

Environmental DNA to Characterize Offshore Fish Biodiversity

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Tracking changes in the presence and distribution of species helps improve our understanding of how disturbances impact the health and biodiversity of California's marine resources. Conventional methods for sampling and monitoring marine species (e.g. trawling and angling) often underestimate biodiversity. Environmental DNA (eDNA) sampling – which uses DNA shed by species in the environment – is an up-and-coming technique used to detect species without visual observation. To advance genetic detection methods for marine species in Central and Northern California waters, researchers from UC Davis and the Farallon Institute are collecting, sequencing, and analyzing eDNA from Point Reyes National Seashore. In doing so, Ann Holmes, Dr. Helen Killeen, and Keira Monuki are developing protocols and resources that advance marine conservation and help create baseline eDNA assessments of biodiversity at the Seashore. Both locally and globally, eDNA sampling can complement existing monitoring programs to inform and improve conservation and management strategies.

“Coastal marine ecosystems are under profound stress from the effects of climate change, pollution, and invasive species. eDNA detection allows us to look for the material species leave behind rather than the species themselves. Research like this will enhance biodiversity monitoring on the California coast and beyond.”

– Dr. Helen Killeen,
Farallon Institute



Above: Ann Holmes collecting eDNA samples.

Below: Keira Monuki (L); Dr. Helen Killeen (R)

