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**William L Hall\*** ([w.hall@wsu.edu](mailto:w.hall@wsu.edu)) and **Karen A Keene** ([kakeene@ncsu.edu](mailto:kakeene@ncsu.edu)). *Contextual Reasoning in Calculus: A Qualitative Study of How Students from the Biological and Life Sciences Solve Calculus Accumulation Tasks.*

The contexts we select for mathematical tasks play an important role in how students reason through those tasks. Educators can leverage students' contextual reasoning in mathematics, provided we have a sense of how that contextual reasoning intertwines with and influences their mathematical understanding. We conducted task-based interviews with students from the biological and life sciences where students completed two calculus tasks that differed only by context. Results indicate students were more likely to interpret a graph representing the rate of change of a quantity incorrectly as the accumulated quantity if in a plant growth task compared with a kinematics task. Additionally, students solved the two tasks rather differently regardless of how they interpreted the graphs. In this session, we share details of this study as well as how these results have influenced a novel approach to teaching accumulation using differential equations and authentic contexts in the biological and life sciences. (Received September 25, 2018)