1037-57-102   **Joel Zablow*** (`dquandle@netscape.net`), 267 Oxford St. #602, Rochester, NY 14607. *Relations and homology of the Dehn twist quandle.*

Isotopy classes of circles on an orientable surface F of genus g form a quandle via Dehn twisting about such circles. We derive certain fundamental relations in the Dehn quandle and then consider its homology. Certain types of relations in the quandle translate into cycles and homology representatives in this homology theory. We characterize a large family of 2-cycles representing homology elements. Finally we draw connections to Lefschetz fibrations, showing isomorphism classes of such fibrations over a disk correspond to quandle homology classes in dimension 2, and discuss some further structures on the homology. (Received January 26, 2008)