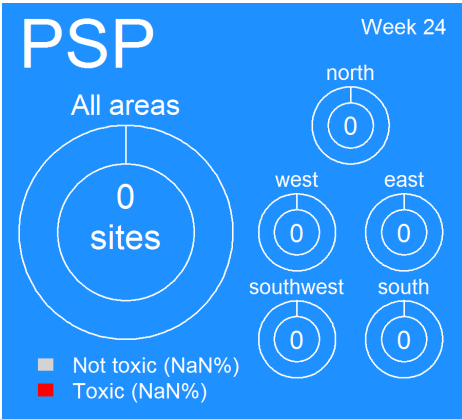
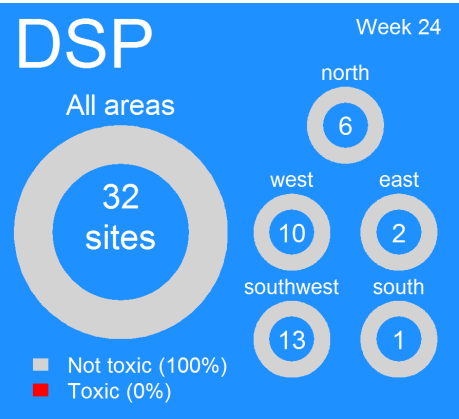
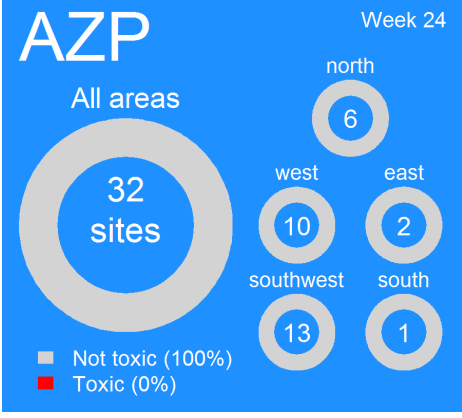
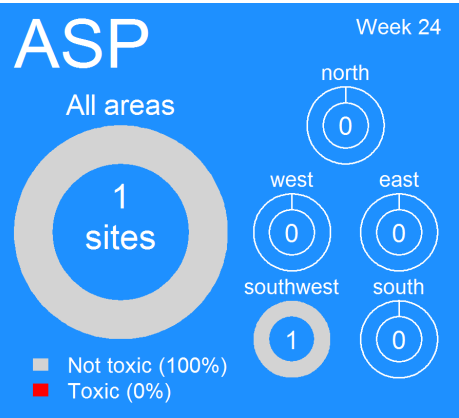


Ireland: Current Conditions

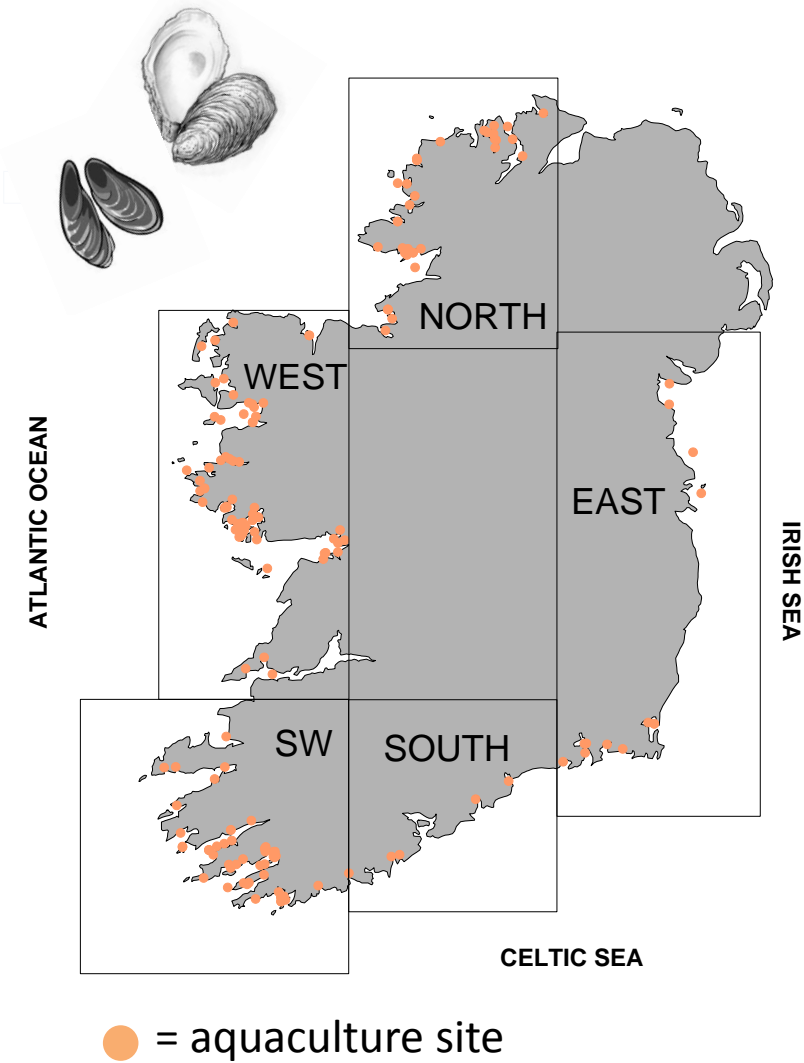
Shellfish biotoxin report (last week)



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 with a slightly increased risk at some sites (see below)

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: One site sampled (mussels and oysters) - Toxin not detected. The "*P. seriata*" group was found in 37 sites nationwide (high cell counts in the SW e.g. 50,000 to 227,000 cells/L). Since last week the "*P. seriata*" group has increased in the SW. The presence of toxic species in this group has not yet been determined. The potentially toxic "*P. seriata*" population makes up a significant proportion of the phytoplankton flora in several SW sites (e.g. It makes up 91 % of the phytoplankton community at a site south of Dingle Bay; 55 % of the phytoplankton population at a site in inner Bantry Bay and 56 % in Kenmare Bay). Because the "*P. seriata*" group represents a larger part of the phytoplankton assemblage in some sites, the risk of toxicity occurring still exists. Historically this is not a high risk week.

AZP: 34 sites sampled nationwide. Toxin not detected. *Azadinium*-like species recorded at 26 sites – highest cell levels recorded in the north (13,000 cells/L) in the north and a maximum of < 2,000 cells/L elsewhere. Historically, this week presents as a relatively low risk period for AZP.

DSP: 34 sites sampled nationwide. Over the last week DSP toxins have increased in the southwest (up to 0.09 µg/g in long-line mussels). *Dinophysis* spp. at cell levels between 40 and 560 cells/L in 15 sites nationwide (all along the western seaboard). *Dinophysis acuta* has increased in the southwest (max = 560 cells/L). In the last few weeks *Dinophysis* cell levels have been rising steadily and this pattern is likely to continue, so, CAUTION is advised. A "downwelling" event is predicted for the SW in the coming days. "Downwelling" is linked to increases in *Dinophysis*. 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 (mussels and oysters). *Alexandrium* species present in 10 sites out of 69 sites nationally; maximum cell levels in the Cork Harbour @ 7,000 cells/L and in the west (~ 5,000 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.

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

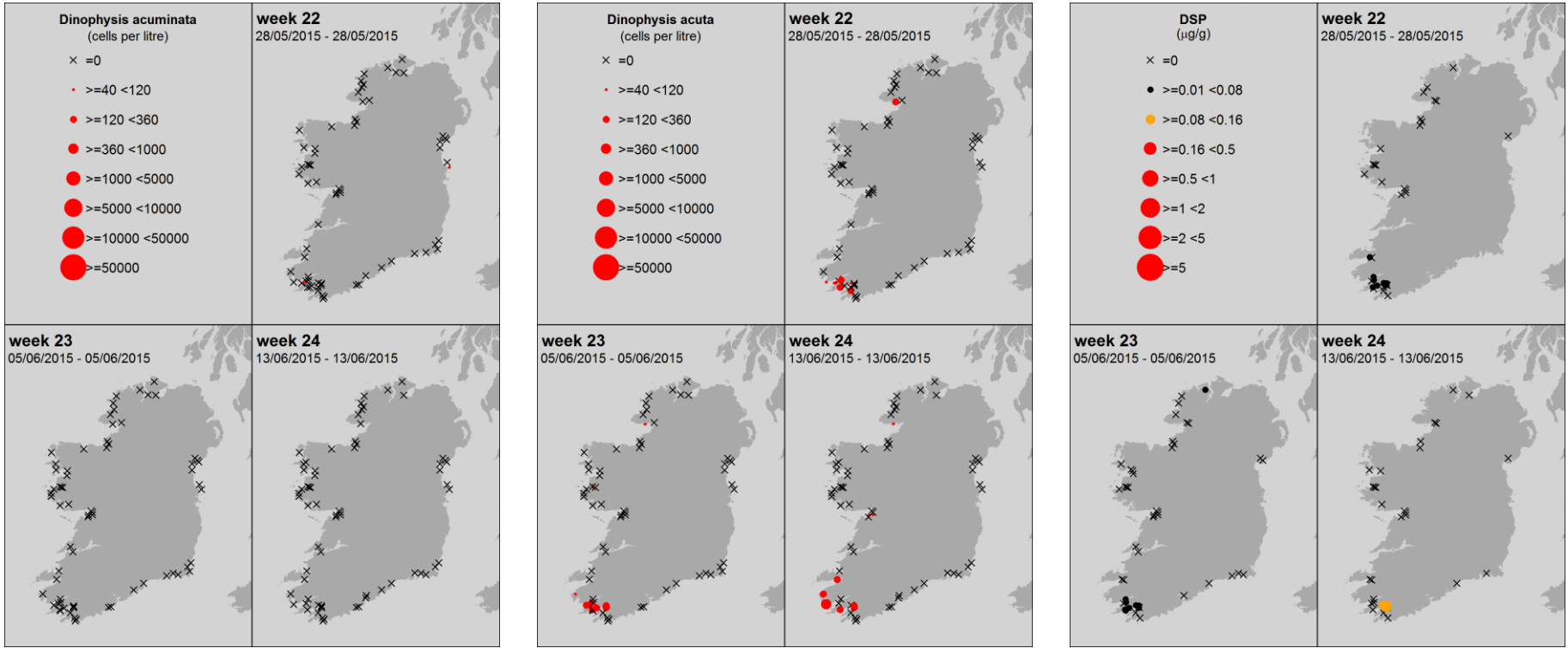
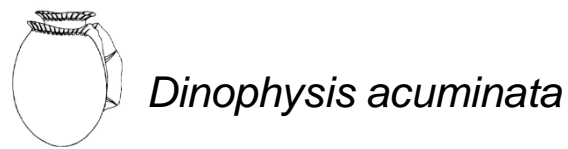
AZP events: April to December

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



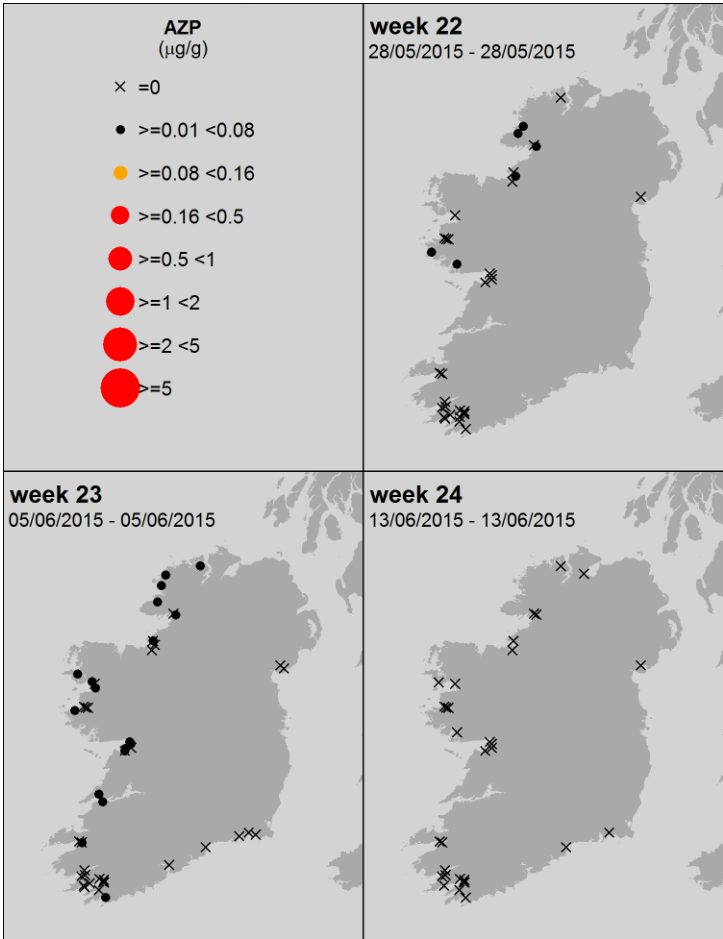
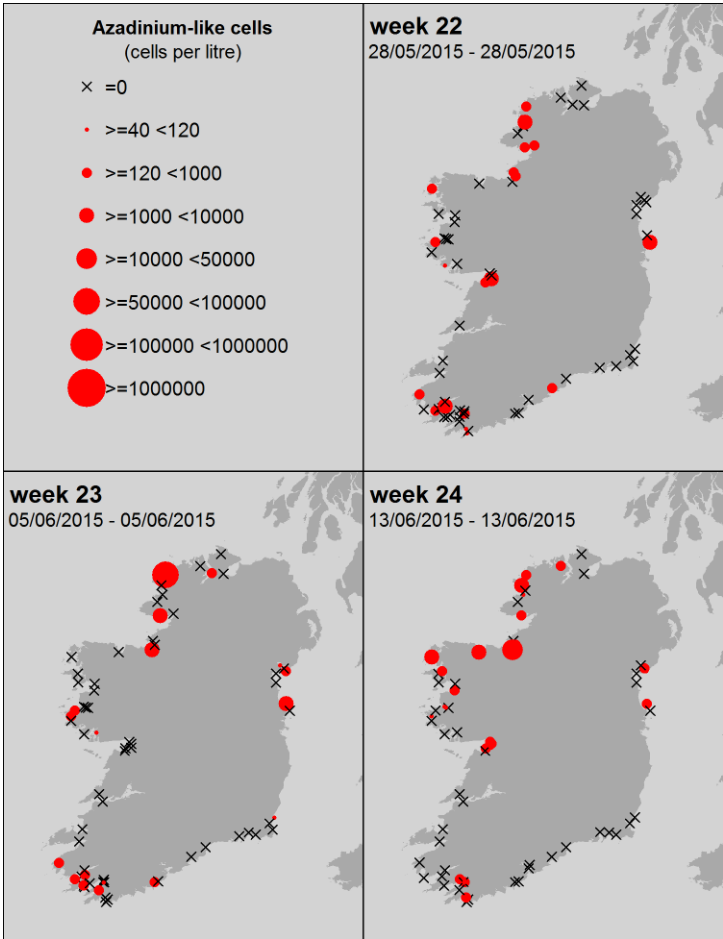
Ireland: Last 3 weeks of available National Monitoring Programme data



Azadinium – like spp.



AZP



Ireland: Last 3 weeks of available National Monitoring Programme data

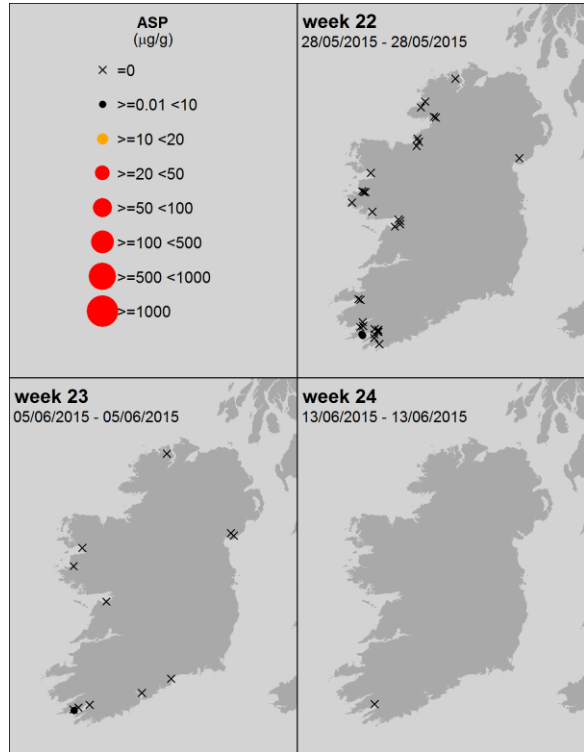
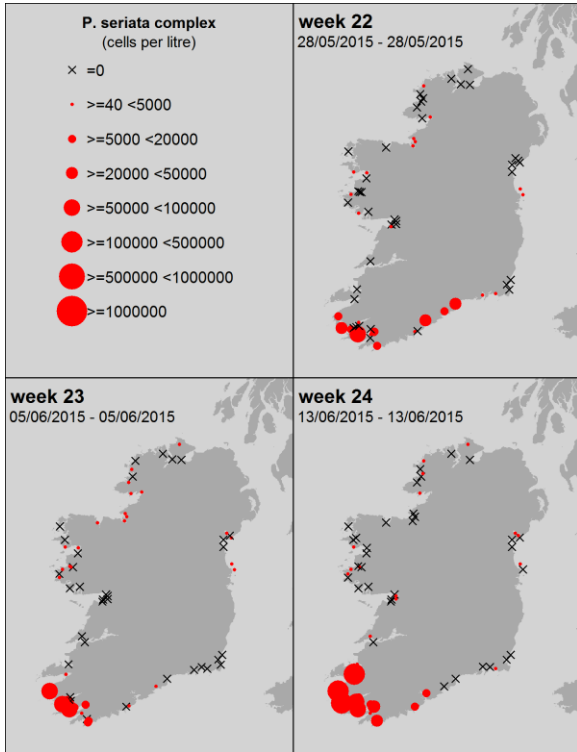
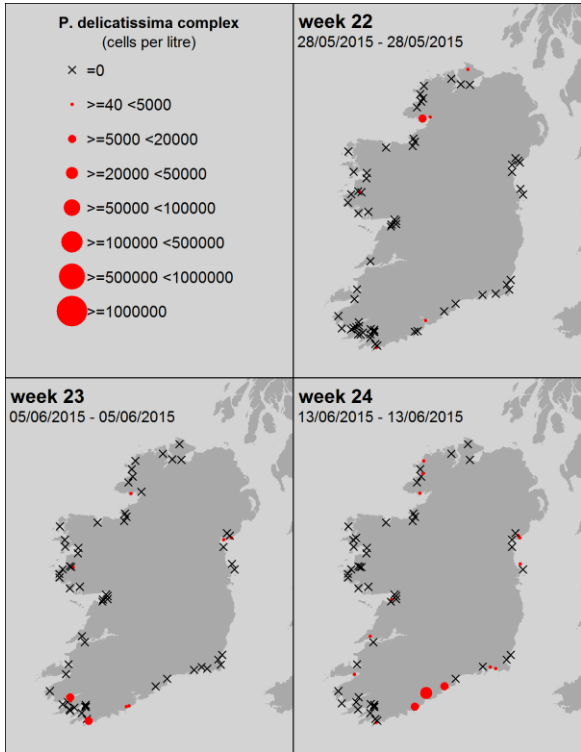
Pseudo-nitzschia spp.



ASP

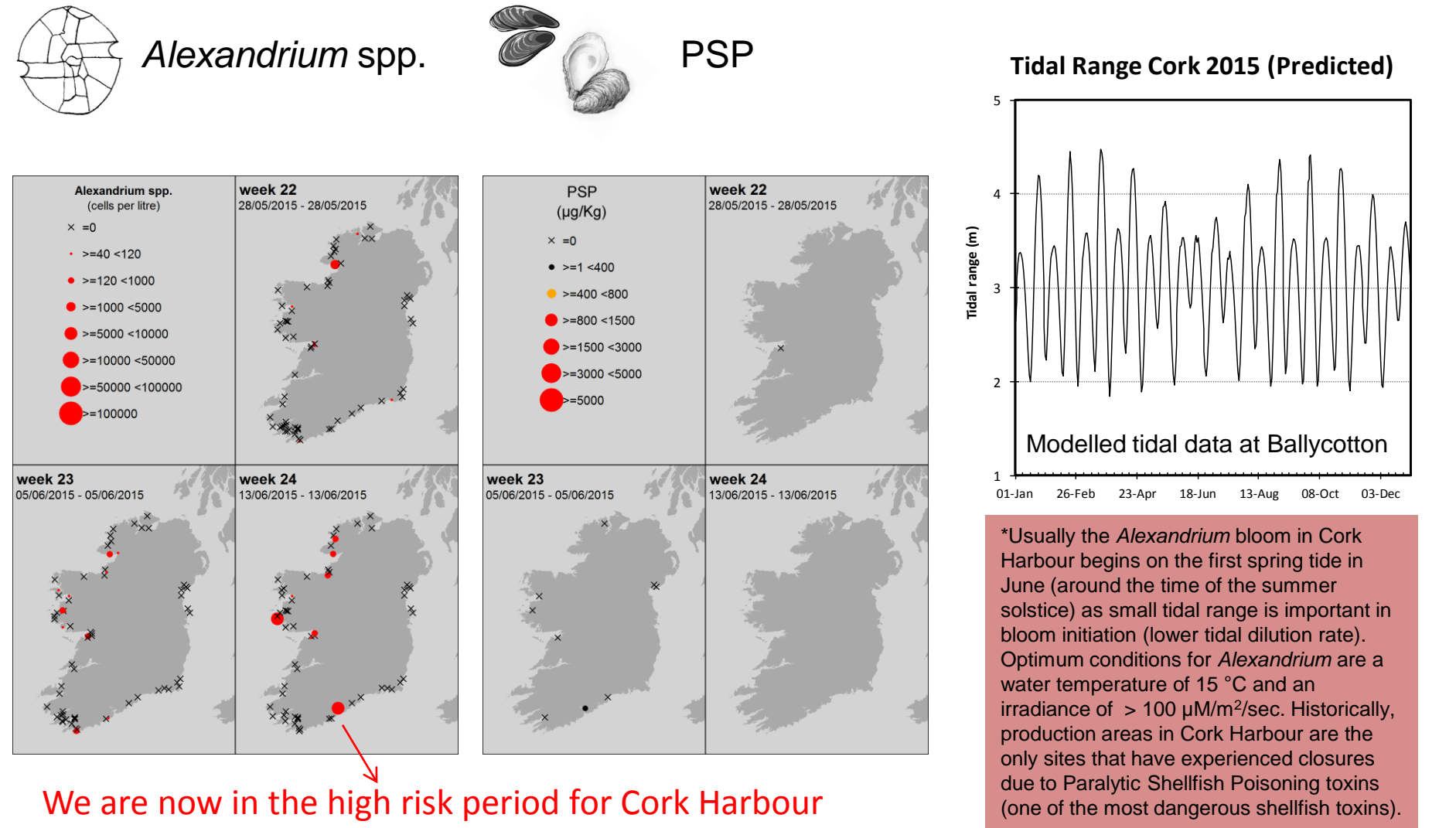
“*P. delicatissima*” complex = small cells
Taken from the literature:
3 species confirmed in Irish waters

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



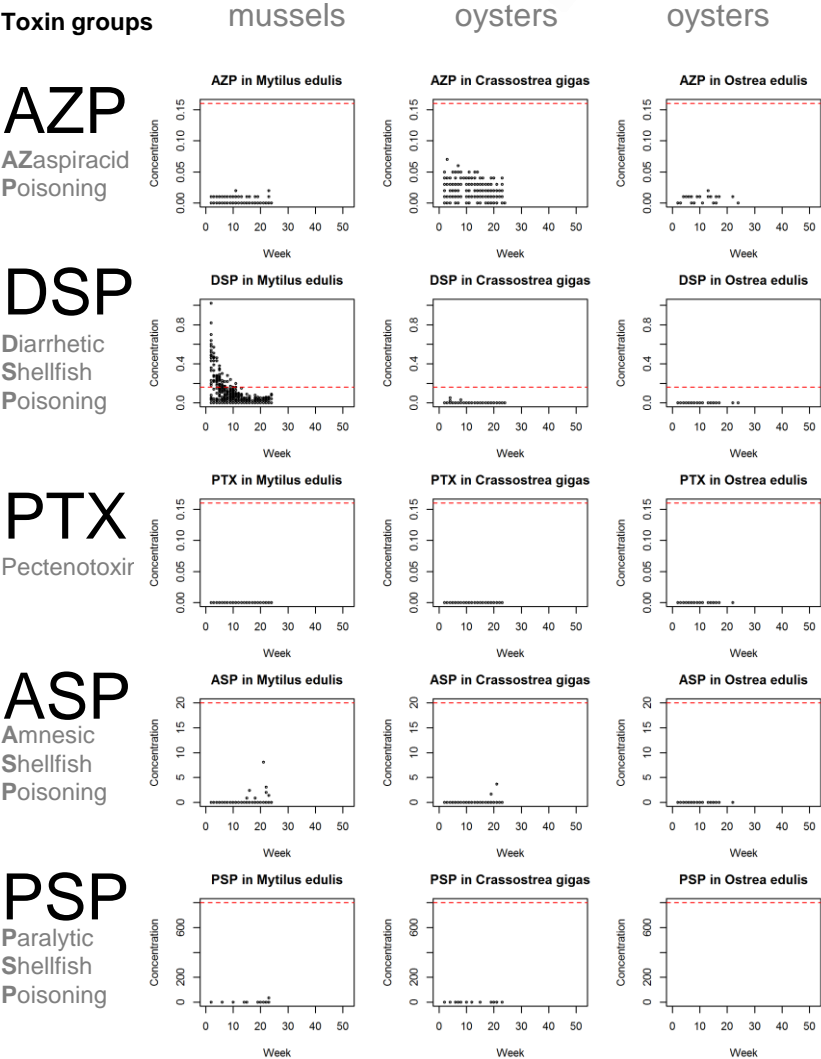
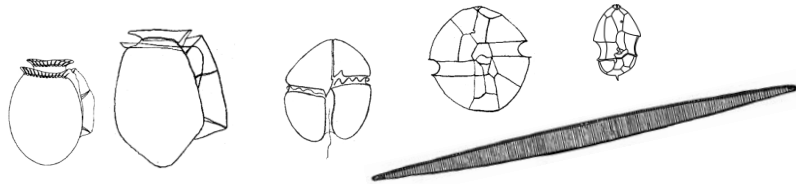
Taken from the literature: Of the 4 species (*P. fraudulenta*, *P. australis*, *P. pungens* and *P. delicatissima*) from Irish waters, tested for ASP toxins in culture work, only one, *P. australis* (from the “*P. seriata*” group) was toxic.

Ireland: Last 3 weeks of available National Monitoring Programme data

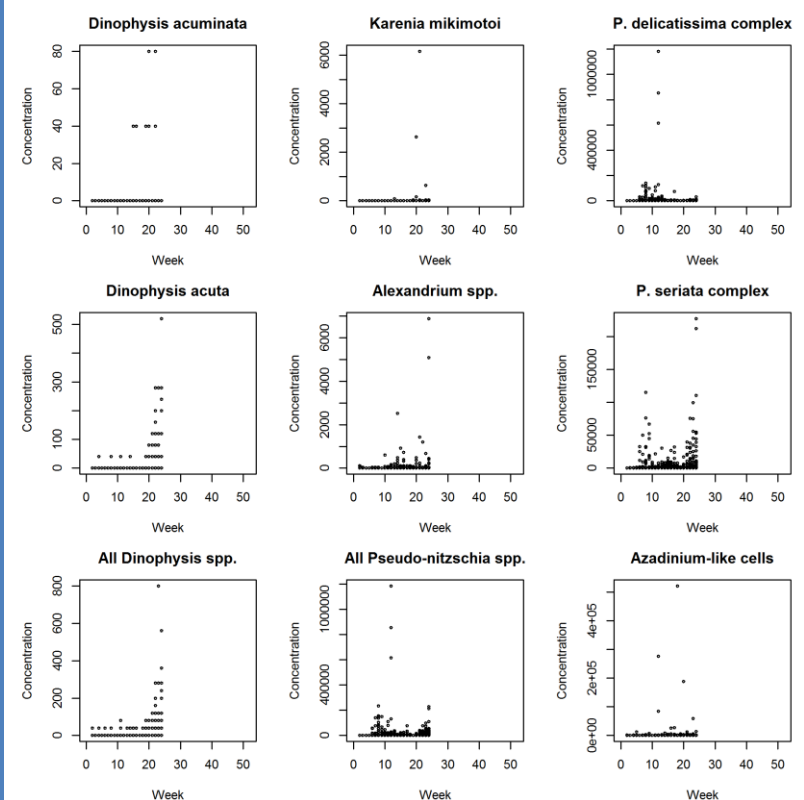


Ireland: HABs and biotoxins Levels from week 1 to present

Ireland: Biotoxins



Ireland: HABs

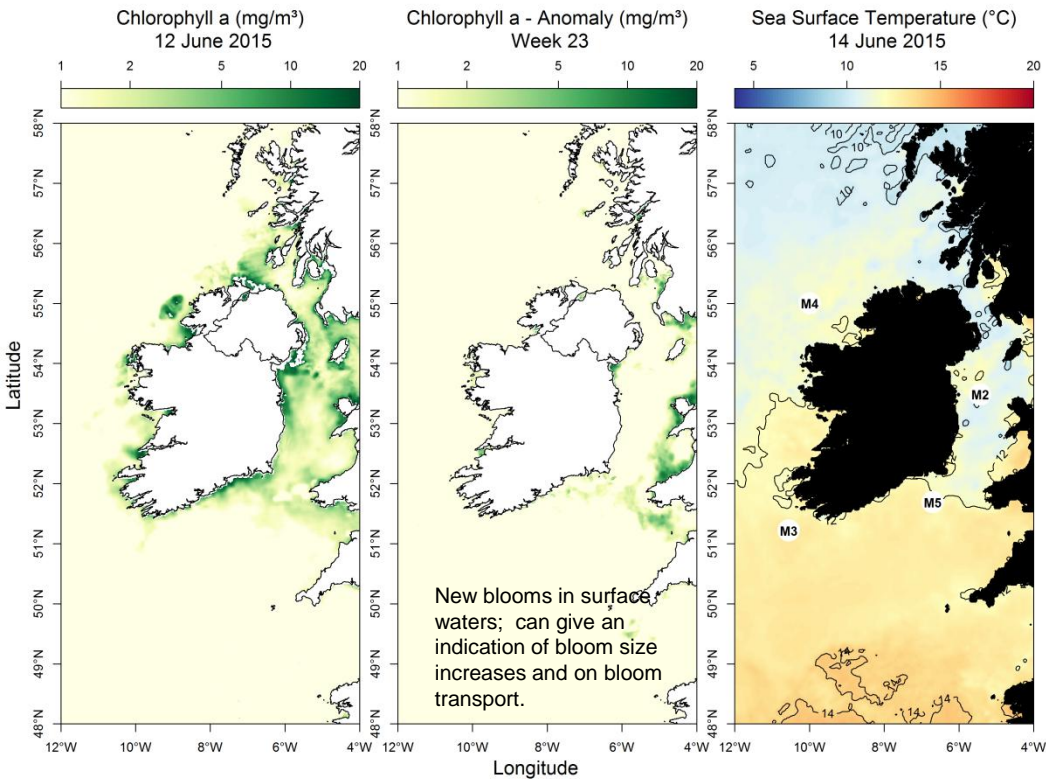


Week number: 1 to 24

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 1.84 °C
- SW coast (M3) Offline
- SE coast (M5) below average by 1.70 °C

What phytoplankton were blooming at inshore coastal sites last week?

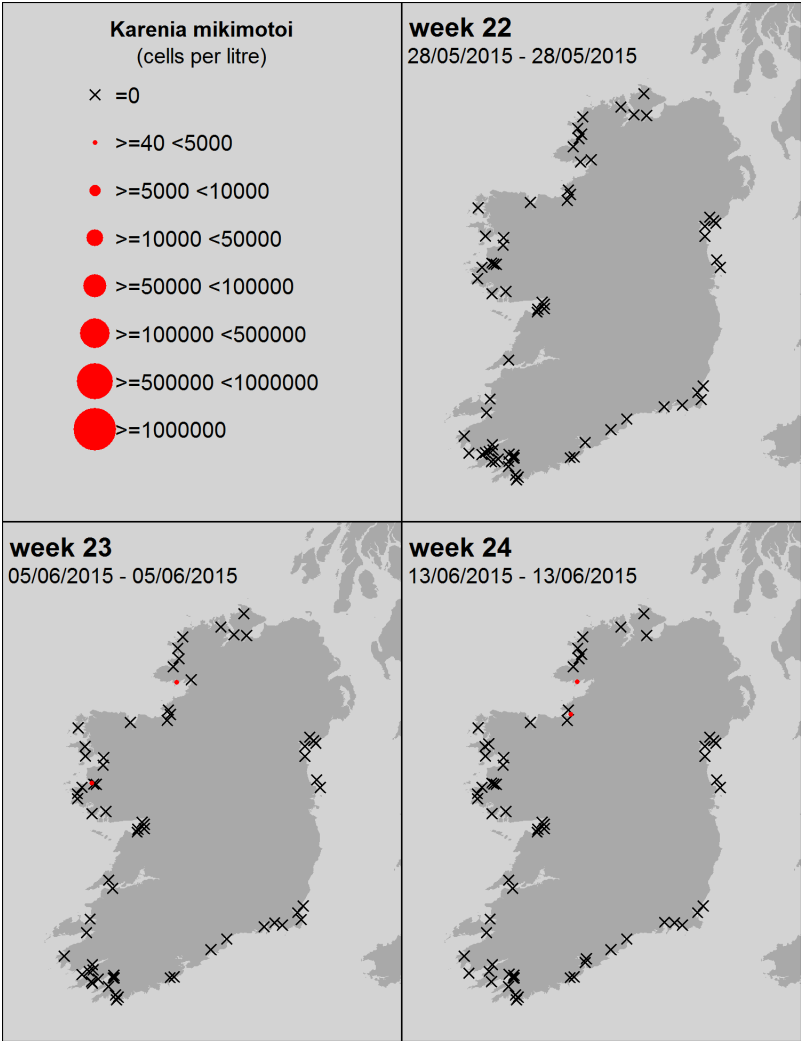
Region	Predominant Phytoplankton (most abundant taxa)	Cells/L (rounded)
north:	Diatoms: <i>Guinardia delicatula</i> Dinoflagellates: <i>Heterocapsa triquetra</i> Other: microflagellates	250,000 79,000 158,000
west:	Diatoms: <i>Skeletonema</i> spp. <i>Chaetoceros</i> (<i>Hyalochaete</i>) spp. <i>Asterionellopsis</i> spp. <i>Paralia</i> spp.	1,305,000 310,230 43,000 38,000
SW:	Diatoms: <i>Skeletonema</i> spp. <i>Leptocylindrus danicus</i> <i>Guinardia delicatula</i> <i>Thalassiosira</i> spp. (20 – 50 µm) <i>Pseudo-nitzschia seriata</i> group	654,000 494,000 329,000 293,000 227,100
south:	Diatoms: <i>C. closterium</i> / <i>N. longissima</i> <i>Lauderia</i> / <i>Detonula</i> spp. <i>Ceratulina pelagica</i> Other: Ciliates Microflagellates	1,692,000 244,000 223,000 1,113,000 1,090,000
east:	Diatoms: <i>Leptocylindrus minimus</i> <i>Bacteriastrum</i> spp. <i>C. closterium</i> / <i>N. longissima</i> <i>Rhizosolenia</i> spp. Dinoflagellates: <i>Heterocapsa triquetra</i>	491,000 369,000 164,000 105,000 101,000



Karenia mikimotoi
(old name: *Gyrodinium aureolum*)

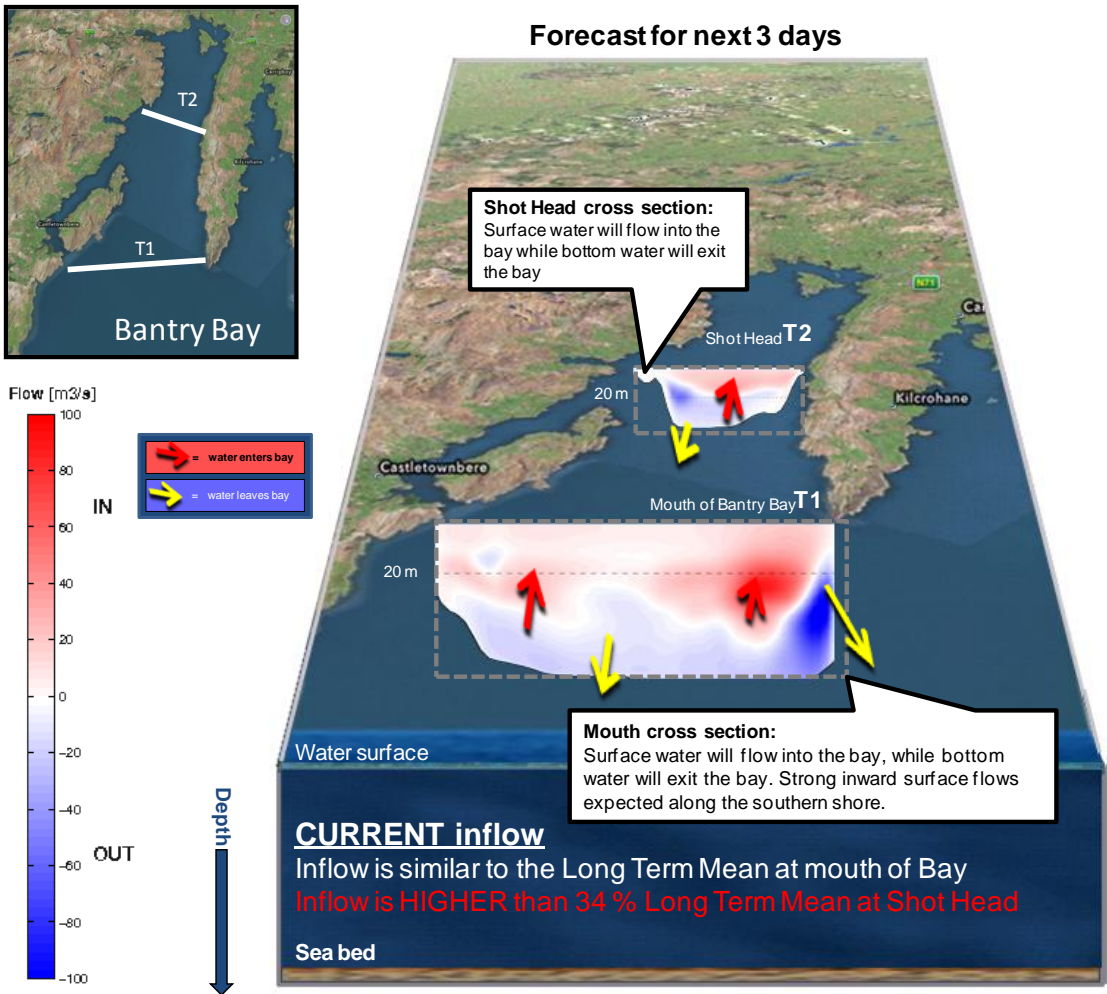
A *Karenia mikimotoi*
bloom is NOT expected
this week

Background levels in
the north (40 cells/L)



Bantry Bay

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



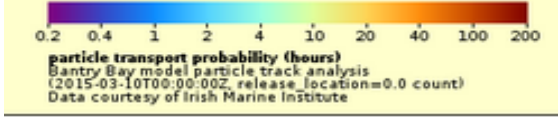
“Downwelling” event forecast in the next couple of days

“Downwelling” events are linked to *Dinophysis* blooms

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

