The Mentoring Physical Oceanography Women to Increase Retention (MPOWIR) program was initiated in 2005 to address a systematic deficit in retention of women physical oceanographers at higher career levels compared to their representation at the PhD level. The program has focused on community and discipline-based mentoring. The principal elements of the program include confidential telephone mentoring groups, a biannual conference, speaker series, webinars, and town-hall meetings. MPOWIR recently conducted a survey of the oceanographic community, including both MPOWIR participants and non-participants, to assess the impact the program has had on retention of women in physical oceanography. The survey results indicate MPOWIR has had a substantial impact on aiding individuals in finding and developing mentoring relationships. MPOWIR women indicate the program has had a large impact on their lives, with the greatest impact on expansion of professional networks and exposure to professional development skills. Data obtained independently of the survey indicate that a large majority of MPOWIR participants who received PhDs prior to 2012 are in faculty or university/government/non-profit research positions. MPOWIR therefore appears to have had an important impact on retention and career satisfaction of its participants. By involving the physical oceanography community in the mentoring program, MPOWIR has also developed a supportive network of senior scientists able to effect change at their home institutions. Finally, we examine whether the benefits women receive from MPOWIR are affected by their race/ethnicity, and consider how programs modeled on MPOWIR may be adapted to focus on retention of other historically excluded groups.