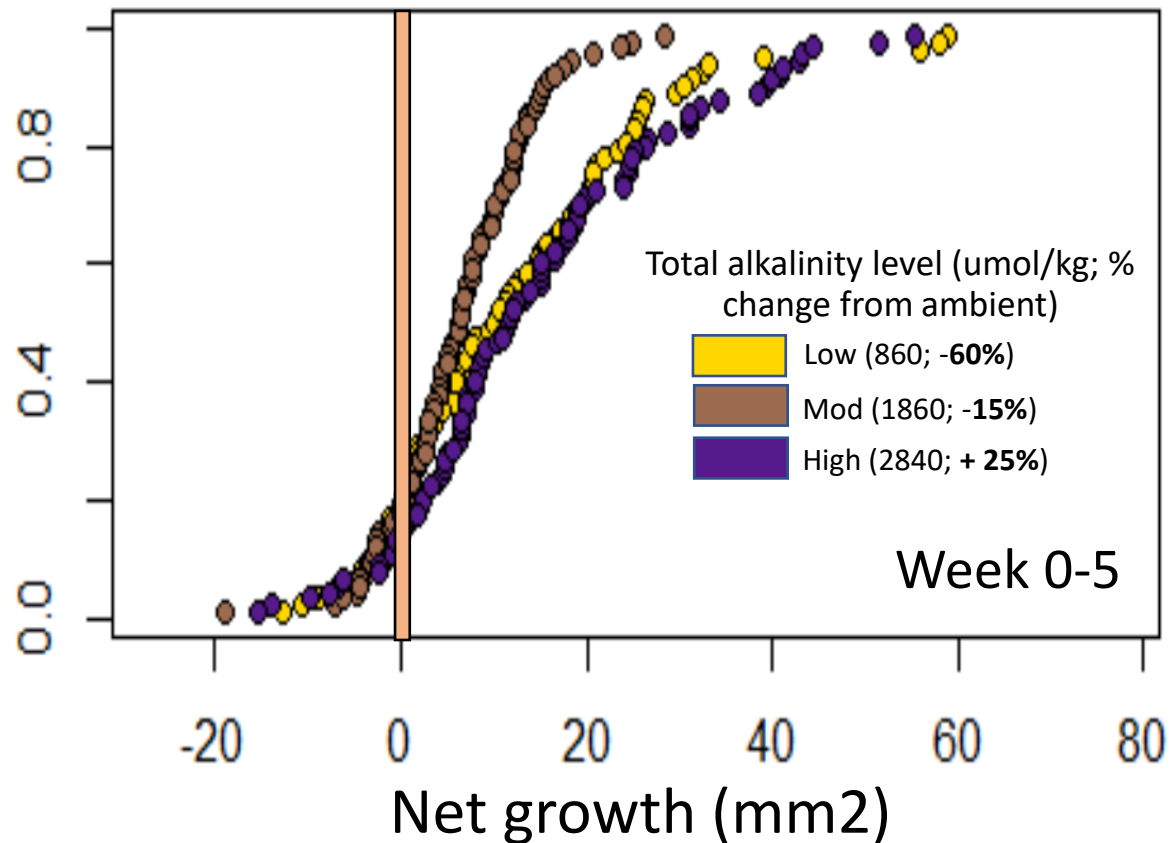


**Oysters in ambient salinity:** Total alkalinity changes did not influence *incremental growth rate* (mm<sup>2</sup>/day calculated between t=0 & t=2 and t=2 & t=5) by week 2 of exposure. Q: How do oysters in ambient salinity maintain incremental growth for the first two weeks of exposure across TA level? Food availability providing a way to upregulate metabolic CO<sub>2</sub> pathway for calcification?

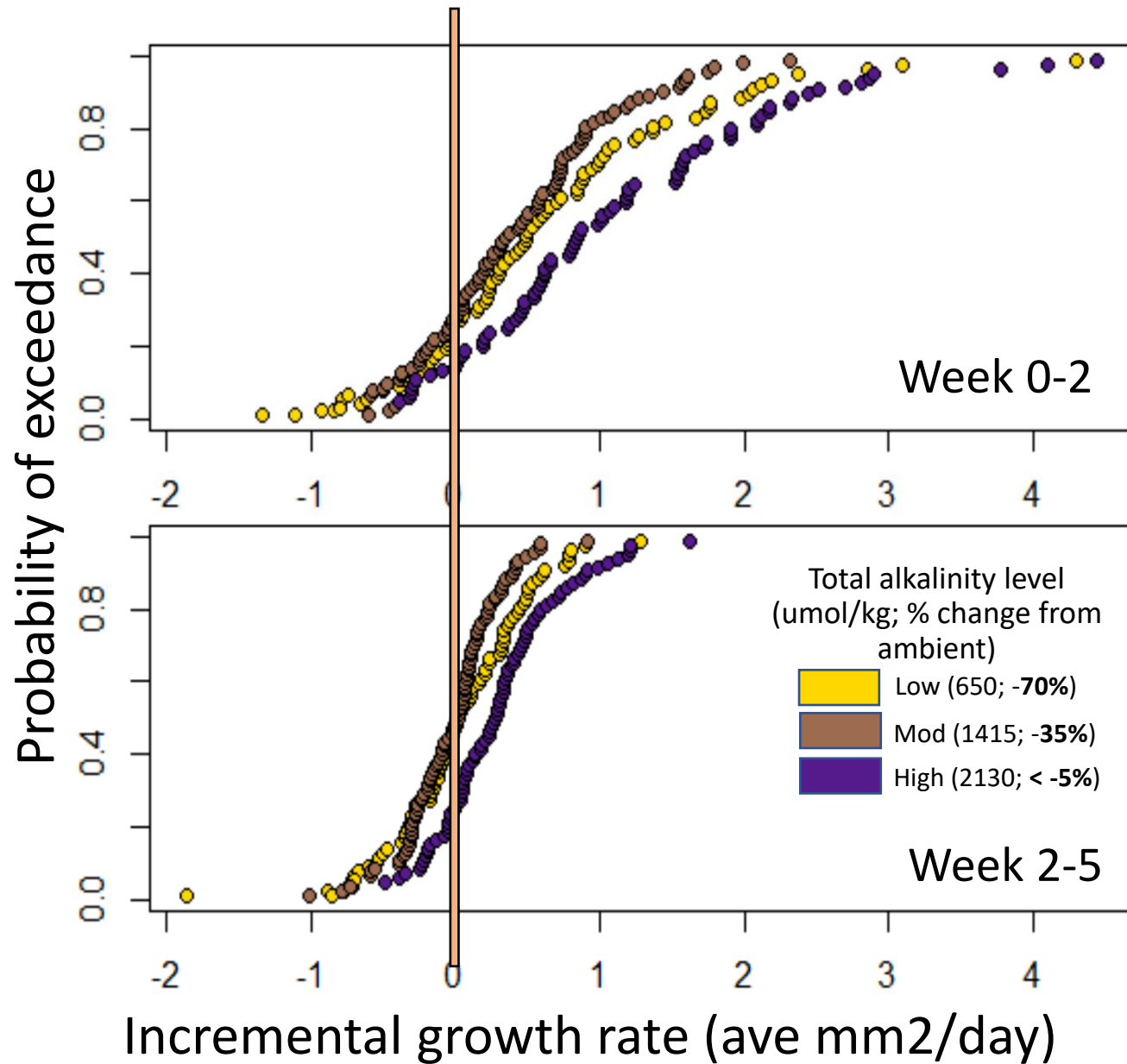
Between week 2 and week 5, however, it looks like individuals exposed to elevated TA and severely reduced TA had the largest incremental growth rates. Q: reason for severe decline and elevation in TA to result in higher incremental growth rate? What about a moderate TA reduction drives a decrease in incremental growth?

Q: what physiologically happens after two weeks that demonstrates a stronger response of TA on incremental growth rate?

Probability of exceedance

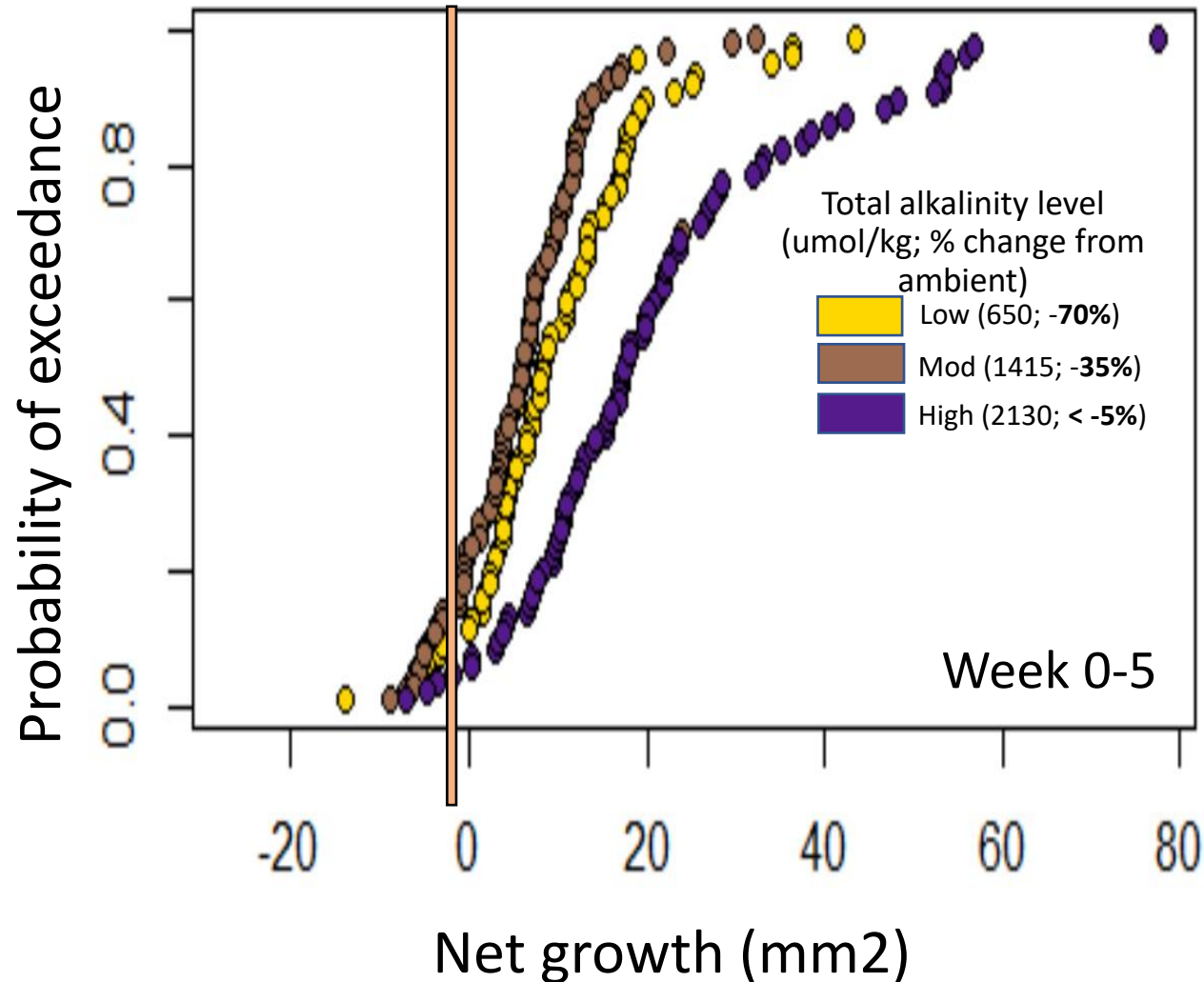


**Oysters in ambient salinity:** Net growth was elevated in both increased TA and high reduction exposures over 5 weeks, relative to moderate reductions from ambient conditions. It appears that the largest impact on the net effect occurred between week 2 and week 5, where individual incremental growth had a similar pattern to the net growth. This suggests that organismal performance in response to carbonate chemistry changes may not arise until after 14 full days of acclimation to the conditions?. However, the elevated growth in low TA conditions is interesting. Do we think that they are upregulating their metabolic inputs from carbonate stress and because they were well fed, were able to compensate for any loss attributed to abiotic conditions. But then what about the modest reduction in TA and its weaker impact on net growth. Is it a reduction in TA that is not enough of a “low shock” to start to upregulate food consumption? Therefore, the reduction may result in an increased proportion of shell that is abiotically eroded and uncompensated for with food?



**Oysters in low salinity:** A reduction in total alkalinity did result in a decrease in *incremental growth* (mm<sup>2</sup>/day calculated between t=0 & t=2 and t=2 & t=5) within the first two weeks of exposure. Relative to the highest TA treatment (similar to ambient sw), individuals exposed to an extreme reduction had higher incremental growth than those in moderate reductions of TA. Q: how do individuals make up for the lack of HCO<sub>3</sub><sup>-</sup> present in the seawater more so for the extreme reduction in TA? What about a moderate TA reduction drives a decrease in incremental growth?

Between week 2 and week 5, however, it looks like the effect of low TA doesn't really seem to impact incremental growth rates (it is similar to high TA rates). Q: Why do we see declines in incremental growth rate overall for low salinity exposed individuals after 5 weeks? Are these size related declines (larger individuals grow more slowly?)  
Q: Why do we tend to only see the effects of low TA on incremental growth rate in the beginning of the exposure?



**Oysters in low salinity:** Net growth was lower in treatments where individuals were exposed to extreme and moderate reductions in TA. It appears that there is a positive relationship with TA, and that potentially both reduction levels were beyond a threshold condition, at which point, individuals are within an equilibrium physiologically with the surrounding corrosive conditions, presenting a similar curve of exceedance. The largest impact on the net effect occurred between week 0 and week 2, where individual incremental growth had a similar pattern to the net growth. This may suggest that organismal performance in response to reductions in TA may become elicited, earlier, with an additional stressor present (simultaneous reduction in S). Further, the effect of S and TA on growth was so strong in the first two weeks, that its effects propagate through to the overall net growth, suggesting that potential rapid pulses of low TA or high TA may propagate into overall net growth rates. Shorter time periods may be a beneficial way to elevate net growth in this case. I think it is also beneficial to note that all of the treatments did have net growth, which may be attributed to a maximal food availability of high protein algal diet.