

# Model Guidance for Gulf of Maine *Alexandrium catenella* Bloom Potential (release date: July 8, 2021)

Toxicities reported by the Maine DMR were at very low levels last week ( $<9$  ug/100g). NH toxicity were all low (Scotia test negative) at ACBSW2, and Little Bay Marine, and 72.6 ug/100g at Hampton Harbor. For the next several days, modeled *A. catenella* cell concentrations over top 10-m will be generally low at  $< 100$  Cells/L for western Gulf of Maine, with higher concentrations in the offshore region of the eastern Gulf and Bay of Fundy (Fig.1). Wind was predominantly downwelling-favorable for the past one week. Forecast projects wind will fluctuate between downwelling and upwelling for upcoming days (Fig.2); downwelling favors cell accumulation. Model underestimated cell concentration in both MA and NH coastal waters last week. Modeled surface cell concentrations (Fig. 4) were higher in northern coast of Maine.

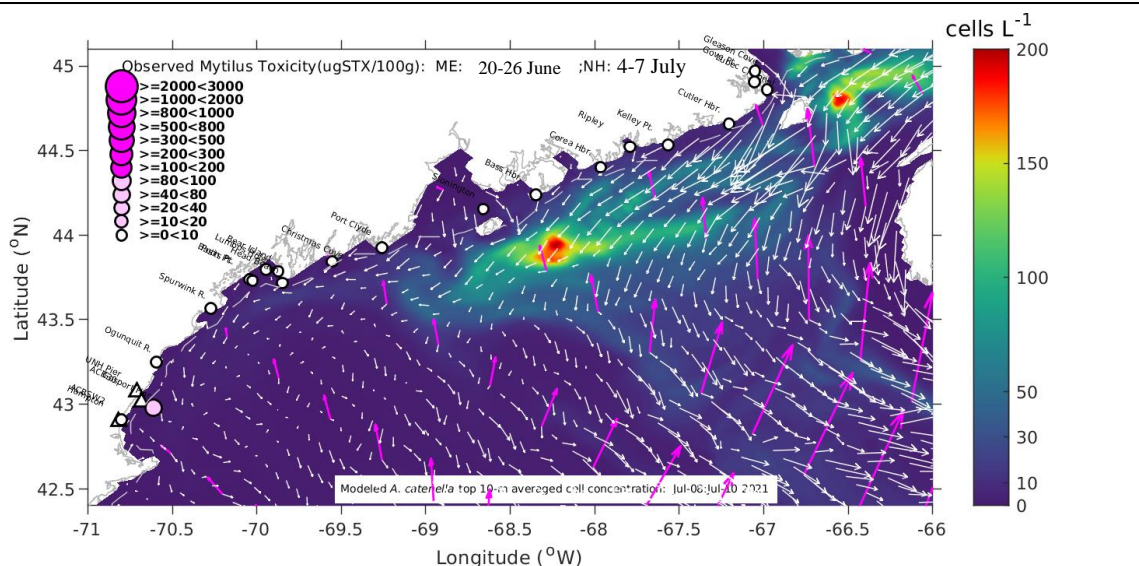


Fig. 1: Model predicted surface (top 10-m average) *A. catenella* cell concentration, surface current (white vectors) and wind stress (red arrows) averaged over upcoming 3.5 days by the nowcast/forecast, and observed shellfish toxicity (dots). Gray line stands for the 25-m isobath. Triangles represent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

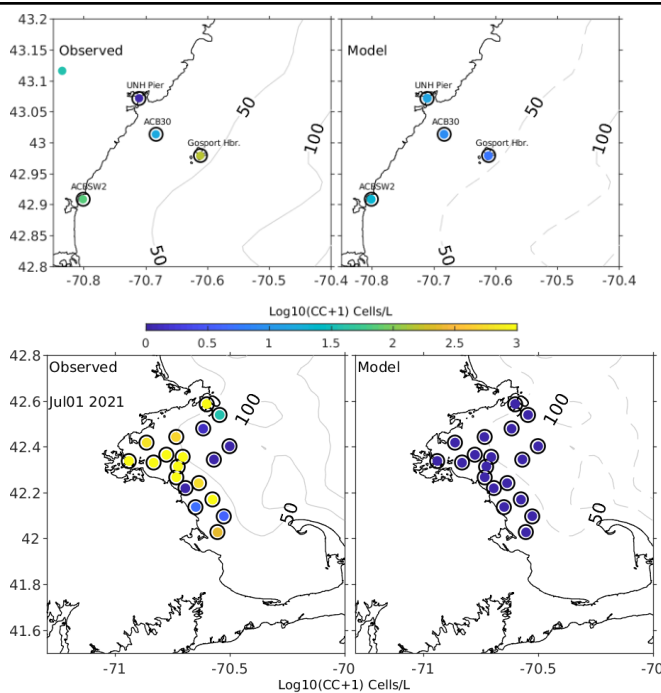


Fig.3. Model-data Comparisons of *A. catenella* surface cell concentrations for (Upper) NH samples during 3-6 July, 2021, and (Lower) MA samples from AF211 survey on 1 July, 2021. Data Credit: Chris Nash, NH DES; MWRA/Battelle.

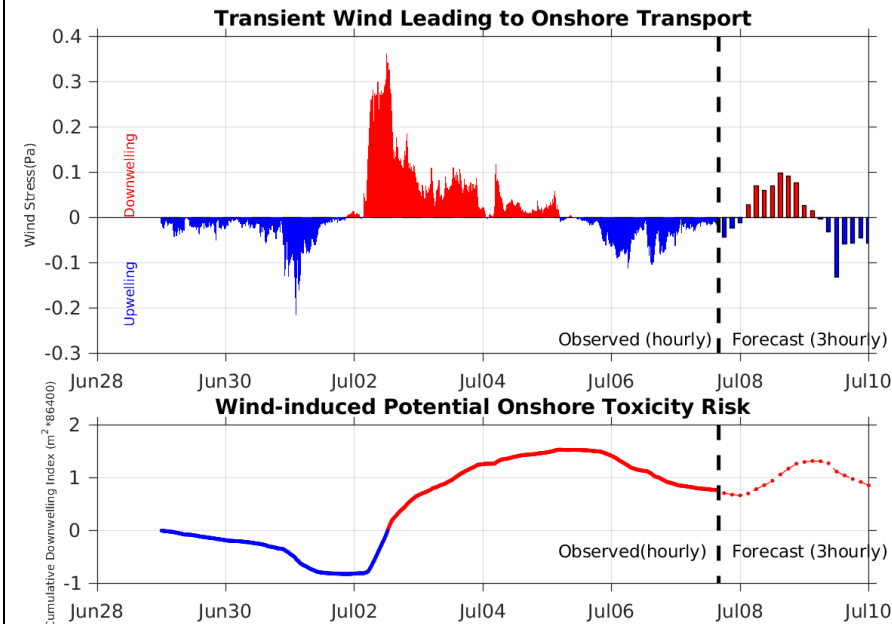
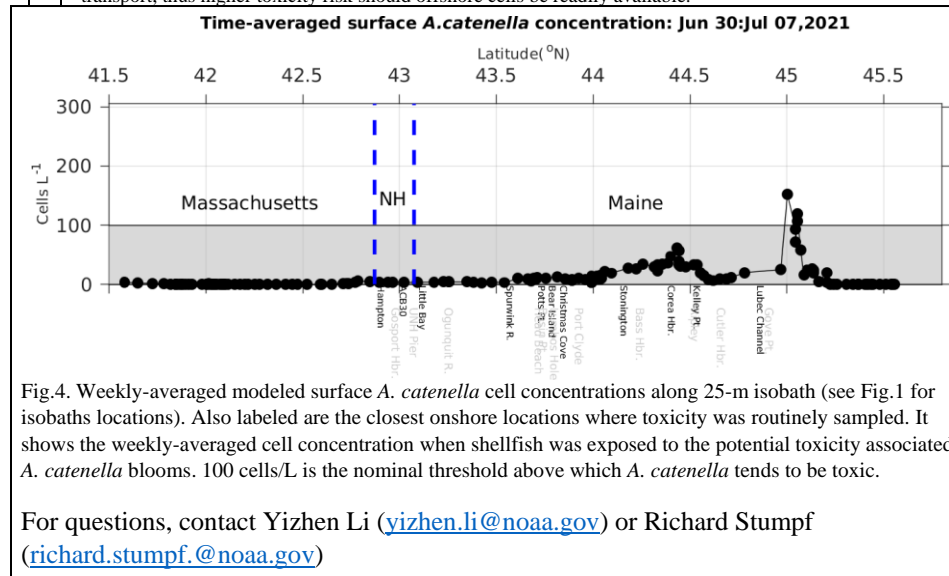


Fig. 2. (Upper) Transient alongshore wind for buoy I in the eastern Gulf of Maine during the past week. Forecast wind is from the NOAA NOMADS. Downwelling (red) means higher potential of cells transporting onshore, while upwelling (blue) means less potential of onshore transport. (Lower) cumulative wind-induced downwelling as a way to predict potential onshore toxicity risk. Positive means more onshore transport, thus higher toxicity risk should offshore cells be readily available.



For questions, contact Yizhen Li ([yizhen.li@noaa.gov](mailto:yizhen.li@noaa.gov)) or Richard Stumpf ([richard.stumpf@noaa.gov](mailto:richard.stumpf@noaa.gov))