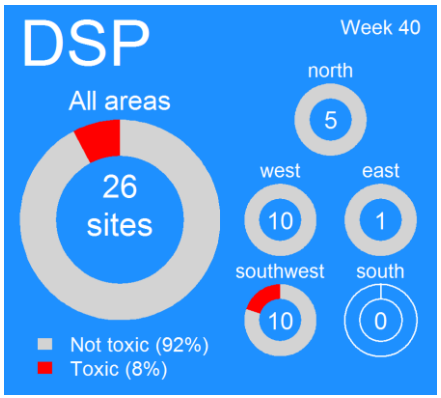
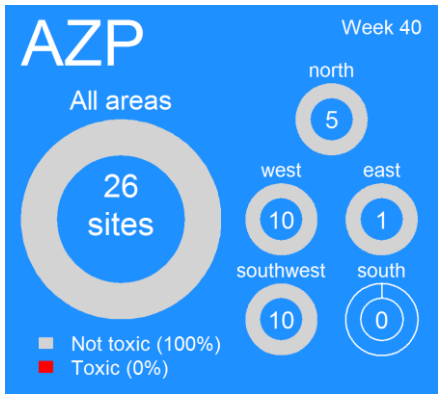
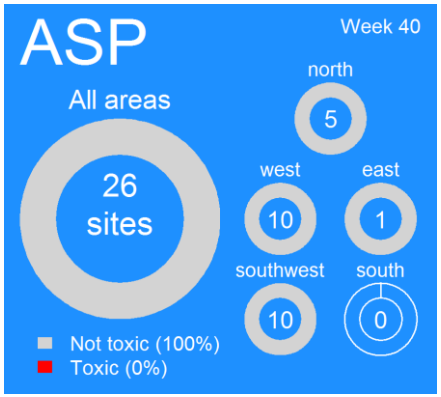
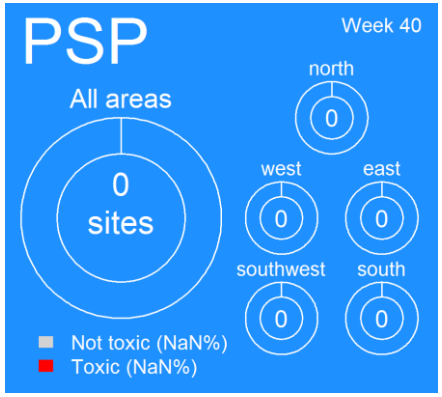
Ireland: **Current Conditions**

Shellfish biotoxin report (last week)





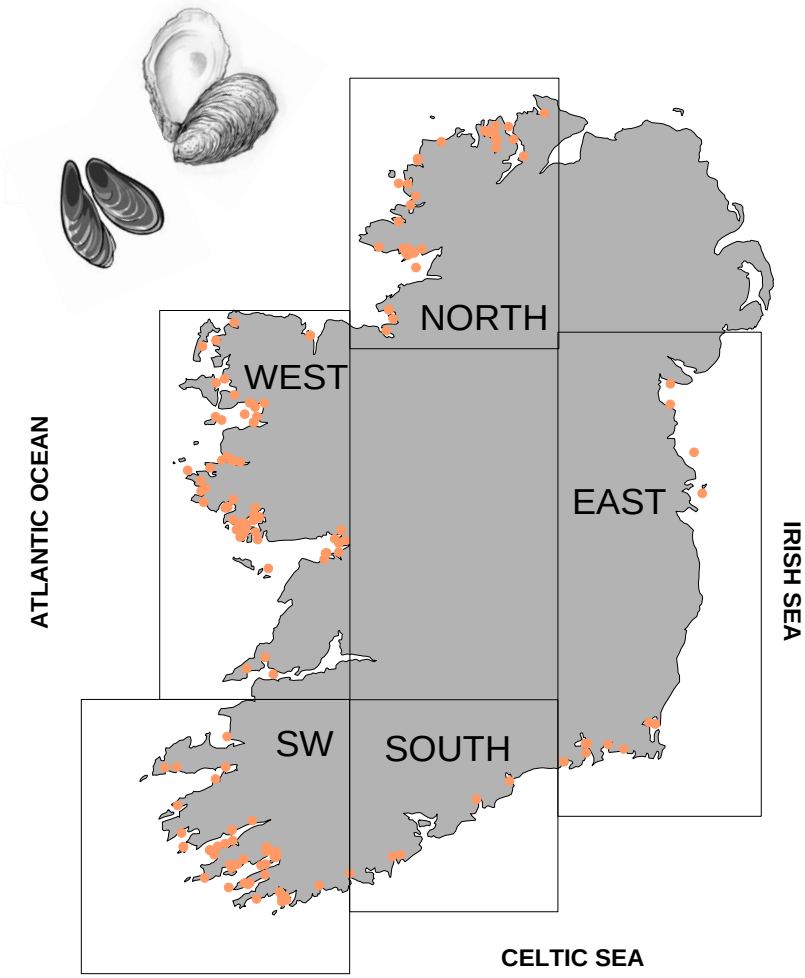




EU Regulatory Limit:
ASP 20 µg/g; AZP 0.16 µg/g; DSP 0.16 µg/g; PSP 800 µg/kg

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
DSP event: High
PSP event: Low

Why do we think this?

ASP: Declining cell levels of *Pseudo-nitzschia seriata* group continue to be observed around the coast. Corresponding biotoxin levels continue to remain well below regulatory limits. Toxin issues from this species are not expected at this time of year.

AZP: Fluctuating levels of *Azadinium* spp. continue to be observed around the coast, cells counts appear to be in decline. Biotoxin levels in localised areas SW are currently below regulatory limits. Historically this is within the period of occurrence.

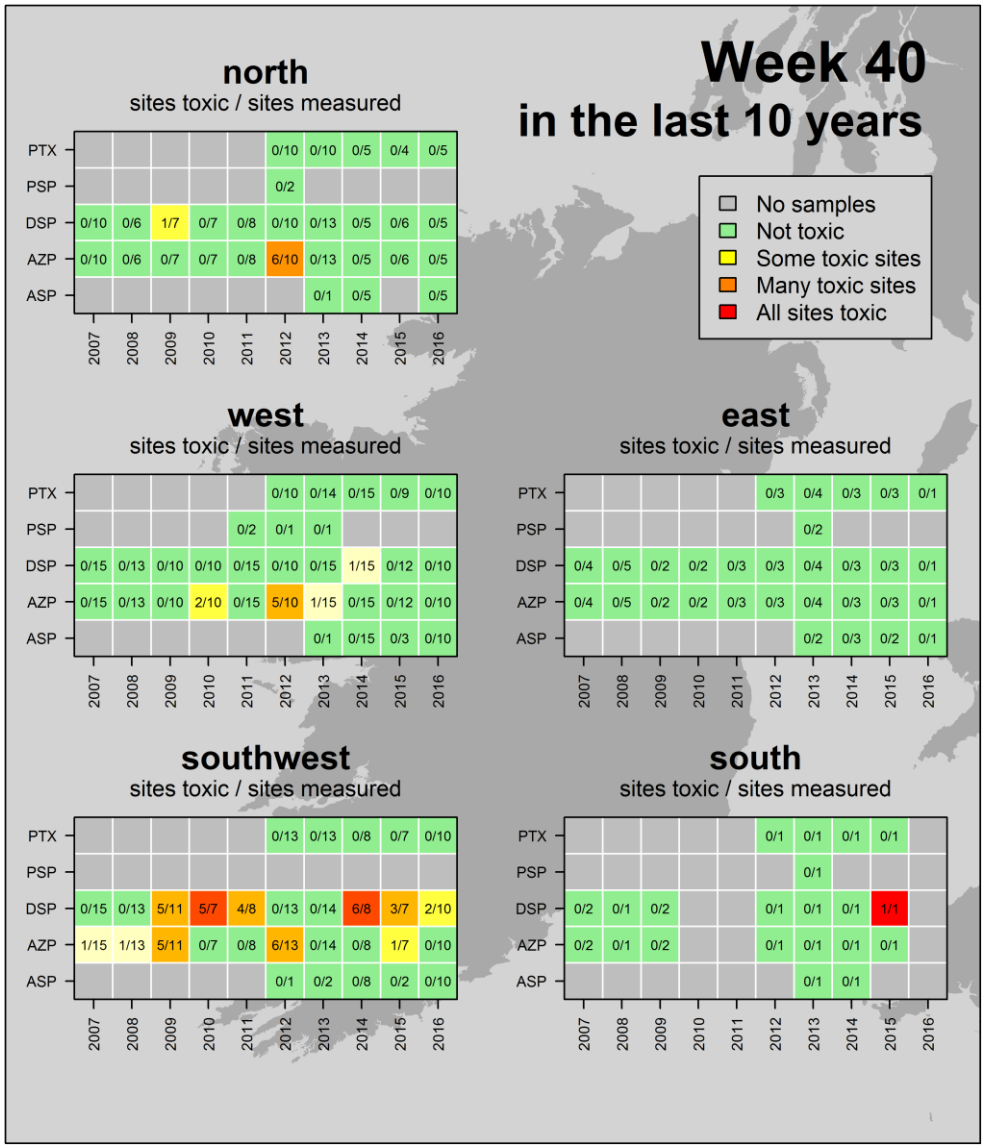
DSP: This is historically the main risk period . There is a presence of *Dinophysis* spp. in the SW but its in decline with related toxins observed.

PSP: A toxic event is not expected at this time of year.

Blooms: A bloom of *Karenia mikimotoi* has been observed in the SW but is currently in decline.

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

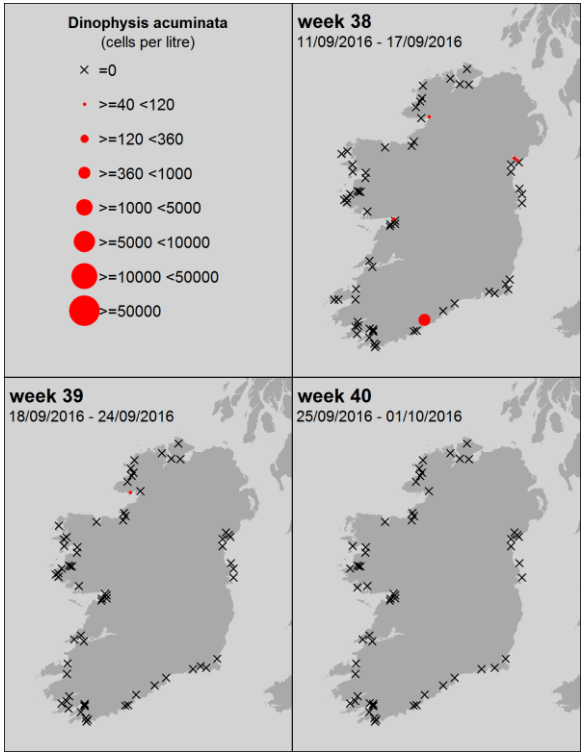
ASP events: mid-March to early May
AZP events: April to December
DSP events: May to December
PSP events: June to mid-July and end September; only in Cork Harbour

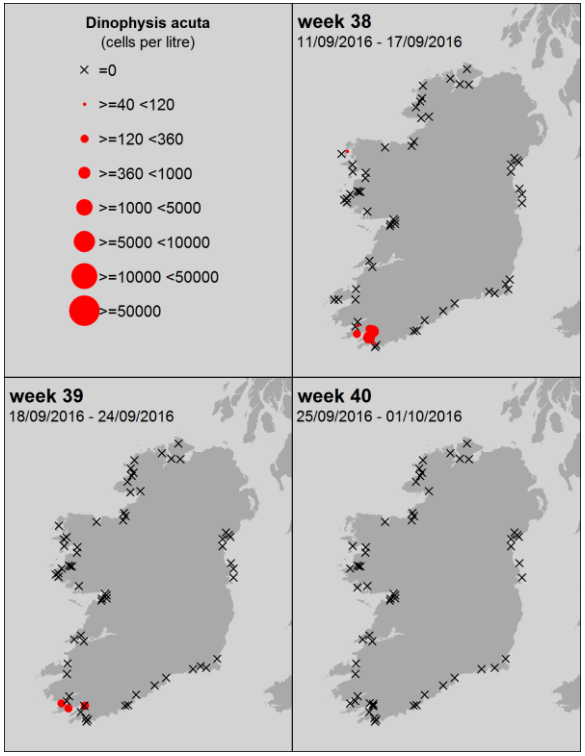
Ireland: **Last 3 weeks of available National Monitoring Programme data**

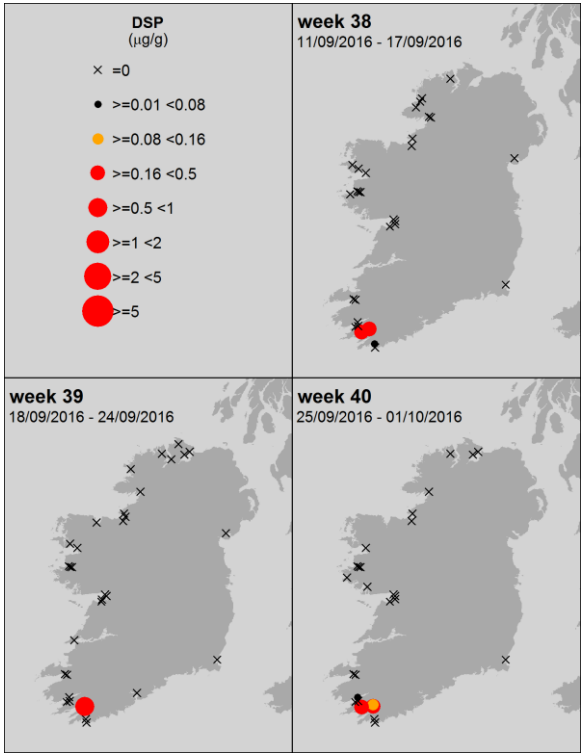
Dinophysis acuminata

Dinophysis acuta

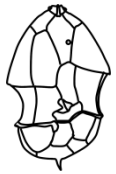
DSP





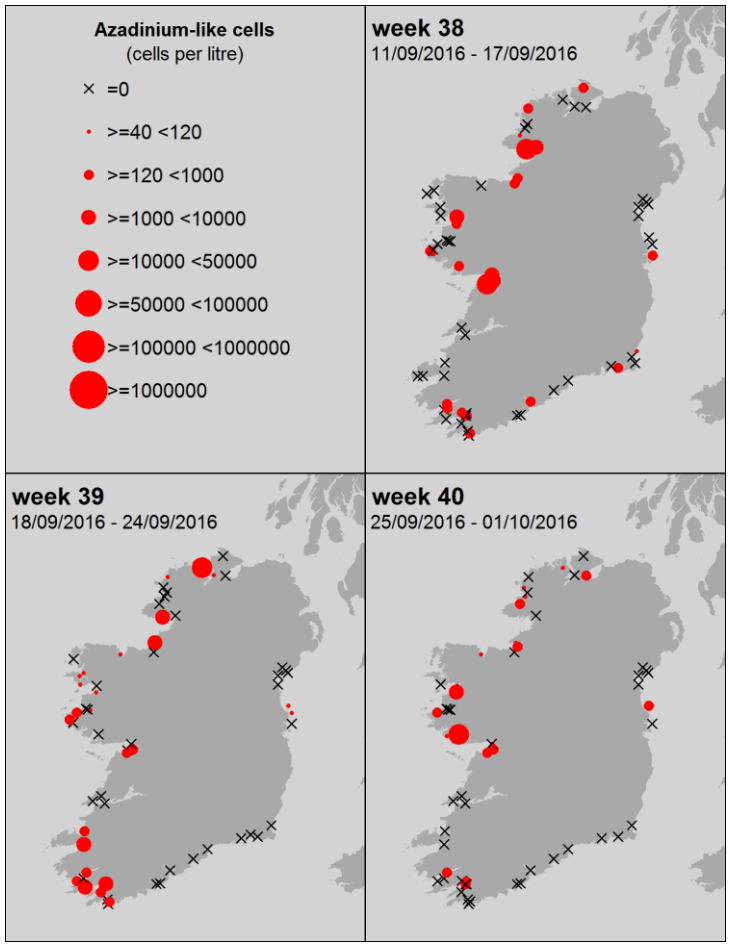


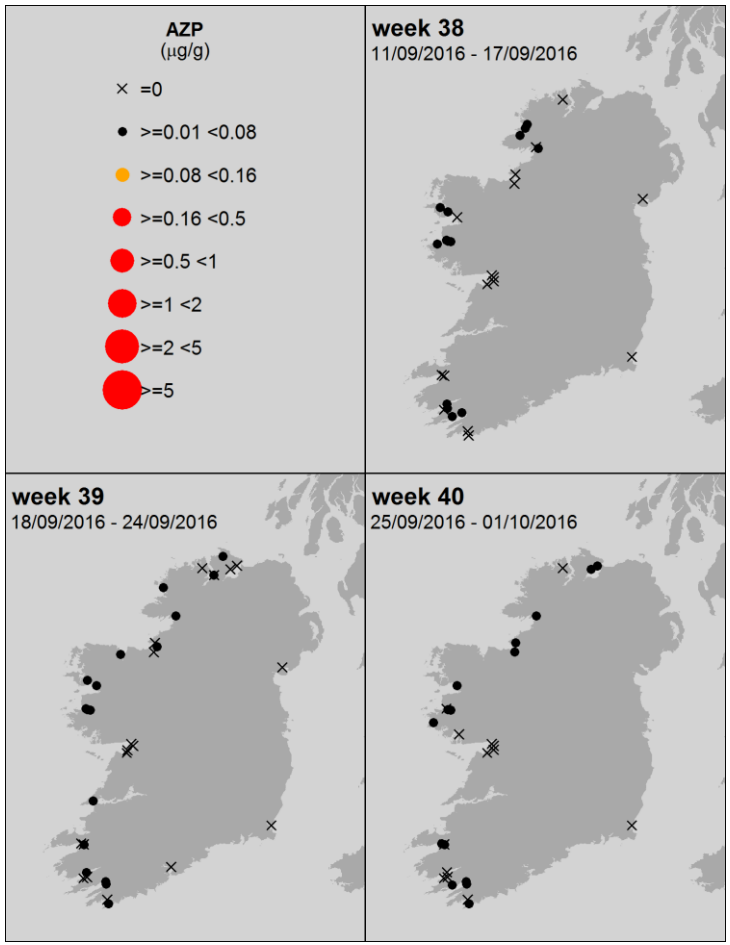
Ireland: **Last 3 weeks of available National Monitoring Programme data**



Azadinium – like spp.

AZP



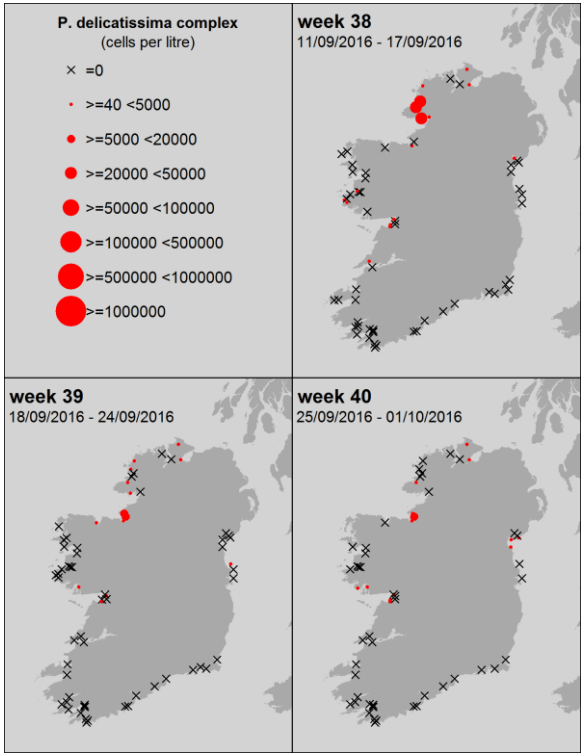


Ireland: **Last 3 weeks of available National Monitoring Programme data**

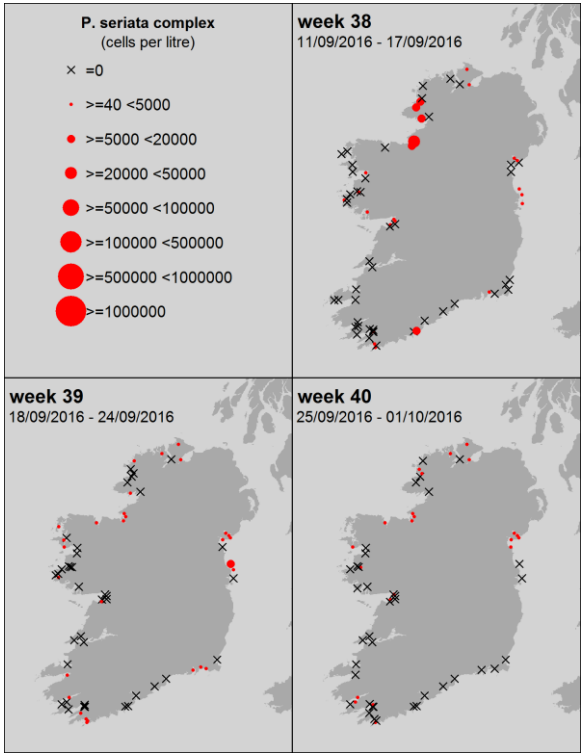
Pseudo-nitzschia spp.

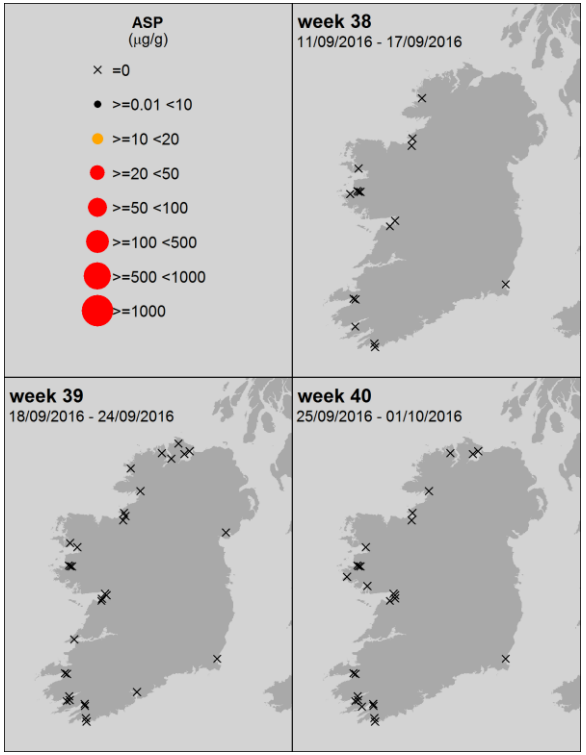
ASP

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



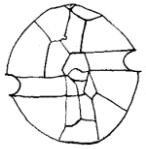
"P. *seriata*" complex = large cells
Taken from the literature:
7 species confirmed in Irish waters





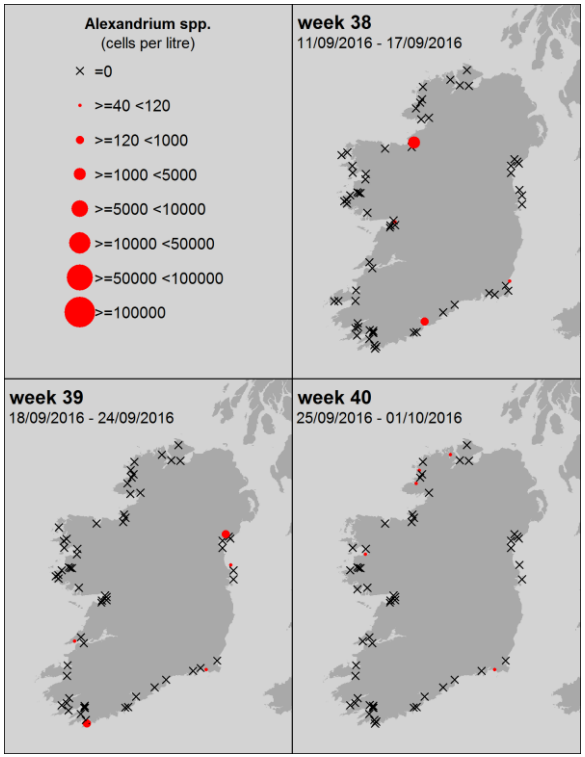
Taken from the literature: Of the 4 species (*P. fraudulenta*, *P. australis*, *P. pungens* and *P. delicatissima*) from Irish waters, tested for ASP toxins in culture work, only one, *P. australis* (from the "*P. seriata*" group) was toxic.

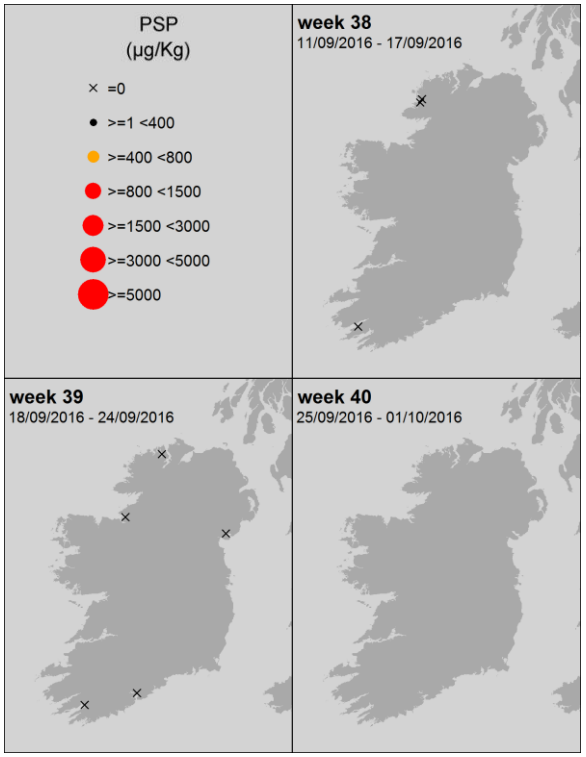
Ireland: **Last 3 weeks of available National Monitoring Programme data**



Alexandrium spp.

PSP

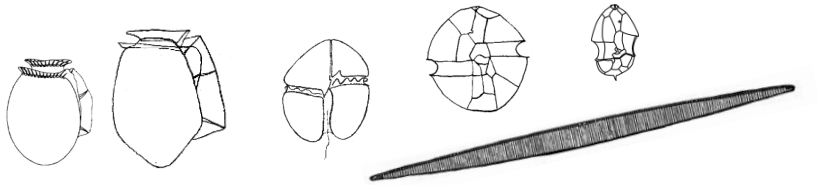




Ireland HAB & Biotoxin temporal trends

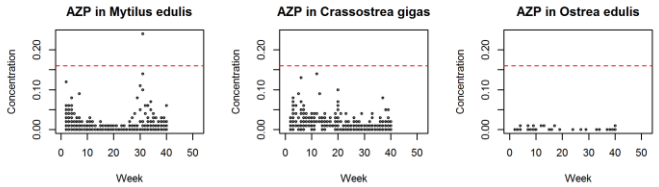
Ireland: **HABs and biotoxins** Levels from week 1 to present

Ireland: **Biotoxins**

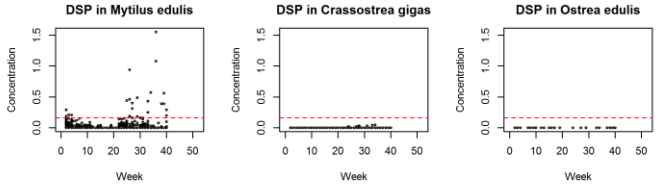


Toxin groups	mussels	oysters	oysters

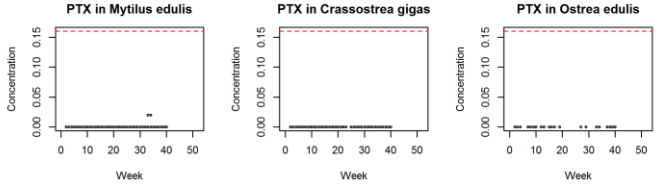
AZP
AZaspiracid Poisoning



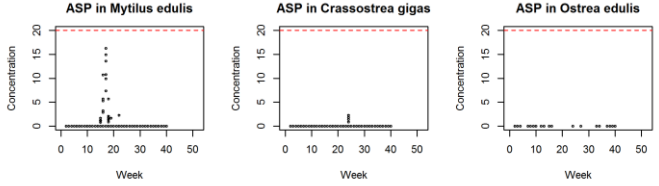
DSP
Diarrhetic Shellfish Poisoning



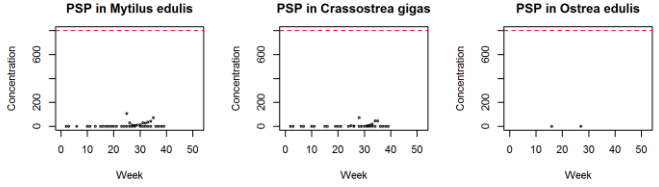
PTX
Pectenotoxin



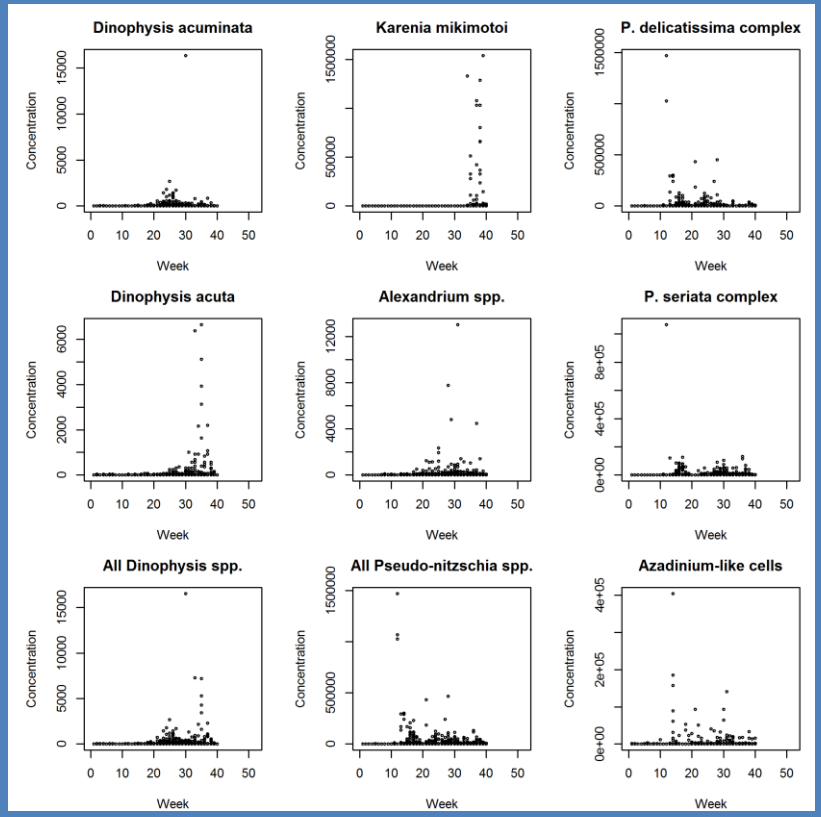
ASP
Amnesic Shellfish Poisoning



PSP
Paralytic Shellfish Poisoning



Ireland: **HABs**

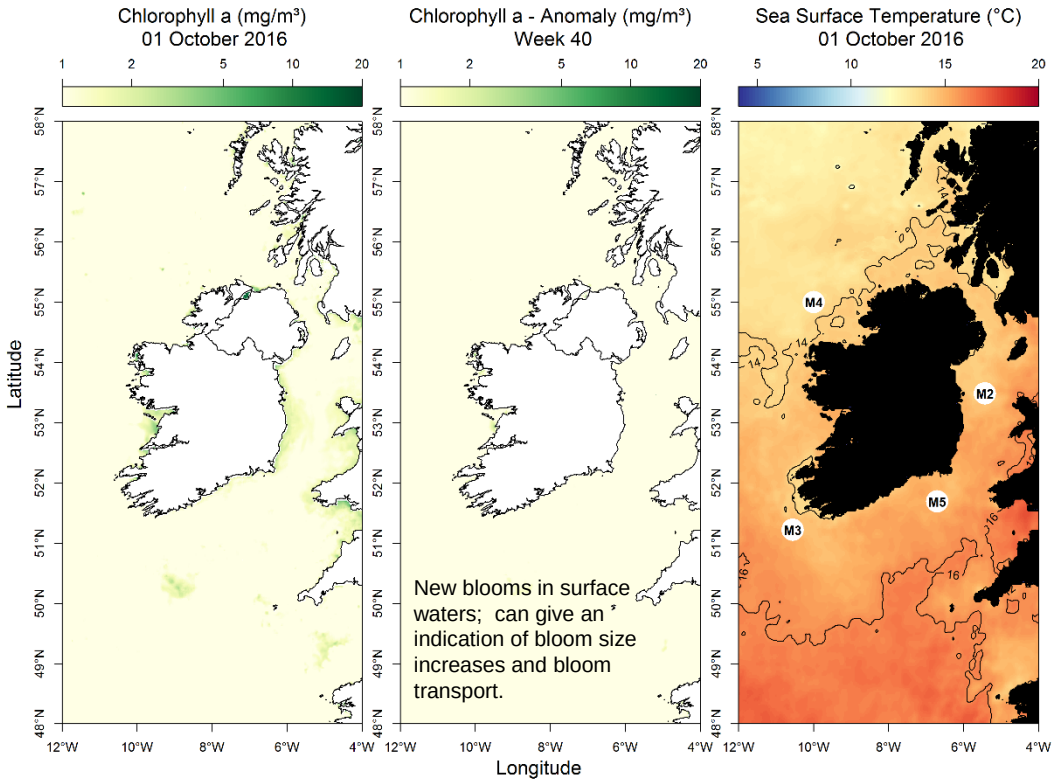


EU Regulatory Limit: ASP 20 µg/g; AZP 0.16 µg/g; DSP 0.16 µg/g; PSP 800 µg/kg

Regulatory limit =

Ireland Satellite data: surface chlorophyll and temperature maps

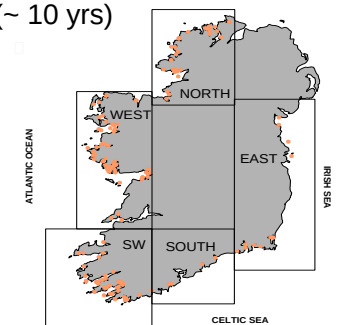
Most up to date available satellite data



SST (ºC) anomaly for last week:

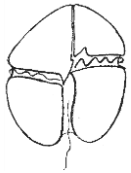
Data taken from the Irish data buoy network where the anomaly is the weekly difference in SST compared to the long term mean (~ 10 yrs)

NW coast (M4) below average by -0.26ºC
SW coast (M3) below average by -0.02ºC
SE coast (M5) above average by 0.69 ºC



What phytoplankton were blooming at inshore coastal sites last week?

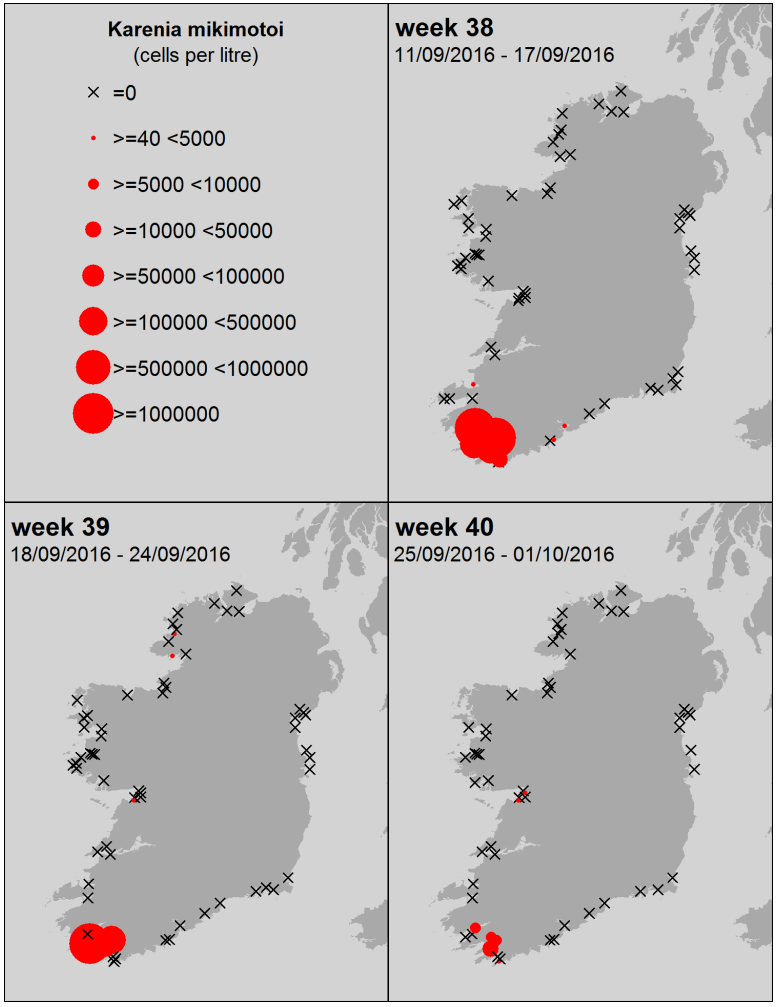
Region	Predominant Phytoplankton (most abundant taxa)	Cells/L (rounded)
north:	**Diatoms:**	
	Asterionellopsis spp.	276,000
	Chaetoceros (Hyalochaete) spp.	102,000
	Skeletonema spp.	17,000
	Others	
	Microflagellate spp. <10µm	96,000
	Euglena/Eutreptiella spp.	24,000
west:	**Diatoms:**	
	Centric diatoms <20µm	76,000
	Navicula spp. <25µm	70,000
	Skeletonema spp.	62,000
	Asterionellopsis spp.	48,000
	Pennate diatom	11,000
	Dactyliosolen spp.	11,000
	Others	
	Microflagellate spp. <10µm	31,000
SW:	**Diatoms:**	
	Skeletonema costatum	577,000
	Lauderia / Detonula sp	326,000
	Leptocylindrus minimus	91,000
	Others	
	Prymnesiophytes	103,000
south:	**Diatoms:**	
	Navicula spp. <25µm	15,000
	Leptocylindrus minimus	12,000
	Paralia sulcata	7,000
	Leptocylindrus danicus	6,000
	Chaetoceros (Hyalochaete) spp.	4,000
east:	**Diatoms:**	
	Chaetoceros (Hyalochaete) spp.	153,000
	Cylindrotheca closterium/ Nitzschia longissima	51,000
	Leptocylindrus minimus	44,000
	Cerataulina pelagica	28,000
	Asterionellopsis spp.	13,000



Karenia mikimotoi
(old name: *Gyrodinium aureolum*)

High cell levels in some areas.
Karenia spp. have declined

This species can cause stress and mortalities due to its effect on water quality in both farmed shellfish and finfish as well as many wild marine shore species i.e. lugworms, cockles etc. Low impact husbandry for farmed fish is traditionally recommended to reduce any additional stress in affected sites. Increased frequency in checking fishing and keeper pots is traditionally advised for wild fisheries to remove live catch before potential losses in affected sites.

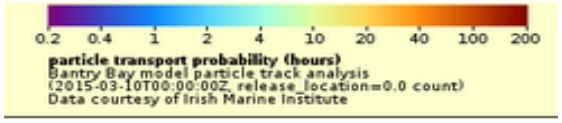


SOUTHWEST: Bantry Bay

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

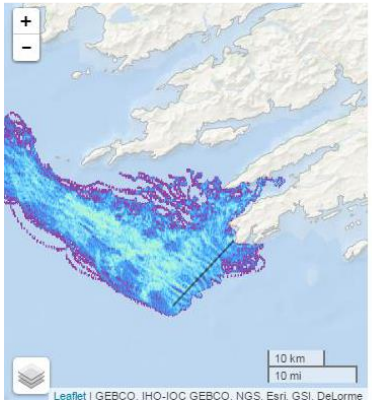
Cooler colours represent areas where phytoplankton remain for shorter periods

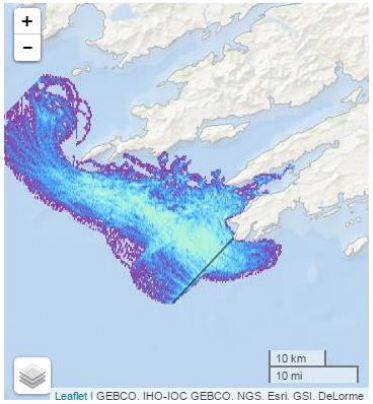


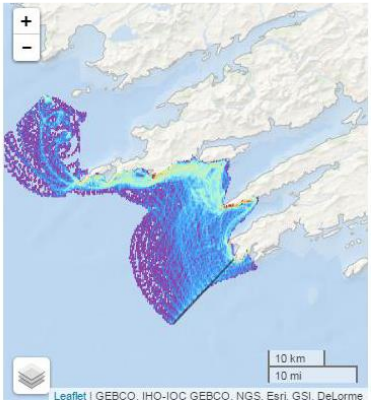
Go to http://vis.marine.ie/particles/ to view daily forecasts

Forecast for the next 3 days

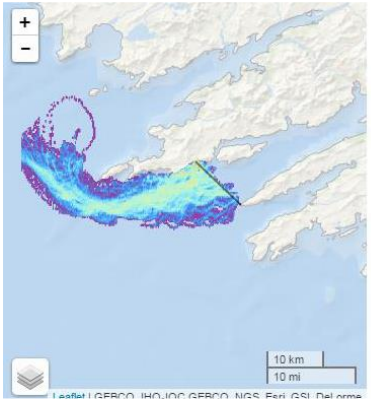
Bottom water	Water @ 20 metres	Surface water

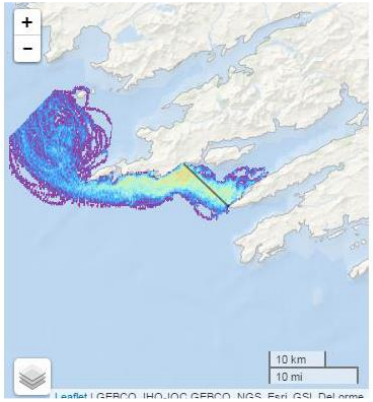


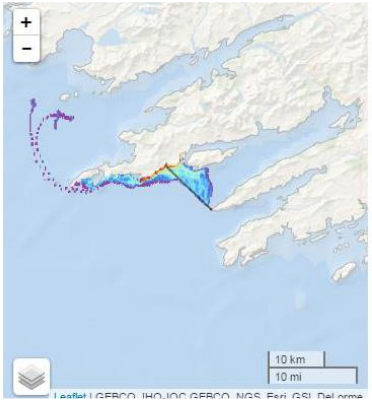




Waters from the Celtic Sea and associated phytoplankton communities are free to travel toward the bays of SW Ireland.





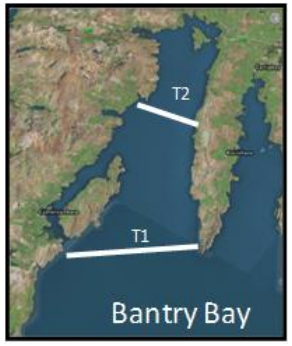


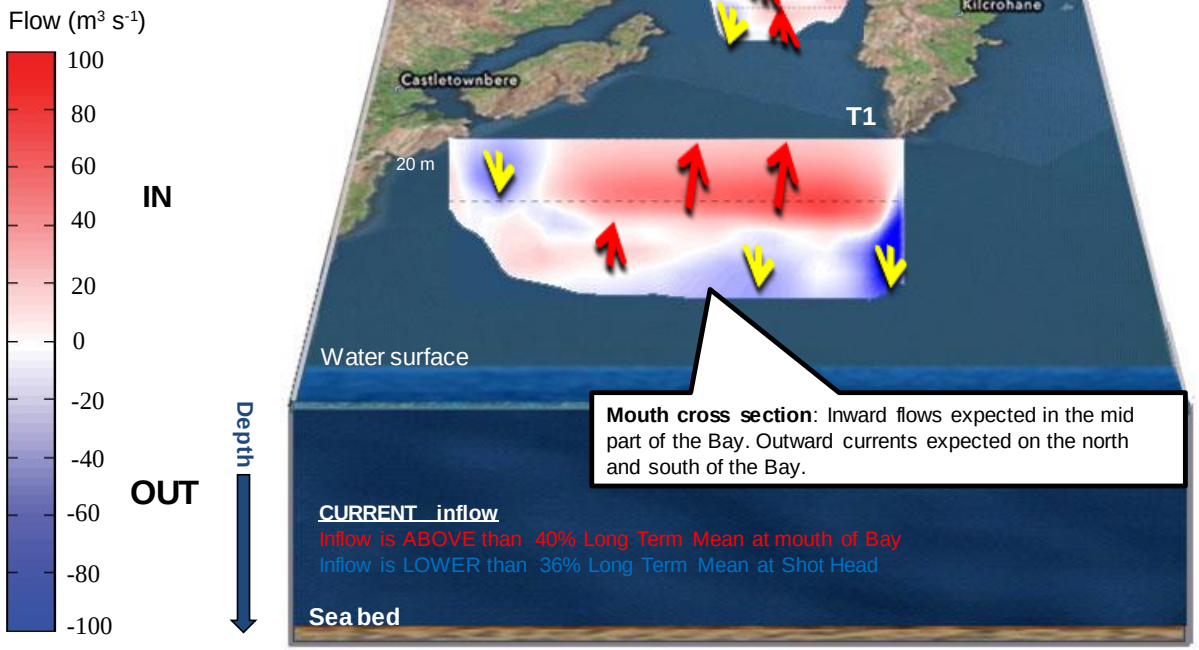
Bottom waters are expected to flow north while a small surface water intrusion is expected in Bantry Bay the next couple of days.

Bantry Bay

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

Forecast for next 3 days





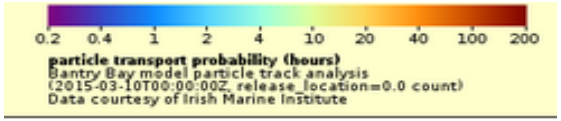
WEST: Killary Harbour

Forecast for the next 3 days

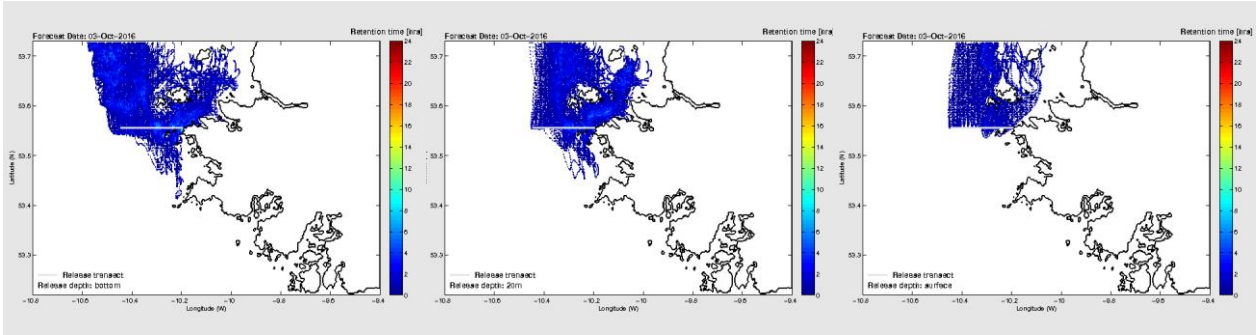
The maps show the **most likely transport pathways for the next 3 days of phytoplankton** found along the **presented transects** i.e. white lines off Aughrus Point and the Mouth of Killary Harbour, and **water depths** (bottom, 20 metres and surface)

Reddish colours represent areas where phytoplankton remain longest

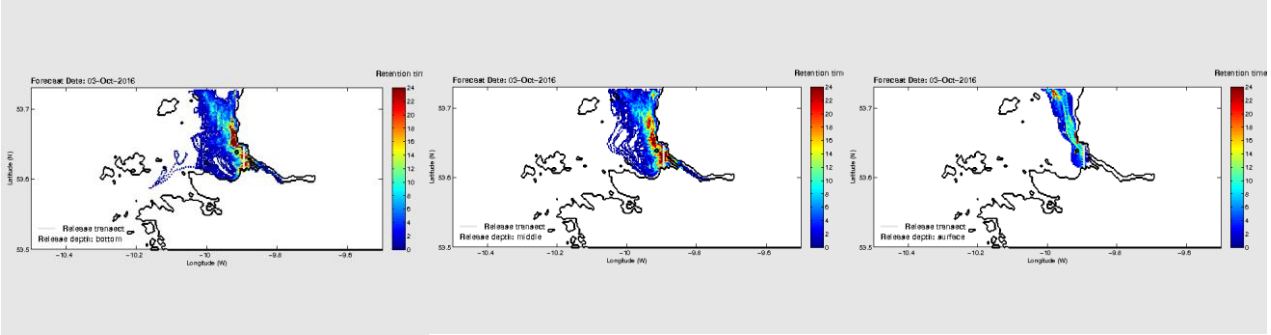
Cooler colours represent areas where phytoplankton remain for shorter periods



Bottom water	Water @ 20 metres	Surface water



Shelf water and associated phytoplankton flora are expected to reach Killary Harbour in the next couple of days.

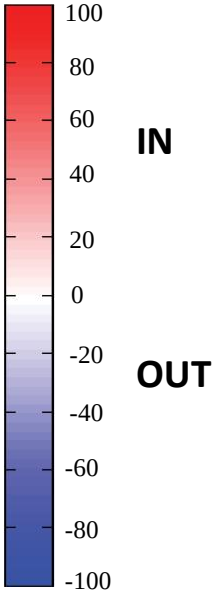


A subsurface intrusion event is expected in Killary Harbour, this will facilitate the transport of offshore phytoplankton into the bay.

Killary Harbour

3 day estimated water flows at the mouth of Killary Harbour

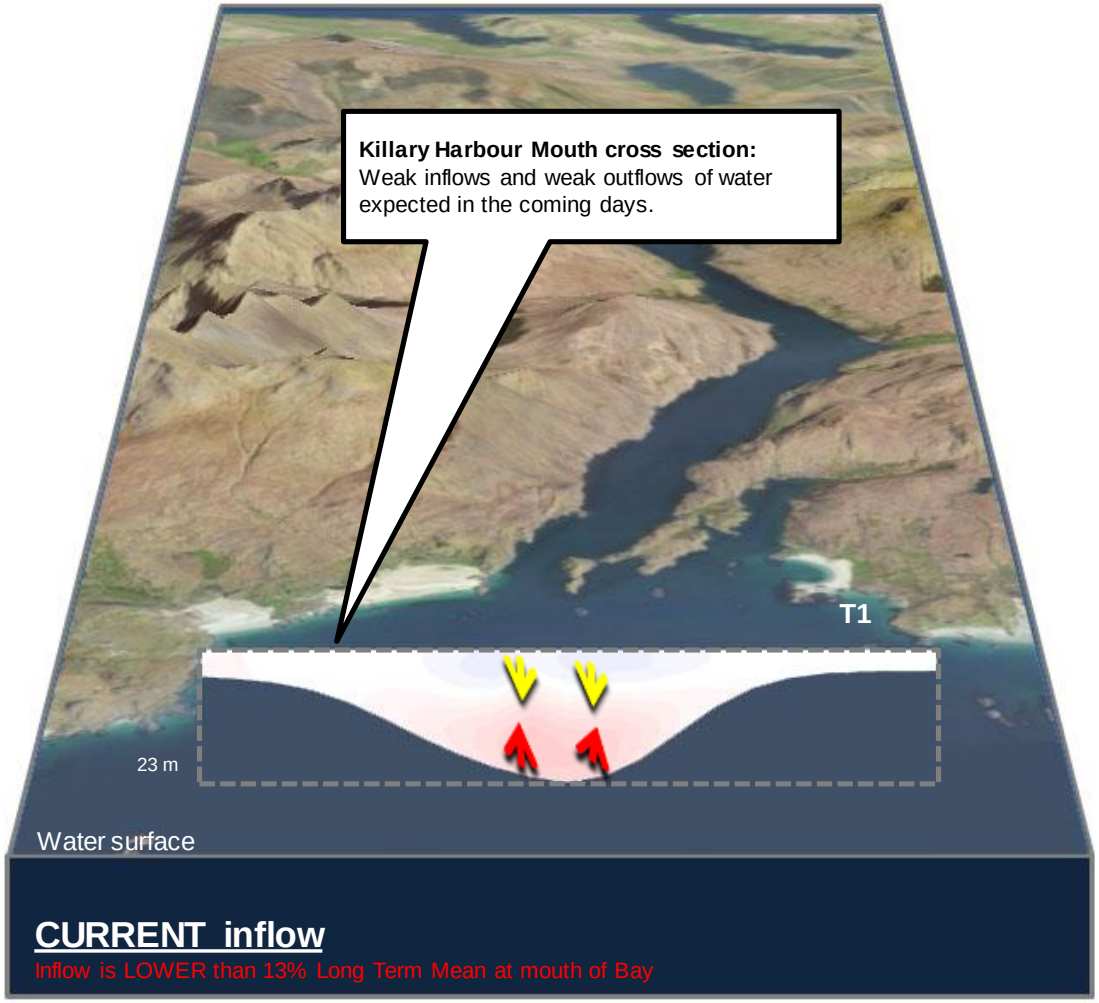
Flow ($m^3 s^{-1}$)



IN

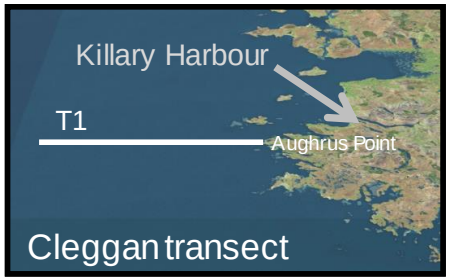
OUT

Forecast for next 3 days



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

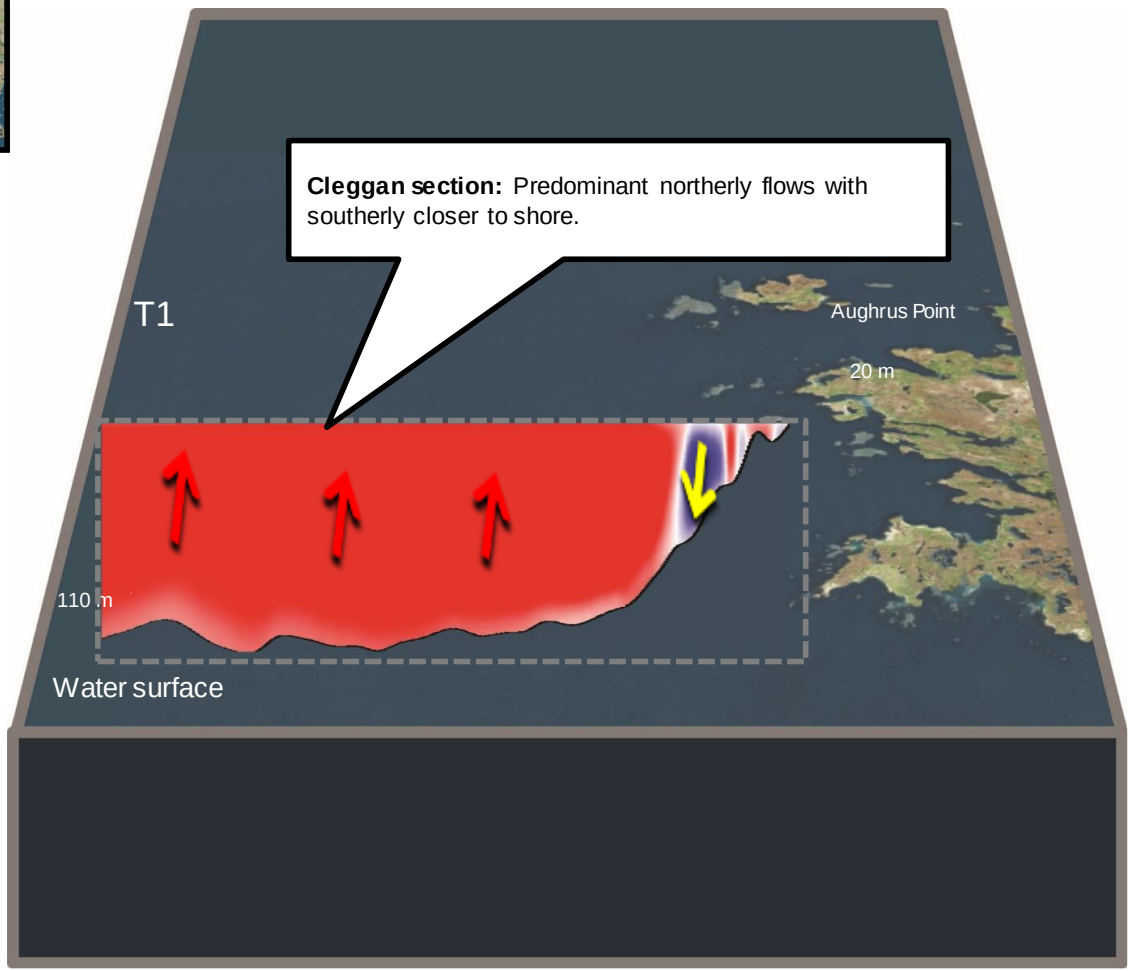
Forecast for next 3 days



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

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

northward flow

southward flow

Depth