

琉球大学学術リポジトリ

ナマコ類の個体群の現況、生態学的役割に関する研究
および今後の保全に向けた検討

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論文要旨

論文題目

Current population conditions and ecological roles of Okinawan holothurians, and consideration of their future conservation

(沖縄諸島におけるナマコ類の個体群の現況、生態学的役割に関する研究および今後の保全に向けた検討)

Abstract

Sea cucumbers (Holothuria) are important ecological engineers in coastal marine environments. Recently, sea cucumber fisheries have become serious environmental problems at local scales around the world. However, basic field information for effective management is generally lacking from most regions. In this thesis, I aimed to accomplish three goals with regards to the status of sea cucumbers in Okinawa, Japan. Firstly, I aimed to examine the population density of Okinawan holothurians. As a result of my investigation, in Chapter 2, relatively low population densities of sea cucumbers were found at many sites around Okinawa-jima Island. On the other hand, sites I investigated in national parks had higher numbers of sea cucumbers. secondly, I aimed to estimate genetic connectivity of sea cucumbers among Ryukyu Islands. Using the ubiquitous species *Holothuria atra*, population genetic research through southern Ryukyu Islands was accordingly conducted in Chapter 3. Results showed several genetic breaks exist among the southern Ryukyu Islands. Interestingly, again, national park sites had higher genetic indices compared to other sites, possibly reflecting protection from potential anthropogenic impacts such as coastal land filling or overharvesting. Thirdly, I aimed to reveal ecological role of Okinawan sea cucumbers at sites around Okinawa-jima Island. In Chapter 4, investigations of the intestinal bacterial communities of *H. atra* revealed that Okinawan *H. atra*'s feces have significantly different bacterial community from ambient sediments. Notably, bacterial composition differed significantly between sites where scleractinian corals were abundant or scarce. Overall, this thesis has revealed that Okinawan sea cucumber populations need urgent management and perhaps even artificial enhancement efforts such as restocking. To take such actions, however, governmental efforts in collaboration with scientific support is mandatory. Therefore, it is strongly hoped that the results of this thesis will aid in forming sea cucumber conservation policies in Okinawa.

氏 名 濱本 耕平