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## Comparing volunteer and professionally collected monitoring data from the rocky subtidal reefs of Southern California, USA

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### ABSTRACT

Volunteer-based citizen monitoring has increasingly become part of the natural resources monitoring framework, but it is often unclear whether the data quality from these programs is sufficient for integration with traditional efforts conducted by professional scientists. At present, the biological and physical characteristics of California's rocky reef kelp forests are concurrently monitored by two such groups, using similar methodologies—underwater visual census (UVC) of fish, benthic invertebrates, and reef habitat, though the volunteer group limits their sampling to transects close to the reef surface and they use a more constrained list of species for enumeration and measurement. Here, we compared the data collected from 13 reefs that were sampled by both programs in 2008. These groups described relatively similar fish communities, total fish abundance and abundance of the dominant fish species but there were some differences in the measured size distributions of the dominant fish species. Descriptions of the benthic invertebrate community were also similar, though there were some differences in relative abundance that may have resulted from the less detailed subsampling protocols used by the volunteers. The biggest difference was in characterization of the physical habitat of the reefs, which appeared to result from selection bias of transect path by the volunteer program towards more complex structured sections of a reef. Changes to address these differences are relatively simple to implement and if so, offer the promise of better integration of the trained volunteer monitoring with that of professional monitoring groups.

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