

Biogeography of the Blackeye Goby, *Rhinogobiops nicholsi*, Around Temperate Reefs Along the Coast of Central California

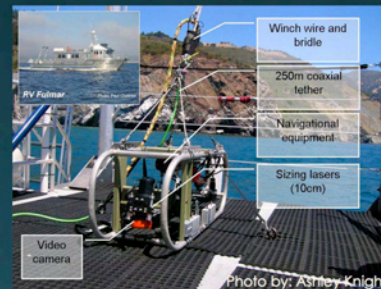
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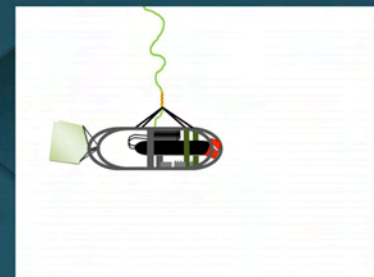
² - SIMoN Program, Monterey Bay National Marine Sanctuary

The halo of biological activity around tropical coral reefs is well-established, while the extent to which a similar halo occurs around temperate rocky reefs continues to be an area in need of thorough investigation. One approach to the quantification of any "halo effect" around a rocky reef is to quantify the distance that key reef-associated species span out into near-by low relief habitats. Species such as the blackeye goby, *Rhinogobiops nicholsi*, may be able to be used to define the boundary of productivity that extends from a reef system, which could ultimately be used in conservation and management of these reefs. Video transects from 2007 and 2008 were compiled and reviewed for the presence of *R. nicholsi* and their relationship to rock "islands". Data were collected using a towed camera sled at several locations along the central coast of California, including Pt. Lobos, Pt. Sur, and Piedras Blancas. In this study, temperate reefs were defined as a hard substrate surrounded by sandy bottom, and the distance that *R. nicholsi* extended out from this "island" was considered the halo. The distance between a fish and the nearest observed hard bottom was estimated using paired lasers. Preliminary results indicate that *R. nicholsi* extended out as far as 18 m (mean = 1.6 m). Additionally, there appears to be significant variance among two fish color morphs, with green pigment occurring more frequently over reefs while white occurred more commonly over sand.

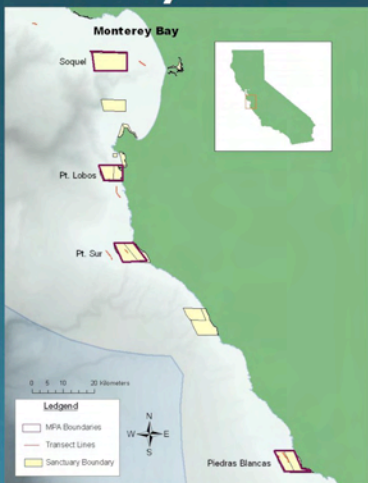
Data Collection



The towed camera sled system consists of an aluminum frame protecting a video camera, lights, sizing lasers, and navigational equipment. The "sled" is towed through the water by the RV Fulmar at about 1 knot.



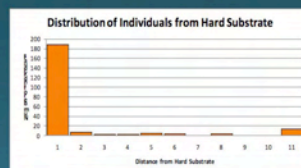
Study Site



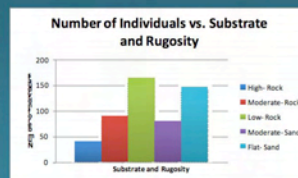
Map of the study area

Data on the distribution of *R. nicholsi* were collected in 2008 at four locations along the continental shelf of central California; Soquel/North Monterey Bay, Pt. Lobos, Pt. Sur, and Piedras Blancas. Data were collected over moderate-relief rocky substrates and adjacent low-relief sand habitats along the 100 m isobath.

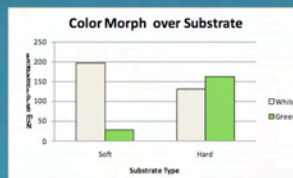
Results



The majority of *R. nicholsi* do not span more than 1 m from hard substrate.



The distribution of individuals over substrate as well as rugosity of the seafloor. For both sand and rock, the majority of *R. nicholsi* occur more frequently over flat or low rugosity.



The distribution of the color morph over substrate type. Soft substrate has more white *R. nicholsi*, while the color distribution over hard substrate is more even.

R. nicholsi over sand



R. nicholsi over rock



White *R. nicholsi*



Green *R. nicholsi*



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