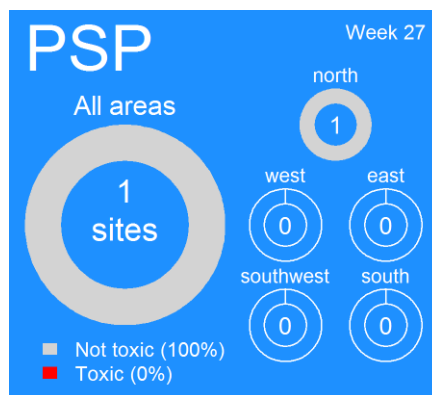
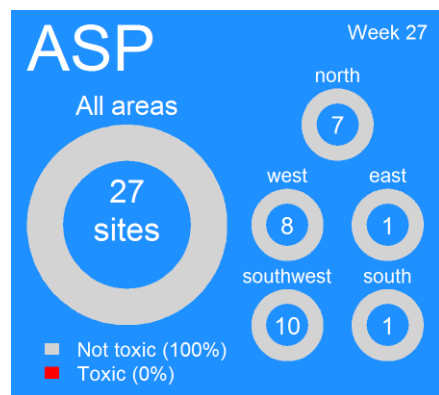
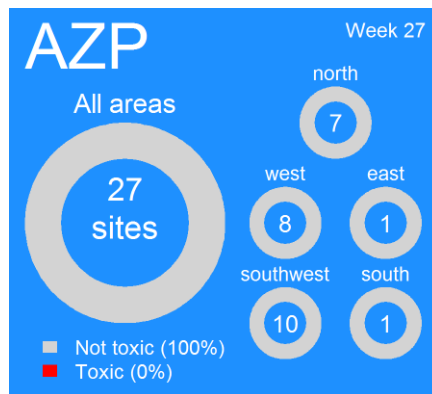
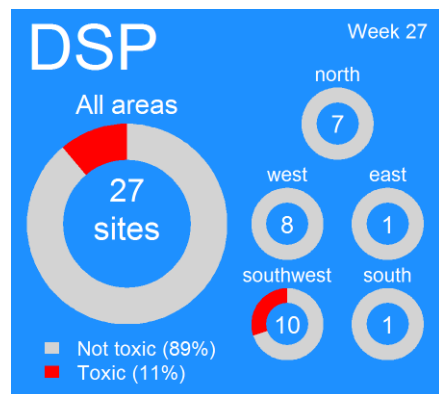


Ireland: Current Conditions

Shellfish biotoxin report (last week)



EU Regulatory Limit:

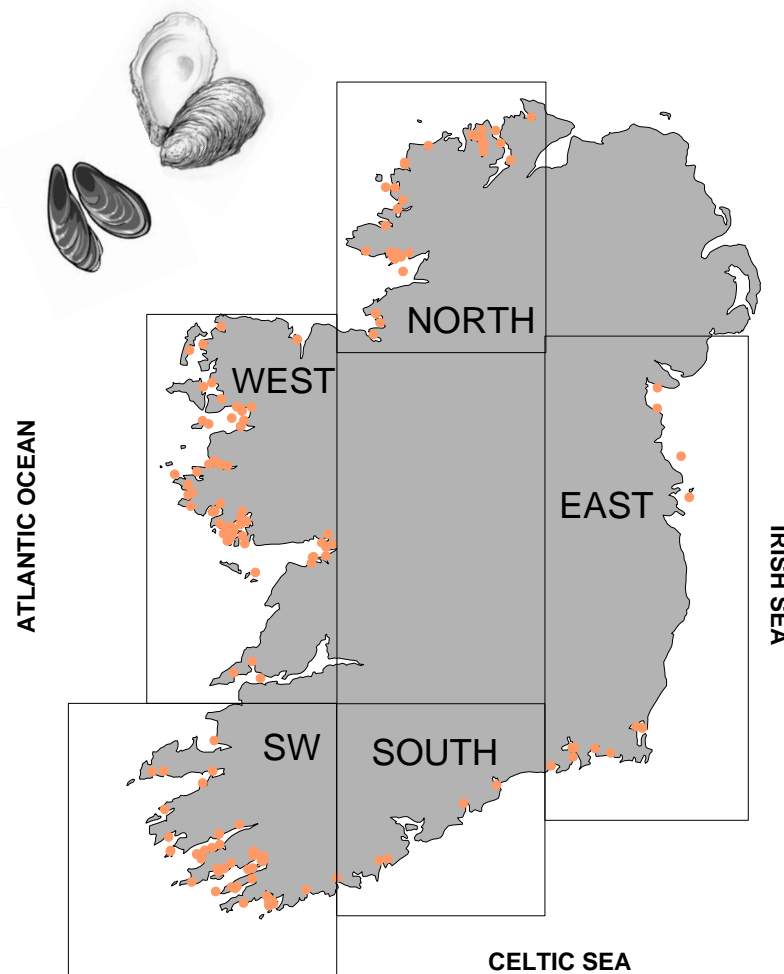
ASP 20 µg/g; AZP 0.16 µg/g; DSP 0.16 µg/g; PSP 800 µg/kg

Toxin groups

ASP = **A**mnestic **S**hellfish **P**oisoning; AZP = **AZ**spiracid **P**oisoning;

DSP = **D**iarrhetic **S**hellfish **P**oisoning; PSP = **P**aralytic **S**hellfish **P**oisoning

National Monitoring Programme Designated Sampling Sites



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 .

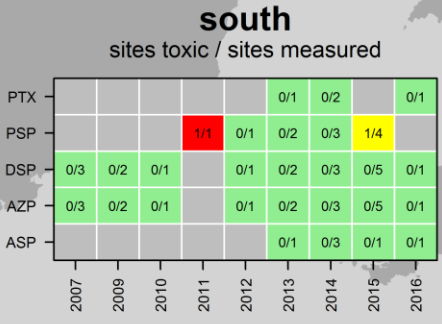
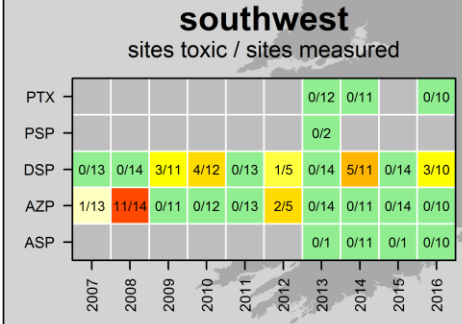
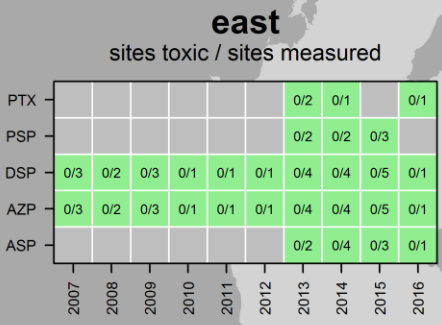
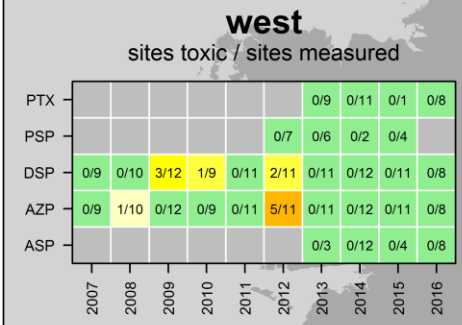
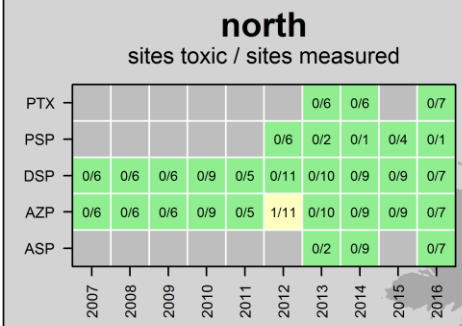
DSP: This is historically the main risk period . The presence, magnitude and spread ,of these species is increasing in general and has already ‘jumped’ in SW sites. Western sites are currently exhibiting a potential trend for slowly increasing biotoxin levels corresponding with increased cell levels. *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

Week 27 in the last 10 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



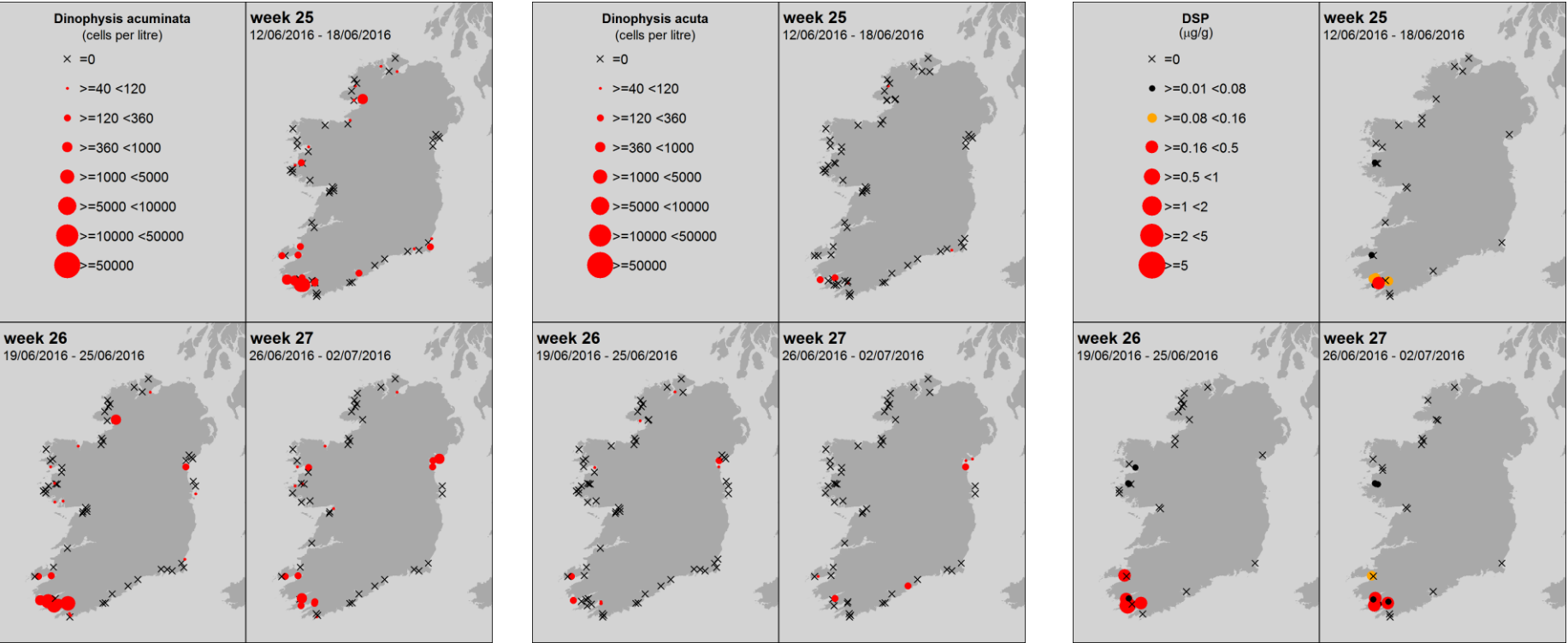
Dinophysis acuminata



Dinophysis acuta



DSP



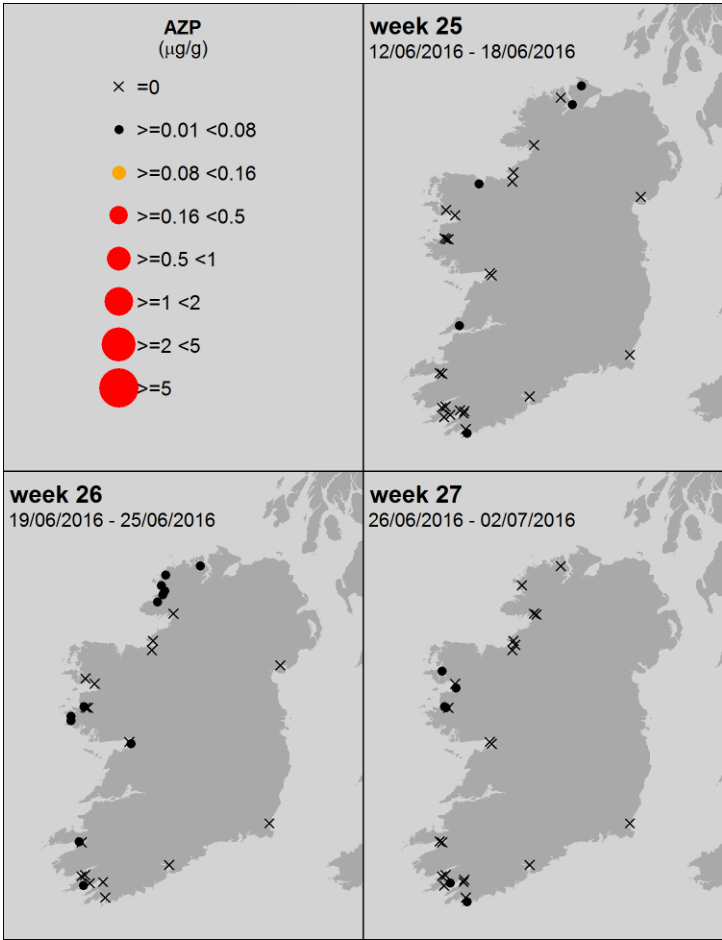
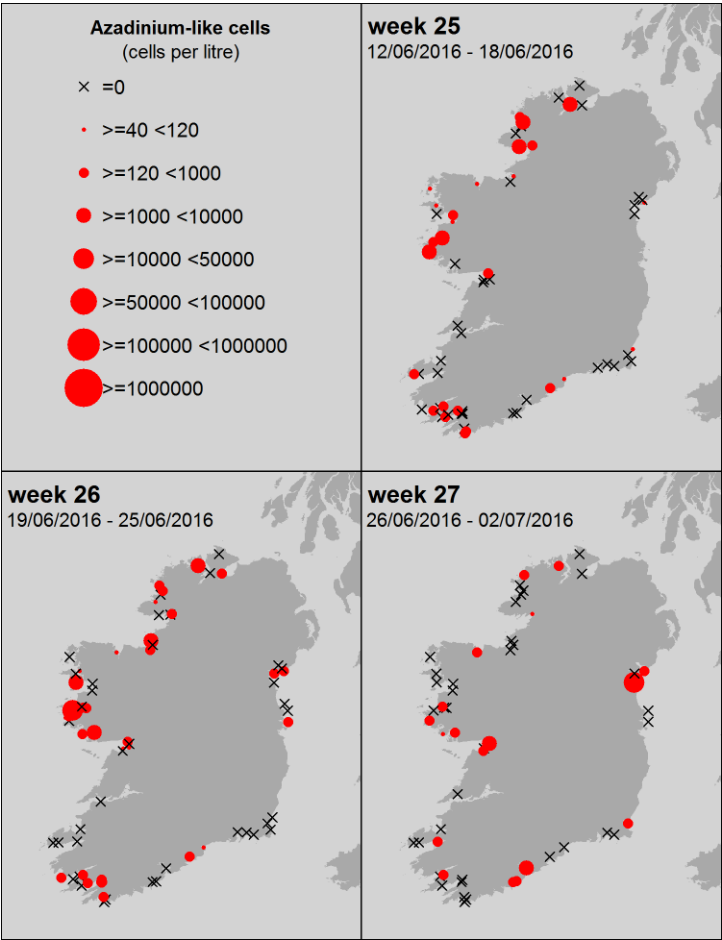
Ireland: Last 3 weeks of available National Monitoring Programme data



Azadinium – like spp.



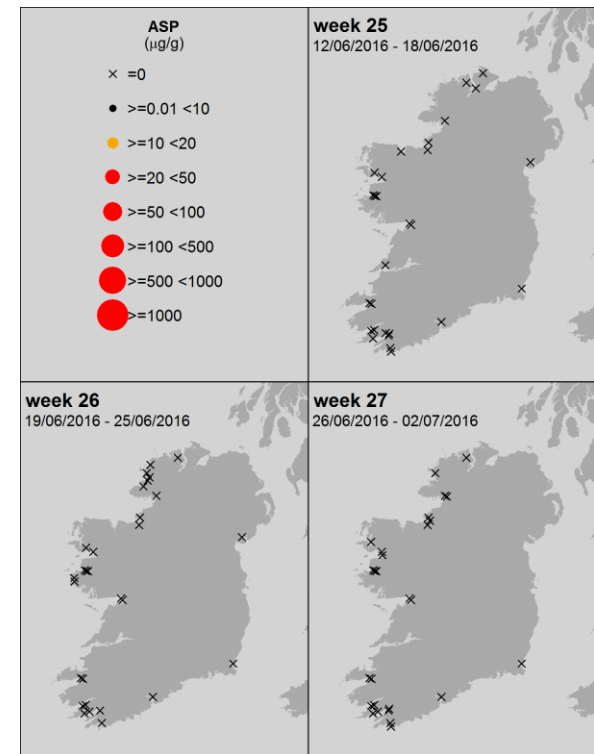
AZP



Pseudo-nitzschia spp.



7 species confirmed in Irish waters

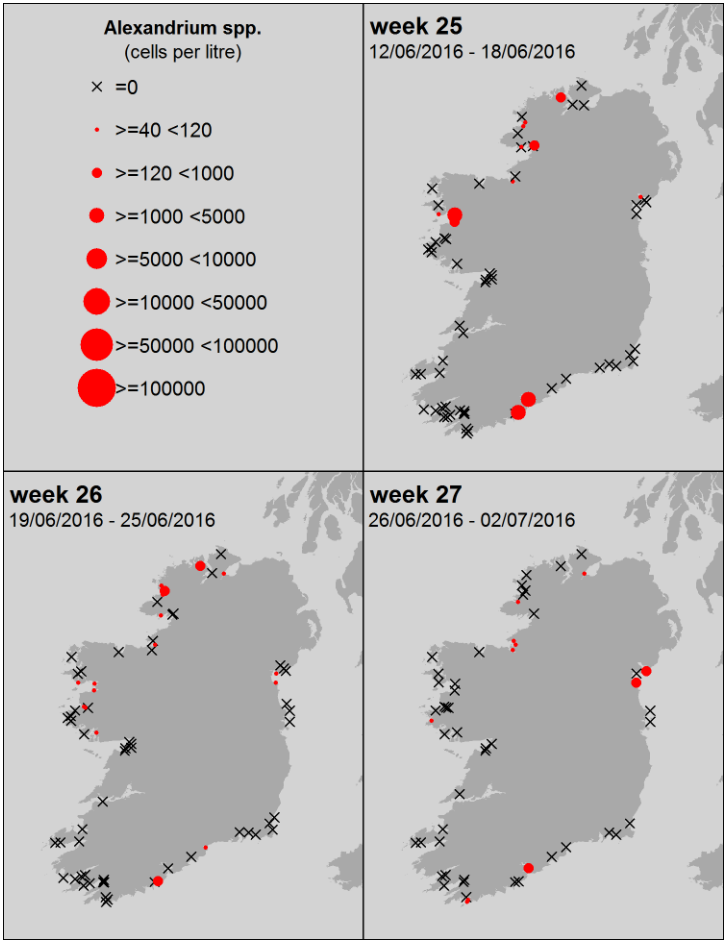


Taken from the literature: Of the 4 species (*P. fraudulenta*, *P. australis*, *P. pungens* and *P. delicatissima*) from Irish waters, tested for ASP toxins in culture work, only one, *P. australis* (from the “*P. seriata*” group) was toxic.

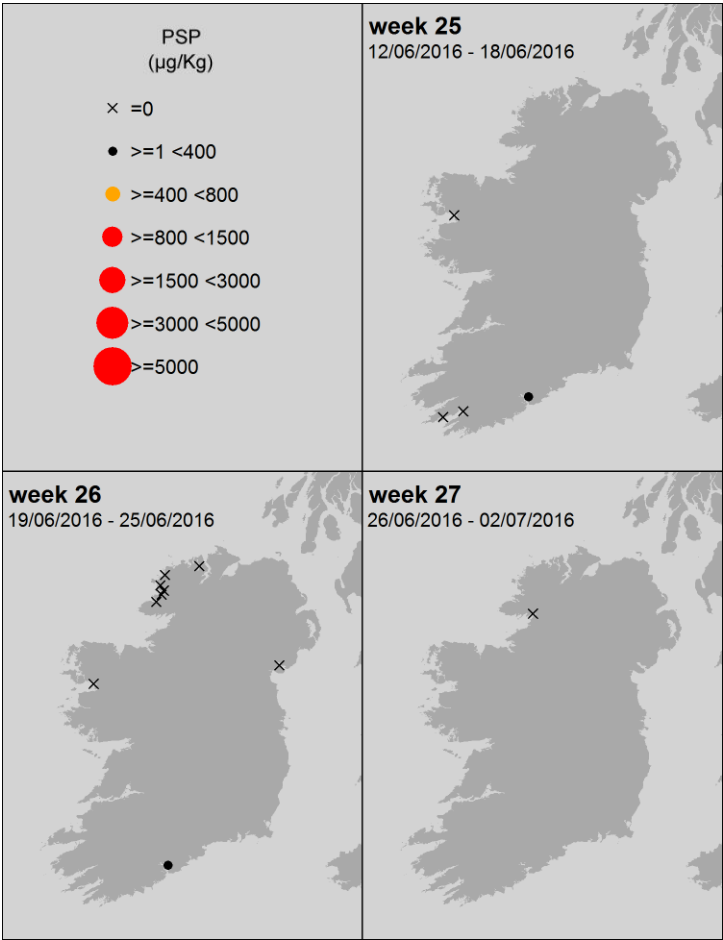
Ireland: Last 3 weeks of available National Monitoring Programme data



Alexandrium spp.

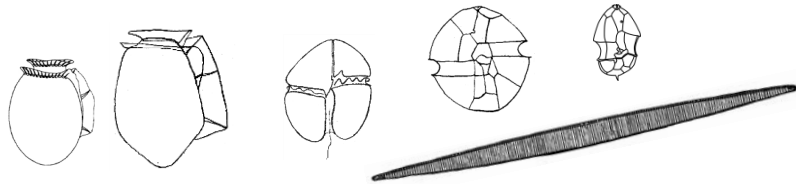


PSP



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

Ireland: **Biotoxins**



Toxin groups

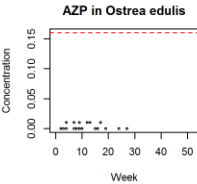
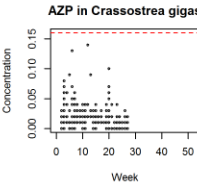
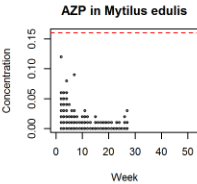
mussels

oysters

oysters

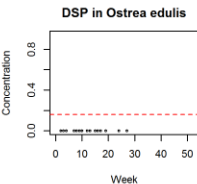
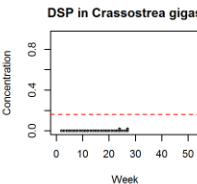
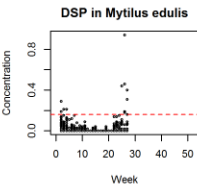
AZP

AZaspiracid
Poisoning



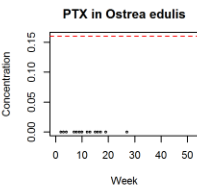
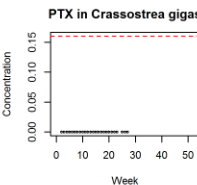
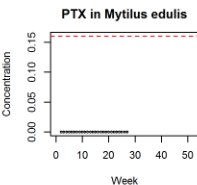
DSP

Diarrhetic
Shellfish
Poisoning



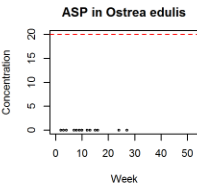
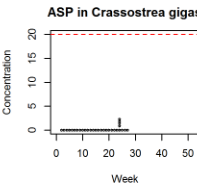
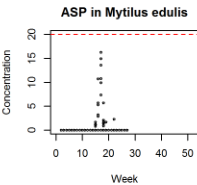
PTX

Pectenotoxin



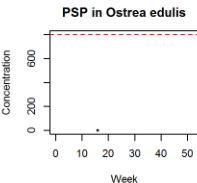
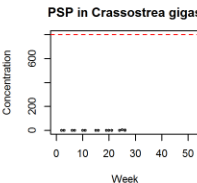
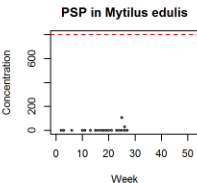
ASP

Amnesic
Shellfish
Poisoning



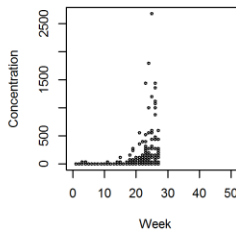
PSP

Paralytic
Shellfish
Poisoning

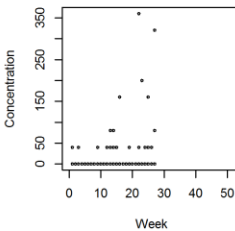


Ireland: **HABs**

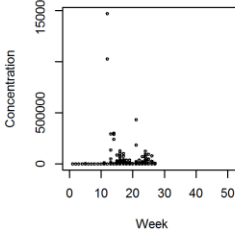
Dinophysis acuminata



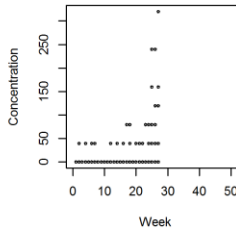
Karenia mikimotoi



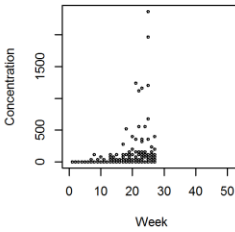
P. delicatissima complex



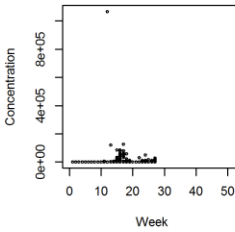
Dinophysis acuta



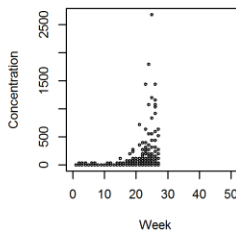
Alexandrium spp.



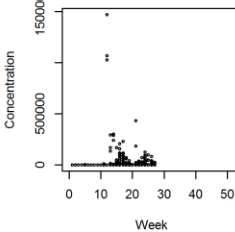
P. seriata complex



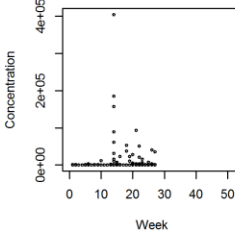
All Dinophysis spp.



All Pseudo-nitzschia spp.



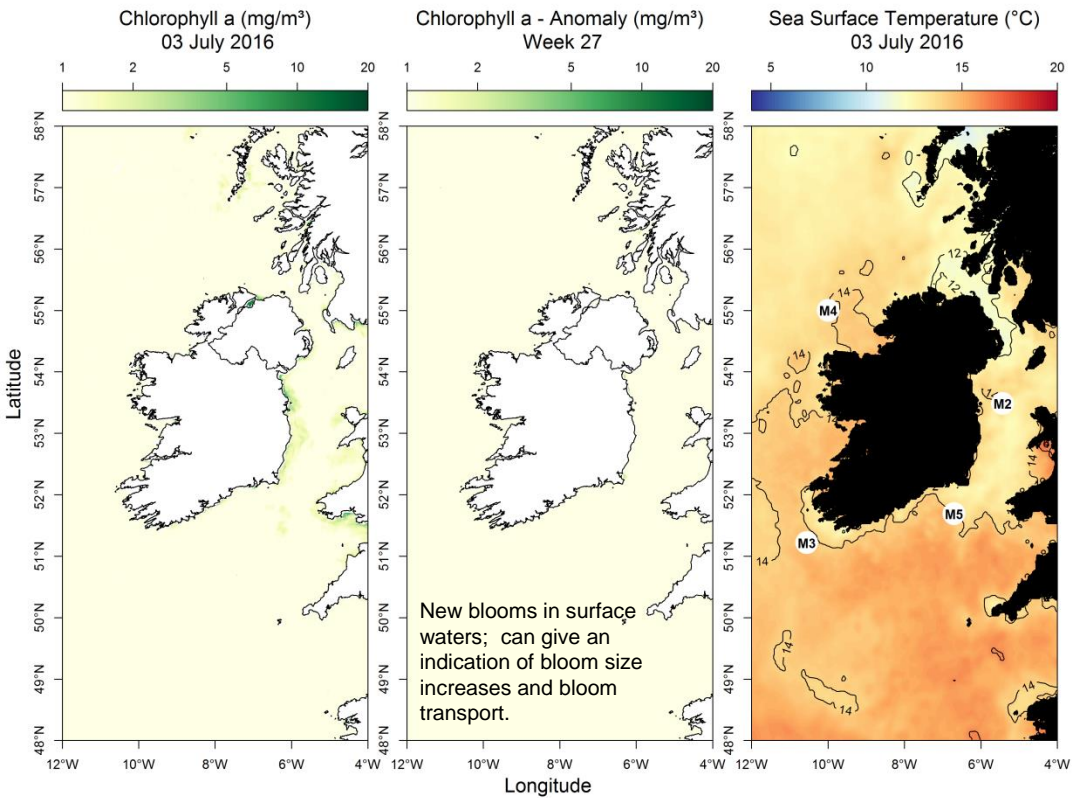
Azadinium-like cells



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

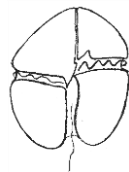


SST (°C) anomaly for last week:
Data taken from the Irish data buoy network where the anomaly is the weekly difference in SST compared to the long term mean (~ 10 yrs)

- NW coast (M4) Offline
- SW coast (M3) Below average by 0.35°C
- SE coast (M5) Below average by 0.65°C

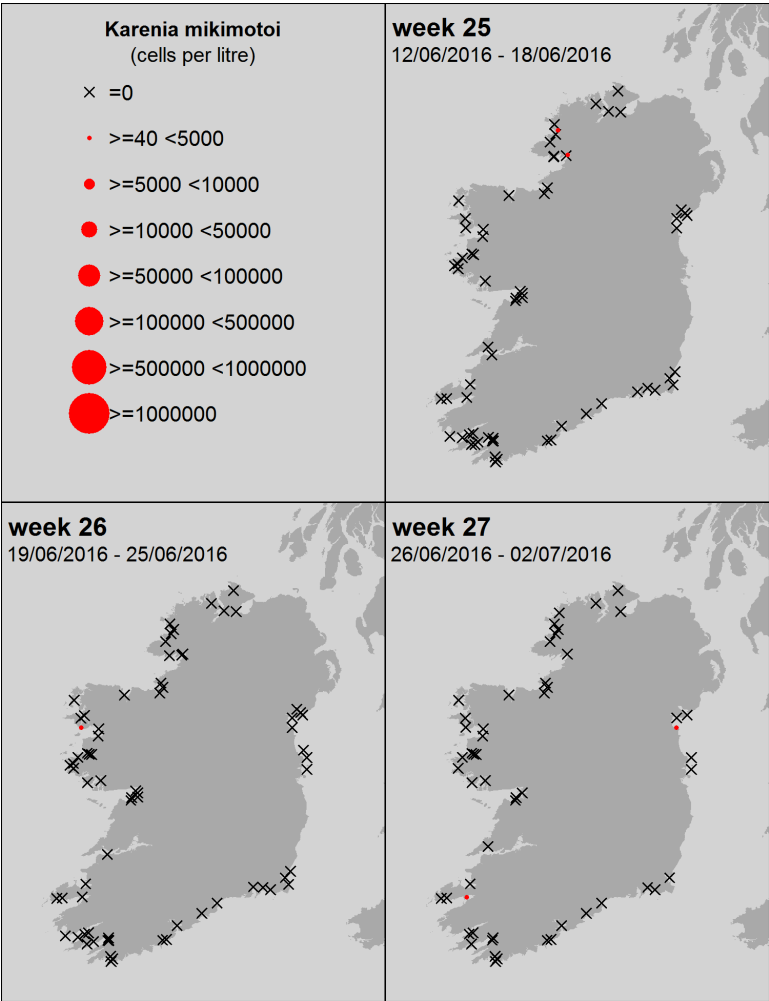
What phytoplankton were blooming at inshore coastal sites last week?

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

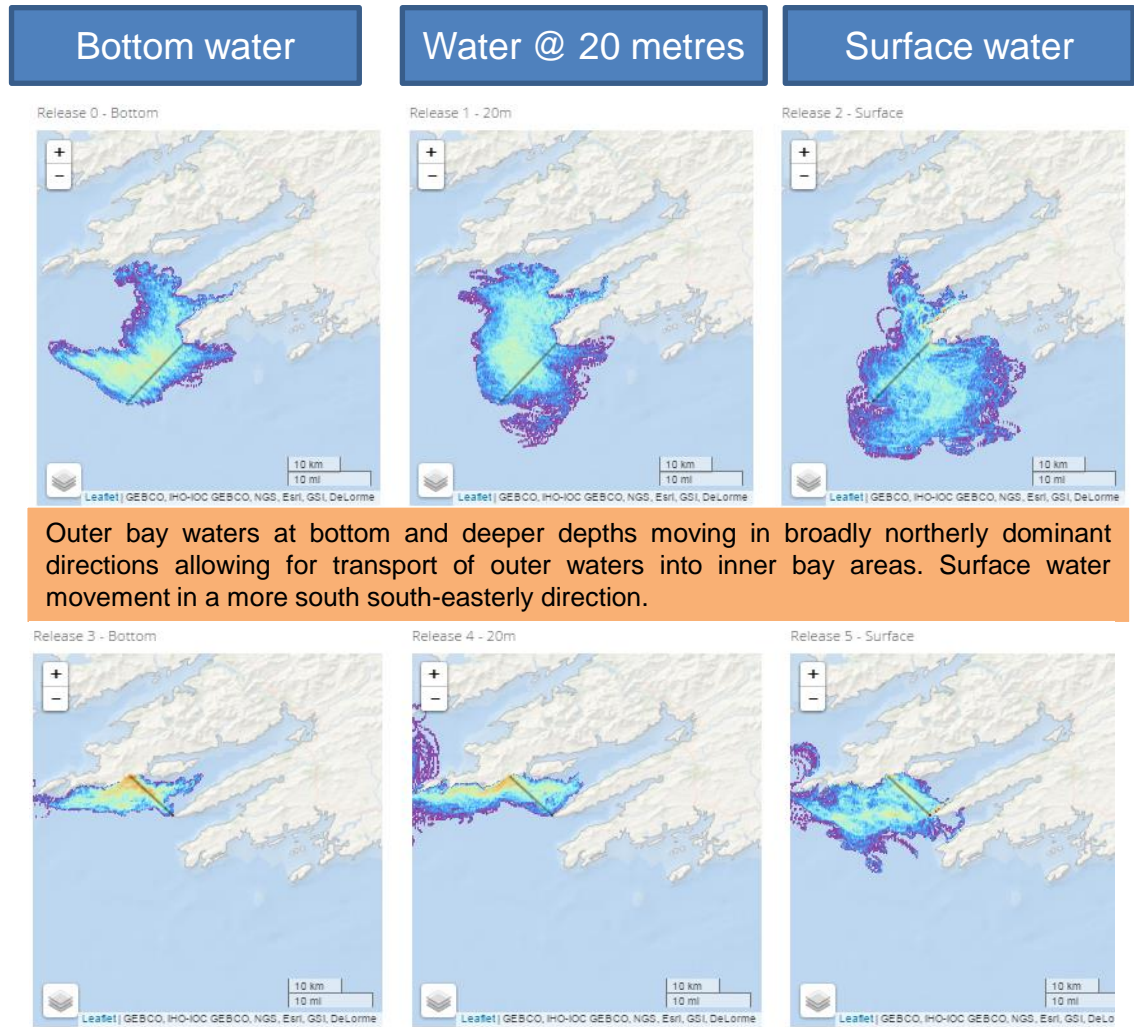
The maps show the **most likely transport pathways for the next 3 days of phytoplankton** found along the **presented transects** (black lines off Mizen Head and the Mouth of Bantry Bay) and **water depths** (bottom, 20 metres and surface)

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

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

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

Forecast for the next 3 days



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.

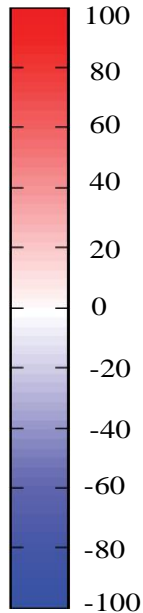
Bantry Bay

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

Forecast for next 3 days



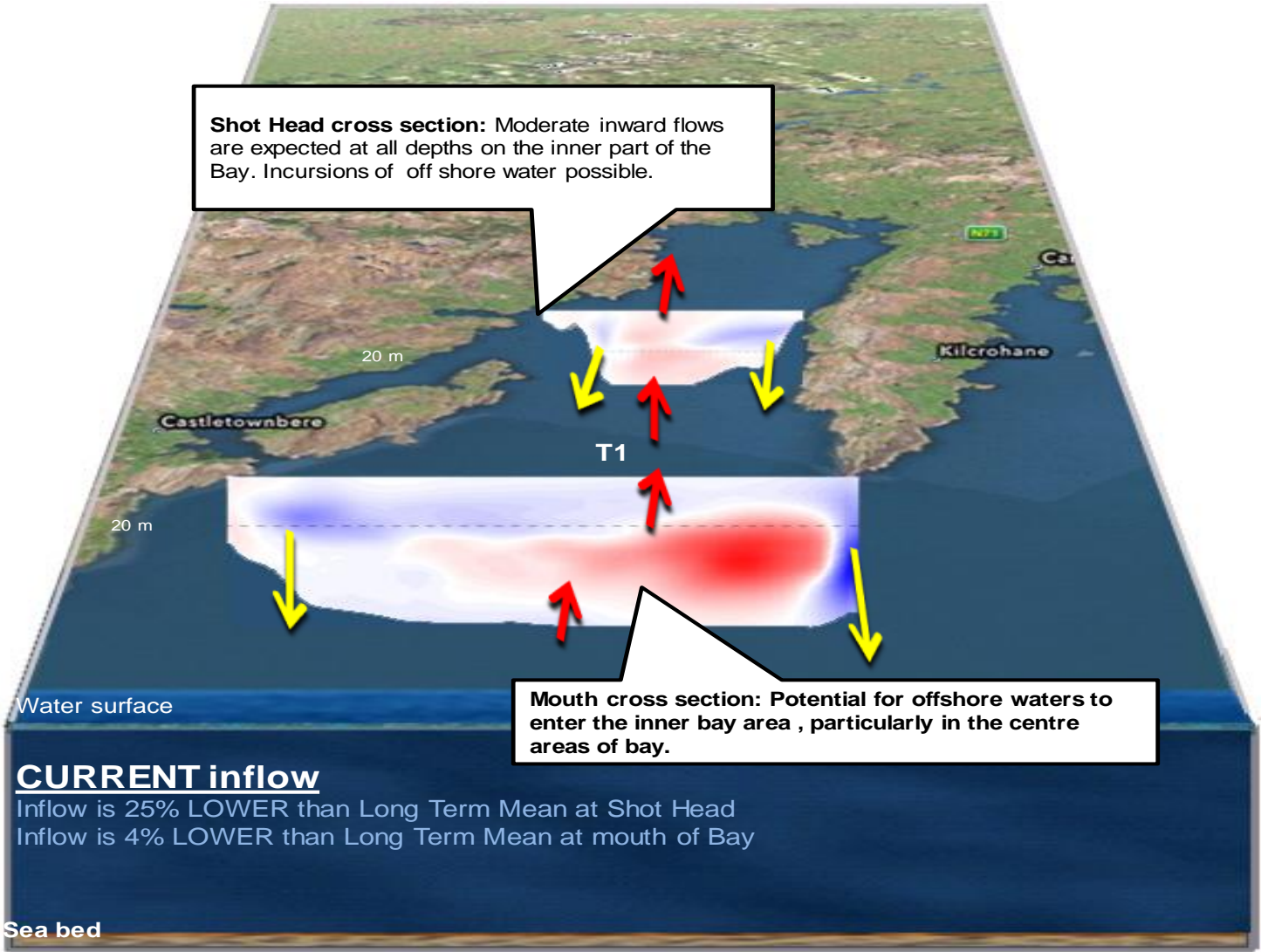
Flow ($\text{m}^3 \text{s}^{-1}$)



IN

OUT


Depth



WEST: Killary Harbour

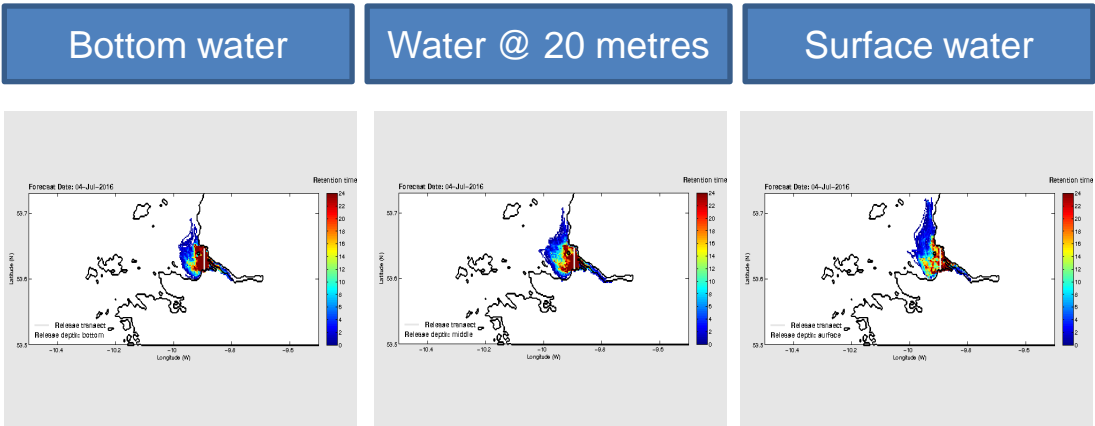
The maps show the **most likely transport pathways for the next 3 days of phytoplankton** found along the **presented transects** i.e. white lines off Aughrus Point and the Mouth of Killary Harbour, and **water depths** (bottom, 20 metres and surface)

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

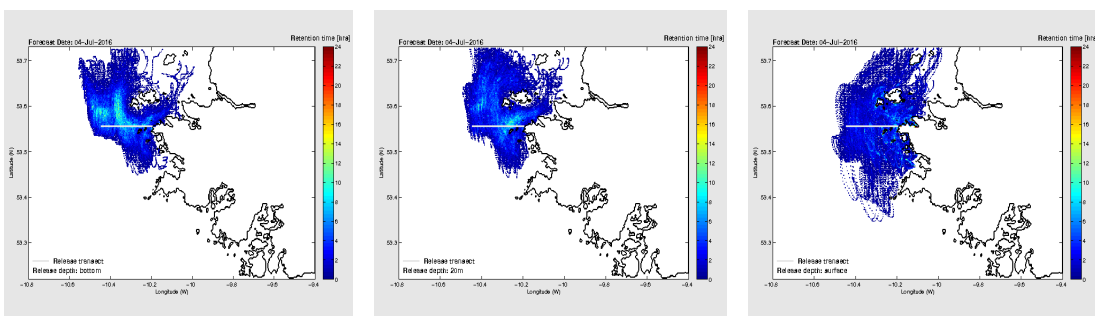


0.2 0.4 1 2 4 10 20 40 100 200
particle transport probability (hours)
Bantry Bay model particle track analysis
(2015-03-10T00:00:00Z, release_location=0.0 count)
Data courtesy of Irish Marine Institute

Forecast for the next 3 days



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

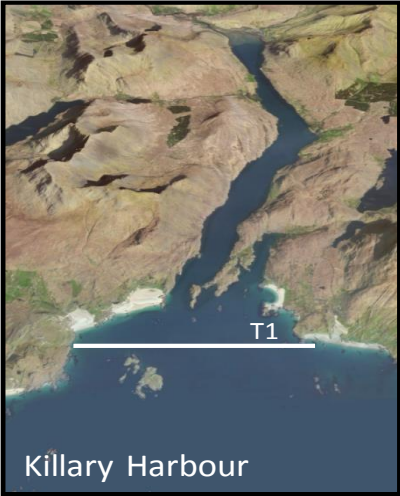


Bottom and deeper water movement predominantly, but not solely, in a northerly direction .Surface water movement mixed. Potential for well mixed outer bay water to enter inner bay areas.

Killary Harbour

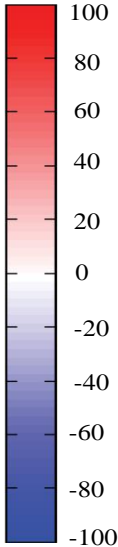
3 day estimated water flows at the mouth of Killary Harbour

Forecast for next 3 days



Killary Harbour Mouth cross section:
Outside waters transported into inner bay area in near equal volumes to outflow, with flows increasing in strength.

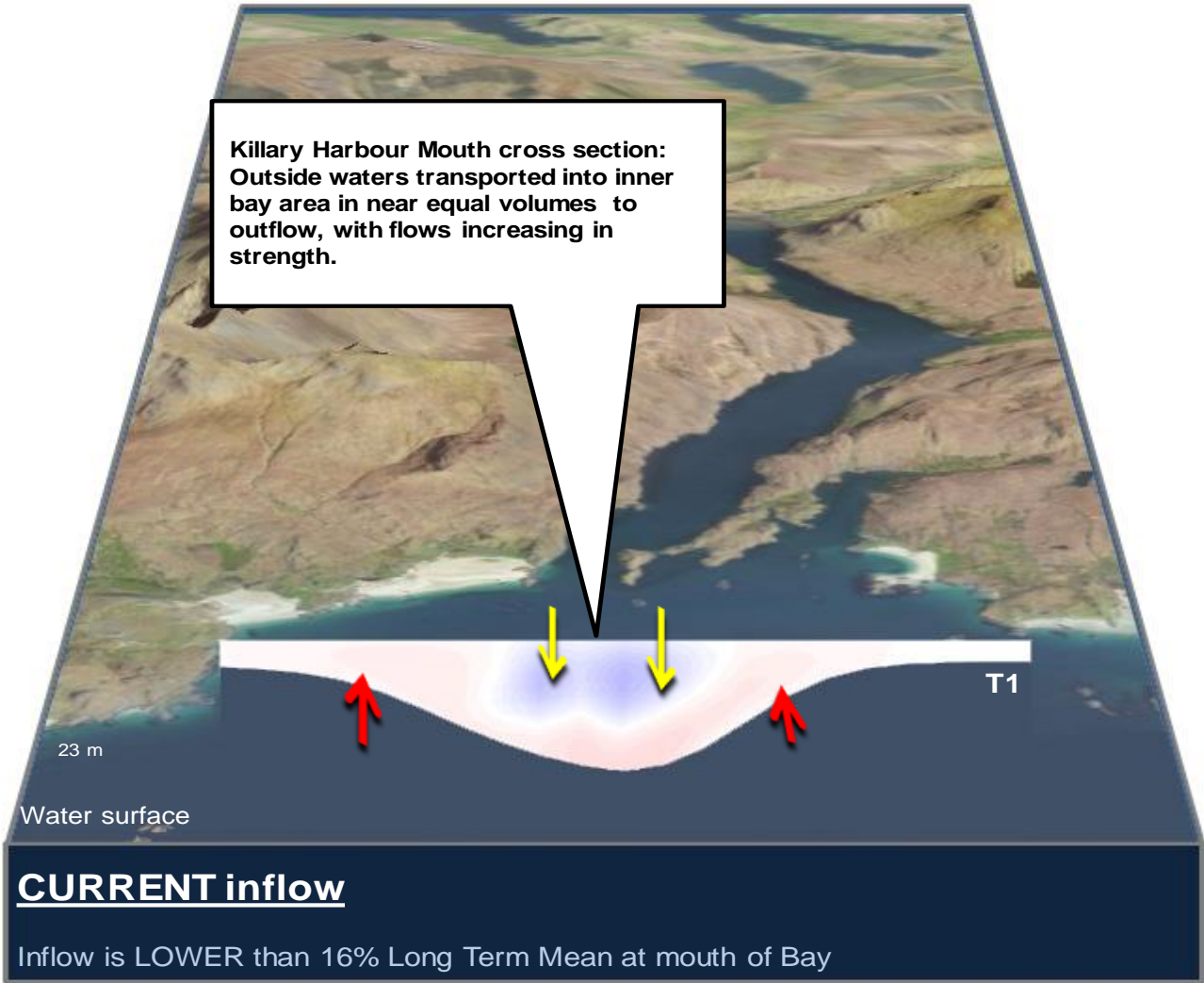
Flow ($\text{m}^3 \text{s}^{-1}$)



IN

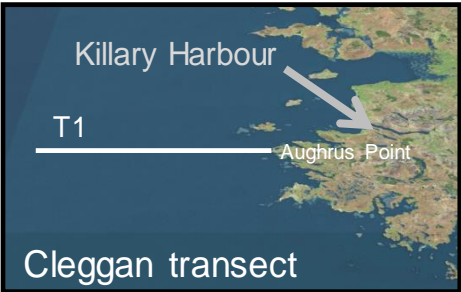
OUT

Depth

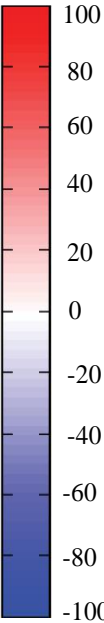


West Coast - 3 day estimated water flows along a transect off Aughrus Point

Forecast for next 3 days



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



northward
flow

southward
flow

Depth

