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Does black rockfish home? Preliminary study using coded ultrasonic pingers around the Kansai International Airport

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Kansai International Airport (KIX) opened in 1994 is the only marine airport in the world. To minimise the environmental influence, many ecological efforts were made, including provision of seaweed aquaculture, introduction of a gently sloping rubble mound seawall. The seaweed is now stable, and has become a spawning ground and nursery for diverse fish and marine life that didn't inhabit the area before construction of the airport island. In this study, to clarify movement of black rockfish *Sebastes inermis* that inhabits the seawall and one of the most important species for fisheries, we conducted biotelemetry using coded ultrasonic pingers.

We captured the test fish by a hook and line not to be damaged. We made an incision in the abdomen of the fish with the scalpel and scissors for surgery under anaesthesia. After the insertion of a coded pinger (V8SC-6L, 8.5mm ϕ x25mm, Vemco Ltd.), we sutured with operation thread. The operation was completed about 5 minutes from anaesthesia. After recovering well from the operation, we carried them to the release points by a research vessel. We released all the fish by putting one fish at a time into a basket, and taking down in the middle to the seabed (about 15m depth) to open the basket. Track of signals generated by the pingers was performed using VR-28 (Vemco Ltd.). The pingers had 256 IDs by combination of the 6 ultrasonic pulses. The position of the vessel was measured by GPS (Germin Co.) simultaneously. The data from the VR-28 and the GPS were combined to record in the personal computer. In addition, we measured marine environment including temperature and salinity by the research vessel and also set up data storage loggers (Alec Electronics Co., Ltd.), which measured water temperature and salinity every 30 minutes in four sides of the island.

The experiment was conducted 5 times from August 2000 to December as follows; August 7, four fish; September 4, 15 fish; September 18, 13 fish; November 6, 15 fish; November 22, four fish; and November 25, two fish. The thirteen fish on September 18 were captured at three release points of the seawall and released at the same point 2–3 km away from these three points. One day after release, among 11 individuals that we could decode their IDs, five individuals (45.5 %) were appeared at their capture points. After three days, seven among 10 individuals (70.0 %) and after 10 days, five among 7 individuals (71.4 %) were appeared at their capture points respectively. The scrutinised survey with the sound depth sounder indicated that the submarine geographical feature of the three points where the black rockfish were captured and appeared again after release, was rough compared with other points in the seawall. Judging from these results, the black rockfish that inhabit the seawall around the KIX prefer a rough rubble place, and even if they are released away from their habitat, they can home by a certain method that we have to investigate.