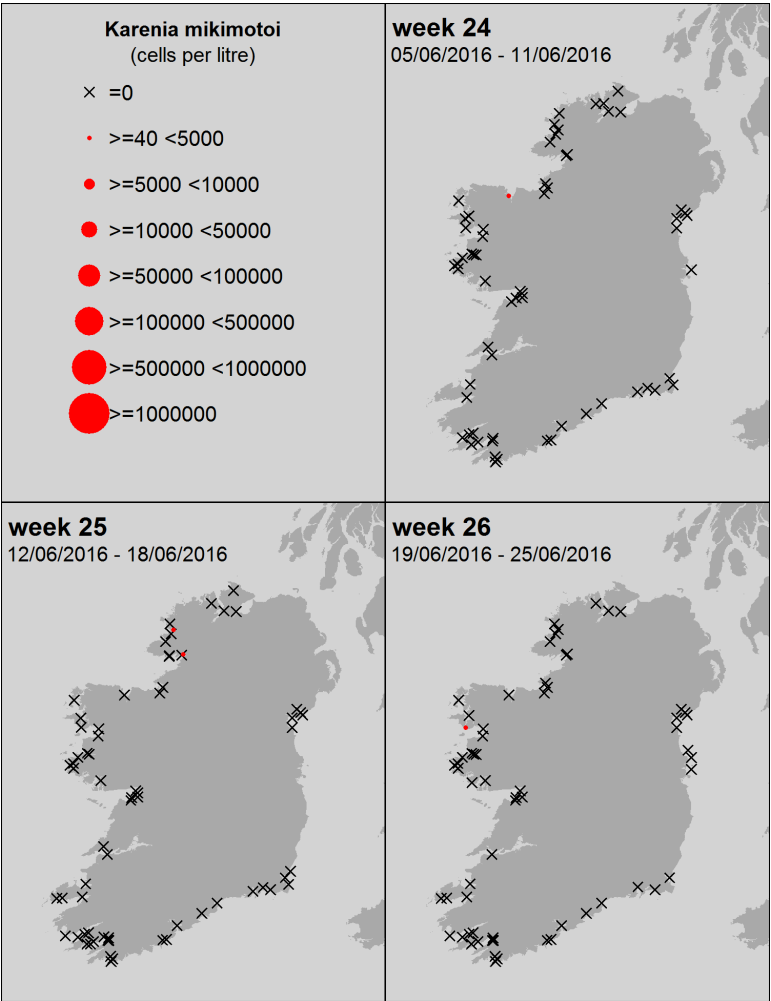
What phytoplankton were blooming at inshore coastal sites last week?

Region	Predominant Phytoplankton (most abundant taxa)	Cells/L (rounded)	Cells/L
North:	Diatoms:		
	<i>Chaetoceros (Hyalochaete) spp.</i>	726,000	726478
	<i>Pennate diatom</i>	39,000	38900
	<i>Pseudo-nitzschia delicatissima</i> complex	29,000	29032
	Others:		
	<i>Euglena/Eutreptiella spp.</i>	72,000	72354
West:	<i>Microflagellate sp.</i>	31,000	31120
	Diatoms:		
	<i>Skeletonema spp.</i>	3,054,000	3053988
	<i>Chaetoceros (Hyalochaete) spp.</i>	678,000	678480
	<i>Pseudo-nitzschia delicatissima</i> complex	80,000	80184
	Others:		
SW:	<i>Prymnesiophytes</i>	87,000	86595
	<i>Cyanophyte</i>	35,000	34920
	Dinoflagellates:		
	<i>Azadinium/heterocapsa spp.</i>	40,000	40284
	Diatoms:		
	<i>Leptocylindrus danicus</i>	199,000	198792
South:	<i>Lauderia / Detonula sp</i>	163,000	163401
	<i>Cerataulina pelagica</i>	78,000	78312
	<i>Chaetoceros (Hyalochaete) spp.</i>	68,000	68080
	Dinoflagellates:		
	<i>Ceratium fusus</i>	40,000	40080
	<i>Prorocentrum micans</i>	26,000	26320
East:	Others:		
	<i>Prymnesiophytes</i>	41,000	40960
	Diatoms:		
	<i>Licmophora gracillis</i>	99,000	98688
	<i>Thalassiosira nordenskiöldii</i>	71,000	71280
	<i>Cylindrotheca closterium/ Nitzschia longissima</i>	54,000	53760
	Dinoflagellates:		
	<i>Scrippsiella spp.</i>	74,000	73794
	Others:		
	<i>Mesodinium rubrum</i>	41,000	40720
	<i>Prymnesiophytes</i>	16,000	15680
	Diatoms:		
	<i>Chaetoceros (Hyalochaete) spp.</i>	196,000	196056
	<i>Chaetoceros socialis</i>	52,000	52440
	<i>Cylindrotheca closterium/ Nitzschia longissima</i>	39,000	38792
	<i>Pseudo-nitzschia delicatissima</i> complex	22,000	21784
	Others:		
	<i>Microflagellate sp.</i>	367,000	367032



Karenia mikimotoi
(old name: *Gyrodinium aureolum*)

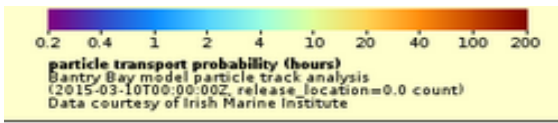
A *Karenia mikimotoi* bloom
is NOT expected this week



SOUTHWEST: Bantry Bay

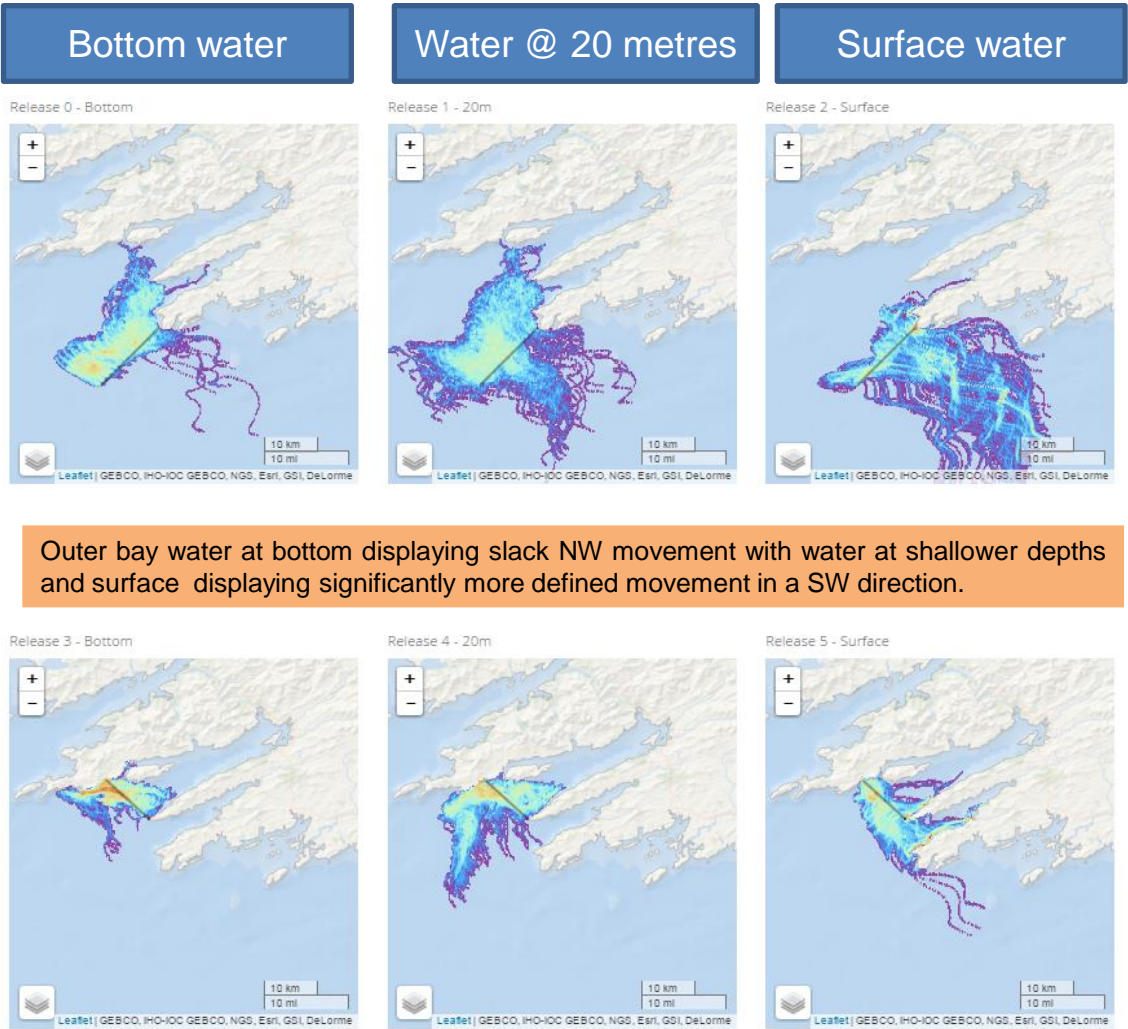
The maps show the **most likely transport pathways for the next 3 days of phytoplankton** found along the **presented transects** (black lines off Mizen Head and the Mouth of Bantry Bay) and **water depths** (bottom, 20 metres and surface)

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



Outer bay water at bottom displaying slack NW movement with water at shallower depths and surface displaying significantly more defined movement in a SW direction.

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

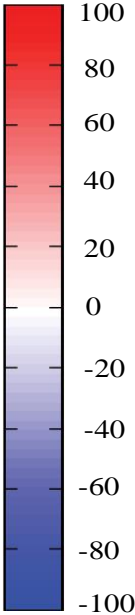
Bantry Bay

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

Forecast for next 3 days



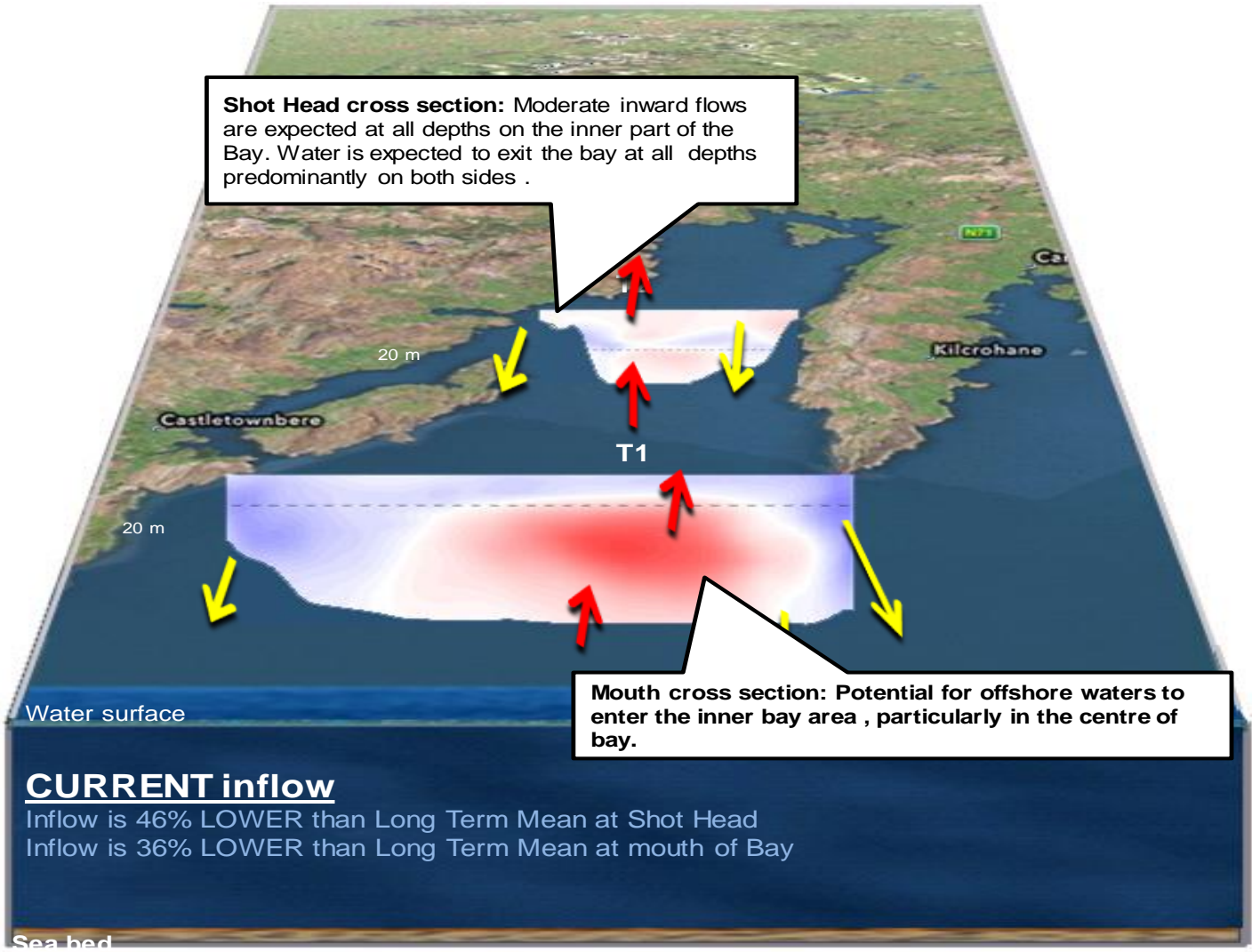
Flow ($\text{m}^3 \text{s}^{-1}$)



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)

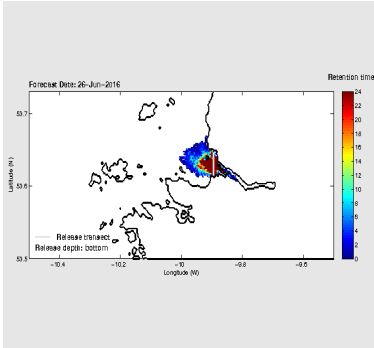
Reddish colours represent areas where phytoplankton remain longest
Cooler colours represent areas where phytoplankton remain for shorter periods



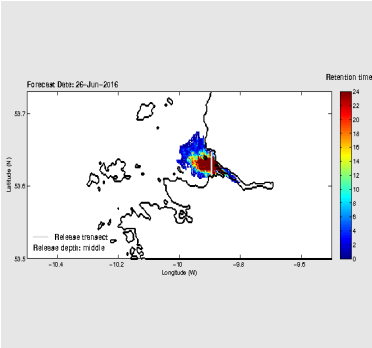
0.2 0.4 1 2 4 10 20 40 100 200
particle transport probability (hours)
Bantry Bay model particle track analysis
(2015-03-10T00:00:00Z, release_location=0.0 count)
Data courtesy of Irish Marine Institute

Forecast for the next 3 days

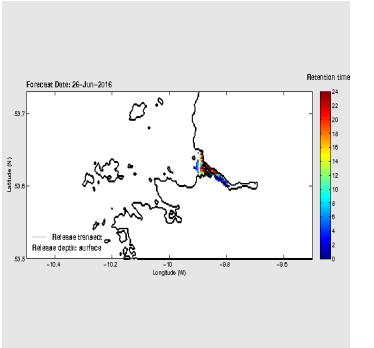
Bottom water



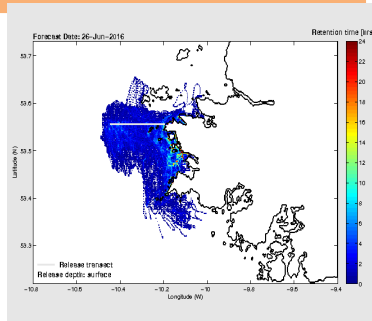
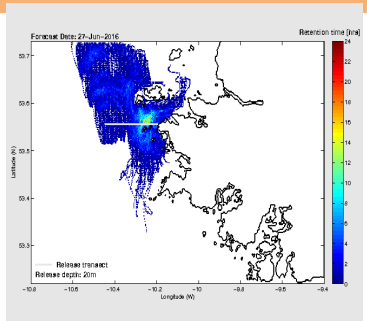
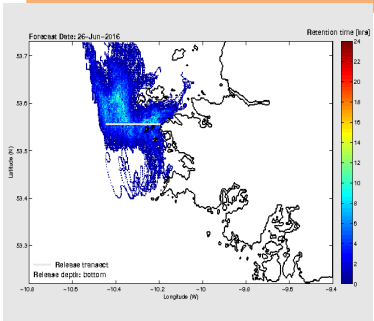
Water @ 20 metres



Surface water



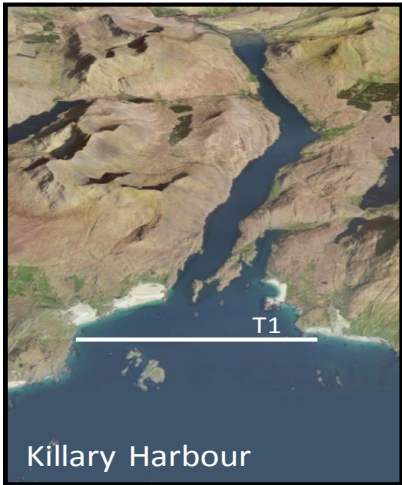
Weak mixed directional water movements at bottom and 20m depth profile with slightly stronger inner bay water movement at surface depth allowing for potential inner bay incursions.



Outer bay waters moving in mixed directions with significant directional flip from NW to SSE from deeper waters toward surface. Possibility of outer bay waters reaching inner bay areas.

Killary Harbour

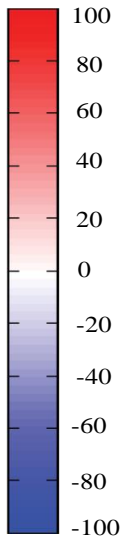
3 day estimated water flows at the mouth of Killary Harbour



Forecast for next 3 days

Killary Harbour Mouth cross section:
Outside waters transported into inner bay area in near equal volumes to outflow, during a period of reduced flow rates and slacker water movement.

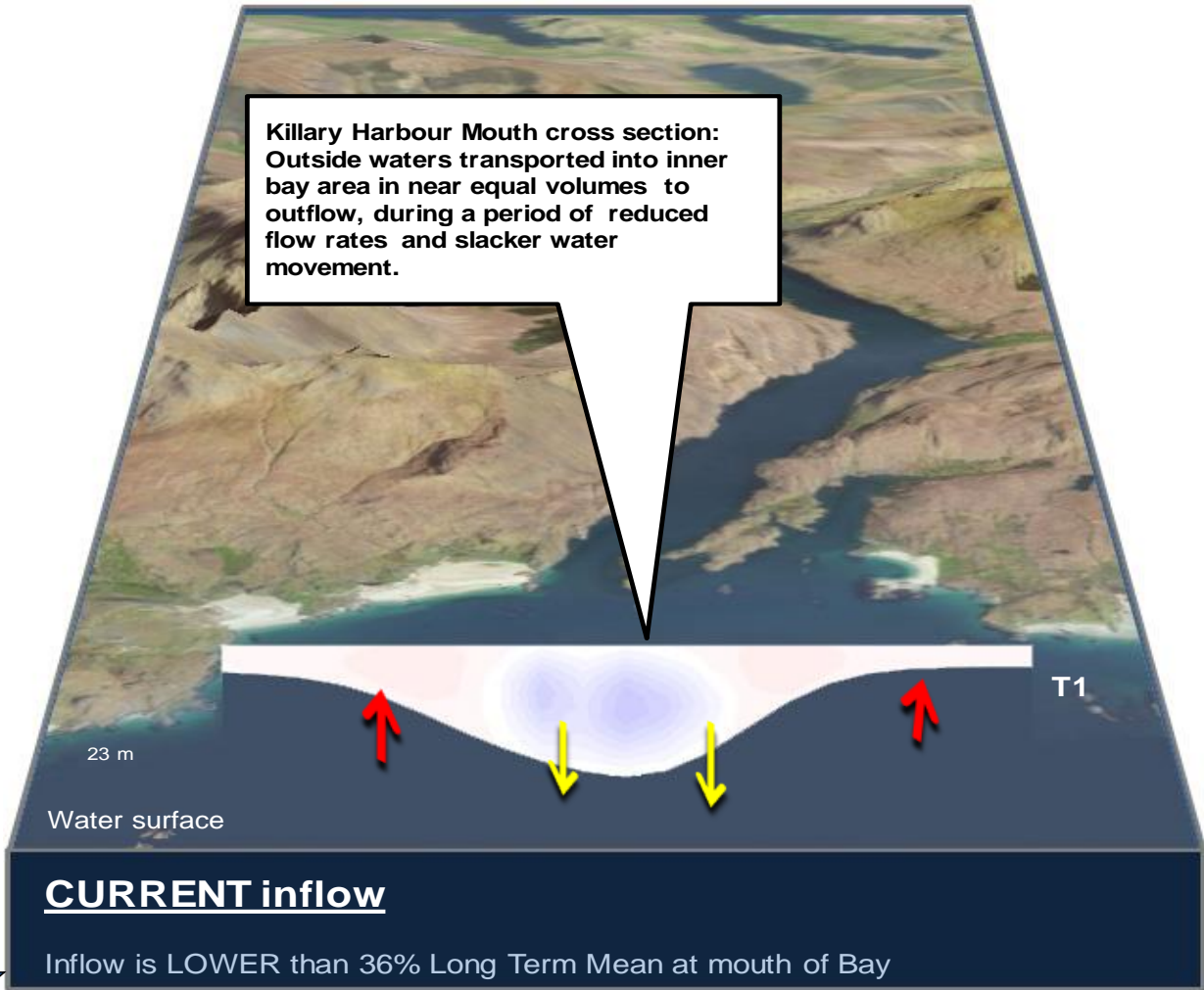
Flow ($\text{m}^3 \text{s}^{-1}$)



IN

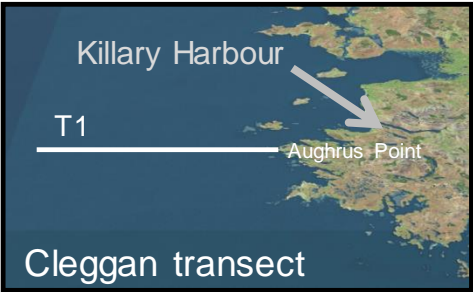
OUT

Depth
↓

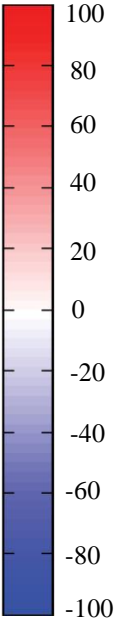


West Coast - 3 day estimated water flows along a transect off Aughrus Point

Forecast for next 3 days



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



northward
flow

southward
flow

Depth

