

Table 4 from Cusack *et al.* Excerpts from the Irish HAB bulletin, 2013. Predictions and results for DSP biotoxin levels in long-line mussels in the high risk bloom season are presented when simulated oceanic conditions favoured downwelling in Bantry Bay. Event 3 highlights a gap in the HAB decision support system. The lack of HAB data on the shelf impedes the HAB outlook.

<b>Event 1:</b> No toxic event	<b>Week 24</b> (9 – 15 June)
Prediction for a DSP event:	<b><i>Dinophysis</i> is likely to increase in Bantry and this may trigger a DSP event</b>
Why do we think this?	High risk period and a downwelling event predicted for the southwest coast.
Prediction Summary:	Conditions are good for a downwelling event to occur off the southwest coast. Historically downwelling events are associated with the transport of <i>Dinophysis</i> populations into bays. High inflows of offshore waters into SW bays.
Results ( <i>in-situ</i> ): based on NMP data	<b><i>Dinophysis</i> appeared at more sites throughout the bay in week 25; DSP shellfish biotoxins increased slightly (0.00 to 0.02 µg.g<sup>-1</sup>).</b>
<b>Event 2:</b> No toxic event	<b>Week 28</b> (7 – 13 July, 2013)
Prediction for a DSP event:	<b>No Major DSP event is expected in the south-southwest coast this week.</b>
Why do we think this?	NUIG (Dr. Robin Raine) and IFREMER ASIMUTH partner (Dr. Marc Sourisseau) have completed an oceanographic survey along the south coast this week and found healthy <i>Dinophysis</i> populations east of Cork. There were no major populations west of this area. Highest levels of <i>Dinophysis</i> are currently ~80-85 miles from the southwest coast. It is unlikely that this population will cause problems in the SW region in the next week, but, we will continue to monitor the situation.
Prediction Summary:	Conditions are good for the transport of offshore subsurface blooms to the mouth of SW bays. Limited movement of mid-water into Bantry Bay.
Results ( <i>in-situ</i> ): based on NMP data	<b>No big change in <i>Dinophysis</i>; DSP shellfish biotoxins remained similar (0.06 to 0.05 µg.g<sup>-1</sup>).</b>
<b>Event 3:</b> DSP event occurred	<b>Week 30</b> (21 – 27 July, 2013)
Prediction for a DSP event:	<b>It is unlikely that a <u>big</u> DSP event will occur, levels may fluctuate at some sites in southwest.</b>
Why do we think this?	So far this year, <i>Dinophysis acuminata</i> populations have been extremely low. Significant Okadaic Acid toxicity has not established in any location. It is very late for such an event to now occur and in the absence of <i>D. acuta</i> , DTX is not predicted in the coming week. Downwelling in the SW is predicted, however, and offshore populations (unknown so far) may arrive into the southwest over the next week.”
Prediction Summary:	Celtic Sea water masses (surface, 20 metres and bottom) are forecast to travel around the southwest coast. Conditions are good for the transport of phytoplankton at surface and mid depths into the bays on the southwest. Inflow rates are expected to be > 80 % of the long term mean. <b>However, because of the absence of <i>Dinophysis</i> at <i>in-situ</i> coastal monitoring stations, DSP is not expected to increase significantly unless there are offshore <i>Dinophysis</i> populations, which, as yet, we have not</b>

Results (*in-situ*):  
based on NMP data

**confirmed.**  
**Increase in *Dinophysis*; DSP shellfish biotoxins increased to above the regulatory limit** (from 0.12 to 0.19  $\mu\text{g}\cdot\text{g}^{-1}$ ).

**Event 4:**  
DSP event persists

**Week 36**  
(1 – 7 September, 2013)

Prediction for a DSP  
event:

**DSP levels likely to remain constant.**

Why do we think this?

Although *Dinophysis* levels have dropped to background levels in Bantry Bay, DSP levels increased slightly on the north shore of Bantry last week. This may be due to natural variability. A downwelling event is predicted in the next few days. This will bring offshore surface phytoplankton into the bay.

Prediction Summary:

Conditions are good for the transport of offshore blooms from the Celtic Sea to the mouth of southwest bays. Predicted conditions for the next couple of days show that a small downwelling event will take place. Water will enter Bantry Bay on the surface and exit at depth. Offshore surface phytoplankton will enter Bantry Bay, but, this is likely to be mostly Diatoms.

Results (*in-situ*):  
based on NMP data

**No big change in *Dinophysis*; DSP shellfish biotoxins remained above regulatory level.**