

**HOUSE . . . . . No. 793**

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**The Commonwealth of Massachusetts**

PRESENTED BY:

*Dylan A. Fernandes and Mathew J. Muratore*

*To the Honorable Senate and House of Representatives of the Commonwealth of Massachusetts in General Court assembled:*

The undersigned legislators and/or citizens respectfully petition for the adoption of the accompanying bill:

An Act to overcome coastal and environmental acidification and nutrient pollution.

PETITION OF:

| NAME:                         | DISTRICT/ADDRESS:                      | DATE ADDED:      |
|-------------------------------|--|------------------|
| <i>Dylan A. Fernandes</i>     | <i>Barnstable, Dukes and Nantucket</i> | <i>1/16/2023</i> |
| <i>Mathew J. Muratore</i>     | <i>1st Plymouth</i>                    | <i>1/19/2023</i> |
| <i>Angelo J. Puppolo, Jr.</i> | <i>12th Hampden</i>                    | <i>1/27/2023</i> |
| <i>Lindsay N. Sabadosa</i>    | <i>1st Hampshire</i>                   | <i>1/27/2023</i> |
| <i>Jack Patrick Lewis</i>     | <i>7th Middlesex</i>                   | <i>2/6/2023</i>  |
| <i>Jon Santiago</i>           | <i>9th Suffolk</i>                     | <i>2/6/2023</i>  |
| <i>Marc R. Pacheco</i>        | <i>Third Bristol and Plymouth</i>      | <i>2/7/2023</i>  |
| <i>Paul McMurtry</i>          | <i>11th Norfolk</i>                    | <i>2/8/2023</i>  |
| <i>Edward R. Philips</i>      | <i>8th Norfolk</i>                     | <i>2/14/2023</i> |
| <i>David Allen Robertson</i>  | <i>19th Middlesex</i>                  | <i>2/16/2023</i> |
| <i>James B. Eldridge</i>      | <i>Middlesex and Worcester</i>         | <i>2/18/2023</i> |

**HOUSE . . . . . No. 793**

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By Representatives Fernandes of Falmouth and Muratore of Plymouth, a petition (accompanied by bill, House, No. 793) of Dylan A. Fernandes, Mathew J. Muratore and others relative to coastal and environmental acidification and nutrient pollution. Environment and Natural Resources.

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[SIMILAR MATTER FILED IN PREVIOUS SESSION  
SEE HOUSE, NO. 3835 OF 2021-2022.]

**The Commonwealth of Massachusetts**

—————  
**In the One Hundred and Ninety-Third General Court  
(2023-2024)**  
—————

An Act to overcome coastal and environmental acidification and nutrient pollution.

*Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:*

1 SECTION 1. Chapter 6 of the General Laws is hereby amended by inserting after Section  
2 15LLLLLL the following section:-

3 Section 15MMMMMM. The governor shall annually issue a proclamation setting apart  
4 the third full week in August as Ocean Acidification Awareness Week and recommending that  
5 the day be observed in an appropriate manner by the people, promoting citizen science initiatives  
6 and action by the general public not only to preserve the health of the coastline but also to  
7 generate valuable scientific data for the commonwealth.

8 SECTION 2. Section 1 of chapter 21N of the General Laws, as appearing in the 2020  
9 Official Edition, is hereby amended by inserting after the definition of “Carbon dioxide  
10 equivalent” the following 4 definitions:-

11 “Coastal acidification”, the acidification of coastal waters driven by background ocean  
12 acidification, eutrophication, freshwater inputs, atmospheric deposition and any other natural or  
13 anthropogenic stressor.

14 “Coastal stressors”, eutrophication, nutrient pollution, freshwater inputs and atmospheric  
15 deposition from the coast acidifying coastal waters.

16 “Coastal waters”, any waters and associated submerged lands of the ocean, including the  
17 seabed and subsoil, lying between the coast and the seaward boundary of the commonwealth, as  
18 defined in 43 U.S.C. 1312.

19 “Coastal watershed”, the Merrimack, Parker, Ipswich, North Coastal, Mystic, Neponset,  
20 Charles, South Coastal, Cape Cod, Islands, Buzzards Bay, Taunton and Narragansett watersheds.

21 SECTION 3. Said section 1 of said chapter 21N, as so appearing, is hereby further  
22 amended by inserting after the definition of “Entity” the following definition:-

23 “Eutrophication”, a condition of coastal or fresh waters having elevated nutrient  
24 concentrations.

25 SECTION 4. Said section 1 of said chapter 21N, as so appearing, is hereby further  
26 amended by inserting after the definition of “Nature-based solutions” the following definition:-

27 “Ocean acidification”, the acidification of the greater Atlantic ocean driven by  
28 atmospheric carbon deposition independent of coastal stressors.

29 SECTION 5. Section 10 of said chapter 21N, as so appearing, is hereby amended by  
30 inserting after the word “surge”, in line 9, the following words:- , ocean and coastal acidification.

31 SECTION 6.. Said chapter 21N is hereby amended by adding the following section:-

32 Section 12. (a) There shall be an ocean acidification council to consist of 11 members:  
33 the secretary of energy and environmental affairs, who shall be the chair; the director of coastal  
34 zone management or a designee; the commissioner of environmental protection or a designee;  
35 the director of the Massachusetts environmental policy act office or a designee; the director of  
36 marine fisheries or a designee, the director of ecological restoration or a designee; the  
37 commissioner of agricultural resources or a designee; and 4 public members to be appointed by  
38 the governor, 1 of whom shall be a member of a private monitoring organization in the state, 1  
39 of whom shall be a member of the state shellfishing industry, 1 of whom shall be a scientist  
40 specializing in coastal conservation and 1 of whom shall be a member of the Massachusetts  
41 Municipal Association, Inc.

42 (b) The council shall: (i) work to further understand and take action against the threat  
43 posed by ocean and coastal acidification; (ii) engage with and, to the extent practicable,  
44 coordinate public and private monitoring efforts; (iii) harmonize data gathering; (iv) provide  
45 monitoring hardware and technical training; (v) maintain a central repository for acidification  
46 data; and (vi) recommend mitigative interventions for coastal stressors or adaptive technologies  
47 for aquaculture, prioritizing nature-based solutions to manage stormwater and reduce nutrient  
48 pollution. The council may direct monies from the Ocean Acidification Fund established in  
49 section 2PPPPPP of chapter 29 to target existing programs and novel approaches to restore and  
50 buffer marine habitats and resources impacted by acidification.

51 (c) Within 1 year of the council's formation, the council shall perform and publish a gap  
52 analysis for ocean monitoring with recommended measures for creating an appropriate spatial  
53 and temporal resolution to model ocean acidification in coastal waters and project acidification  
54 trends. The council shall convene a public workshop with local ocean monitoring groups to  
55 ascertain monitoring needs and inform the analysis, and hold 2 public hearings. The analysis  
56 shall identify appropriate monitoring technologies and select coastal waters where ocean  
57 acidification monitoring equipment shall be placed. The ocean acidification monitoring system  
58 shall enable modeling for long term pH changes in coastal waters and permit short-term  
59 monitoring of aragonite saturation in variable and sensitive coastal waters to protect critical  
60 habitat and shellfish.

61 (d) The council shall coordinate implementation of the ocean acidification monitoring  
62 system, implementing the system within 3 years of the effective date of this section. The council  
63 shall ensure that data derived from the monitoring system is publicly accessible in a standardized  
64 format useful for public and private research.

65 (e) The council may commission independent studies and agency reports to fill  
66 acidification knowledge gaps. The council shall commission the studies and reports as soon as  
67 practicable, beginning at a later date if dependent on data derived from the ocean acidification  
68 monitoring system described in subsection (d). The council shall avoid duplicating regional  
69 efforts, incorporating best available science with data from the ocean acidification monitoring  
70 system established in subsection (d) and data from local and private monitoring efforts where  
71 available. These efforts shall include, but shall not be limited to:

- 72 (i) modeling ocean and coastal acidification trends in coastal waters and project  
73 acidification trends;
- 74 (ii) studying the effects of acidification on marine species that are ecologically or  
75 economically important or understudied. The study shall examine the impact of multimodal  
76 stress and shall include, at minimum, a study of acidification effects on the American lobster,  
77 Eastern oyster, sea scallops, quahogs and fin fish;
- 78 (iii) clarifying the causal relationship between nutrient pollution, eutrophication and  
79 coastal acidification in coastal waters;
- 80 (iv) determining how different coastal stressors contribute to coastal acidification;
- 81 (v) estimating the economic impacts of modeled and projected acidification on the  
82 commonwealth's economy;
- 83 (vi) determining if current total maximum daily loads under the Massachusetts estuaries  
84 project are sufficient to keep acidity in Massachusetts embayments within the ranges required by  
85 314 CMR 4.05 through 2050 and proposing changes to 314 CMR §§ 4 and 5 and total maximum  
86 daily loads if needed, taking into account ocean and coastal acidification as particularized  
87 stressors;
- 88 (vii) performing cost-benefit analyses of intervention strategies to determine where  
89 pollution reductions will most efficiently resilience acidification; and
- 90 (viii) developing best adaptive practices for the shellfishing industry to use to adapt to  
91 acidification.

92 (f) If the council determines that eutrophication has more than a de minimis impact on  
93 coastal acidification in any given embayment or coastal zone, the council may implement  
94 necessary improvements in the most efficient manner to reduce eutrophication. The council may  
95 target funds from the Ocean Acidification Fund established in section 2PPPPPP of chapter 29 to  
96 existing state programs or proposed municipal projects for the purposes of:

97 (i) financing necessary upgrades to publicly owned treatment works located in coastal  
98 watersheds to achieve enhanced nutrient removal;

99 (ii) replacing septic systems in nutrient sensitive coastal watersheds with connections to  
100 new or existing publicly owned treatment works, or upgrading existing systems to nitrogen-  
101 reducing systems; and

102 (iii) implementing other appropriate measures, including but not limited to installing  
103 permeable reactive barriers and funding salt marsh restoration.

104 SECTION 7. Chapter 29 of the General Laws is hereby amended by inserting after  
105 section 2000000, as inserted by section 13 of chapter 358 of the acts of 2020, the following  
106 section:-

107 Section 2PPPPPP. (a) There shall be established and set upon the books of the  
108 commonwealth a separate fund to be known as the Ocean Acidification Fund. The ocean  
109 acidification council shall administer the fund. Notwithstanding any general or special law to the  
110 contrary, there shall be credited to the fund any revenue subject to appropriations or other money  
111 authorized by the general court and specifically designated to be credited to the fund and any  
112 gifts, grants, private contributions, investment income earned by the fund's assets and any  
113 designated funds from other sources. No expenditures from the fund shall cause the fund to be in

114 deficiency at the close of the fiscal year. Any money in the fund at the end of the fiscal year shall  
115 not revert to the General Fund, shall be available for expenditure in the subsequent year and shall  
116 not be subject to section 5C.

117 (b) Amounts credited to the fund shall be expended, without further appropriation, for the  
118 purposes of restoring and buffering marine habitats and resources impacted by acidification and  
119 financing infrastructure improvements to reduce eutrophication as provided in section 12 of  
120 chapter 21N.

121 SECTION 8. Section 61 of chapter 30 of the General Laws, as appearing in the 2020  
122 Official Edition, is hereby amended by inserting after the word “rise”, in line 16, the following  
123 words:- and coastal ocean acidification.