

## Ingestion Case of Plastics by Black Marlin *Makaira indica* and Lancetfish *Alepisaurus ferox* Caught in the East Indian Ocean

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### Abstract

Marine litter, mainly plastic waste is a major issue in many parts of the world. We fished a black marlin *Makaira indica* and a lancetfish *Alepisaurus ferox* in the East Indian Ocean. They were ingesting the plastic litter. This paper reports a case of ingestion.

Marine litter, mainly plastic waste is a major issue in many parts of the world.<sup>1)</sup> This issue also is reported on the coast of East Indian Ocean<sup>2)</sup> and around the coast of Indonesia.<sup>3-5)</sup> Plastic wastes, for example bottles, floats, food containers, food packages etc., have been collected from the beaches in these areas. They give many damages such as entanglement to and ingestion by marine animals. Ingestion of marine litter by marine animals is less of an issue than entanglement of marine debris. Although the threat effect to marine animals by ingestion of marine litter is less apparent, birds,<sup>6)</sup> turtles<sup>7)</sup> and fishes<sup>8)</sup> steadily ingest the plastic marine litter. However, it is difficult to sample the evidence by human observation, because marine animals interact with persistent plastics over

vast geographic areas. Therefore, we must accumulate evidence about the human-related issues to marine animals. We fished a black marlin *Makaira indica* and a lancetfish *Alepisaurus ferox* in the East Indian Ocean. They were ingesting the plastic litter. This paper reports a case of ingestion.

The black marlin and the lancetfish were fished by long line and vertical long line fishing in the East Indian Ocean located on the south of Java Island (Table 1). Ingestion items were a part of food package and a part of gill net (Fig. 1). The package was instant noodle made in Indonesia. They were found from stomachs.

In the past 50 years, plastics and related synthetic materials have been used increasingly to produce all types of everyday

Table 1 Cases of plastics ingested by two fishes in East Indian Ocean

	Fish species	Black marlin <i>Makaira indica</i>	Lancetfish <i>Alepisaurus ferox</i>
Fish data	Weight	24 kg	1 kg
	Total length	128 cm	77 cm
Fishing data	Caught date	30, Aug. 2005	7, Sep. 2005
	General position	14°23.0'S, 106°36.9'E	13°30.3'S, 110°28.3'E
	Fishing gear	Long line	Vertical long line
Ingestion item	Category	Food package	Rope (2.0 mm)
	Use application	Instant noodle	a part of gill net

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Fig. 1 Plastic litter (gill net (left) and a part of food package(right)) ingested by a black marlin and a lancetfish.

items. We have trouble with finding effects of marine litter on the human activity. As an example, we found that the small fragments of plastics were contained within the harvested laver. <sup>9)</sup> They must be removed by hand in fish processing plants, so it increases production costs and may lose the trust of consumer. And the tunas caught by long line fishing have a likelihood of ingestion of plastics. However, it is less likely to be direct trouble to human, because the digestive tracts including the ingested marine litter are readily removed on board. In the future, an increase outflow and spread of marine litter across the world will more increase the likelihood of interactions between marine animals and plastic marine litter.

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