THE FISH ASSEMBLAGES OF MUSSEL MOUNDS SURROUNDING SEVEN OIL PLATFORMS OF SOUTHERN AND CENTRAL CALIFORNIA

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RESEARCH NOTE

During October 1997, we surveyed fish assemblages on mussel mounds surrounding seven oil platforms (Irene, Hidalgo, Harvest, Hermosa, Holly, Grace, and Gail) situated in the Santa Barbara Channel and Santa Maria Basin. Surveys were conducted between 10-14 October 1997. We conducted belt transects on the mounds using the submarine *Delta*.

At least 35 fish species were found associated with the mussel mounds, and rockfishes were the most speciose group, representing 18 species. While no species was found on every mound, several species or species groups (Pacific sanddab, lingcod, halfbanded rockfish and young-of-the-year (YOY) rockfish) were found on six. Other commonly seen species included greenspotted and rosy rockfishes (5 mussel mounds), and painted greenling, shortspine combfish, greenstriped and flag rockfishes, and YOY rockfish (4 mounds). Most of the common species were solitary, benthic forms, the only commonly encountered schooling forms were the halfbanded rockfish and YOY rockfishes. Halfbanded rockfish were very abundant on a number of the mounds.

Some of the differences we observed in mussel mound species compositions were probably related to bottom depth. Among the rockfishes, coppers and calicos were found on the shallowest mounds; rosies, halfbandeds, flags and greenspotteds were most common in midrange, and sharpchins, darkblotched, greenstriped, swordspines and greenblotched tended to be found in the deepest depths. Painted greenling and juvenile lingcod also were found in shallow waters.

Many species appeared to be non-randomly distributed among parts of the mussel mounds. Among the more abundant species, greenspotted, copper and halfbanded rockfishes, as well as juvenile lingcod, were all disproportionately present over areas with 80 to 100% mussel cover. At the other extreme, greenstriped and stripetail rockfishes were over-represented on bottoms with relatively little shell cover.

Sharpchin rockfish appeared to be most abundant over a mixed shell-mud bottom.

We asked whether species compositions were more similar among the various mussel mounds or between each mussel mound and adjacent platform bottom. That is, is there a mussel mound fish community which differs from a platform bottom community? Cluster analysis and other pattern recognition techniques revealed that each mussel mound is more similar to its adjacent platform bottom than to other mounds.

Despite the similarities in assemblage structure between a mussel mound and its adjacent platform bottom, there were also some notable differences in term of presence and absence. This was particularly true among the rockfishes. Widow and canary rockfishes and bocaccio were found either entirely or primarily on the platforms, whereas swordspine rockfish were observed solely on the mussel mounds.

In general, the mean lengths of fishes were significantly smaller on the mussel mounds than around the adjacent platforms. For the 14 species that were present in relatively large numbers on both types of habitat, 10 were significantly smaller on the mussel mounds, one was significantly larger and three showed no significant length differences. Differences in lengths between mounds and platforms were particularly large for copper, greenblotched, flag and halfbanded rockfishes and lingcod. Only stripetail rockfish were, in general, larger on the mounds than near the platforms.

Around five of the seven platforms, the total density of all species on the mussel mounds was approximately half that on the adjacent platform bottom. The exceptions were around Platforms Harvest and Gail, where densities were very similar. In no case was total fish density substantially greater on the mound compared to the adjacent platform bottom.