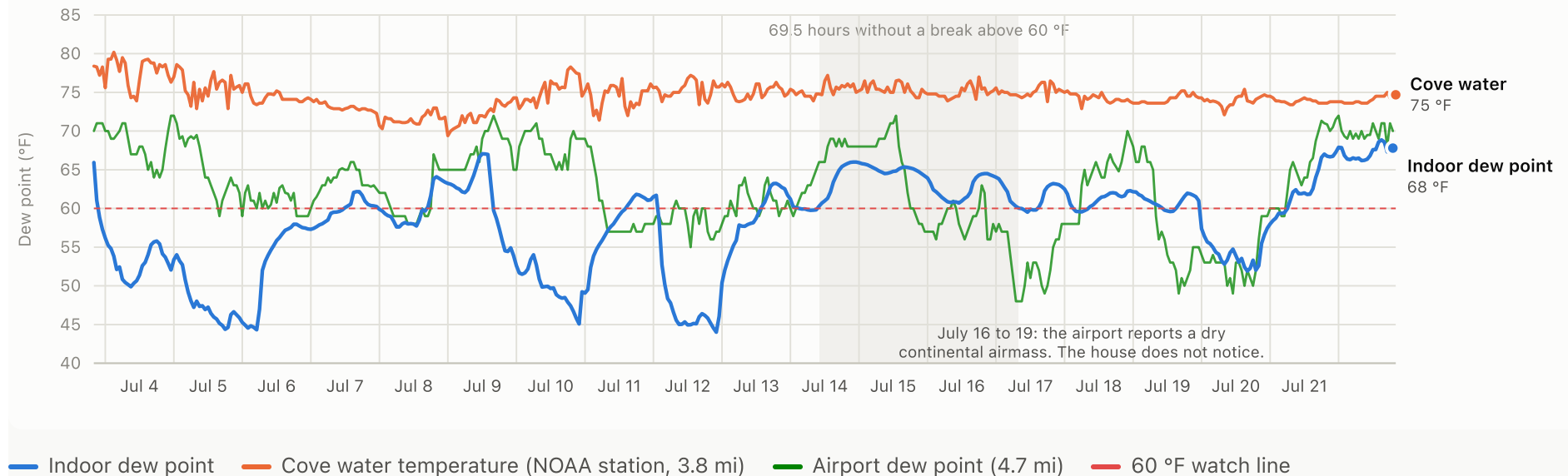


The house on the water, and the ceiling nobody had measured

Waterfront cottage, coastal New England · roughly 700 sq ft, one bedroom, one bath · over a vented unconditioned crawlspace · one Overture Room Sensor · nineteen days, July 2026 · all times Eastern

The owner is a building analyst who air-seals envelopes for a living, knew the house had a moisture problem, and wanted to know where it was coming from. Nineteen days of measurement answered it, and the answer was not inside the house. The indoor dew point sat at or above 60 °F for 47.6 percent of the window, including one unbroken run of 69.5 hours. The tidal cove four miles away held water at 69 to 81 °F the entire time, and the indoor dew point stayed below that water temperature in all 456 measured hours. Air moving across warm water picks up vapor until its own dew point climbs toward the water surface temperature. That single number, which no weather station reports, accounts for the moisture in this house without needing any indoor source at all.



48 %

of nineteen days at or above a 60 °F indoor dew point

69.5 h

longest unbroken run above that line, July 14 to July 17

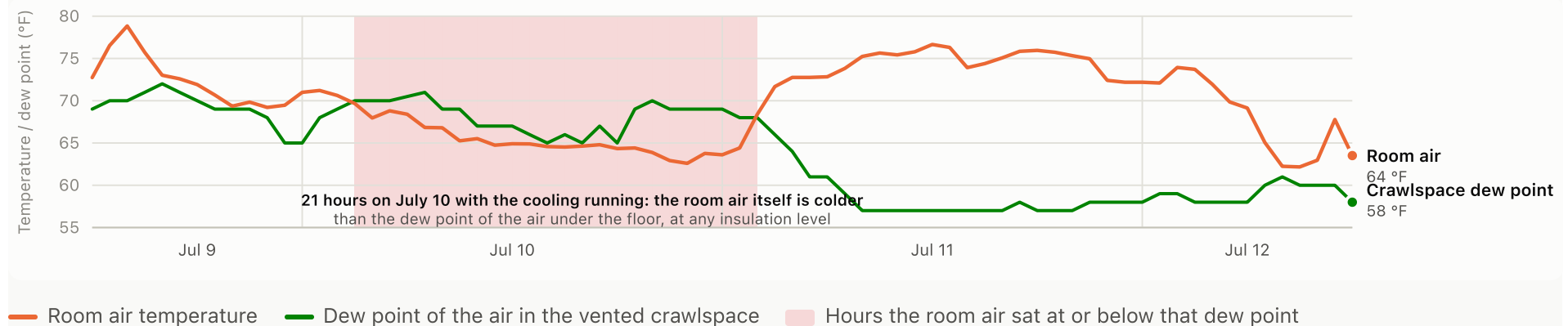
456 / 456 h

the indoor dew point sat below the cove water temperature

24 h

room air colder than the dew point under the floor

The floor, and why more cooling makes it worse



What the shaded hours mean

A vented crawlspace sits at outdoor moisture, so the underside of the subfloor faces air whose dew point is the outdoor dew point while its top side faces the cooled room. For 24 of 455 measured hours the room air itself was **colder than the dew point of the air under the floor**, twenty-one of them on July 10 with the cooling running hardest. At that point the insulation value of the floor stops mattering: no assembly can lift the subfloor above the dew point when the room on one side is already below it.

Every one of those hours is a cooling-on hour; not one occurs with the equipment off. Through the 69.5-hour damp run in mid-July, with the cooling off, room surfaces held a comfortable margin and nothing in the living space could have wetted.

The design conclusion

On a vented crawlspace, cooling harder moves the subfloor toward trouble and a dehumidifier moves it away. Cooling pulls the floor surface down toward the crawlspace dew point. A dehumidifier does the opposite twice over: it lowers the dew point and it adds compressor heat to the room. Same comfort complaint, opposite effect on the assembly.

The structure is also hygrically massive: its moisture responds on a 63-hour time constant against a 3.4-hour air time constant. Over one empty week the outdoor moisture swung 69 grains per pound while indoor relative humidity held between 52 and 59 percent. **Flushing this house with air does not dry it.** Only a few pints of water are present in the entire air volume at any moment; the materials store pounds.

What this means for your projects. For any building near open water, pull the water temperature before you diagnose the moisture: it sets a physical ceiling on the dew point available to that building, and no weather station reports it. On one July afternoon the airport reported a 53 °F dew point while the water four miles away was 75 °F. Only one of those numbers described the air reaching the house.