

State of California - The Resources Agency
Department of Fish and Game
Marine Resources Region
Long Beach, California

CRUISE REPORT 73-KB-17

ABALONE INVESTIGATIONS

Prepared by Richard Burge

Vessel: R/V KELP BASS

Dates: July 18-26, 1973

Locality: San Clemente Island

Objectives: 1. To tag pink and green abalones for life history studies and to inspect new areas for survey and release of tagged abalone.

2. To obtain data on abalone condition, behavior, predation and on environmental conditions.

Procedure: Scuba divers picked abalones in pre-selected study areas. Care was taken to avoid unnecessary cutting. Abalones were brought aboard the vessel, tagged through the two anterior respiratory pores with stainless steel tags, and measured for length and width. The weight measurements were not taken due to vessel motion.

Tagged abalones were returned to their original reef and planted on a fresh abalone scar where possible.

Results: A total of 1,870 pink abalone was tagged, 999 at China Cove and 871 at Pyramid Head. Biologists also tagged 77 green abalone and planted them just inside Pyramid Head.

Moderate bottom surge prevailed in the study area throughout the cruise preventing our occupying the shallow areas originally designated for green abalone tag studies.

Large bat rays, *Myliobatis californica*, and sheephead, *Pimelometopon pulchrum*, preyed heavily on the returned abalones. They appeared to be attracted to hemocynin lost by abalones cut during capture. To alleviate this problem, we stopped returning cut individuals to the water. Bat rays were often observed biting at and crushing abalones planted on exposed surfaces. Divers frequently found freshly broken shell on the bottom and recovered tags that were loose or still attached to a piece of shell. On two occasions bat rays took full bags of abalones from divers.

Sheephead often followed divers and were able to knock a weak or freshly planted abalone from its scar. When this occurred, as many as 50 or more fishes fed on the abalone. Although sheephead were the dominant species, kelp bass, *Paralabrax clathratus*, garibaldi, *Hypsypops rubicunda*, and senorita, *Oxyjulis californica*, often participated.

Early in the cruise we lost about 20% of the tagged abalone due to predation. Preventive measures reduced this loss considerably. Further precautions are to be tested during the next cruise.

Personnel: Marco Mazarovich, Vessel Captain
R. Burge, Biologist-in-charge
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