Atlantic States Marine Fisheries Commission

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MEMORANDUM

TO: **American Lobster Management Board**

FROM: **American Lobster Technical Committee**

DATE: **October 22, 2026**

SUBJECT: **Possible Annual Environmental Indicators**

The American Lobster Technical Committee (TC) met via webinar on August 27, 2026 to discuss environmental and ecosystem indicators that could be updated annually to provide additional information on conditions affecting American lobster. At its February 2026 meeting, the American Lobster Board (Board) discussed the possibility of adding environmental indicators into the annual data update process, and the potential to coordinate with NOAA Fisheries to identify relevant data sets that may already be available.

After the February Board meeting the TC Chair and ASMFC staff met with staff within NOAA's Changing Ecosystems and Fisheries Initiative (CEFI) to discuss products developed for the State of the Ecosystem reports that may be relevant to lobster population trends. Some examples of possible indicators discussed included indicators of zooplankton abundance, temperatures, ocean acidification, oceanographic processes, as well as port-level economic indicators. However, further coordination between the TC and CEFI staff and development and refinement of datasets would be required for them to be useful as part of the annual lobster data update.

The TC identified several possible indicators that may be suitable for further investigation, if the Board desires:

1. Empirical bottom temperatures from state and federal trawl surveys for additional context on potential catchability changes in existing trawl survey-based catch indicators.
2. Northeastern Regional Association of Coastal Ocean Observing Systems (NERACOOS) ocean climatology. This data set includes comparison of current sub-surface temperatures at a single buoy location relative to long-term averages.
3. Temperatures and molt timing prediction based on Gulf of Maine Research Institute research.
4. Zooplankton time series produced for NOAA State of the Ecosystem reports for context on food availability changes for larval lobsters. Note that there is a delay in availability for these time series of one to two or more years due to data processing (e.g., 2026 zooplankton update includes data through 2023).
5. Long-term modeled temperature time series from oceanographic modeling products used by CEFI. Similar to the buoy data, these would provide comparison of current conditions to historical conditions but would use model-estimated bottom temperatures spanning broader spatial scales instead of empirical temperatures from small spatial scales.

If the Board wishes to pursue the addition of environmental indicators to the annual data update of American lobster indices, the TC will need additional clarification of the Board's intent. The TC requests guidance from the Board on the following questions:

1. Environmental indicators/effects have been a major focus of the past two Assessments, and work will continue in subsequent Assessments to better understand how the environment may be influencing the population and survey catchability. With this in mind, which of the indicators the TC identified above are of interest for the Board to see on an annual basis, and which may be more appropriate for the next Assessment? How would updating these environmental indicator(s) on an annual basis better inform the Board?
2. The purpose of the current data update process is to better understand exploitable lobster stock abundance conditions expected in subsequent years. Is the Board more interested in reviewing annual indicators that would provide qualitative information related to environmental conditions experienced by the lobster stock (e.g., a simple time series of a temperature indicator), or is there a desire to estimate quantitative impact to lobster population dynamics and how it may impact future recruitment (e.g., modeling a linkage between temperature and lobster stock trends)? The TC notes that there is a significant difference in the workload that would be required for these two types of use. The latter would require additional analyses and likely iterative development and testing of indicators. Additionally, successfully modeling a meaningful linkage between the environment/ecosystem and lobster population dynamics cannot be guaranteed and is more feasible during the formal stock assessment process and peer review.
3. Is the Board interested in environmental indicators for one or both lobster stocks?

The TC also emphasized that there should be careful consideration of how pursuing annual environmental indicators would interact with other ongoing and upcoming activities to affect the TC's workload. These include the ongoing Board task to develop and evaluate candidate biological reference points that account for non-stationarity of environmental conditions/productivity, as well as the proposed stakeholder process to identify lobster management objectives.