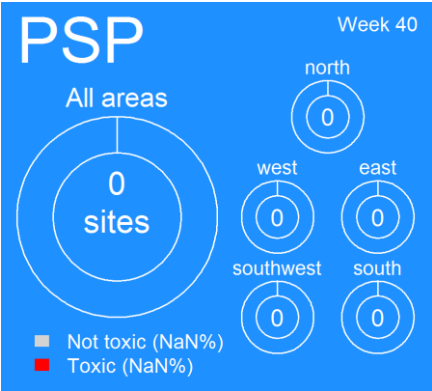
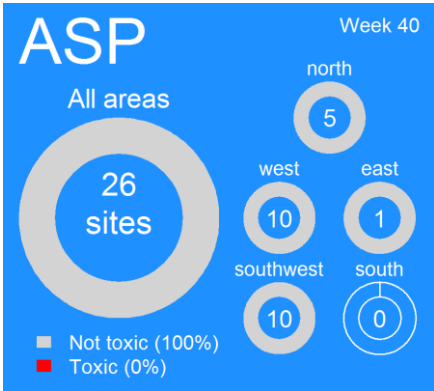
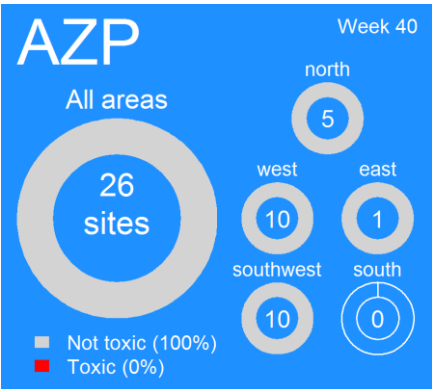
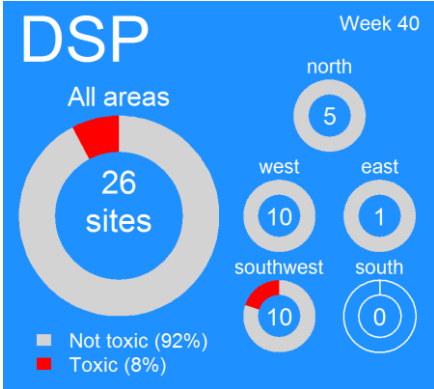


Ireland: Current Conditions

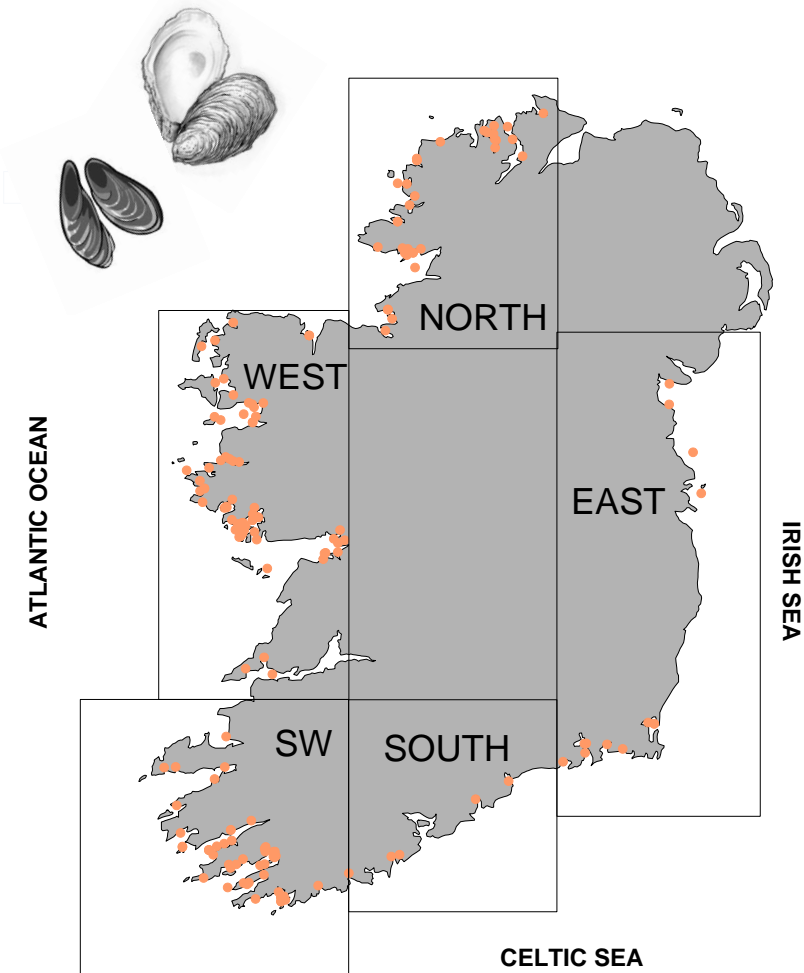
Shellfish biotoxin report (last week)



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**mnestic **S**hellfish **P**oisoning; AZP = **A**Zaspiracid **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.

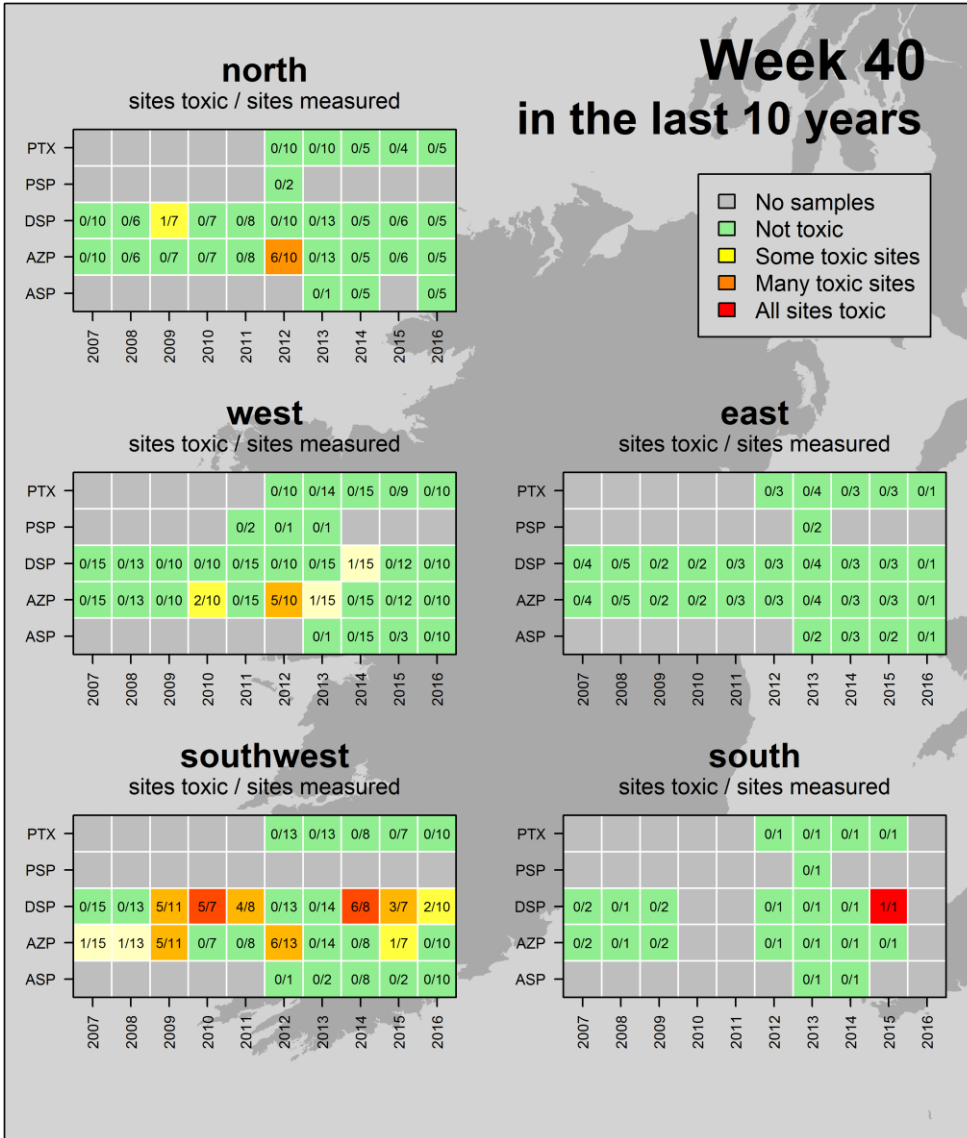
DSP: This is historically the main risk period . There is a presence of *Dinophysis* spp. in the SW but its in decline with related toxins observed.

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

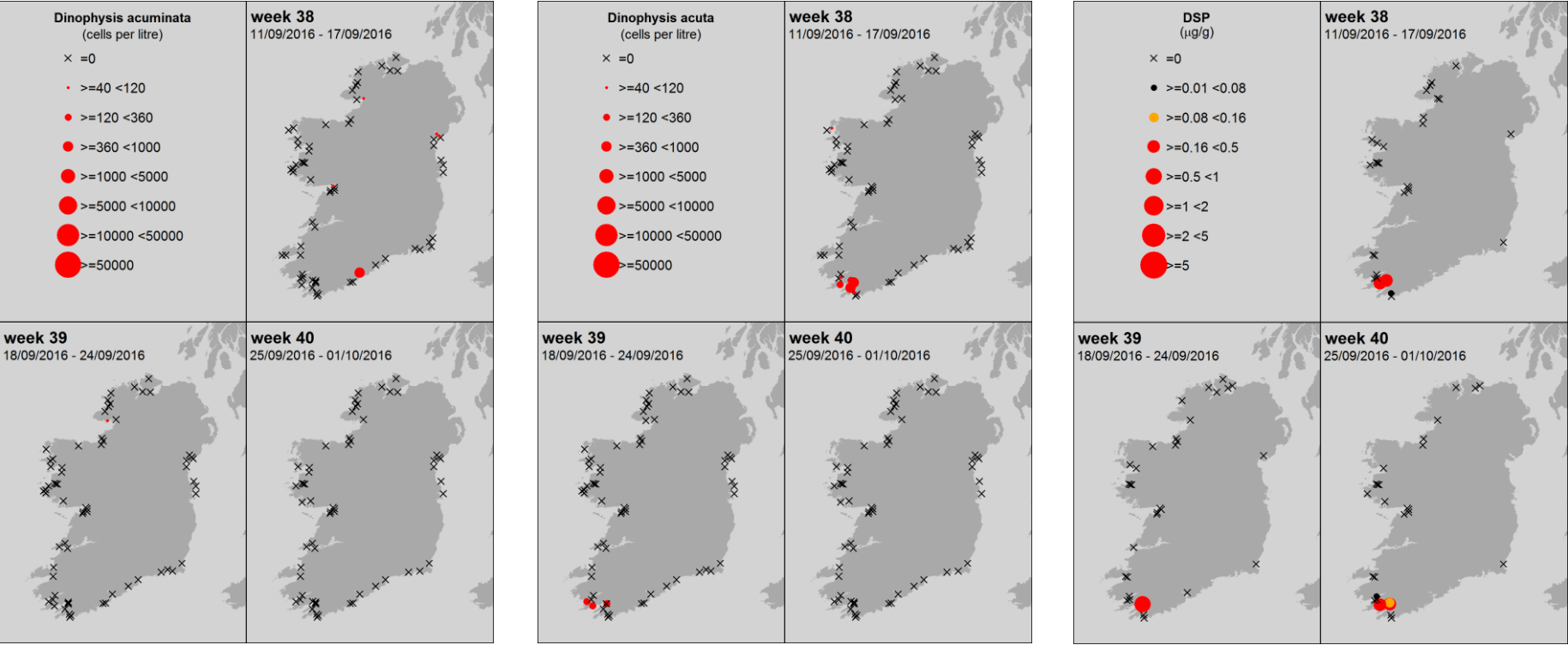
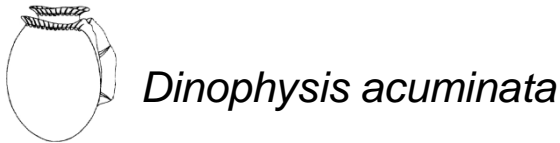
AZP events: April to December

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



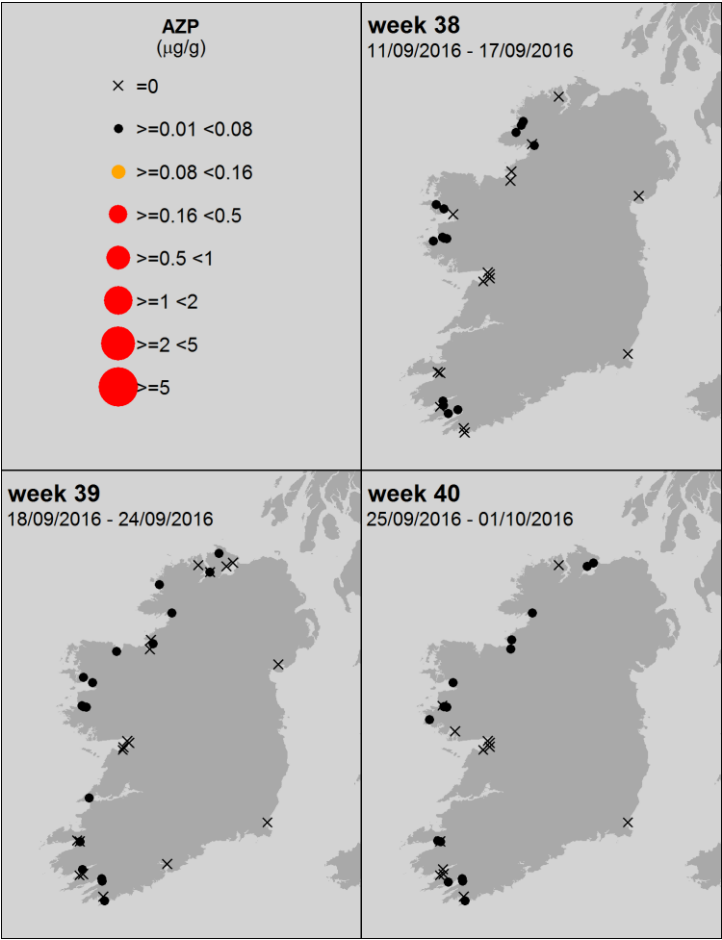
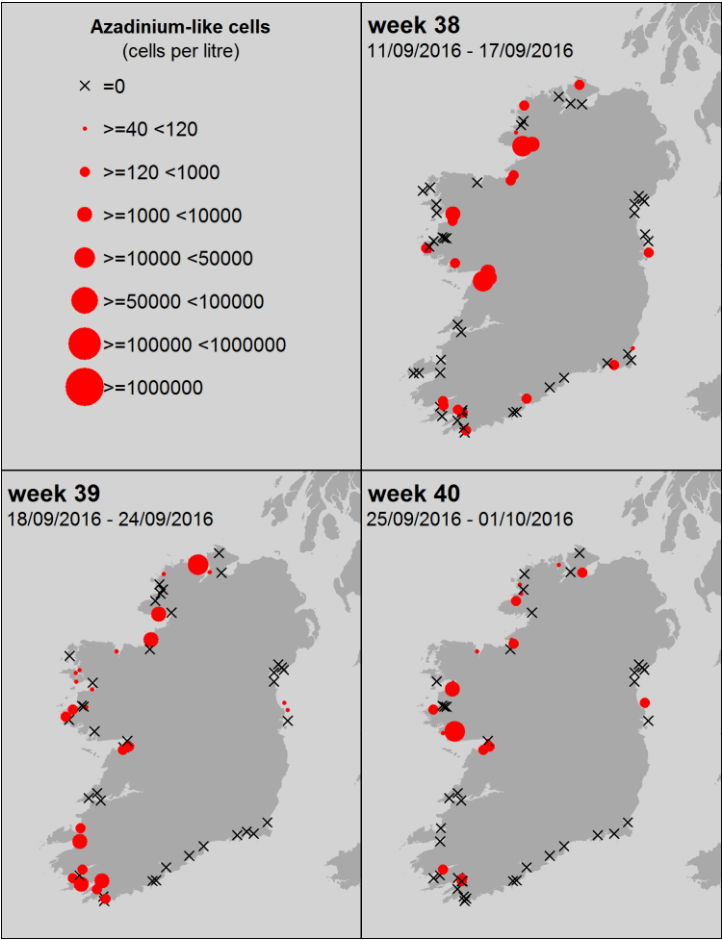
Ireland: Last 3 weeks of available National Monitoring Programme data



Azadinium – like spp.



AZP



Ireland: Last 3 weeks of available National Monitoring Programme data

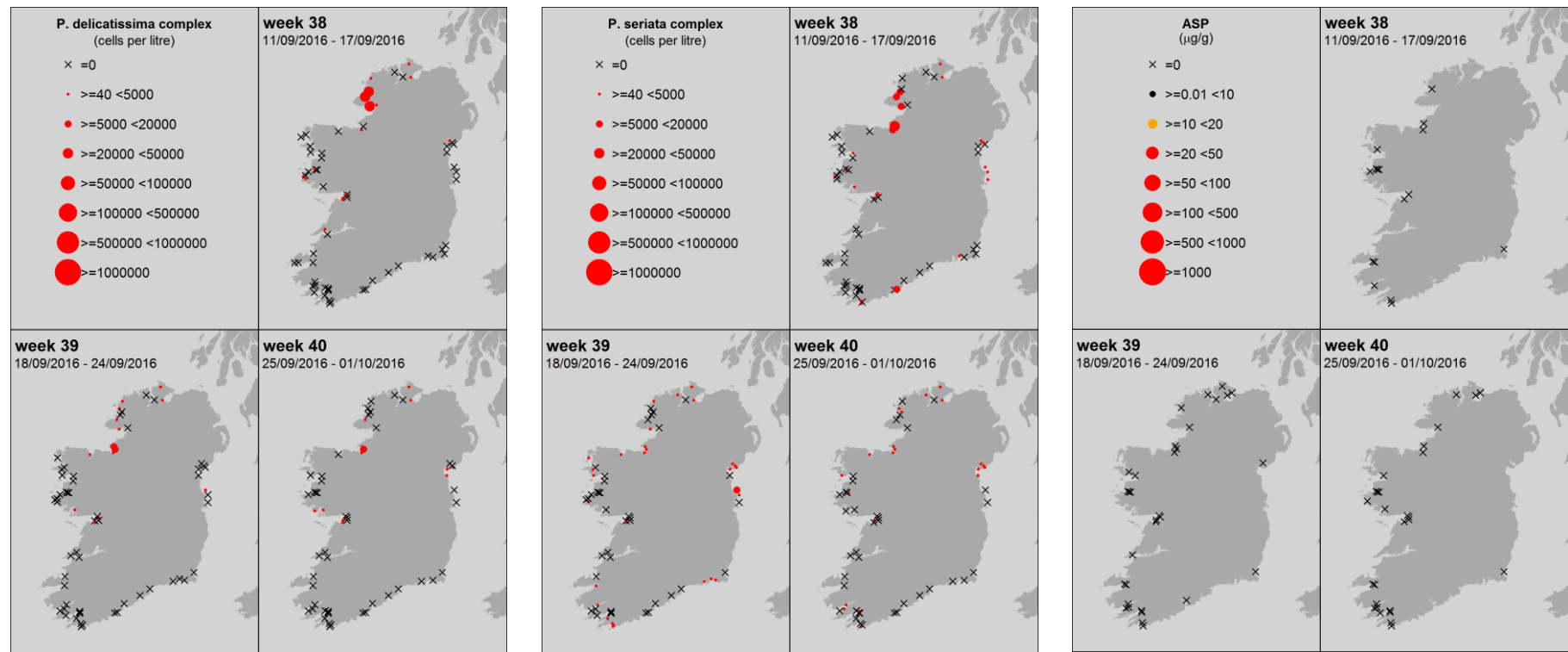
Pseudo-nitzschia spp.



ASP

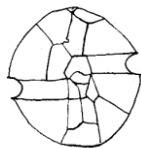
“*P. delicatissima*” complex = small cells
Taken from the literature:
3 species confirmed in Irish waters

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

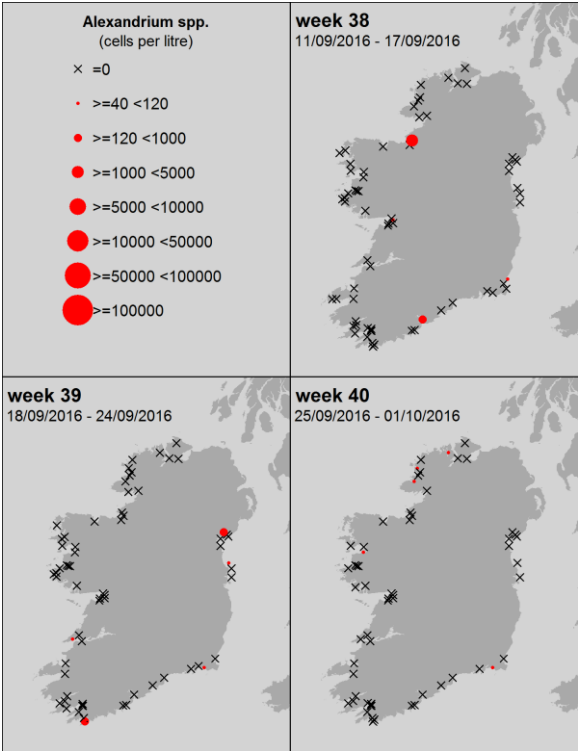


Taken from the literature: Of the 4 species (*P. fraudulenta*, *P. australis*, *P. pungens* and *P. delicatissima*) from Irish waters, tested for ASP toxins in culture work, only one, *P. australis* (from the “*P. seriata*” group) was toxic.

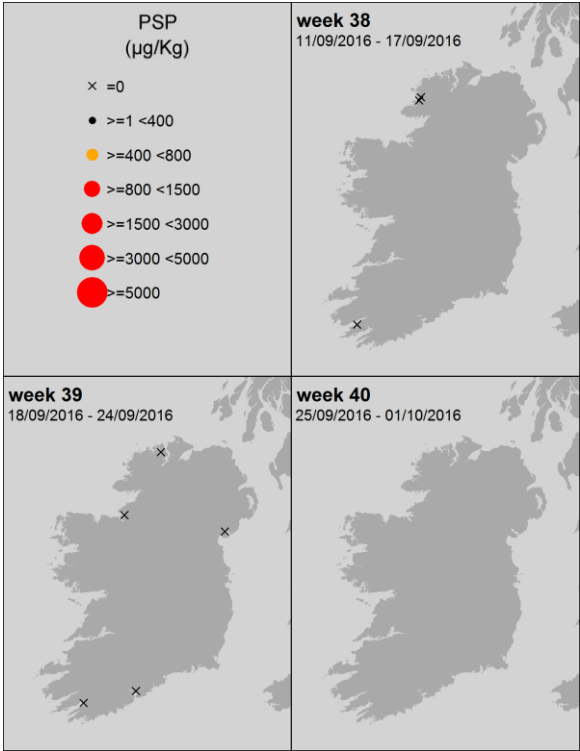
Ireland: Last 3 weeks of available National Monitoring Programme data



Alexandrium spp.



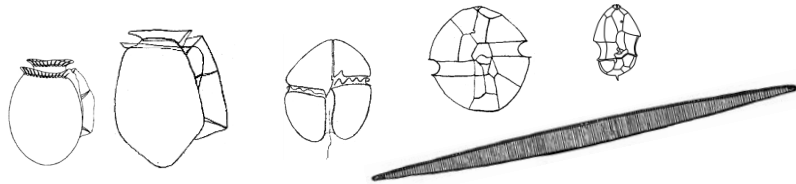
PSP



Ireland HAB & Biotoxin temporal trends

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

Ireland: Biotoxins



Toxin groups

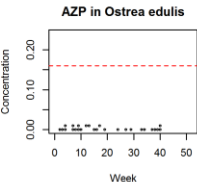
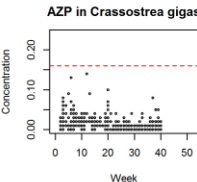
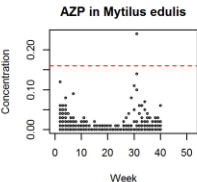
mussels

oysters

oysters

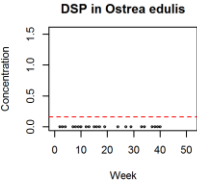
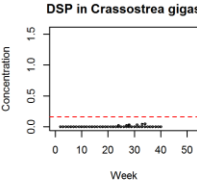
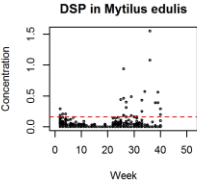
AZP

AZaspiracid
Poisoning



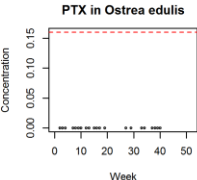
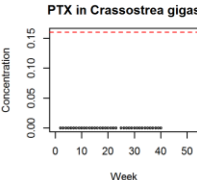
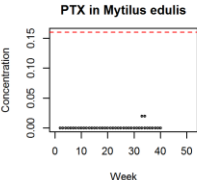
DSP

Diarrhetic
Shellfish
Poisoning



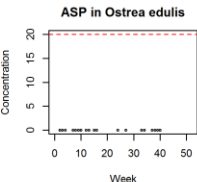
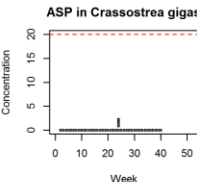
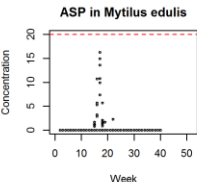
PTX

Pectenotoxin



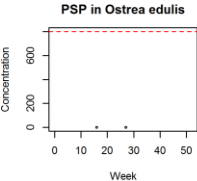
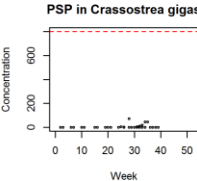
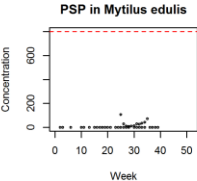
ASP

Amnesic
Shellfish
Poisoning

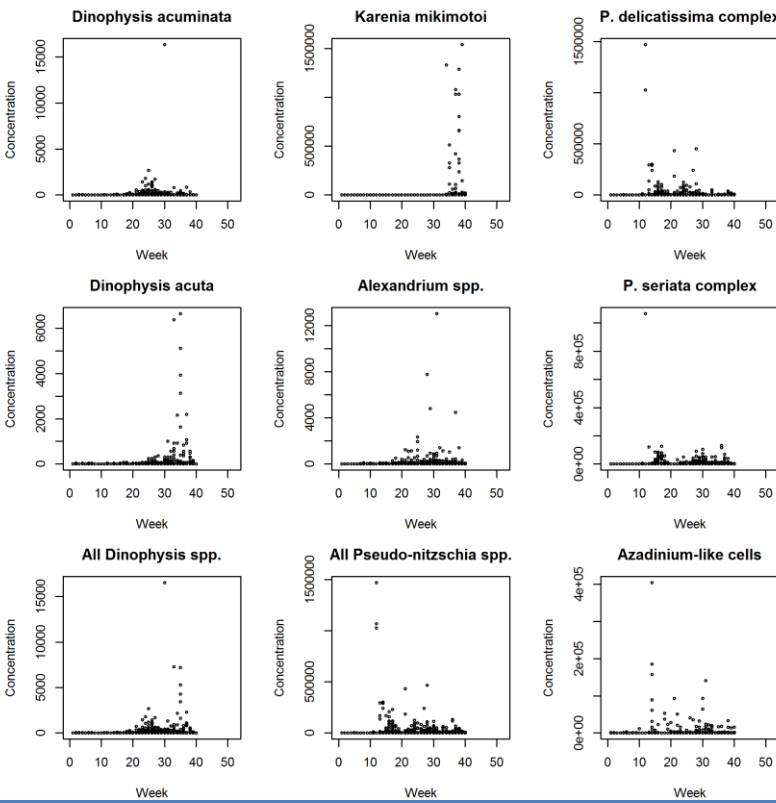


PSP

Paralytic
Shellfish
Poisoning



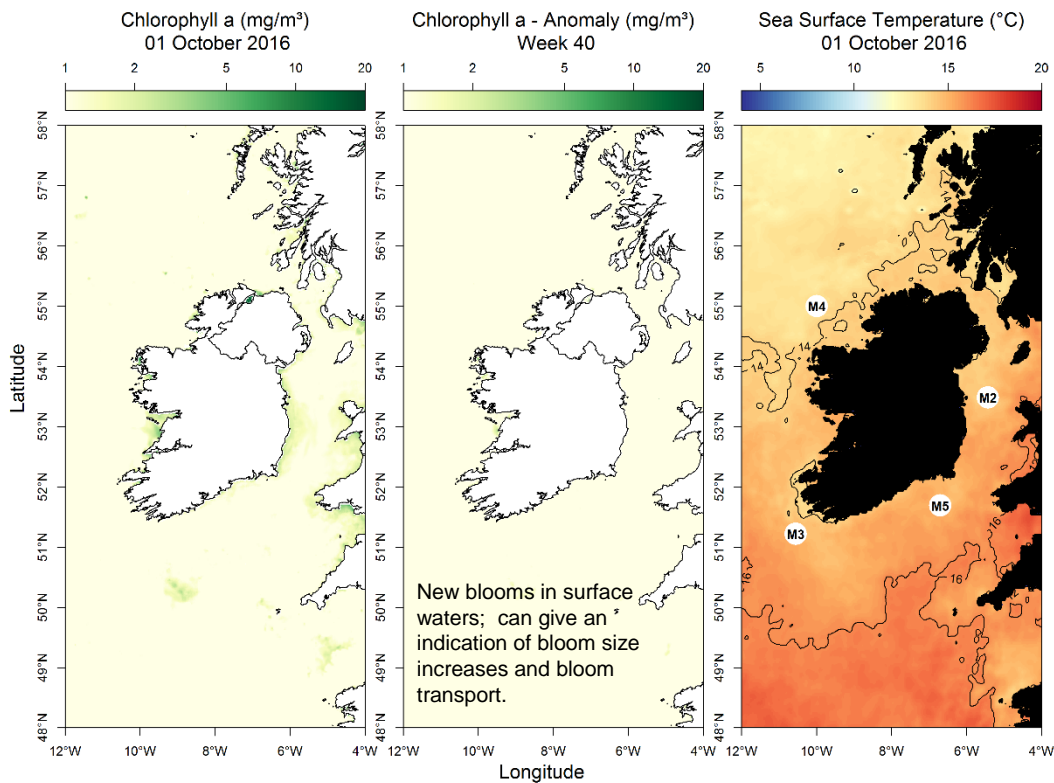
Ireland: HABs



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

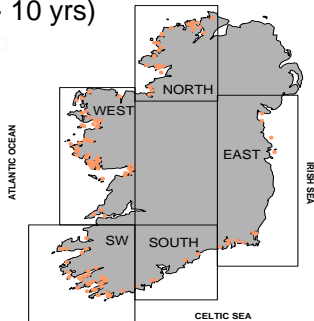
Regulatory limit = ■■■■■

Most up to date available satellite data



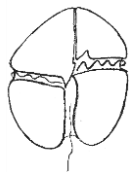
SST (°C) anomaly for last week:
Data taken from the Irish data buoy network where the anomaly is the weekly difference in SST compared to the long term mean (~ 10 yrs)

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



What phytoplankton were blooming at inshore coastal sites last week?

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

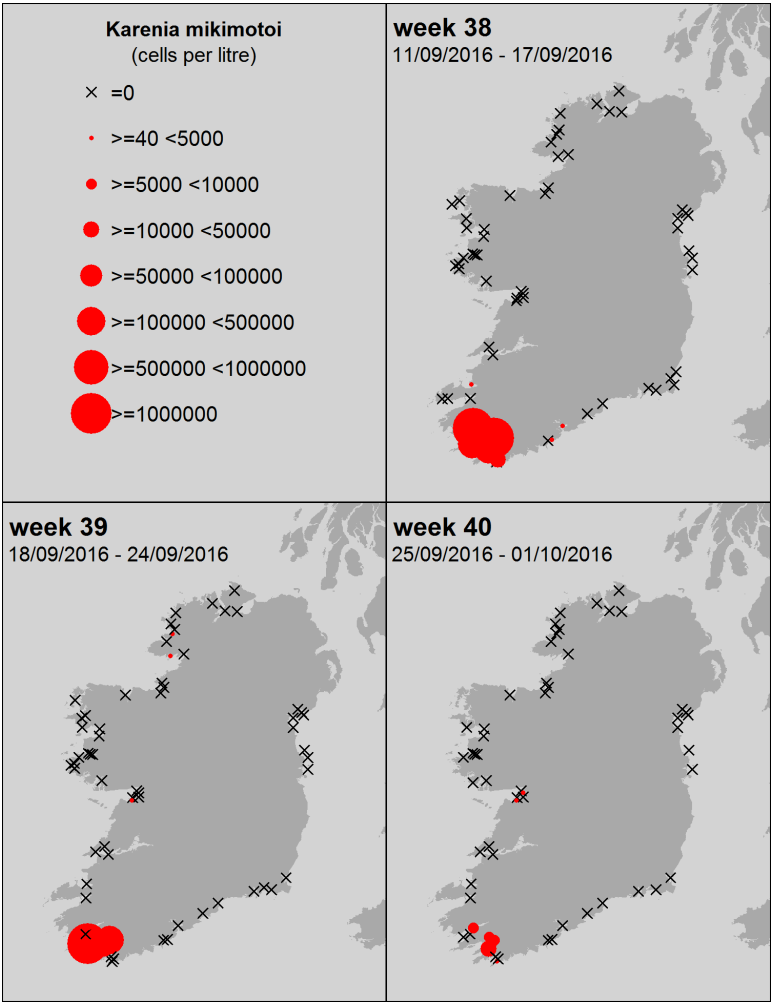


Karenia mikimotoi
(old name: *Gyrodinium aureolum*)

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.



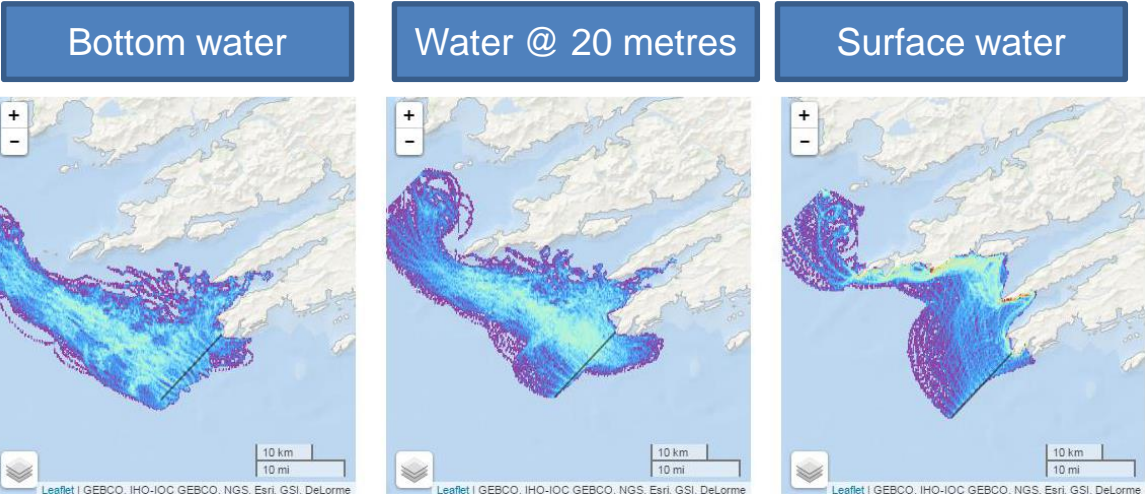
SOUTHWEST: Bantry Bay

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)

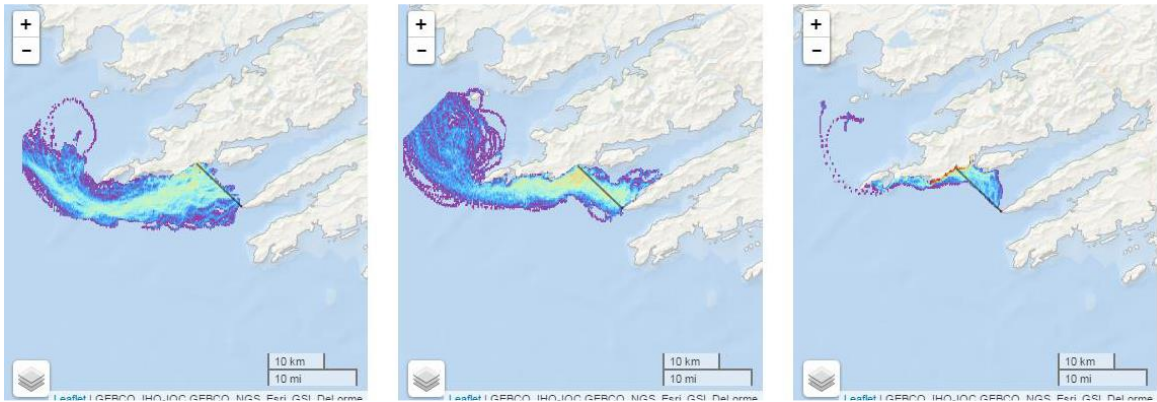
Reddish colours represent areas where phytoplankton remain longest
Cooler colours represent areas where phytoplankton remain for shorter periods

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



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



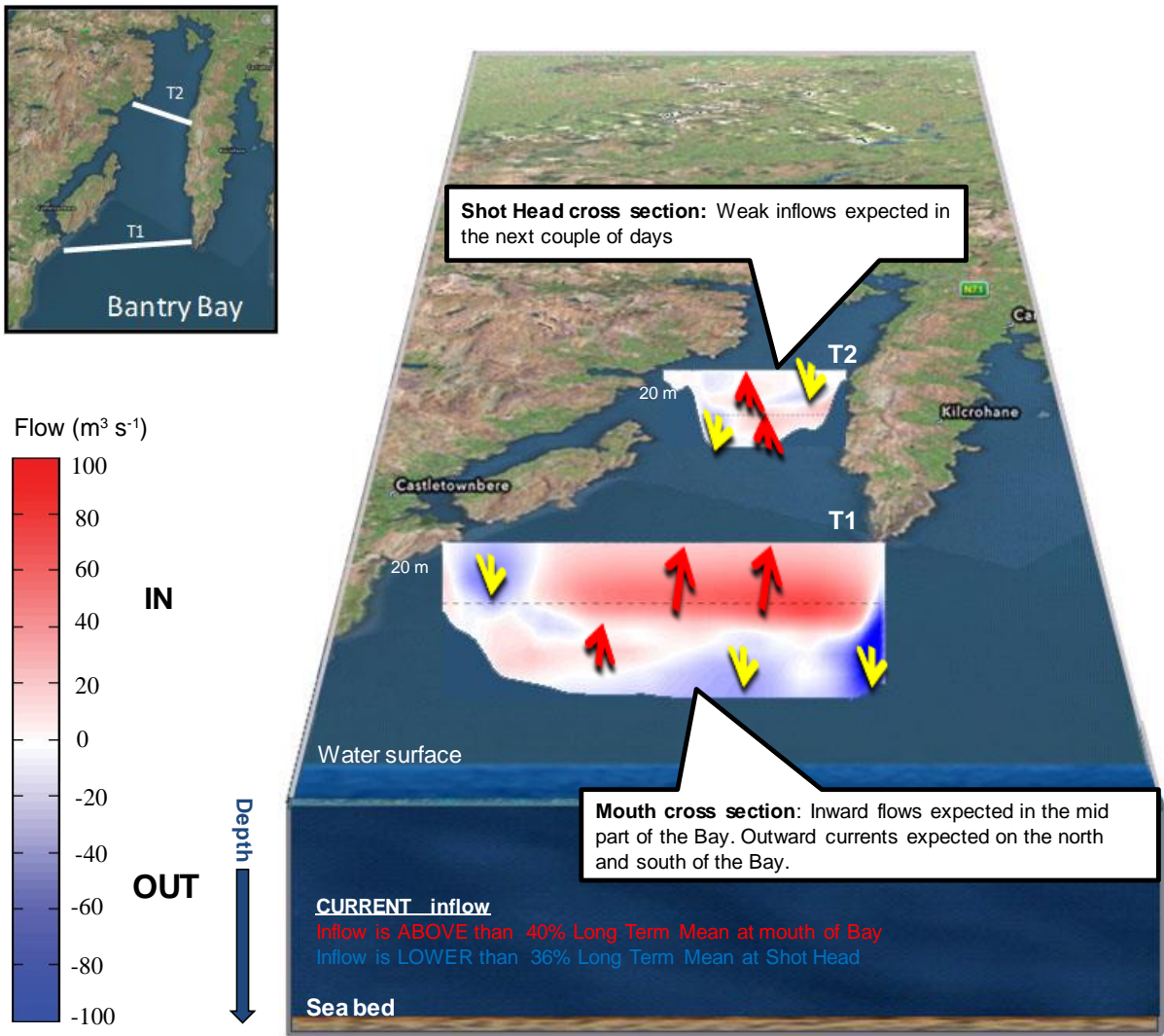
Bottom waters are expected to flow north while a small surface water intrusion is expected in Bantry Bay the next couple of days.

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

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

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)

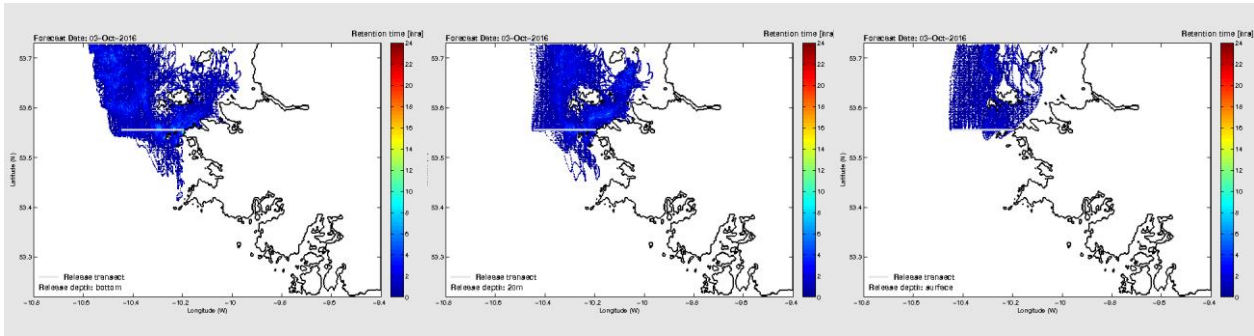
Reddish colours represent areas where phytoplankton remain longest
Cooler colours represent areas where phytoplankton remain for shorter periods



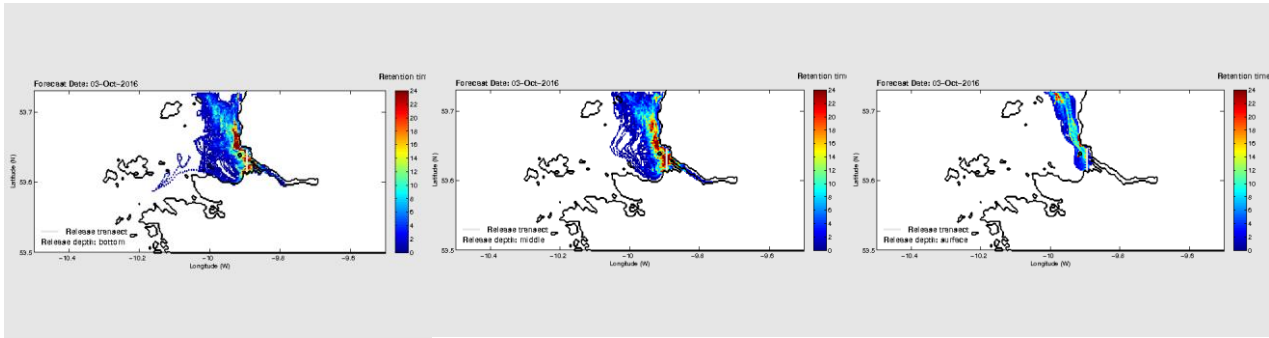
0.2 0.4 1 2 4 10 20 40 100 200
particle transport probability (hours)
Bantry Bay model particle track analysis
(2015-03-10T00:00:00Z, release_location=0.0 count)
Data courtesy of Irish Marine Institute

Forecast for the next 3 days

- Bottom water
- Water @ 20 metres
- Surface water



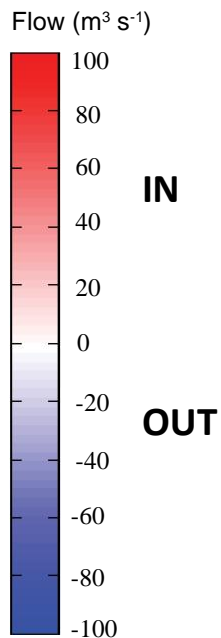
Shelf water and associated phytoplankton flora are expected to reach Killary Harbour in the next couple of days.



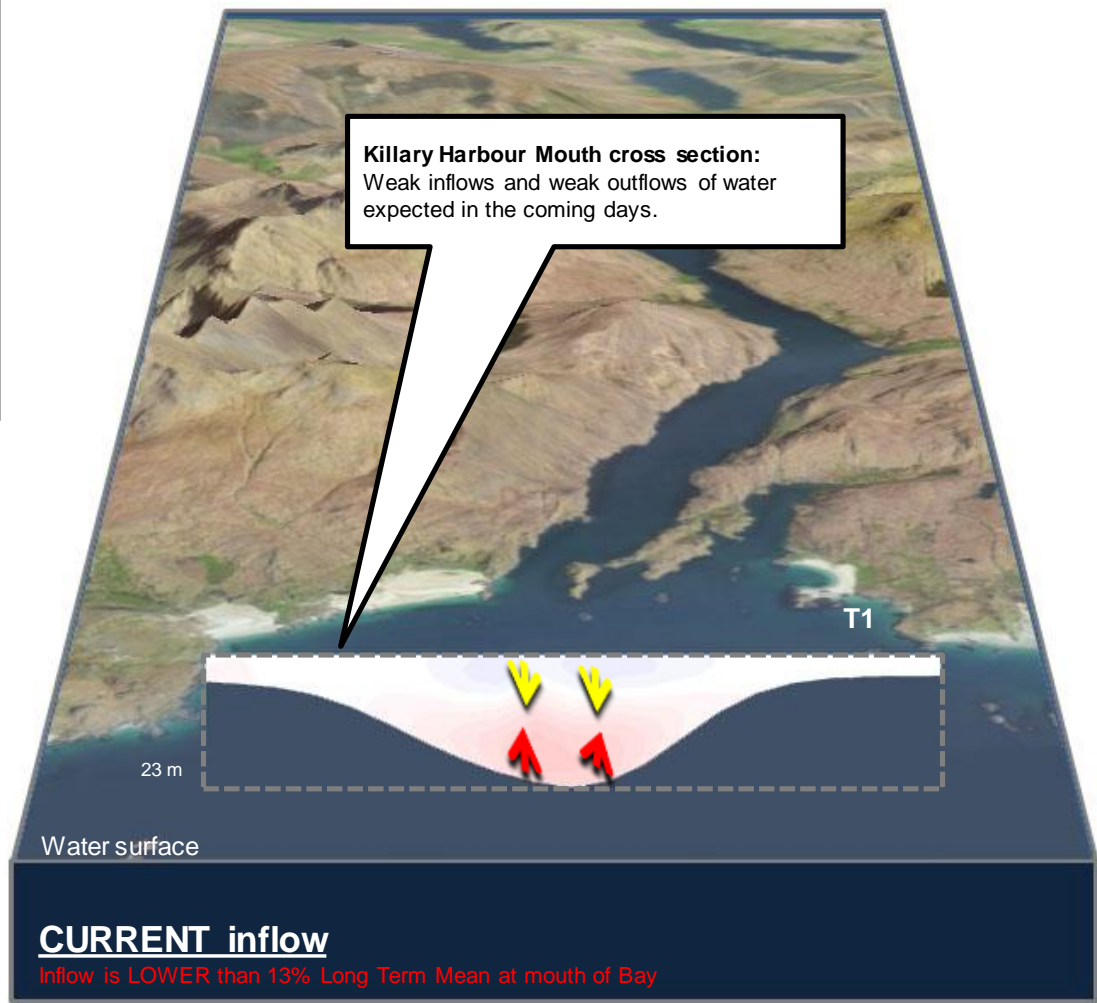
A subsurface intrusion event is expected in Killary Harbour, this will facilitate the transport of offshore phytoplankton into the bay.

Killary Harbour

3 day estimated water flows at the mouth of Killary Harbour

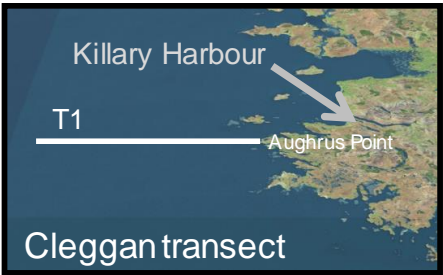


Forecast for next 3 days

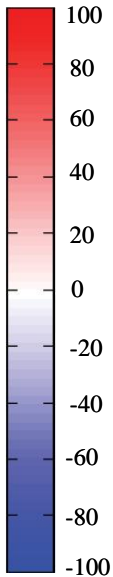


West Coast - 3 day estimated water flows along a transect off Aughrus Point

Forecast for next 3 days



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



northward
flow

southward
flow

Depth

