Supplemental Material for:

Unusual *Hemiaulus* Bloom Influences Ocean Productivity in Northeast U.S. Shelf Waters

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Table S1. Mixed layer depths, in m, for each NES-LTER station (listed in the top row) for all the summer NES-LTER cruises used in this paper. The starting month and year of the cruise are listed next to the cruise name.

Cruise ID	Cruise starting date	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10
EN617	7/2018	6	6	8	6	10	9	16	15	14	13
EN644	8/2019	5	6	6	10	9	6	7	16	6	15
EN655	7/2020	6	8	6	9	7	7	7	—	6	10
EN668	7/2021	6	6	9	6	9	13	13	10	10	9
EN687	7/2022	7	7	9	6	10	11	15	11	7	9

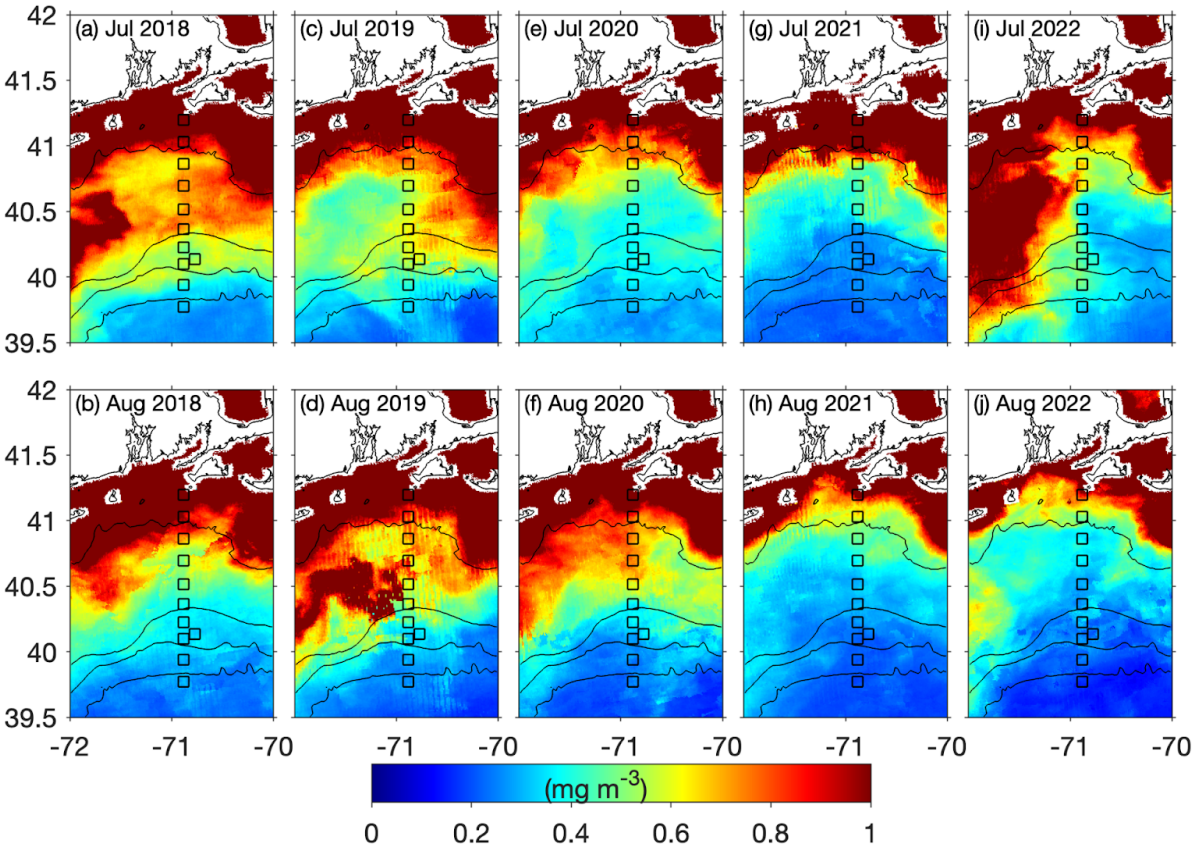

Fig S1. Monthly mean sea surface chlorophyll concentration on the New England shelf in July and August of 2018-2022. The squares mark CTD stations and the black lines are bathymetric contours corresponding to 50, 100, 200, 1000 m.

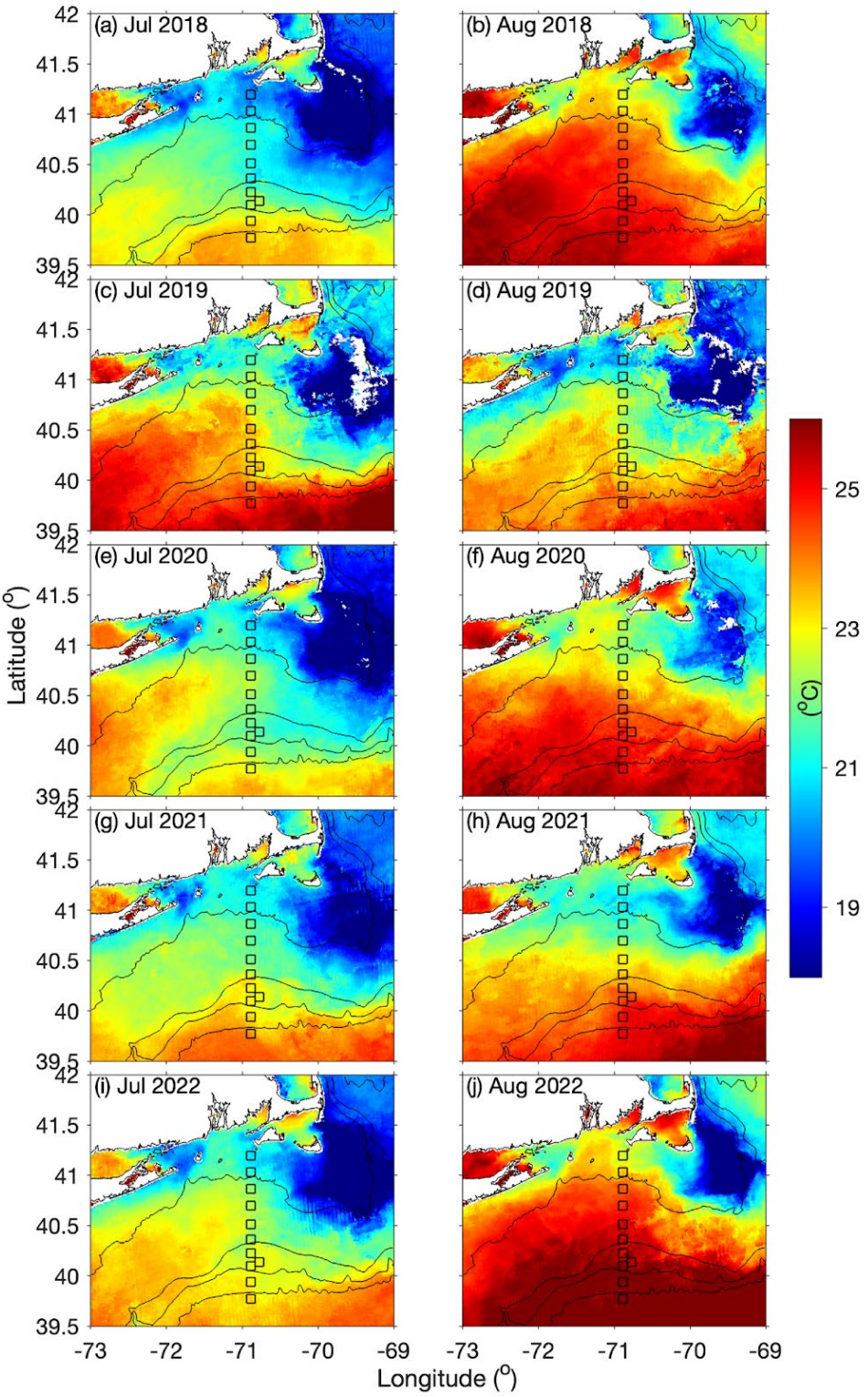

Fig S2. Monthly mean sea surface temperature on the New England shelf in July and August, 2018-2022. The square symbols are CTD stations; the black lines are bathymetric contours of 50, 100, 200, 1000 m.

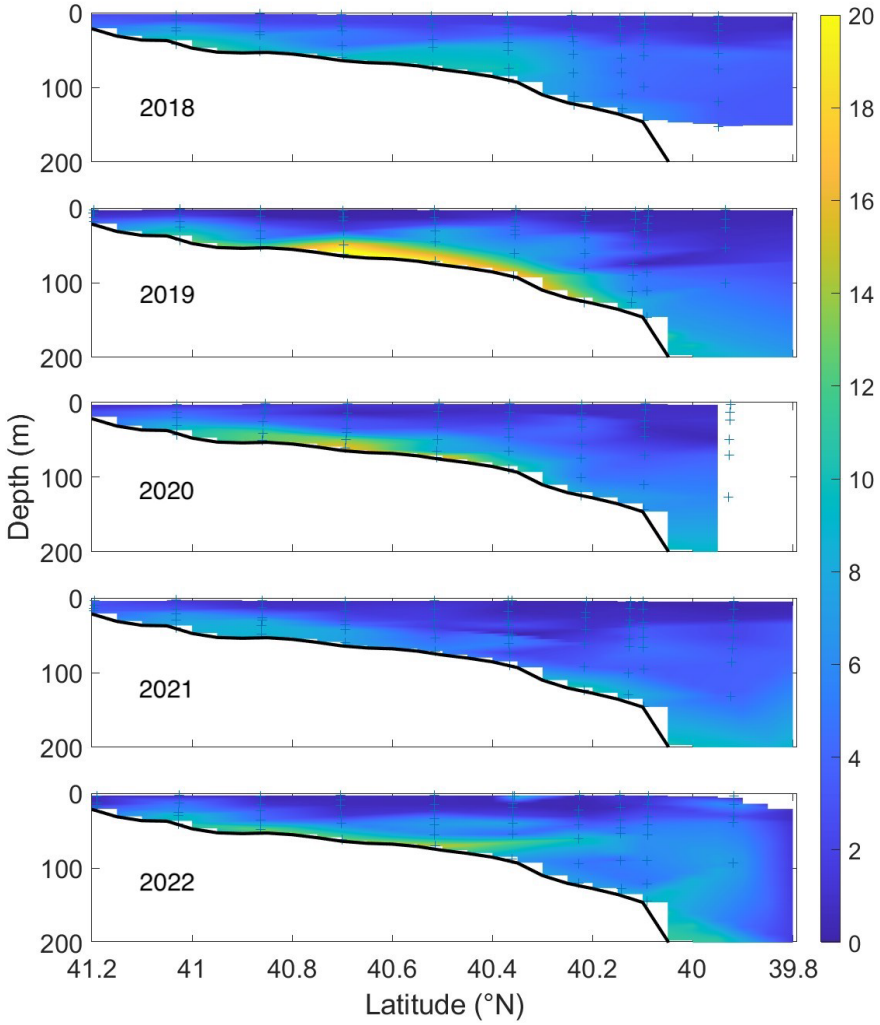

Fig S3. Silicate concentration as a function of depth and latitude for the NES-LTER summer cruises 2018-2022 (from top to bottom).

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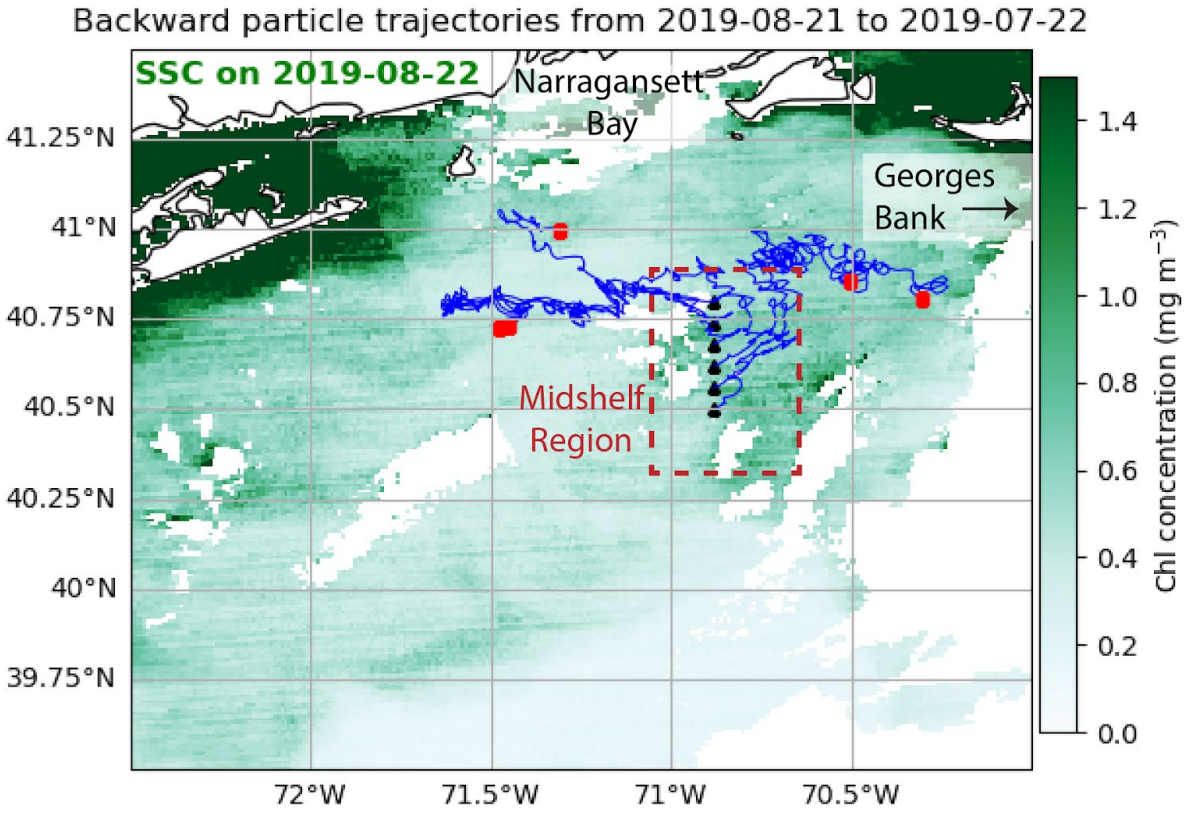

Fig S4. Backward particle trajectories beginning along the mid-shelf stations from the NES-LTER transect line (shown in black triangles) on Aug 21, 2019 suggest that the *Hemiaulus* bloom water came from the inner shelf region near Narragansett Bay and Georges Bank rather than mid-shelf region further South. The red squares indicate the positions of the particles on Jul 22, 2019. The background color shows the satellite-measured surface chlorophyll concentration on Aug 22, 2019.