

### Summary:

Toxins observed by the State of Maine was similar to last week. Spurwick River toxin decreases from >300 ug/100g last week to 118 ug/100g this week. Central and eastern Maine toxicity remains about constant. This week, toxicity by State of New Hampshire is Neogene test positive for shellfish from Hampton Harbor and offshore (<45 ug/L), but not sampled elsewhere. For the next several days our model predicts continued elevated *A. catenella* cell concentrations in offshore surface waters in the western Gulf of Maine (Fig.1). Winds were mostly upwelling-favorable this past week until the 26<sup>th</sup>, followed by two downwelling events during 26-27 and partly 28-29 of June (Fig.2) and are projected to be upwelling favorable over the next few days, which will not drive onshore cell accumulation. At all NH sampling stations, observed *A. catenella* cell counts remains low, which is consistent with model results (Fig. 3). Modeled concentrations onshore is now consistently below detection limit (100 cells/L) across the entire region (Fig.4).



## Model Predicted Surface and Observed Shellfish Toxicity

Fig. 1: Model predicted surface (top 10-m average) *A. catenella* cell concentration, surface current (white vectors) and wind stress (red arrows) averaged over upcoming 3.5 days by the nowcast/forecast, and observed shellfish toxicity (dots). Gray line stands for the 25-m isobath. Triangles represent sites where routine samplings for toxicity are collected, but no data is available for the week.

# **Transient Wind Leading to Onshore Transport**



Fig. 2. (upper) Transient alongshore wind for buoy I in the eastern Gulf of Maine during the past week. Forecast wind is from the NOAA NOMADS. Downwelling (red) means higher potential of cells transporting onshore, while upwelling (blue) means less potential of onshore transport.

(lower) Cumulative wind-induced downwelling index, a predictor of potential onshore toxicity risk. A positive downwelling index means more onshore transport, thus higher toxicity risk should offshore cells be readily available.



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### Model Validation of A. catenella Cell Concentrations



Fig.3. Model-data comparisons of *A. catenella* surface cell concentrations for (left) NH samples during 23-25 June, 2025, and (right) NH samples during 30 June- 2 July, 2025. The inshore NH sample is an aquaculture facility. Credit: Chris Nash, NH DES.

### Time-averaged Surface A. catenella Concentration



#### Time-averaged surface A.catenella concentration: Jun 25:Jul 02,2025

Fig.4. Weekly average modeled surface *A. catenella* cell concentrations along 25-m isobath (see Fig.1, dashed line for isobath location). This figure shows the weekly-averaged cell concentration that shellfish in each location were exposed to, and the potential toxicity associated with *A. catenella* blooms. 100 cells/L is the nominal threshold above which *A. catenella* tends to be toxic. Also labeled are the closest onshore locations where toxicity was routinely sampled.

### **Additional Resources**

Gulf of Maine HAB Forecast

### For questions, contact:

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