

**Adaptive Management Of Crown-Of-Thorns Starfish in Sekisei Lagoon, Japan**

**HIROYUKI MATSUDA\*<sup>1</sup>, TAKURO SHIBUNO<sup>2</sup>, MITSUHIRO UENO<sup>3</sup>**

<sup>1</sup>ENVIRONMENT, YOKOHAMA NATIONAL UNIVERSITY, YOKOHAMA, Japan, <sup>2</sup>SEIKAI INSTITUTE OF FISHERIES SCIENCES, ISHIGAKI, Japan, <sup>3</sup>YAEYAMA FISHERIES ASSOCIATION, ISHIGAKI, Japan

Coverage, community type, starfish density and other data have been observed in 104 points of Sekisei coral lagoon, Yaeyama Island, Okinawa, Japan, since 1983. Using these data, we estimated the 95% confidence interval of the number of Crown-of-Thorns starfish in Sekisei coral lagoon. The area of each survey grid is 2500m<sup>2</sup> and the area of Sekisei coral lagoon is approximately 100km<sup>2</sup>. We assumed that the sighting probability is 100% and the 102 observed grid is randomly sampled. To obtain the required number of catch, we also assumed the observed rate of population increase is 50% per year. Using bootstrap method and observed data shown in Table 1, the number of starfish in 2004 was between 217,796 and 21,027. Even using the lower limit of 95%CI, the increasing number of starfish is definitely larger than the number of catch in 2003 (4437 starfish). The estimated rate of population increase is between 53 and 73% per year. We need to catch 15000 – 11370 starfish to prevent further increase of starfish in Sekisei coral lagoon. The total effort of culling starfish in 2004 is definitely short for preventing further increase of starfish.