

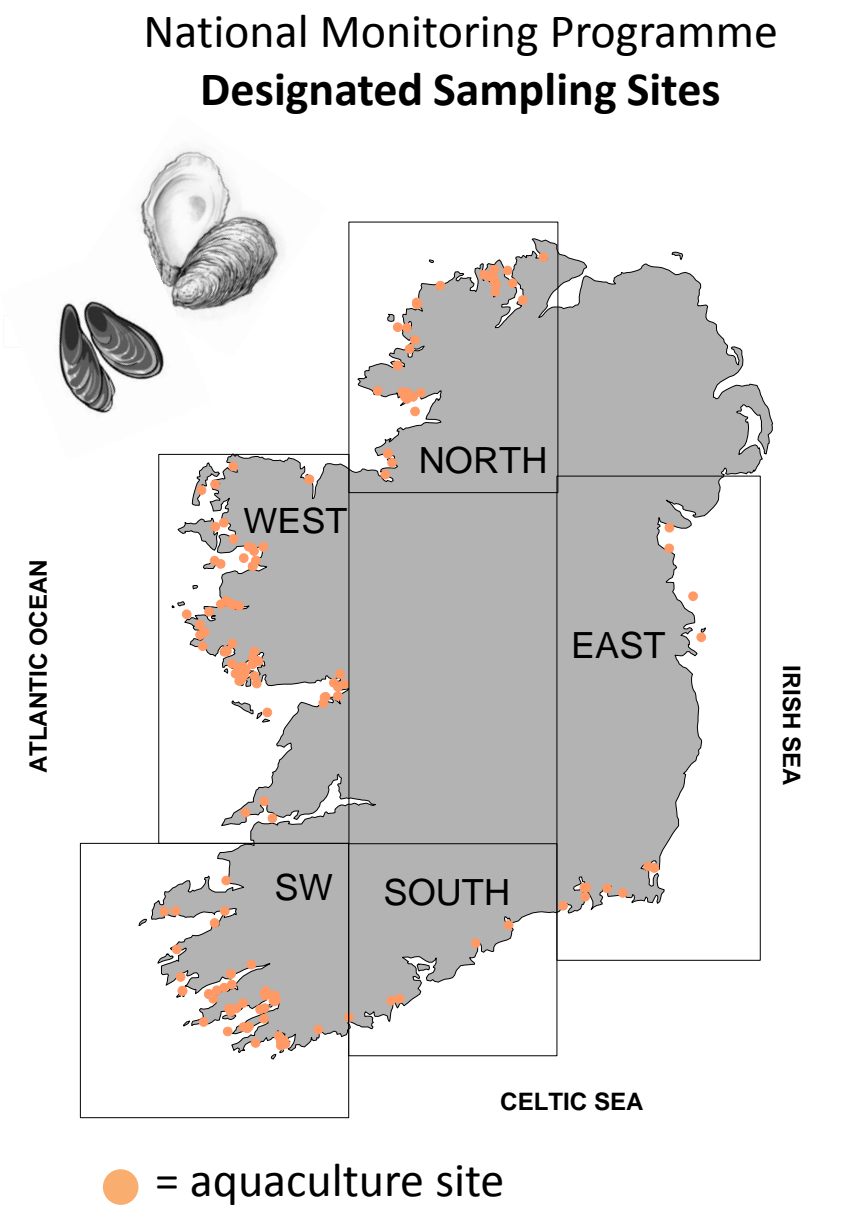
# Ireland: Current Conditions

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



# Ireland: Predictions

## Prediction for this week:

ASP event: Low risk

AZP event: Low risk

DSP event: Low risk with a moderate risk in some areas (see below)

PSP event: Low risk in general with a HIGH risk in Cork Harbour (see below)

## Why do we think this?

ASP: 12 samples (mussels and oysters) sampled - Toxins not detected. The “*P. seriata*” group was found in 27 out of 43 sites nationwide with highest cell counts in Killary Harbour (up to 153,000 cells/L), however, no toxins detected. Historically this is NOT a high risk week.

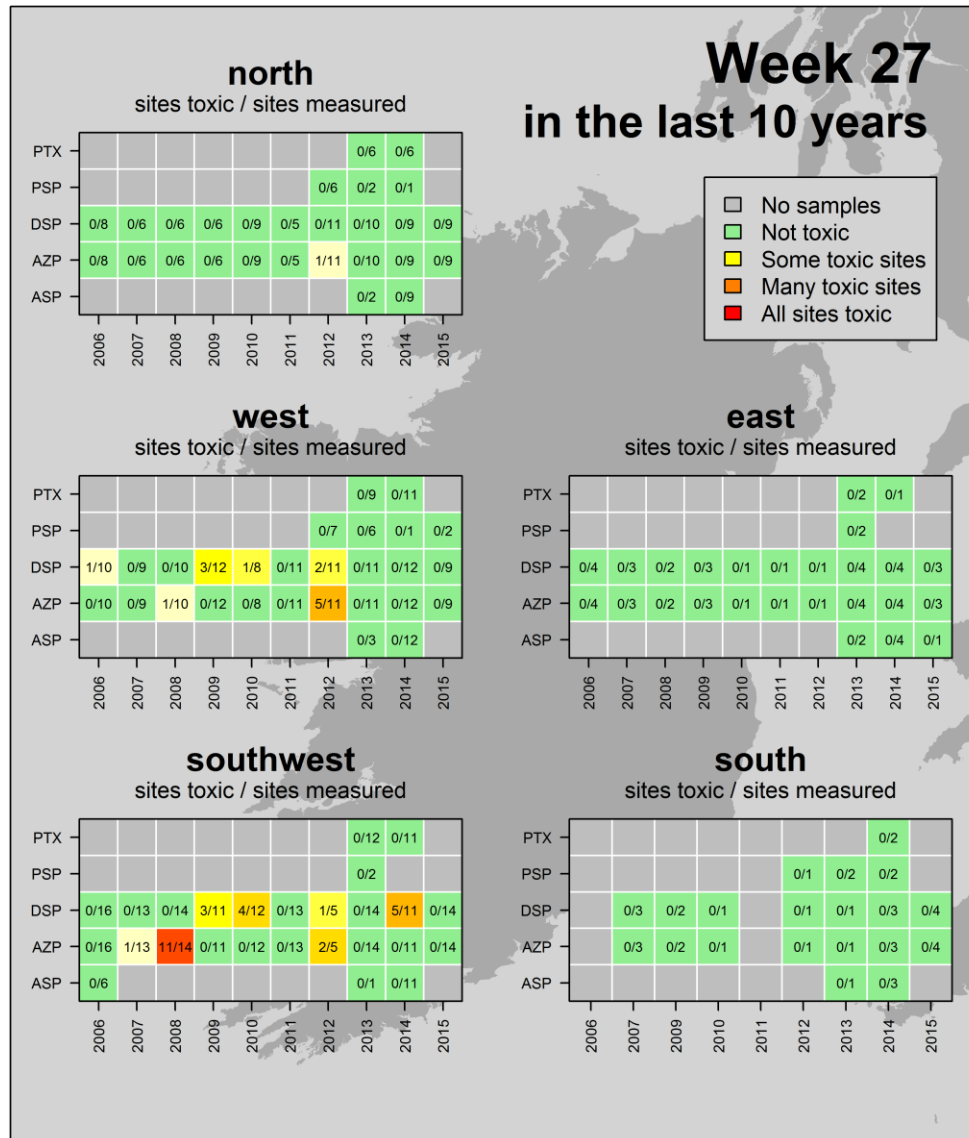
AZP: 39 sites sampled nationwide. Toxin not detected. *Azadinium*-like species recorded at low levels at 10 sites – maximum cell levels of 560 cells/L. Historically, this week presents some risk for AZP, but in general, it is during the month of August when AZP is experienced.

DSP: 39 sites sampled nationwide. Toxin only detected in SW sites; maximum of 0.12 µg/g in long-line mussels. *Dinophysis* spp. (*D. acuta* was predominant) present at cell levels up to 560 cells/L in 7 out of 43 sites nationwide. Highest cell counts recorded in the south coast. Based on historical weekly trends, this is a moderate risk period in the west coast. However, since there is no evidence of toxins in west coast shellfish the risk of a toxic event is lower. Historically, this is a moderate risk period for the SW coast, this together with elevated levels of toxins in shellfish in the SW increase the risk of a toxic event.

PSP: Nine samples (mussels and oysters) tested – Toxins only detected in Cork Harbour (maximum @ 1,128 µg/Kg). *Alexandrium* species present in 16 sites nationally. This month is a HIGH risk time of year for PSP events in Cork Harbour.

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; this is a high risk time of the year and so caution is advised.

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

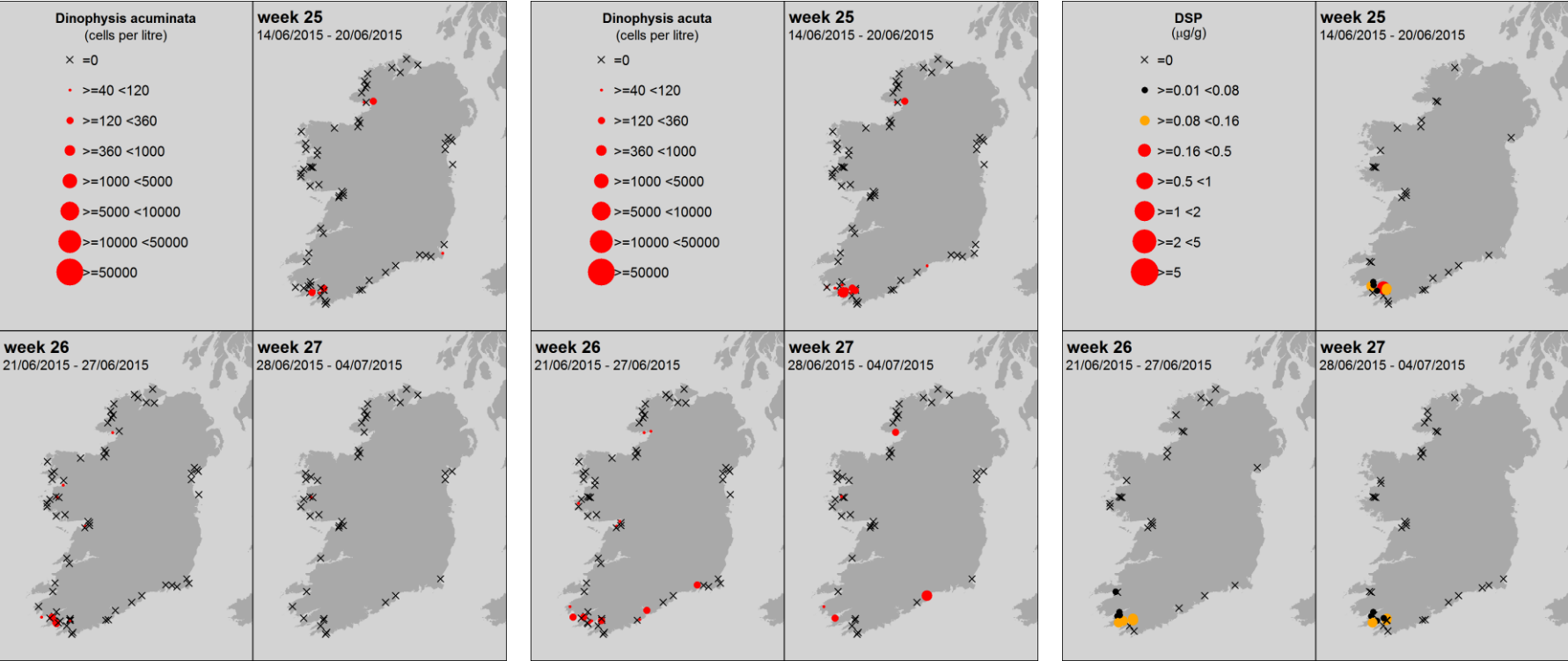
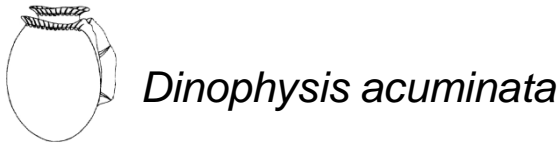


**Likely times for Shellfish Toxicity:** does not include winter carry over of biotoxins

PSP events: June to mid-July and end September; only in Cork Harbour



Ireland: Last 3 weeks of available National Monitoring Programme data



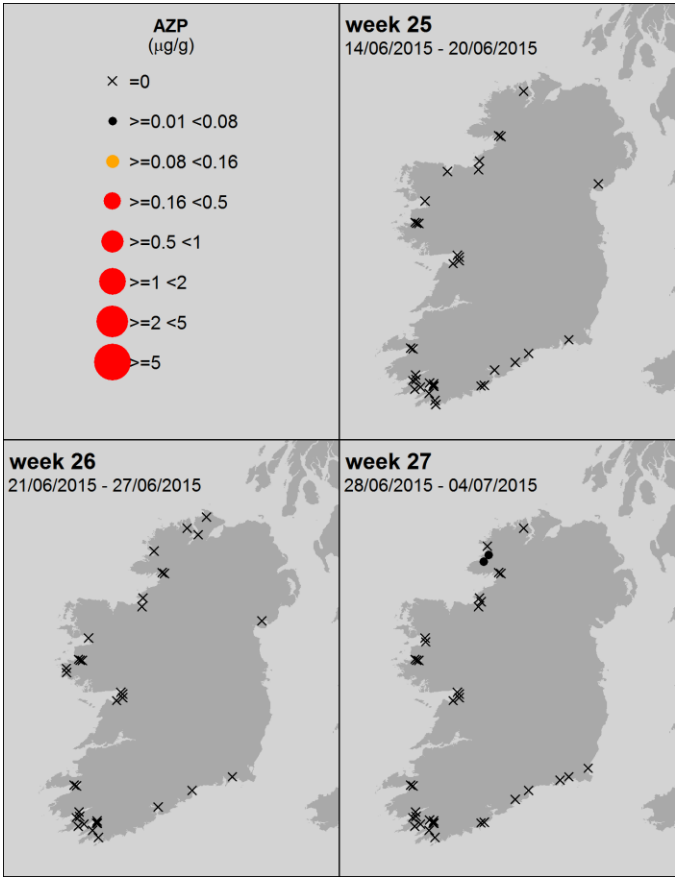
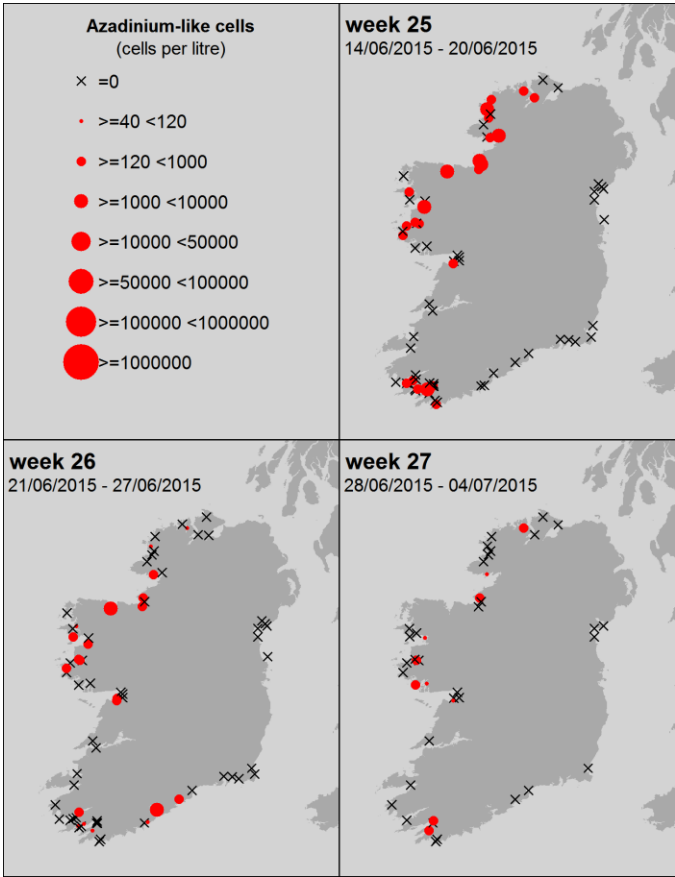
Ireland: Last 3 weeks of available National Monitoring Programme data



*Azadinium* – like spp.



AZP



Ireland: Last 3 weeks of available National Monitoring Programme data

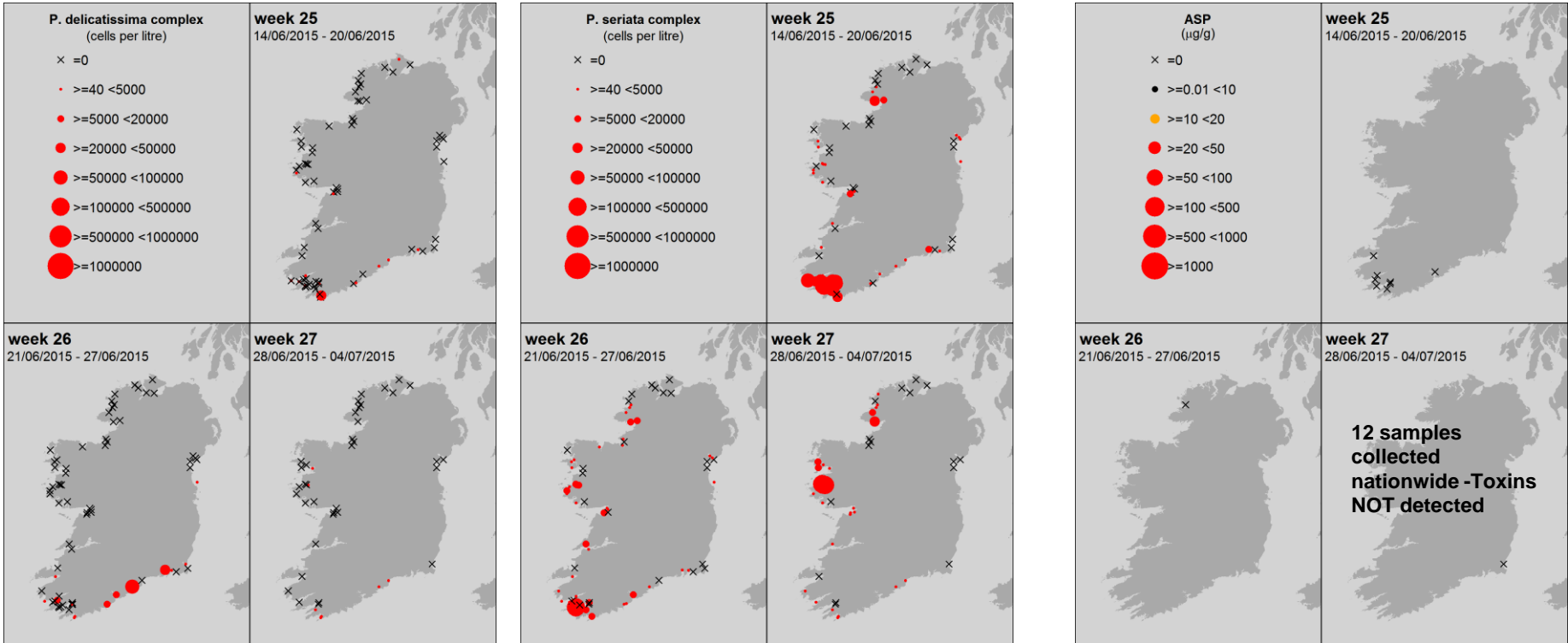
*Pseudo-nitzschia* spp.



ASP

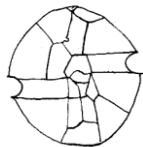
“*P. delicatissima*” complex = small cells  
Taken from the literature:  
3 species confirmed in Irish waters

“*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.

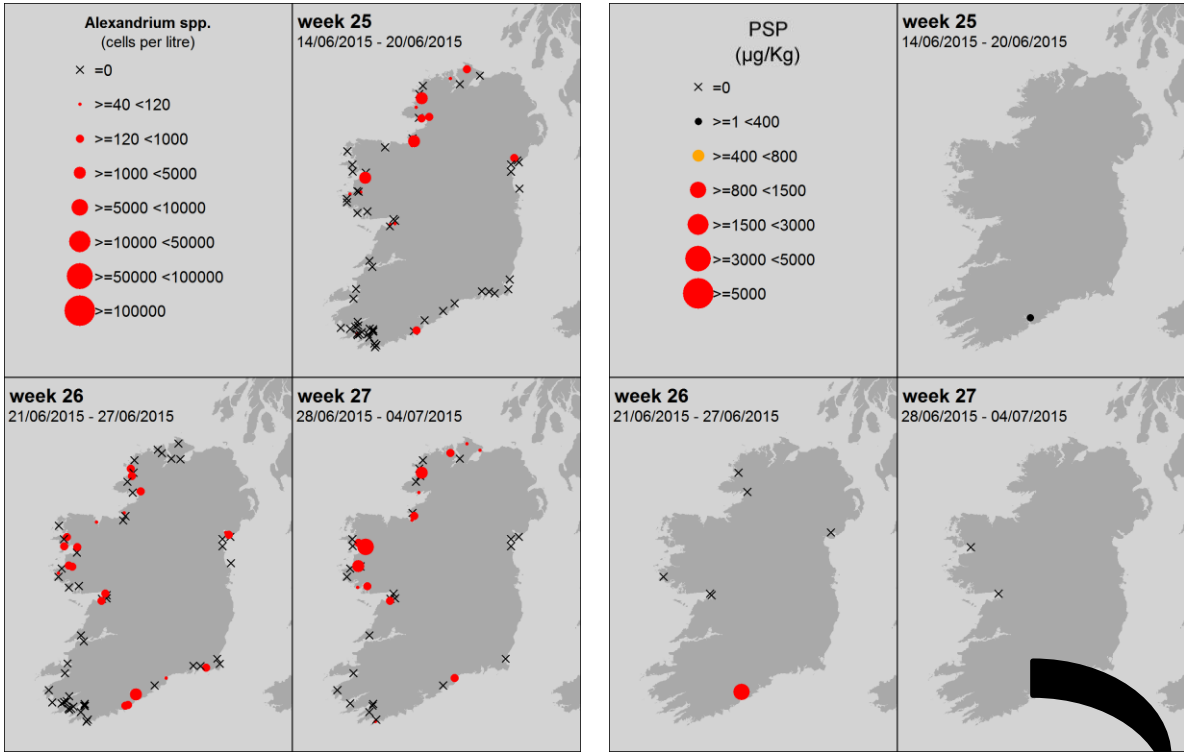
Ireland: Last 3 weeks of available National Monitoring Programme data



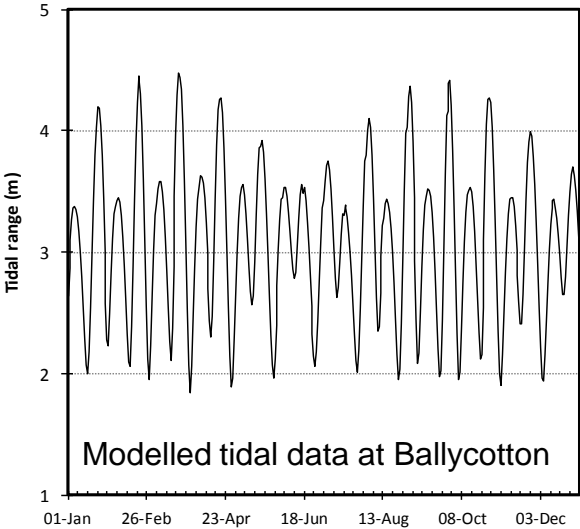
Alexandrium spp.



PSP



Tidal Range Cork 2015 (Predicted)

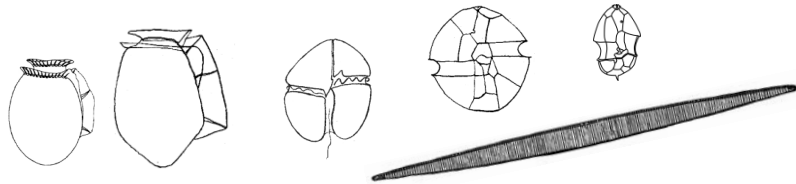


\*Usually the *Alexandrium* bloom in Cork Harbour begins on the first spring tide in June (around the time of the summer solstice) as small tidal range is important in bloom initiation (lower tidal dilution rate). Optimum conditions for *Alexandrium* are a water temperature of 15 °C and an irradiance 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).

We are in the high risk period for PSP in Cork Harbour.  
Nine samples tested; **Only samples from Cork Harbour tested positive for PSP (max = 1,128 µg/Kg)**

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

Ireland: **Biotoxins**



Toxin groups

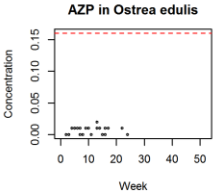
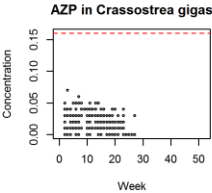
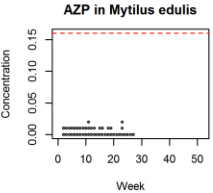
mussels

oysters

oysters

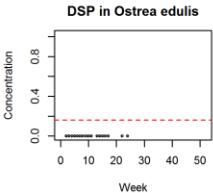
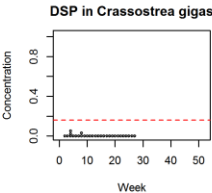
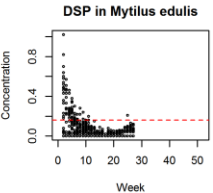
**AZP**

AZaspiracid  
Poisoning



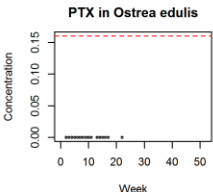
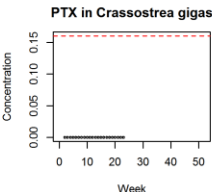
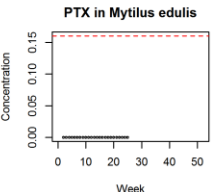
**DSP**

Diarrhetic  
Shellfish  
Poisoning



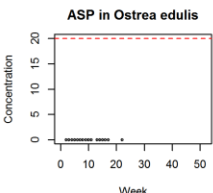
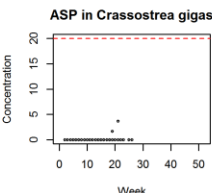
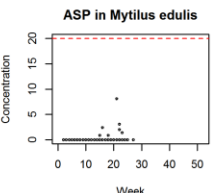
**PTX**

Pectenotoxin



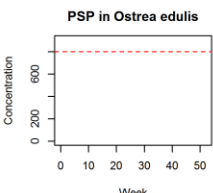
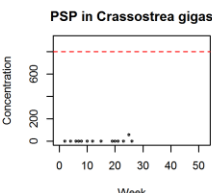
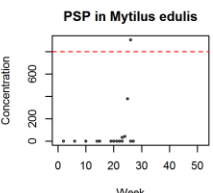
**ASP**

Amnesic  
Shellfish  
Poisoning

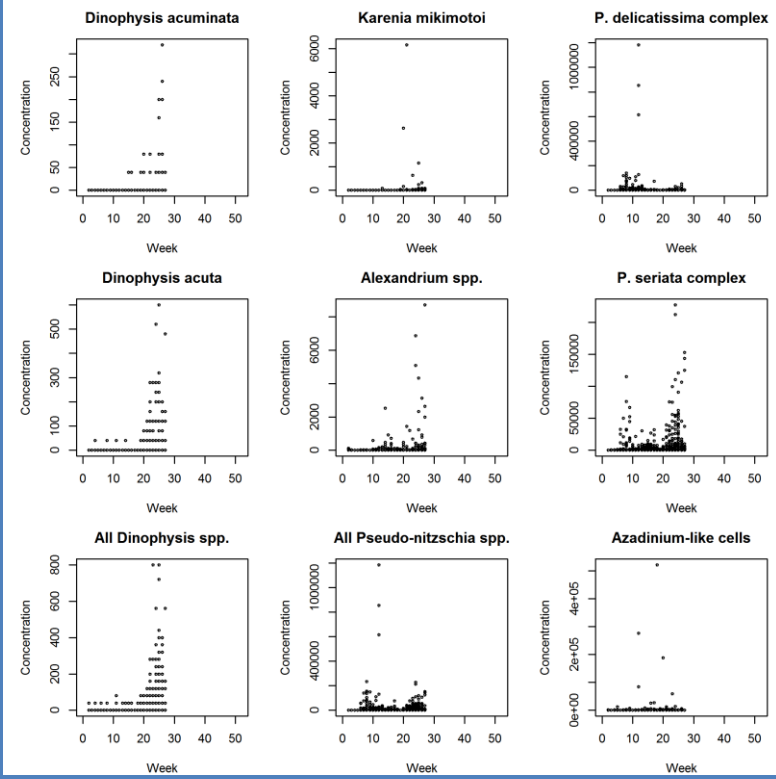


**PSP**

Paralytic  
Shellfish  
Poisoning



Ireland: **HABs**

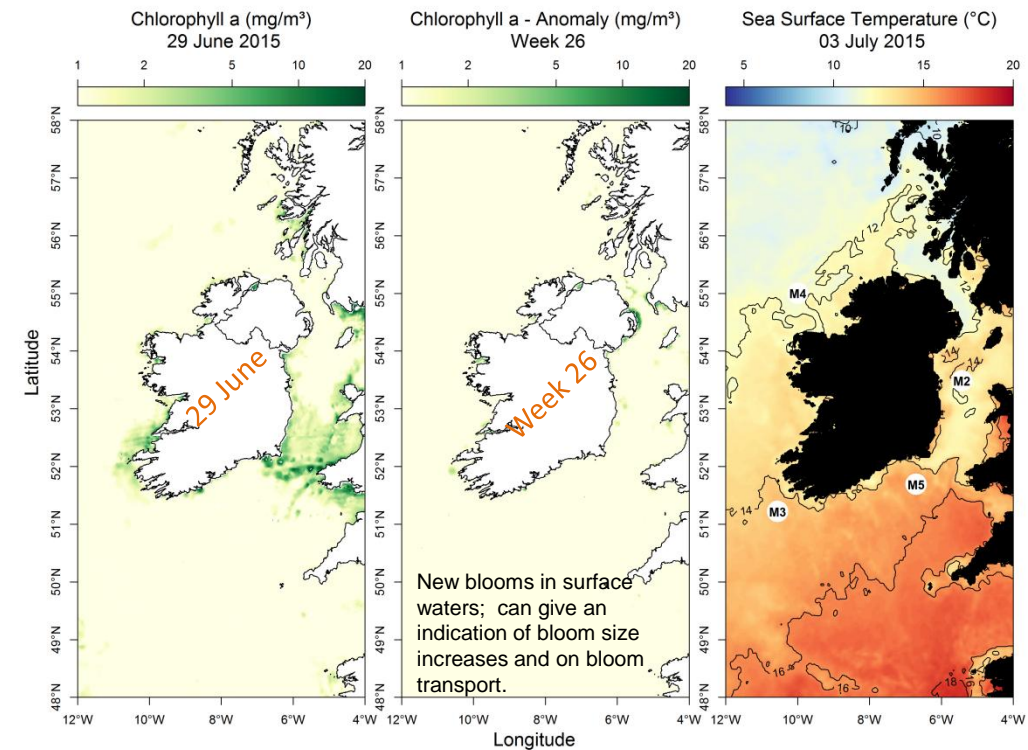


Week number: 1 to 27

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 1.60 °C
- SW coast (M3) Offline
- SE coast (M5) above average by 0.49 °C

What phytoplankton were blooming at inshore coastal sites last week?

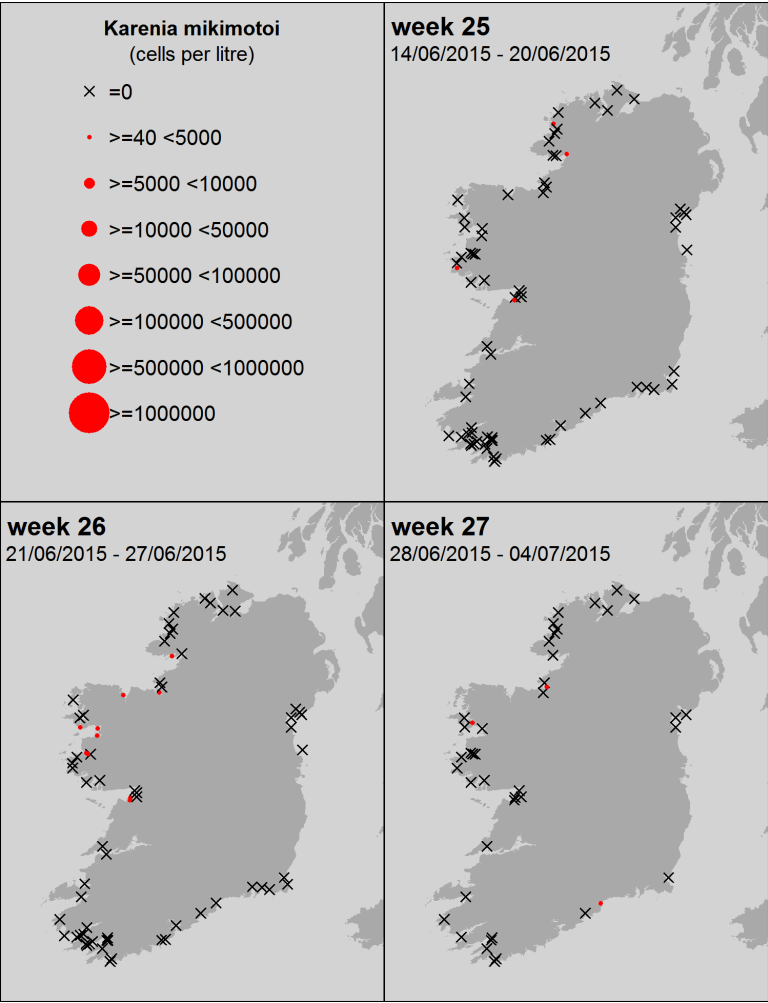
Region	Predominant Phytoplankton (most abundant taxa)	Cells/L (rounded)
north:	<b>Diatoms:</b> <i>Chaetoceros</i> (Hyalochaete) spp. <i>Licmophora gracillis</i> "Pseudo-nitzschia seriata" group	268,000 76,000 36,000
west:	<b>Diatoms:</b> "Pseudo-nitzschia seriata" group <i>Chaetoceros</i> (Hyalochaete) spp.	153,000 75,000
SW:	<b>Diatoms:</b> <i>Leptocylindrus danicus</i> <i>Leptocylindrus minimus</i>  <b>Dinoflagellates:</b> <i>Ceratium fusus</i>	73,000 13,000  32,000
south:	<b>Diatoms:</b> <i>Leptocylindrus danicus</i> <i>C. Closterium</i> / <i>N. longissima</i>  <b>Dinoflagellates:</b> <i>Scrippsiella</i> spp.	25,000 5,000  14,000
east:	<b>Diatoms:</b> <i>Chaetoceros</i> (Hyalochaete) spp. <i>Leptocylindrus danicus</i> <i>Rhizosolenia imbricata</i> <i>C. Closterium</i> / <i>N. longissima</i> <i>Thalassiosira</i> 20-50 µm	13,000 8,000 4,000 1,500 1,000



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

A *Karenia mikimotoi* bloom is NOT expected this week

Cell concentrations remain at background levels at 3 sites in the north, west & south (max = 80 cells/L)



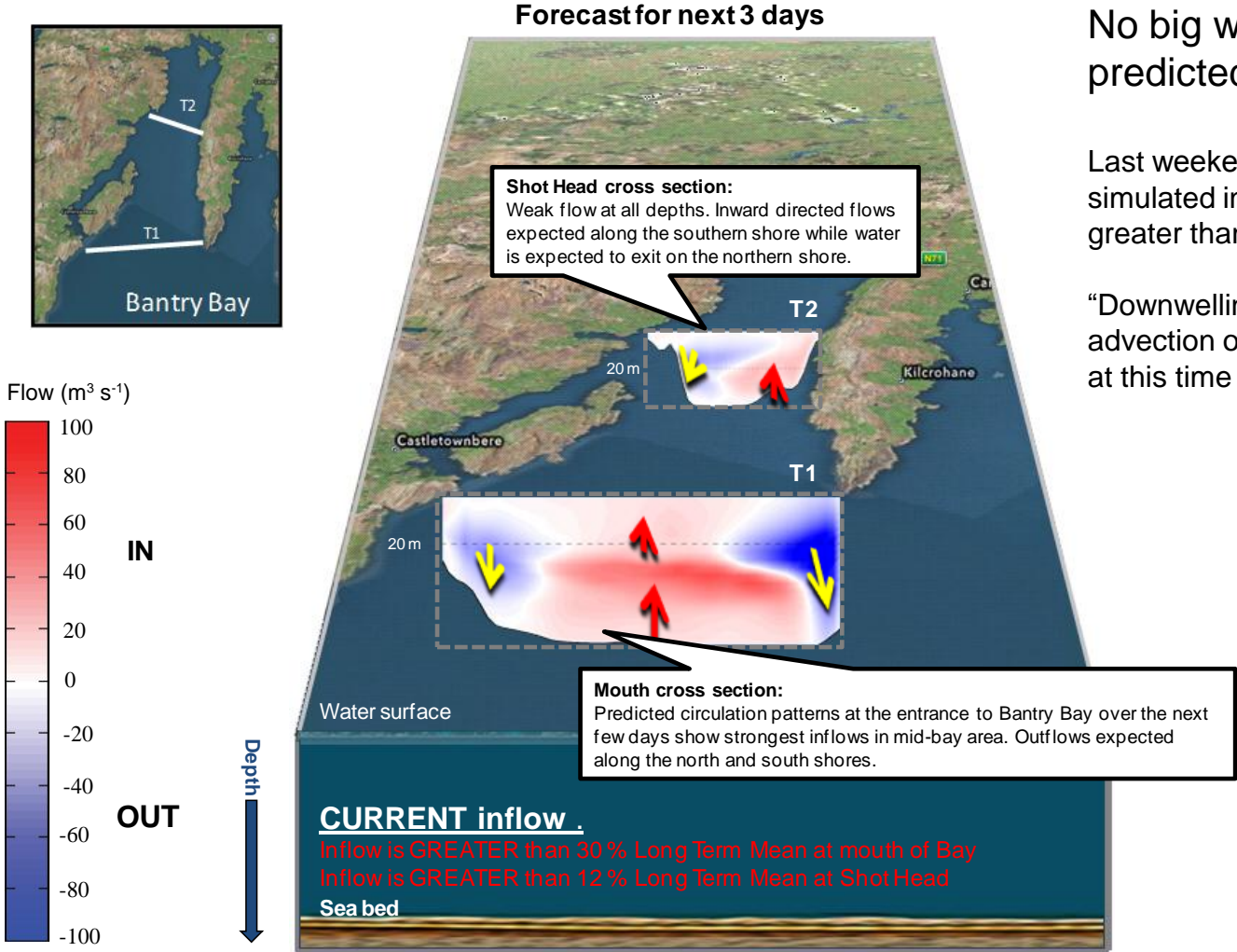
# Bantry Bay

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

No big water exchange event predicted in the next few days.

Last weekend “downwelling” was simulated in the model (Inflows 38% greater than LTM)

“Downwelling” is associated with the advection of *Dinophysis* spp. into the bay at this time of the year.

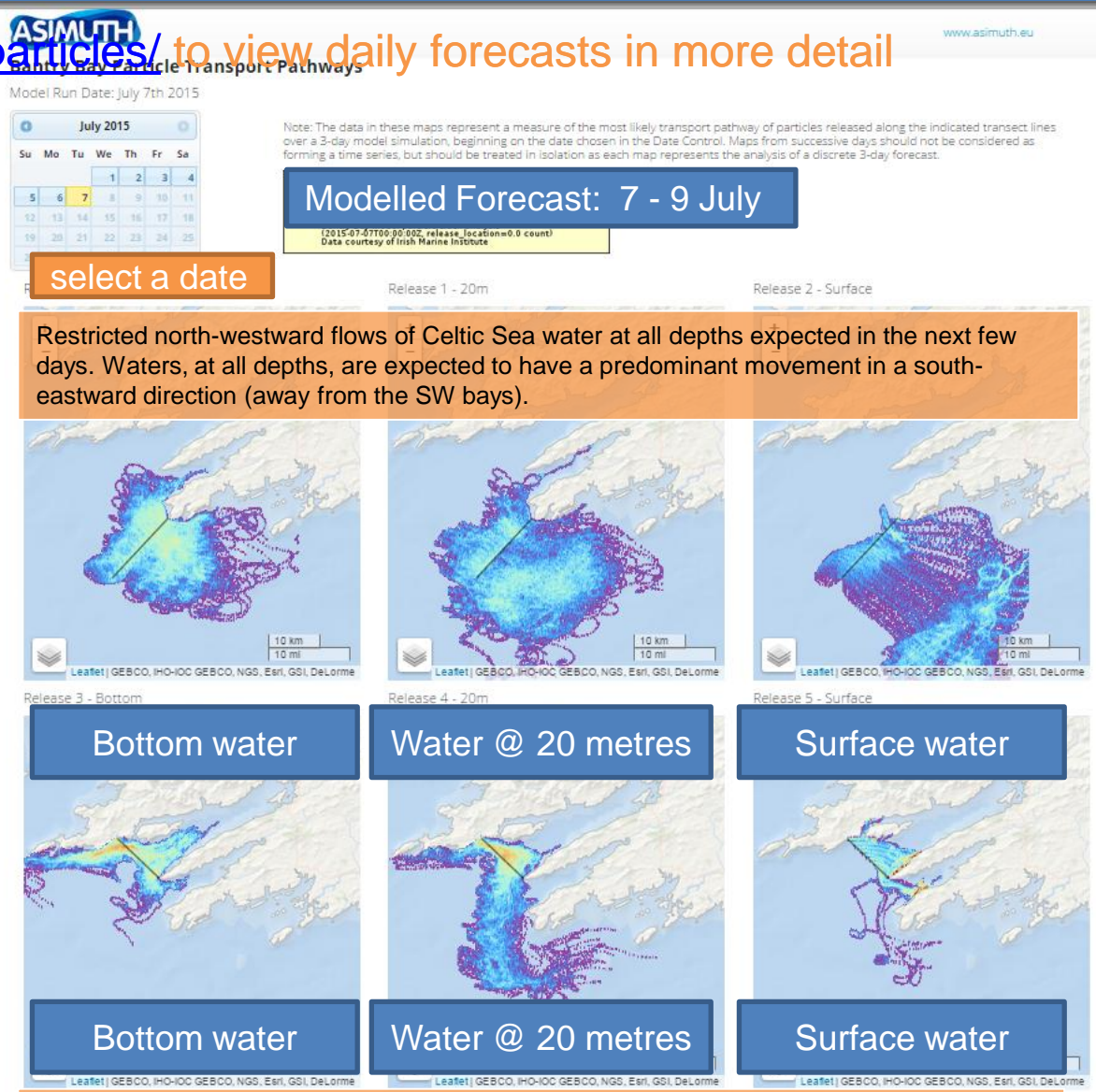
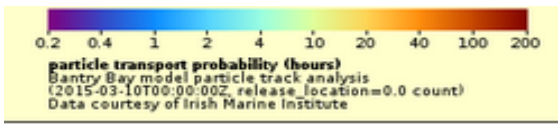


Please go to <http://vis.marine.ie/particles/> to view daily forecasts in more detail

# 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)

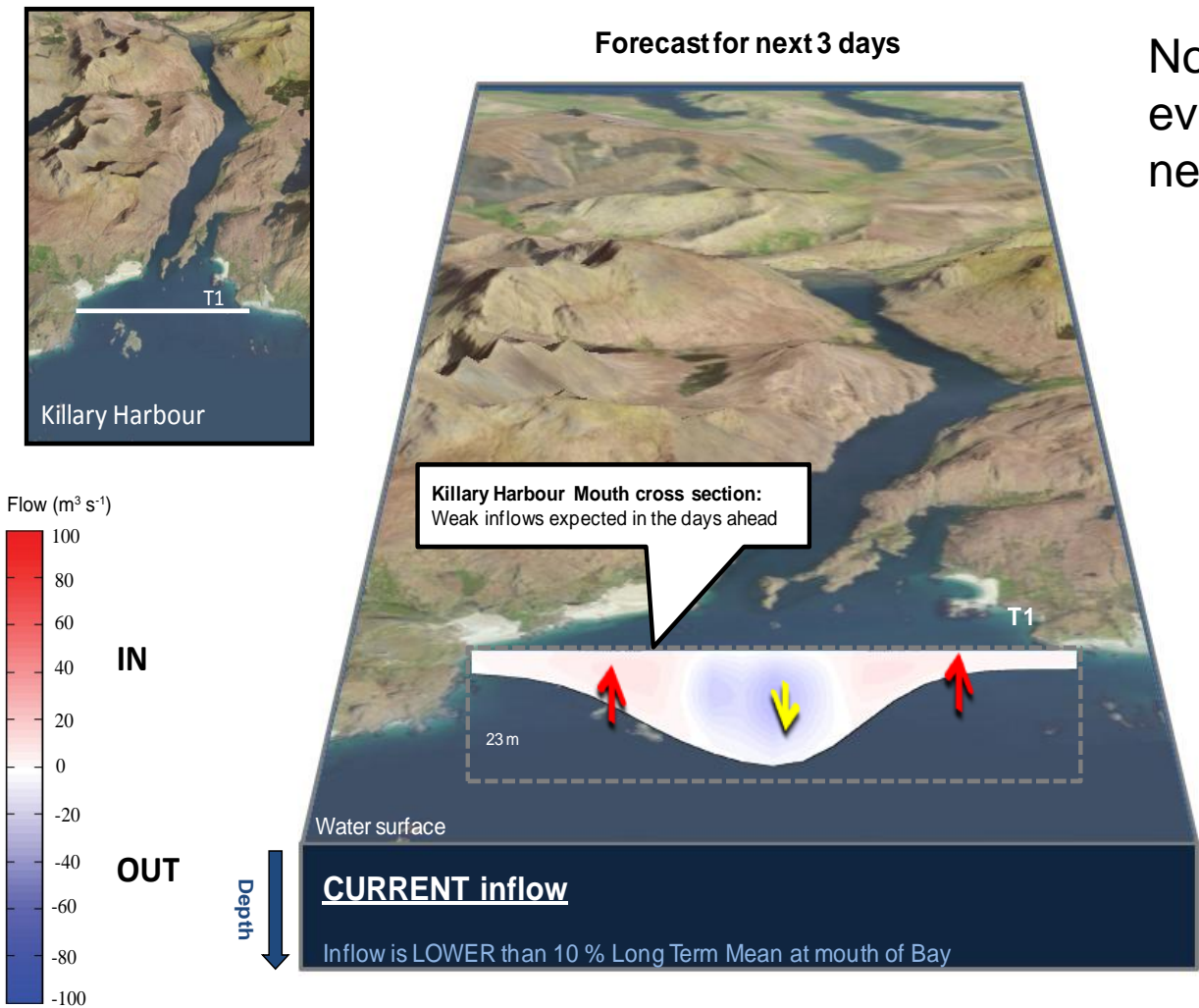
Reddish colours represent areas where phytoplankton remain longest  
Cooler colours represent areas where phytoplankton remain for shorter periods



Predicted water circulation patterns at the entrance to Bantry Bay over the next few days show restrictive movement of surface waters. Water at mid-depths are expected to exit the bay while conditions are favourable for some movement of bottom waters into the bay.

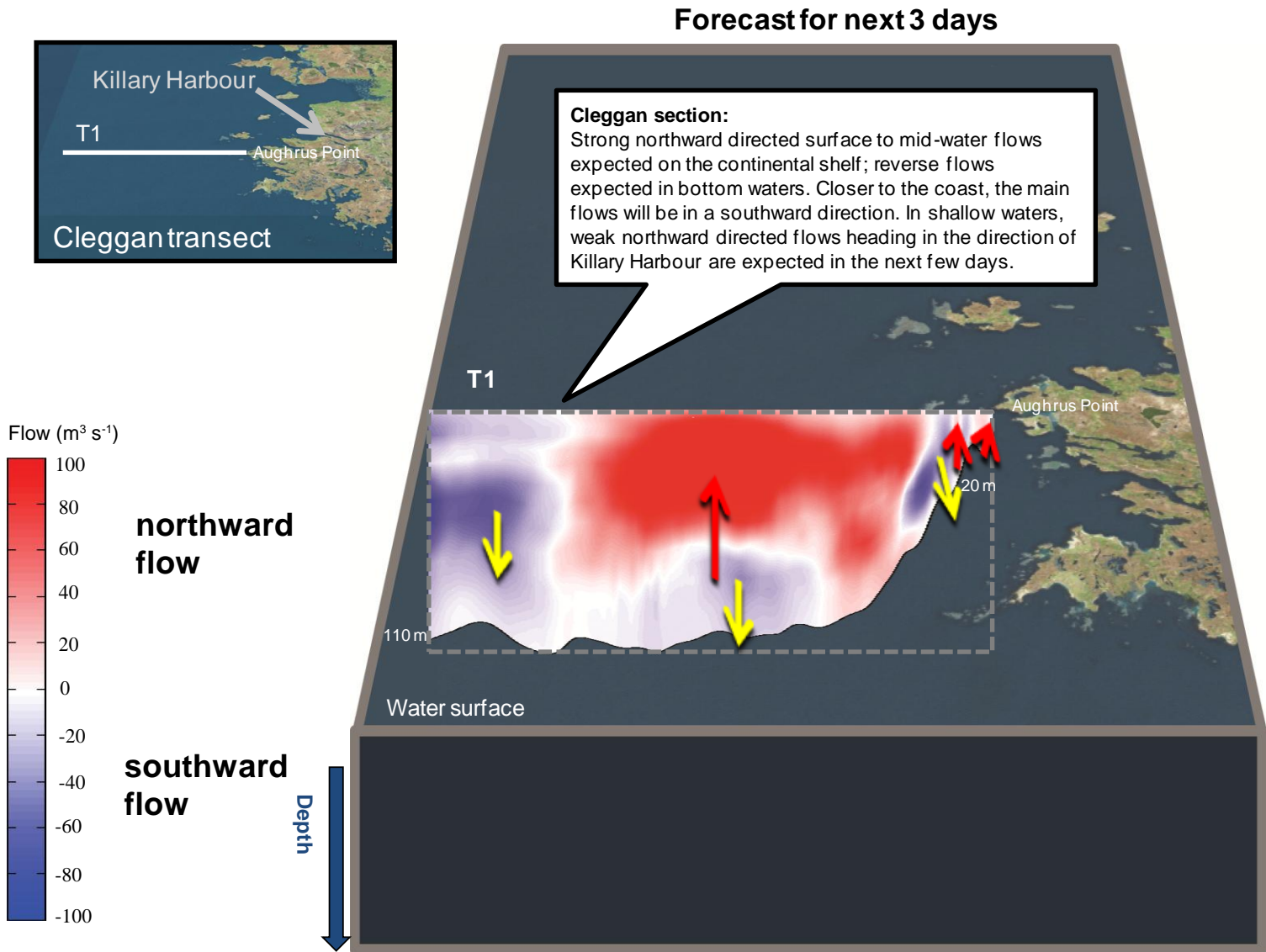
# Killary Harbour

3 day estimated water flows at the mouth of Killary Harbour



No big water exchange event predicted in the next few days

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




7 July – 10 July, 2015 (forecast ends at 00:00 hrs)

WEST: Killary Harbour

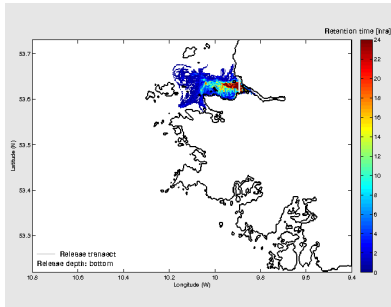
The maps show the **most likely transport pathways for the next 3 days of phytoplankton** found along the **presented transects** (black lines off Mizen Head and the Mouth of Bantry Bay) and **water depths** (bottom, 20 metres and surface)

Reddish colours represent areas where phytoplankton remain longest  
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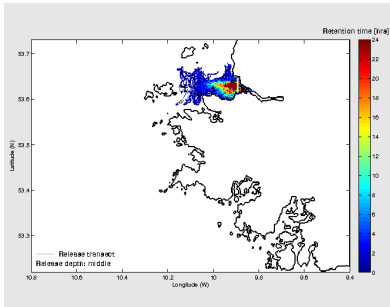


particle transport probability (hours)  
Bantry Bay model particle track analysis  
(2015-03-10T00:00:00Z, release\_location=0.0 count)  
Data courtesy of Irish Marine Institute

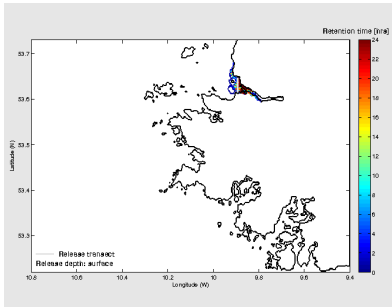
Modelled Forecast: 7 - 9 July



Bottom water

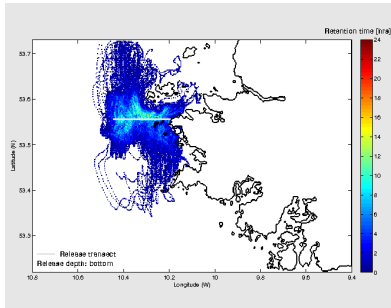


Water @ 20 metres

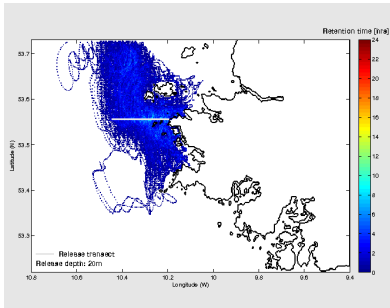


Surface water

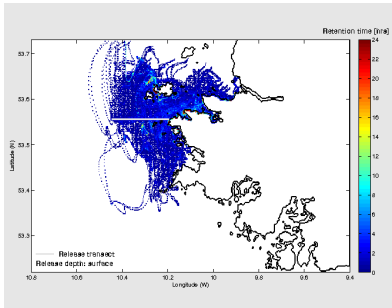
Conditions are favourable for some movement of surface water into Killary Harbour. The main flows at all other depths will be directed out of the harbour.



Bottom water



Water @ 20 metres



Surface water

Circulation patterns off Aughrus Point are expected to be mixed. Phytoplankton in the Coastal Current surface waters are expected to reach the mouth of Killary Harbour.