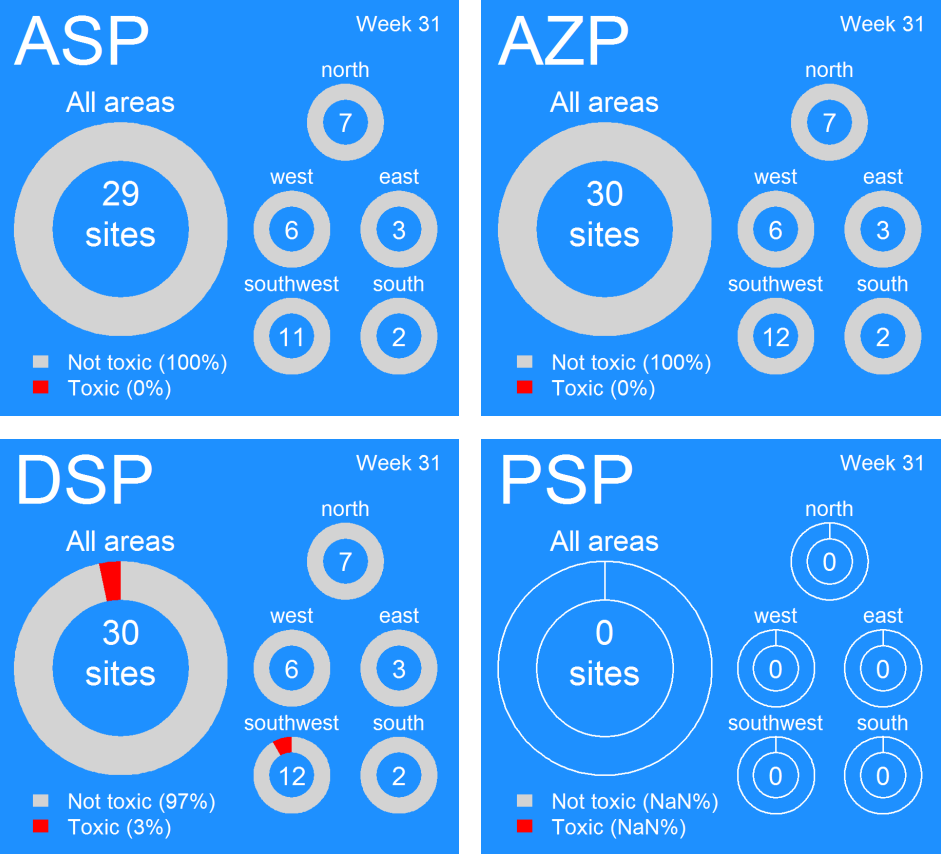


Ireland: Current Conditions

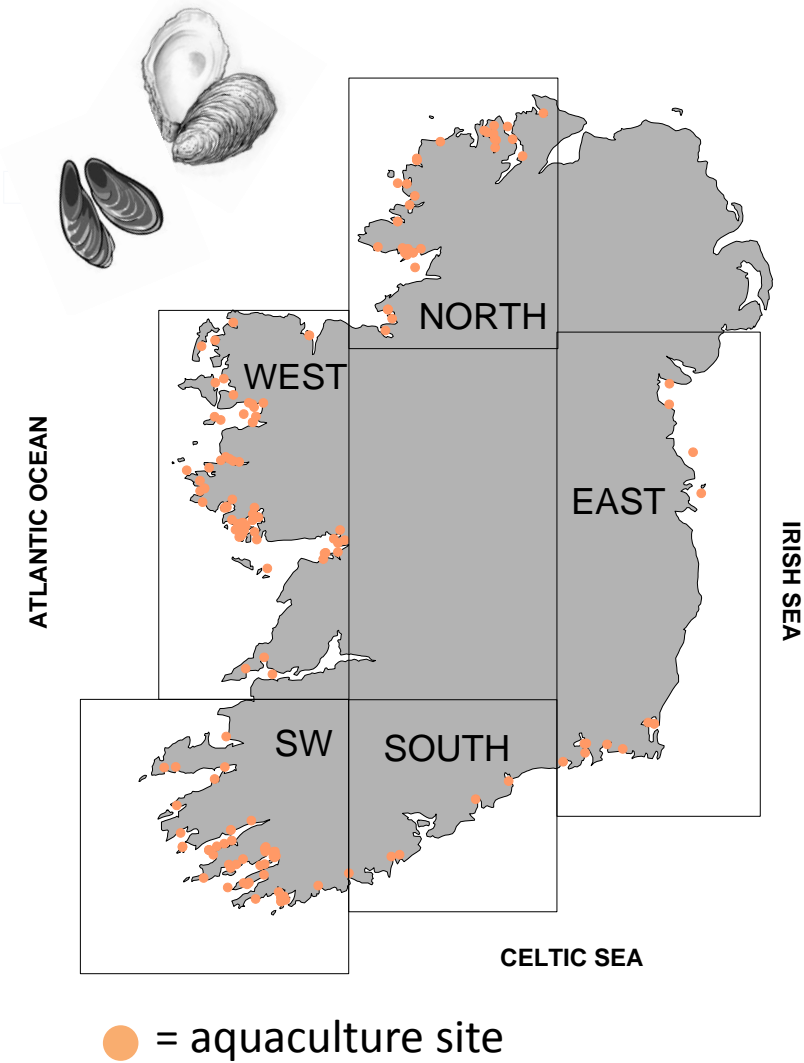
Shellfish biotoxin report (last week)



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

National Monitoring Programme Designated Sampling Sites



Ireland: Predictions

Prediction for this week:

ASP event: Very low risk

AZP event: Low risk

DSP event: High risk in some areas

PSP event: Increasing risk in Cork Harbour

Why do we think this?

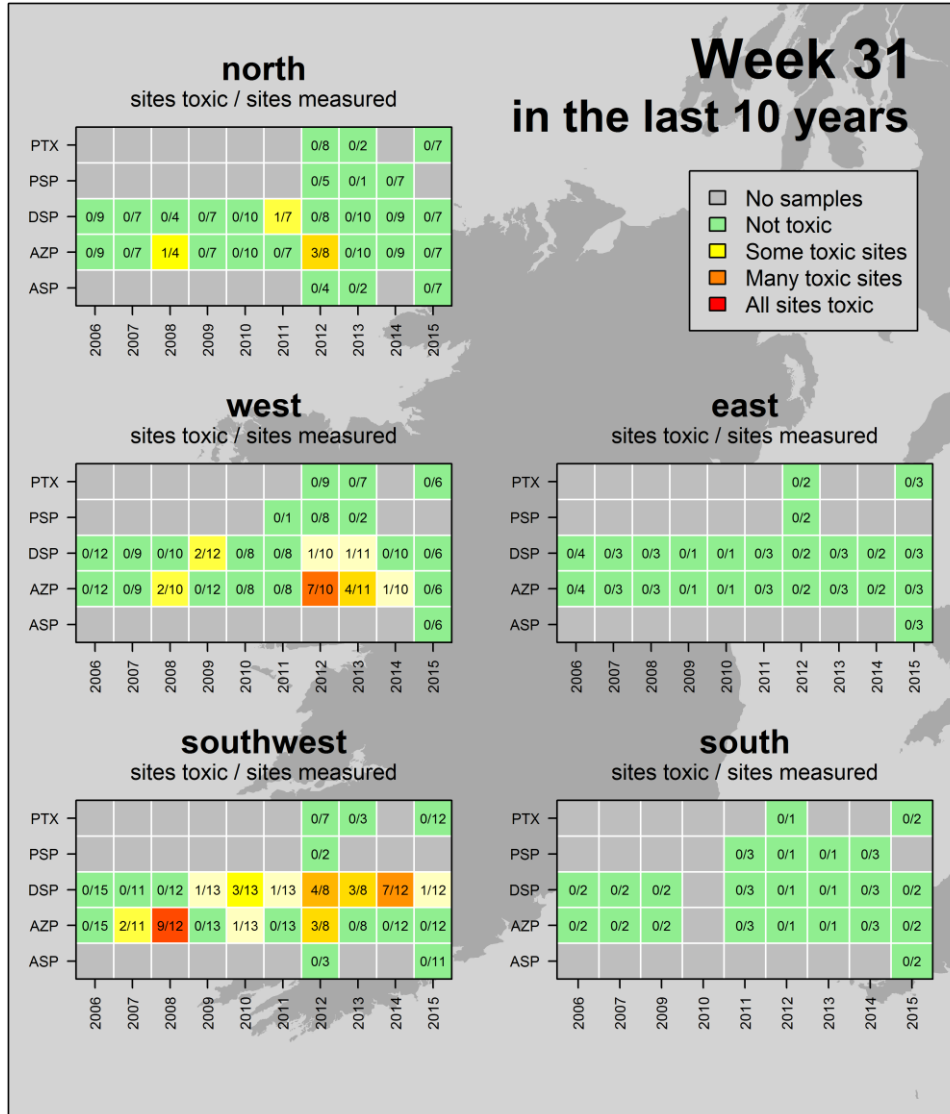
ASP: Historically this is NOT a high risk week for ASP events. Toxins not detected. Small blooms of the “*P. seriata*” group on the south, southwest and east coasts.

AZP: We are now in the HIGH Risk season for AZP. At the moment, though, recorded toxin levels have only been present at very low background levels in sites along the western seaboard. *Azadinium*-like species are present at very low cell levels in many sites with highest numbers recorded in the north. We will continue to monitor this.

DSP: Toxins detected in flesh samples above EU Reg. levels in the SW. Highest cell levels of *Dinophysis* spp. (mix of *D. acuminata* & *D. acuta*) were recorded in the south and SW, so, the risk of an DSP event in these areas continues. *Dinophysis* spp. remain at background levels in northern sites. However, since DSP events have happened in the northern and western regions in the past, some risk remains.

PSP: *Alexandrium* species are present in many sites nationwide. Historically PSP events are only to have occurred in Cork harbour. Since cell levels have increased markedly in Cork Harbour in the last week, the risk of a recurrence of increased levels of PSP toxins in shellfish in Cork Harbour this year exists.

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

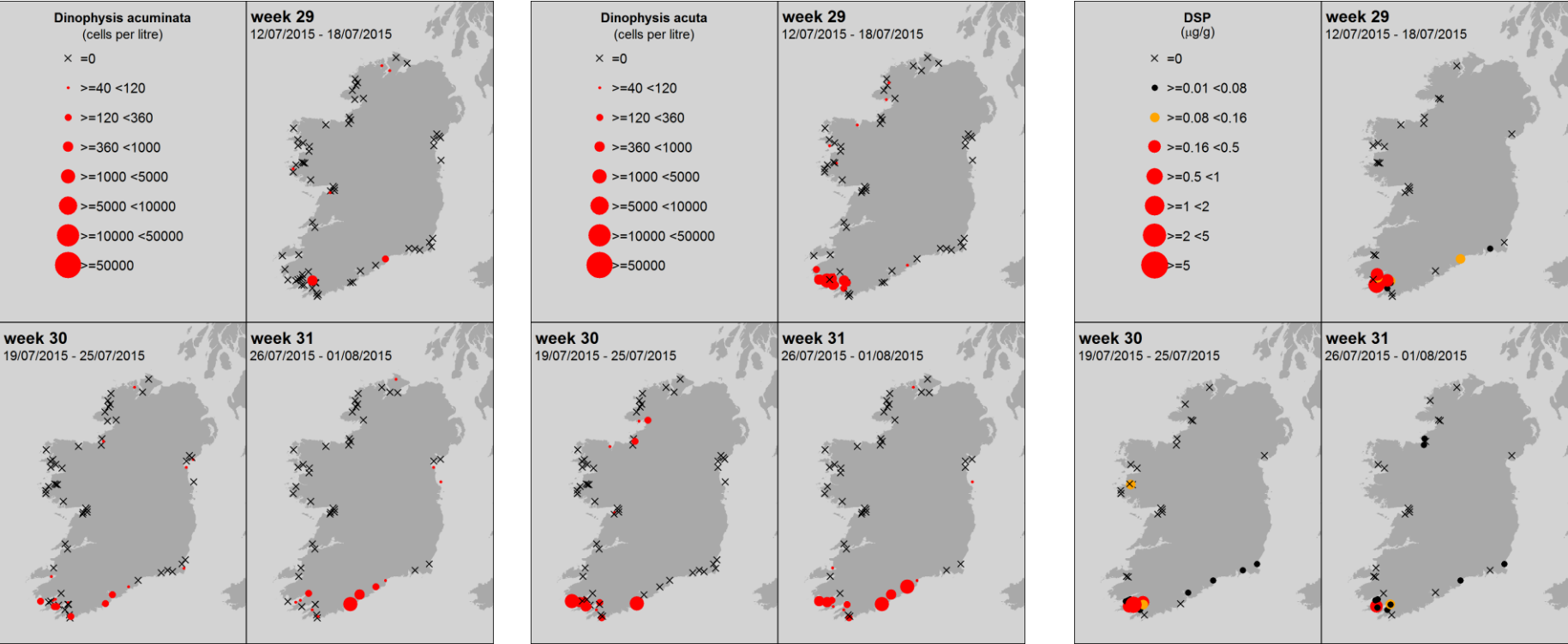
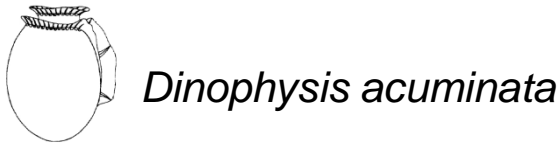


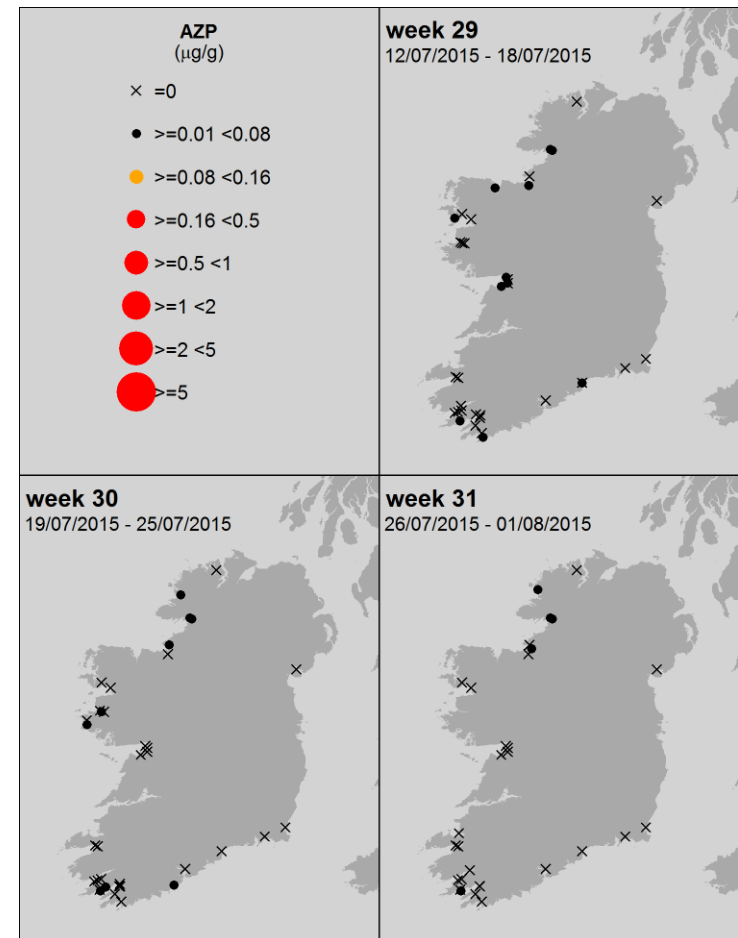
Likely times for Shellfish Toxicity: does not include winter carry over of biotoxins

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

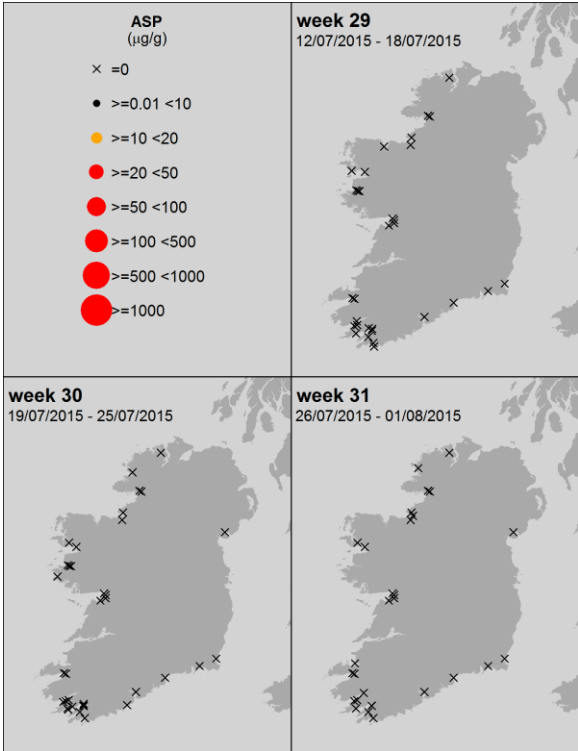
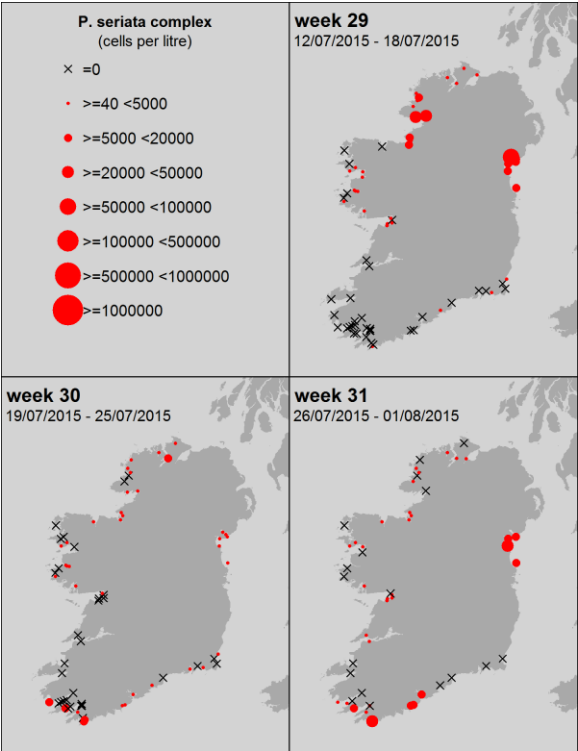
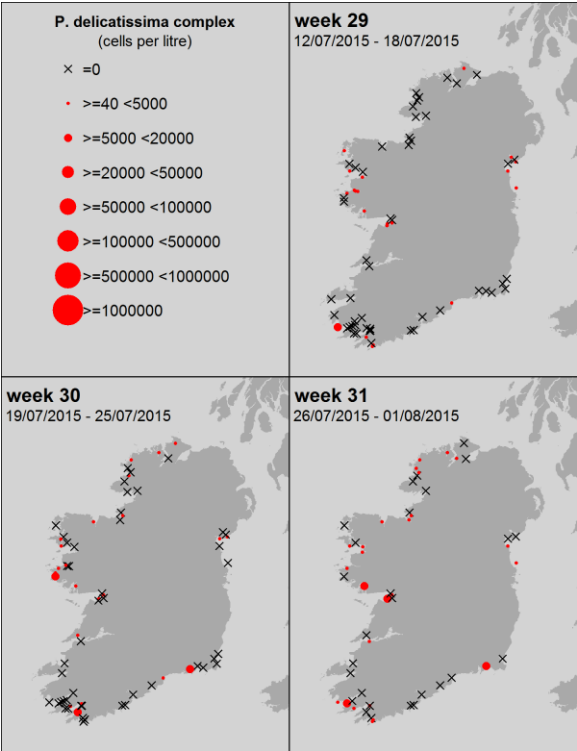
Pseudo-nitzschia spp.



ASP

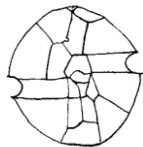
“*P. delicatissima*” complex = small cells
Taken from the literature:
3 species confirmed in Irish waters

“*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.

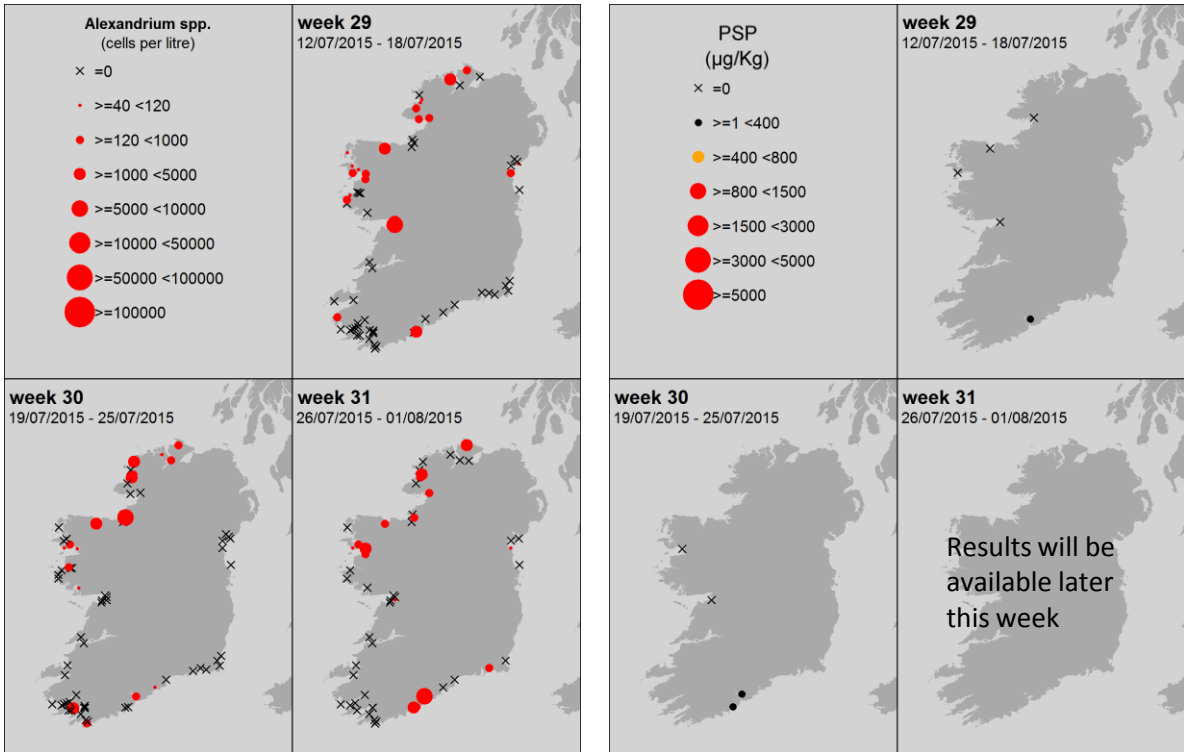
Ireland: Last 3 weeks of available National Monitoring Programme data



Alexandrium spp.

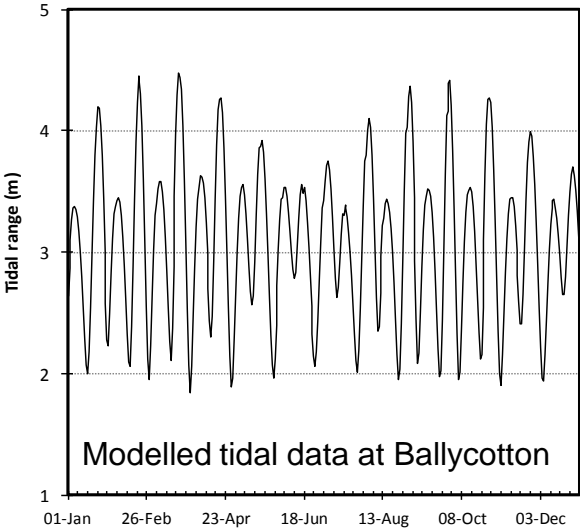


PSP



Alexandrium cell levels have increased to ~ 8,000 cells/L in Cork - Caution is therefore advised

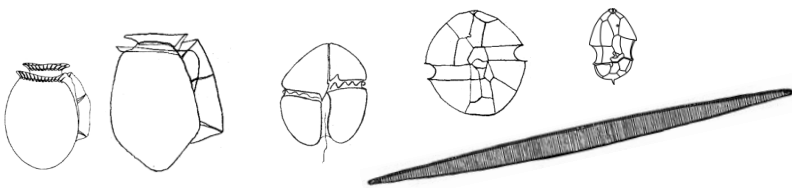
Tidal Range Cork 2015 (Predicted)



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/m²/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**



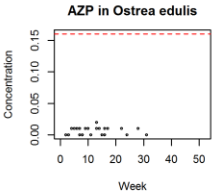
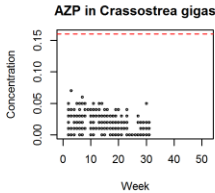
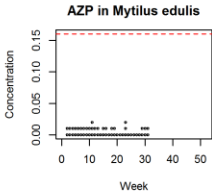
Toxin groups

mussels

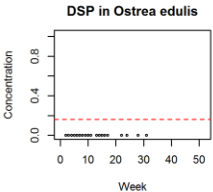
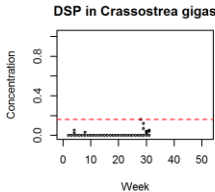
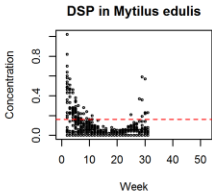
oysters

oysters

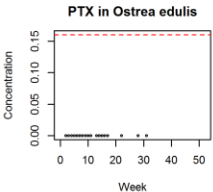
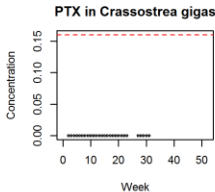
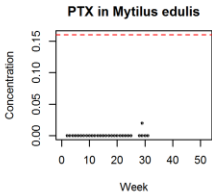
AZP
AZaspiracid
Poisoning



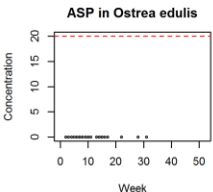
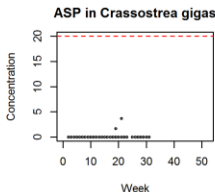
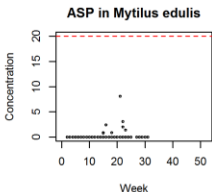
DSP
Diarrhetic
Shellfish
Poisoning



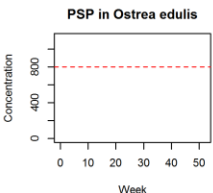
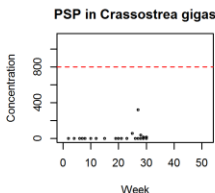
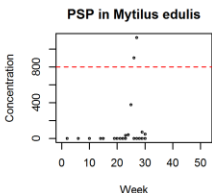
PTX
Pectenotoxin



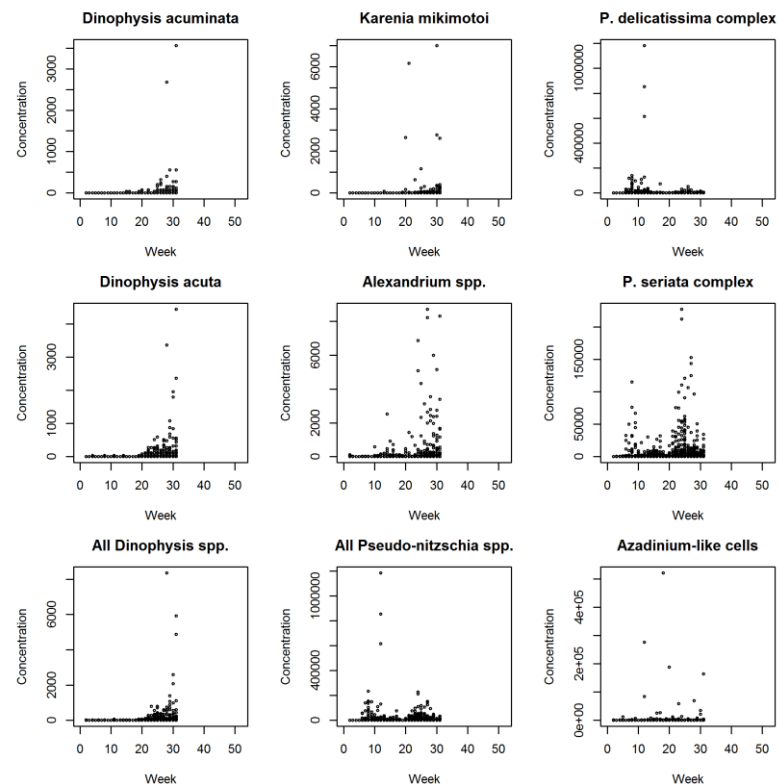
ASP
Amnesic
Shellfish
Poisoning



PSP
Paralytic
Shellfish
Poisoning



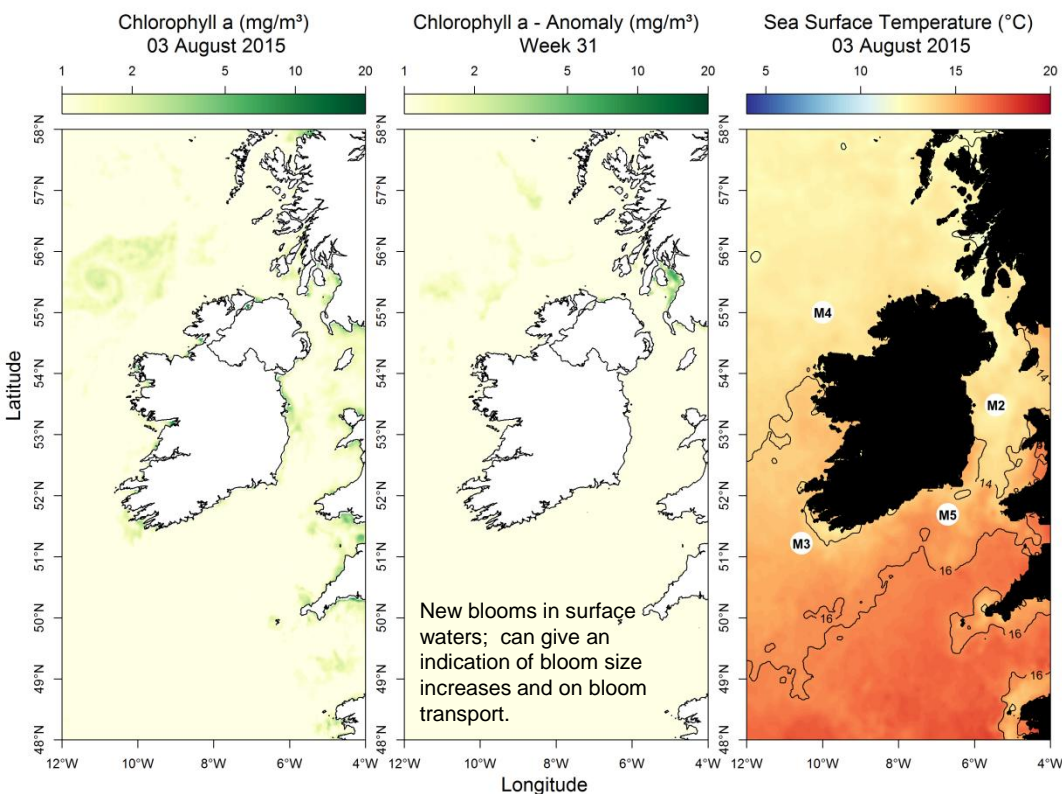
Ireland: **HABs**



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 1.77 °C
- SW coast (M3) Offline
- SE coast (M5) below average by 0.05 °C

What phytoplankton were blooming at inshore coastal sites last week?

Region	Predominant Phytoplankton (most abundant taxa)	Cells/L (rounded)
north:	Diatoms: <i>Leptocylindrus minimus</i> <i>Skeletonema</i> spp. <i>Chaetoceros</i> (Hyalochaete) spp. <i>Guinardia delicatula</i> <i>Leptocylindrus danicus</i> Dinoflagellates: <i>Azadinium</i> / <i>Heterocapsa</i> spp. Other: <i>Mesodinium rubrum</i>	1,983,000 383,000 267,000 238,000 147,000 164,000 93,000
west:	Diatoms: <i>Chaetoceros</i> (Hyalochaete) spp. <i>Leptocylindrus danicus</i> <i>Leptocylindrus minimus</i> <i>Dactyliosolen fragilissimus</i> <i>Skeletonema</i> spp. Dinoflagellates: <i>Prorocentrum micans</i>	276,000 185,000 81,000 71,000 36,000 389,000
SW:	Diatoms: <i>Asterionellopsis glacialis</i> <i>Chaetoceros</i> (Hyalochaete) spp. <i>Leptocylindrus minimus</i> <i>Skeletonema</i> spp. <i>Lauderia</i> / <i>Detonula</i> spp.	661,000 77,000 77,000 75,000 70,000
south:	Diatoms: <i>Bacteriastrum</i> spp. <i>Navicula</i> spp. (< 25 µm) <i>Lauderia</i> / <i>Detonula</i> spp. <i>Chaetoceros</i> (Hyalochaete) spp. Dinoflagellates: <i>Scrippsiella</i> spp. Other: Haptophytes	117,000 78,000 70,000 70,000 108,000 407,000
east:	Diatoms: <i>Bacteriastrum</i> spp. <i>Asterionellopsis glacialis</i> <i>Lauderia</i> / <i>Detonula</i> spp. <i>Leptocylindrus minimus</i> <i>Guinardia delicatula</i> <i>Chaetoceros</i> (Hyalochaete) spp. Centric diatoms (< 20 µm) Other: Haptophytes	342,000 302,000 253,000 218,000 113,000 79,000 77,000 164,000

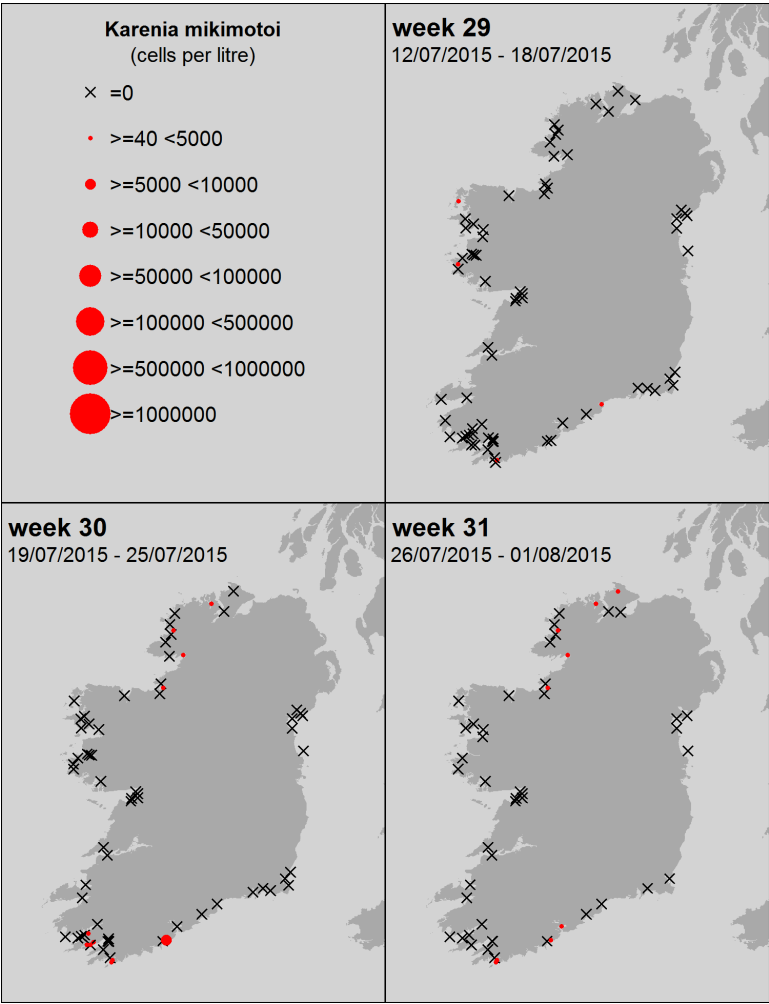


Karenia mikimotoi
(old name: *Gyrodinium aureolum*)

A *Karenia mikimotoi* bloom is NOT expected this week

Cell concentrations remain at background levels at 9 sites nationwide

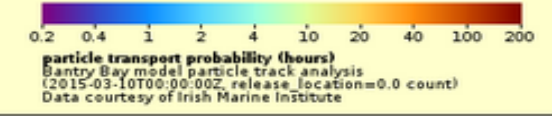
max = 2,600 cells/L in the southwest



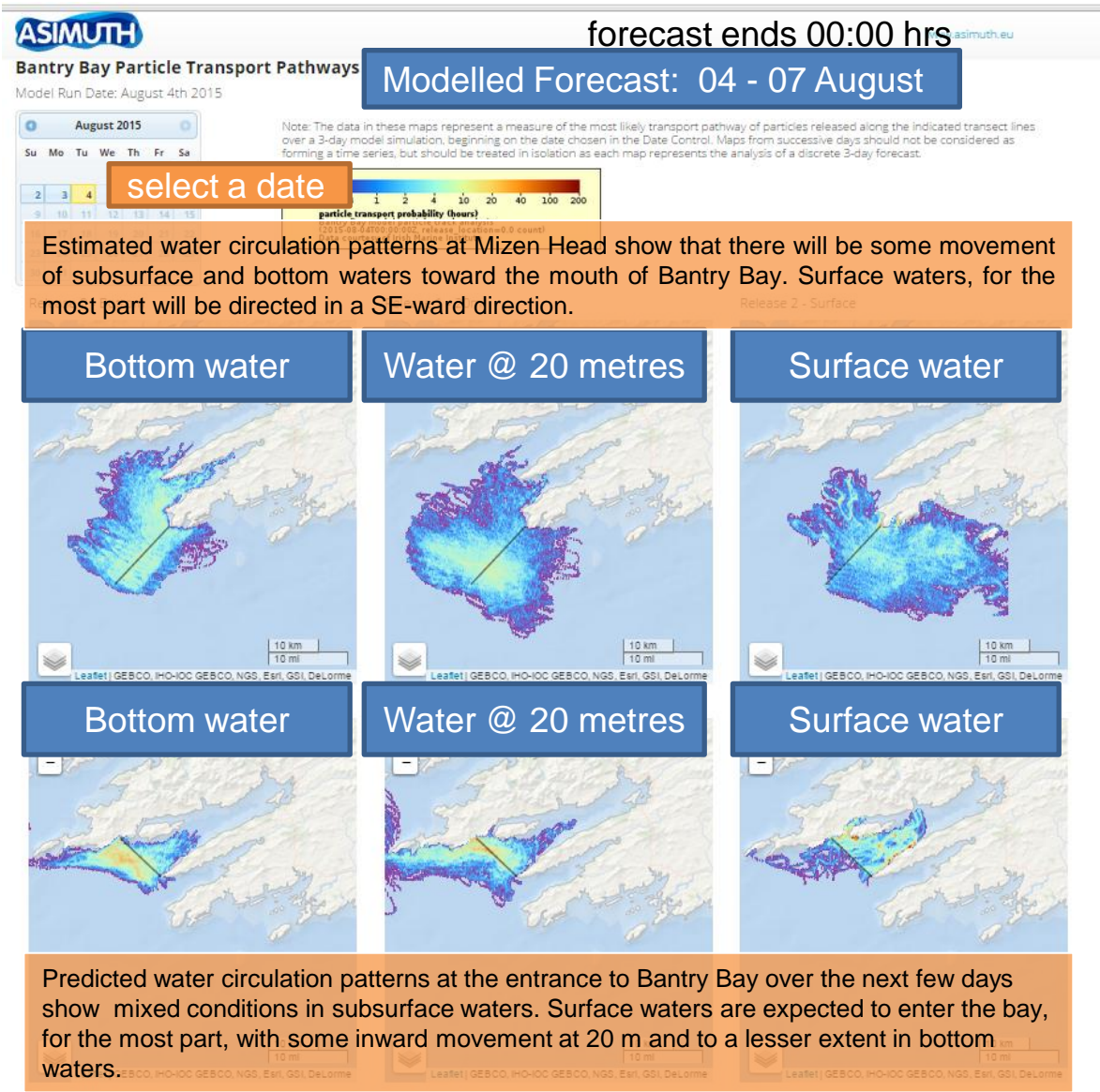
SOUTHWEST: Bantry Bay

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

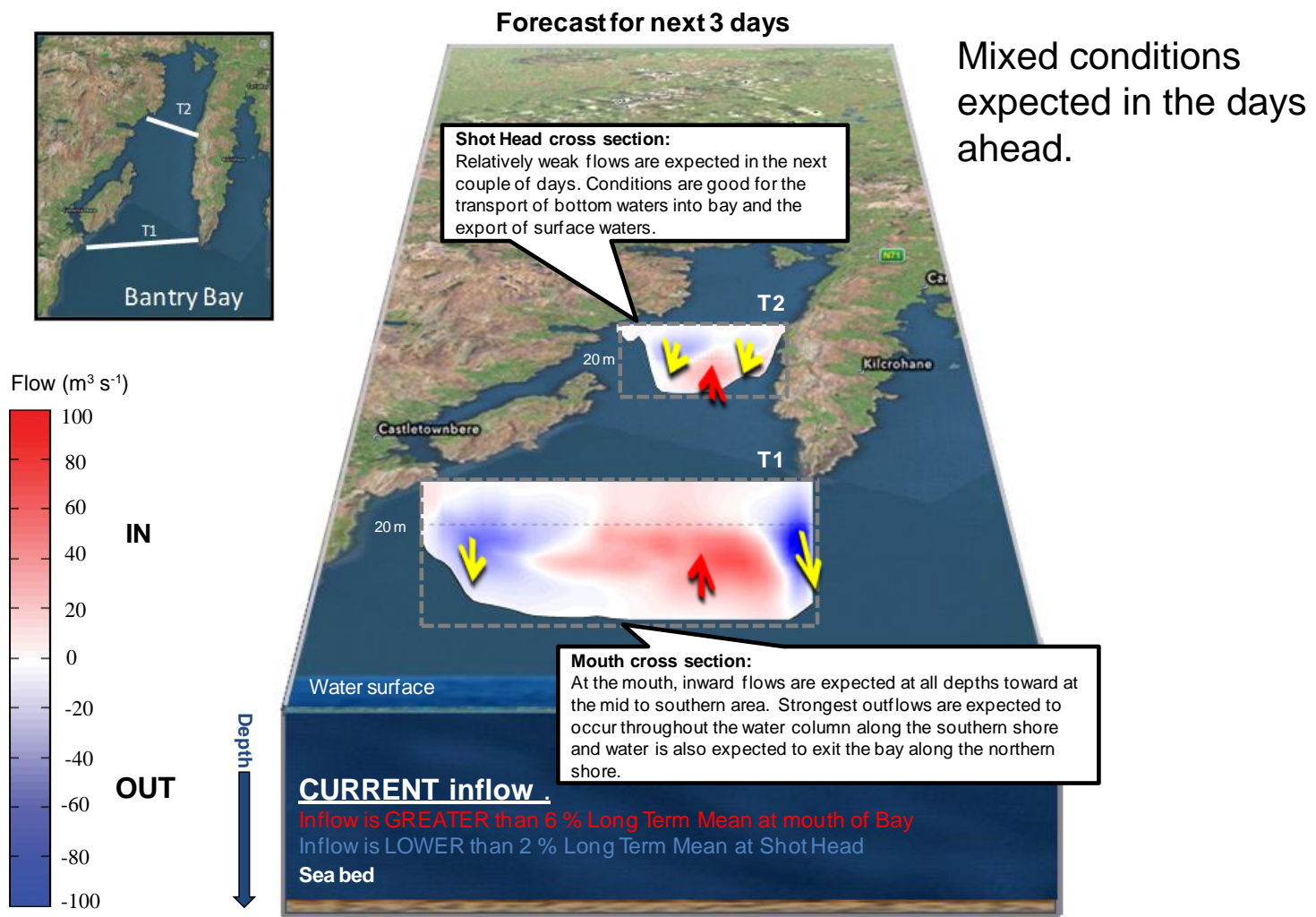


0.2 0.4 1 2 4 10 20 40 100 200
particle transport probability (hours)
Bantry Bay model particle track analysis
(2015-03-10T00:00:00Z, release_location=0.0 count)
Data courtesy of Irish Marine Institute



Bantry Bay

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




4 – 7 August, 2015 (forecast ends at 00:00 hrs)

WEST: Killary Harbour

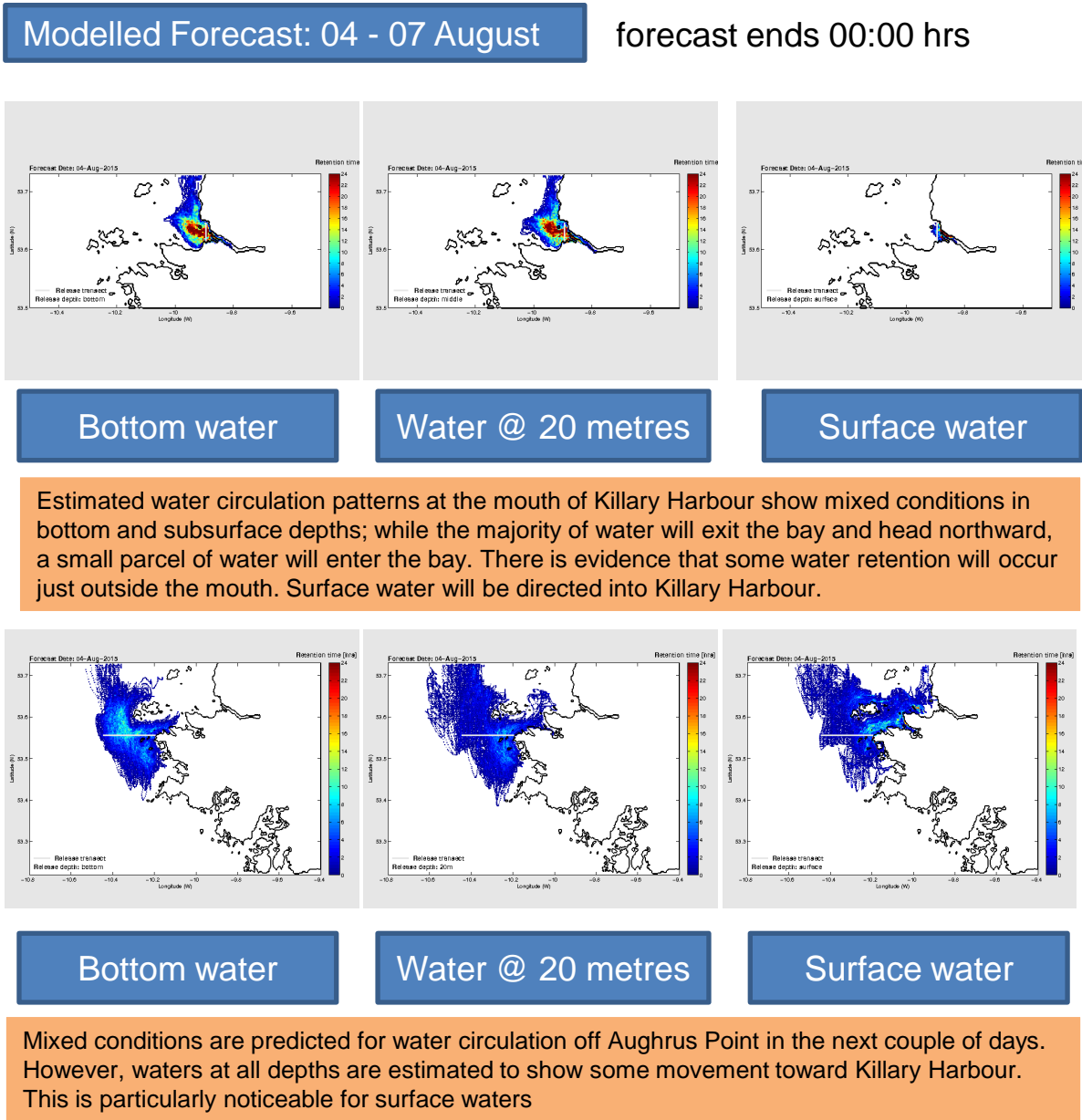
The maps show the **most likely transport pathways for the next 3 days of phytoplankton** found along the **presented transects** i.e. white lines off Aughrus Point and the Mouth of Killary Harbour, and **water depths** (bottom, 20 metres and surface)

Reddish colours represent areas where phytoplankton remain longest

Cooler colours represent areas where phytoplankton remain for shorter periods

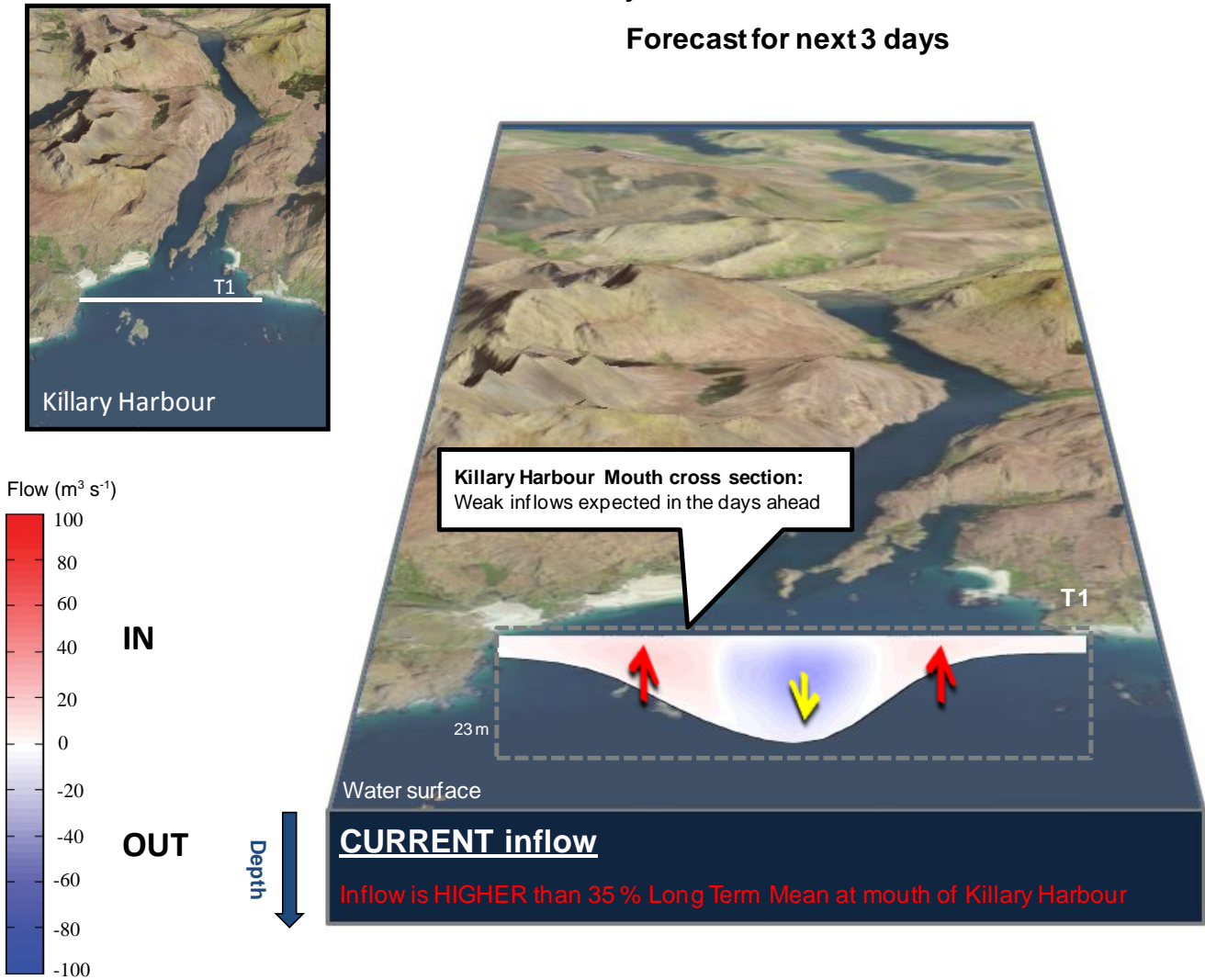


particle transport probability (hours)
Bantry Bay model particle track analysis
(2015-03-10T00:00:00Z, release_location=0.0 count)
Data courtesy of Irish Marine Institute



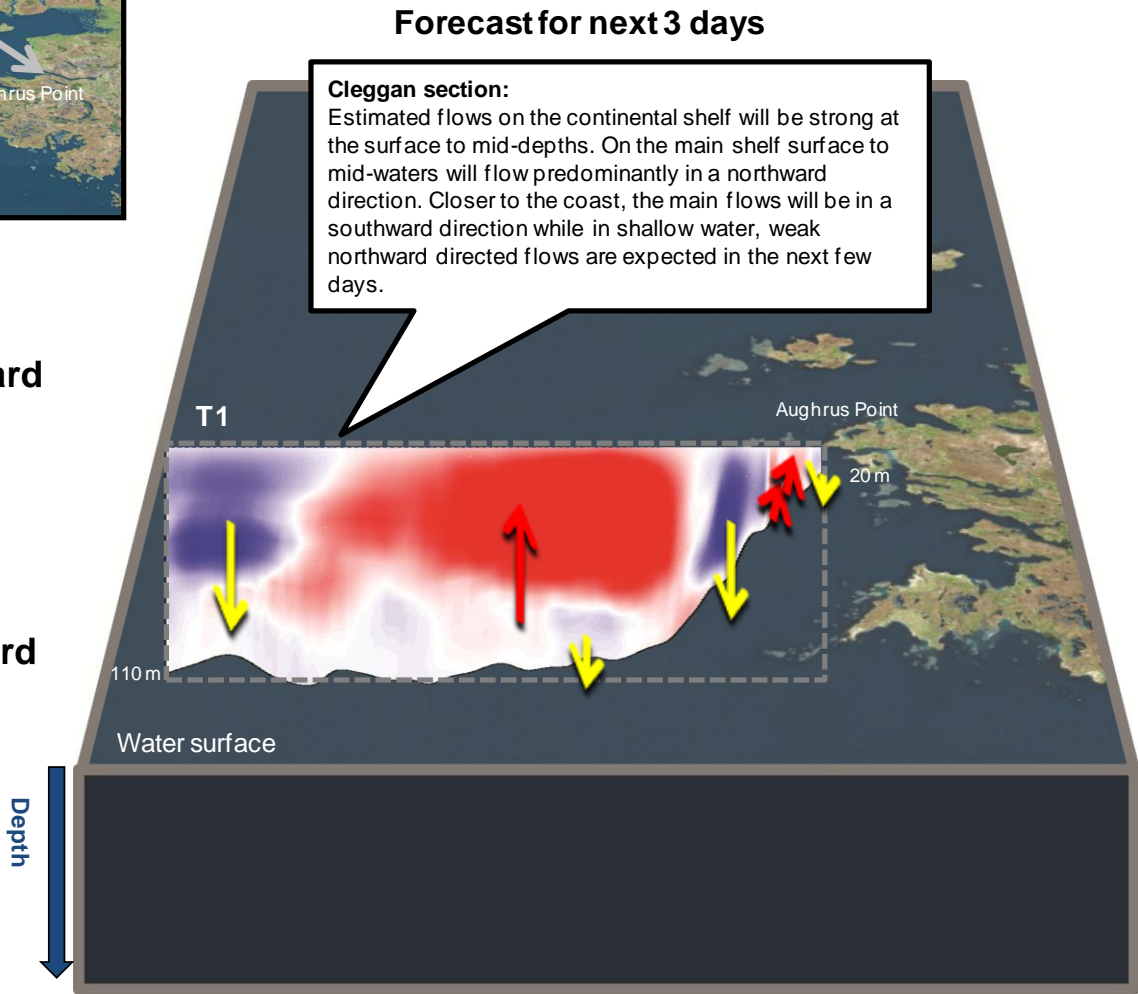
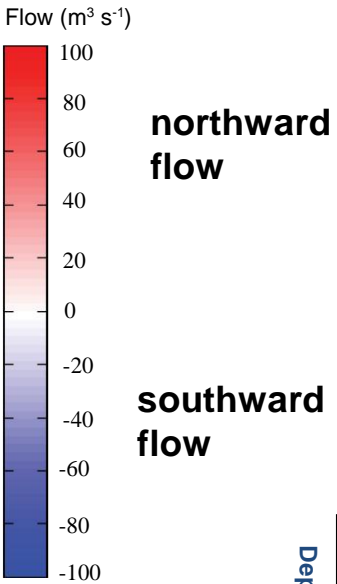
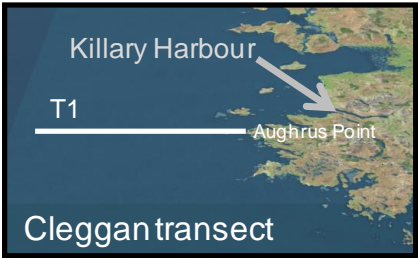
Killary Harbour

3 day estimated water flows at the mouth of Killary Harbour



4 – 7 August, 2015 (forecast ends at 00:00 hrs)

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



4 – 7 August, 2015 (forecast ends at 00:00 hrs)