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La Kretz Grant 2016

### **Crustose coralline algae (CCA) as a facilitator species assemblage: investigating CCA's role in structuring marine communities**

Positive interactions among organisms contribute to the structure and stability of ecological communities. Major players in these interactions are facilitator species whose presence helps ameliorate stress and enhances the survivorship, growth, or reproduction of associated organisms. Crustose coralline algae (CCA), a widely distributed assemblage of red marine algae with a unique, associated microbiome, may play significant facilitating roles as they promote the settlement and early survival of several larval marine invertebrates, including abalone and coral, which in turn provides resources for higher trophic levels. Further, as calcifying organisms, CCA are particularly vulnerable to ocean acidification which reduces ambient calcium carbonate the algae needs to survive. Therefore, understanding the influence of CCA in marine community dynamics and consequences of lower CCA abundance is timely as ocean acidification is predicted to continue rising. My research seeks to investigate the facilitative mechanisms and importance of CCA and its microbiome as contributors to increased invertebrate diversity and community stability in California's rocky reefs. Ultimately, I intend my results to help inform management efforts, such as in the restoration of critically endangered *Haliotis sorenseni* (white abalone) and *Haliotis cracherodii* (black abalone) populations in southern California that require CCA as settlement substrate.



**Crustose coralline algae**

Source: Stanford SeaNet, Photographer: James Watanabe  
[http://seanet.stanford.edu/Rhodophyta/#encrusting\\_corallines](http://seanet.stanford.edu/Rhodophyta/#encrusting_corallines)