

Ireland: Predictions

ASP event: Moderate to High (site specific)

AZP event: Moderate

DSP event: Low

PSP event: Very low

NMP Current closures			
ASP	AZP	DSP	PSP
0	0	0	0

Why do we think this?

ASP: Increasing levels in the causative species have been tracked and noted for the last 6 weeks in specific areas (mainly in the South west at this time). Current levels of *Pseudo nitzschia sop* have increased significantly and also toxin levels in specific sites. Extreme caution is advised and daily reviewing of the most current chemistry results as this is an evolving situation. Molecular analysis using qPCR from 4 sites in SW bay area (samples from 21-3-17) indicated the toxin producer *Pseudo nitzschia australis* was present .

AZP: Again an increase in potential cells but no high toxin levels yet. Risk levels moderate are due to the potential pattern of slow increase in cell levels in some sites with low levels of toxins present (all currently below closure levels) . While environmental conditions may be fluctuating widely , this species has previously caused issues at this time of yr. (in the North and S.West). Issues with this toxin can occur suddenly and acutely .Caution is advised.

DSP: This is currently a low risk period for early DSP events and environmental conditions may not yet be ideal. All sites are currently below regulatory limits .

PSP: A toxic event is not expected at this time of year.

Please note: We will be updating the format of this bulletin throughout the year in an active effort to increase end user applicability and incorporate developing technologies. All feedback is welcome at Joe.Silke@Marine.ie .

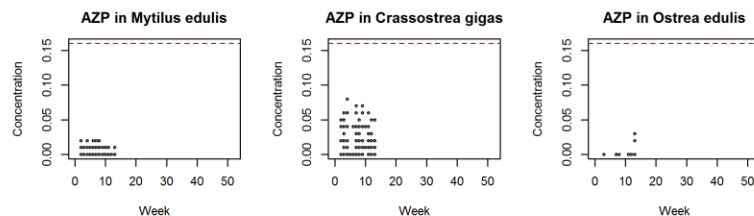
National Monitoring Programme



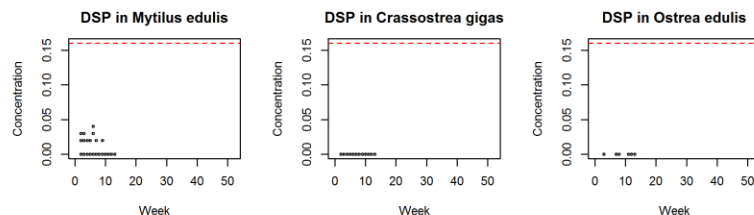
HISTORIC TRENDS



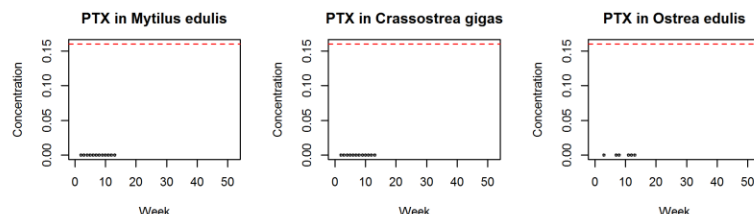
AZP



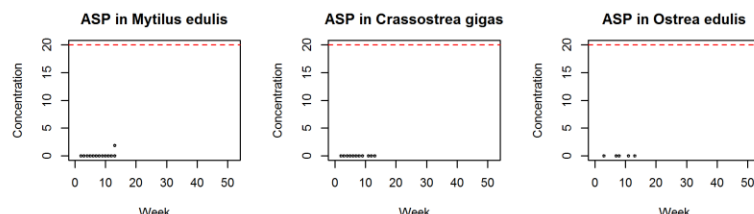
DSP



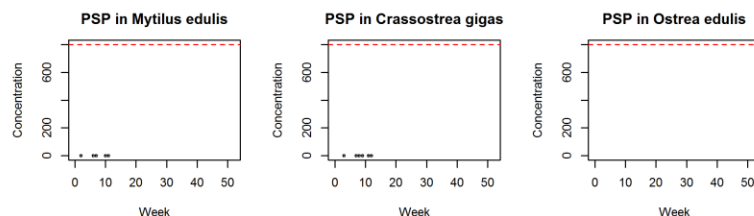
PTX



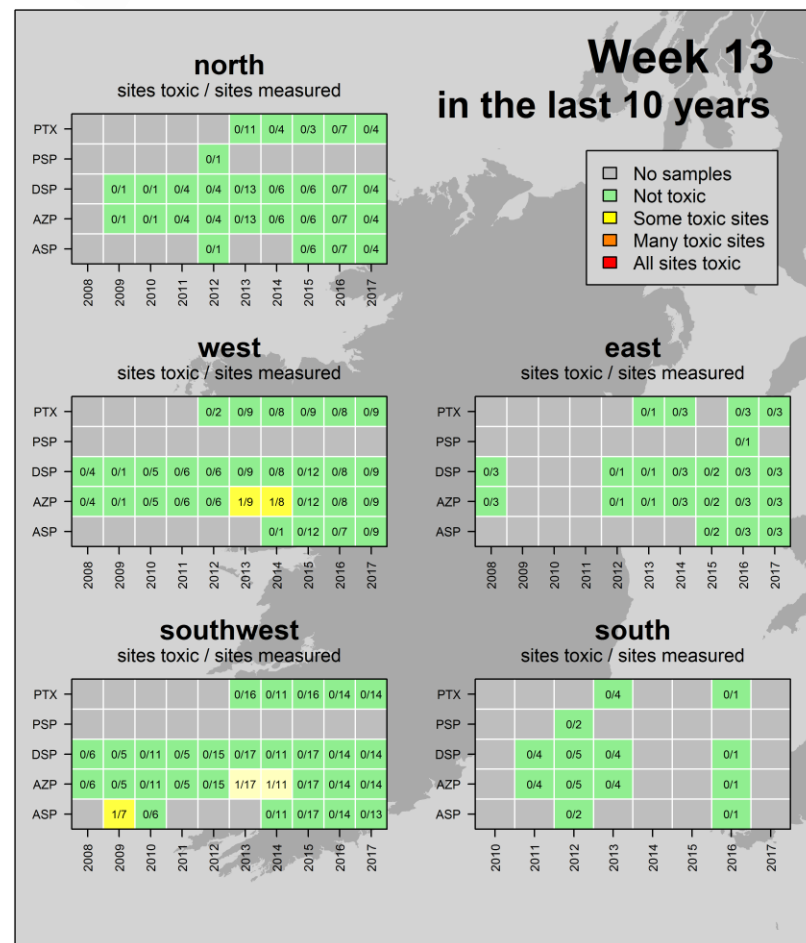
ASP



PSP



Levels from week 1 to present week. Regulatory limit - - - - -



ASP events: mid-March to early May

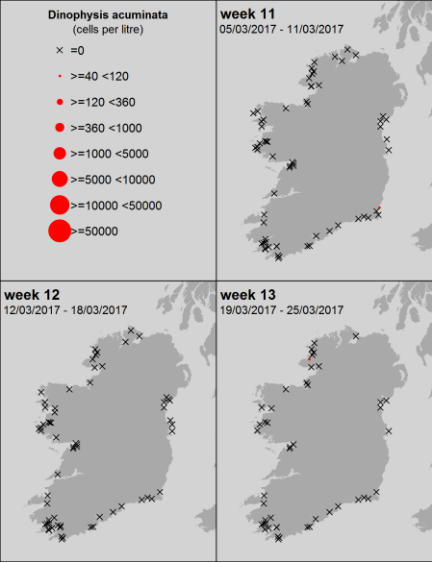
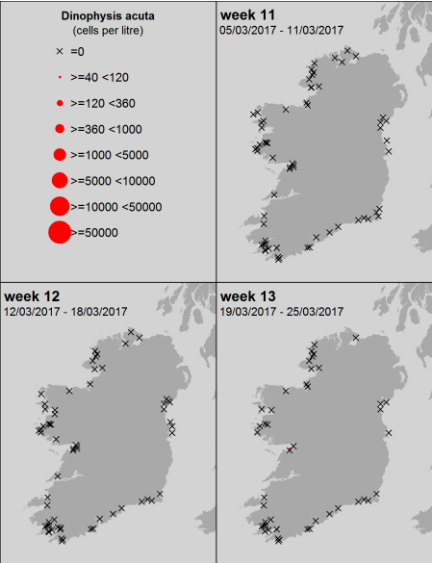
AZP events: April to December

DSP events: May to December

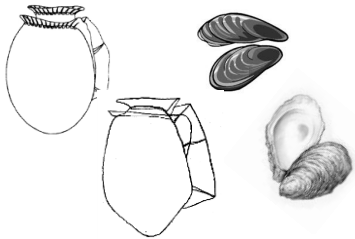
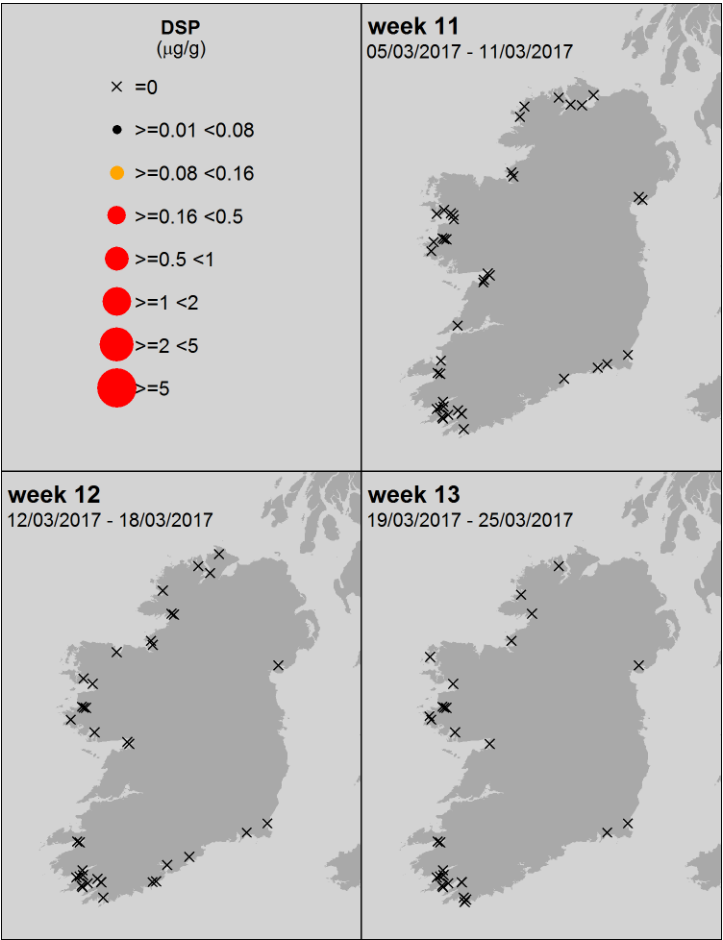
PSP events: June to mid-July and end September; only in Cork Harbour

DSP and Dinophysis sp. current trends

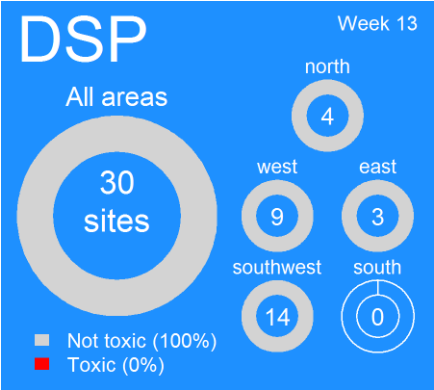
Phytoplankton species – 3 wks.



All levels of DSP biotoxin recorded- 3 wks.



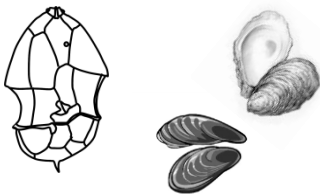
Current closures levels
≥ DSP 0.16 µg/g



Comments

Same as the last few weeks, still early in season – Currently very low cell levels and DSP well below closure limits in all sites.

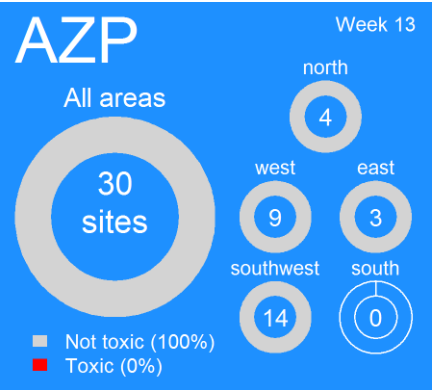
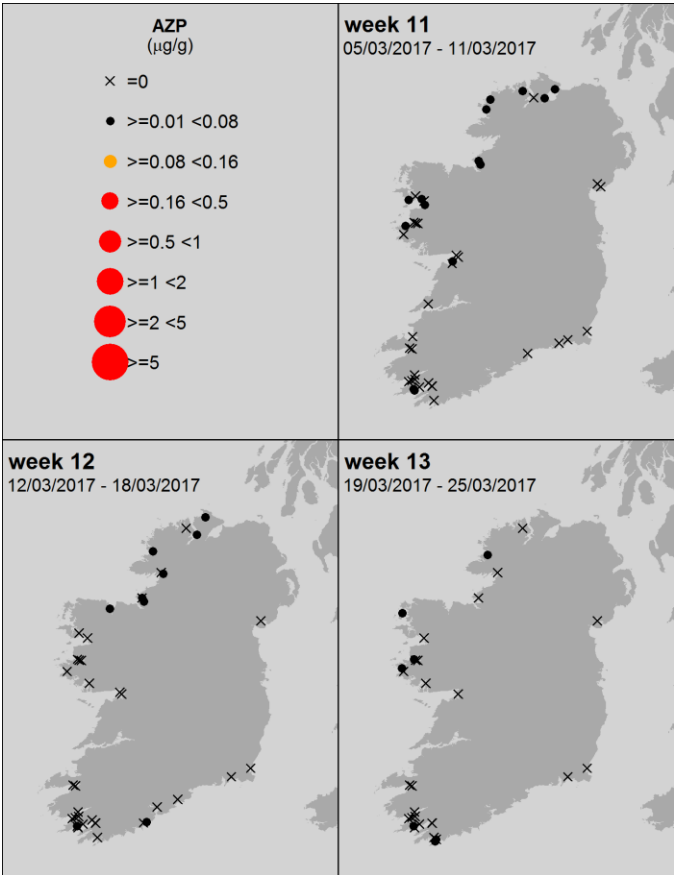
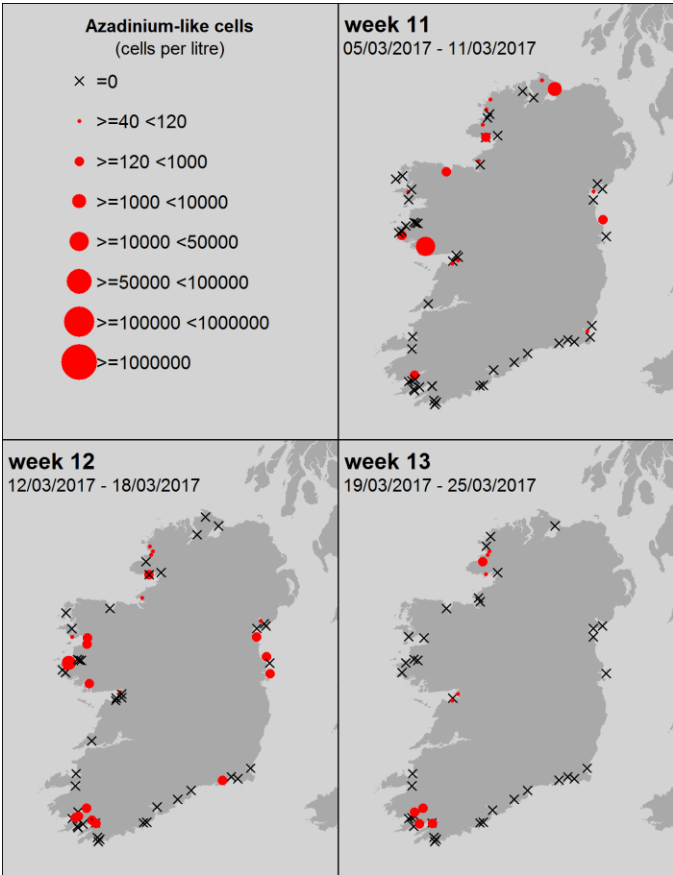
AZP and Azadinium like species current trends



Phytoplankton species – 3 wks.

All levels of AZP biotoxin recorded - 3 wks.

Current closures levels
≥ AZP 0.16 µg/g

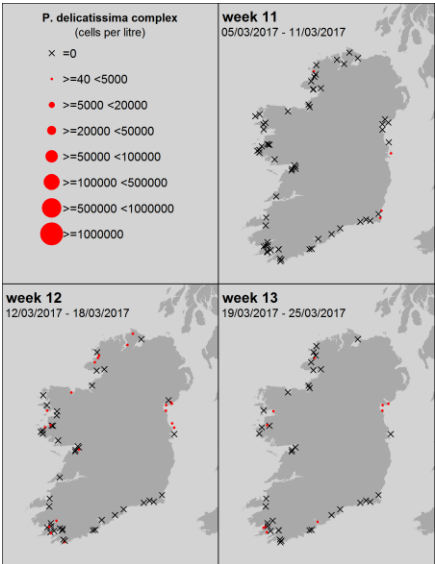
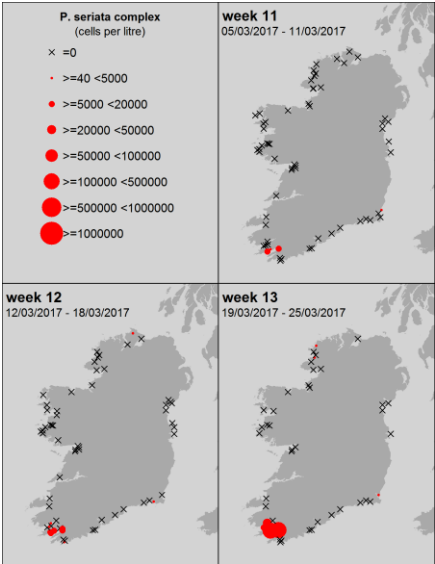


Comments

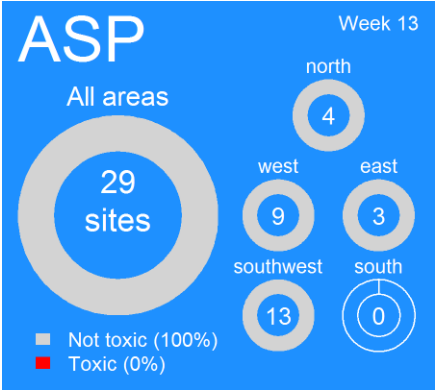
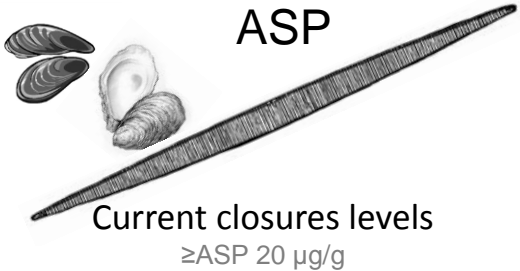
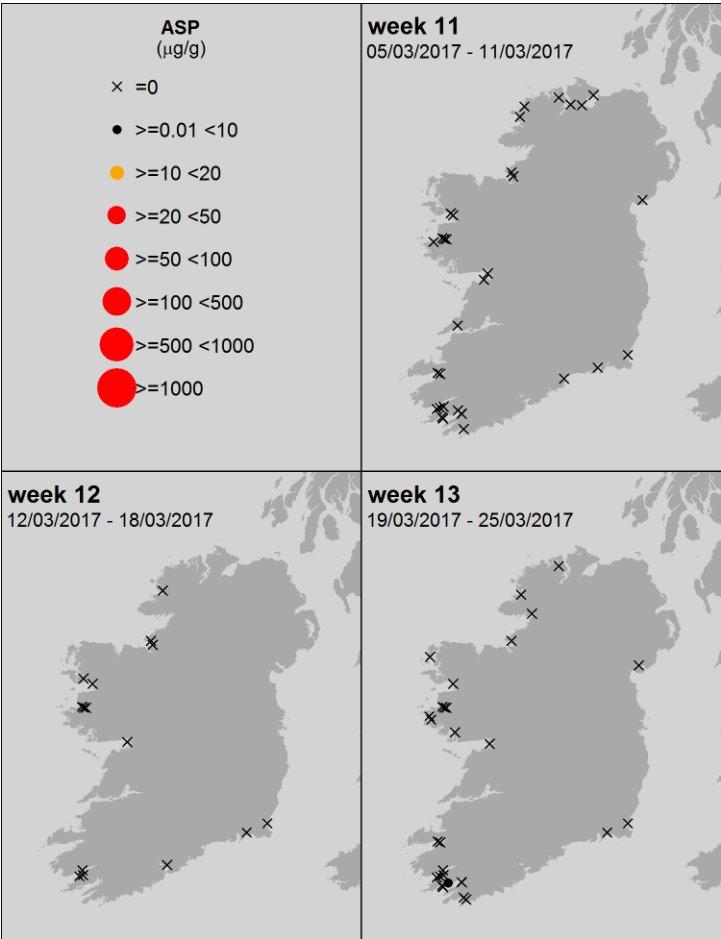
There is a still a potential trend of increasing cell levels and geographical spread combined with toxin detection levels in sites. This is a difficult species to predict so additional caution is advised.

ASP and Pseudo nitzschia sp. current trends

Phytoplankton species – 3 wks.



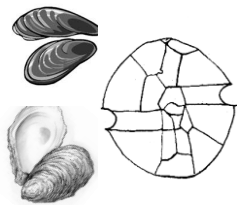
All levels of ASP biotoxin recorded - 3 wks.



Comments

Pseudo nitzschia australis confirmed by qPRC in some SW sites. Significant increase in cell levels and toxins in limited specific sites. Tracked increasing growth trend predicted to continue in suitable environmental conditions.

PSP and Alexandrium sp. current trends

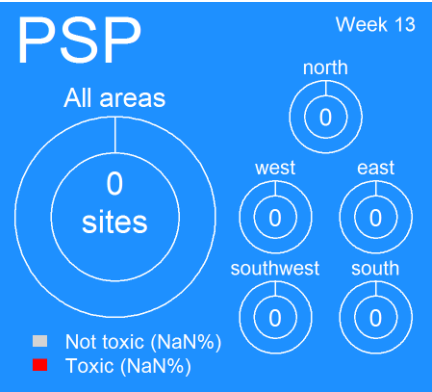
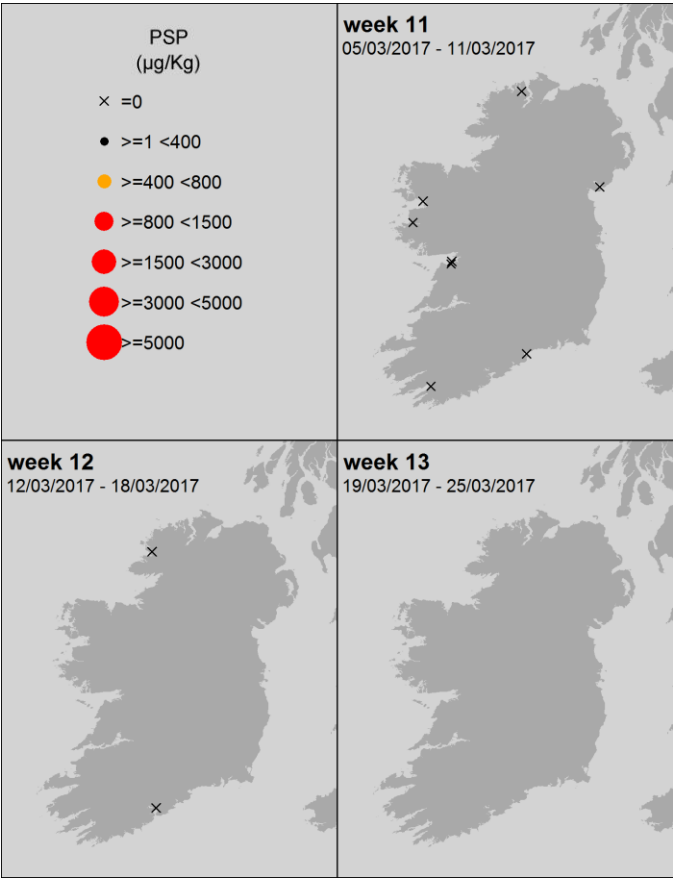
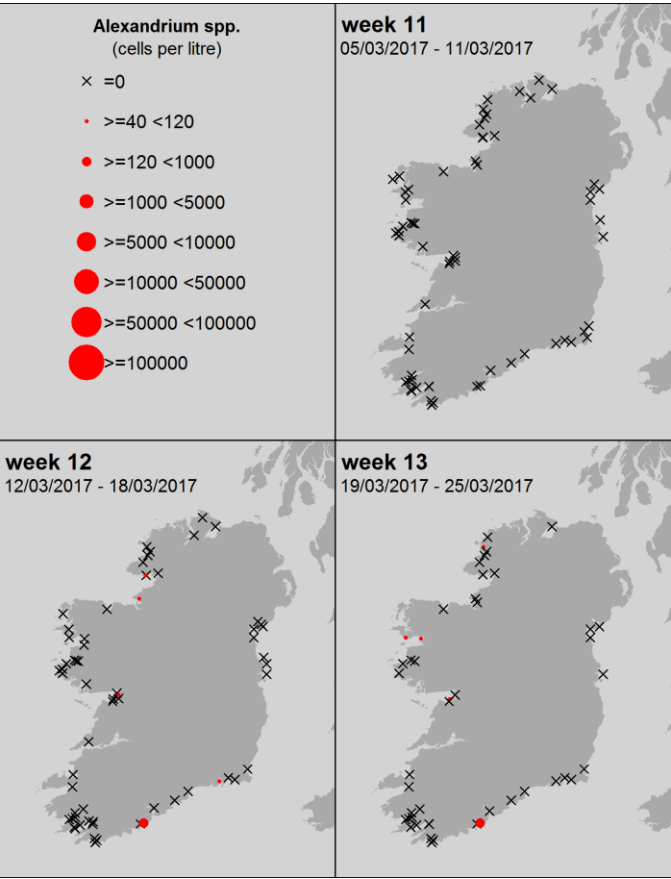


Phytoplankton species – 3 wks.

All levels of PSP biotoxin recorded - 3 wks.

Current closures levels

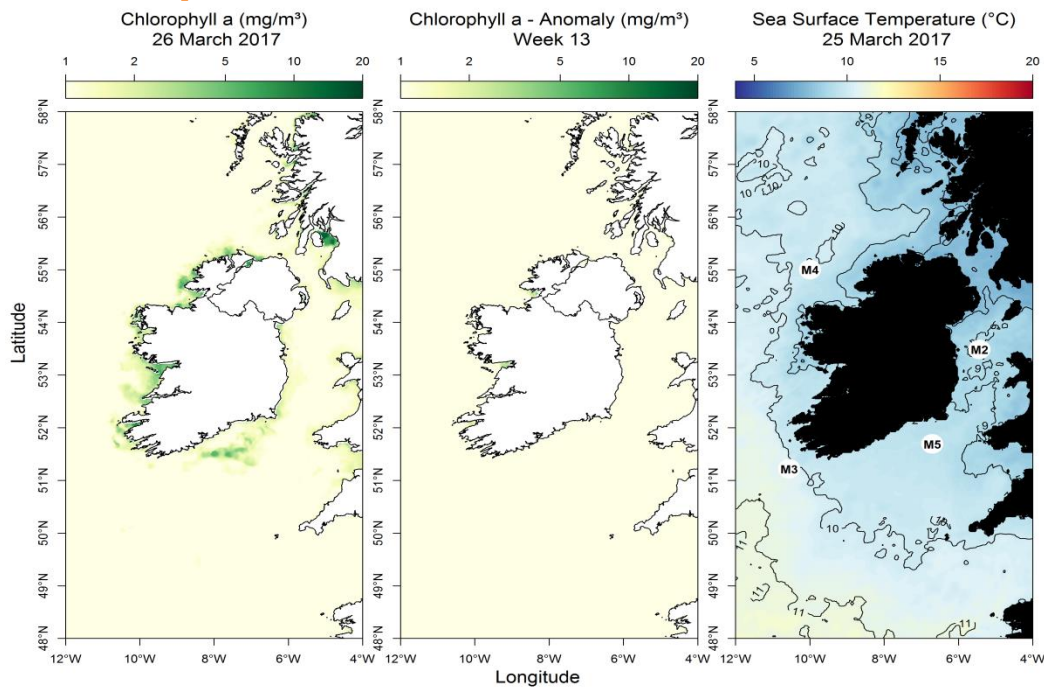
≥ PSP 800 µg/Kg



Comments

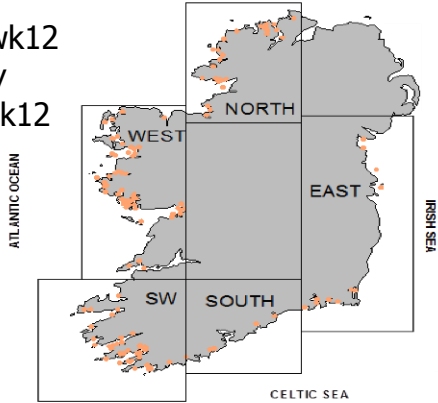
- No current changes -
No closures and
negligible likelihood
of bloom at this time.

Most up to date available satellite data



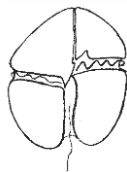
Continued increase in phytoplankton potential growth in some inner bay areas.

- NW coast (M4) Above average by 0.69°C wk12
- SW coast (M3) No data available currently
- SE coast (M5) Above average by 0.60°C wk12



What phytoplankton were blooming at inshore coastal sites last week?

Rank	Region	Species	Rounded Count
1	east	Centric Diatom	1287000
2	east	Pennate diatom	61000
3	east	Cylindrotheca closterium/ Nitzschia longissima	11000
4	east	Skeletonema spp.	7000
5	east	Thalassiosira spp.	4000
1	north	Pennate diatom	42000
2	north	Thalassiosira spp.	31000
3	north	Coccolithophorids	13000
4	north	Asterionella formosa	11000
5	north	Skeletonema spp.	3000
1	south	Nitzschia spp. (small)	96000
2	south	Paralia sp.	67000
3	south	Thalassiosira <20um	61000
4	south	Skeletonema costatum	35000
5	south	Skeletonema spp.	30000
1	southwest	Skeletonema spp.	1096000
2	southwest	Skeletonema costatum	944000
3	southwest	Thalassiosira <20um	431000
4	southwest	Pseudo-nitzschia seriata complex	308000
5	southwest	Thalassiosira nordenskioldii	139000
1	west	Skeletonema spp.	134000
2	west	Ciliates	22000
3	west	Pediastrum boryanum	6000
4	west	Striatella spp.	3000
5	west	Euglena/Eutreptiella spp.	2000

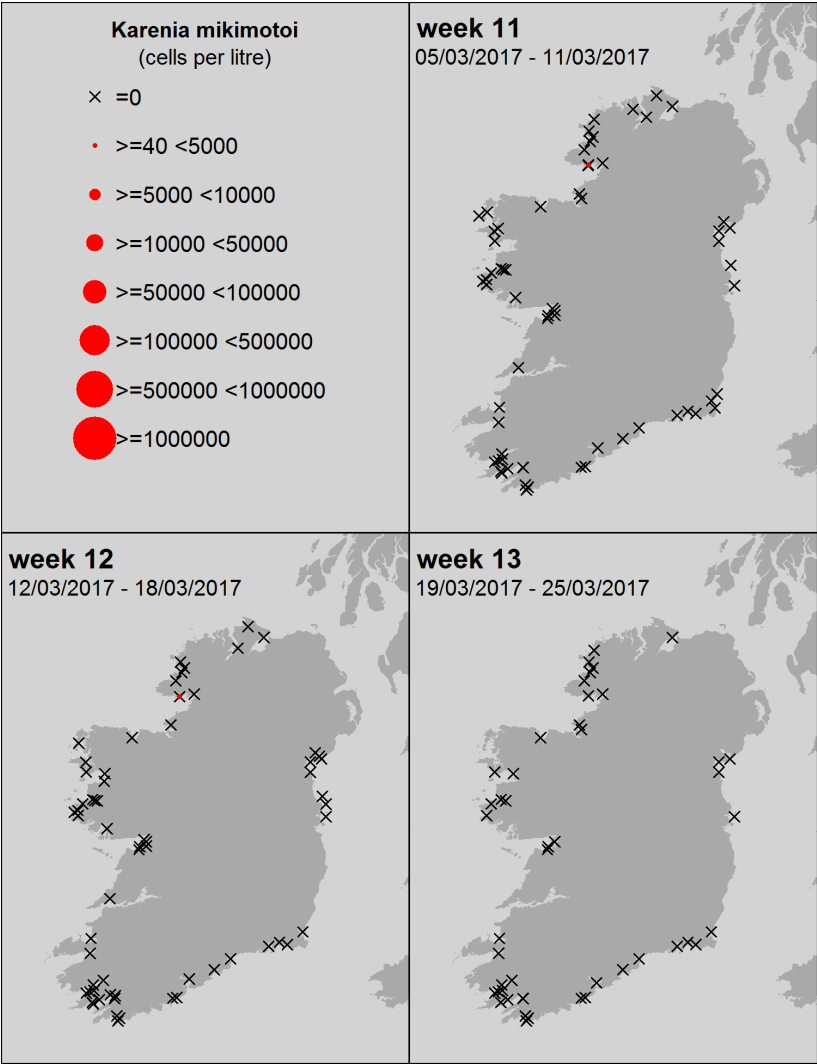


Karenia mikimotoi
(old name: *Gyrodinium aureolum*)

A *Karenia mikimotoi* bloom is NOT expected this week

Other bloom species news

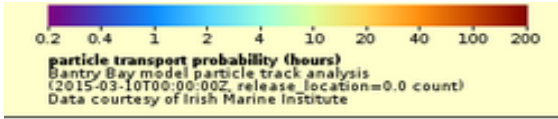
- *Phaeocystis* spp. cells , in low numbers, have been recorded in the SW. This species at high levels can cause gill irritation in finfish.



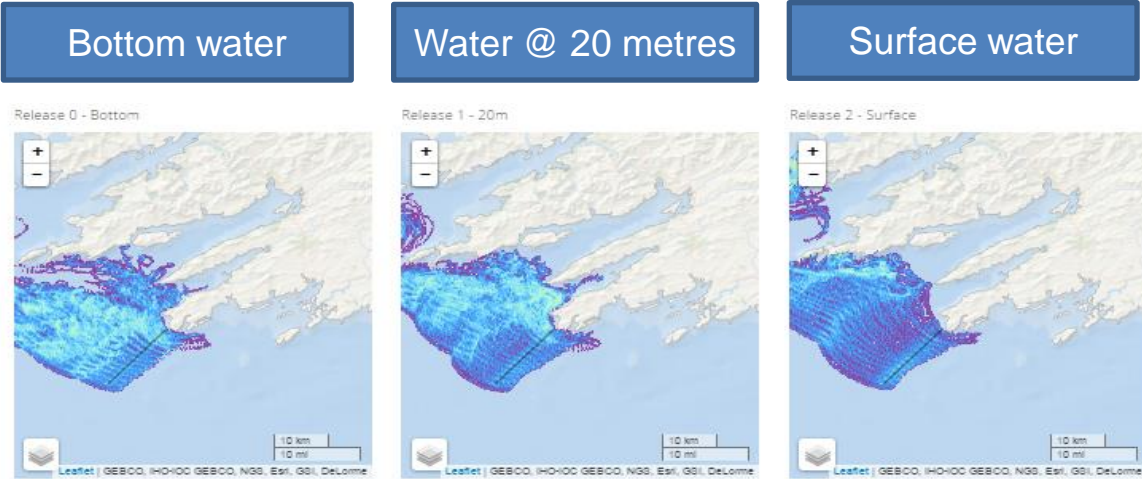
SOUTHWEST: Bantry Bay

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)

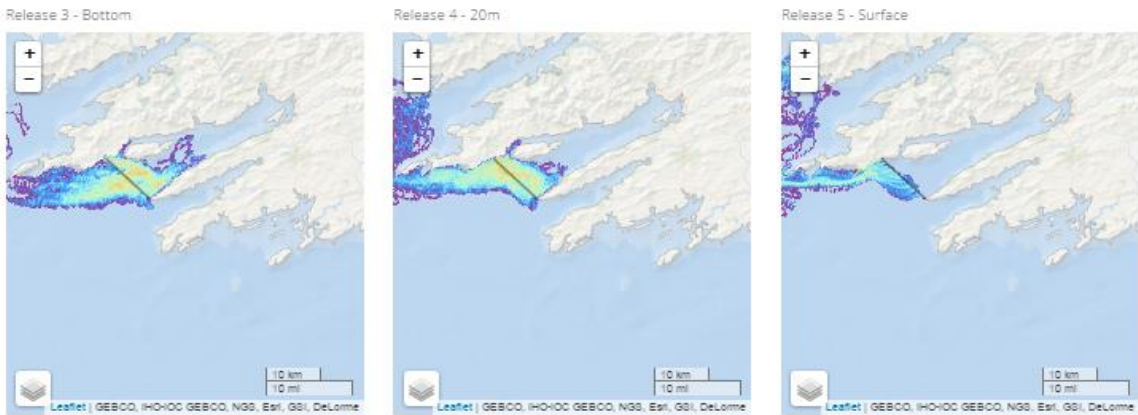
Reddish colours represent areas where phytoplankton remain longest
Cooler colours represent areas where phytoplankton remain for shorter periods



Forecast for the next 3 days



Contrasting last week's forecast, this week predominant water movement , at all depths expected to be in a northwesterly direction. Stronger at surface levels.

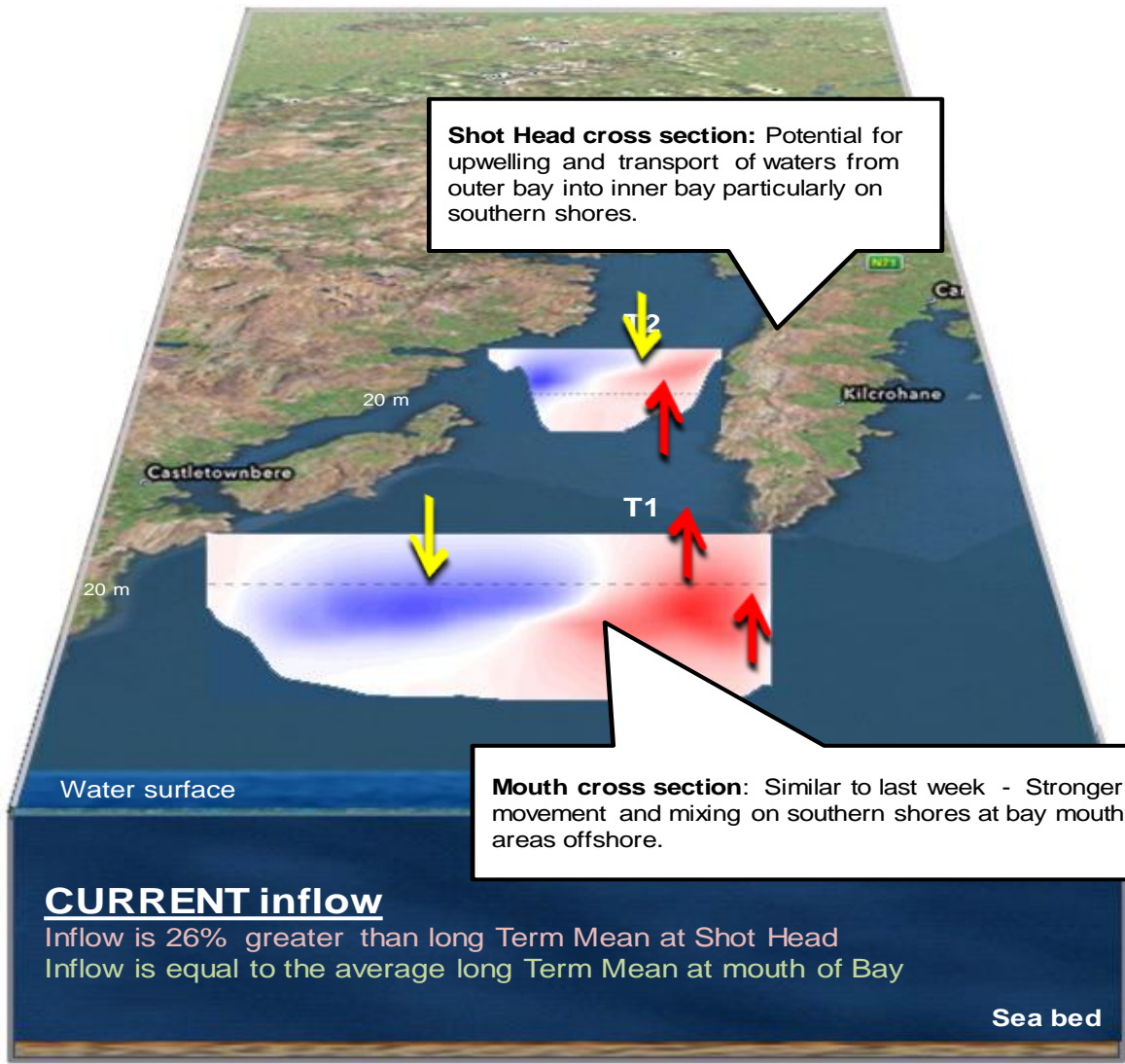
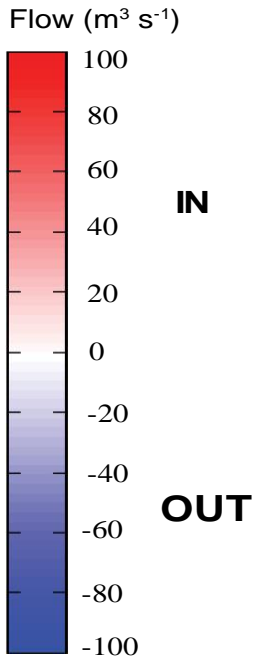


Some potential for upwelling at bottom and deeper depths.in outer bay areas. Surface waters movement expected to be in a predominantly west north westerly direction.

Bantry Bay

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

Forecast for next 3 days



Shot Head cross section: Potential for upwelling and transport of waters from outer bay into inner bay particularly on southern shores.

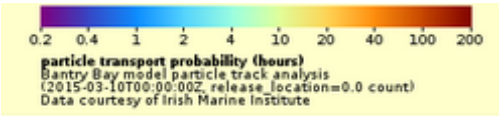
Mouth cross section: Similar to last week - Stronger water movement and mixing on southern shores at bay mouth and exposed areas offshore.

WEST: Killary Harbour

Forecast for the next 3 days

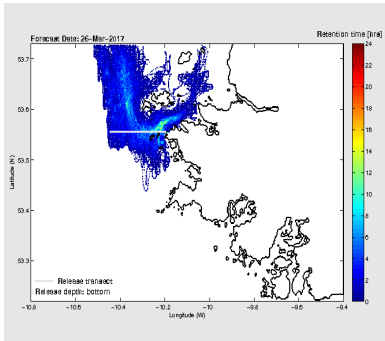
The maps show the **most likely transport pathways for the next 3 days of phytoplankton** found along the **presented transects** i.e. white lines off Aughrus Point and the Mouth of Killary Harbour, and **water depths** (bottom, 20 metres and surface)

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

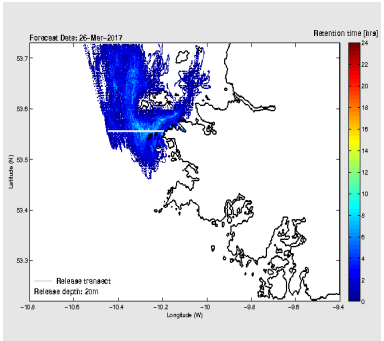


particle transport probability (hours)
Bantry Bay model particle track analysis
(2015-03-10T00:00:00Z, release_location=0.0 count)
Data courtesy of Irish Marine Institute

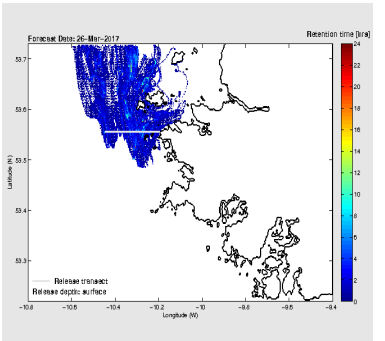
Bottom water



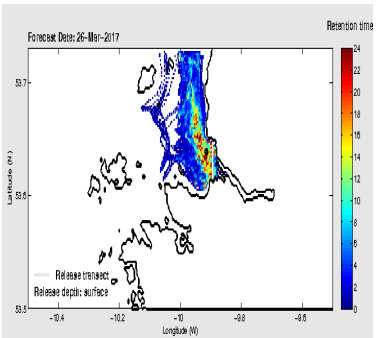
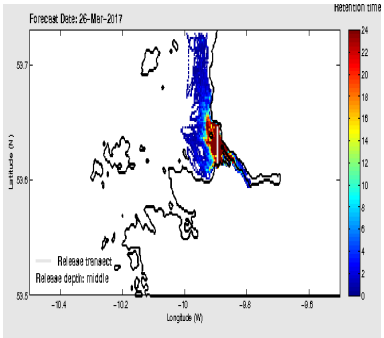
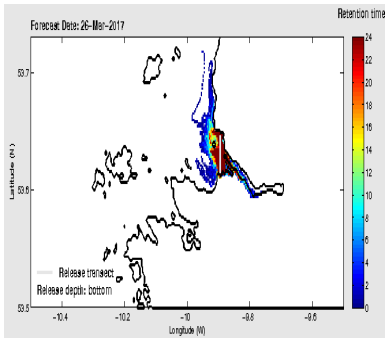
Water @ 20 metres



Surface water



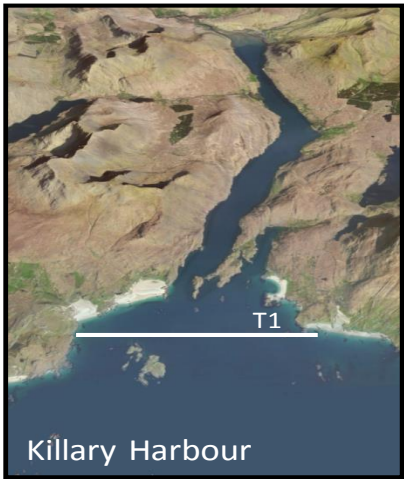
Cleggan
Strong mixing and water movements in predominantly mixed northerly directions in offshore areas at all depths.



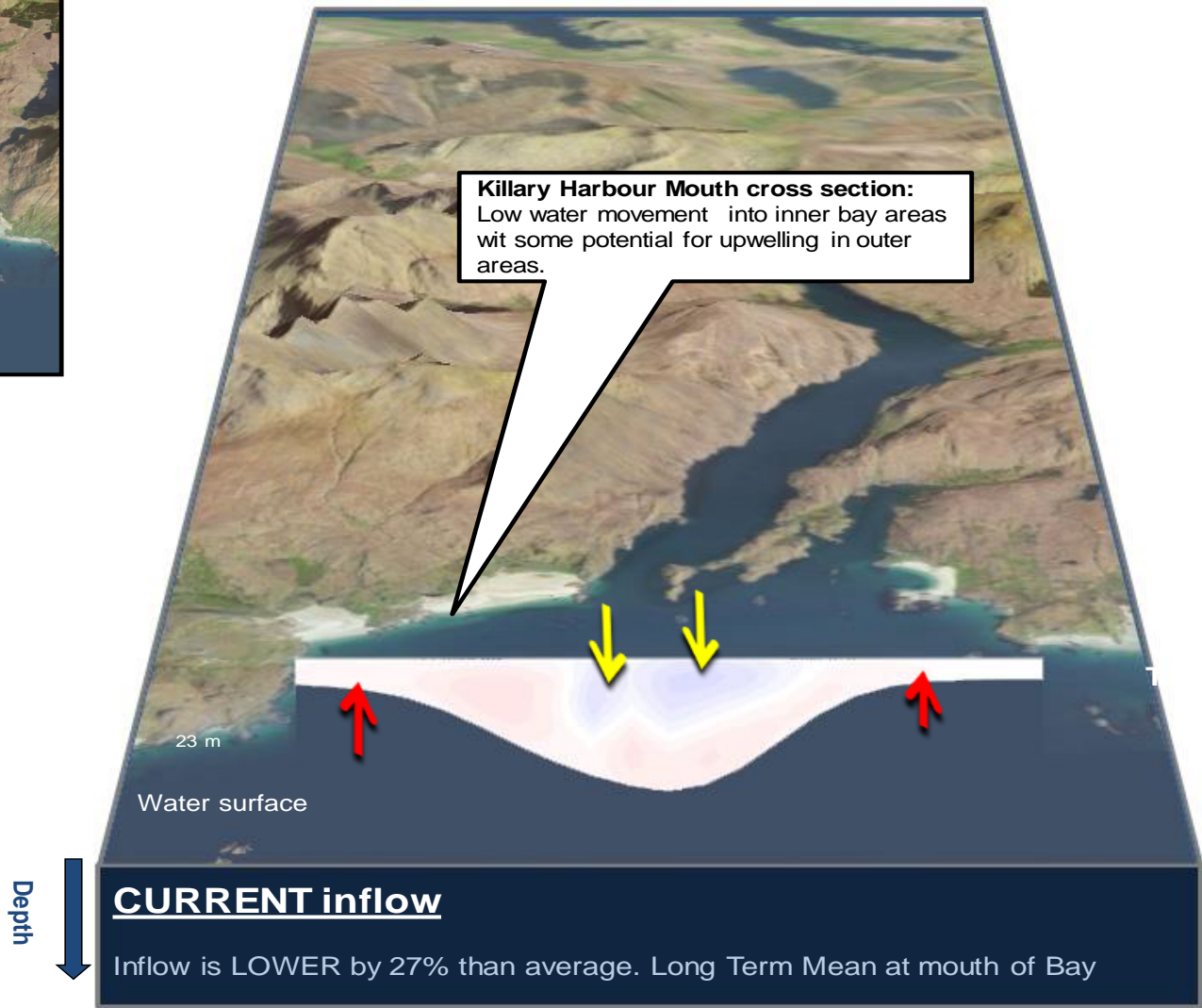
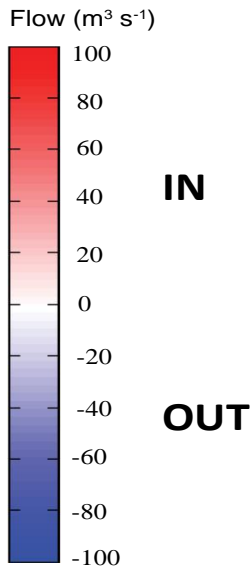
Killary
Mixed northerly movement at surface levels however deeper waters indicating the possibility of outer bay waters entering into inner bay areas and potential limited upwelling in areas.

Killary Harbour

3 day estimated water flows at the mouth of Killary Harbour

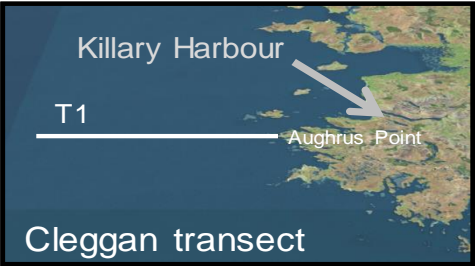


Forecast for next 3 days

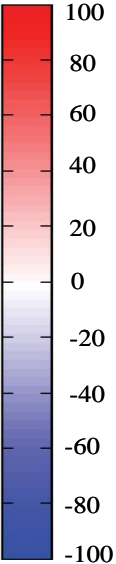


West Coast - 3 day estimated water flows along a transect off Aughrus Point

Forecast for next 3 days



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



northward
flow

southward
flow

Depth

