

### Northernmost coral populations were genetically isolated by the Kuroshio Current

- The genetic relationship of coral populations between Taiwan, Ryukyu Islands, and mainland of Japan. The population in mainland of Japan is related to the Taiwan population and differentiated separately from the Ryukyu Island population, which is divided by the Kuroshio Current.
- These findings provide critical information to help predict changes in reef coral distribution.

Recently, reef coral distribution appears to migrate north due to rising sea temperatures caused by global warming. At this point, it is not known what species types range in the northern coral limit or how the coral distribution along the coast of mainland of Japan coast is related to that in the Ryukyu Islands.

The Japan Fisheries Research and Education Agency (FRA) surveyed the genetic relationship of the *Acropora hyacinthus* species groups (so called “table coral” widely distributed in the western Pacific) in four waters: Taiwan, Ryukyu Islands, Tanegashima-Tokara Islands region, and mainland of Japan region near the northern limit area. From a population genetic analysis, the coral population in the mainland of Japan region has the same genetic characteristics as that found in the Taiwan region. Considering the boundary of these regions, the Kuroshio Current may be playing a significant role in the differentiation of these coral populations. Namely, the Kuroshio Current actually prevents the migration of coral larvae between the Ryukyu Islands and Taiwan-Japanese Islands region, suggesting that the Kuroshio Current "wall" is very strong, although it has generally thought to be carrying marine organisms from south to north.

These findings are critically important because a better understanding of the mechanism of northward migration of reef corals can be applied to predict the environmental changes in the coastal fishery around Japan.

These findings were published in the international scientific journal *Coral Reefs* (electronic edition) issued on July, 25 2016.

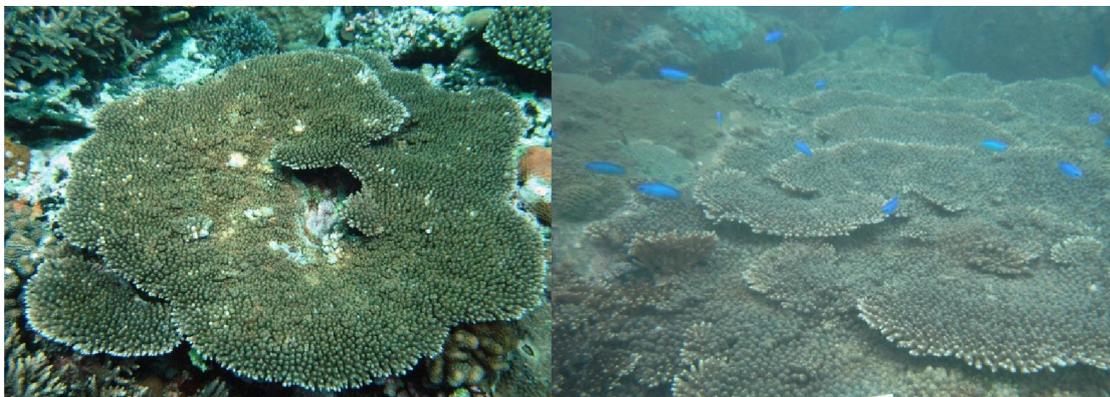


Photo1. *Acropora hyacinthus* ranging in regions near Japan (Left: coral reef colony in Iriomotejima, Okinawa / Right: non-coral reef colony in Amakusa in Kumamoto)