1037-57-172 **Joseph Alfred Spivey*** (jaspive@math.duke.edu), Mathematics Department, Duke University, Box 90320, Durham, NC 27708-0320. *Twisted Cohomology of Hyperelliptic Mapping Class Groups.* Preliminary report.

A pointed hyperelliptic Riemann surface of genus g is a genus g Riemann surface along with a marked Weierstrass point. The orbifold fundamental group of the moduli space of pointed hyperelliptic Riemann surfaces of genus g is denoted $\Delta_{g,1}$. The hyperelliptic Torelli group $T\Delta_g$ is the intersection of $\Delta_{g,1}$ with the ordinary Torelli group T_g. In this talk we will describe a homomorphism from $T\Delta_g$ to a certain Sp_g-representation V. This "hyperelliptic Johnson homomorphism" can be lifted to a crossed homomorphism $\kappa : \Delta_{g,1} \to V$, which represents a class in $H^1(\Delta_{g,1}, V)$. These results are analogues of results proved by Morita for the ordinary Torelli and mapping class groups. When $g = 2$, the cocyle κ is nontrivial and in fact the cup product $\kappa \smile \kappa$ is a nonzero class in $H^2(\Delta_{g,1}, V \otimes V)$. (Received February 01, 2008)