Within any infinite family of knots, a compelling question to ask is which members of the family hold certain knot theoretic properties and which do not. One such property of interest is that of being smoothly slice, which means that the knot bounds a smoothly embedded disk in the 4-ball. This talk will focus on the problem of determining the slice knots within the family of 5-stranded pretzel knots, specifically of those with exactly one pair \((k, -k)\) of canceling twist parameters. The result builds on work of Lisca with 2-bridge knots, and on work of Greene and Jabuka with 3-stranded pretzel knots. The conditions for sliceness used to get results for 2-bridge knots and 3-stranded pretzel knots are necessary but insufficient for 5-stranded pretzel knots with one or two pairs of canceling twist parameters. Thus, a new technique is implemented to obtain results in the single-pair case. This is joint work with Paul Melvin. (Received September 21, 2015)