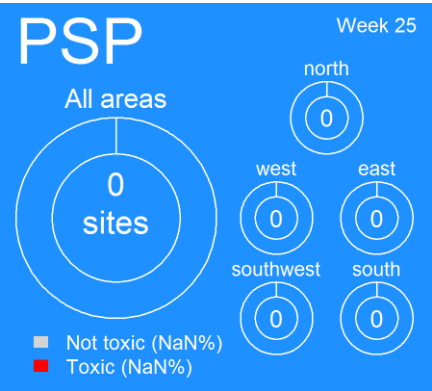
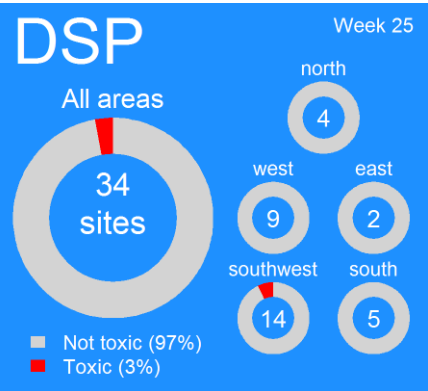
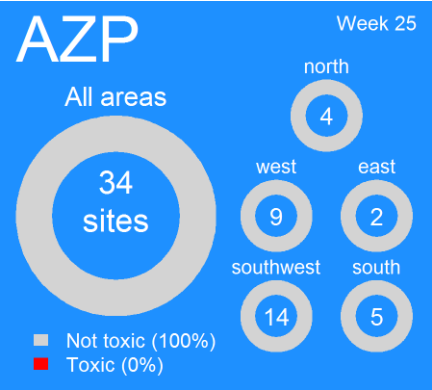
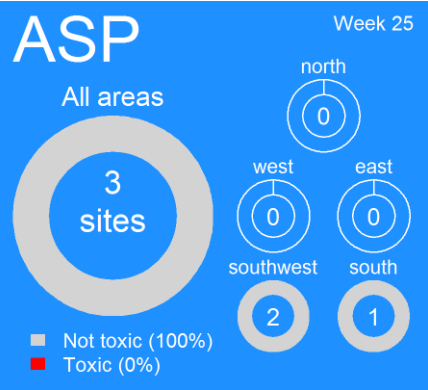


Ireland: Current Conditions

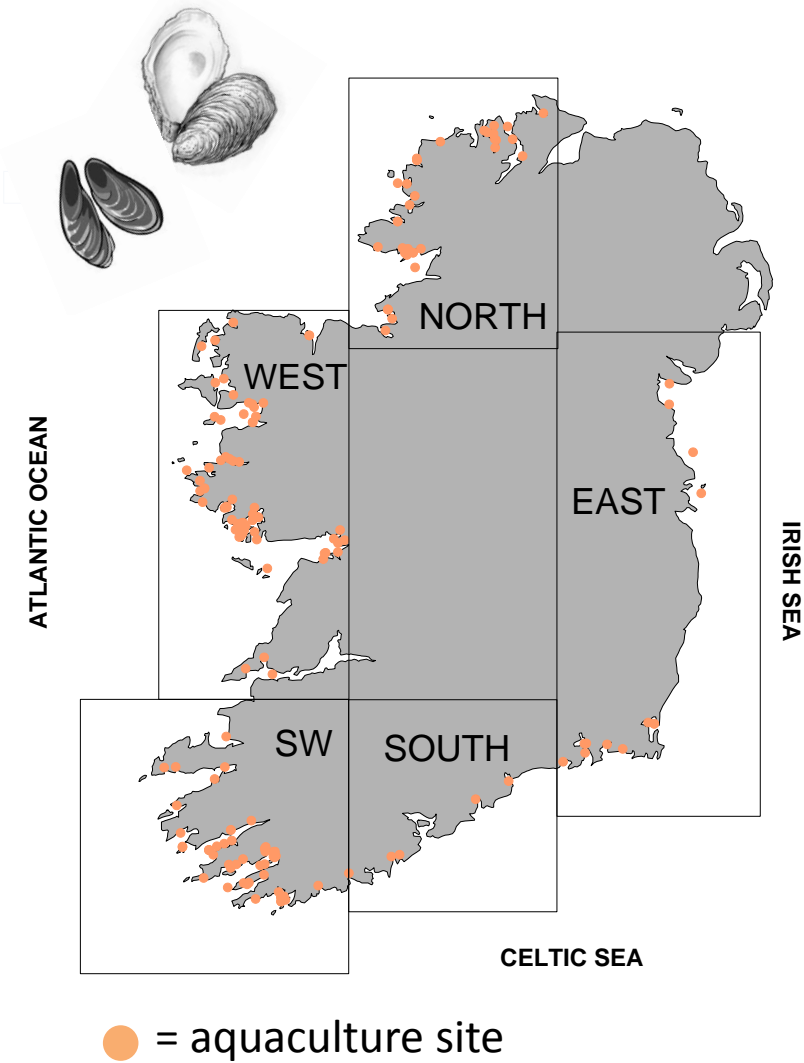
Shellfish biotoxin report (last week)



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 risk
- AZP event: Low risk
- DSP event: Low risk with a moderate - HIGH 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: Eleven sites sampled (mussels and oysters) - Toxin not detected. The “*P. seriata*” group was found in 39 out of 64 sites nationwide with highest cell counts in the southwest (49,000 to 90,000 cells/L). The potentially toxic “*P. seriata*” population made up a significant proportion of the phytoplankton flora in several SW sites (between 33 - 66 %). The presence of toxic species in this group has not yet been determined. Because the “*P. seriata*” group represents a larger part of the phytoplankton assemblage in some sites, there is a small risk of toxicity. However, historically this is NOT a high risk week.

AZP: 34 sites sampled nationwide. Toxin not detected. *Azadinium*-like species recorded at relatively low levels at 21 sites – maximum cell levels (~ 2,000 cells/L) in the north and west. Historically, this week presents as a relatively low risk period for AZP.

DSP: 34 sites sampled nationwide. Over the last week DSP toxins continued to increase in the southwest (above the regulatory limit at one site; 0.21 µg/g in long-line mussels). *Dinophysis* spp. (mixed combination of *D. acuta* and *D. acuminata*) at cell levels between 40 and 720 cells/L in 15 sites nationwide, highest count observed in Galway Bay. Based on historical weekly trends, we are now in an increased risk period for DSP events in the SW.

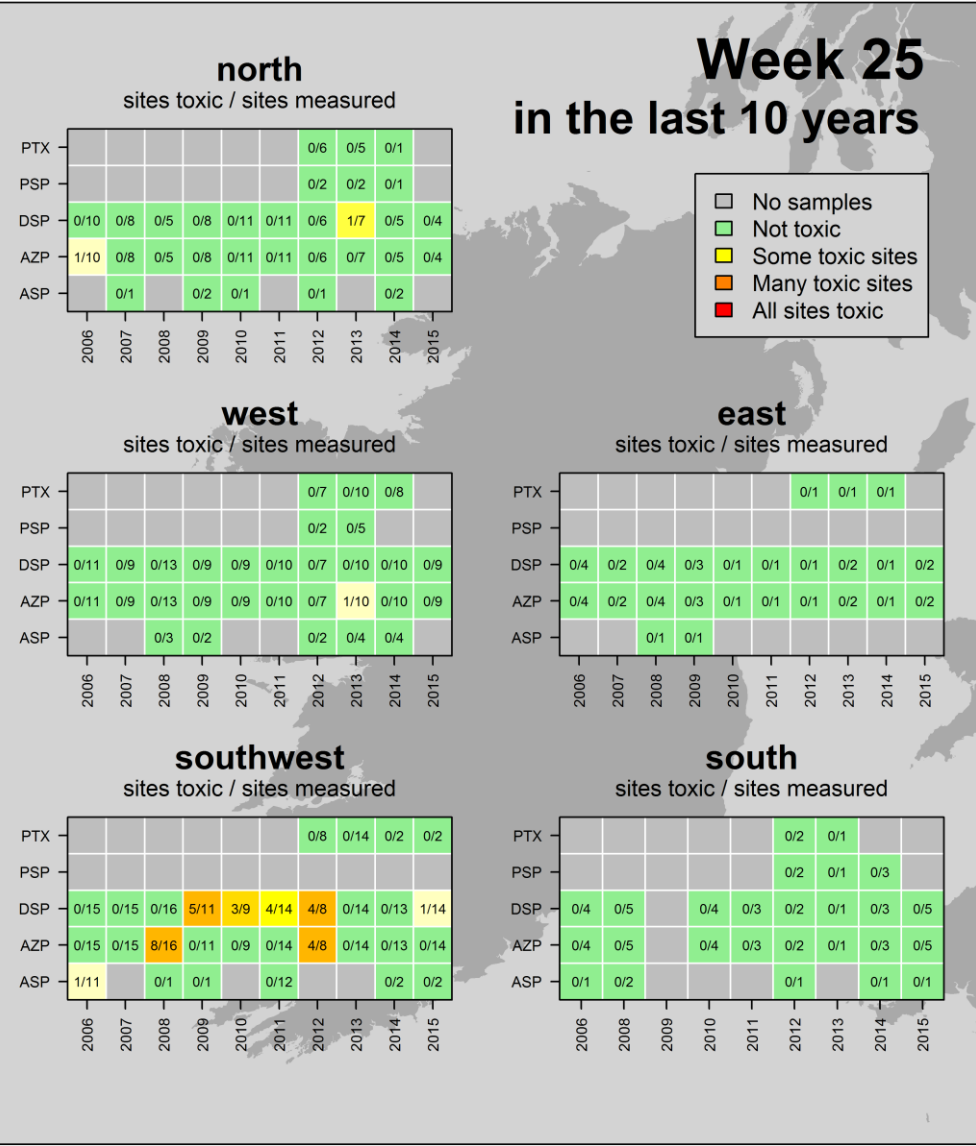
PSP: No samples analysed for PSP toxins (saxitoxin equivalents in mussels and oysters). *Alexandrium* species present in 16 out of 64 sites nationally; maximum cell levels in the north and west (~ 2,000 to 4,000 cells/L). This is a HIGH risk period for PSP events in Cork Harbour based on lower tidal dilution rates at this time of year.

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

* PREDICTING ALEXANDRIUM BLOOMS IN CORK HARBOUR, Aoife Ní Rathaille and Robin Raine (NUI, Galway)
<http://oar.marine.ie/bitstream/10793/262/1/No%2027%20Marine%20Environment%20and%20Health%20Series.pdf>

Ireland: Historic Conditions

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



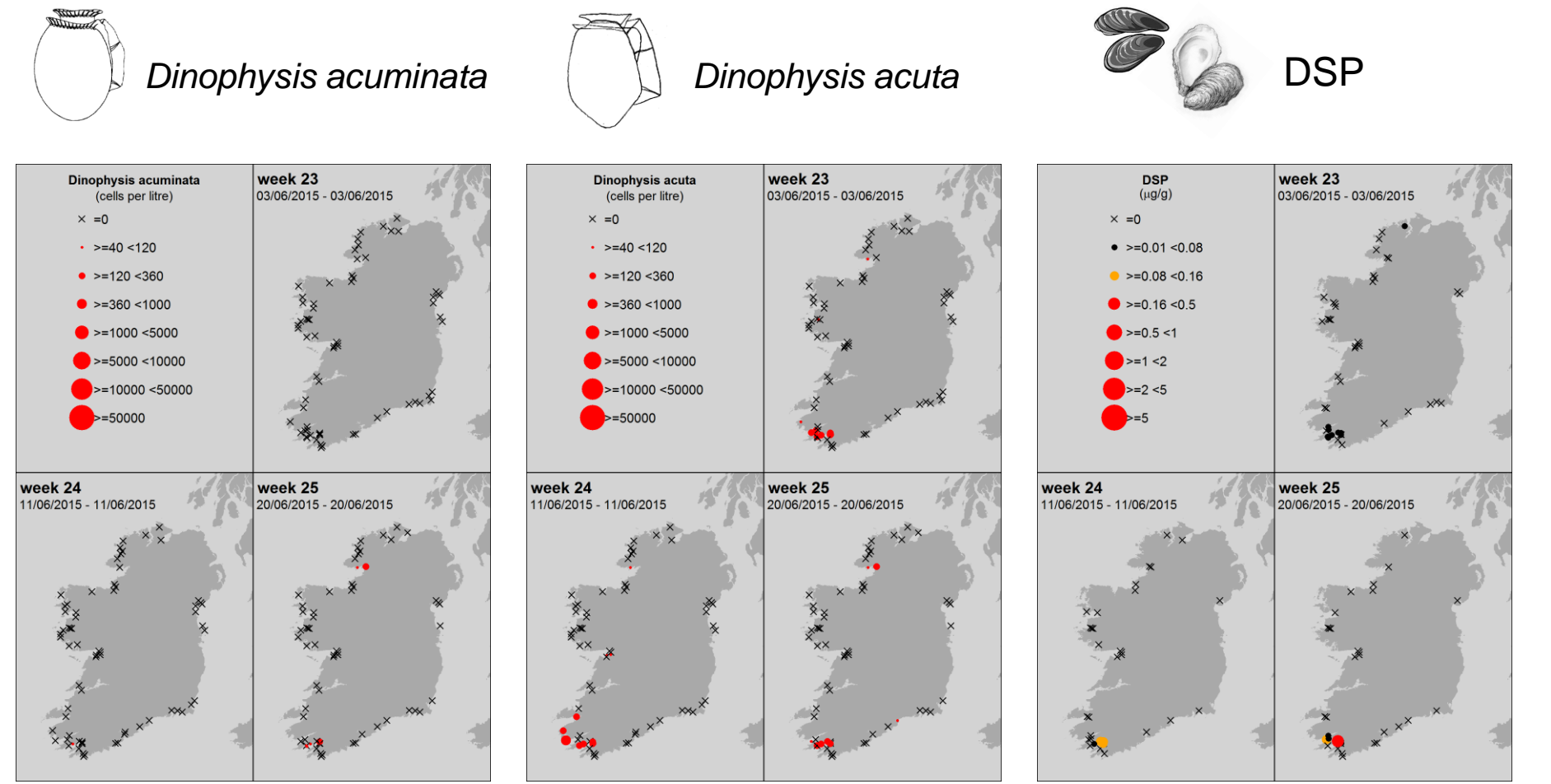
Ireland HISTORIC TRENDS

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: Last 3 weeks of available National Monitoring Programme data



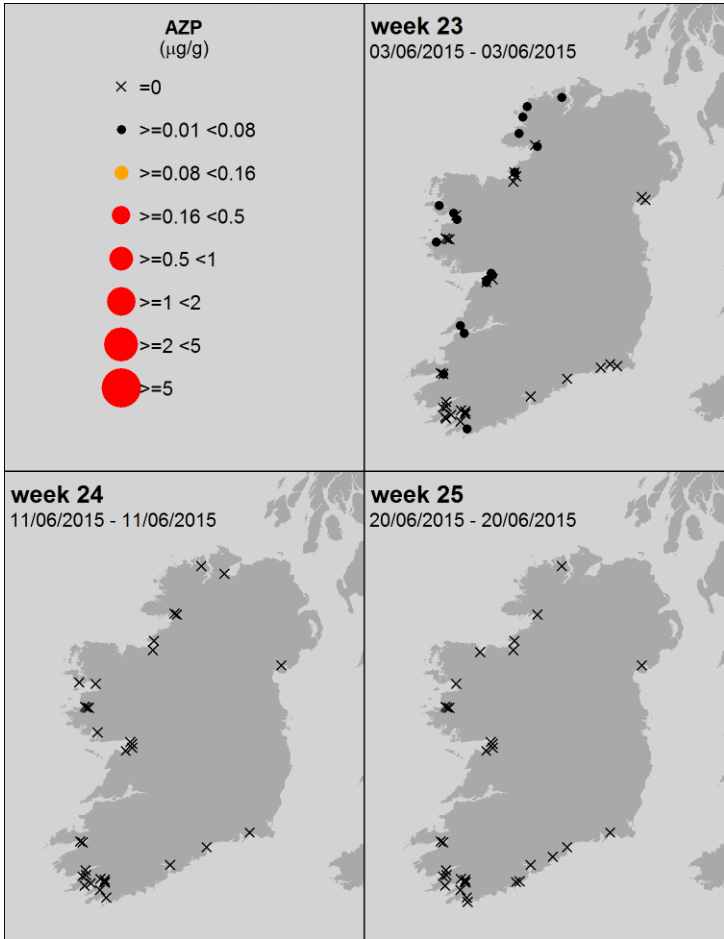
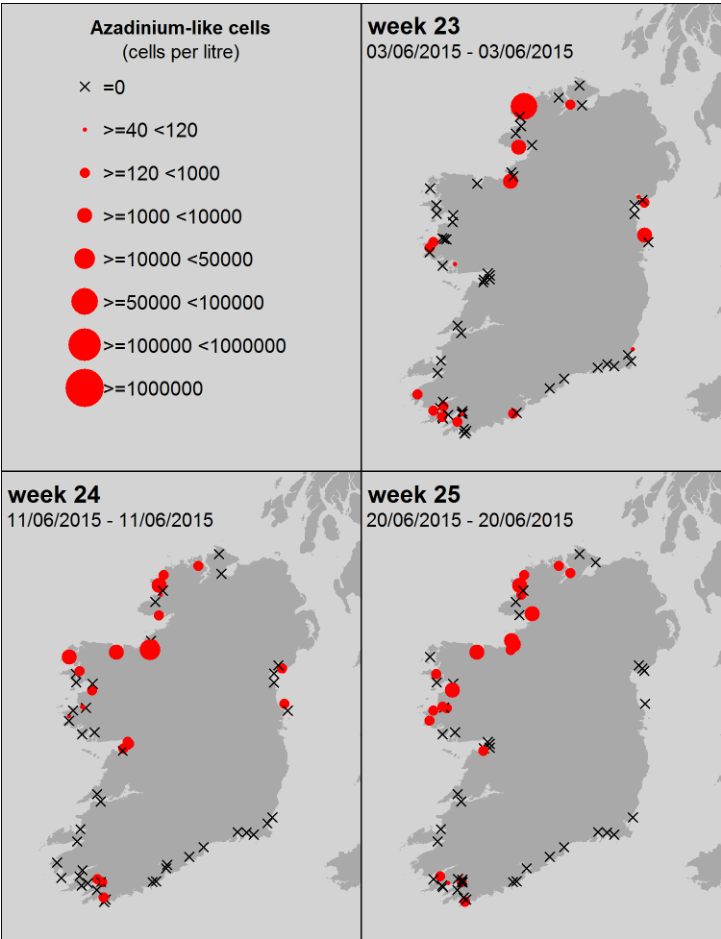
Ireland: Last 3 weeks of available National Monitoring Programme data



Azadinium – like spp.



AZP



Ireland: Last 3 weeks of available National Monitoring Programme data

Pseudo-nitzschia spp.

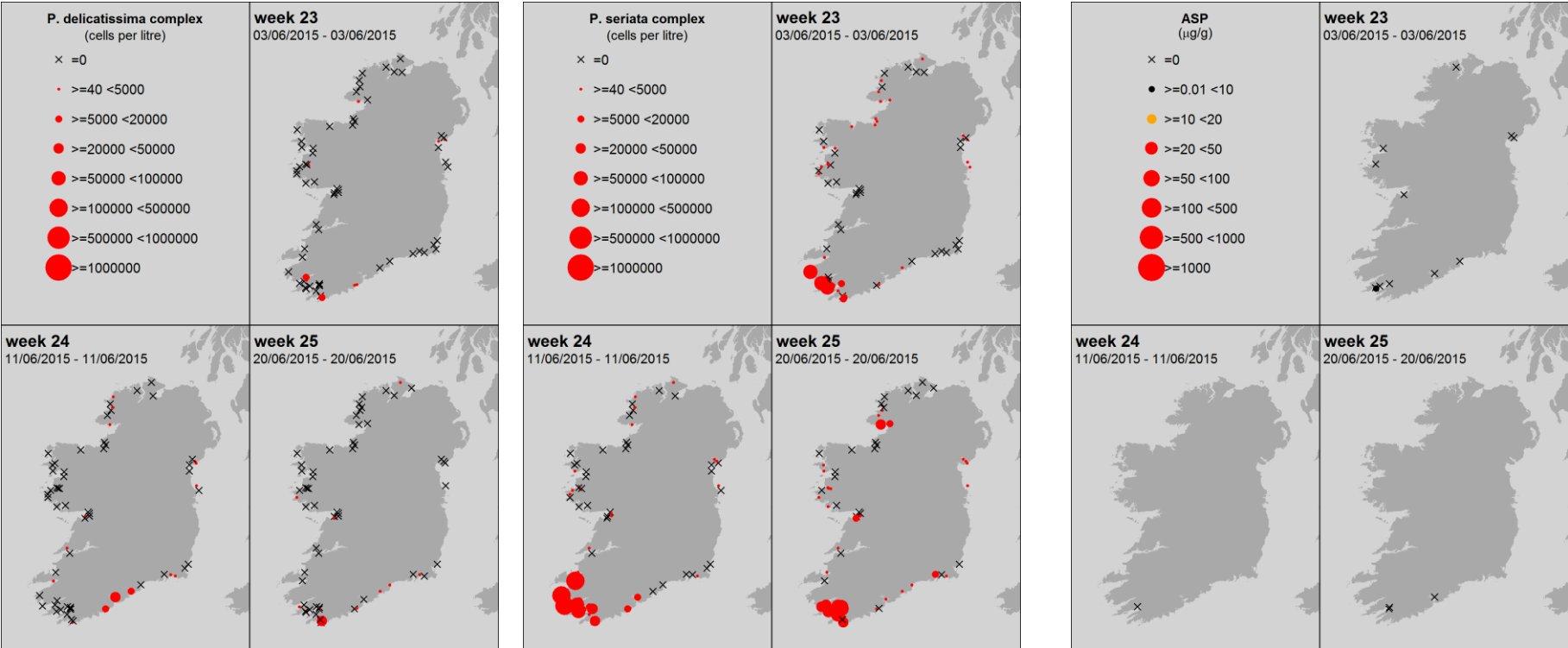


ASP

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

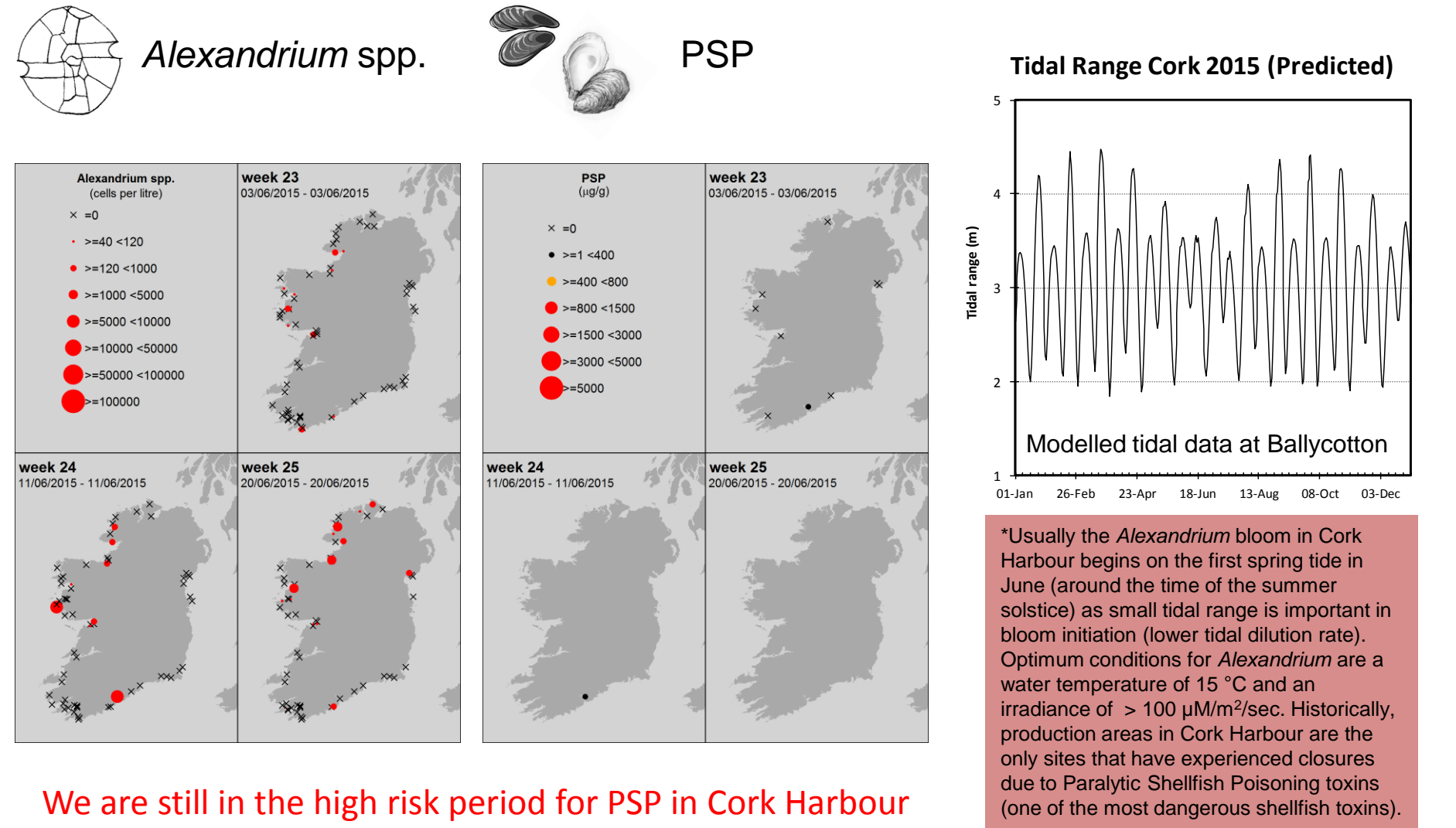
“*P. seriata*” complex = large cells
Taken from the literature:
7 species confirmed in Irish waters

Please note: Ten sites (longline mussels) tested in SW all tested negative for ASP (domoic acid) toxins - Data not shown in map below



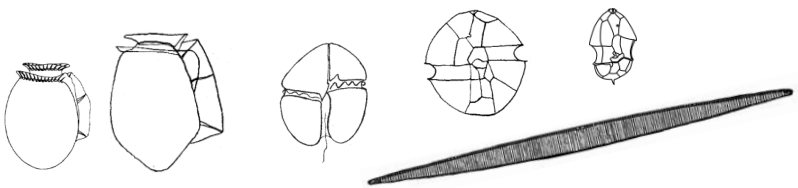
Taken from the literature: Of the 4 species (*P. fraudulenta*, *P. australis*, *P. pungens* and *P. delicatissima*) from Irish waters, tested for ASP toxins in culture work, only one, *P. australis* (from the “*P. seriata*” group) was toxic.

Ireland: Last 3 weeks of available National Monitoring Programme data



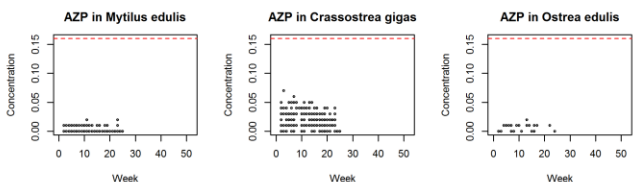
Ireland: **HABs and biotoxins** Levels from week 1 to present

Ireland: **Biotoxins**

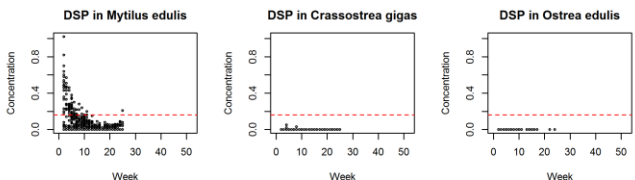


Toxin groups mussels oysters oysters

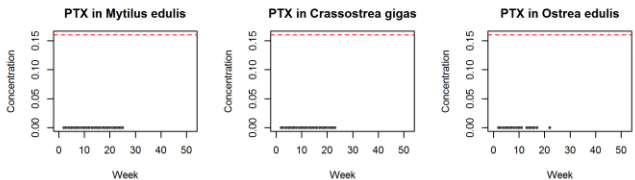
AZP
AZaspiracid
Poisoning



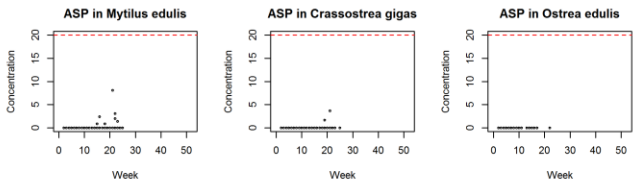
DSP
Diarrhetic
Shellfish
Poisoning



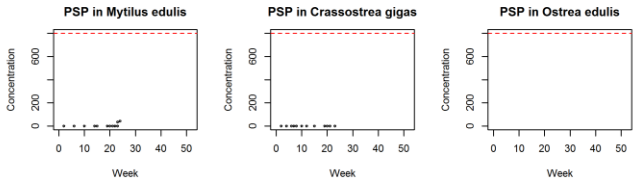
PTX
Pectenotoxin



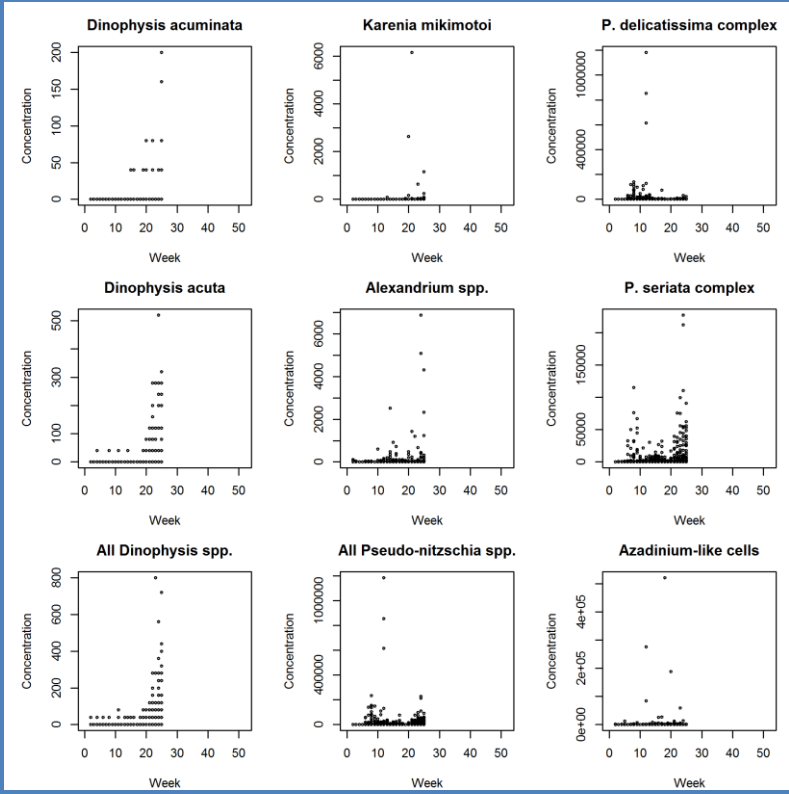
ASP
Amnesic
Shellfish
Poisoning



PSP
Paralytic
Shellfish
Poisoning



Ireland: **HABs**

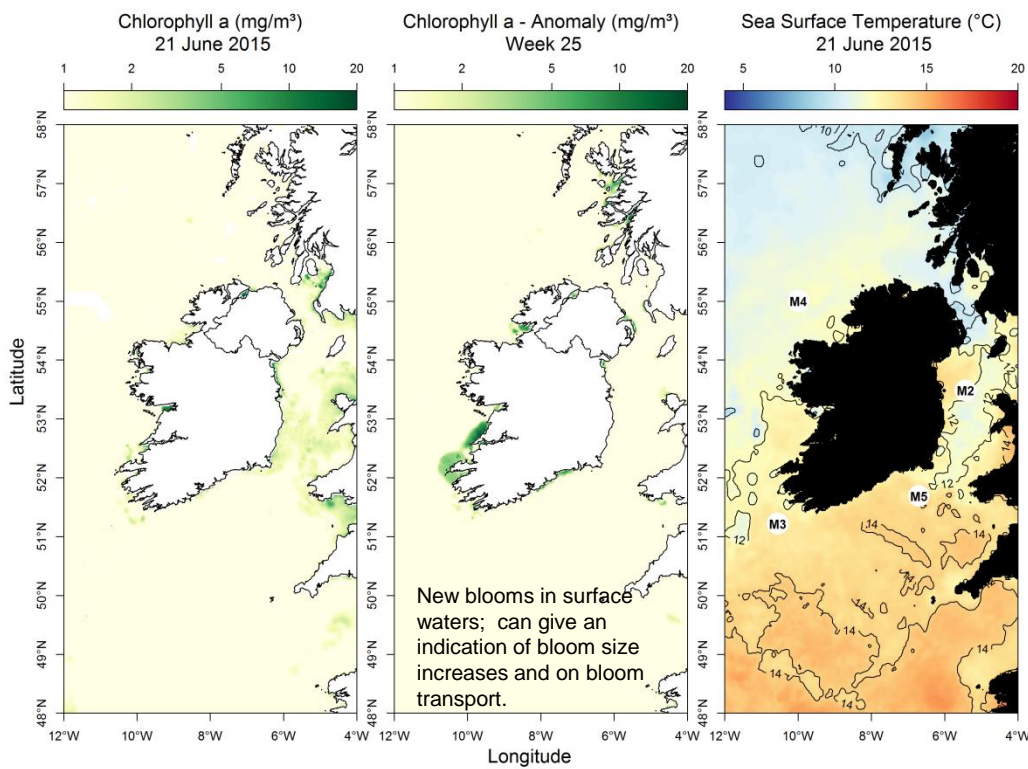


Week number: 1 to 25

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 1.73 °C
- SW coast (M3) Offline
- SE coast (M5) below average by 0.97 °C

What phytoplankton were blooming at inshore coastal sites last week?

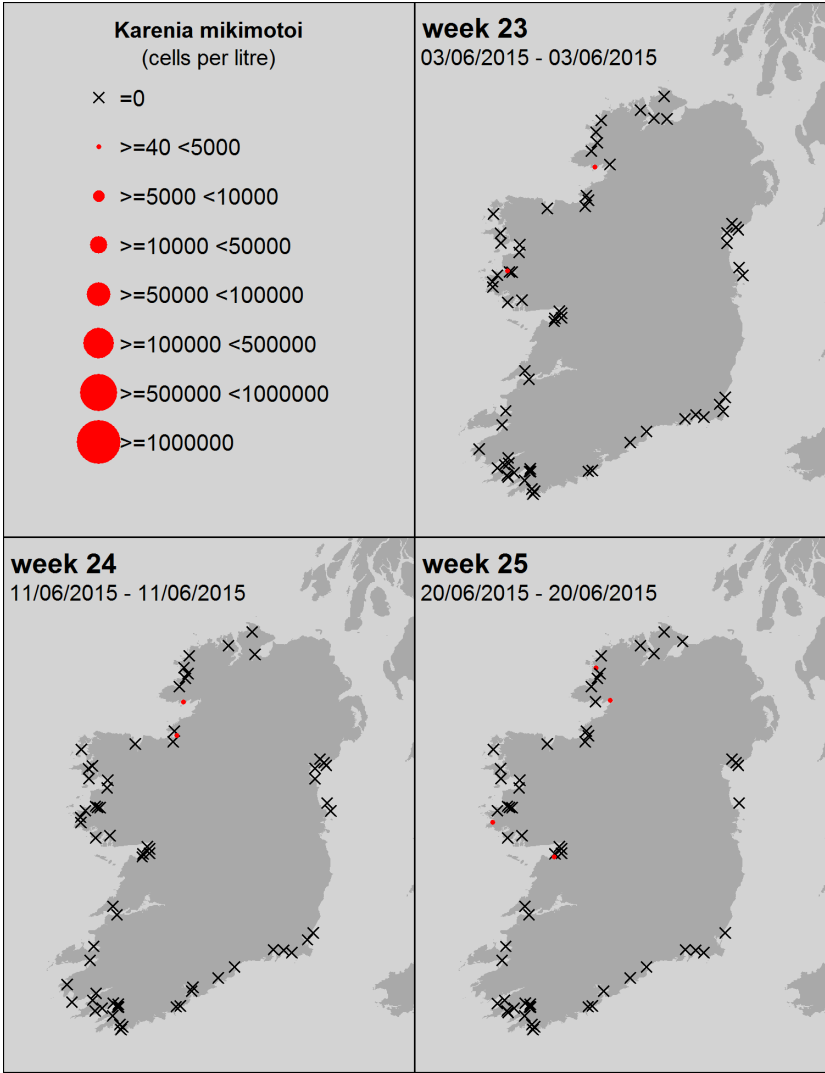
Region	Predominant Phytoplankton (most abundant taxa)	Cells/L (rounded)
north:	Diatoms:	
	<i>Chaetoceros</i> (Hyalochaete) spp.	199,000
	Dinoflagellates:	
	<i>Heterocapsa triquetra</i>	273,000
west:	Other: microflagellates	760,000
	<i>Dinobryon</i> spp.	88,000
	Diatoms:	
	<i>Chaetoceros</i> (Hyalochaete) spp.	328,000
SW:	<i>Leptocylindrus danicus</i>	72,000
	Pennate diatom	49,000
	<i>C. closterium</i> / <i>N. longissima</i>	45,000
	Diatoms:	
south:	Pennate diatom < 20 µm	244,000
	<i>Pseudo-nitzschia seriata</i> group	90,000
	Dinoflagellates:	
	<i>Ceratium fusus</i>	77,000
east:	Diatoms:	
	<i>Lauderia</i> / <i>Detonula</i> spp.	31,000
	<i>Thalassiosira</i> spp. 20 to 50 µm	13,000
	<i>Leptocylindrus danicus</i>	13,000
	Other:	
	Microflagellates <10 µm	34,776,000
	Dinoflagellates:	
	<i>Heterocapsa triquetra</i>	294,000
	Diatoms:	
	Centric diatoms < 20 µm	5,000,000
	<i>Asterionellopsis glacialis</i>	116,000
	<i>C. closterium</i> / <i>N. longissima</i>	73,000
	Centric diatoms 20 to 50 µm	44,000
	Other: <i>Euglena</i> / <i>Eutreptiella</i> spp.	10,039,000



Karenia mikimotoi
(old name: *Gyrodinium aureolum*)

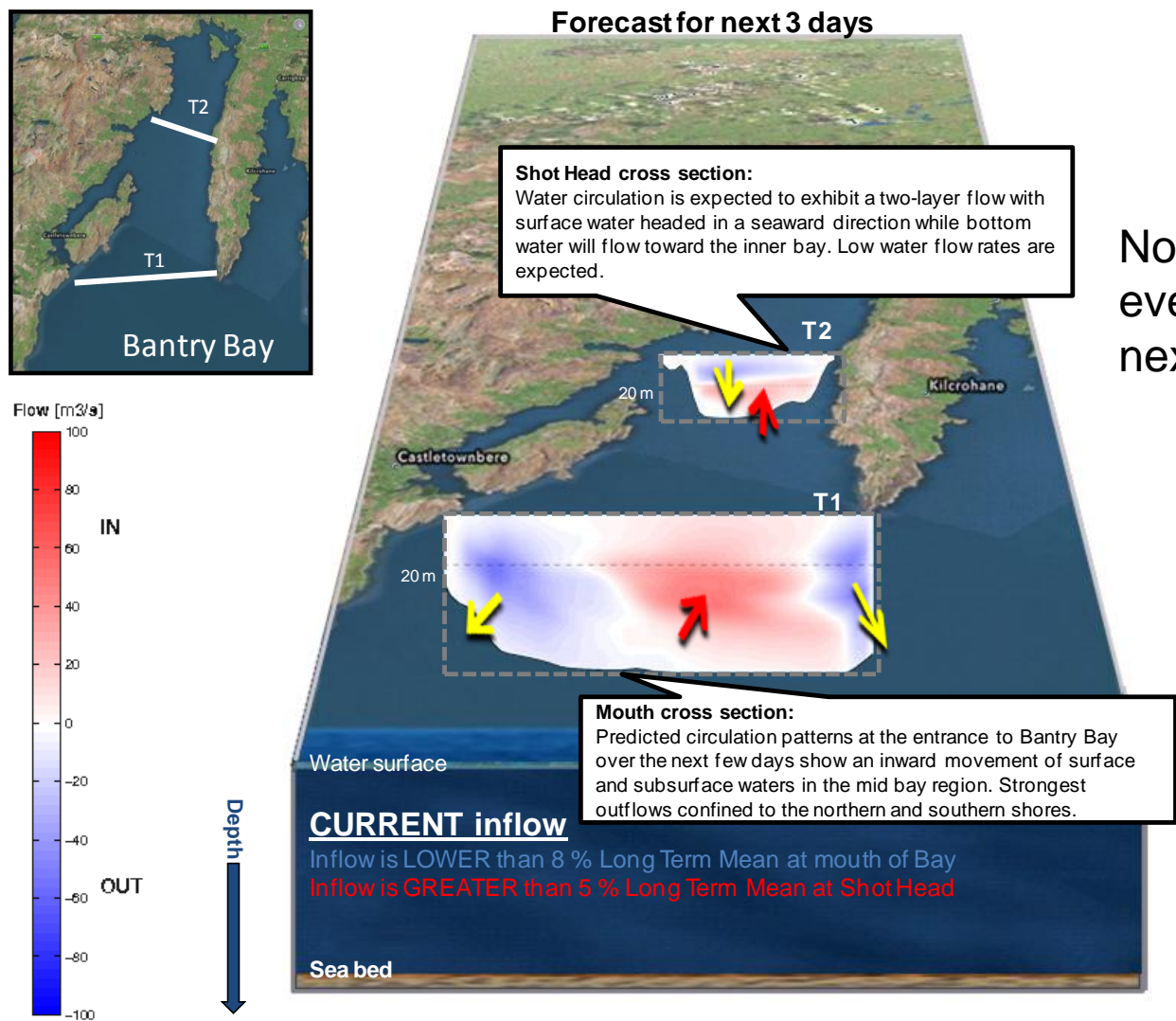
A *Karenia mikimotoi* bloom is NOT expected this week

Background levels in the north and west
(range 40 to 1,160 cells/L)



Bantry Bay

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

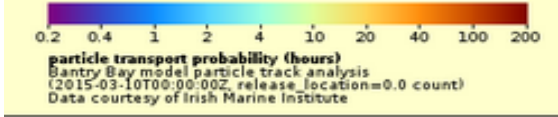


No big water exchange event predicted in the next few days

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

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

