

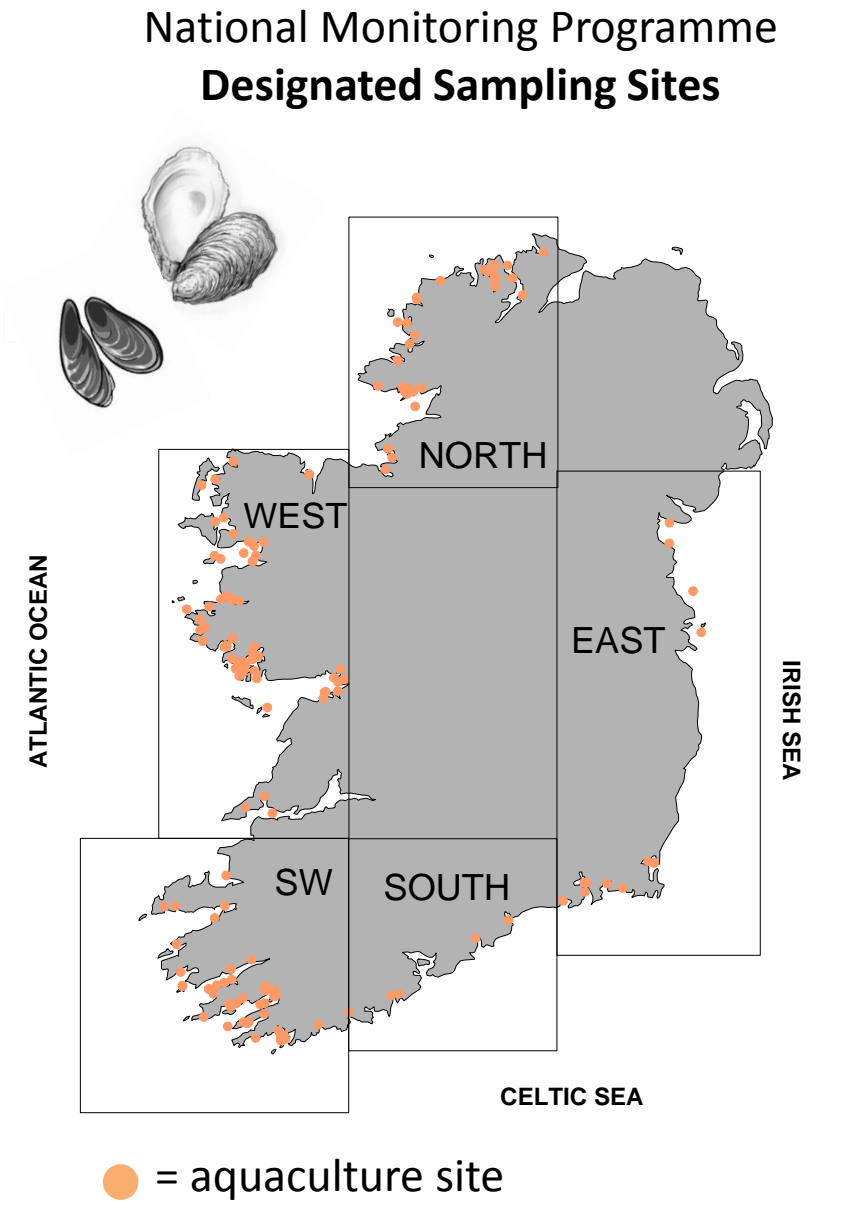
Ireland: Current Conditions

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 - 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 - Toxin not detected. The "*P. seriata*" group was found in 43 out of 67 sites nationwide with highest cell counts in the southwest (49,000 to 90,000 cells/L). In several SW sites, the potentially toxic "*P. seriata*" population made up 11 - 34 % of the phytoplankton community composition. Historically this is NOT a high risk week.

AZP: 39 sites sampled nationwide. Toxin not detected. *Azadinium*-like species recorded at relatively low levels at 18 sites – maximum cell levels (~ 6,240 cells/L) in the west. Historically, this week presents some risk for AZP, but in general, it is during the month of August when AZP is experienced.

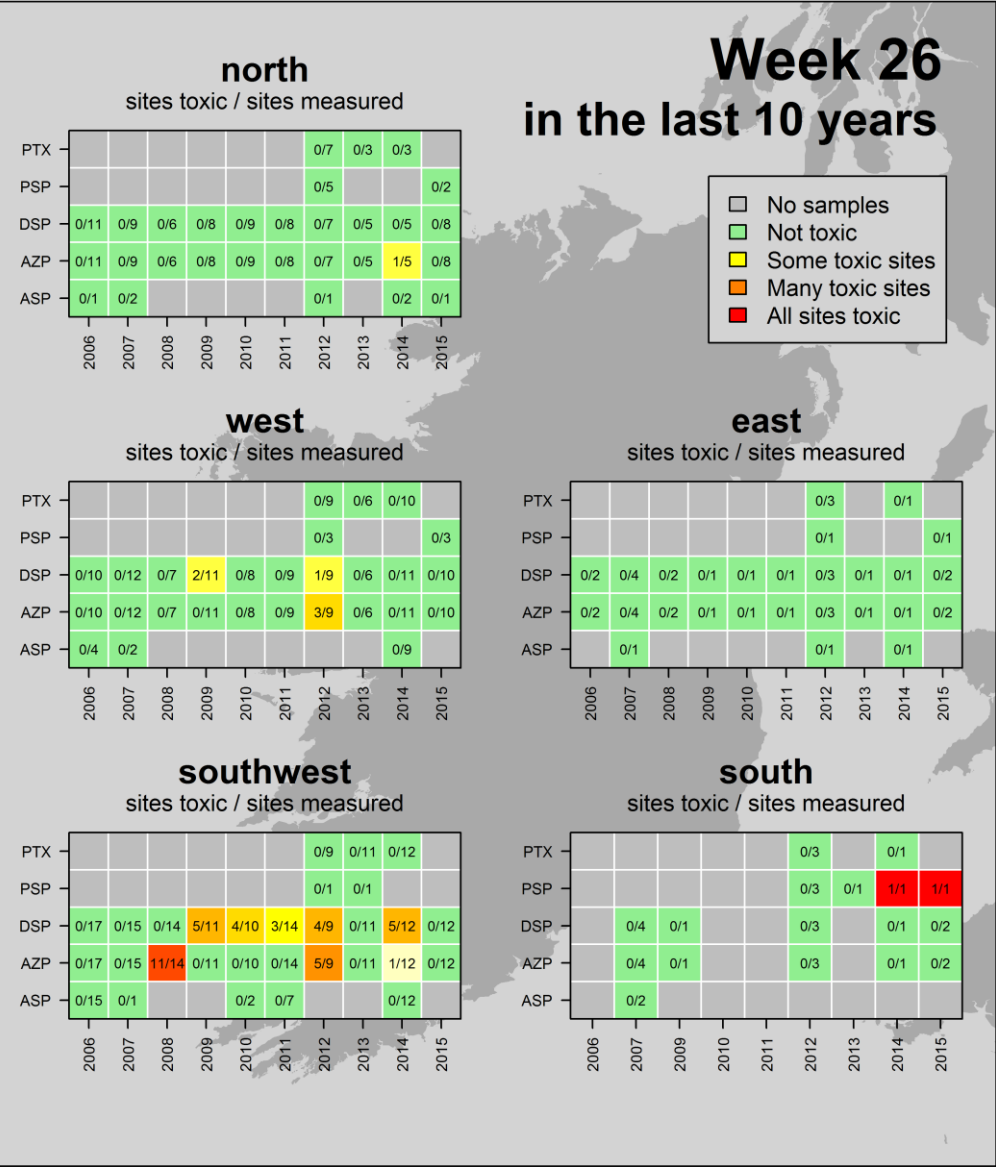
DSP: 39 sites sampled nationwide. Toxin only detected in SW sites (with a range between 0.04 to 0.13 µg/g in long-line mussels. *Dinophysis* spp. (mixed combination of *D. acuta* and *D. acuminata*) at cell levels up to 400 cells/L in 20 out of 67 sites nationwide. Highest cell counts observed in Kenmare Bay. Based on historical weekly trends, this is a HIGH risk period for DSP events in the SW.

PSP: Three samples analysed for PSP toxins (saxitoxin equivalents in mussels and oysters), toxins detected in Cork Harbour (904 µg/Kg) above the regulatory limit of 800 µg/kg. *Alexandrium* species present in 21 (east, south, west & north) out of 67 sites nationally; maximum cell levels in Cork Harbour (3,120 cells/L). This is a HIGH risk period for PSP events in Cork Harbour.

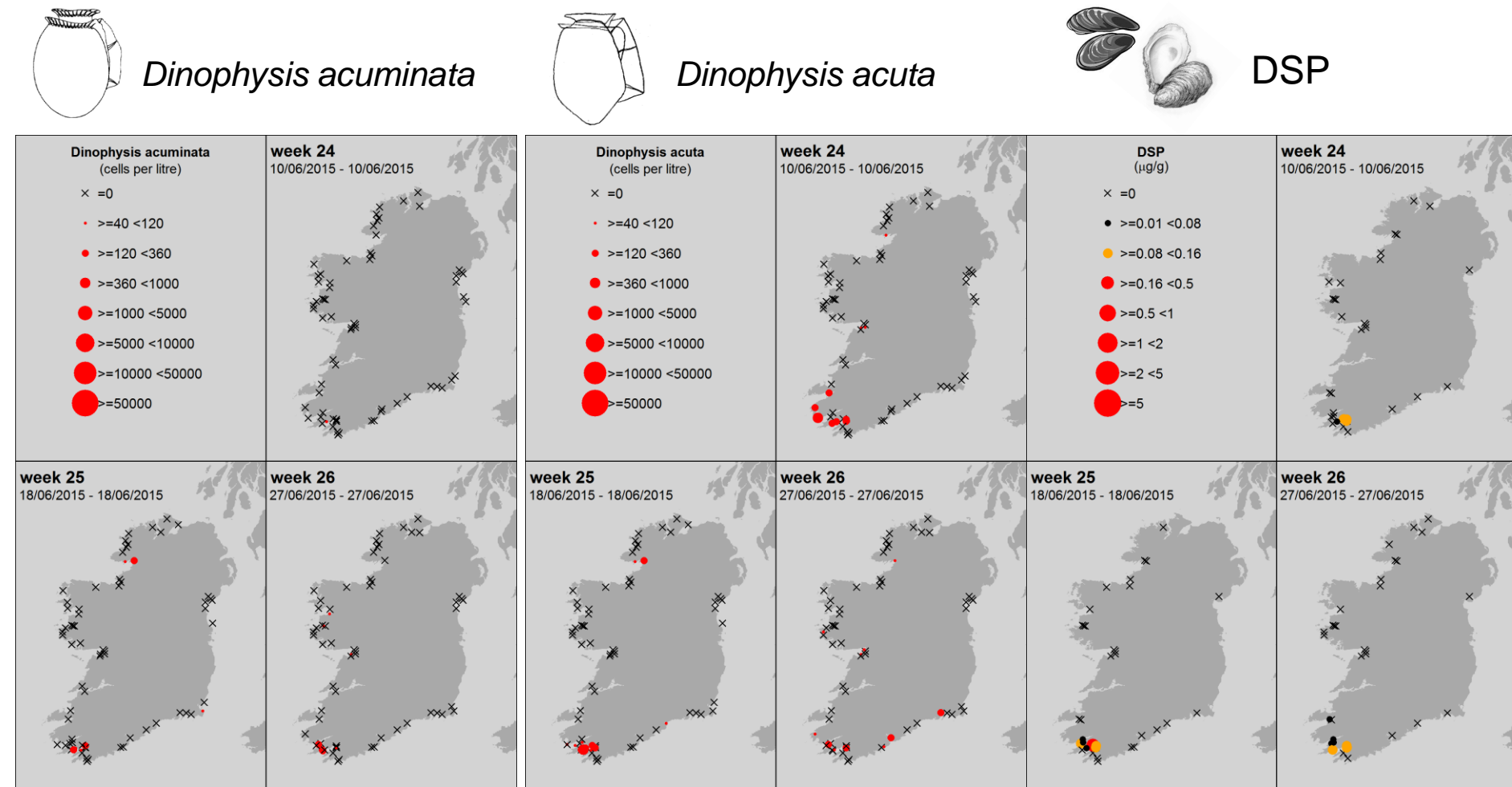
Usually the *Alexandrium* bloom in Cork Harbour begins on the first spring tide in June (around the time of the summer solstice) as small tidal range is important in bloom initiation (lower tidal dilution rate). Optimum conditions for *Alexandrium* are a water temperature of 15 °C and an irradiance of > 100 µM/m²/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.

Ireland: Historic Conditions

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



Ireland: Last 3 weeks of available National Monitoring Programme data



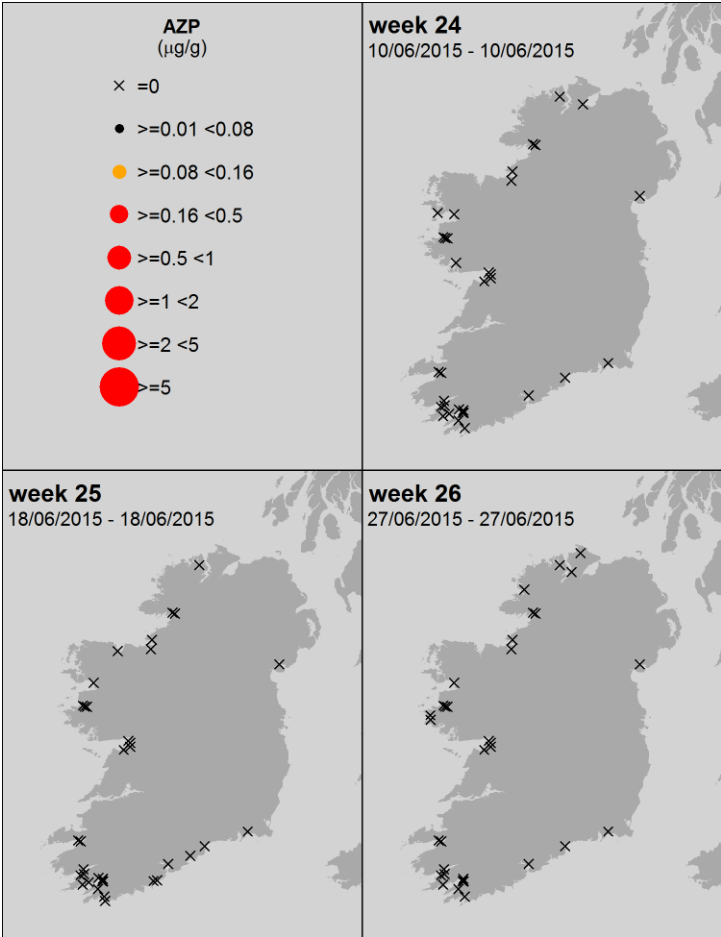
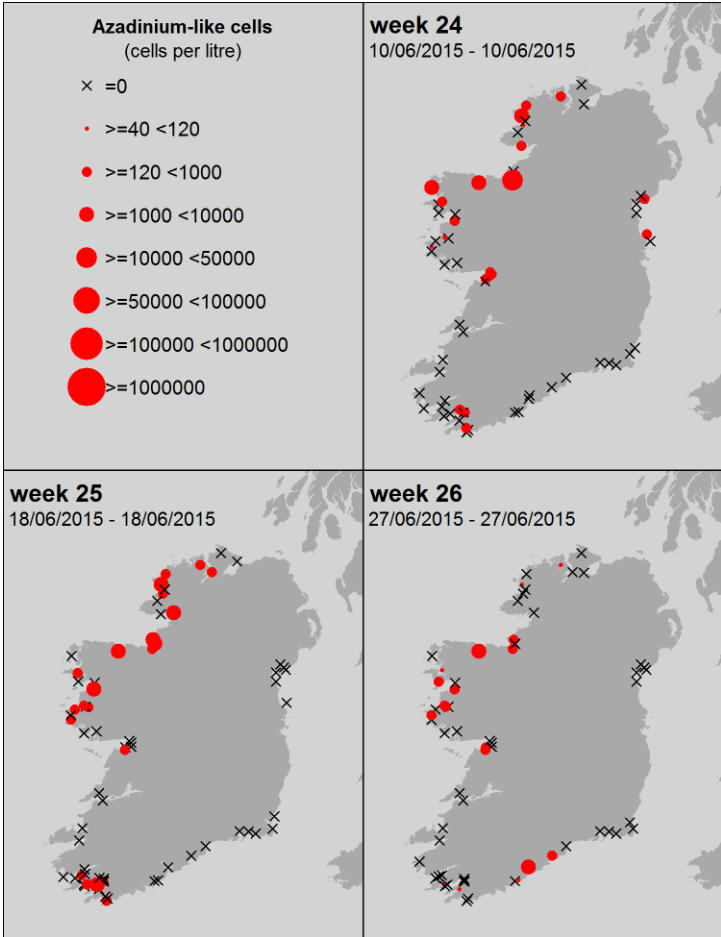
Ireland: Last 3 weeks of available National Monitoring Programme data



Azadinium – like spp.



AZP



Ireland: Last 3 weeks of available National Monitoring Programme data

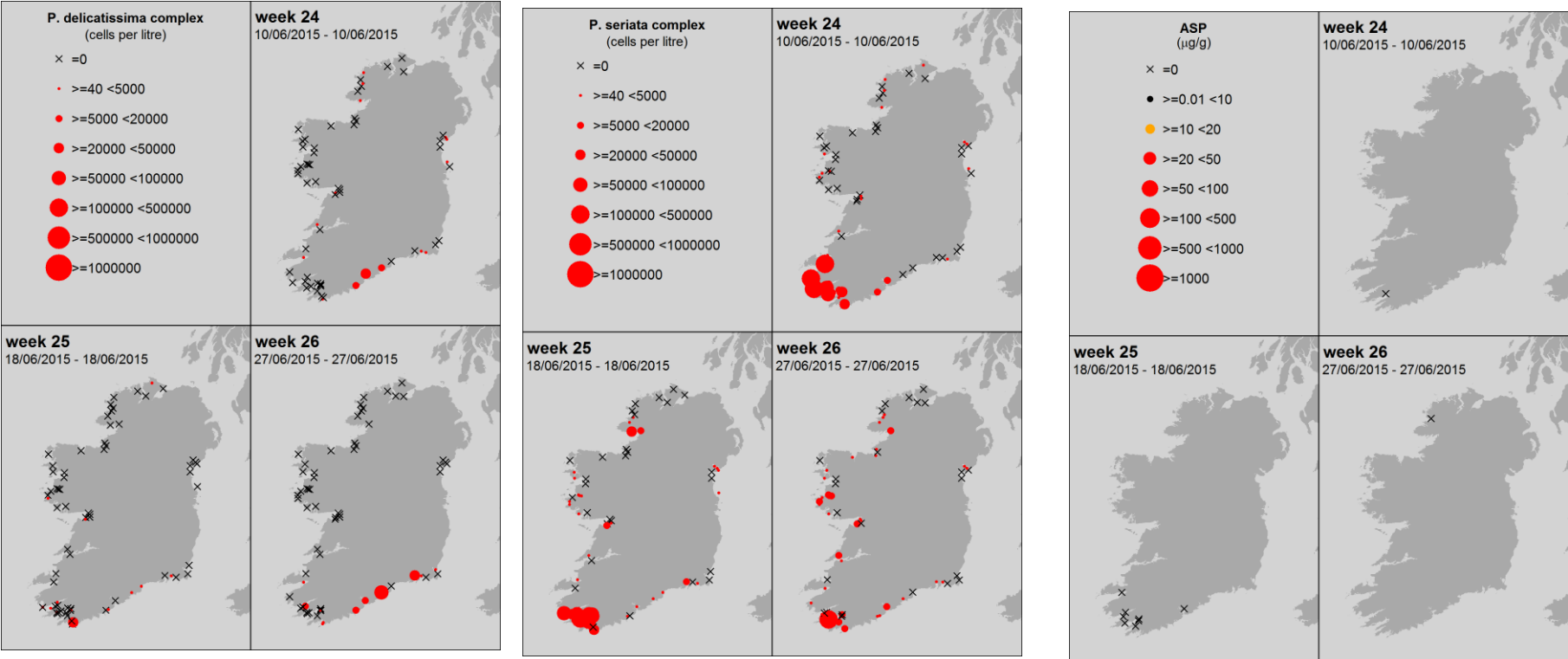
Pseudo-nitzschia spp.



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

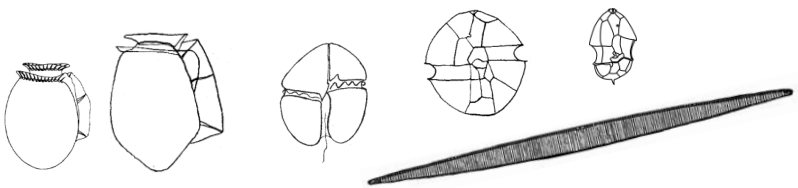


Taken from the literature: Of the 4 species (*P. fraudulenta*, *P. australis*, *P. pungens* and *P. delicatissima*) from Irish waters, tested for ASP toxins in culture work, only one, *P. australis* (from the “*P. seriata*” group) was toxic.

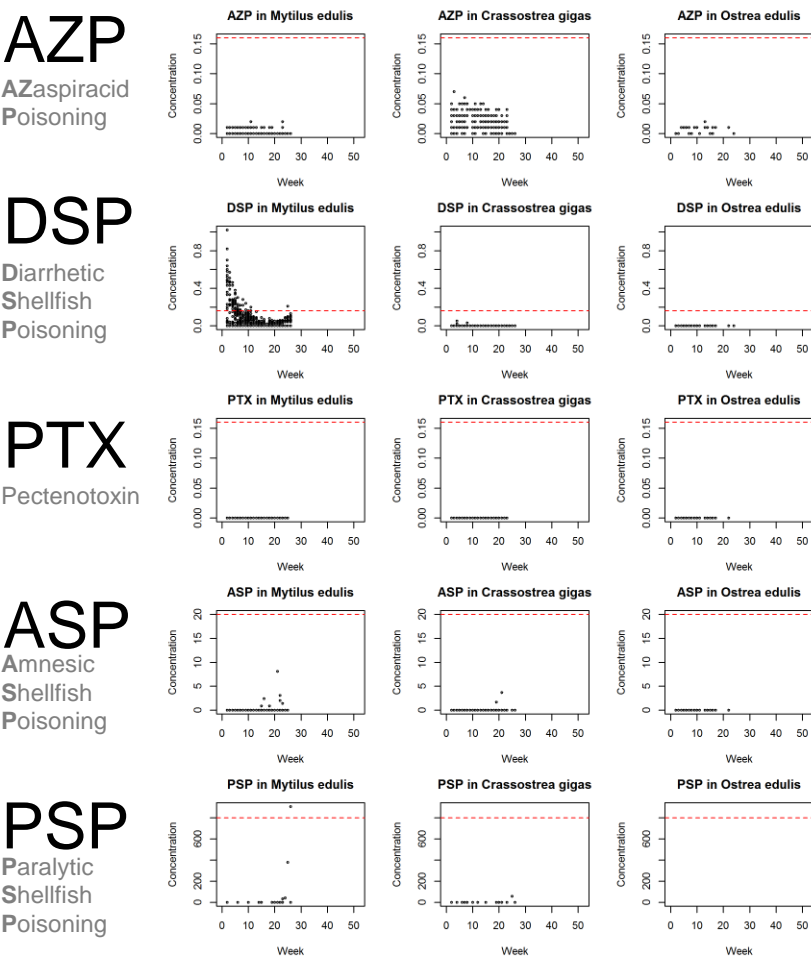
We are in the high risk period for PSP in Cork Harbour

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

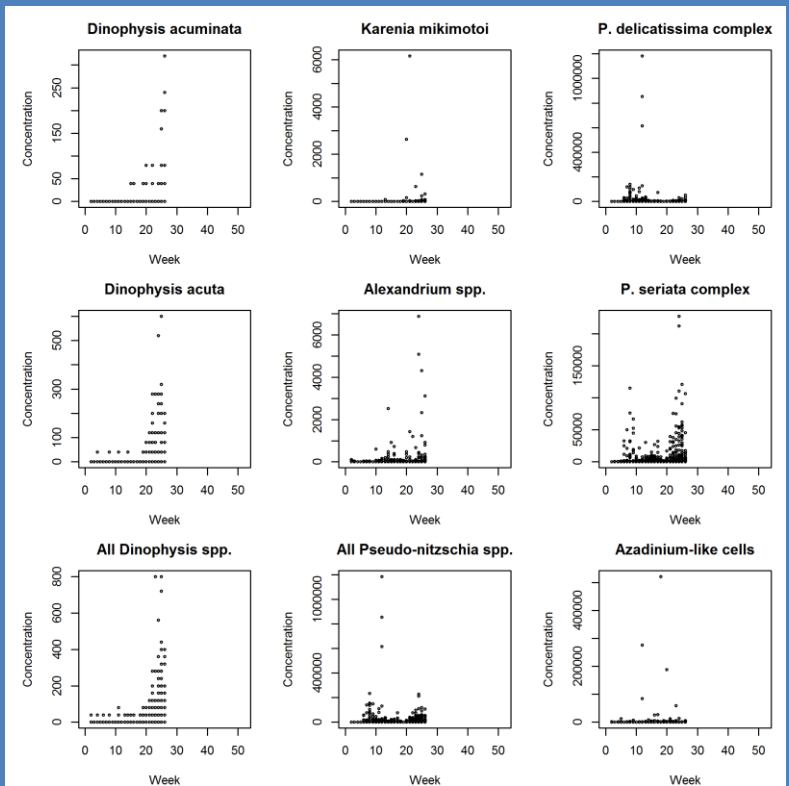
Ireland: **Biotoxins**



Toxin groups mussels oysters oysters



Ireland: **HABs**

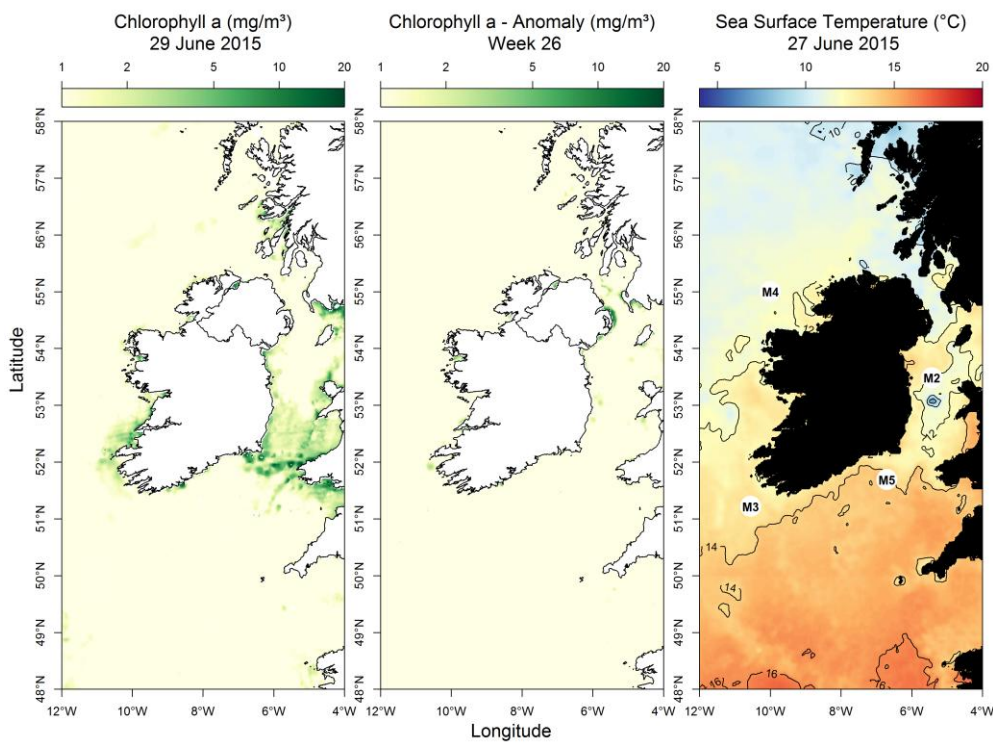


Week number: 1 to 26

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 0.29 °C

What phytoplankton were blooming at inshore coastal sites last week?

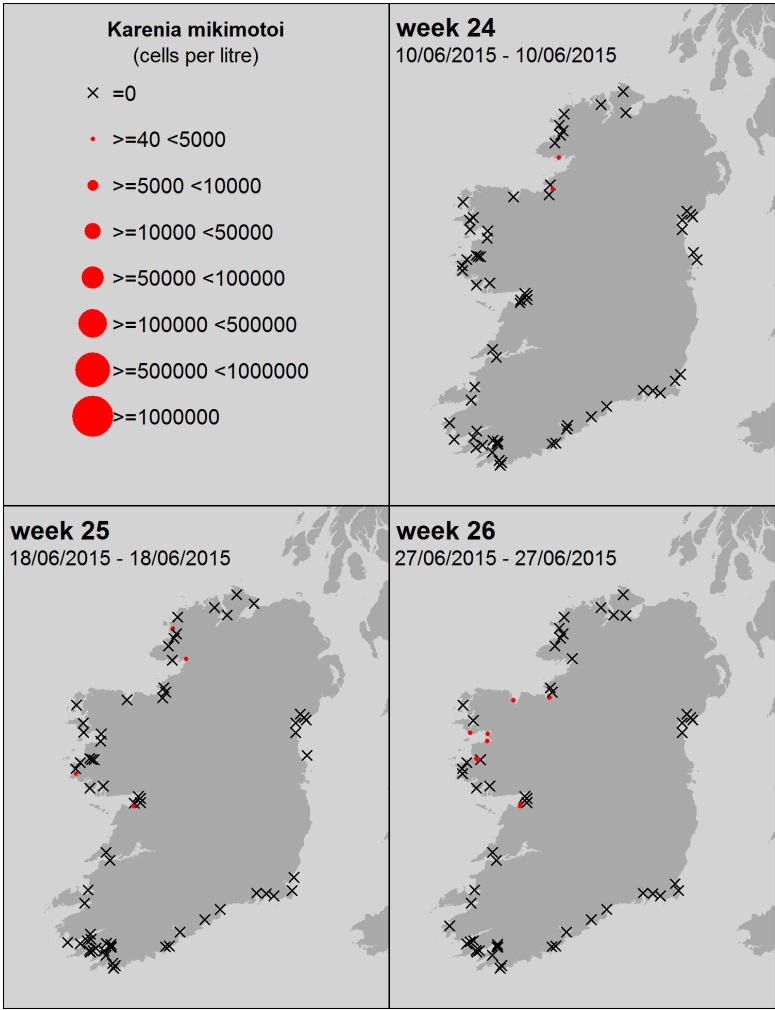
Region	Predominant Phytoplankton (most abundant taxa)	Cells/L (rounded)
north:	Diatoms: <i>Chaetoceros</i> (Hyalochaete) spp. Pennate diatoms	1,840,000 73,000
west:	Diatoms: <i>Skeletonema</i> spp. <i>Chaetoceros</i> (Hyalochaete) spp. <i>Leptocylindrus minimus</i>	606,000 187,000 142,000
SW:	Other: Hyptophytes Dinoflagellates: <i>Ceratium fusus</i> Diatoms: <i>Leptocylindrus minimus</i> <i>Pseudo-nitzschia seriata</i> group	1,692,000 285,000 108,000 106,000
south:	Other: Prasinophytes Diatoms: <i>Fragilariopsis</i> spp. <i>Chaetoceros</i> (Hyalochaete) spp. Dinoflagellates: <i>Heterocapsa</i> spp. (20 to 50 µm) <i>Heterocapsa triquetra</i>	2,782,000 333,000 203,000 330,000 302,000
east:	Other: Haptophytes Diatoms: <i>Thalassiosira</i> 20-50µm <i>Skeletonema</i> spp. Dinoflagellates: <i>Heterocapsa</i> spp. 20-50µm <i>Heterocapsa triquetra</i>	2,411,000 271,000 52,000 146,000 100,000



Karenia mikimotoi
(old name: *Gyrodinium aureolum*)

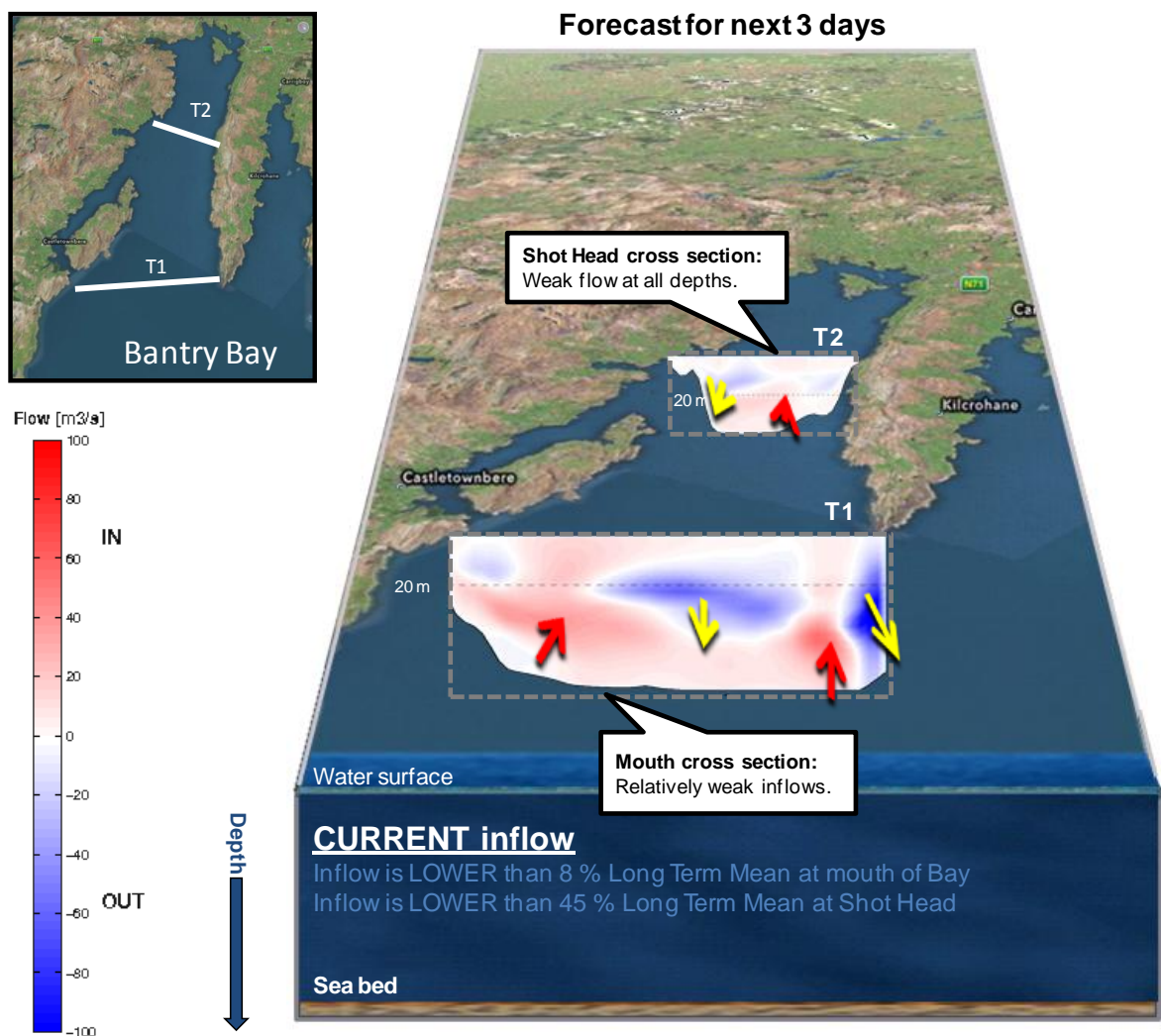
A *Karenia mikimotoi* bloom is NOT expected this week

Background levels at 9 sites in the north and west (range 40 to 320 cells/L)



Bantry Bay

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



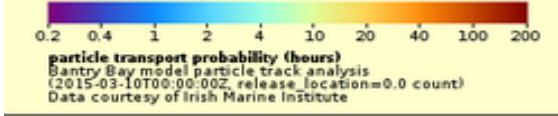
No big water exchange event predicted in the next few days

30 June – 2 July, 2015 (forecast ends at 00:00 hrs)


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

**Bantry Bay Particle Transport Pathways**
Model Run Date: June 30th 2015

June 2015
Su Mo Tu We Th Fr Sa
21 22 23 24 25 26 27
28 29 30
select a date

Note: The data in these maps represent a measure of the most likely transport pathway of particles released along the indicated transect lines over a 3-day model simulation, beginning on the date chosen in the Date Control. Maps from successive days should not be considered as forming a time series, but should be treated in isolation as each map represents the analysis of a discrete 3-day forecast.

particle transport probability (hours)
Bantry Bay model particle track analysis
(2015-06-10T00:00:00Z, release_location=0.0 count)
Data courtesy of Irish Marine Institute



Release 0 - BottomRelease 1 - 20mRelease 2 - Surface

Conditions are favourable for some movement of Celtic Sea water in a north-northwest direction toward bays on the southwest coast.

Bottom waterWater @ 20 metresSurface water

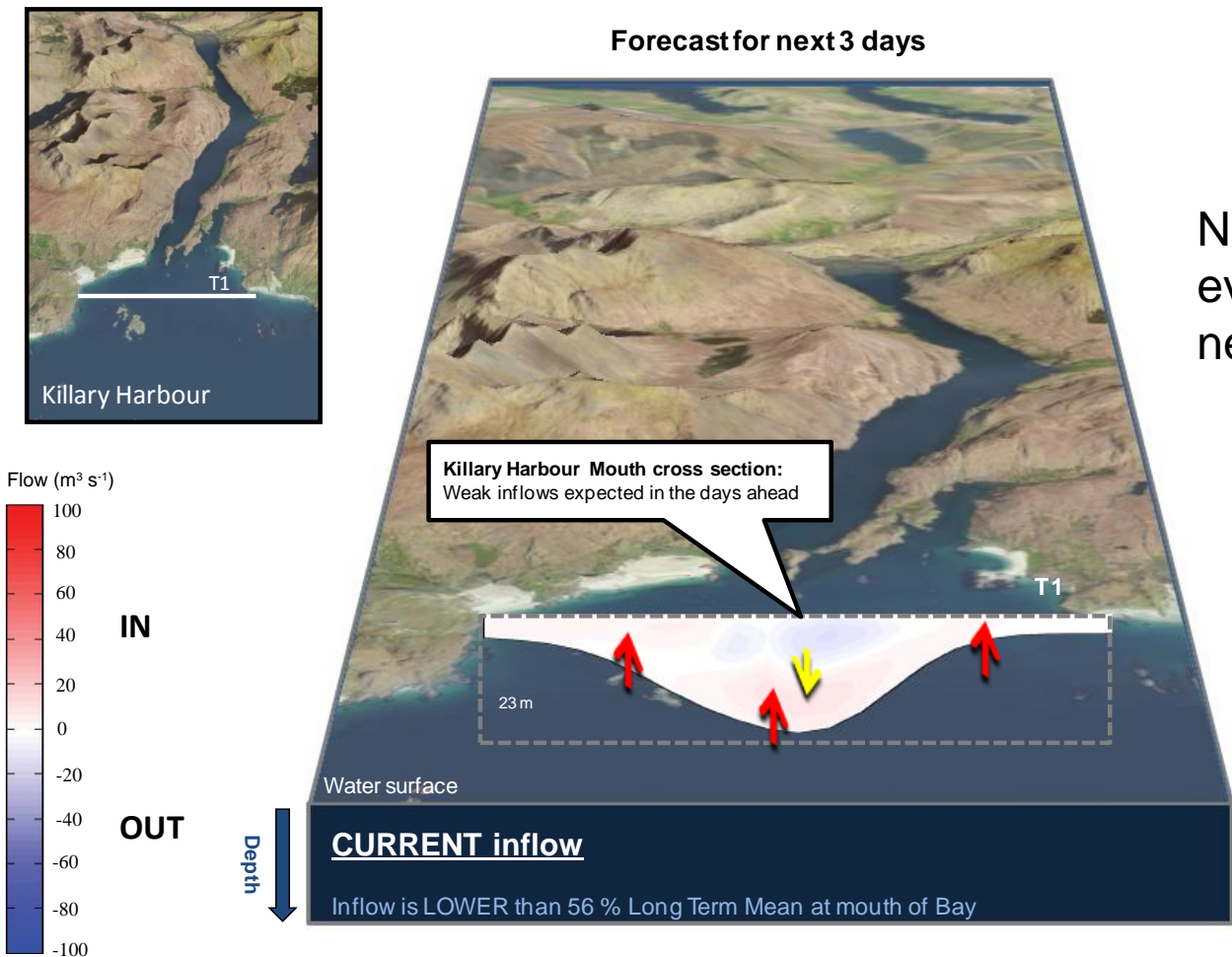
Bottom waterWater @ 20 metresSurface water

Circulation patterns at the mouth of Bantry Bay are expected to be variable. Mid-bottom waters, likely to be restricted, with some movement out of the bay. Phytoplankton in surface waters along the transect at the entrance to the bay are forecast to be, for the most part, retained at the mouth of the bay with some inward movement along the south shore. Low water flow rates are expected.

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Killary Harbour

3 day estimated water flows at the mouth of Killary Harbour

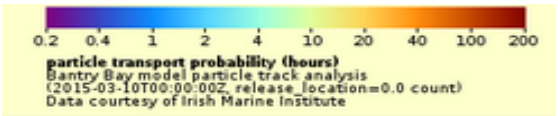


No big water exchange event predicted in the next few days

30 June – 2 July, 2015 (forecast ends at 00:00 hrs)

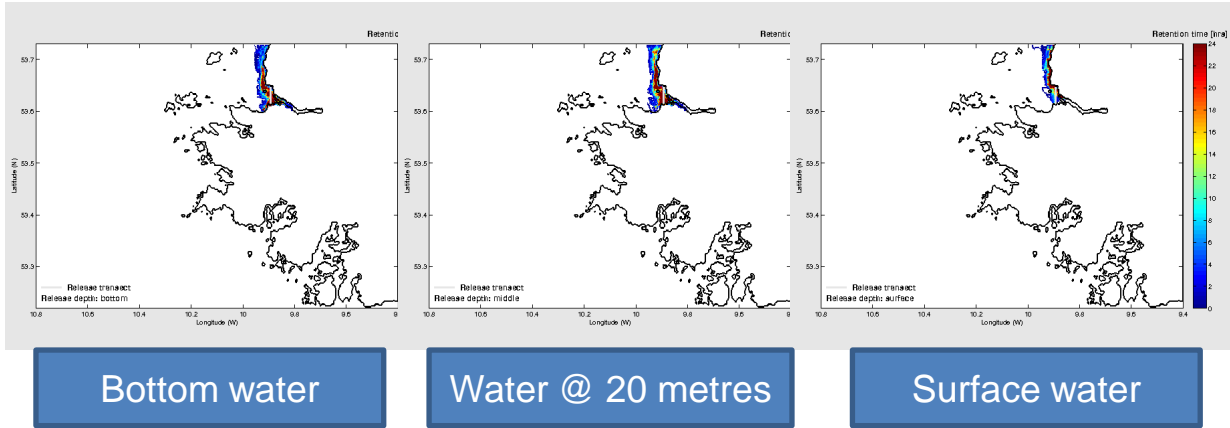
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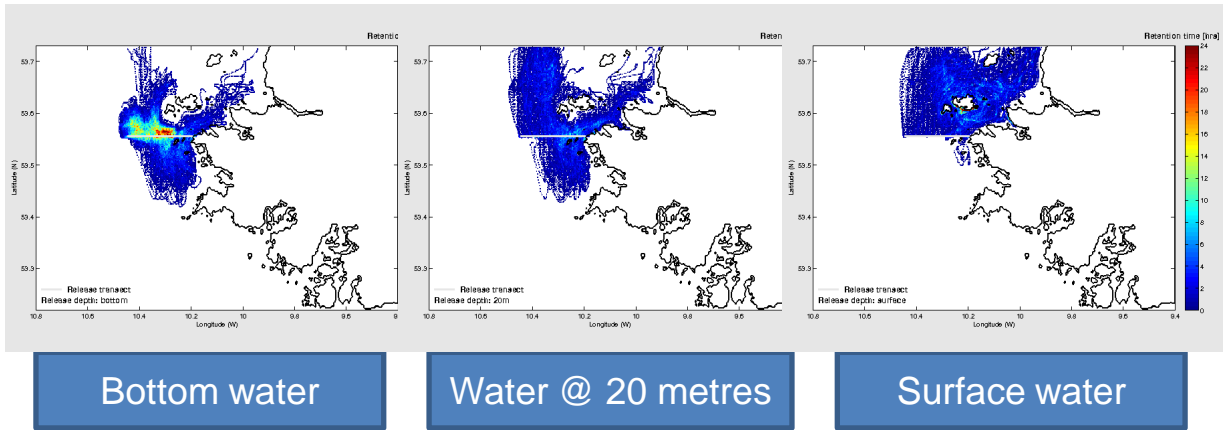


0.2 0.4 1 2 4 10 20 40 100 200
particle transport probability (hours)
Bantry Bay model particle track analysis
(2015-03-10T00:00:00Z, release_location=0.0 count)
Data courtesy of Irish Marine Institute

Modelled Forecast for 30 June to 2 July



Conditions are favourable for some movement of bottom to mid water into Killary Harbour. However the main flows will be directed out of the harbour at all depths.



Circulation patterns off Cleggan are directed northward with more free flows in surface to mid waters. Phytoplankton in the Coastal Current are free to reach the mouth of Killary Harbour.