The Summary of Environmental Baseline Survey for Mining the Cobalt-rich Ferromanganese Crust on Deep Seamount in Japan’s License Area

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ABSTRACT

In January 2014, Japan Oil, Gas and Metals National Corporation (JOGMEC) concluded the contract of mining area of six seamounts which reside cobalt-rich ferromanganese crust with International Seabed Authority (ISA). Since the environmental safety technique of extraction for such ore have not yet been established in the world, it is required to evaluate the impact of mining activity on marine ecosystems toward the future commercial mining. JOGMEC has conducted the environmental survey in a few of candidate seamount before concluding the contract of mining area. In this paper, we introduce the review of those results conducted in the contracted seamounts by JOGMEC.

BACKGROUND AND CONCEPT OF THIS PROJECT

In recent years, from the point of view of the growing momentum of biodiversity conservation, the implementation of EIA has become a common understanding in the world. In case of deep seabed development, for example, Nautilus Minerals Inc. (hereinafter, Nautilus Inc.) is promoting the development proposals of SMS deposits in the Bismarck Sea in Papua New Guinea (PNG) (Solwara1 project), and have submitted the environmental impact assessment (EIS) report to the PNG government in 2008 (Nautilus Minerals Nuigini Limited, 2008). The International Seabed Authority (hereinafter, ISA) was also recommended to Contractors the environmental impact assessment (EIA) and implementation of environmental monitoring survey in order to avoid or reduce as much as possible the environmental impact, which is assumed by the development in "exploration rules" (International Seabed Authority, 2013). Also, many papers dealt with environmental risks, conservation of biological communities, and the needs of environmental impact assessment on seafloor mining have been published in recent years (Ex. Van Dover, 2011, Boschen et al., 2013, Collins et al., 2013). In July 2013, ISA shows "Recommendation for the guidance of the contractors for the assessment of the possible environmental impacts arising from exploration for marine minerals in the Area " for environmental research in the seabed resource exploration (International Seabed Authority, 2013). Therefore, in order to perform the exploration and development for resource development, consideration of the environment is the first premise. JOGMEC has been promoting the survey put the environmental impact assessment towards the future mining before to conclude the mining contract. That is, the ‘survey ’ as to understand the current state of the evaluation of the sea area by the environmental baseline survey, the “prediction” as to understand the level of the surrounding environmental impact following the development by using the numerical simulation model or presuming from existing cases and the ‘evaluation’ as to arrange each item of the impact on the current state when the development is executed such as the scale of the environmental impact and considering preservation. This concept is common recognition in the development plan of seafloor massive sulphides in the EEZ of Japan (see Toyohara et al. (2011) for details). There is almost no basic environmental information in the mining licensed seamounts of JOGMEC except of the seamounts dealt with Ohkubo and Yamazaki (2003), Therefore, the surveys of characteristics of benthic communities, water quality and sediment affected by the seafloor mining were conducted by Hakurei Maru No.2.