



Friday, March 1, 2019
3:00 PM, 132 Gilman Hall

***"Deep Pacific Transport and Mixing Through the
Samoan Passage and around the Manihiki Plateau"***

**Presented by Dr. Larry Pratt
Woods Hole Oceanographic Institution**

The Samoan Passage is a major choke point in the route taken by deep water of Southern Ocean and North Atlantic origin as it flows northward into the Pacific Ocean. Recent moored measurements of the volume flux over a 15-month period (Alford et al. 2013, Voet et al. 2015 and 2016) show a mean flow of 5.4 Sv. through the this passage. Observations within the passage indicate that the flow is hydraulically controlled by a set of sills. Not all of the deep flow that approaches the Samoan Passage from the south makes its way through: a volume flux of about 2.8 Sv. is diverted to the east around the Manihiki Plateau (Roemmich et al., 1996). This branch is apparently not hydraulically controlled. Given the potential for preferential mixing in controlled flows due to hydraulic jumps and shear instabilities, it is of interest to understand what determines the partitioning between the two branches. We approach this problem using a form of the Island Rule, adapted for an abyssal flow with variable topography. A novel feature of the this application is the consideration of energy dissipation within the Samoan Passage due to hydraulic jumps, a factor that influences the flow to the east of the Manihiki Plateau.