

ASSESSMENT OF THE STOCKING IMPACT OF EXOGENOUS HATCHERY POPULATIONS OF PACIFIC ABALONE.

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The Pacific abalone *Haliotis discus* consists of Ezo-abalone *H. discus hannai* distributed in cold-current waters, and Kuro-abalone *H. discus discus* which inhabit warm-current waters around Japan. Ezo- and Kuro-abalone are important commercial species with stocking programs. Because the production of Kuro-abalone seedlings has been frequently low due to the infectious disease, Ezo-abalone seedlings have been stocked in many of the Kuro-abalone habitats. Concern is growing about whether this practice is acceptable for conservation biology and sustainable fishery development. We evaluated the genetic influence of exogenous Ezo-abalone seedlings in the Kuro-abalone habitat area at the population and individual level based on highly variable genetic markers.

The genetic relationships among examined samples was clearly divided into two groups of the Ezo- and Kuro-abalone, including the stocked Ezo-abalone. The assignment test of unknown origin individuals revealed that most naturally produced abalone individuals in the Ezo-abalone stocking area belonged to the Kuro-abalone, and few examined individuals were allocated to the Ezo-abalone. Also, the stocking practices of Ezo-abalone juveniles did not affect to the genetic diversity of indigenous Kuro-abalone in the mean number of alleles and heterozygosity. These results suggest that few of the stocked Ezo-abalone successfully reproduced, nevertheless the stocked Ezo-abalone accounted for a high ratio in the Ezo-abalone stocking area. This may indicate that *Haliotis discus* abalone evolved as semi-independent evolutionary units with the development of local adaptations for each habitat. The stocked Ezo-abalone could not be shown completely not to contribute in reproduction, and thus continuous monitoring of the impact on natural resources might allow the realization of a long-term sustainable fishery in Pacific abalone.