

Cie, D.K.*¹ and M.S. Edwards¹. ¹San Diego State University. EFFECTS OF VERTICAL DISTRIBUTION ON DISPERSAL POTENTIAL OF KELP SPORES

Kelp forests are among the world's most productive ecosystems and serve as a key source of food and shelter for a wide range of species. They are also of economical importance, generating millions in annual revenue and contribute to numerous marine fisheries. Therefore, there is immense interest in the sustainability and propagation of these natural resources. Presently, the widely accepted theory of kelp propagation is that reproductive spores are passively dispersed towards the benthos via advective and diffusive transport. However, it is possible that these spores can also be dispersed vertically towards the surface and away from an existing kelp stand. The aim of this study is to address the effects of vertical distribution on dispersal potential of kelp spores. To investigate this theory, we developed a novel technique employing a vertical spore profiler (VSP) to collect settled spores at various depths. Our preliminary data has shown that in addition to being dispersed within the first meter above the substrate, spores are able to disperse as high as 8 meters from the benthos. To our knowledge, this is the first report of its kind. Also under investigation are the hydrodynamic forces and physical barriers (e.g., kelp blades, stipes, rocks, etc.) that may facilitate the dispersal capabilities of kelp species by establishing turbulent forces necessary for vertical transport. Information gained from this research may help elucidate the methods of vertical dispersal and the recovery of kelp populations, thereby contributing to the proper management of these natural ecosystems, and the understory communities that rely upon them.