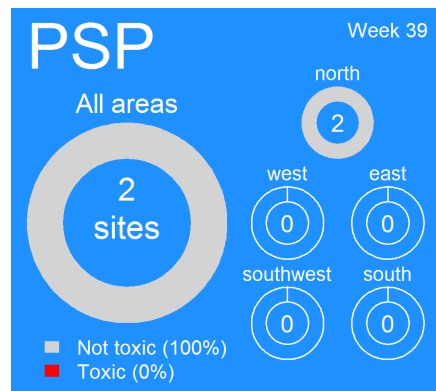
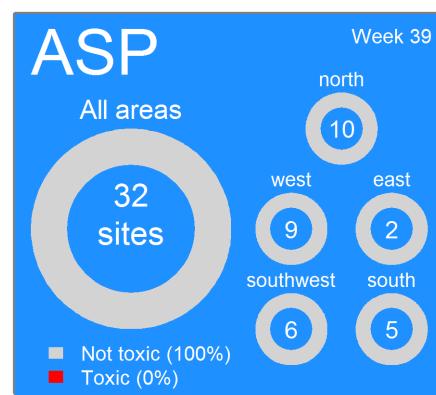
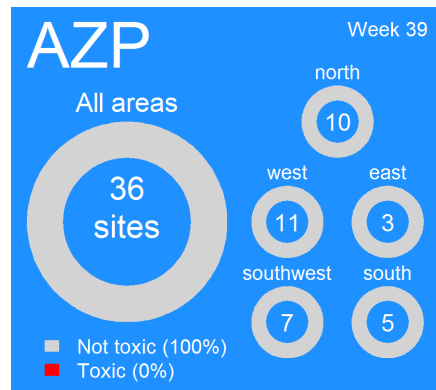
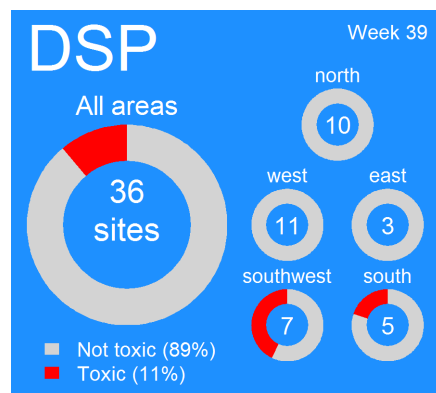


Ireland: Current Conditions

Shellfish biotoxin report (last week)



EU Regulatory Limit:

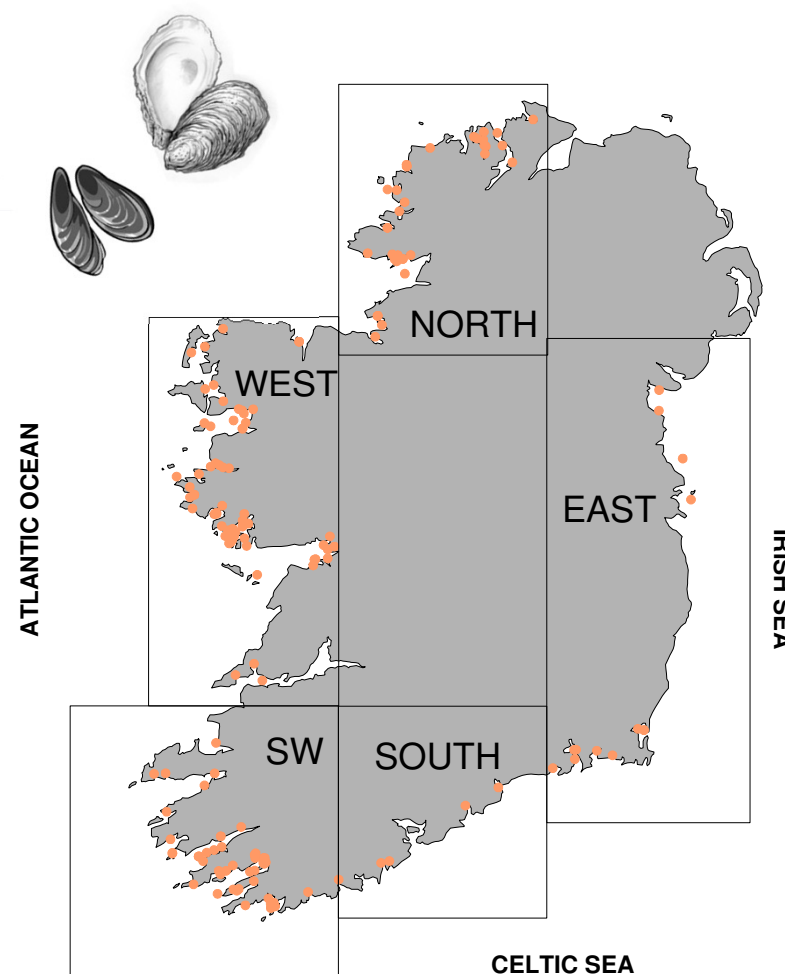
ASP 20 µg/g; AZP 0.16 µg/g; DSP 0.16 µg/g; PSP 800 µg/kg

Toxin groups

ASP = Amnesic Shellfish Poisoning; AZP = AZaspiracid Poisoning;

DSP = Diarrhetic Shellfish Poisoning; PSP = Paralytic Shellfish Poisoning

National Monitoring Programme Designated Sampling Sites



● = aquaculture site

Ireland: Predictions

Prediction for this week:

ASP event: Low risk

AZP event: Moderate to high

DSP event: High to moderate SW

PSP event: Low risk

Why do we think this?

ASP: Historically this is a low risk period. The current *Pseudo-nitzschia* blooms that are recorded around the coastline are not exhibiting any toxin profiles.

AZP: We are now mid-way through the expected AZP “toxic season”. *Azadinium* type species levels continue to fluctuating in all coastal areas. While the current toxin trend appears to be decreasing, we have, in the past, experienced sudden rapid increases. Caution is definitely needed at this time.

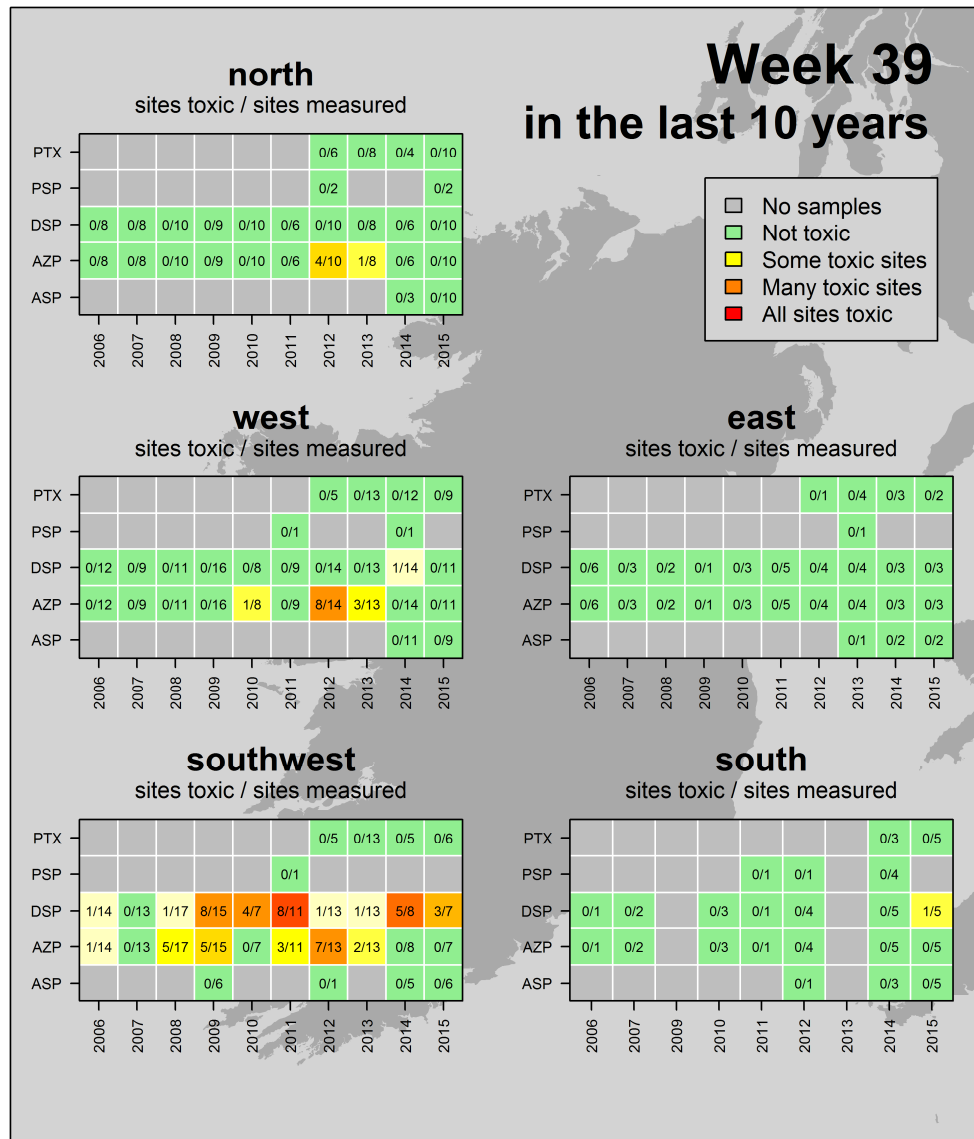
DSP: *Dinophysis* blooms appear to be in decline in many SW sites affected, but, there are still some sites where high cell levels remain. In order for toxic shellfish to depurate completely, *Dinophysis* cell levels need to decrease significantly. The shellfish also need a non-toxic phytoplankton food source to flush out the toxins.

PSP: Toxicity issues are not expected at this time in the year.

The *Karenia mikimotoi* bloom that the SW has been experiencing has gone.

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



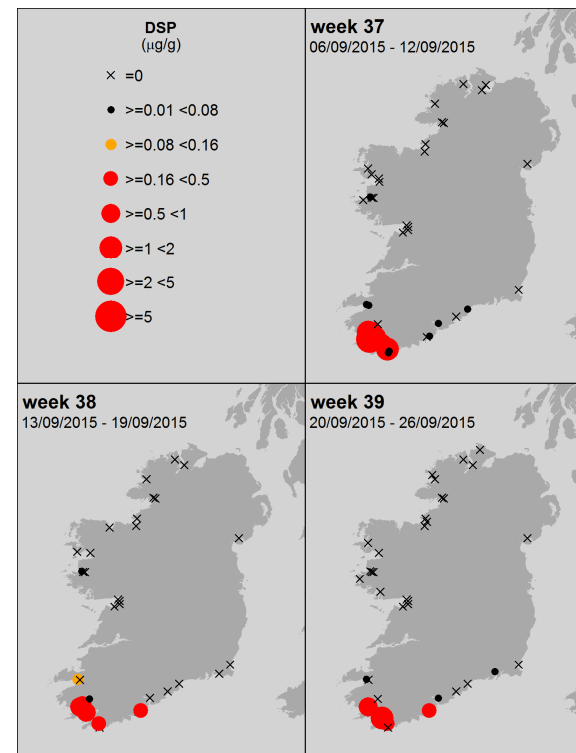
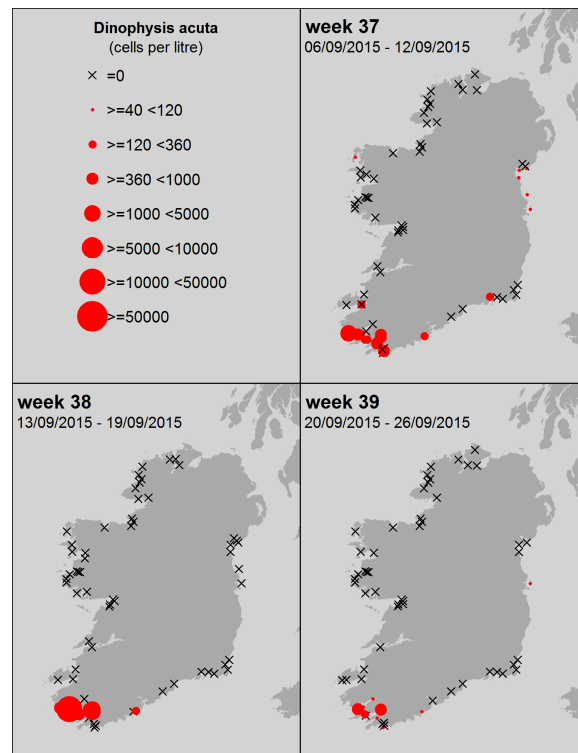
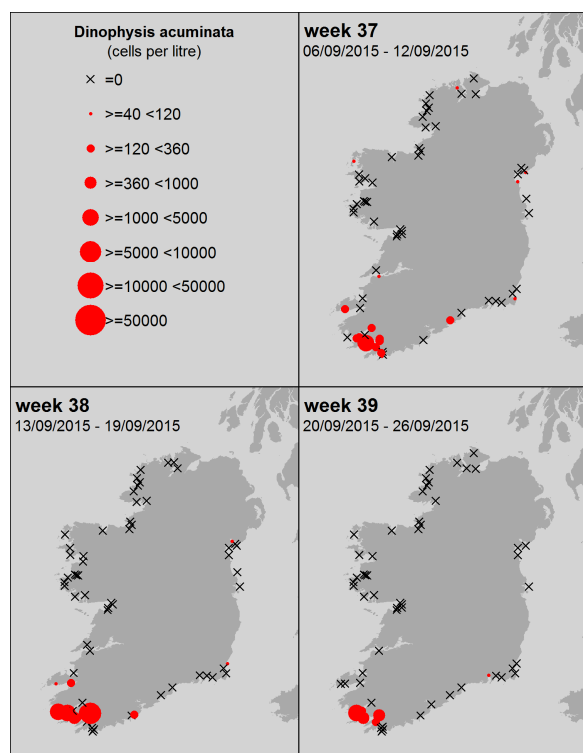
Dinophysis acuminata



Dinophysis acuta



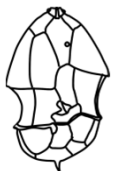
DSP



Ireland HAB & Biotoxin Distribution maps

[current status of harmful and toxic algae]

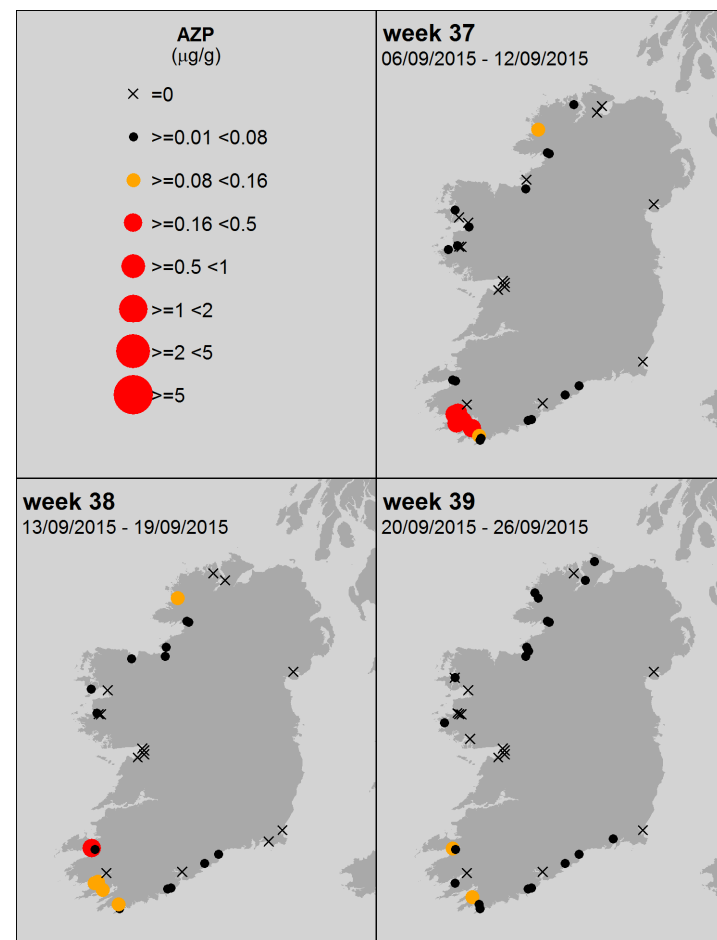
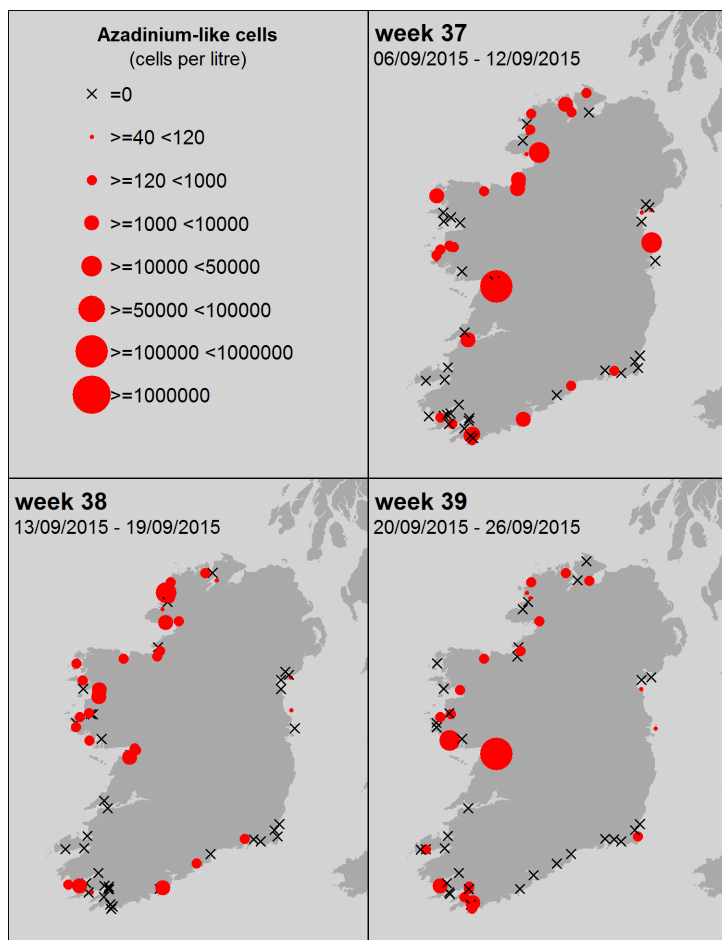
Ireland: Last 3 weeks of available National Monitoring Programme data



Azadinium – like spp.



AZP



Ireland HAB & Biotoxin Distribution maps

[current status of harmful and toxic algae]

Ireland: Last 3 weeks of available National Monitoring Programme data

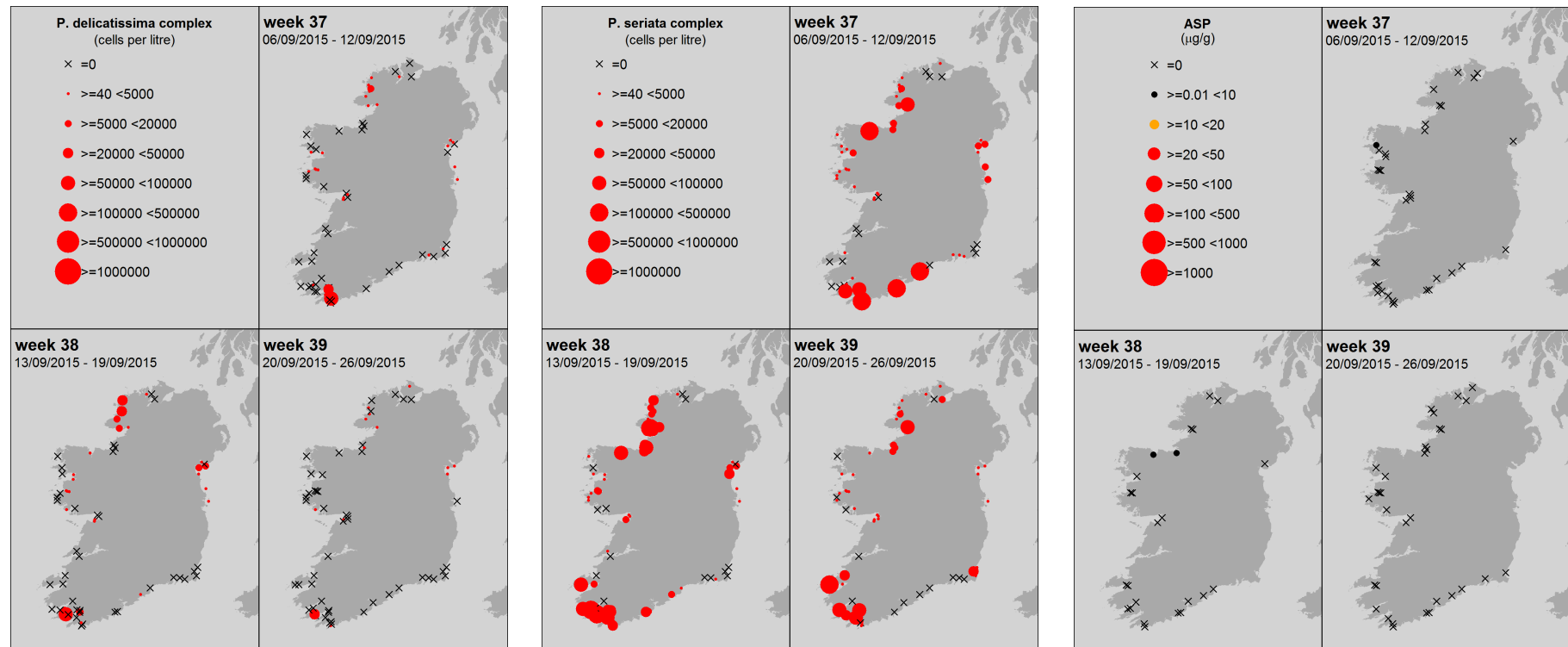
Pseudo-nitzschia spp.



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

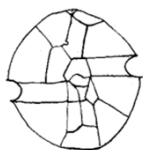


Taken from the literature: Of the 4 species (*P. fraudulenta*, *P. australis*, *P. pungens* and *P. delicatissima*) from Irish waters, tested for ASP toxins in culture work, only one, *P. australis* (from the “*P. seriata*” group) was toxic.

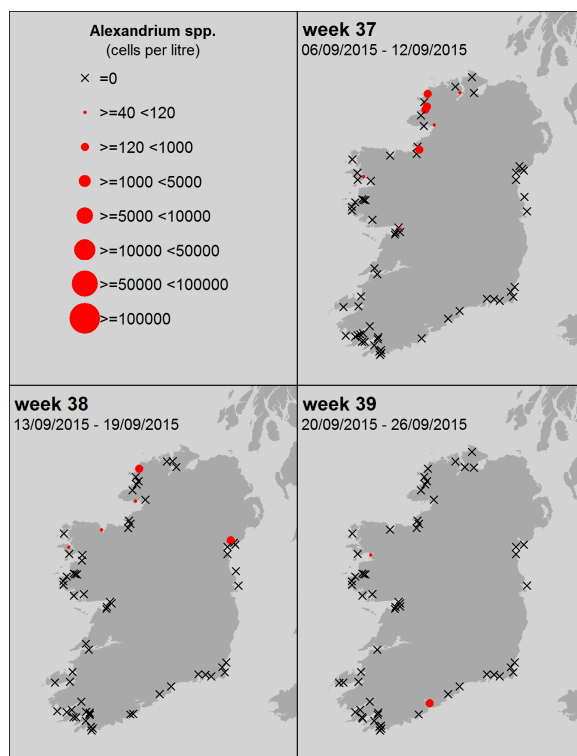
Ireland HAB & Biotoxin Distribution maps

[current status of harmful and toxic algae]

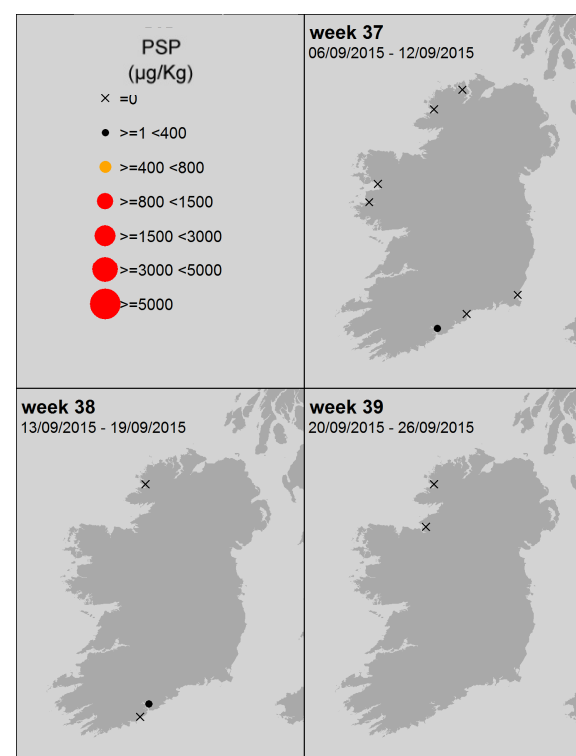
Ireland: Last 3 weeks of available National Monitoring Programme data



Alexandrium spp.



PSP



Ireland HAB & Biotoxin temporal trends

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

Ireland: Biotoxins



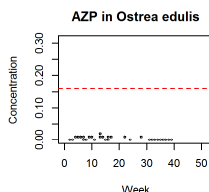
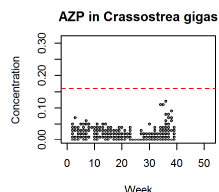
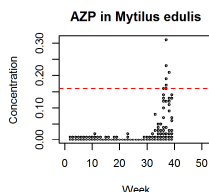
Toxin groups

mussels

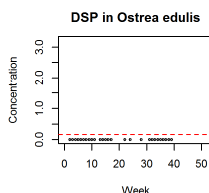
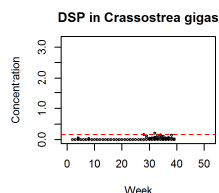
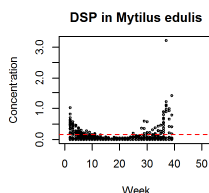
oysters

oysters

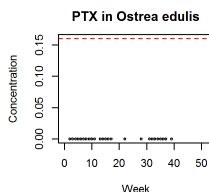
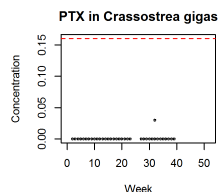
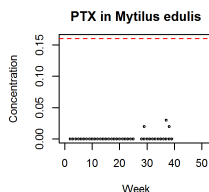
AZP
AZaspiracid
Poisoning



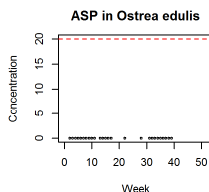
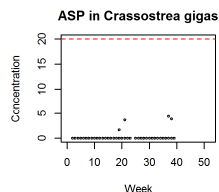
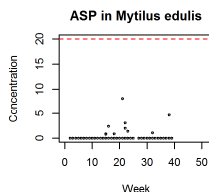
DSP
Diarrhetic
Shellfish
Poisoning



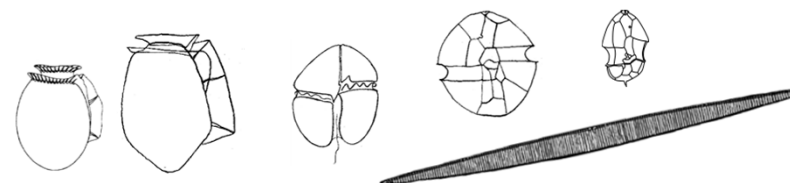
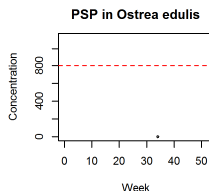
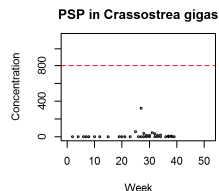
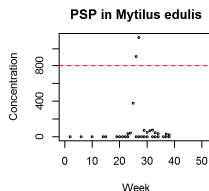
PTX
Pectenotoxin



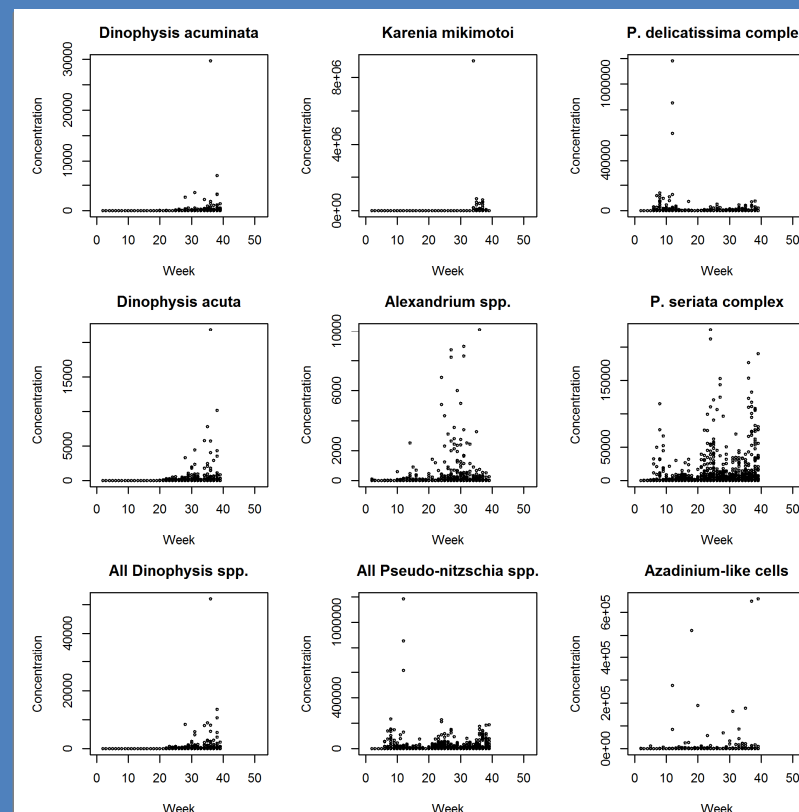
ASP
Amnesic
Shellfish
Poisoning



PSP
Paralytic
Shellfish
Poisoning



Ireland: HABs

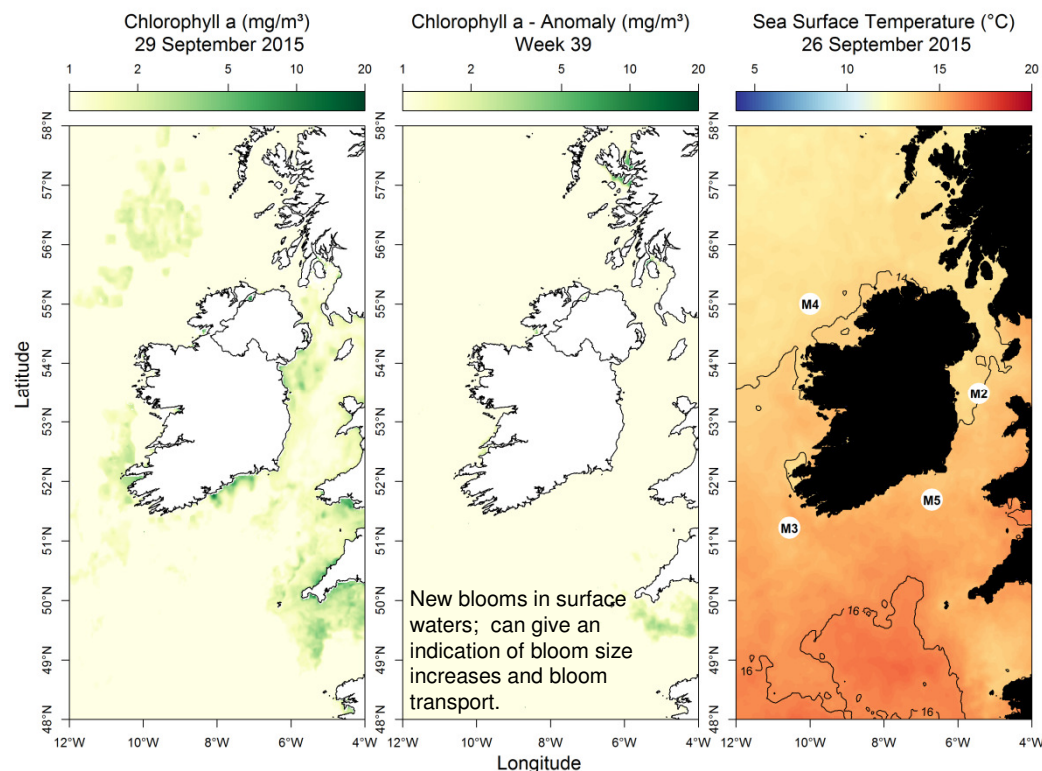


EU Regulatory Limit: ASP 20 µg/g; AZP 0.16 µg/g; DSP 0.16 µg/g; PSP 800 µg/kg

Regulatory limit = ■■■■■

Ireland Satellite data: surface chlorophyll and temperature maps

Most up to date available satellite data



SST (°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 0.68 by °C
SW coast (M3) Offline
SE coast (M5) below average 0.38 by °C

What phytoplankton were blooming at inshore coastal sites last week?

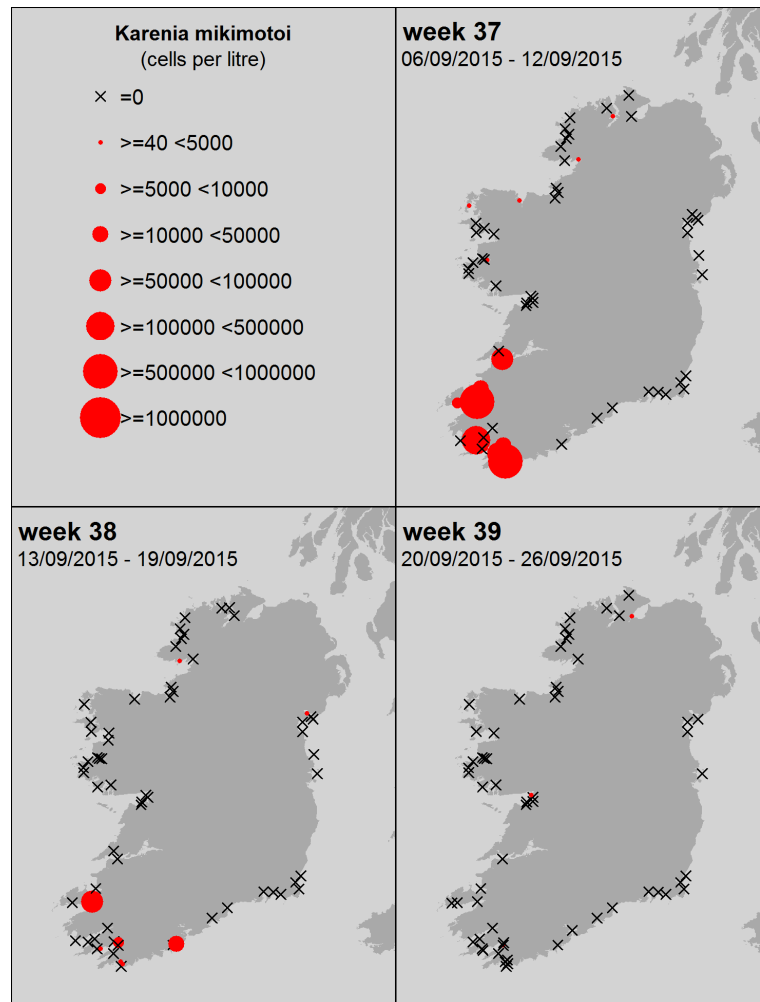
Region	Predominant Phytoplankton (most abundant taxa)	Cells/L	Cells/L (rounded)
north:	Diatoms:		
	<i>Leptocyldrus minimus</i>	8,163,153	8,163,000
	' <i>Pseudo-nitzschia seriata</i> ' complex	56,232	56,000
	<i>Chaetoceros</i> (Hyalochaete) spp.	53,820	54,000
	<i>Cylindrotheca closterium</i> / <i>Nitzschia longissima</i>	44,850	45,000
west:	Diatoms:		
	<i>Lauderia</i> / <i>Detonula</i> spp.	30,120	30,000
	<i>Chaetoceros</i> (Hyalochaete) spp.	13,600	14,000
	<i>Paralia</i> sp.	10,800	11,000
	Dinoflagellates:		
	<i>Azadinium</i> / <i>heterocapsa</i> spp.	659,655	660,000
	Others:		
	<i>Euglena</i> / <i>Eutreptiella</i> spp.	32,637	33,000
SW:	Diatoms:		
	<i>Detonula confervacea</i>	252,081	252,000
	' <i>Pseudo-nitzschia seriata</i> ' complex	190,007	190,000
	<i>Skeletonema</i> spp.	51,040	51,000
south:	Diatoms:		
	<i>Lauderia annulata</i>	23,680	24,000
	<i>Lauderia</i> / <i>Detonula</i> spp.	10,920	11,000
	<i>Guinardia delicatula</i>	8,720	9,000
	<i>Nitzschia</i> spp. (small)	8,440	8,000
	Pennate diatom 20-50um	8,200	8,000
east:	Diatoms:		
	<i>Chaetoceros</i> (Hyalochaete) spp.	95,382	95,000
	<i>Cerataulina pelagica</i>	76,457	76,000
	<i>Chaetoceros curvisetus/debilis</i>	67,280	67,000
	<i>Thalassiosira nordenskiöldii</i>	59,360	59,000
	<i>Cylindrotheca closterium</i> / <i>Nitzschia longissima</i>	59,280	59,000
	<i>Thalassiosira</i> <20um	43,520	44,000
	' <i>Pseudo-nitzschia seriata</i> ' complex	21,240	21,000

Ireland Fish killing phytoplankton Distribution maps

[current status of harmful and toxic algae]



Karenia mikimotoi
(old name: *Gyrodinium aureolum*)

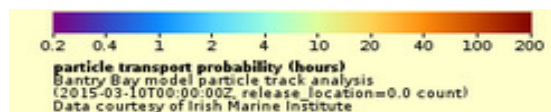


SOUTHWEST: Bantry Bay

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



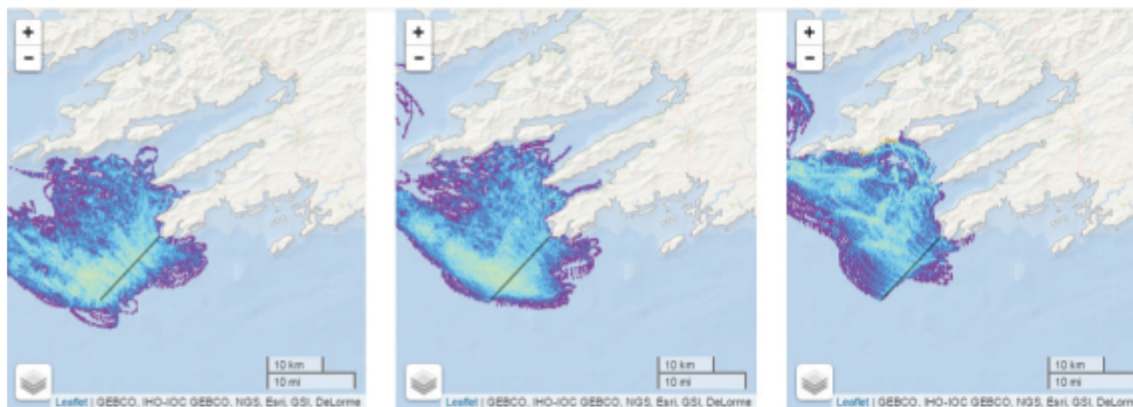
Go to <http://vis.marine.ie/particles/> to view daily forecasts

Forecast for the next 3 days

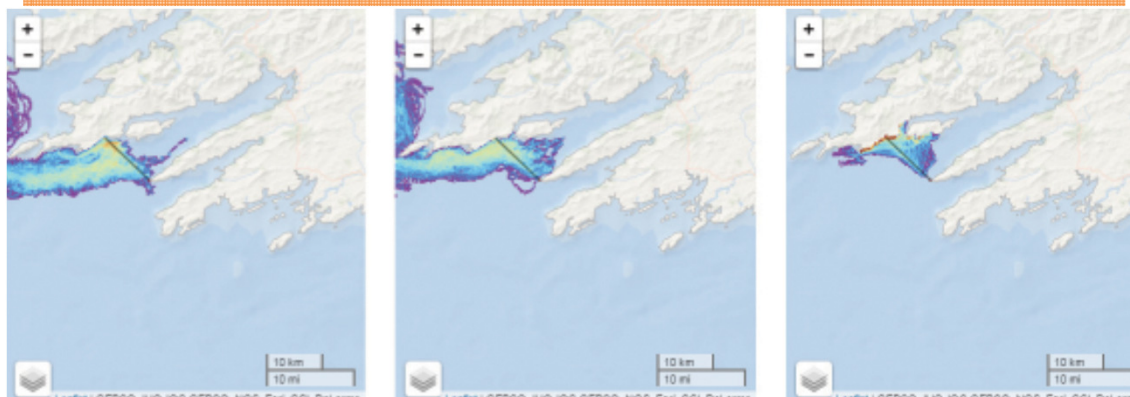
Bottom water

Water @ 20 metres

Surface water



Estimated water circulation patterns at Mizen head show that Celtic sea water can reach SW bays in the coming days.



Waters at depth are expected to exit Bantry Bay while surface waters will be retained at the mouth of the Bay.

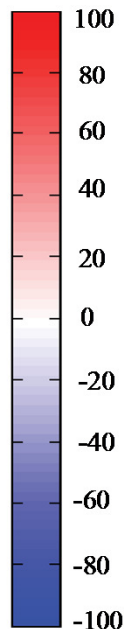
Bantry Bay

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



Forecast for next 3 days

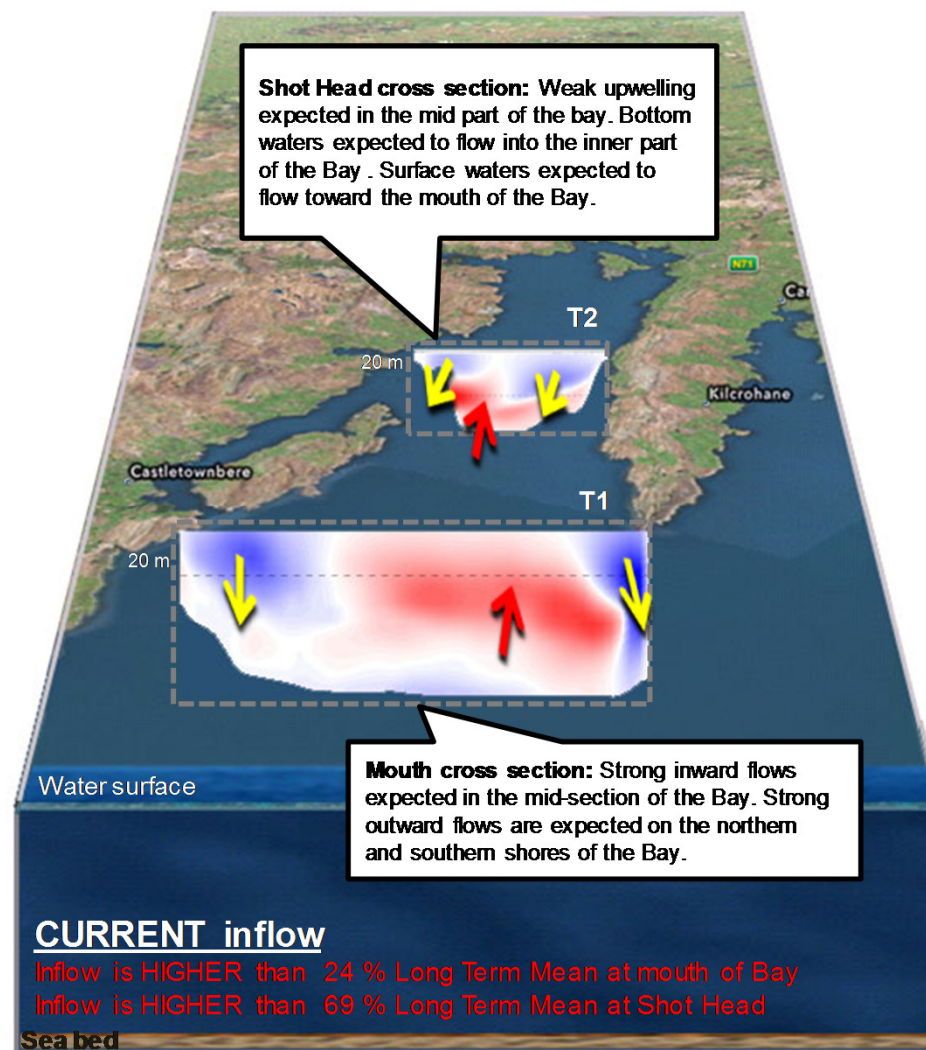
Flow ($\text{m}^3 \text{s}^{-1}$)



IN

OUT

Depth ↓



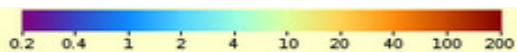
Ireland modelled data: Estimated Water Pathway

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



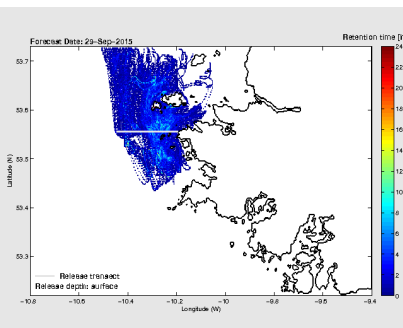
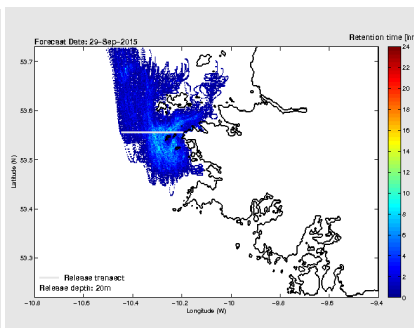
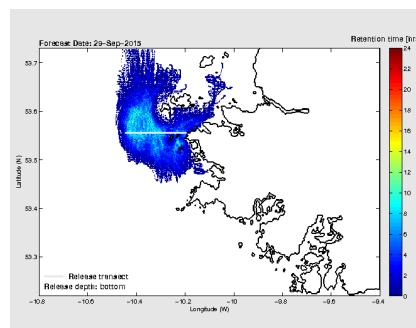
particle transport probability (hours)
Bantry Bay model particle track analysis
(2015-03-10T00:00:00Z, release_location=0.0 count)
Data courtesy of Irish Marine Institute

Forecast for the next 3 days

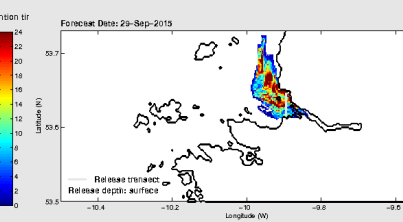
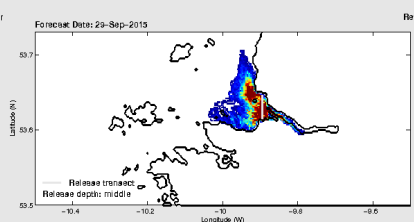
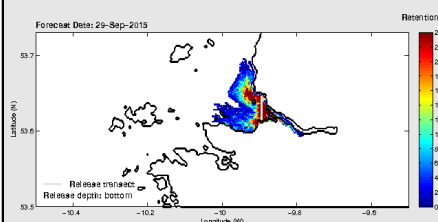
Bottom water

Water @ 20 metres

Surface water



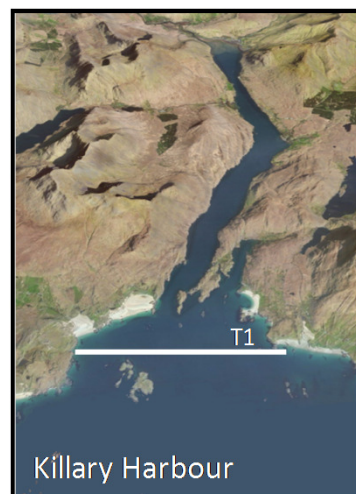
Water flows off the west coast will primarily be directed northward.



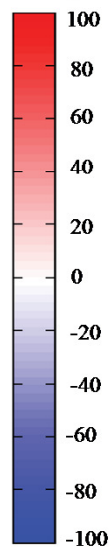
Estimated water circulation at the mouth of Killary shows that bottom and mid-depth waters will enter the Bay travel as far as Killary middle. Surface water are expected to flow in a westward direction out of the Bay.

Killary Harbour

3 day estimated water flows at the mouth of Killary Harbour



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



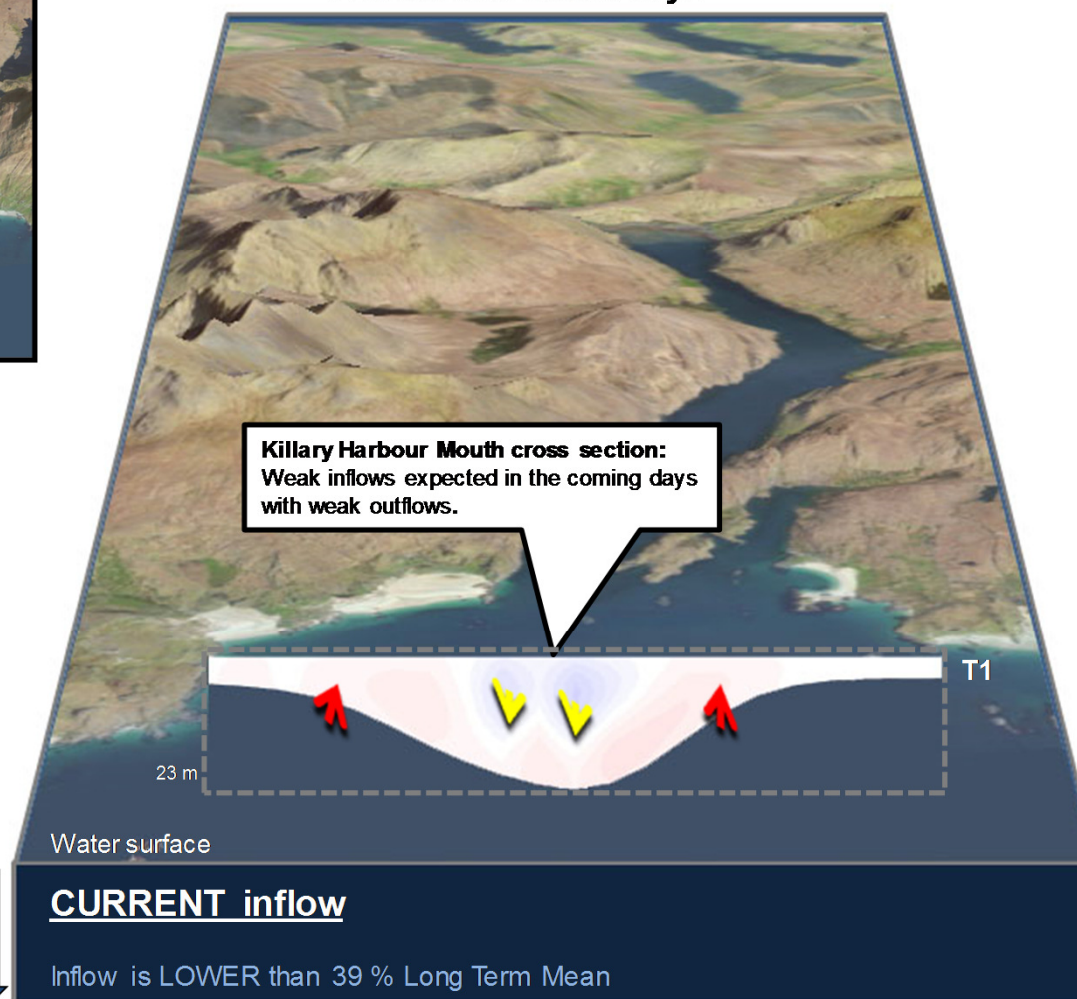
IN

OUT

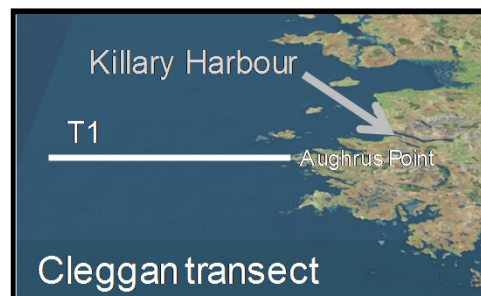
Depth



Forecast for next 3 days

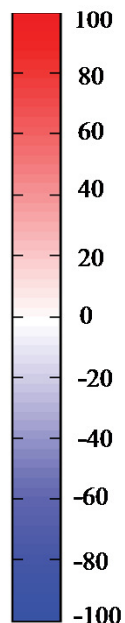


West Coast - 3 day estimated water flows along a transect off Aughrus Point



Forecast for next 3 days

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



**northward
flow**

**southward
flow**

Depth

