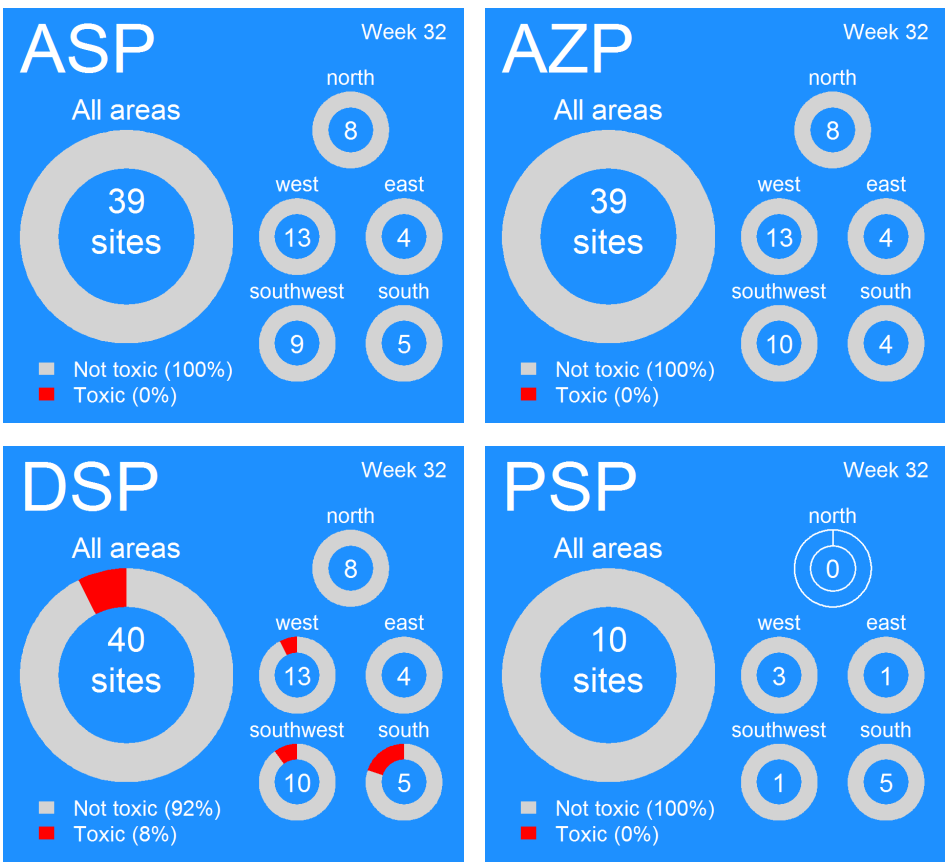


# Ireland: Current Conditions

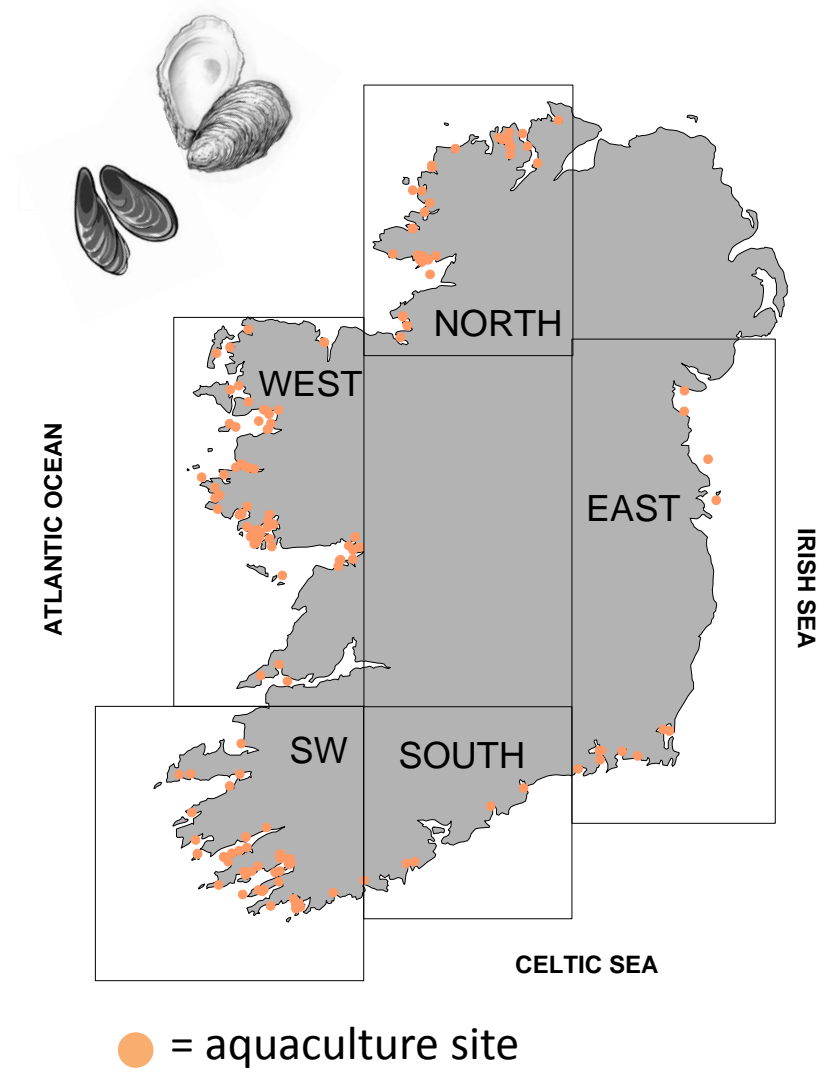
## Shellfish biotoxin report (last week)



**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: Very low risk

AZP event: Low to moderate risk

DSP event: High risk continues in some areas

PSP event: Low Risk

## Why do we think this?

ASP: Historically this is NOT a high risk week for ASP events. Toxins have not been detected countrywide with the exception of low background levels at one site in the west coast. Small blooms of the “*P. seriata*” group have occurred in the west and SW; up to 20 % of the phytoplankton community composition.

AZP: Historically, this is a HIGH risk period. However, toxins still remain at low background levels in all sites where AZP was detected. *Azadinium*-like species are present at very low cell densities in most sites with the exception of the northwest - here the high cell densities have not yet been associated with high toxin levels. While there is no evidence that toxins are increasing yet, caution is advised because of the increased risk at this time of year along with an increase in the number of sites with below closure levels of AZP in the last week.

DSP: Some sites in the west, SW and south have toxins above EU Reg. levels. Relatively high cell levels of *Dinophysis* spp. (mix of *D. acuminata* & *D. acuta*) remain in the south and SW, so, DSP events in these regions are likely to continue. Historically, this is a HIGH risk period for DSP events SW and west, so it is likely that conditions will remain the same in these areas. *Dinophysis* spp. remain at background levels in northern sites with toxins not detected, so, it is unlikely that a toxic event will occur in northern waters.

PSP: *Alexandrium* species are present in many sites nationwide, but, Cork Harbour is the only area in the country where PSP events are known to occur. Over the last week, *Alexandrium* cell densities have dropped significantly in the south especially in Cork Harbour, in the SW and west. It is unlikely that a PSP event will occur. Historically PSP events have not occurred at this time of year.

## A look back at how last weeks biotoxin results compares to other years



**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



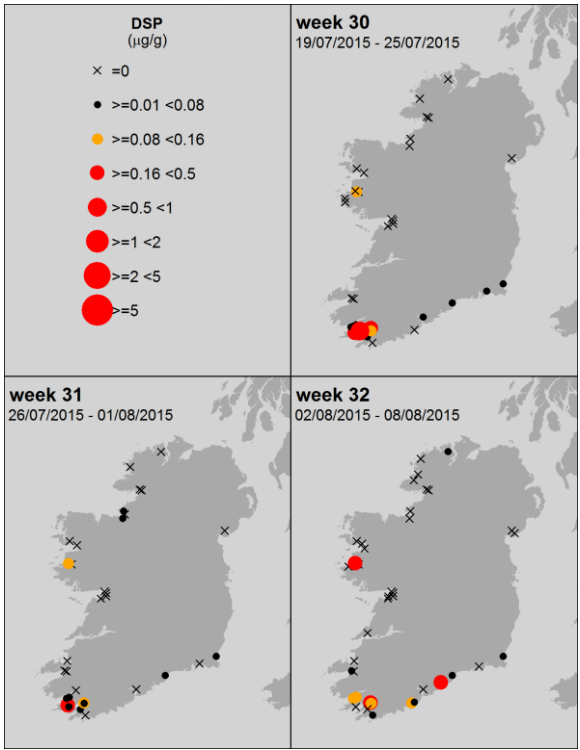
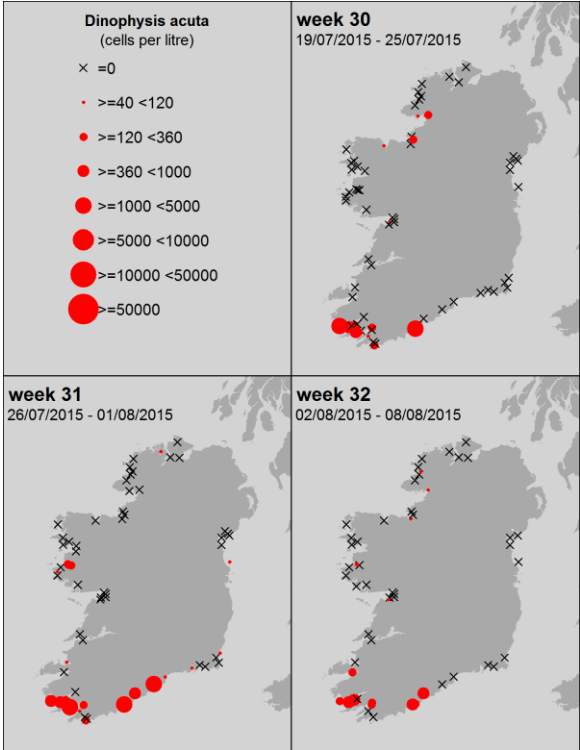
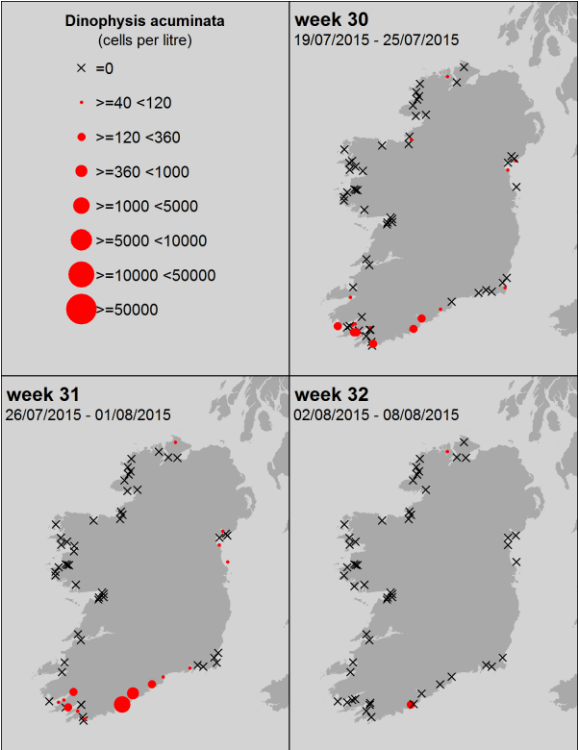
*Dinophysis acuminata*



*Dinophysis acuta*



DSP



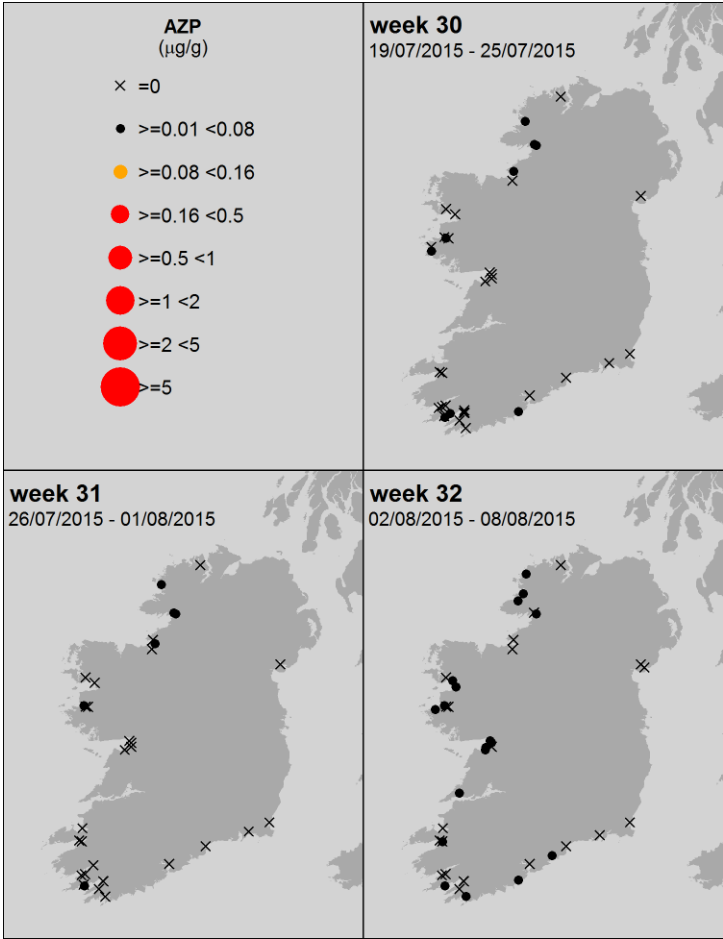
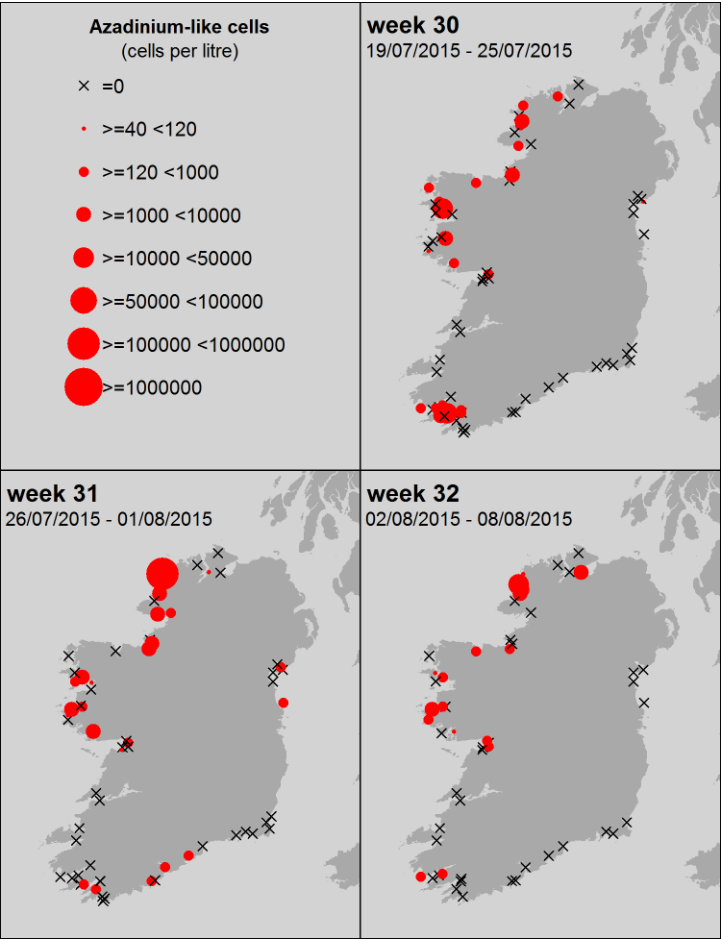
Ireland: Last 3 weeks of available National Monitoring Programme data



*Azadinium* – like spp.



AZP



Ireland: Last 3 weeks of available National Monitoring Programme data

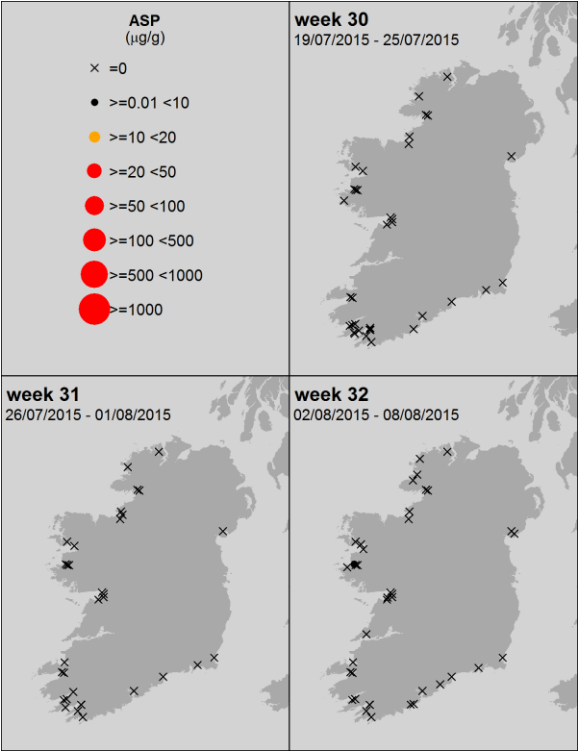
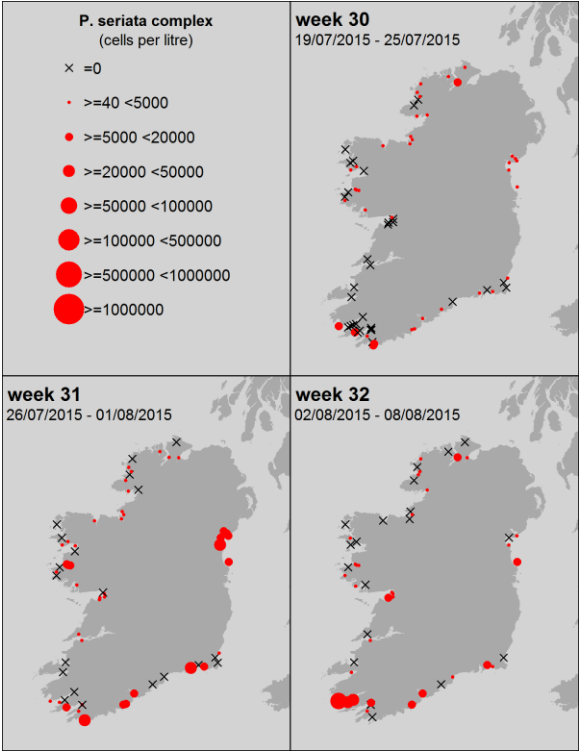
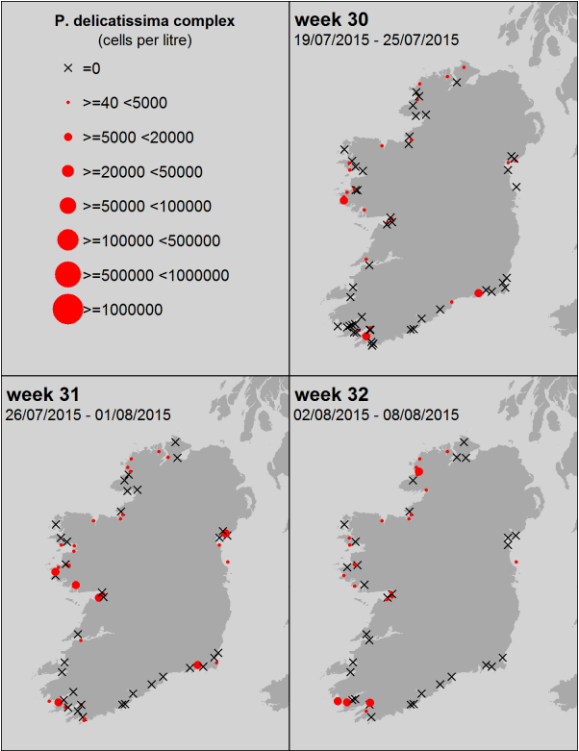
*Pseudo-nitzschia* spp.



ASP

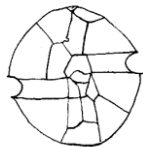
“*P. delicatissima*” complex = small cells  
Taken from the literature:  
3 species confirmed in Irish waters

“*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.

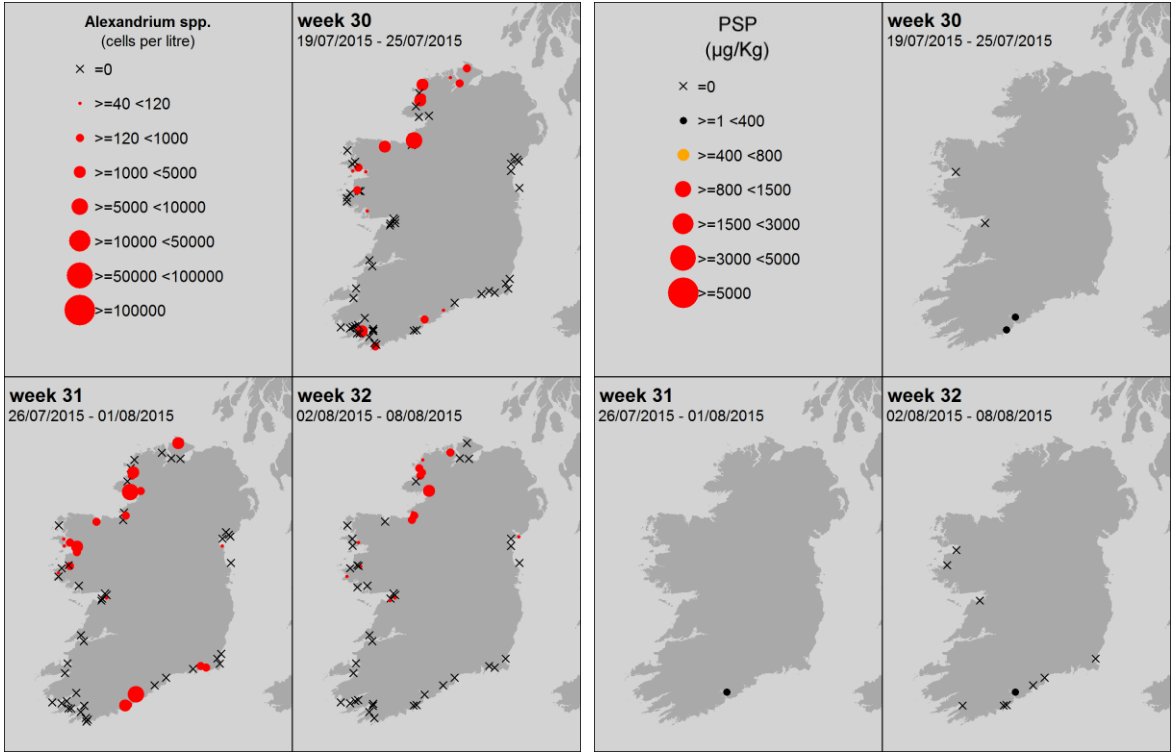
Ireland: Last 3 weeks of available National Monitoring Programme data



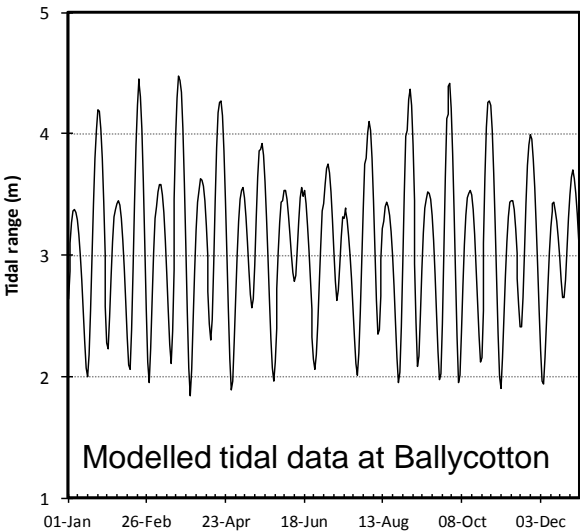
Alexandrium spp.



PSP



Tidal Range Cork 2015 (Predicted)

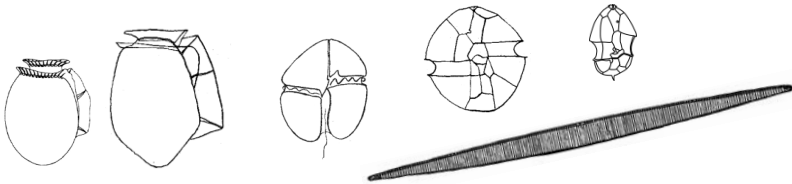


Usually the *Alexandrium* bloom in Cork Harbour begins on the first spring tide in June (around the time of the summer solstice) as small tidal range is important in bloom initiation (lower tidal dilution rate). Optimum conditions for *Alexandrium* are a water temperature of 15 °C and an irradiance of > 100 µM/m<sup>2</sup>/sec. Historically, production areas in Cork Harbour are the only sites that have experienced closures due to Paralytic Shellfish Poisoning toxins (one of the most dangerous shellfish toxins).



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

Ireland: **Biotoxins**



Toxin groups

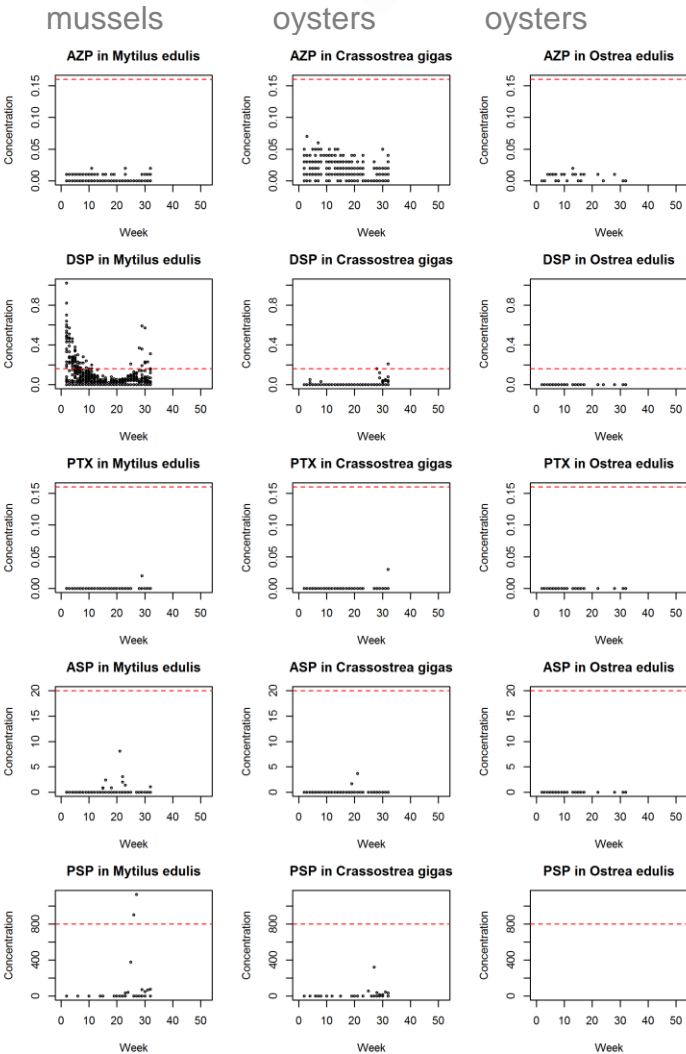
**AZP**  
AZaspiracid  
Poisoning

**DSP**  
Diarrhetic  
Shellfish  
Poisoning

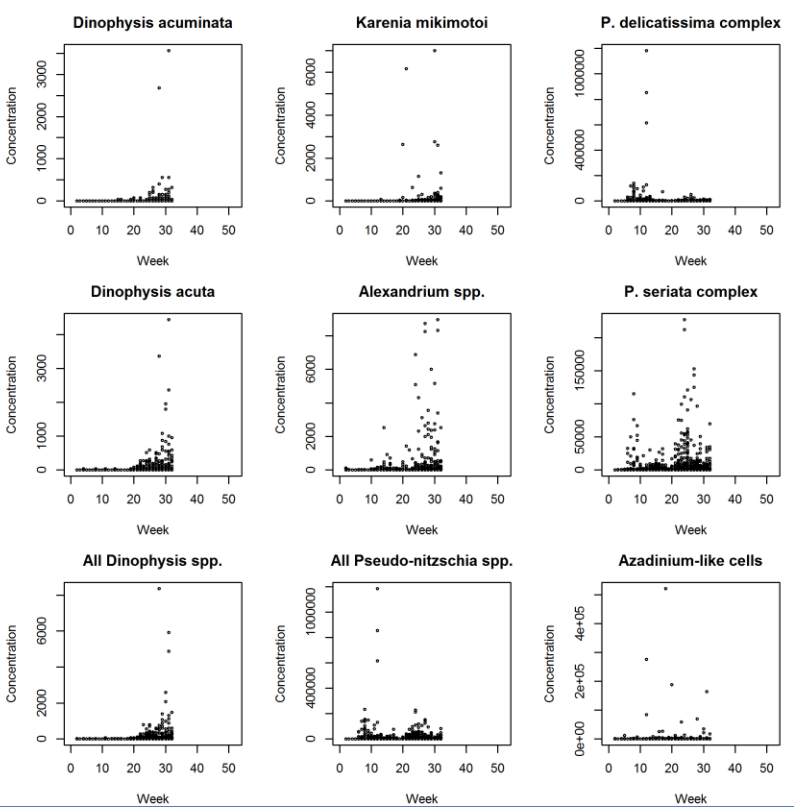
**PTX**  
Pectenotoxin

**ASP**  
Amnesic  
Shellfish  
Poisoning

**PSP**  
Paralytic  
Shellfish  
Poisoning



Ireland: **HABs**

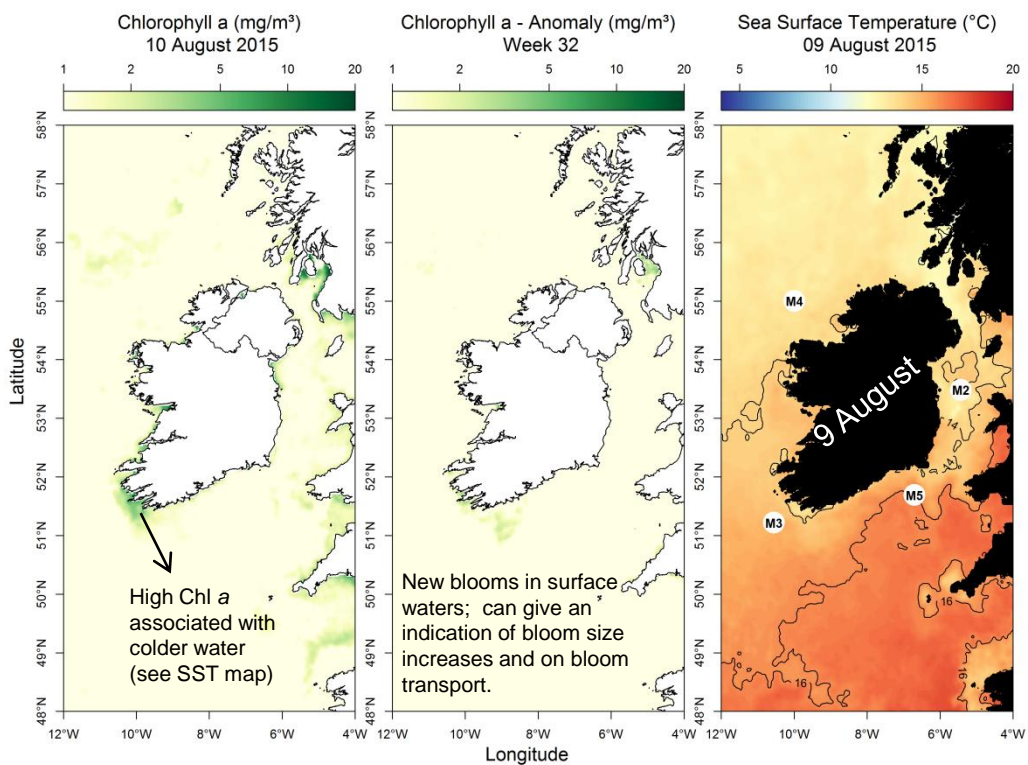


EU Regulatory Limit: ASP 20 µg/g; AZP 0.16 µg/g; DSP 0.16 µg/g; PSP 800 µg/kg

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 2.06 °C
- SW coast (M3) Offline
- SE coast (M5) below average by -0.49 °C

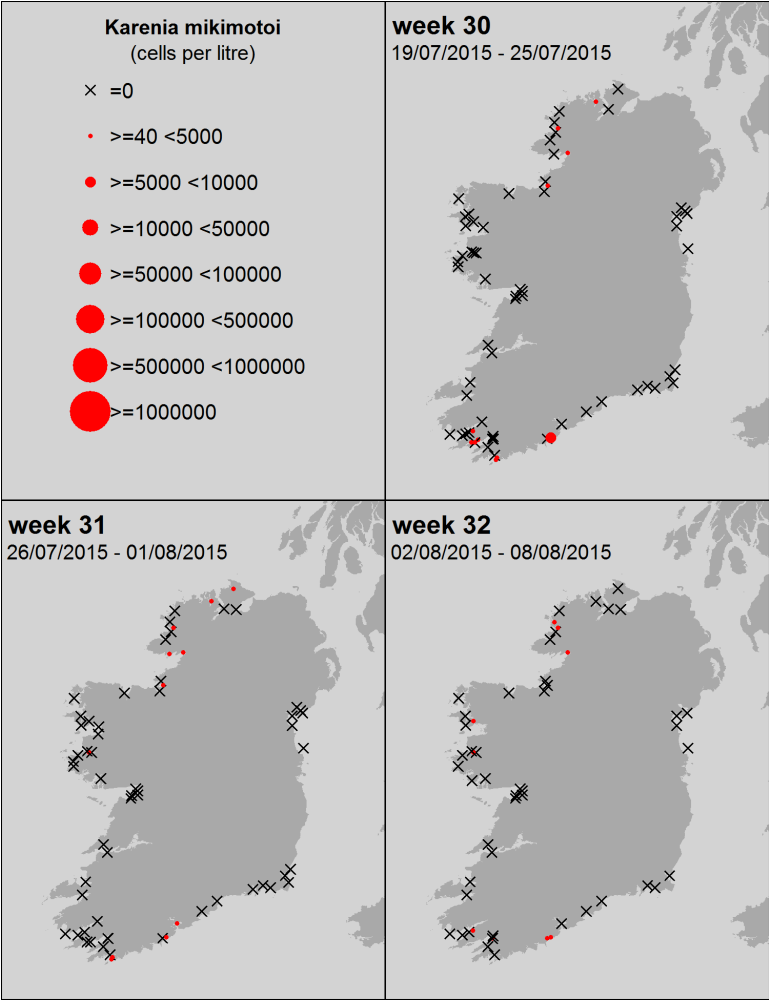
What phytoplankton were blooming at inshore coastal sites last week?

Region	Predominant Phytoplankton (most abundant taxa)	Cells/L (rounded)
north:	<b>Diatoms:</b>	
	<i>Chaetoceros</i> (Hyalochaete) spp.	10,765,000
	<i>Leptocylindrus minimus</i>	1,854,000
	<i>Leptocylindrus danicus</i>	272,000
west:	<b>Diatoms:</b>	
	<i>Leptocylindrus danicus</i>	203,000
	Centric diatoms (< 20 µm)	70,000
	<i>Chaetoceros</i> (Hyalochaete) spp.	46,000
	<i>Lauderia / Detonula</i> spp.	45,000
	<i>Skeletonema</i> spp.	40,000
SW:	<b>Dinoflagellates:</b>	
	<i>Ceratium fusus</i>	70,000
	<b>Diatoms:</b>	
	<i>Pseudo-nitzschia seriata</i> complex	70,000
	<i>Skeletonema</i> spp.	60,000
	<i>Lauderia / Detonula</i> spp.	26,000
south:	<b>Diatoms:</b>	
	<i>Bacteriastrium</i> spp.	743,000
	<i>Cerataulina pelagica</i>	580,000
	<i>Skeletonema</i> spp.	82,000
	<i>Bacteriastrium</i> spp.	61,000
	<i>Paralia sulcata</i>	26,000
	<i>Thalassiosira rotula/gravida</i>	17,000
	<i>Licmophora</i> spp.	17,000
east:	<b>Diatoms:</b>	
	<i>Bacteriastrium</i> spp.	132,000
	Centric diatoms (< 20 µm)	101,000
	<i>Lauderia / Detonula</i> spp.	45,000
	<i>Asterionellopsis glacialis</i>	34,000
	<i>Leptocylindrus danicus</i>	32,000
	<i>Skeletonema</i> spp.	21,000



*Karenia mikimotoi*  
(old name: *Gyrodinium aureolum*)

A *Karenia mikimotoi* bloom  
is unlikely this week

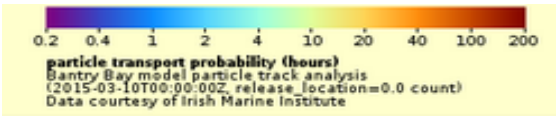


SOUTHWEST: Bantry Bay

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)

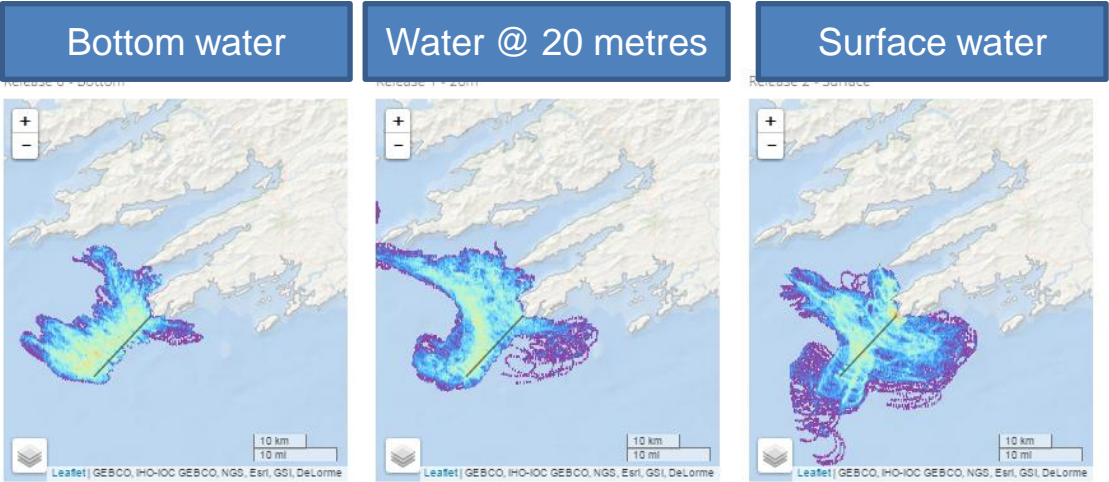
Reddish colours represent areas where phytoplankton remain longest

Cooler colours represent areas where phytoplankton remain for shorter periods

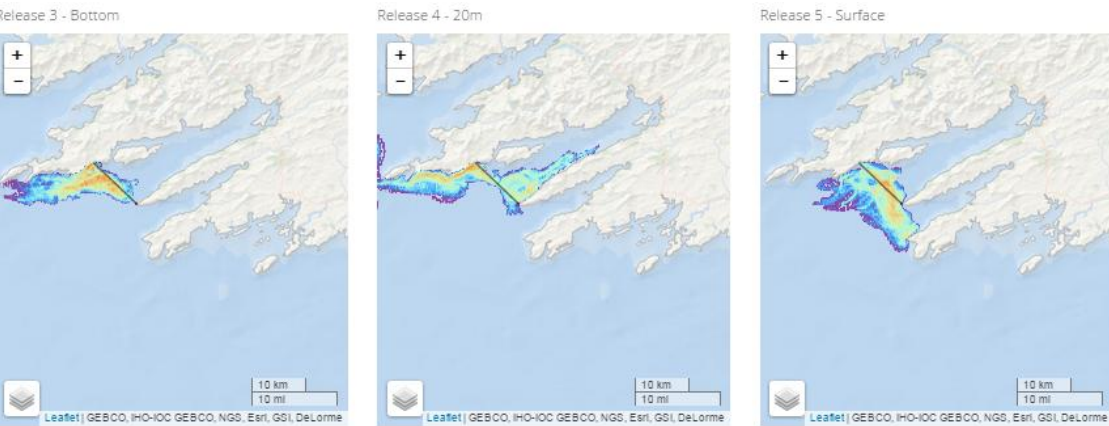


Go to <http://vis.marine.ie/particles/> to view daily forecasts

Forecast for the next 3 days



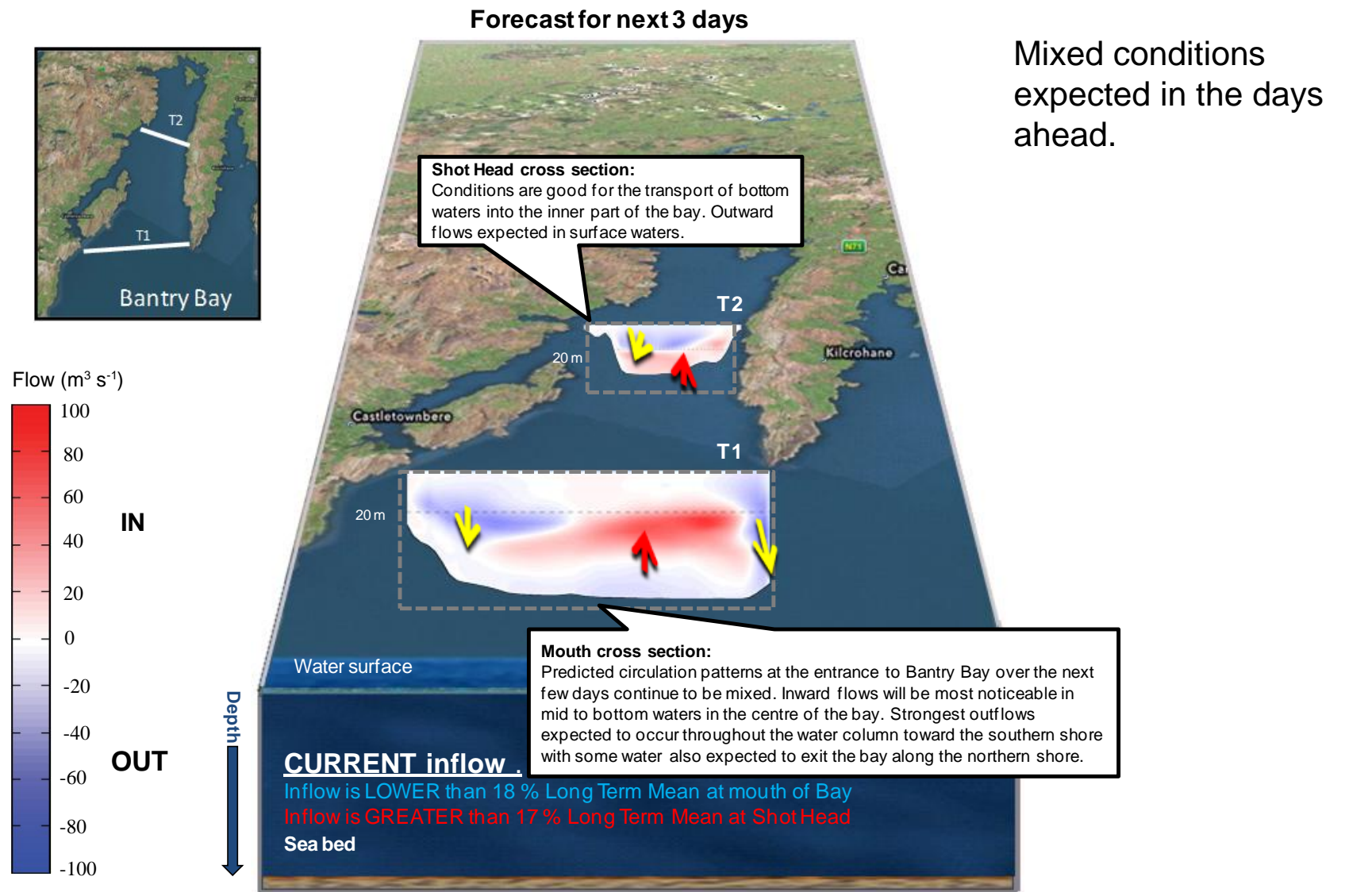
Predicted water circulation patterns at Mizen Head show mixed conditions with some movement of bottom and subsurface waters toward Bantry Bay. Surface water movements are likely to be very changeable.



Predicted water circulation patterns at the entrance to Bantry Bay over the next few days show that there will be outward movement of waters at 20 m and below in the north part of the bay. Water at 20 m will also be directed into the bay along the southern shore. Surface water is likely to have limited movement.

# Bantry Bay

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






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

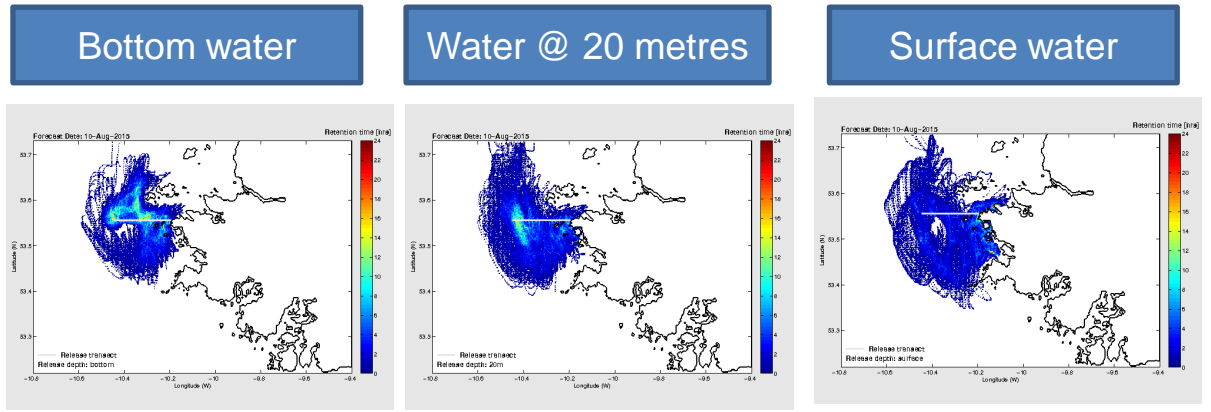
Cooler colours represent areas where phytoplankton remain for shorter periods



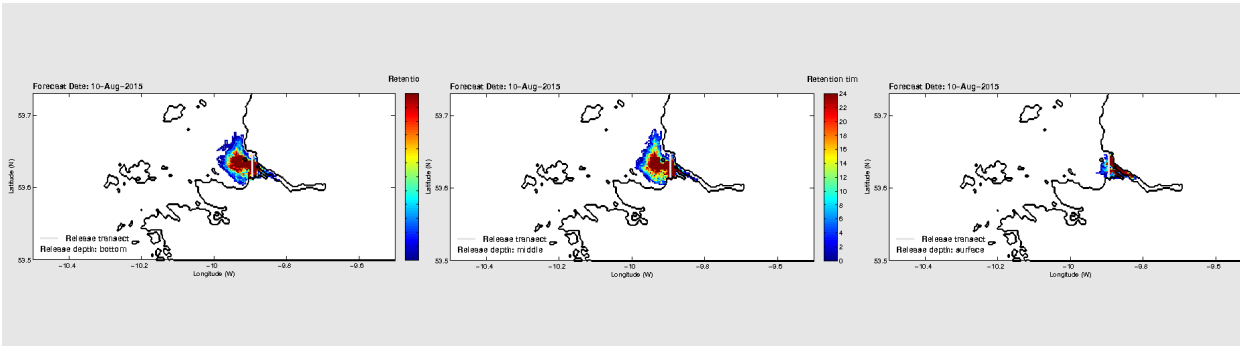
0.2 0.4 1 2 4 10 20 40 100 200

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



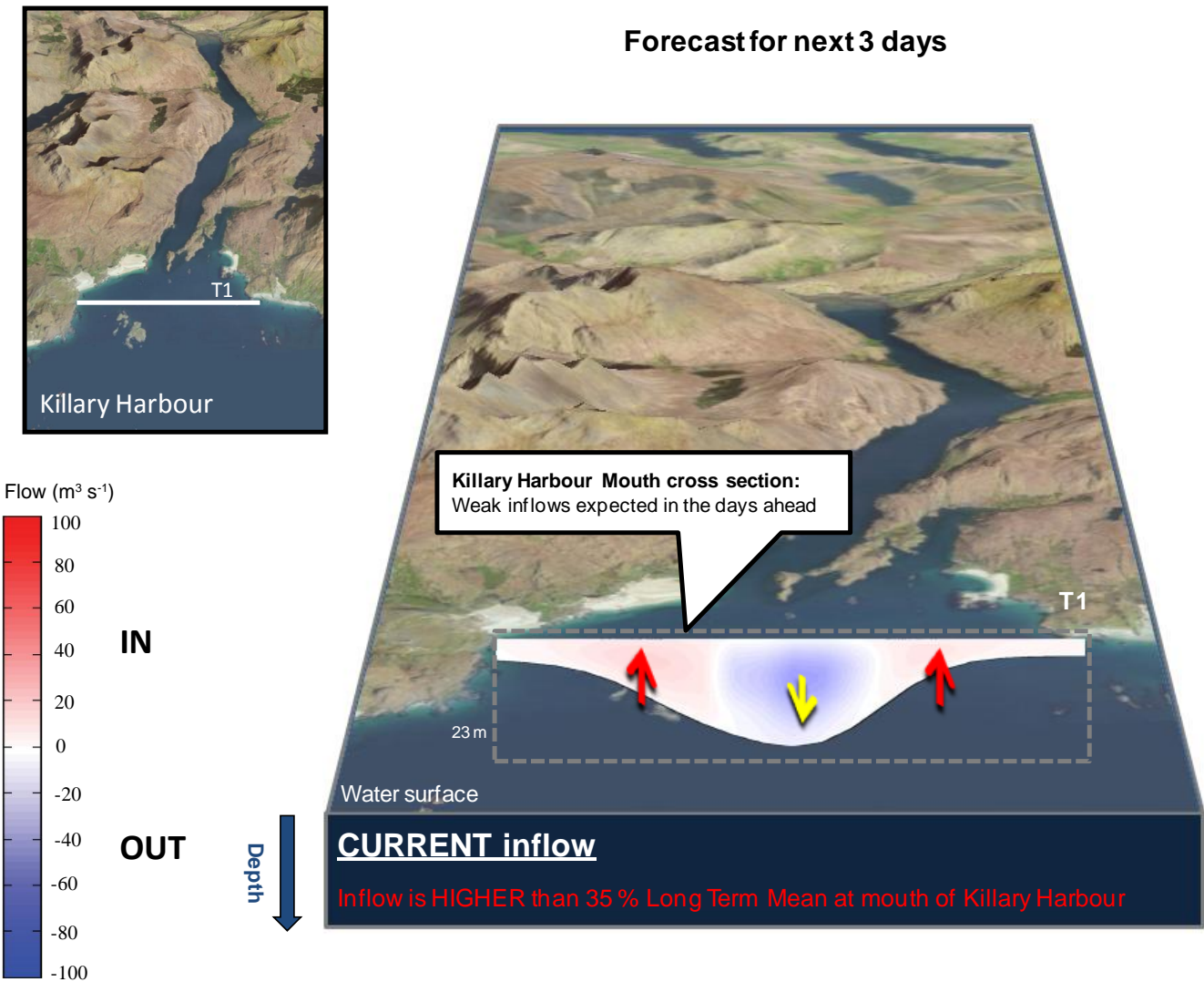
Water flows off the west coast will be variable. It is unlikely that subsurface shelf waters will reach the mouth of Killary. While large volumes of surface water are expected to bypass Killary, there will be some restricted flows toward the fjord



We expect to see water masses retained at the mouth of the fjord with some movement at all depths into Killary Harbour.

# Killary Harbour

3 day estimated water flows at the mouth of Killary Harbour



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

