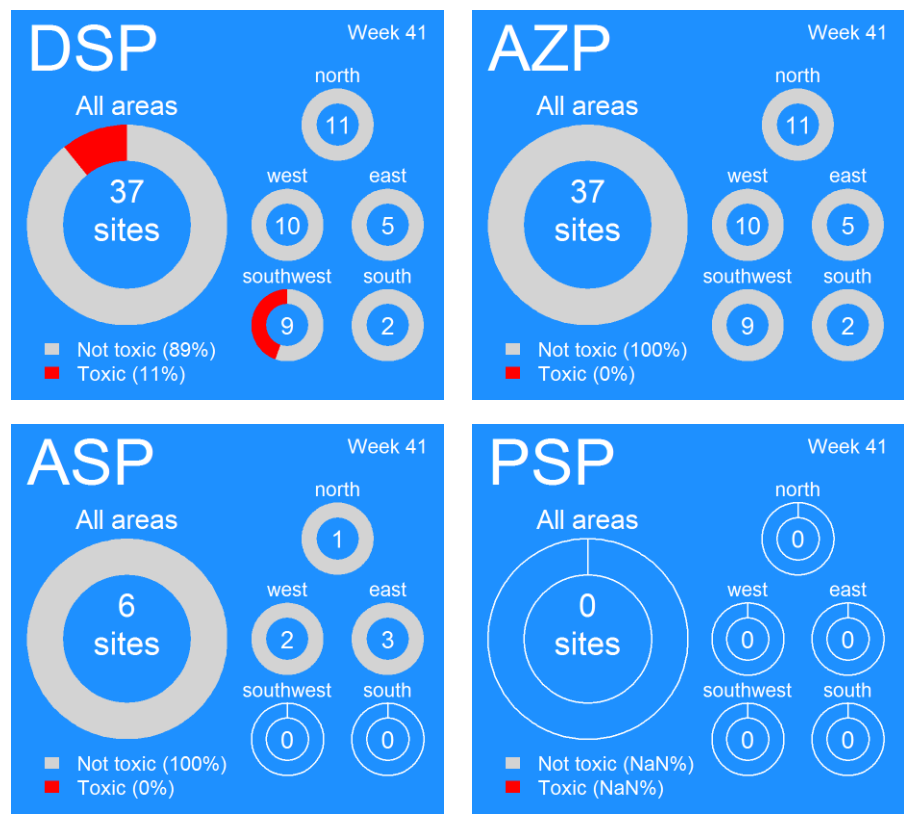


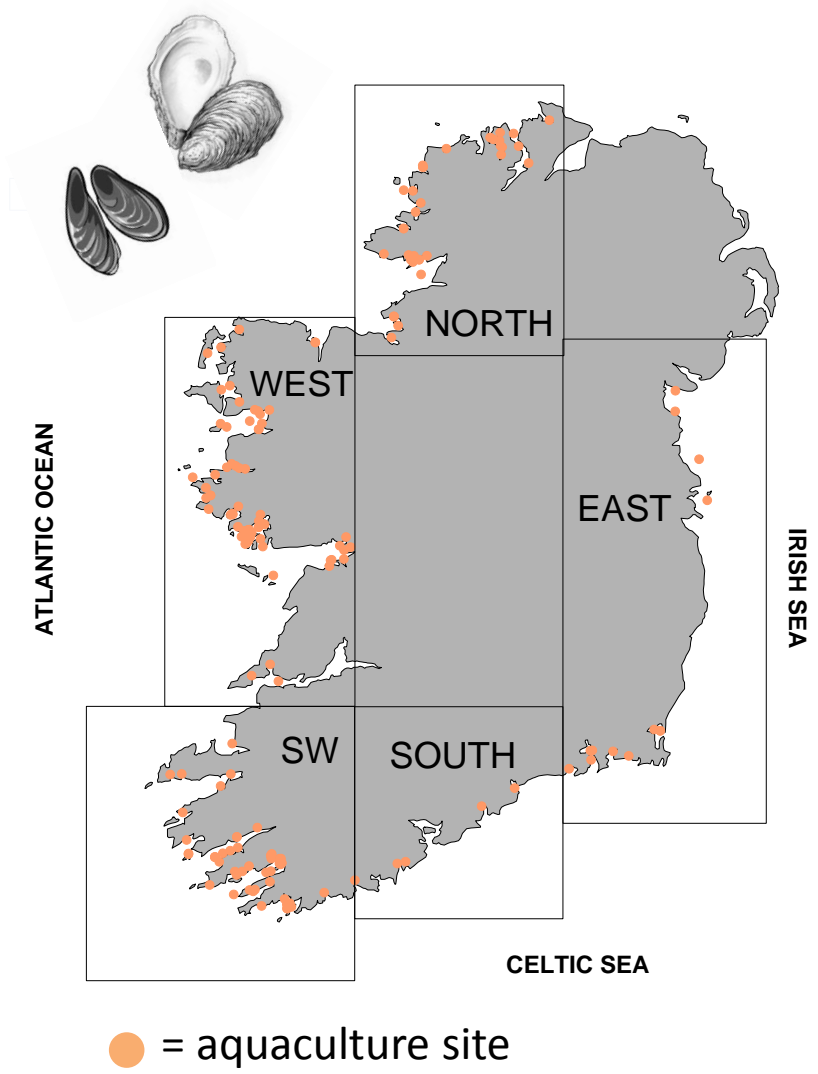
Ireland: Current Conditions

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 = **A**Zaspiracid **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: Moderate to high

DSP event: Moderate to low for most sites (site specific)

PSP event: Low risk

Why do we think this?

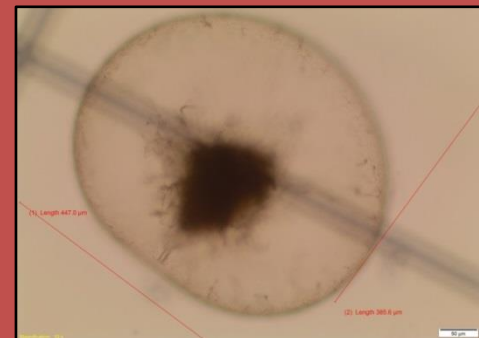
ASP: Historically ASP has not been recorded at this time of year. While the '*Pseudo-nitzschia seriata*' group is still present in many sites nationwide, no corresponding toxin increase has been observed in shellfish. The current *Pseudo-nitzschia* populations appear to be declining in both quantities and geographical coverage.

AZP: There is a history of AZP events at this time of year in the north, west and SW. The current toxin trend appears to be fluctuating. This is a time to be cautious, as in the past there has been sudden rapid toxin increases at this time of year.

DSP: *Dinophysis* spp. continue to decline in the main SW sites affected, but, there are still some sites where significant cell levels remain. Related toxin levels are also declining slowly in affected sites. While there are no current environmental / water movement indicators to suggest any imminent new DSP event, we are still in a time period of historical occurrence, so caution is advised. There is a downward trend in cell and toxin levels at this time.

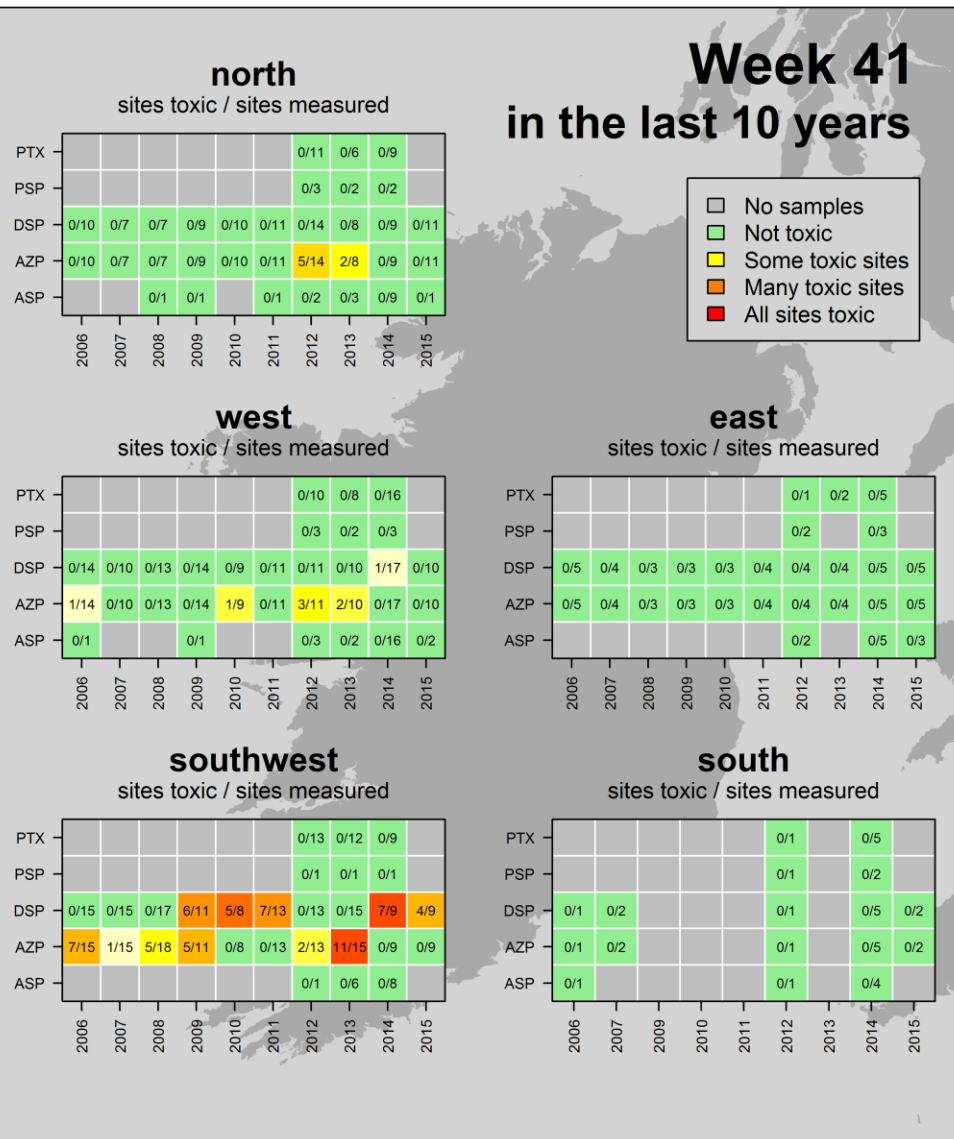
PSP: Toxicity issues are not expected at this time in the year.

Blooms: There have been reports of discoloured water in the west and SW over the past few weeks. This is due to a dinoflagellate called *Noctiluca scintillans*; well known for its bioluminescent properties. *Noctiluca scintillans* is non-toxic to shellfish. This species has no impact on human health and is not uncommon at this time of year when water temperatures increase. The algal bloom is red/orange in colour and can appear quite dense in bays where there is slack water circulation.



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



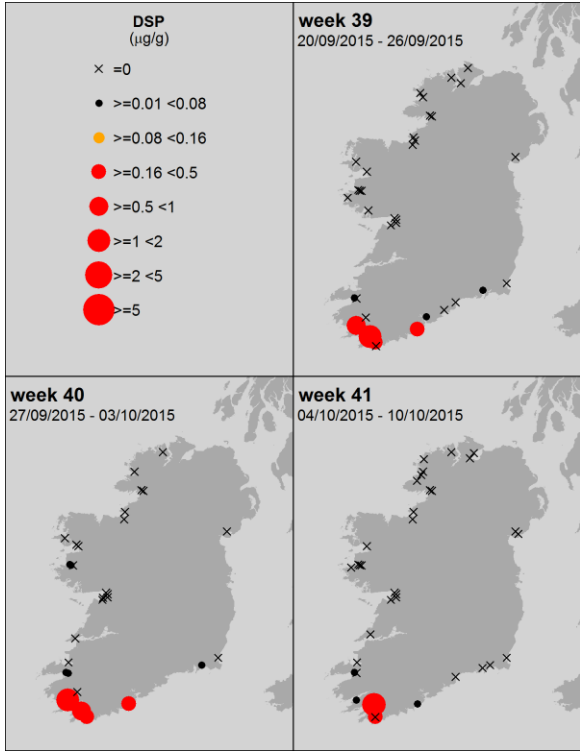
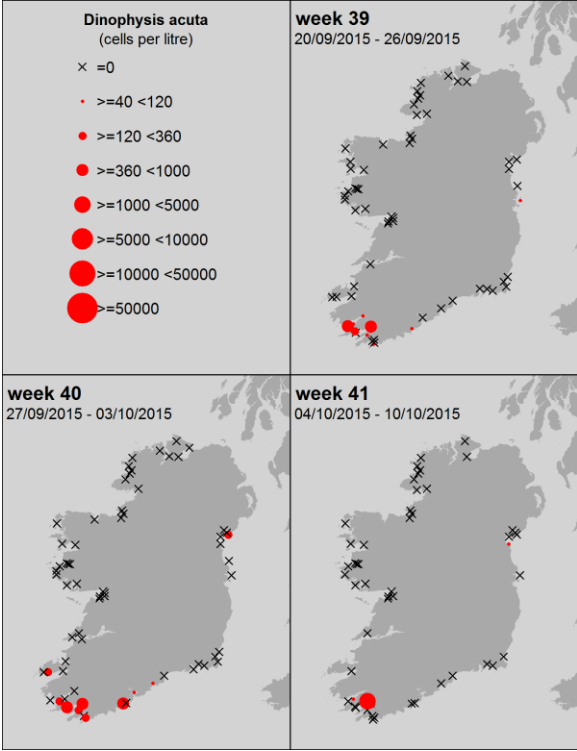
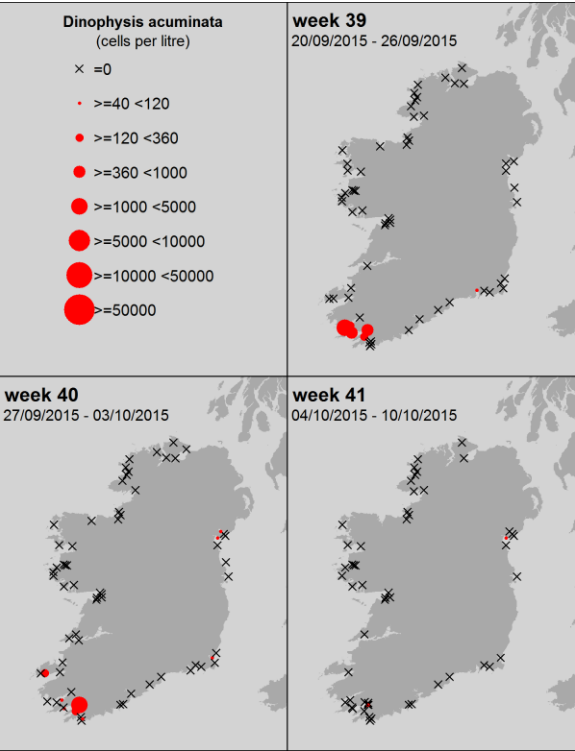
Dinophysis acuminata



Dinophysis acuta



DSP



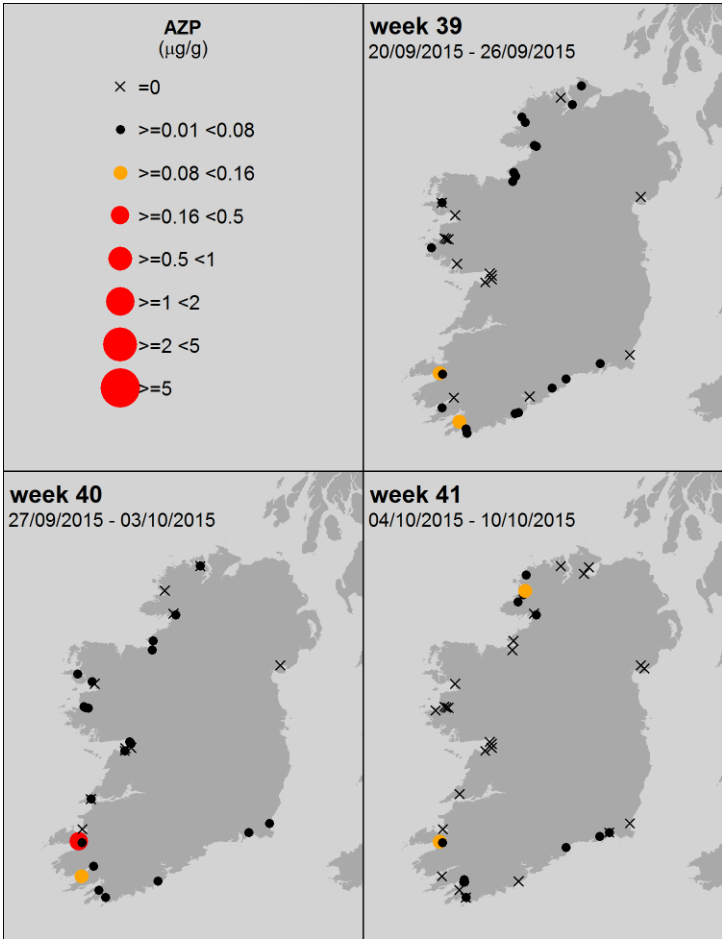
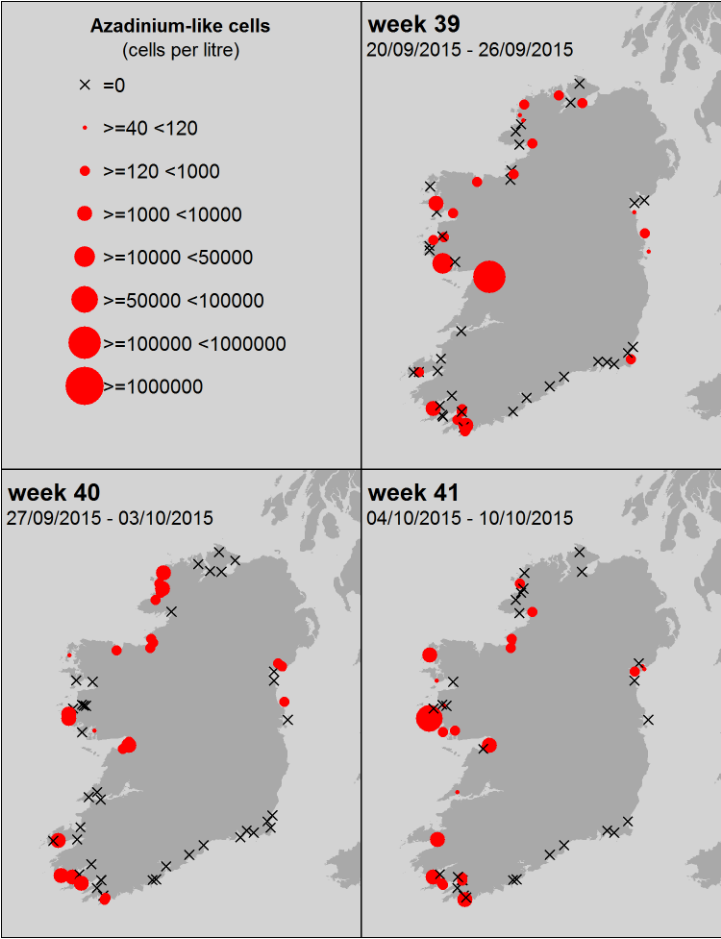
Ireland: Last 3 weeks of available National Monitoring Programme data



Azadinium – like spp.



AZP



Ireland: Last 3 weeks of available National Monitoring Programme data

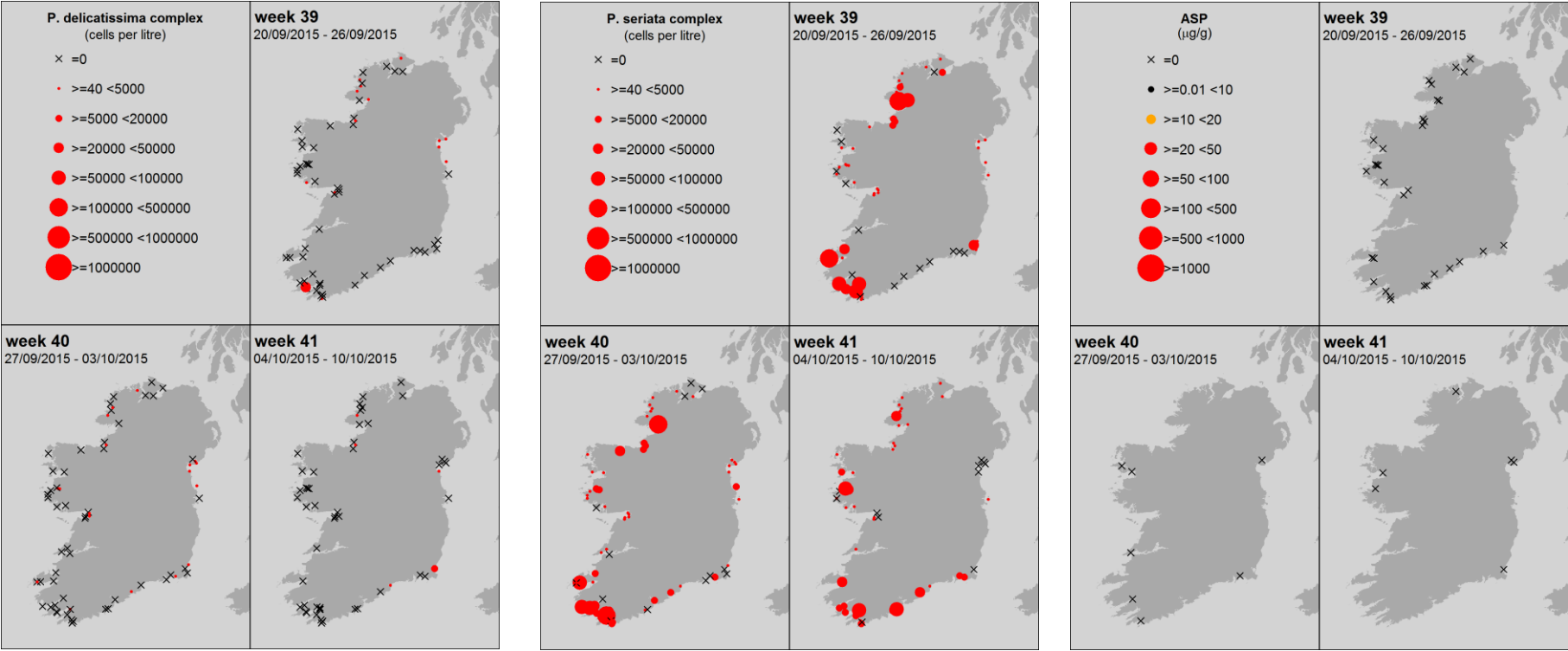
Pseudo-nitzschia spp.



ASP

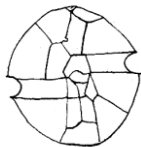
“*P. delicatissima*” complex = small cells
Taken from the literature:
3 species confirmed in Irish waters

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

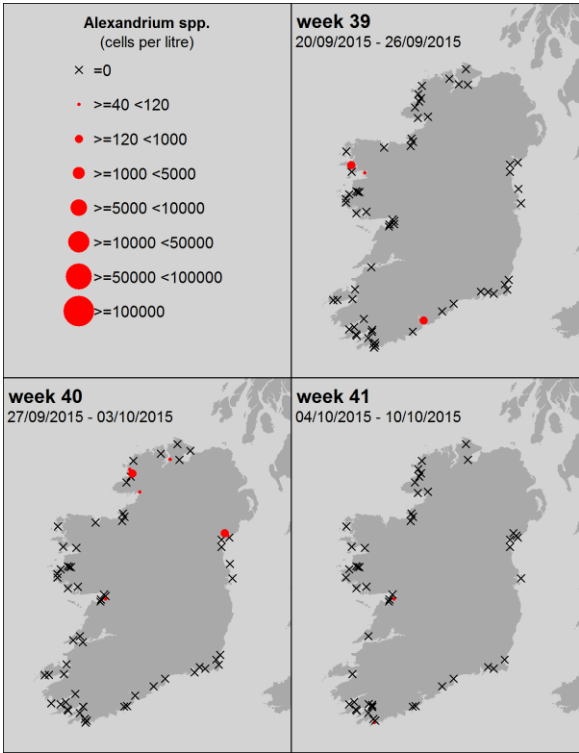


Taken from the literature: Of the 4 species (*P. fraudulenta*, *P. australis*, *P. pungens* and *P. delicatissima*) from Irish waters, tested for ASP toxins in culture work, only one, *P. australis* (from the “*P. seriata*” group) was toxic.

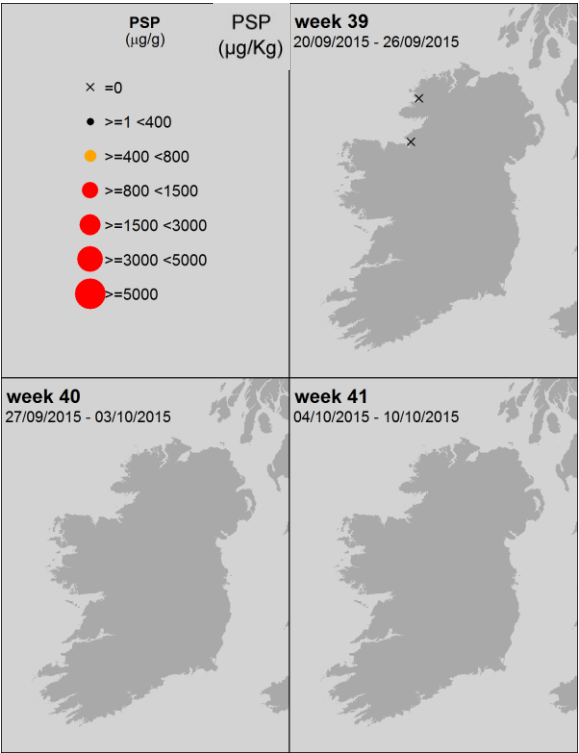
Ireland: Last 3 weeks of available National Monitoring Programme data



Alexandrium spp.



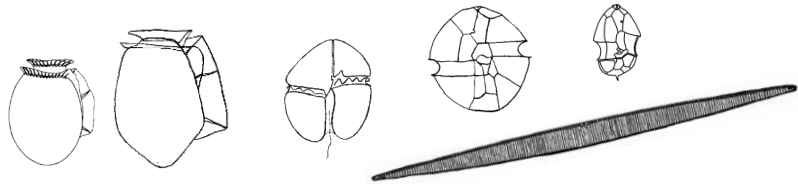
PSP



Ireland HAB & Biotoxin temporal trends

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

Ireland: Biotoxins



Toxin groups

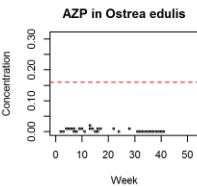
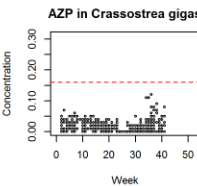
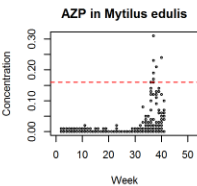
mussels

oysters

oysters

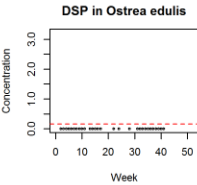
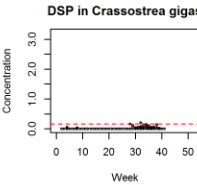
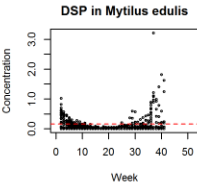
AZP

AZaspiracid
Poisoning



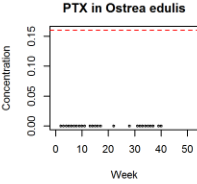
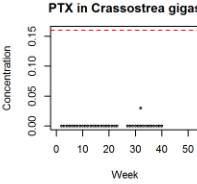
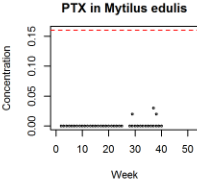
DSP

Diarrhetic
Shellfish
Poisoning



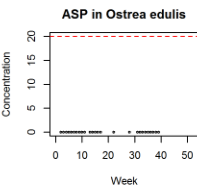
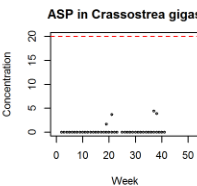
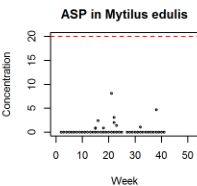
PTX

Pectenotoxin



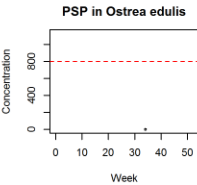
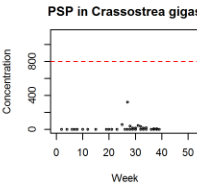
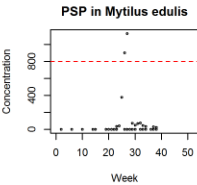
ASP

Amnesic
Shellfish
Poisoning

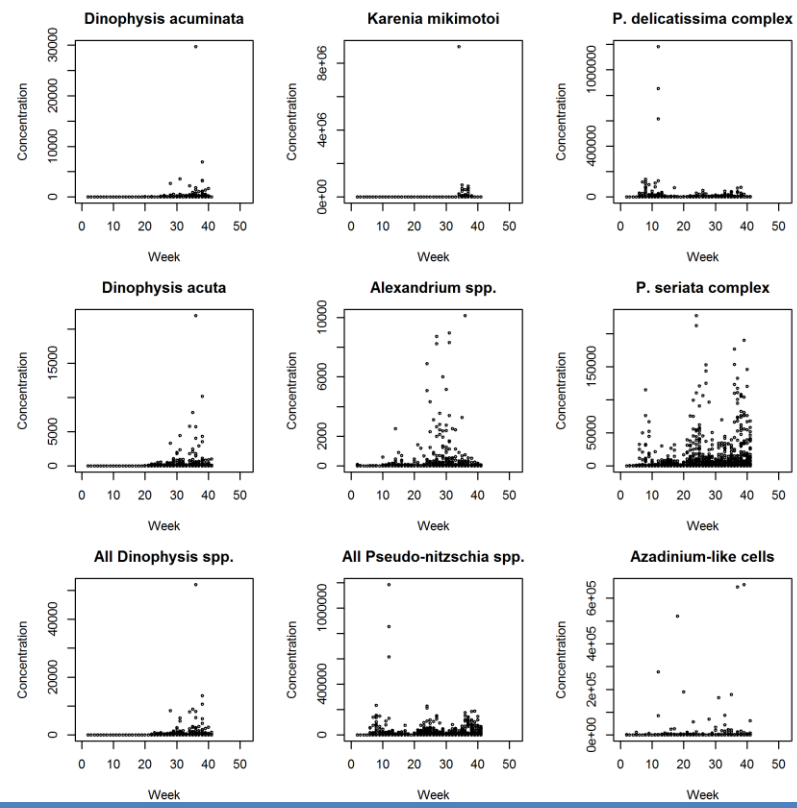


PSP

Paralytic
Shellfish
Poisoning



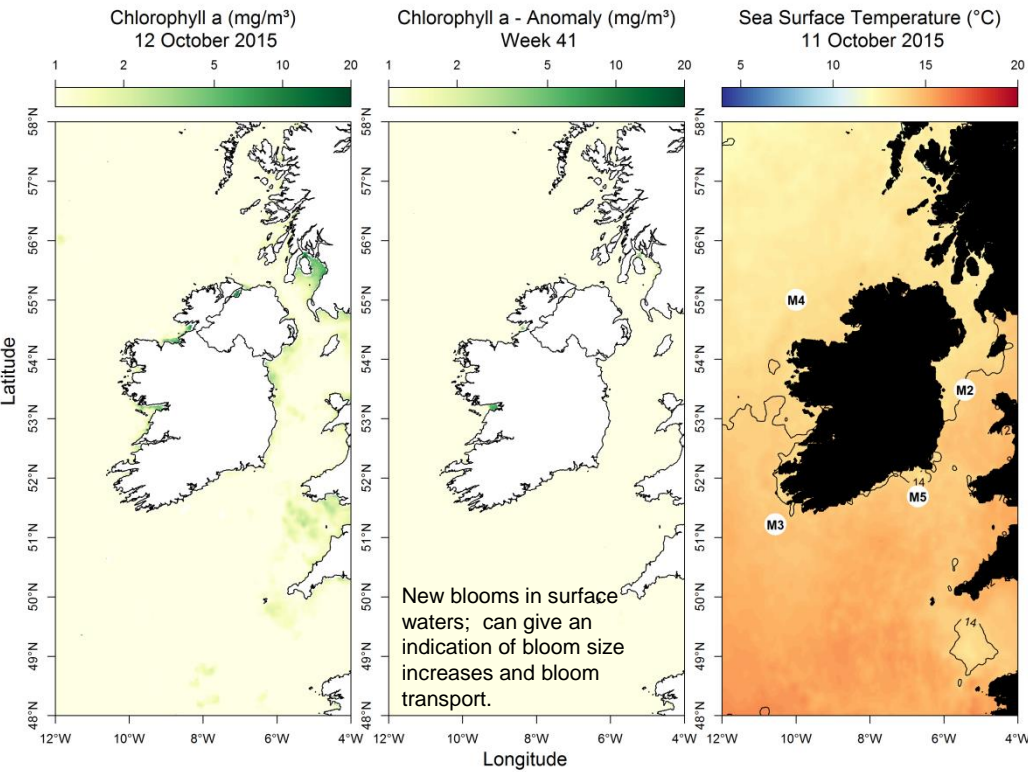
Ireland: HABs



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

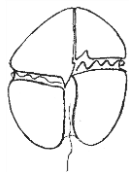


SST (°C) anomaly for last week:
Data taken from the Irish data buoy network where the anomaly is the weekly difference in SST compared to the long term mean (~ 10 yrs)

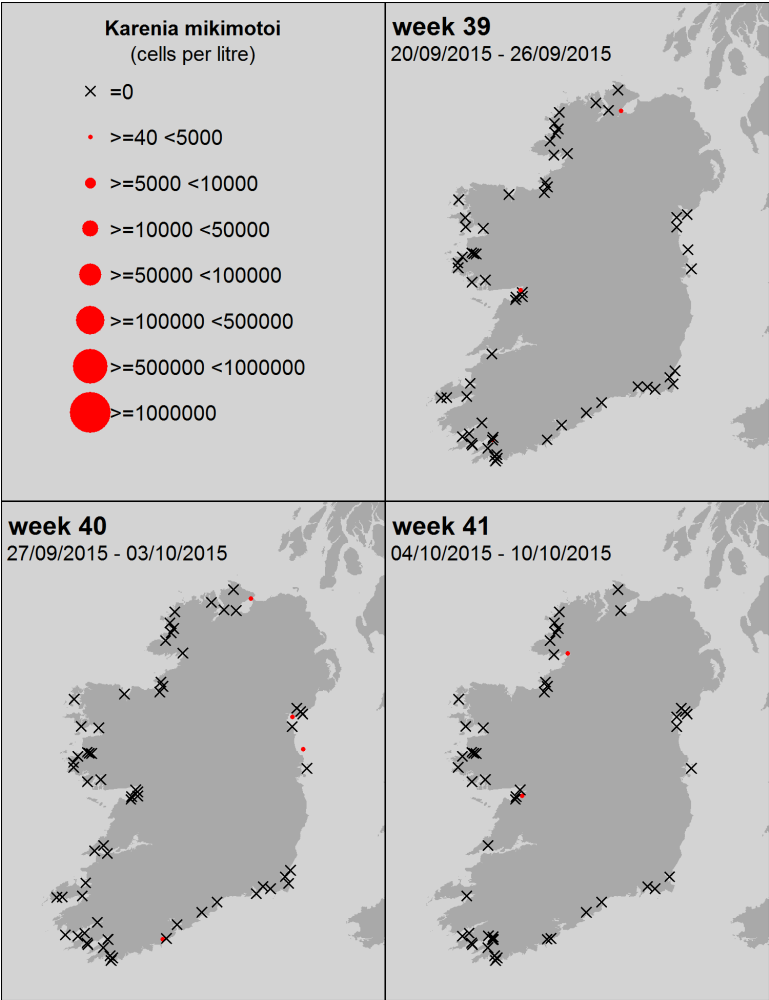
- NW coast (M4) Above average by 0.04 °C
- SW coast (M3) Offline
- SE coast (M5) Above average by 0.02 °C

What phytoplankton were blooming at inshore coastal sites last week?

| Region | Predominant Phytoplankton (most abundant taxa) | Cells/L | Cells/L (rounded) |
|--------|---|-----------|----------------------|
| north: | Diatoms: | | |
| | <i>Leptocylinndrus minimus</i> | 1,609,080 | 1,609,000 |
| | <i>Chaetoceros</i> (Hyalochaete) spp. | 368,832 | 369,000 |
| | Pennate diatom | 135,360 | 135,000 |
| | <i>C. closterium/ N. longissima</i> | 80,464 | 80,000 |
| west: | Diatoms: | | |
| | ' <i>Pseudo-nitzschia seriata</i> ' complex | 58,080 | 58,000 |
| | <i>Leptocylinndrus danicus</i> | 17,280 | 17,000 |
| | <i>Chaetoceros</i> (Hyalochaete) spp. | 15,840 | 16,000 |
| | <i>Striatella</i> spp. | 9,920 | 10,000 |
| SW: | Diatoms: | | |
| | <i>Skeletonema</i> spp. | 636,637 | 637,000 |
| | <i>Lauderia / Detonula</i> spp. | 125,662 | 126,000 |
| | <i>Thalassiosira</i> spp | 67,280 | 67,000 |
| | <i>Bacteriastrum</i> spp | 43,840 | 44,000 |
| | ' <i>Pseudo-nitzschia seriata</i> ' complex | 38,480 | 38,000 |
| | Others: | | |
| south: | <i>Haptophytes</i> | 59,520 | 60,000 |
| | Diatoms: | | |
| | <i>Thalassiosira</i> spp | 86,298 | 86,000 |
| | <i>Lauderia / Detonula</i> spp. | 78,728 | 79,000 |
| | ' <i>Pseudo-nitzschia seriata</i> ' complex | 68,080 | 68,000 |
| east: | <i>Navicula</i> spp | 59,520 | 60,000 |
| | Diatoms: | | |
| | <i>Detonula confervacaea</i> | 95,382 | 95,000 |
| | <i>Skeletonema</i> spp. | 77,214 | 77,000 |
| | <i>C. closterium/ N. longissima</i> | 76,457 | 76,000 |
| | <i>Asterionellopsis glacialis</i> | 76,240 | 76,000 |
| | <i>Bacteriastrum</i> spp | 70,320 | 70,000 |



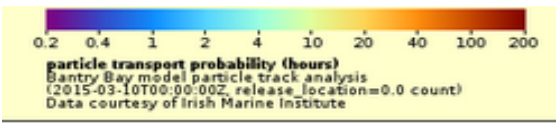
Karenia mikimotoi
(old name: *Gyrodinium aureolum*)



SOUTHWEST: Bantry Bay

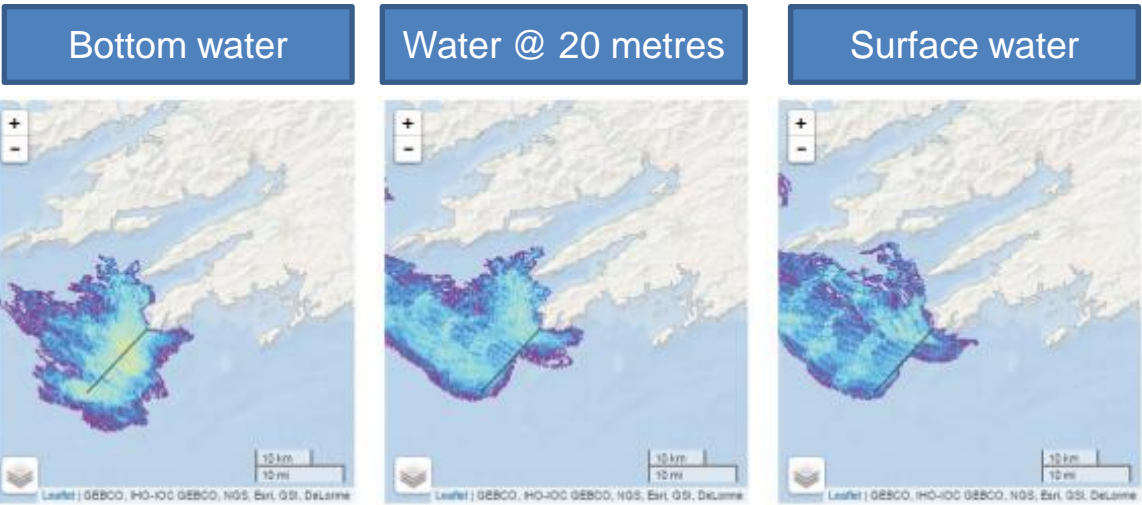
The maps show the **most likely transport pathways for the next 3 days of phytoplankton** found along the **presented transects** (black lines off Mizen Head and the Mouth of Bantry Bay) and **water depths** (bottom, 20 metres and surface)

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



Go to <http://vis.marine.ie/particles/> to view daily forecasts

Forecast for the next 3 days



Estimated water circulation patterns at Mizen head show that water from the Celtic Sea will be able to reach the SW.



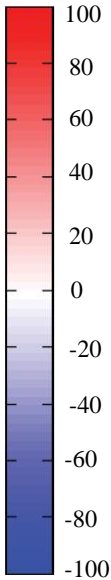
Predicted water circulation patterns at the mouth of Bantry Bay show that, in general, water flow will be restricted at all depths. However, there will be some outward movement at the surface and at mid-depths.

Bantry Bay

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



Flow ($\text{m}^3 \text{s}^{-1}$)

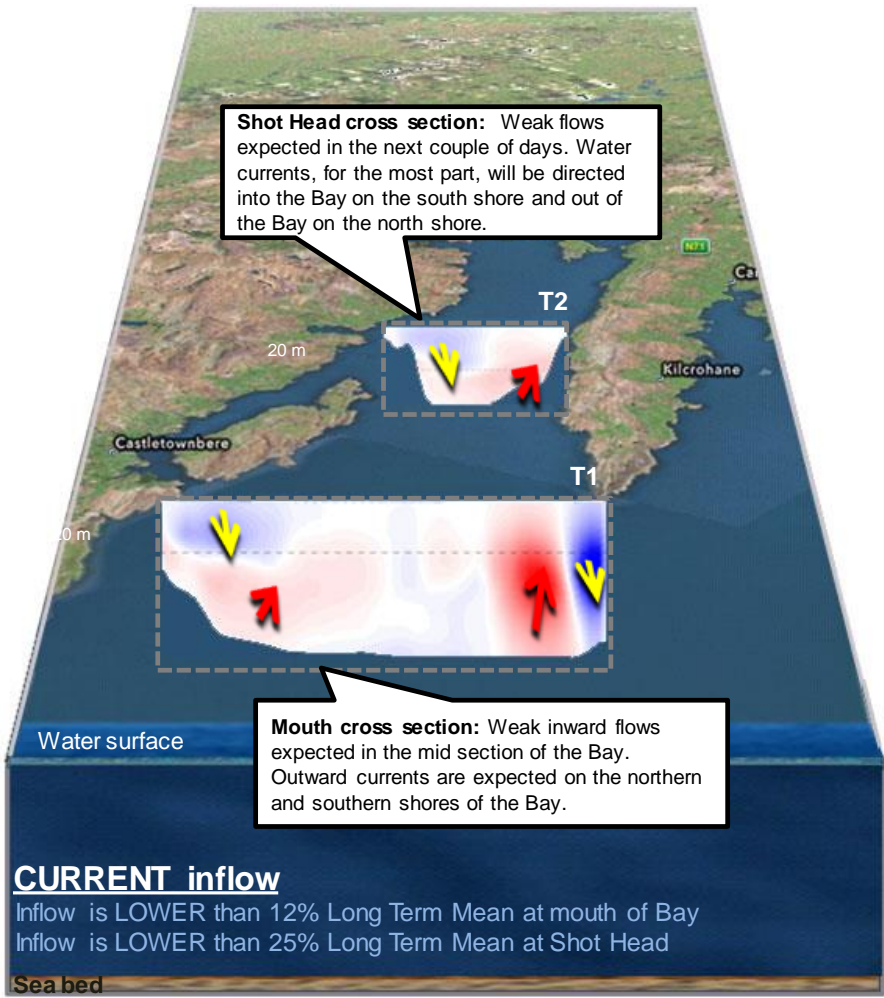


IN

OUT

Depth


Forecast for next 3 days



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)

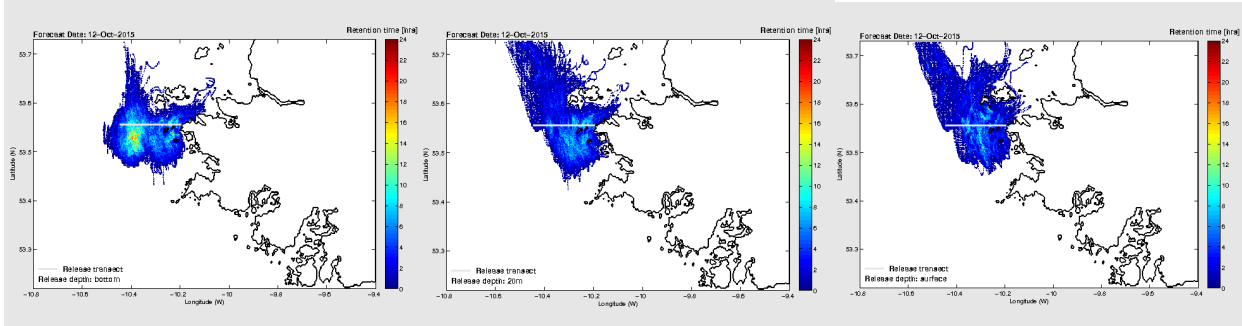
Reddish colours represent areas where phytoplankton remain longest
Cooler colours represent areas where phytoplankton remain for shorter periods



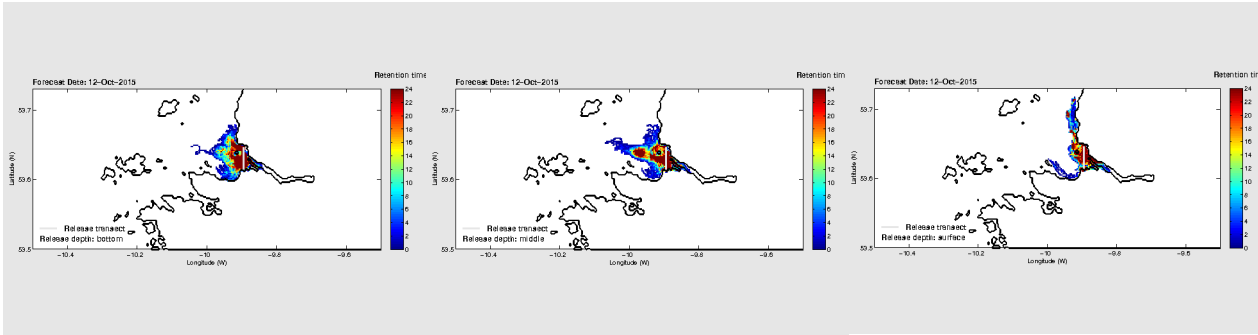
0.2 0.4 1 2 4 10 20 40 100 200
particle transport probability (hours)
Bantry Bay model particle track analysis
(2015-03-10T00:00:00Z, release_location=0.0 count)
Data courtesy of Irish Marine Institute

Forecast for the next 3 days

- Bottom water
- Water @ 20 metres
- Surface water



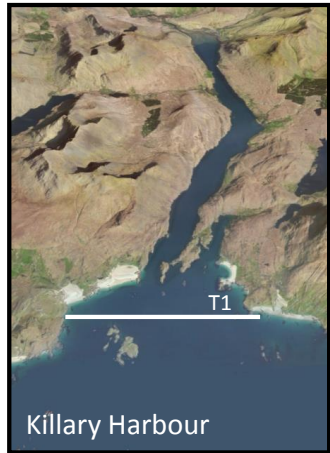
Water currents off the west coast will have a prevalent northward directed flow. Offshore surface and mid depth water masses are unlikely to reach the mouth of Killary Harbour in the next couple of days. Bottom water will be somewhat restricted with some movement toward the fjord.



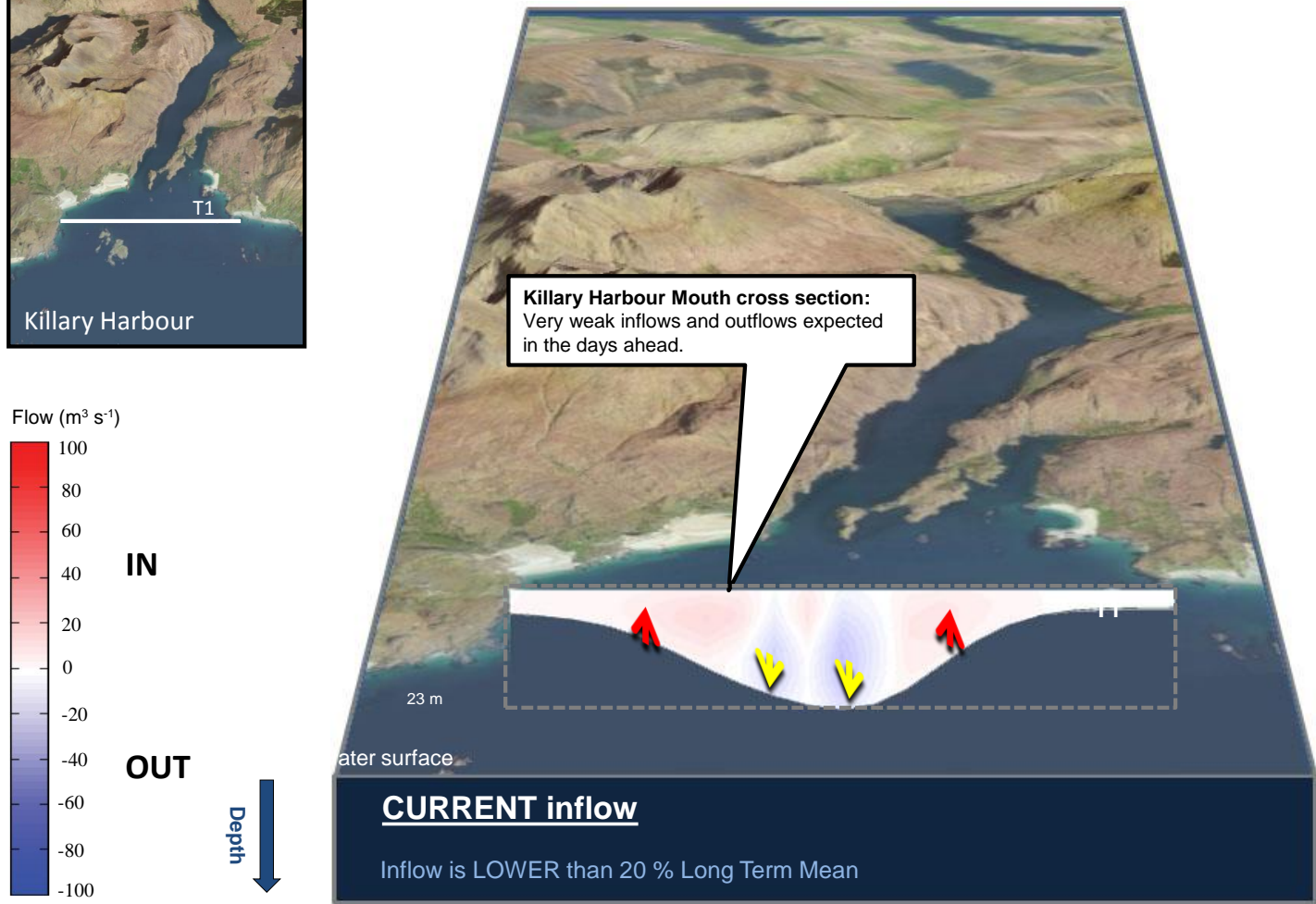
Estimated water circulation at the mouth of Killary shows in general, waters will be retained at the mouth with limited movement into the fjord.

Killary Harbour

3 day estimated water flows at the mouth of Killary Harbour

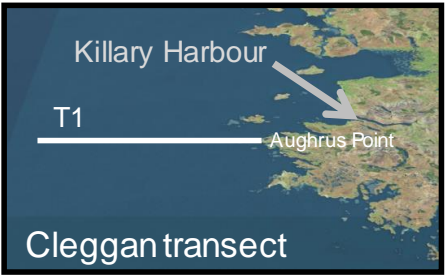


Forecast for next 3 days



Rate and direction of water volume flow is partially detided i.e. averaged over five M_2 tidal periods.

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



Forecast for next 3 days

