Abalones are large marine gastropod molluscs inhabiting rocky inter- and sub-tidal areas of most continents and tropical island groups. Where abalones grow large, they are a valuable resource and are under considerable fishing pressure. California has seven species of abalones, of which five have supported valuable commercial and recreational fisheries. Four of those five are severely depleted, and one, the white abalone, has been proposed for endangered status under the Endangered Species Act.

White abalone is deep-dwelling, generally found in depths of 25–80 m off southern California and the Baja California, Mexico, coast. Improved diving technology allowed commercial and recreational divers to enter the range of white abalone, and landings increased quickly in the late 1960s and 1970s. By the mid 1980s, landings had virtually ceased. Biologists from the Channel Islands National Park and the Department of Fish and Game used SCUBA in the early 1990s to assess white abalone. They found few individuals, and those were so scattered that opportunity for reproduction was probably very limited. Because of the depth and time limits of SCUBA on scientific divers, alternative means were used to assess and search for white abalone, including the Research Submersible Delta, a two-person submarine. Subsequent submarine surveys revealed that white abalone was indeed quite rare and likely was suffering from reproductive failure.

In 1998, the National Marine Fisheries Service (NMFS) designated white abalone as a candidate species for listing under the Federal Endangered Species Act. Following the completion of a status review, NMFS proposed white abalone for listing as endangered in May 2000.

Currently, scientists from federal and state governments, universities, conservationist organizations, and private sector aquaculturists are developing and implementing plans for a white abalone recovery program. The recovery program includes further population assessment, a captive-rearing program, collection and in situ concentration, and outplanting of brood stock.

Using several grants, assessment of white abalone has continued. Culture facilities have been established to evaluate and carry out a brood stock program. The third phase, collection, is well underway. The fourth phase requires sufficient stock to carry out breeding, natural concentration of stocks, and outplanting.

Safe and effective procedures need to be used when collecting white abalone. They are susceptible to cuts, which, if severe, can cause them to bleed to death. It is imperative that collected abalone be uninjured and healthy.

SCUBA diving appears to be the most practical means to collect individuals, regardless of the scientific depth limits (~150 ft), and the time constraints. Divers faced similar requirements when the initial SCUBA assessments were conducted. However, now we have identified areas where white abalone can be found and collected by divers within scientific diving guidelines. Nevertheless, these areas are generally in the open ocean, over scattered reefs where anchoring is not helpful. We have developed a diving protocol that allows divers to drop onto deep reefs, search and collect, and return to the surface using guidelines for decompression. Redundant diving computers are used in these dives.

Once a target area is found and delineated, a dive team drops to the bottom from a live boat. After dropping off the divers, the boat moves off a short distance but follows the diver's bubbles. The team may or may not swim down a marker line. Once on the bottom, the team conducts its search, after which the team ascends using appropriate ascent rates. Upon leaving the bottom, a team member deploys a brightly colored float with a 20-ft line attached. As the divers approach 20 ft, the float marks their position for the boat operator. The divers use the line to more easily hang at 20 ft for a precautionary safety stop. Even in a current, the divers can be followed easily by the boat. We have used this protocol successfully numerous times. It could be enhanced by additional procedures, such as the live boat hanging a bar with oxygen regulators for the divers, but there are potential dangers of live boats operating over divers.

If white abalone become listed, there will be a need to collect them as part of a captive-breeding program and concentrate individuals in nature to facilitate reproduction. These tasks will involve diving to greater depths. In the future, we will have to investigate technology that will allow divers to regularly work at depths beyond 150 ft and remain within scientific diving guidelines.

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