

Study examines ocean acidification effects on rockfish

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A new study led by researchers from Moss Landing Marine Labs of San Jose State University, California State University Monterey Bay and University of California Santa Cruz examines how ocean acidification may negatively affect some juvenile rockfish, a key marine prey base to the Calif. ecosystem. The research, which suggests potential negative affects to the structure and function of marine ecosystems that support coastal fisheries and communities, was conducted in collaboration with researchers at the National Oceanic and Atmospheric Administration's Southwest Fisheries Science Center and the Monterey Bay Aquarium Research Institute.

"Our study shows that some rockfish are more tolerant than others when exposed to future ocean chemistry conditions. Copper rockfish displayed behavioral changes, slower swimming speeds, depressed ability for aerobic activity, and increased expression of regulatory genes. Blue rockfish did not show significantly altered behavior or physiology," said Cheryl Logan, co-author and assistant professor at the School of Natural Sciences at CSU Monterey Bay who led the genomics portion of the study. "Blue rockfish showed gene expression changes indicative of greater acclimatization capacity."

The implications of the research are that the fish communities inhabiting rocky reefs and kelp beds may change in the future, in favor of species more tolerant of changing ocean chemistry. Juvenile rockfish are important prey for many species of seabirds, marine mammals, and other fishes. Changes in the prey base due to climate change are likely to

affect marine food webs, with potentially negative effects on coastal fisheries and communities. Rockfish are the most diverse group of fishes living on the U.S. West Coast, comprising more than 65 species that support important recreational and commercial fisheries.

This is the first study to examine a comprehensive suite of physiological, behavioral and genomic responses to ocean acidification in temperate fishes.

More information: Species-Specific Responses of Juvenile Rockfish to Elevated pCO₂: From Behavior to Genomics.

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Provided by California State University, Monterey Bay

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