

**David Caron** spoke of his joint Microbial Observatory (MO) with Jed Fuhrman that has worked cooperatively with SPOTS (1997). SPOTS has provided a wealth of contextual information for the MO. The MO started in 2000 and emphasizes prokaryotic and eukaryotic discovery based on diversity studies sampled on short and long time scales. The San Pedro basin is hypoxic below 150 meters. Samples are taken at four depths from the surface through this hypoxic zone. They have used a combination of flow cytometry, epifluorescence microscopy, and a combination of SSU clone libraries and ARISA, TRFLP to explore aspects of microbial diversity from viruses to eukaryotes. They have discovered 800 distinguishable types of the SAR 11 bacterial clade. They are exploring the relationship between prokaryotic and eukaryotic presence in relation to predator/prey and symbiosis relationships or other associations. Although many protistan taxa are morphologically defined, they still represent a large diversity. Dave and his group have been trying to determine a proxy of similarity that can be used to separate most species of protists in GenBank – they have settled on 95%. Of 1200 clones they found 488 OTUs with 95% similarity cut-off – so most of the species are present but rare. It may be that what's out there is present but is rare. Dave pointed out a couple of myths that are not true, 1) we have a good estimate of protist diversity, 2) we can forget about the species concept. We have to keep in mind that species are the unit of evolution. The definition of species is a matter of perspective.